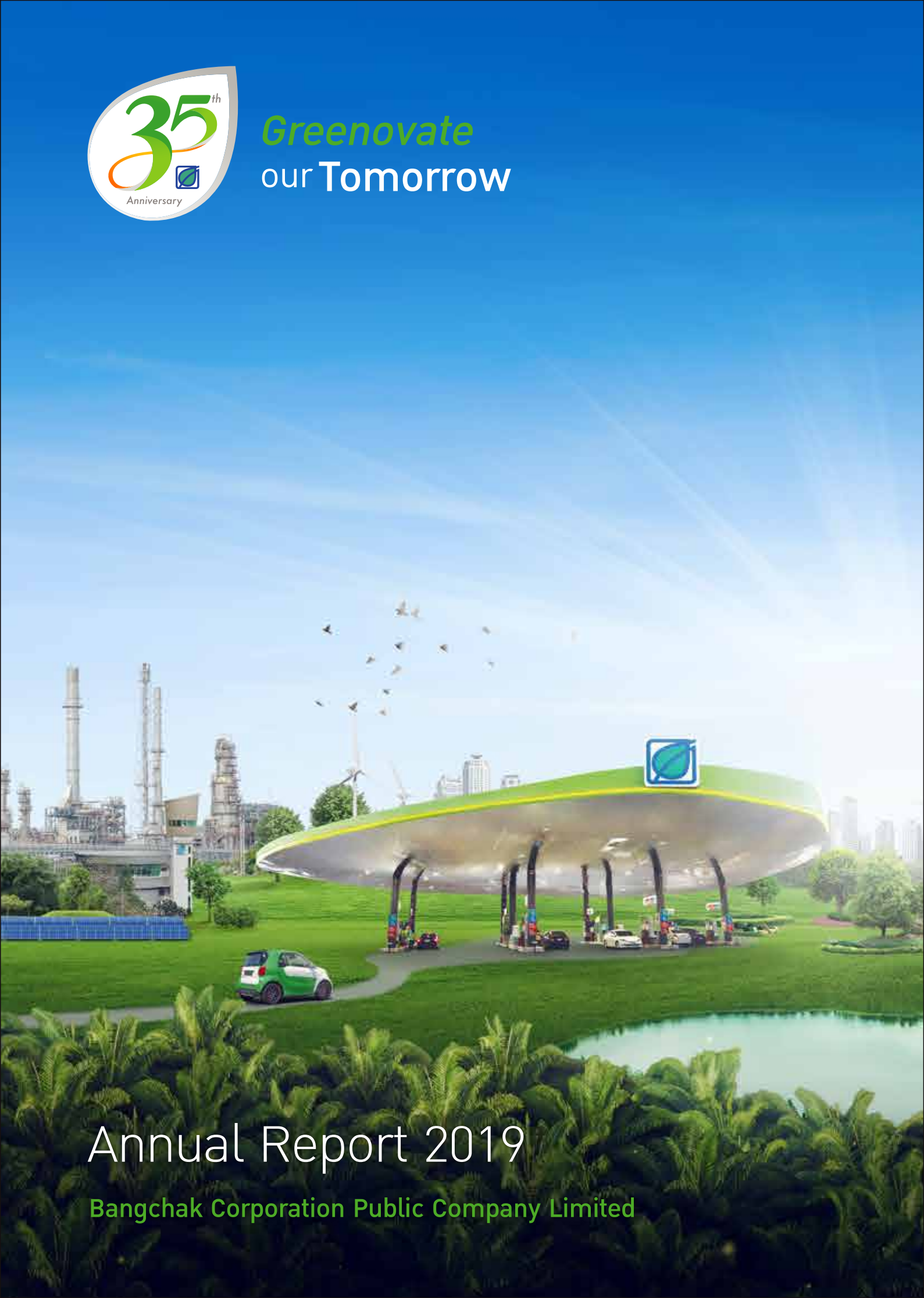




Greenovate
our Tomorrow



Annual Report 2019

Bangchak Corporation Public Company Limited

Table of Contents

4	Message from the Chairman	111	Report of the Enterprise-wide Risk Management Committee
6	Financial Highlights	113	Changes in the Securities Portfolios of the Board and the Executive
7	Policy and Business Overview	114	Bangchak and Sustainability
7	○ Vision, Mission, Objectives and Goals,	116	Internal Control
16	○ Shareholding Structure	119	Risk Management
21	○ Transition and Milestone Development	126	Connected Transactions
24	○ Awards of 2019	138	Financial Status and Operational Results
32	Business Description	138	○ Management's Discussion and Analysis for Business Operations
32	○ Revenue Structure	169	○ Declaration of the Directors' Responsibility for the Financial Statements
33	○ Product and Service Features	170	○ Report of Certified Public Accountant
40	○ Marketing and Competition	176	○ Financial Statements
47	Shareholder Structure	187	○ Notes to the Financial Statements
50	Management Structure	272	General and Other Key Information
72	○ Board of Directors	272	○ Company Information
80	○ Executive Management	275	○ Reference Persons
95	Corporate Governance		
106	○ Report of the Audit Committee		
108	○ Report of the Corporate Governance Committee		
110	○ Report of the Nomination and Remuneration Committee		



Greenovate our Tomorrow

1984

- 8th November, the establishment of the Bangchak Petroleum Company Limited in accordance with the cabinet resolution



1984

- 1st April, Commencement of refining operations as a public company with 232 employees (Dec.)



1990

- Sri Prachan Agricultural Cooperative Ltd., Suphan Buri province, established the first Cooperative Service Station under the "Oil for Rice" project



2006

- First Inthanin Coffee shop
- Launching of Bangchak Gasohol Club card

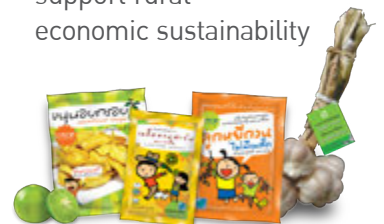


2005

- First exclusive Gasohol and Biodiesel service station in Thailand
- First self-serve service station in Thailand

1997

- Introduction of community goods as promotional gifts to support rural economic sustainability



1991

- Bangchak becomes the first Thai company to produce and retail unleaded gasoline and low sulfur diesel 357

2015

- Investments in upstream energy resources (E&P / Lithium)



2014



Green Society

2011

- Sunny Bangchak begins operation of solar farm in Bang Pa-In, Ayutthaya



2016

- Establishment of Oam Suk Social Enterprise Company Limited
- BCPG Public Company Limited listed in the Stock Exchange of Thailand
- SPAR Fresh & Easy Food Market



2018

- First Thai overhead service station



- Bangchak Green Mile card



2017

- Becomes Bangchak Corporation Public Company Limited
- Establishment of Bangchak Initiative and Innovation Center (BiIC)
- Establishment of BBGI to become the largest Thai producer and retailer of biofuels
- Establishment of Happiness Sharing Foundation
- Inthanin Bio Cup



2019

- GEMS, a prototype on clean energy electricity bidding in the future





35 Years

of growth and evolving from a refinery to be the leading greenovation group for a sustainable future

Message from the Chairman

marks Bangchak Corporation Public Company Limited's 35th founding anniversary. Formerly known as Bangchak Petroleum Company Limited, the operator of Bangchak Refinery since 1984, we have relentlessly grown our business. Today our vision is to be a leading Greenovation group with five core businesses, one Bangchak Initiative and Innovation Center, and businesses in 11 countries around the world.

This year our businesses faced a continued lethargic economy. We and our subsidiaries posted Baht 190.489 billion in sales and service revenue (1% drop from last year), Baht 8.709 billion in EBITDA (15% drop), and a major shareholder's net profit share of Baht 1.732 billion (30% drop) or Baht 1.18 per share. Nevertheless, our Marketing and Bio-based Product Business Groups have grown steadily whereas the Power Business saw healthy investment growth through a hydropower project in Lao PDR.

With an average capacity of 112.5 KBD, the Refinery and Trading Business Group recorded its all-time high average output of 123.5 KBD in September, and the Marketing Business Group commanded the No. 2 market share with a promising growth outlook. This year we improved our market share to an all-time high at 16%, peaking at 16.5% in September. Also encouraging is our Net Promotion Score (NPS) given by customers, who rated us at No. 1. Bangchak remains committed to developing our service quality by catering to consumers' needs and winning their hearts. We are poised to apply digital technology to create sophisticated experience for service users and to grow our service stations in parallel with our non-oil businesses. At

the year-end, we operated some 1,200 service stations across the country, 46 SPAR convenience stores, and 600 Inthanin Coffee branches.

Represented by BCPG Public Company Limited, our Green Power Business Group continued to spread its wings. In September this year we acquired a hydropower project in Lao PDR, thus adding hydropower to our array of technologies (solar, wind, geothermal).

Our Bio-based Product Business Group, represented by BBGI Public Company Limited, is Thailand's major biofuel business operator and seller with the readiness to evolve high-value bio-based products, including bioplastics and biomaterials. The company is geared up for complying with the public sector by promoting the B100 biodiesel to sustain future demand while pursuing investment opportunities through fund mobilization on SET by 2020 to strengthen the grip on Thailand's Bioeconomy.

Throughout our 35 years of existence, Bangchak has remained true to the principle of engagement in the energy business in tandem with our engagement in improving lives in our society, leveraging our business philosophy of striking a balance between economic value and worth. To elaborate, maximum profit is not our goal, but rather the value we give to our responsibility to stakeholders. This year Bangchak has joined efforts to look after society and the environment through our assorted projects and activities like the "35 Virtues, 35 Years of Bangchak", "Conserve, Share, Happy", and "Saplings from Cups".

With commitment to developing the corporation's all-around sustainability, Bangchak is forging ahead. We take very seriously the adaptation to a digital world, which is playing an instrumental role in business development, as well as application of innovation to sustainable business development in parallel with socio-environmental stewardship. This has led to various certification and awards at national and international levels, ranging from innovation, corporate governance, management, socio-environmental stewardship, to corporate image. One remarkable award is the Board of the Year, presented for the seventh consecutive year, in honor of boards of directors that had performed efficiently while embracing corporate governance, satisfactory returns to shareholders, and value given to all stakeholders.

May I take this opportunity to express our heartfelt gratitude to the shareholders and stakeholders for their marvelous support to Bangchak through these years. I would like to assure you that Bangchak will stay true to the mission of creating an innovative, green business for sustainable development under the "Evolving Greenovation" vision to garner sustainability and forward it to the Thai and global society.

(Signed) *Pichai Chunhavajira*

(Mr. Pichai Chunhavajira)

Chairman

Financial Highlights

Consolidated Financial Statements	2019	2018	2017 (Restate)
Statement of Income (Million Baht)			
Sales and service revenue	190,489	192,025	172,138
Gross profit (loss)	10,232	11,431	13,543
EBITDA ^{1/}	8,709	10,201	13,421
Profit (loss) from futures crude and product contracts	147	442	366
Profit (loss) from foreign exchange and futures foreign-currency trading	628	577	664
Net profit ^{2/}	1,732	2,463	5,608
Statement of Financial Position (Million Baht)			
Total assets	127,788	117,369	113,869
Total liabilities	68,973	67,831	61,979
Shareholders' equity	58,815	49,538	51,890
Share capital			
- Registered share capital	1,377	1,377	1,377
- Issued & fully paid-up share capital	1,377	1,377	1,377
Financial Ratios (%)			
EBITDA / sales and service revenue	4.57	5.31	7.80
Net profit / sales and service revenue	1.31	1.68	3.58
Rate of return on assets	3.47	4.56	7.10
Debt with interest payable to equity ^{3/}	0.82	0.94	0.79
Net IBD to Equity ^{3/}	0.69	0.70	0.59
Operating Outcomes (Baht per share)			
Net earnings per share ^{3/}	1.18	1.79	4.07
Book value per share ^{3/}	30.26	31.02	33.03

Notes : ^{1/} EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization, gain/loss on foreign exchange, loss from impairment of assets

^{2/} Net profit (loss) of the owners of the parent

^{3/} Only the equity of the Company

Policy and Business Overview

Vision, Mission, Objectives and Goals, and Business Strategy



Vision

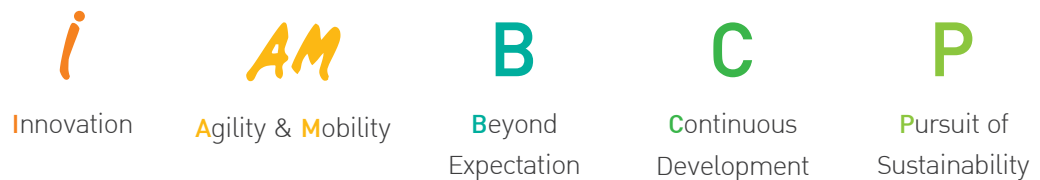
To be the leading Asian Greenovation group, founded on good governance, through inclusiveness and sustainability

Mission

Bangchak is committed to bringing disruptive and inclusive Greenovation to delight our customers, being a trusted partner and value creator for all stakeholders, and promoting sustainable development of society.

We emphasize inclusive and sustainable business, pursue domestic and overseas expansion, embrace good corporate governance principles, and nurture a high-performance organization, learning culture and happy workplace.

Core Values



Corporate Culture : Sustainable Innovative Business Development in Harmony with the Environment and Society

Employee Culture : To be virtuous, knowledgeable, and contributive to others

Objectives and goals

Bangchak Corporation PCL is committed to being a Thai energy company that conducts business in parallel with stewardship of the environment and society while striving for balance between value and worth and engaging in improving Thais' quality of life.

Valuing sustainable corporate growth, Bangchak strives to internationalize its management excellence while humbly applying the royal "Sufficiency Economy" to business management for adequate profits, nurturing of growth and sustainability by promoting and developing innovation and technology with due regard for conscientious consumption of natural resources, pursuing the "Leading Asian Greenovation Group" vision as well as business, social, and environmental goals by 2024. Below are the highlights:

1. Business goals

- **Refinery and oil trading business group:** Elevate competitiveness and constantly raise the refining capacity to 120,000 barrels per day by 2024. In September this year the refinery recorded an all-time-high average output of 123,500 barrels per day. It also maximized refining efficiency and stability in tandem with the reduction of carbon dioxide. For instance, the YES-R Project phase 1-3, designed to develop yield, energy, efficiency, safety, and reliability; investigation to extend the TAM cycle period from two to three years; goal-setting to profit from refining operation improvement with the Rocket Project of no less than Baht 900 million a year by the end of 2020; and the 3Es Project (Debottlenecking Hydrocracker Unit) for higher capacity. As for the trading business, BCP Trading Pte. Ltd. (BCPT), founded in Singapore, plans to raise sales volumes through BCPT to over 250 KBD by 2024.

In addition, construction of the Enclosed Ground Flare is due to be wrapped up in early 2020. The main elements of consideration here are the refinery's surroundings and environmental friendliness under a modern green refinery.

- **Marketing business group Marketing Business:** Drive sales through retail channels to maintain the No. 2 market share this year, while recording a maximum market share of 16.5% in September. Bangchak launched a new product, Diesel B20S, with a unique additive for the first time in Thailand. Bangchak set a target for growing this share to more than 18% by 2024 by developing quality and service standards to maximize customer satisfaction, maintaining the top Net Promoter Score (NPS) along with customer relations management in order to create brand loyalty & engagement, and developing services. At the same time, Bangchak will deliver Greenovative Experience through digitalization for service users in parallel with the image improvement of service stations for uniqueness and accommodation of Thais' lifestyles where all live their lives while participating in sustainable stewardship of the environment. SPAR convenient stores and Inthanin Coffee outlets are to grow by at least 160 branches a year, while the overseas lubricant agent base will continually be expanded
- **Green power business** Bangchak develops this business through BCPG Pcl domestically and abroad by leveraging the 4Es strategies:
 - Expanding: Focus on growth in its core business by expanding major power plants through organic growth and inorganic growth (acquisition)
 - Extending: Grow business to accommodate the emerging energy business direction by entering new businesses related to the core business, including digital energy and energy storage
 - Enhancing: Develop and grow the potential of current power plants and internal work processes for maximum efficiency
 - Evaluating: Manage assets by regularly monitoring performance outcomes and review investment portfolio management for satisfactory return

This year BCPG grew its renewable power capacity by investing in a 69-XW hydropower plant in Chiang Kwang, Lao PDR.

- **Bio-based product business** Constantly grow capacities for biofuels, including biodiesel and ethanol, with a 2024 capacity goal of 2.05 million liters/day (1 million liters/day of biodiesel and 1.05 million liters/day of ethanol). Also, a project to improve process efficiency and construct a glycerin refinery to become Thailand's biggest biofuel business operator and seller that is poised to develop high-value bioplastics and bio-based products. Finally, Bangchak will pursue investment opportunities in the bio-based product business by mobilizing funds on the stock exchange to strengthen its group as Thailand's leader in bio-based product business.

This year steps were taken to get the Company ready to produce and sell B10 in response to public policy and accommodate future demand.

- **Natural resources business** Develop the exploration and production (E&P) business and new resource business, including lithium mines.

 - E&P Business: BCPR Pte. Ltd. was founded in Singapore for investment in OKEA ASA's petroleum deposits. Holding rights to the Draugen, Gjoa, Ivar Aasen, Yme, and Grevling oil fields and exploration rights in many fields in Norway, with an output capacity of 20 KBOED, the company successfully listed on the Norway stock exchange and has set as its goal investment growth to raise the output capacity in high-potential deposits.
 - New Resource Business: BCP Innovation Pte. Ltd. was founded in Singapore to engage in businesses related to overseas innovation. Today this company has the No. 2 shareholding in Lithium Americas Corp., which engages in the lithium mining business, developing two lithium mines in Argentina and the USA. In Argentina, the Cauchari Project, with a capacity of 40,000 tons/year in the first phase, is expected to come on stream by 2021.

- **Organization, management, and innovation** Bangchak strives to enhance its competitiveness and organizational management by setting goals to become an outstanding employer, foster HR excellence, and promoting employees' joint creation of innovations in business processes and new products or business models in line with the corporate vision. Bangchak's change management through its Transformation Program aligns with the "I AM BCP" corporate values. Also, it strives to foster sustainability under the Dow Jones Sustainability Indices (DJSI), which embraces economic, environmental, and social aspects under corporate governance to ensure investors that Bangchak can yield decent, sustainable investment returns. Finally, new businesses that contribute to sustainability will be extended by Bangchak's pursuit of startup investment and R&D activities with external agencies through BiiC. This year USD 8 million was invested in bio-based businesses and USD 9 million in clean-energy businesses, including investment in Thai energy startups.

- **Being open, transparent, and auditable** Open, transparent, and accountable: Bangchak engages in open, transparent, and accountable business conduct, whether information disclosure of transparent conduct under corporate governance or other applicable rules.

2. Environmental and social goals

- **Pursuit of minimized net emission of carbon dioxide for minimal impacts on climate change (low-carbon company):** Bangchak set a goal of minimized net emission of carbon dioxide by implementing a project on relentless refinery efficiency and resource efficiency improvement while growing its investment in alternative and renewable energy production projects that contribute to the reduction of carbon dioxide.

- **Business development hand in hand with socio-environmental development**

Bangchak fosters sustainability by engaging in businesses that benefit the environment and society in parallel with business growth. To this end, both CSR after-Process and the creation of shared values between business, society, and the environment via the CSR/CSV in-Process are carried out. In addition, the company sets an extended goal from CSR/CSV, that is, a social enterprise to create jobs and income while promoting among community residents environmental preservation in their respective localities. Instances are the establishment of the Bai Mai Pun Sook Foundation, promotion of farmers' quality and value development of agricultural produce for distribution via Oam Suk Social Enterprise Co., Ltd., and promotion of agricultural produce export via SPAR distribution channels. To elaborate, Bangchak promotes sugarcane planting to produce fresh sugarcane juice for sale in SPAR outlets, and buying of kluai namwah bananas from Northeastern, Northern, and Central Region farmers, thus adding to the income of some 4,000 households, and packaging "Kluai Imjai" bananas for giveaways at Bangchak service stations.

Business Strategies

To achieve its short-term and long-term goals, Bangchak relies on the 3Ss Strategy.

S1

Security

1. Security (S1)

Upstream energy represents Bangchak's core businesses leading to national energy security. Bangchak carries out this strategy jointly through its Refinery, Marketing, Natural Resource, and Bio-based Product Businesses by supplying, producing, and distributing refined products and biofuels to meet the demand of the business sector and the public-governed by the overall trend of energy demand. Though EVs command a growth outlook, today we still see these businesses of Bangchak as a necessity for growing national energy demand.

S2

Stability

2. Stability (S2)

Bangchak manages its portfolio for growth with an investment focus on businesses with steady revenue streams as well as steady returns and low external risks (domestic and abroad), including green power plants (via BCPG) featuring streams of income. To diversify risks, the company engages in risk management throughout its production chain covering assorted businesses in order to sustain volatility.

S3

Sustainability

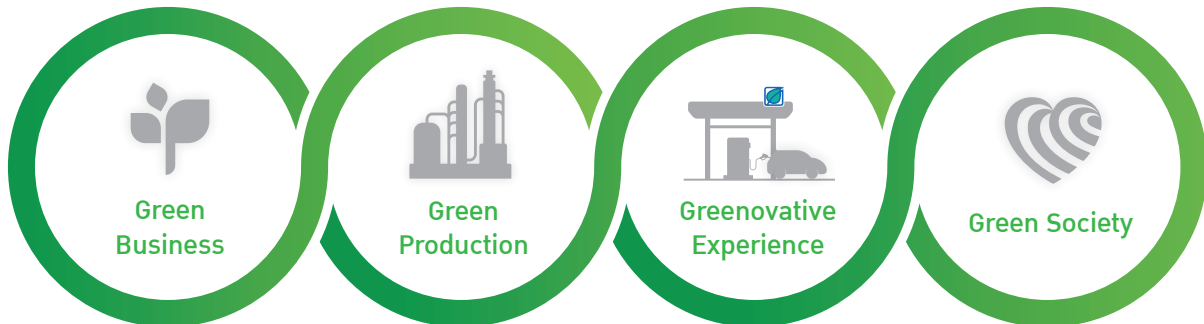
3. Sustainability (S3)

Bangchak develops related businesses that support or extend its core businesses' growth and sustainability to accommodate future technology and change, including the lithium battery business that accommodates EV car growth. Another example is the development of high-value bio-based products like bioplastics and bio-based products. In addition, Bangchak leverages innovations benefiting the environment and society via BiiC, which focuses on the pursuit of startup investment and R&D activities jointly with external agencies to relentlessly grow green and bio-based product businesses worldwide. To this end, Bangchak also established a "Bangchak WOW" model as the scope of collaboration with assorted partners in the public and private sectors covering Bangchak sites, Bangkok, and operating sites worldwide. The model embraces three main aspects. First, well-being improvement, meaning joint development of the quality of life in several aspects, including a given area's garbage management, stewardship of communities, projects on business for the environment, development of vocational knowledge for groups of farmers, joint development of a grassroots economy, and development of community goods with expanded goods distribution channels. O stands for oxygen enhancement, meaning reforestation and tree planting, contribution to PM 2.5 reduction, and improved landscaping. W stands for water management, including joint care of rivers and canals as well as the vicinity, including the Chao Phraya River banks around Bangchak Port, Bang Krachao area, Bangchak Canal, and the mobilization of oilspill removal vessels to aid various operations on the Chao Phraya River.

To frame its businesses and investment for sustainability, Bangchak leverages its 4 Green (4Gs) strategies.

The 4 Green strategies are made up of:

1. Green Business



Bangchak strives for investment in businesses that foster sustainable values. Besides growing revenue from new undertakings, this strategy is a boon to the environment for green initiatives applied to businesses, including high-value bio-based products derived from agricultural produce by way of biotechnological innovation, in turn extended from former biofuel production and sales, including bioplastics and biocosmetic ingredients. The company also values green power businesses and energy management, among others, involving BiiC, which spawn startups that could further Bangchak's businesses in the future.

2. Green Production

Bangchak strives for output capacity rises that are friendly to the environment and safe through efficient resource consumption, particularly water and energy. It adopted the ISO 14001 and IWO 50001 management systems and the OHSAS 18001 occupational health and safety system, which is poised to turn into ISO 45001, while raising safety management through the Process Safety Management (PSM) system

3. Greenovative Experience

Bangchak strives to create new experience and new-look green innovation, termed the Bangchak Greenovative Experience, to accommodate Thais' new lifestyles where all can spend their lives with sustainable environmental stewardship, including:



- **Greenovative Products:** Bangchak strives for product quality development catering to customers' needs as well as being green. Today it produces and distributes fuel products of the Euro 4 standard of the public sector while selling two kinds catering to the Euro 5 standard, namely gasohol E20s and Hi-Premium Diesel S (premium diesel), designed for modern engines and reduction of dust and smoke caused by combustion. Bangchak also develops and sells Hi-Diesel B20s for sale to customers in the transport truck group and Hi-Diesel S B10, a green product supporting oil palm growers. As for the non-oil business, Bangchak values the environment, as in Inthanin Coffee's concept of "Each of your Inthanin cups for our world". So far, several projects have evolved, including Bangchak's pioneering use of 100% biodegradable biopackaging, tilted cup lids instead of straws, now adopted as standard by all branches, and choice of organic coffee beans derived from community farms of farmer groups in northern provinces. Projects regarding convenient stores include one to cut down on the use of plastic bags, processing fruits for sale in SPAR outlets, and the SPAR Awards project of community product development and SME businesses that are built on for domestic sale and overseas sale.
Greenovative Service Station: A new look will be given to Bangchak service stations, developed for a unique identity through the 4Rs process (renewable, recycle, reuse, and reduce). To elaborate, a solar rooftop was installed at the Bangchak - Si Nakharin service station for solar power generation and power bidding with the Blockchain technology, also known as the Green Community Energy Management System (GEMS); expansion of service stations equipped with EV chargers; water-saving by using rainwater and reusing water to water trees; use of energy-saving equipment; addition of green, lush areas and installation of amenities, including toilet designs catering to seniors and the handicapped; and finally, automatic inflators for greater service convenience in the march toward The Most Admired Brand.
- **Greenovative Mind:** ICT systems compile customers' data to develop services for speed and efficiency; member database development; more extensive installation of the Point of Sale Automation System at service stations; application development to facilitate customers' application usage, including the operator customer group, for whom the Application BCP Link system was developed, as was the Auto Ordering System (AOS). As for customers at large, a Mobile Application system was developed for basic application suiting customers' needs and addition was made to the privileges of the BCP Green Miles card.
- **Greenovative Communities:** This concept gives customers experience as part of social and environmental assistance while upholding good cultures, including the giving away of surplus agricultural produce to customers or the drive to sell green products, the hiring of the handicapped, and the BCP Roadside Assistance Project development to give motorists preliminary help at Bangchak service stations, including battery jump-starting and backup tire replacement, and finally, the development of a project on organic vegetables at service stations, meant to bring a better quality of life to station attendants while giving surplus vegetables to customers.



4. Green Society

This is a consistently implemented strategy evident in Bangchak's stewardship of the environment and its participation in developing the quality of life of Thai society through projects promoting and extending overall social development work for better lives. This move relied on the Royal Science and innovation, while new projects are undertaken with skillful external networks to grow Bangchak's social activities to match the requirement for sustainable national development. The work of the past year resembled a social lab for efficient work tools to jointly measure results of development guidelines that relied on engagement and implosion of communities. To begin with, Bangchak investigates the foundation of society-education-and the extension and promotion of farmers' and the new generation's participation in the development of goods and services by leveraging innovation and technology to raise national competitiveness and expand on the concept of business growth for sustainability and happiness-termed the Green Impact. Target groups have been diversified. For instance, the youth group, to drive the country one day; farmers and agricultural cooperatives, the majority of the Thai population; the startup and social group, which is a business group of the new generation that brings change and contributes to national development in assorted aspects while addressing the UN SDGs through assorted activities: Ruam Patthana School for a Better Educational Future, a contest of goods and the Green Impact Click ... Overhaul the Country Project (an online social project), the Kasettakorn Pan Suk model, and the march toward dissemination of the Synthetic Biology (SynBio) innovation, which is seen to overhaul business in the future.



SUSTAINABLE DEVELOPMENT GOALS





Laos



Japan



Thailand



Cambodia



Singapore



Philippines



Indonesia



Refinery and Oil Trading Group



Marketing Business Group



Green Energy Business



Bio-based Products Business



Natural Resources and Business Development



Norway

Canada



America



Argentina



Shareholding Structure



Refinery and oil trading groups

The complex refinery of Bangchak operates with a nameplate capacity of 120,000 barrels per day (120 KBD). The majority of the outputs are gasoline and diesel. The quality of its gasohol and diesel products meets the public sector's Euro 4 standard. Bangchak focuses on energy stability in its processes by using electricity and steam derived from its cogeneration power plant while replacing fuel oil with cleaner-burning natural gas. It raises the efficiency of its refining processes with the implementation of its 3E, YES-R and Rocket Projects.

BCP Trading Pte. Ltd. (BCPT)

Incorporated in Singapore with a registered capital of US\$1 million wholly owned, BCPT engages in commodity trading including crude oil, petroleum products, petrochemicals, other chemical products, and other downstream businesses.

Bongkot Marine Service Co., Ltd. (BONGKOT)

This joint-venture enterprise has a registered capital of Baht 240 million, in which Bangchak holds 30%. It engages in supplying and administration of floating storage units.

Fuel Pipeline Transportation Ltd. (FPT)

With a registered capital of Baht 3.66 billion, in which Bangchak holds 4.95%, FPT operates underground pipeline fuel transport. The multiproduct pipeline is laid parallel to the railway route from Bangchak Refinery to Don Muang International Airport Oil Depot via Chong Nonsi Oil Depot and ends at Bangchak's oil depot in Bang Pa-in, Ayutthaya, and at FPT. A fuel pipeline connection with the system of JP-One Asset Co., Ltd., made at the Makkasan area in Bangkok, supplies aviation fuels to Suvarnabhumi International Airport. FPT's fuel transmission pipeline system expansion project from Amphoe Bang Pa-in to the Phichit Oil Depot was completed in 2019, and the remaining segment to Lampang is under construction.

Marketing Business group

The Marketing Business Group sells fuels and lubricants to consumers through Bangchak's network of 1,201 service stations nationwide, made up of 589 standard and 612 community service stations, as of December 2019. To provide convenience to customers, the stations offer supplementary (non-oil) businesses under the operation of Bangchak Retail Co., Ltd., which also distributes products to industrial users together with the transport, airlines, vessels, construction, and agriculture sectors.

Bangchak Green Net Co., Ltd. (BGN)

Incorporated with Baht 1 million in registered capital, in which Bangchak holds 49%, BGN engages in service station administration and sales management of consumer products at Baichak and Lemon Green outlets.

Bangchak Retail Co., Ltd. (BCR)

This wholly-owned subsidiary of Bangchak has Baht 800 million in registered capital. BCR engages in the food and drinks business to accommodate continuous growth in the retail business. BCR has been given the Master Franchise of the SPAR supermarket brand of the Netherlands and now has 46 retail outlets under the SPAR brand, and 600 Inthanin coffee shops.

Oam Suk Social Enterprise Co., Ltd.

With an initial registered capital of Baht 10 million, in which Bangchak holds 40%, the company engages in the purchase of agricultural produce and organic crops for processing, marketing, distribution, and R&D.

Green Energy Business

Bangchak invests in the renewable-power business by holding 70.04% equity in BCPG Public Company Limited (BCPG), a SET-listed company. Its IPO took place on September 28, 2016. BCPG engages in investments in the power generation business from green energy sources (both domestic and overseas), such as solar, wind, and geothermal power projects.

BCPG Public Company Limited (BCPG)

Incorporated with a registered capital of Baht 10 billion, BCPG engages and invests in the green power business (domestic and overseas). At the end of 2019, BCPG's total capacities are 404 MW

Bio-based Products Business

Recognizing the significance of renewable energy in reducing trade deficits arising from imported fuels, thus enhancing national energy security, supporting farmers and conserving the environment, Bangchak advocates the blending of ethanol with gasoline, and biodiesel with diesel, to form assorted grades of gasohol and biodiesel. Bangchak invests in bio-based products through its shareholding in BBGI Public Company Limited (BBGI).

BBGI Plc. (BBGI)

BBGI was incorporated through a merger between BBP Holdings Co., Ltd. (BBH), a subsidiary of Bangchak, and KSL GI Co., Ltd. (KSLGI), a subsidiary of Khon Kaen Sugar Industry Plc., with a registered capital of Baht 2.532 billion. It was transformed from BBGI Co., Ltd., to BBGI Plc. in April 2018, when the registered capital was increased to Baht 3.615 billion by issuing 216.6 million recapitalization shares at Baht 5 per share for public offering. Bangchak holds 60% shares in this largest biofuel producer and distributor in Thailand, which has a total capacity of 2,000,000 liters a day, comprising 1 million liters a day of ethanol and 1 million liters a day of biodiesel. The three subsidiaries of BBGI are Bangchak Biofuel, Bangchak Bioethanol – Chachoengsao, and KSL Green Innovation; the lone associated company is Ubon Bio Ethanol.

Bangchak Biofuel Co., Ltd. (BBF)

Established with Baht 281.5 million in registered capital, in which BBGI holds 70%, BBF engages in the production of biodiesel from crude palm oil, a basic raw material, with the nameplate capacity raised to 1,000,000 liters a day. The company is located in Bang Pa-in, next to Bangchak's oil depot in Ayutthaya

Bangchak Bioethanol - Chachoengsao Co., Ltd. (BBE)

BBE has a registered capital of Baht 500 million, in which BBGI Plc. holds 85%. Located in Amphoe Phanom Sarakham, Chachoengsao, it produces ethanol from fresh cassava, cassava chips, sugar, and molasses with a capacity of 150,000 liters a day

KSL Green Innovation Plc. (KGI)

KGI is wholly owned by BBGI with a registered capital of Baht 610 million. It engages in the production and distribution of ethanol based on molasses derived from the sugar manufacturing process. KGI's two ethanol manufacturers now operate with a total capacity of 350,000 liters per day: 200,000 liters per day from a plant in Amphoe Bo Phloi, Kanchanaburi, and the other 150,000 liters per day from a plant in Amphoe Nam Phong, Khon Kaen. Moreover, KGI's plant generates biogas from wastewater treatment from the ethanol process.

Ubon Bio Ethanol Co., Ltd. (UBE)

UBE was incorporated with a registered capital of Baht 3.91 billion, in which BBGI holds 21.28%. Located in Amphoe Na Yia, Ubon Ratchathani, it engages in ethanol production using fresh cassava, cassava chips, and molasses as feedstock with a capacity of 400,000 liters a day. UBE's subsidiary also engages in processing cassava into flour and generating power from the biogas derived from wastewater treatment from the flour and ethanol processes.

Natural Resources and Business Development Business

This business group, one of Bangchak's five core businesses, is in charge of the development of upstream petroleum businesses and battery energy storage systems, namely the petroleum exploration and production (E&P) business and the lithium mining business. Bangchak founded BCPR Co., Ltd. in Thailand, and BCPR Pte. Ltd. together with BCP Energy International Pte. Ltd. in Singapore, to engage in the petroleum E&P business and founded BCP Innovation Pte. Ltd., in Singapore, to engage in the lithium mining business.

BCP Energy International Pte. Ltd. (BCPE)

Wholly owned by Bangchak and established in Singapore with a registered capital of US\$112.5 million as of December 31, 2019, BCPE engages in foreign energy, petrochemical, and natural resources businesses and now wholly owns Nido Petroleum Pty. Ltd. through common-share purchase.

Nido Petroleum Pty. Ltd.

Nido holds rights in the West Linapacan field under development along with rights in fields under exploration, namely SC6B, SC14D, SC54A, SC54B, SC58, and SC63, all in the Philippines.

BCV Innovation Pte. Ltd. (BCPI)

BCPI, wholly owned by Bangchak, was incorporated in Singapore with a registered capital of US\$53.3 million as of December 31, 2019, to engage in the lithium mining business and related investment. Today BCPI owns 15.86% shares in Lithium Americas Corp.

Lithium Americas Corp. (LAC)

Listed on the Toronto Stock Exchange, Canada, and the New York Stock Exchange, USA, LAC engages in the lithium mining business to produce lithium carbonate, an essential raw material for batteries.

LAC is developing two lithium mines in Argentina and the USA. The Argentina project is under the development of Minera Exar S.A., and lithium carbonate production is expected in 2021 with a capacity of 40,000 tons per year, whereas the USA lithium mining project is under development.

BCPR Co., Ltd.

On July 12, 2018, Bangchak established a wholly owned BCPR Co., Ltd., in Thailand, which today has Baht 661 million in registered capital (6.61 million shares at Baht 100 per share). The objective is to engage in business operations by investing in natural resource businesses. BCPR has now invested in BCPR Pte. Ltd., founded in Singapore to invest jointly in OKEA AS, which engages in petroleum development and production in Norway.

BCPR Pte. Ltd.

BCPR Pte. Ltd., was incorporated in Singapore on July 12, 2018, with a registered capital of US\$18.2 million as of December 31, 2019, and is wholly owned by BCPR Co., Ltd. The company engages in foreign energy, petrochemical, and natural resource businesses and currently invests in OKEA AS, which engages in local petroleum exploration, development, and production in Norway.

OKEA ASA

OKEA ASA, incorporated under the laws of Norway, engages in Norway's petroleum exploration, development, and production. BCPR Pte. Ltd., Bangchak's subsidiary, holds 46.52% shares in OKEA AS. OKEA AS holds the right in Draugen, Gjøa, Ivar Aasen, Yme, and Grevling oil fields, as well as the exploration rights in several other fields in Norway and has been the operator of Draugen and Grevling fields.

Research and Development and Innovation Business

To pursue the position of the leading Asian Greenovative group, Bangchak expands its investment in emerging energy innovation such as lithium, used in the manufacturing of batteries for electrical vehicles (EVs) and extending bio-based products to add value to its current biofuel products. In 2018 Bangchak set up four more venture-capital companies to engage or jointly invest in 10 domestic startup businesses, or both, promoted by the government along with a Singapore-formed subsidiary.

BCV Bio Based Co., Ltd. (BCVB)

BCVB, wholly owned by Bangchak, was incorporated with a registered capital of Baht 20 million to engage in the venture capital business for funding domestic startup companies in bio-product innovation.

BCV Energy Co., Ltd. (BCVE)

BCVE, wholly owned by Bangchak, was incorporated with a registered capital of Baht 20 million to engage in the venture capital business for funding domestic startups relating to energy innovation.

BCV Innovation Co., Ltd. (BCVI)

BCVI, wholly owned by Bangchak, was incorporated with a registered capital of Baht 20 million to engage in the venture capital business for funding domestic startups relating to innovation.

BCV Partnership Co., Ltd. (BCVP)

BCVP, wholly owned by Bangchak, was incorporated with a registered capital of Baht 20 million to engage in the venture capital business for funding domestic startups relating to innovation in collaboration with the public and private sectors.

Bangchak Ventures Pte. Ltd. (BCV)

This wholly-owned Bangchak subsidiary was formed in Singapore with a registered capital of US\$100,000 as of December 31, 2019. Bangchak Ventures engages in joint-venture capital for startups involving innovations.

Transition and Milestone Development

January

BCP Innovation Pte. Ltd. approves recapitalization from USD 42 million to USD 45 million

The Extraordinary General Meeting of the Shareholders (EGM) approved the recapitalization of this company from USD 42 million (42 million shares at USD 1 per share) to USD 45 million (45 million shares at USD 1 per share). The shares were paid up in full.



BiiC invests in Enevate Corporation startup from the USA to extend investment in green power

Bangchak, through the Bangchak Initiative and Innovation Center (BiiC), engaged in additional startup investment through BCP Innovation Pte. Ltd., Bangchak's subsidiary. The California, USA, company is called Enevate Corporation, a renowned company with proficiency in lithium battery production for EVs. Thanks to its advanced innovation, energy charging is made 10 times faster.

APR

April

BiiC invests in Bonumose startup from the USA to build on its bio-based business

Bangchak, through BiiC, engaged in additional startup investment through BCP Innovation Pte. Ltd., Bangchak's subsidiary, in Bonumose, an expert in sugar production from high-starch plants, a high-potential technology that can add value to agricultural produce and extend Bangchak's bio-based business.

BCPG puts 10-MW Lom Ligor wind power facilities in Nakhon Si Thammarat on commercial production

Lom Ligor Co., Ltd., a subsidiary of BCPG PCL, began commercial production (COD) and distribution of 10 MW to the Provincial Electricity Authority (PEA) on April 11. The contract with PEA calls for distribution of 8.965 MW for 25 years, with Baht 3.5/unit in adder to the base electric tariff for 10 years.



JAN

JUN

June

OKEA ASA (“OKEA”) offers 15 million IPO shares on Oslo Stock Exchange

OKEA ASA (“OKEA”) offered IPO shares at 21 Norway Krone each, enabling the company to now command 101,839,050 shares of fully paid-up registered capital. Bangchak currently holds 47,477,563 shares, or 46.62% of OKEA’s registered capital.

SEP

September

BCPG Indochina Co., Ltd., a BCPG subsidiary, acquires all shares of Nam San 3A Power Sole Co., Ltd., to invest in LPDR’s hydropower project

BCPG Indochina PCL, a BCPG subsidiary, invested in a hydropower project in Laos with an installed capacity of 69 MW. This was 100% acquisition in Nam San 3A Power Sole Co., Ltd. (“Nam San 3A”), worth up to USD 174 million (Baht 5.532 billion). Nam San 3A had won a Build-Operate-Transfer concession for the development and operation of power plants under a take-or-pay contract with Electricite du Laos for 27 years, effective from January 2016.

All-time-high monthly refining throughput of 123.5 KBD

The Refinery Business returned to normal with a full-steam refining throughput after a partial shutdown for equipment repair in the first half of the year. The average production hit a record high of 123.5 KBD in September, the peak since the commissioning of the Hydrocrack Unit. Note that the healthy GRM supported a high production capacity, which at the time corresponded to the rise in refined product sale through the Marketing Business.

No. 2 market share maintained with a new record of 16.5% and more successful B20 sales

The Marketing Business maintained Bangchak’s No. 2 market share nationwide while achieving a new high of 16.5% share in September. It also registered resounding success in B20 sale through the retail market.



OCT

October

Bangchak's perpetual bonds worth Baht 10 billion warmly received

On October 18, 2019, Bangchak successfully offered perpetual bonds worth Baht 10 billion, rated at BBB+ by TRIS Rating, with an A corporate rating and a stable outlook. The interest rate is 5.00% for the first five years. Investors showed remarkable interest, which made Bangchak decide to increase the volume from Baht 6 billion to Baht 10 billion, the greenshoe option being worth Baht 4 billion. This success was attributed to investors' confidence in Bangchak, enabling it to mobilize funds as planned at a suitable cost of funds.

NOV

November

Repurchase of treasury stocks of up to Baht 2.1 billion approved

Bangchak's Board of Directors Meeting No. 11/2562 of November 21, 2019, approved a project for repurchasing treasury stocks worth up to Baht 2.1 billion, about 5.00% of all sold shares. The purchase will take place on SET for six months from December 6, 2019, to June 5, 2020.

Bangchak grabs No. 1 NPS Score

Bangchak proudly reported that its customers had ranked it at the top out of the 2019 assessment of the Net Promotion Score.



Awards of 2019

Awards 2019

- Sustainability Excellence Award of Honor
- Best Innovative Company Award
- 1 in 98 Thailand Sustainability Investment (THSI)

Performance

- Board of the Year Awards 2018
- Thailand Quality Class (TQC) 2018
- 9th Asian Excellence Recognition Awards 2019
 - Best Investor Relations Company
 - Asia's Best CEO (Investor Relations)
 - Asia's Best CFO (Investor Relations)
 - Best Investor Relations Professional (Thailand)
 - Superbrands 2018

Innovation

- The Prime Minister's Industry Award) 2019
- Thailand Energy Award 2019
Best Practices, Renewable Energy Project
- ASEAN Energy Award 2019
- Thailand Enterprise Innovation Award 2019
- Thailand HR Innovation Awards 2019
- Gold Award (Highest Level)
- 3 Star Award (Highest Level)



Thailand Corporate Excellence Awards 2019

SMEs Excellence Awards 2019

- Leadership Excellence
- Innovation Excellence
- Sustainable Development

Sustainability & Good Governance

- CAC Change Agent Award
- Global Good Governance (3G) Awards 2019
 - 3G Best CSR Award 2019
 - 3G Best Green Initiative Award 2019
- Platinum ESG Award for the sixth consecutive year
- Sustainability Disclosure Award
- Water Footprint Certification
- ISO 50001:2018 Certification (Energy Management System)
ISO 45001:2018 Certification, TIS 18001:2011 (Occupational Safety and Health System) and ISO 14001:2015 (Environmental Management System)
- Certificate authenticating the carbon label
- Results of Assessment Survey of Good Governance Report for Listed Companies
- Results of Quality Assessment for AGM: 100 points

Others

- MAT Silver Award 2019
- Outstanding Toilet Standard
- Commemorative Shield for partnership school project 100%
- Declaration of Intent to be a Good Governance Organization for Road Safety
- Suriyasasitorn Award 2019





Awards from the SET Awards 2019 event, organized by the Stock Exchange of Thailand (SET) and the Money and Banking Magazine:

- Sustainability Excellence Award of Honor for having won the Best Sustainability Award for three consecutive years. Bangchak is recognized as an inspiring role model for its sustainable business performance.
- Best Innovative Company Award from the Green Community Energy Management System (GEMS), for the green community management system used at Bangchak service stations.
- 1 in 98 Thailand Sustainability Investment (THSI) listed companies for the fifth consecutive year. The Company has applied environmental, social and governance measures to help develop a sustainable business, with sustainable management mechanisms to provide investors with a choice of a quality portfolio with a long-term returns option.



Thailand Corporate Excellence Awards 2019 and SMEs Excellence Award, presented by the Thailand Management Association (TMA) and SASIN Graduate Institute of Business Administration of Chulalongkorn University:

- Leadership Excellence
- Innovation Excellence
- Sustainable Development



Prime Minister's Industry Award 2019, Outstanding S-Curve Industry. This award honors innovative and diligent companies that contribute to Thailand's industrial development, serving as role models for industrial enterprises to achieve the 10 S-Curve targeted industries as part of the mechanism to drive Thailand's new economy through increased productivity based on technology and innovation, presented by the Ministry of Industry.



Board of the Year Awards 2018 for the seventh consecutive year, Silver Prize for listed companies with market values of Baht 30 – 100 billion. The award is given to effective boards with best governance practices, generating good returns for investors while looking after all stakeholders, presented by the Thai Institute of Directors (IOD) in cooperation with SET, the Board of Trade of Thailand, the Federation of Thai Industries (FTI), the Thai Bankers' Association, the Thai Listed Company Association, and the Federation of Thai Capital Market Organization.



Thailand Energy Award 2019, Best Practices, Renewable Energy Project, Off-Grid (Power) Category. The prize honors Bangchak's Green Community Energy Management System (GEMS), a form of futuristic power purchase, and the smart service station system installed at Bangchak Service Station, Srinagarindra Road, for being an exemplary and an outstanding enterprise that promotes energy conservation and renewable-energy development in Thailand. The award was presented by the Department of Alternative Energy Development and Efficiency.



ASEAN Energy Award 2019 Energy, Off-Grid (Power) Category. The prize honors Bangchak's Green Community Energy Management System (GEMS), a form of futuristic power purchase, and the smart service station system installed at Bangchak Service Station, Srinagarindra Road, at the the 37th ASEAN Ministers on Energy Meeting event.

Thailand Enterprise Innovation Award 2019 for the BIG-D (BCP is Going Digital), a digital transformation project arising from the vision of the Company's executives that emphasizes the use of green technology and digital technology through energy innovations to promote and expand business in line with organizational strategies. As a result, the systems and processes in the Company became simplified, faster, and smarter for business in the digital economy age. The award was presented by the Department of Digital Economy (DEPA).



Thailand Quality Class (TQC) 2018 for quality organizational management and for passing assessment in leadership, strategy, customers, evaluation, knowledge analysis and management, personnel, operation and outcome. The TQC was awarded by the Office of Thailand Quality Award and the Thailand Productivity Institute.



CAC Change Agent Award. Bangchak was one of the five companies recognized for their emphasis on promoting systematic anti-corruption practices in private businesses by joining the CAC Change Agent Program. Bangchak also ensures that its supply chain is transparent and free of corruption by persuading more than 10 its SME suppliers to join the CAC SME Certification program in the past year. The award was presented by CAC.



The Global Good Governance (3G) Awards 2019

by Cambridge IFA, an international financial advisory in the UK:

- ✔ The 3G Best CSR Award 2019 for the second consecutive year for outstanding corporate responsibility
- ✔ The 3G Best Green Initiative Award 2019 for outstanding performance in new, eco-friendly projects.



9th Asian Excellence Recognition Awards 2019 with votes and opinions from readers of magazines, investors, analyses, etc., organized by the Corporate Governance Asia (Hong Kong) Magazine

- ✔ Best Investor Relations Company for the eighth consecutive year, awarded to outstanding companies in investor relations
- ✔ Asia's Best CEO (Investor Relations) for the fourth consecutive year, awarded to the CEO
- ✔ Asia's Best CFO (Investor Relations) for the second consecutive year, awarded to the CFO
- ✔ Best Investor Relations Professional (Thailand) awarded to outstanding personnel in investor relations.

Platinum ESG Award for the sixth consecutive year, awarded to outstanding companies in social and environmental responsibility with good governance at the Asset ESG Corporate Awards 2019 event, organized by the Asset (Hong Kong) Magazine.



Sustainability Disclosure Award presented to enterprises that sustainably disclose information to the public and concerned stakeholders with completeness, credibility, and communication. The award was presented by Thaiapat Institute and the Securities and Exchange Commission (SEC).



MAT Silver Award 2019 for its automobile and chemical industry's "Payback on the Day of Gasoline Price Hike" privilege campaign for members. The award was presented by the Marketing Association of Thailand in honor of outstanding innovative Thai marketing campaigns with significant measurable results.



Superbrands 2018. Superbrands are selected for brand quality, brand affinity, and brand personality through the voting of 15,000 consumers, market experts in brand building and public relations, and independent directors of Superbrands. The awards were presented by Superbrands Thailand, an agency internationally recognized as an assessor of excellence in brand-building.



Honorable Mention for Thailand HR Innovation Awards 2019 for the Employee Holistic Health & Wellness Project and the HR Digital Platform – Smart ME Projects. The award was presented jointly by the Thailand Productivity Institute, School of Human Resource Development (National Institute of Development Administration), Institute of Human Resource Professional Development, and the Personnel Management Association of Thailand.



Gold Award (Highest Level) for Bangchak's QCC group of the Quality Analysis Division's international presentation at the International Convention on Quality Control Circle (ICQCC 2019), organized by the Ministry of Industry and the Union of Japanese Scientists and Engineers (JUSE) to promote quality work in the Asia-Pacific countries. More than 300 projects were presented by agencies from 19 nations, such as Japan, Canada, Korea, Malaysia, and India.



Water Footprint Certification for Company products. Six Bangchak products earned certification for their water footprints through the Water Footprint of Products Program. Bangchak was the first oil refinery in Thailand to have been certified by the program for its efficient and cost-reducing water management process that also contributes to increased capacity for competition, emphasizing sustainable development. The certification was done by the Sustainable Water and Environment Institute, FTI.



3 Star Award (Highest Level) for Bangchak's QCC group of the Engineering and Project Operation Division's international presentation at the Asia Pacific Quality Organization International Conference (APQO 2019), organized by the Indonesia Quality and Productivity Management Association (IQPMA) and Wahana Kendali Mutu (WKM) to promote quality work in the Asia-Pacific countries. More than 120 projects were presented by agencies from 19 nations, such as Indonesia, Japan, Malaysia, and India.



ISO 50001:2018 Certification (Energy Management System) ISO 45001:2018 Certification, TIS 18001:2011 (Occupational Safety and Health System) and ISO 14001:2015 (Environmental Management System) For Bangchak Refinery and Bangchak Oil Distribution Center, which focus on capacity building for international standards and reduce risks in all aspects (occupational safety, health, and energy) so that all employees can work within a good and safe environment while conserving energy and reducing greenhouse gas emissions. Bangchak was the first company in Thailand to have received the ISO 50001:2018 certification and the new ISO 450001 : 2018 certification for both the refinery and oil distribution centers in Bangchak and Bang Pa-in.



Certificate authenticating the carbon label for product carbon footprint with verification by Kasetsart University. Bangchak has also received approval for authenticated carbon labels for four products as part of the campaign to promote the use of product carbon footprint labels. The process will grant the consumer access to the carbon emission data of each product for consumer decision-making, which will also promote competitiveness of the Thai industry in the global market. The certificate was presented by the Thailand Greenhouse Gas Organization (TGO).



Suriyasitorn Award, 2019. Bangchak Corporation won this award from over 200 contest entries for its notebook calendar in the category of current social and environmental encouragement. The calendar was made from recycled wood scrap, whereas the recycled Green Offset notebook paper was eyesight-friendly. No plastic was used, and the entire notebook calendar was biodegradable. This award was organized by the Public Relation Society of Thailand.

Results of Quality Assessment for AGM: 100 points and listed as “Excellent” for the 11th consecutive year in participation of the AGM Quality Assurance evaluation. The evaluation was conducted by IOD.



Outstanding Toilet Standard for Bangchak service station, Onnuj 55, Sukhumvit 62 branch, and the Kanchanaphisek branch from the Annual Super-toilet Competition, designed to develop sufficient numbers of clean public toilets and reduce risk of being breeding grounds for infectious diseases. The award was presented by the Bangkok Metropolitan Administration (BMA).



Commemorative Shield presented for distinguished 100% participation under the Partnership School Project, as an agency that promotes education and continuous activities for Bang Namphung School, organized by the Basic Education Commission.

Declaration of Intent to be a Good Governance Organization for Road Safety in partnership with government, private, and civil society sectors for campaigning to reduce road accidents. Bangchak has jointly campaigned with the Don't Drive Drunk Foundation and Daily News newspaper to reduce risk in petroleum transport, ensuring safety on roads and cutting down fatal accidents by enforcing four measures in petrol transport: Don't Drive Drunk, driving within legal speed limits, no jumping of red rights, and carrying load within capacity.

Results of Assessment Survey of Good Governance Report for Listed Companies: “Excellent” score for the 13th consecutive year. The survey was conducted by IOD.

Business Description

Revenue Structure

Operated by	% shareholding	2019		2018		2017	
		Revenue (million Baht)	%	Revenue (million Baht)	%	Revenue (million Baht)	%
Revenue from Oil refining and related businesses ^{1/}							
Bangchak Corporation Plc.	-	118,261	61.5	132,764	68.4	126,862	72.4
Bangchak Green Net Co., Ltd.	49.00	34,300	17.8	35,530	18.3	32,440	18.5
Bangchak Retail Co., Ltd.	100.00	902	0.5	676	0.3	391	0.2
BCP Trading Pte. Ltd.	100.00	31,277	16.3	14,965	7.7	5,130	2.9
Nido Petroleum Pty. Ltd.	100.00	9	0.0	963	0.5	1,510	0.9
Total		184,749	96.1	184,898	95.2	166,333	94.9
Revenue from Power production							
BCPG Group	70.04	3,427	1.8	3,320	1.7	3,323	1.9
Total		3,427	1.8	3,320	1.7	3,323	1.9
Revenue from Bio-Based Products							
BBGI Group ^{2/}	60.00	2,313	1.2	3,807	2.0	785	0.4
Bangchak Biofuel Co., Ltd. ^{2/}		-	-	-	-	1,697	1.0
Total		2,313	1.2	3,807	2.0	2,482	1.4
Total revenue from sales and services							
Others ^{3/} Bangchak and subsidiaries		1,674	0.9	2,146	1.1	3,069	1.8
Total		192,163	100.0	194,171	100.0	175,207	100.0

Remarks: Revenues of Bangchak and its subsidiaries are net values derived from external parties.

^{1/} Revenue from domestic fuel sales in 2019, 2018, and 2017 accounted for 91.4%, 90.5%, and 90.3% respectively.

^{2/} During 2017, the Company divested its investment in Bangchak Biofuel Co., Ltd. to BBP Holding Co., Ltd. which amalgamated with KSLGI Co., Ltd. in October 2017.

^{3/} Other revenues, excluding revenue from sales and services: Revenue from investment, gains from crude purchase contracts, futures of oil products and forward foreign exchange contracts, gains from foreign exchange, share of profit from investment in associates and joint ventures.

Product and Service Features

Bangchak Corporation Public Company Limited is a Thai energy company that operates in tandem with socio-environmental responsibility. Its core business is petroleum refining to produce high-standard products from domestic and international sources. With a capacity of 120,000 barrels per day (120 KBD), Bangchak produces and distributes its products through more than 1,000 service stations nationwide. It has expanded its businesses to oil trading, green power, bio-based products, and natural resources and business development. Its ultimate goal is to enhance national energy security and expand new investments so that its businesses may be sustained.

Refinery and Trading Business Group (120 KBD capacity)



Marketing Business Group (over 1,200 service stations)



Green-power Business



Bio-Based Product Business



Natural Resources and Business Development



Refinery and Trading Business Group

Bangchak Refinery is a modern complex refinery with a nameplate capacity of 120 KBD. It can produce a large volume of premium gasoline and diesel. Gasohol and diesel from Bangchak Refinery are certified by the government as Euro 4 Standard-compliant. Its refinery is the first in Asia that produces eco-friendly Gasohol E20 to meet the Euro 5 Standard with less than 10 parts per million (ppm) of sulfur or five times lower than the Euro 4 standard. Bangchak also focuses on improving process energy stability by using electricity and steam from a cogeneration power plant, using more environmentally friendly natural gas in place of fuel oil, and enhancing the efficiency of refining processes with the 3E and YES-R projects. To enhance its production capability, Bangchak launched assorted projects to raise outputs and improved operation for optimal benefits amid the volatility of oil prices and doldrums of the world economy. To this end, below are Bangchak's management actions.

- Instituted management by stressing caliber improvement and business opportunity development, cost reduction and expense-saving, ranging from crude oil supply sourcing, production processes, oil tanks, oil intake/offtake pipes, to oil vessels, for efficient refining. This year's average output stood at 112.6 KBD, with shutdowns due to equipment repair and catalyst replacement at the hydrocracking unit. Once refining returned to normal, Bangchak set an all-time high at 123.5 KBD of throughput in September.
- Planned crude oil procurement and purchase for suitable GRMs, leveraging roll-month derivatives to lower costs, thus resulting in the year's average GRM of USD 5.41 per barrel.
- Carried out projects including the Continuous Catalyst Regeneration Unit (CCR), Debottleneck Hydrocracker Unit (HCU), and reliability improvement of the cogeneration power plant to raise the refining capacity and improve related processes for greater flexibility in line with market needs, achieve cost-saving for fuels, and achieve power security for refining processes.
- Constantly developed the oil trading business through BCP Trading Pte. Ltd., stressing growth in out-out trading (meaning securing overseas oil supply for sale to overseas customers), for which the main traded products were gasoline, crude oil, fuel oil, and naphtha. In addition, it has grown the trading market to new business partners, including new groups of countries like Australia and the USA; traded new products in the market, including MTBE; generated more income from logistics management and freight trading; and fostered good relations with suppliers amid favorable market conditions, thus raising traded volumes.



Marketing Business Group

This year some 79% of the refined products were sold direct to consumers through Bangchak's network of service stations nationwide: 1,201 stations consisting of 589 standard ones and 612 community stations as of the yearend. Most of the new stations launched this year were spacious ones with a modern image, designed with a unique identity and complete with non-oil businesses and assorted services to constantly grow Bangchak's market share and maintain it at No. 2 nationwide. Sales also went to industrial and transport users, airlines, marine vessels, construction and agricultural sectors. Bangchak service stations focus on green, renewable fuels with high performance, embracing the gasohol and diesel groups. The



stations also meet customers' needs with non-oil businesses and auxiliary services to attract more service station clients, including convenient stores, coffee shops, and centers for lubricant replacement and car wash.

This year, developing the B20 and B10 premium diesel, Bangchak was the pilot company that blended additives in B20 biodiesel, called Hi-Diesel B20s and Hi-Diesel S B10, featuring the Green S technology that protects and cleans engines while improving engine acceleration. As a result, Bangchak topped the market in cumulative B20 sales for January to December 2019.

As for the convenient store and coffee businesses, these are operated by subsidiary Bangchak Retail Co., Ltd. (BCR), which has obtained the master franchise of the SPAR supermarket from the Netherlands. Today SPAR stores number 46. With a concept of "The Best Fresh & Easy Foods Market in Thailand", SPAR outlets offer impressive services along with freshly cooked and healthy food; SPAR plans to develop community products and SME businesses for sale domestically and abroad. The over-600 Inthanin Coffee shops, located on the premises of Bangchak service stations as well as outside, including shopping centers, office buildings, government agencies, hospitals, and leading education institutions, are constantly eyeing assorted key commercial locations. Besides BCR's businesses, Bangchak sells consumer products at "Bai Chak",



“Lemon Green”, and “Big C Mini” convenient stores on the premises of more spacious service stations near some 137 communities. Finally, service stations also house auto-maintenance centers that provide lubricant replacement and car wash services, consisting of “FURiO Care”, “Wash Pro”, “Green Serve”, “Green Wash”, and “Green Tyre”.

Launched in 1990 under a project called “Oil for Rice, Bangchak community service stations have moved into the 29th year of business with community entities. Bangchak’s policy envisages development for sustainability by raising these stations’ quality standards as well as service standards on a par with other standards so that these stations may drive a sustainable community economy. In 2020 Bangchak proceeded with assorted projects in support of community service stations, including the COOP Coaching, where teams from standard service stations educate staff in-house on management, COOP Bonding, in support of service station improvement and adding to the diversity of products for sale to high-potential cooperative groups, and a project to drive sales volumes under the vision to develop business in a participatory, sustainable way.

Recognizing social transformation and modern Thai lifestyles, Bangchak has developed the “Greenovative Experience” service stations, leveraging 4Rs (renewable, recycle, reuse, and reduce), including installation of solar rooftops for power generation and EV charger stations for electric vehicles. As for the coffee business, Inthanin operates under the “Each of



your Inthanin cups for our world” concept. To date several projects have been developed, including the choice of Bio Cups, use of organic coffee beans derived from community farms of farmer groups in northern provinces, and design of tilted cup lids to cut down on the use of straws. As for convenient stores, projects have been launched to cut down on the use of plastic bags, fruit processing and sale in SPAR outlets, the SPAR Awards Project for community product development and SMEs for business extension and sale domestically and abroad, application of energy-saving materials, and the addition of green areas at service stations. Since 2018, Bangchak has launched an ultra-modern service station with overhead digital fuel dispensers on Sukhumvit 62 Road for greater customers’ convenience, while launching innovation at its Si Nakharin Road service station, featuring an installed Green Community Energy Management System (GEMS), designed to pioneer power bidding through Blockchain; in the future this could evolve into a power generation system outside the authority’s grid (Smart Isolated Microgrid) for buildings and shops in the vicinity to trade maximum power at a low cost.

Apart from fuel products, Bangchak produces and sells lubricants and specialty products like transmission fluids, brake fluids, grease, and others under the BCP Lubricants brand, sold to domestic markets via its service stations, outlets, industrial works, original equipment manufacturer (OEM) markets, as well as exported.

Finally, Bangchak also launched premium lubricants under the FURiO brand that saves on fuels, prevents engine wear, and protects engines under all operating circumstances.

Bio-Based Product Business

Bangchak engages in bio-based product business, including ethanol and biodiesel, as it recognizes the value of renewable energy. The goal is to lower trade deficits due to fuel imports, contribute to national energy security, support farmers, and preserve the environment. It has long advocated the blending of ethanol with gasoline and biodiesel with diesel to yield gasohol 91, gasohol 95, gasohol E20, gasohol E85, and Hi-Diesel.

In late 2017 Bangchak produced merger acquisition between BBP Holding Co., Ltd. (a subsidiary) and KSL Green Innovation Pcl (a subsidiary of Khon Kaen Sugar Industry Pcl), resulting in BBGI Co., Ltd., which in turn registered transformation into BBGI Pcl in April 2018, in which Bangchak held 60% shares. BBGI engages in the production and sale of biofuels as Thailand's largest player. Its subsidiaries and associates command a total capacity of 2 million liters/day (1 million liters/day each for ethanol and biodiesel).

Three BBGI subsidiaries and one associated company consist of:

- **Bangchak Biofuel Co., Ltd. (BBF):** Located in Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya, BBF engages in biodiesel production, mainly from crude palm oil with an installed capacity of 1 million liters/day, with raw glycerin as a byproduct. A project is being implemented on quality improvement for new-standard biodiesel, defined by the Department of Energy Business, for the production of B7, B10, and B20 biodiesel. A construction project has begun for the pure glycerin plant with a capacity of 80 tons/day to grow the values of BBF's products; commercial operation is due in Q3/2020.
- **Bangchak Bioethanol - Chachoengsao Co., Ltd. (BBE):** Located in Amphoe Phanom Sarakham, Chachoengsao, BBE produces ethanol mainly from cassava, molasses, and sugar, with a capacity of 150,000 liters/day.
- **KSL Green Innovation Pcl (KGI):** Producing and selling ethanol derived from molasses as the key raw material, KGI commands a capacity of 450,000 liters/day. The Nam Phong plant, located in Amphoe Nam Phong, Khon Kaen, commands a capacity of 150,000 liters/day (around 49.50 million liters/year, which is currently being expanded by 200,000 liters/year). The other plant, located in Amphoe Bo Phloi, Kanchanaburi, holds a capacity of 300,000 liters/day (99 million liters/year). In 2019, KGI's capacity totaled 148.50 million liters/year.
- **Ubon Bio Ethanol Pcl. (UBE):** Located in Amphoe Na Yia, Ubon Ratchathani, UBE engages in ethanol production with a capacity of 400,000 liters/day from fresh cassava, cassava chips, and molasses; it also produces tapioca starch with a capacity of 700 tons/day while generating power from the effluents of ethanol and tapioca starch processes.



Green-power Business

Today Bangchak invests in the green power business via BCPG Pcl, a subsidiary formed to engage in the generation and distribution of power from renewables and new forms of clean energy in Thailand and abroad. As of yearend 2019, BCPG commanded 404 MW in total commercial capacity, made up of the following projects:

- Solar farms in Thailand, with 139.0 MW in commercial operation (including solar rooftops)
- Solar farms in Japan, with 14.7 MW in commercial operation
- Wind power facilities in the Philippines, with 14.4 MW of equity capacity
- Geothermal power plants in Indonesia, with 157.5 MW of equity capacity
- In 2019, BCPG completed the construction of the Lom Ligor Wind Power Project in Nakhon Si Thammarat with 8.97 MW in commercial operation since April 2019
- In September 2019, BCPG engaged in renewable energy expansion by investing in a hydropower plant project in Chiang Kwang, Lao People's Democratic Republic, with a capacity of 69 MW.



Natural Resources Business

- **Exploration and Production Business:** Bangchak formed BCPR Pte. Ltd., in Singapore to invest in OKEA ASA, which holds rights in the Draugen, Gjoa, Ivar Aasen, Yme, and Grevling oil fields together with exploration rights in several other fields in Norway. The current capacity is 20 KBDOE (thousand barrels per day of oil equivalent). OKEA's investment goal is to grow the output capacity in fields of high potential.
- **Natural Resources Business and Business Development:** Bangchak also formed BCP Innovation Pte. Ltd. in Singapore to engage in businesses related to innovation abroad. Today this company holds the No. 2 equity in Lithium Americas Corp., which engages in the lithium mining business in Argentina and the USA. The Cauchari mine in Argentina is set to produce 40,000 tons/year of lithium; production is due to begin by 2021.



Research and Development (R&D) and Innovation Business

Bangchak founded the Bangchak Initiative and Innovation Center (BiiC) to establish a green ecosystem to mobilize various innovations with a focus on green energy and bio-based products to extend businesses both at home and abroad from R&D, technological and network management, and incubation of startup businesses in support of the 4.0 Economy. The ultimate destination is Bangchak as a Leading Asian Greenovation Group.

Apart from this, Bangchak established academic and project development cooperation with agencies and universities, including Mahidol University, Chulalongkorn University, King Mongkut's University of Technology Thonburi, Rajamongkol University Phranakhon, Thai Scientific Research and Innovation Commission, Thailand Institute of Scientific and Technological Research, and the Asian Institute of Technology. This year saw USD 8 million invested by Bangchak in bio-based businesses and USD 9 million in clean-energy businesses. Finally, Bangchak also invested in Thailand's startup companies.



Marketing and Competition

2019 Global Economic Overview

In 2019, the global economy expanded at a slower rate due to multiple reasons that affected confidence in the manufacturing industry, exports, and private-sector investments, including the trade dispute (trade war) between the US and China, uncertainty on a no-deal Brexit, and geopolitics in many countries. It was predicted that the global economic growth would reach 3.0%, down from 3.7% last year. However, private consumption continued expanding due to high demand for the labor market and flexible implementation of monetary policies from leading banks in key industrialized countries and regional banks. In September, the European Central Bank (ECB) deployed a measure to grant low-interest loans to commercial banks and reduced interest rates in the second half of the year. Additionally, the US Fed announced three interest rate cuts in July, September, and October starting at 2.25-2.50% to 2.0-2.25%, 1.75-2.0%, and 1.5 -1.75%. According to an International Monetary Fund (IMF) forecast issued in January 2020, this year's global economy will grow around 3.3% versus 2.9% last year, under a brighter outlook of the initial phase of the trade agreement between the U.S. and China and subdued anxiety over a No-Deal Brexit. However, there remain negative factors from geopolitical challenges, especially the outbreak of a new strain of coronavirus (Covid-19) in China (the world's second largest economy) in early 2020, which is spreading fast to many countries worldwide. This virus may inhibit the global economic recovery previously forecast by IMF. The March 2020 economic projection by the Organisation for Economic Co-operation and Development (OECD) put the global economic growth for 2020 at 1.4-2.4%, subject to the duration of the worldwide Covid-19 epidemic.

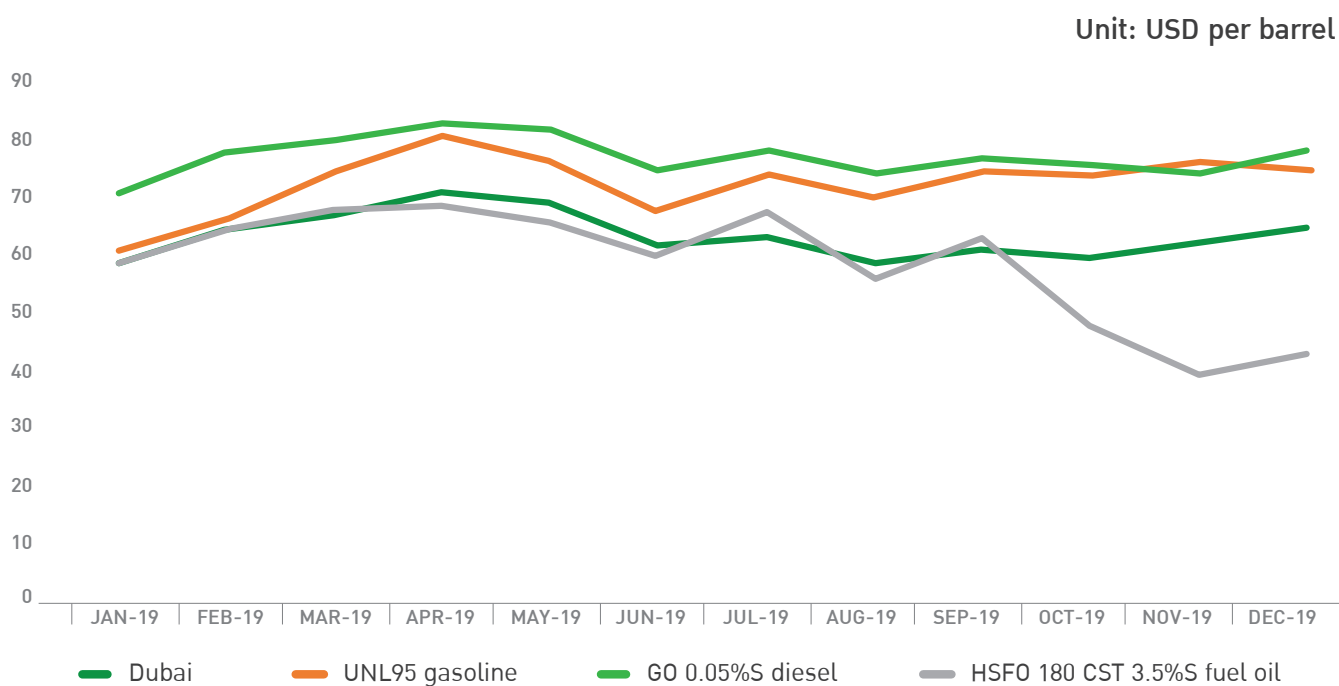
Meanwhile, the Asia-Pacific economic expansion remains decelerated due to the trade war effects, rampant epidemic, protracted protests in Hong Kong, which caused the economy to shrink, and the sluggish growth of the Chinese economy due to the epidemic and trade barriers that mainly affected domestic consumption and exports. ASEAN economies are projected to remain flat. In short, the recovery in world trade volumes is still subjected to these negative factors.

2019 Crude Oil Market Overview

The Dubai crude in 2019 averaged USD63.51 per barrel, USD6.14 per barrel lower, or 9%, against the 2018 average price at USD69.65 per barrel. At the beginning of 2019, the crude oil price was under pressure from the prolonged trade war between the US and China. Although President Donald Trump postponed tariff increases on Chinese imports of USD200 billion, from 10% to 25%, for another 90 days starting January 1, 2019, the US government still postponed negotiation rounds multiple times and currently still shows no progress. In the middle of 2019 the oil price was jolted by tension on global oil supply after the US government had announced an end to sanction waivers on Iranian crude oil, effective early May 2019. Iran then responded by preventing oil exports through the Strait of Hormuz, affecting approximately 19 million barrels per day, or 20% of the world oil supply. In addition, since the US imposed sanctions on Venezuela and its growing economic and political crisis, crude oil exports decreased. OPEC and its alliance meanwhile continued to further reduce their oil production. In May 2019, OPEC's crude outputs dropped to the lowest level in five years, lower than 30.0 million barrels per day. In addition, an attack by unmanned aerial vehicles (drones) on Saudi Aramco's two oil processing plants, Abqaiq and Khurais, on September 14, 2019, caused a severe fire and resulted in a temporary shutdown of oil production. Nevertheless, oil prices throughout the year remained under pressure from the global economic slowdown from the US

- China trade war and resulted in a fall in global oil demand. According to the IMF, it had predicted that 2019 would see the slowest global economic growth since the 2009 financial crisis. It further projected that global economic growth would decline to 2.9% in 2019. In addition, the International Energy Agency (IEA) reduced the global oil demand rise in 2019 to 1.0 million barrels per day by reducing 400,000 barrels per day from the forecast made in the beginning of 2019.

2019 Oil Price Movement Overview

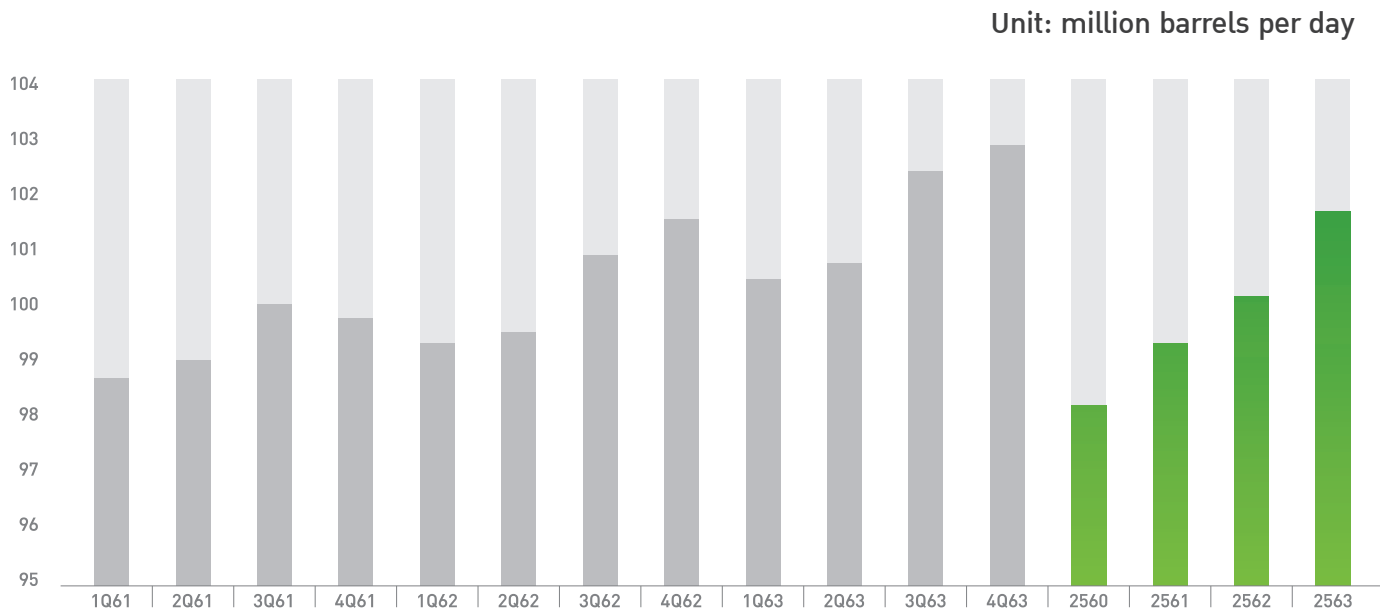


Unit: USD per barrel

Item	2018		2019		YoY
	Avg.	High	Low	Avg.	%
Dubai Crude Oil	69.65	74.49	51.85	63.51	-8.81%
Gasoline 95 UNL	79.95	84.57	54.96	72.58	-9.22%
Diesel GO	84.05	85.53	61.60	77.23	-8.11%
Fuel oil HSFO	66.79	82.23	33.32	58.60	-12.26%

2020 Crude Oil Market Outlook

Global Oil Demand



Source: IEA: International Energy Agency

IEA forecast that the global crude oil demand will surge 1.2 million barrels per day in 2020 from 1.0 million barrels per day in 2019 and 1.1 million barrels per day in 2018. However, due to the current spread of Covid-19, significant impacts are being felt on the global economy and oil demand, which in turn stunt industrial activities and travel. In short, crude oil demand this year may fall short of projected levels.

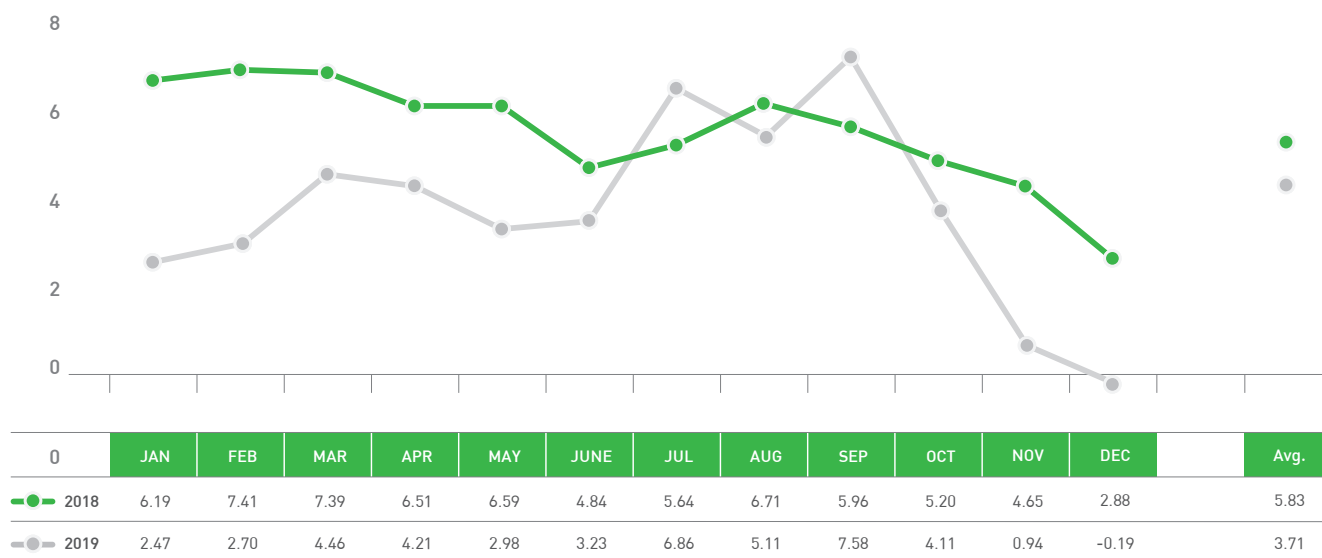
Oil production from non-OPEC countries is likely to increase to 2.1 million barrels per day in 2020. When compared with 2019, the increased production from the US is expected to expand to 1.1 million barrels per day. In 2020, as crude oil export pipelines and new infrastructure begin to operate at full capacity, the production capacity of shale oil from the US would increase. In addition, production technology efficiency assists the US in lowering their production costs and enable production despite low oil market prices. All these factors may cause the world oil market to face a glut.

The price of Dubai crude in 2020 will be expected to move to USD50-60 per barrel. The sluggish demand pressures oil prices due to concerns over economic recession, the US - China trade war, and a new strain of coronavirus (Covid-19) outbreak that may continue to spread throughout China, the world's second largest oil user. Such outbreak may impact both tourism and oil demand. Oil supply is expected to increase from non-OPEC countries, especially crude oil supply from the US as a result of the crude oil export pipelines and new infrastructure, which are starting to operate at full capacity. However, the oil price has been rising due to conflicts between Iran and the US, causing unrest in the Middle East, the world's largest crude oil producers, while OPEC and its allies continued reducing oil production and stabilizing its prices.

2019 Gross Refining Margin

Dubai-based Hydrocracking refining margin in Singapore 2019 vs 2018

Unit: USD/barrel



Source : Reuters

The average 2019 GRM of hydrocracking refineries in Singapore was USD5.83 per barrel, dropping from 2018 (USD7.08 per barrel). This is the result of the gasoline-Dubai spread being pressured by oversupply due to the tension in the trade war between the US and China. China's economic slowdown resulted in increased gasoline exports from China. The margin of diesel fuel - Dubai was pressured by increased supply after new refinery operations in China and Malaysia, as well as refineries' capacity increases in the lead up to the use of the 0.5% limit of the low-sulfur grade marine fuel in 2020. Diesel demand in the region did not significantly increase as the market had previously predicted. Traders reserved low-sulfur fuel oil instead of diesel because of its lower price and its abundance in the market. In the meantime, the Dubai-fuel oil spread was pressured by the low demand for high-sulfur fuel oil that had dropped continuously before the new regulation from the International Maritime Organization (IMO) regarding the use of marine fuel with a low sulfur content limit of 0.5% becomes effective on January 1, 2020.

Unit: USD/barrel

	2018		2019		YoY
Price Spread	Avg.	High	Low	Avg.	%
UNL95 - DB	10.57	20.62	-0.91	9.07	-14.24%
GO - DB	14.68	17.71	9.75	13.72	-6.51%
HSFO - DB	-2.64	14.68	-29.19	-4.91	-86.24%

Gross Refining Margin Outlook

It is expected that, by 2020, the Gross Refining Margin (GRM) of hydrocracking refineries in Singapore will decline slightly from 2019 with lower expected demand for refined petroleum products due to concerns about the recession caused by the trade war between the US and China. Although progress has been made to resolve this dispute, the outbreak of Covid-19 may hurt tourism and oil demand. However, the change the properties of marine fuels to limit sulfur values at up to 0.5% may increase GRMs in Asia.

Thai economy in 2019

The Thai economy in 2019 was in deceleration. The Bank of Thailand estimated that the economic expansion will be lower than the potential level and lower than estimated at 2.5%, a decrease from 4.1% in 2018, following the contracted export volumes of the first half of the year. The recovery trend is slow because of diminishing world trade volumes and the appreciation of Baht compared to trading partner countries affecting exports due to our inability to compete in price. In addition, public and private spending tends to slow down, partly resulting from the postponement of state enterprise investments and joint-venture projects between the public and private sectors (Public Private Partnership: PPP).

The headline inflation is expected to be lower than the target of 0.7% because of reduced energy prices during the past year, the increase in the minimum wage in 2020 to 1.5%, which is lower than previously estimated at 6% and the Bank of Thailand's implementation on a more relaxing monetary policy by reducing the policy interest rate twice in August and November from 1.75% to 1.50% and 1.25%.

For 2020, the Bank of Thailand projected in January 2020 that the economy will expand 2.8%, a mild improvement from the previous year. Exports will gradually improve with the world trade volume expansion after the US and China have reached an initial agreement and the electronic product cycle's likely recovery. Yet, there are still many negative factors, for example the Covid-19 outbreak in China and numerous infected patients in many countries including Thailand. This has affected the tourism sector, the export sector, employment and household income. Delays in the national budget for the year 2020, drought and a sporadic rainy season have hurt the agricultural sector with a high level of household debts, not to mention the PM 2.5 problem (dust particles smaller than 2.5 microns), which has inhibited the Thai economy. below expectations. A private-sector projection in March 2020 put GDP growth for Thailand in 2020 at 1.5-2%. All these factors contribute to an inflation forecast this year of 0.5-0.8%. The rampant spread of Covid-19 has wielded severe economic impacts on the economy, possibly lowering the headline inflation from the previous estimate.

Competition in the oil industry in Thailand

Thailand's fuel demand in 2019 (January - November) increased from 122.28 million liters per day to 124.39 million liters per day, equivalent to 1.7% increase, in line with the national GDP, which continues to expand even though slowing down. As a result of the government's stimulus measures, public services and spending continuing from 2018, one notes continued growing demand for gasohol and diesel from 2018, increasing by 3.9% and 1.9% respectively. The bulk of the growth rate is accounted for by gasohol products, which increased 4.5% from 2018, resulting in the proportion of gasohol usage increasing to 97% of total gasoline consumption.

Domestic Demand for Refined Products

Product	Demand (Million liters/day)		
	2018	2019	Growth
Regular Gasoline	1.09	0.96	-11.9%
Gasohol	29.88	31.24	+4.6%
Gasoline Group	30.98	32.20	+3.9%
Diesel Group	66.02	67.27	+1.9%
Jet fuel	19.31	19.45	+0.7%
Fuel Oil	5.98	5.48	-8.4%
Total	122.28	124.39	+1.7%

Source: Department of Energy Business

On the domestic supply side, the capacities of the six domestic refineries in 2019, consisting of Thai Oil Refinery, IRPC Refinery, PTT Global Chemical Refinery, Esso Refinery, Star Petroleum Refinery, and Bangchak Refinery yielded an average crude run of 1,023 thousand barrels per day, decreased 9.21% from 2018. This is due to annual maintenance shutdowns of Thai Oil Refinery, Esso Refinery, PTT Global Chemical Refinery, and Star Petroleum Refinery. Therefore, the overall refining capacity was reduced. It is expected that by 2020 the capacity will increase, as there is only one annual maintenance shutdown at Bangchak Refinery.

Average Crude Run by Domestic Refineries

Refinery	Crude run (thousand barrels per day, KBD)		
	2019	2018	Growth
Thai Oil	287	305	-5.81%
IRPC	204	206	-1.10%
ESSO	116	144	-19.40%
Star Petroleum	146	177	-17.53%
PTT Global Chemical	159	196	-19.02%
Bangchak	112	100	12.40%
Total	1,023	1,127	-9.21%

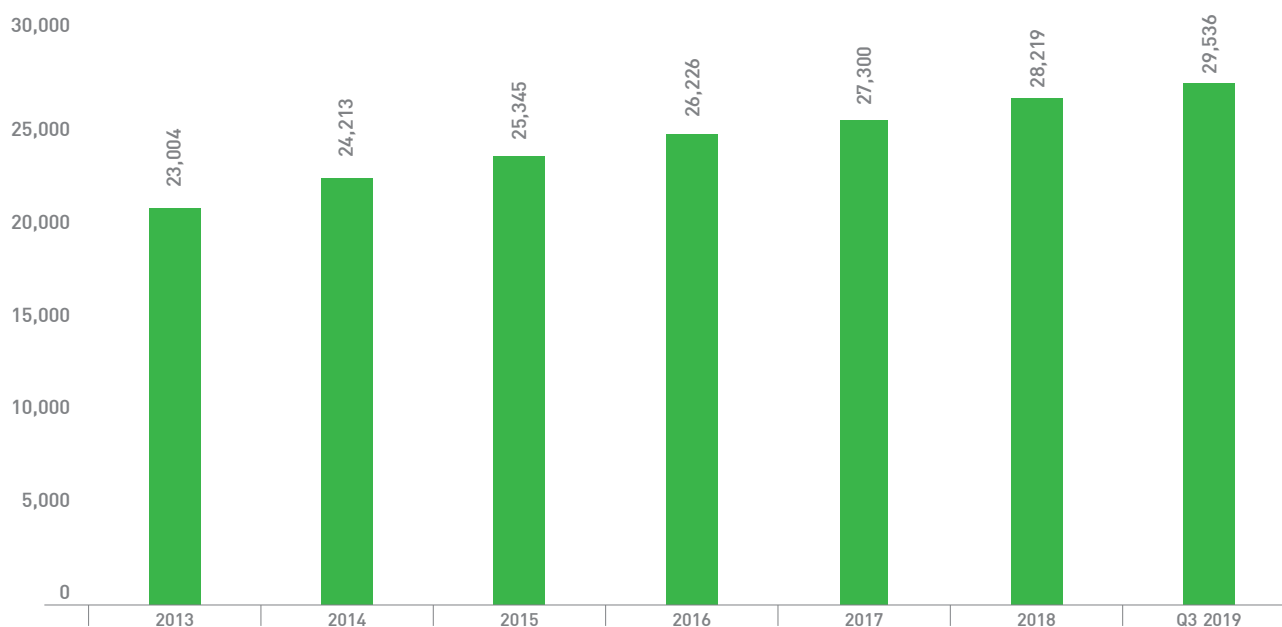
Source : Department of Energy Business

In 2019, the average crude oil price in the global market dropped from the previous year as a result of the trade war between the US and China, thus decelerating demand for oil. The price of oil in 2019 was highly volatile, rising in the first quarter due to tensions in the Middle East and severely fluctuating when the Kingdom of Saudi Arabia's oil processing plant was attacked. As a result, oil traders could not adjust the oil prices to keep up with the costs during certain periods of price spikes. In addition, the Thai government requested cooperation from oil companies to maintain their retail diesel prices to reduce impacts on consumers during the New Year. This affected the marketing margin of oil traders, which decreased from the previous year. It is expected that the marketing margin this coming year will be lower than that in 2019, as the global oil demand is likely to decrease. However, there remain uncertainties in the costs of oil in the global market, faced with internal and external factors, namely the completion of trade accord between the US and China, tension in the Middle East, which also affect supply concerns, and the spread of Covid-19.

The number of service stations nationwide (as of September 30, 2019) has continually increased. In 2019, the number of service stations (Section 11) increased by 1,317 from the same period last year, totaling 29,536 nationwide, a 4.4% increase. With respect to the E20 gasohol and E85 gasohol service stations in 2019 (as of 31 December 2019), the numbers have increased by 360 stations and 183 stations respectively, resulting in the numbers of service stations that sell gasohol E20 and gasohol E85 totaling 4,616 stations and 1,516 stations respectively because of the continuous rise in cars that use gasohol such as E20 and E85 in the market.

Number of Service Stations in 2019

Unit : Number of Station



Source : Department of Energy Business
<http://www.doeb.go.th/2017/#/article/statistic>

Finally, severe competition in the oil industry in Thailand in 2020 is expected, continuing from the previous year. The Covid-19 outbreak may hurt tourism and oil demand. In addition, many companies have increased service stations, with a modern image to include new services for consumers' convenience by incorporating non-oil businesses to increase choices for consumers and continually increase competitiveness.

Shareholder Structure

Registered Capital and Paid-up Capital

The Company's registered capital amounted to Baht 1,376,923,157 of which Baht 1,376,923,157 was paid up. An equal number of common shares were issued at a par value of one Baht each.

Shareholders

Top 10 Major Shareholders (as of August 29, 2019)	Number of Shares	Shareholding (%)
1. Social Security Office	203,417,697	14.77
2. Vayupak Fund 1	201,873,600	14.66
3. Ministry of Finance	137,442,767	9.98
4. Thai NVDR Co., Ltd.	91,454,250	6.64
5. SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	32,835,228	2.38
6. AIA COMPANY LIMITED-EQDI-D FUND 1	30,000,069	2.18
7. Bangkok Life Assurance PCL	23,056,200	1.67
8. Krungsri Dividend Stock LTF	22,045,400	1.60
9. STATE STREET EUROPE LIMITED	19,245,211	1.40
10. Mrs. Somsong Lapananrat	15,689,600	1.14
Top 10 Total	777,060,022	56.43
Grand Total	1,376,923,157	100.00

Shareholders through Thai NVDR Co., Ltd. Who owns more than 0.50% of the paid-up BCP shares

Top Major Shareholders (as of August 29, 2019)	Number of Shares	Shareholding (%)
1. STATE STREET BANK AND TRUST COMPANY	14,065,100	1.02
2. SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	11,696,200	0.85
3. STATE STREET EUROPE LIMITED	9,894,044	0.72
4. BNY MELLON NOMINEES LIMITED	8,883,126	0.65
Total	44,538,470	3.24

Source: <https://www.set.or.th/set/companyholder.do?symbol=BCP-R&language=en&country=US>

Remark: Investors can examine updated shareholders' information at Bangchak's website before the AGM

Issuance of other securities

Debentures

Bangchak earned “A” credit rating for the organization and debt instruments with a “stable” outlook from TRIS Rating Co., Ltd.

This year it issued and offered perpetual subordinated bonds, which repays the principal only once when the company is dissolved or when the issuer exercises the right to redeem them. The issuer can defer interest payment to the holders while accruing payable interests indefinitely without any limit on the number of times, at the issuer’s sole discretion. The bond states the holder’s name, is unguaranteed, nonconvertible, and bears the holder’s agent; the issuer can redeem Baht 10 billion’s worth of such bonds before maturity. As of December 31, 2019, Bangchak posted Baht 31 billion in outstanding bonds as detailed below.

Debenture	Value (Baht million)	Interest rate (%/year)	Maturity (years)	Redemption Date
BCP208A	3,000	2.13	2	August 10, 2020
BCP214A	2,500	4.81	7	April 11, 2021
BCP224A	1,000	5.35	10	April 30, 2022
BCP238A	400	2.96	5	August 10, 2023
BCP244A	3,500	5.18	10	April 11, 2024
BCP258A	600	3.42	7	August 10, 2025
BCP273A	2,000	4.72	12	March 3, 2027
BCP28DA	7,000	4.04	10	December 20, 2028
BCP303A	1,000	5.05	15	March 3, 2030
BCP19PA	10,000	Floating ^{1/}		Principal amount to be repaid once upon company dissolution or when the issuer exercises its right to redeem the bonds

Remarks: ^{1/} Floating interest rates as detailed below:

(1) For the first year to the fifth year, fixed at 5.00% per year

(2) For the sixth year to the 25th year, the rate is the sum of (a) five-year government bond yield rate, (b) initial credit spread, and (c) 0.25% per year

(3) For the 26th year to the 50th year, the rate is the sum of (a) five-year government bond yield rate, (b) initial credit spread, and (c) 1.00% per year

(4) From the 51st year onward, the rate is the sum of (a) five-year government bond yield rate, (b) initial credit spread, and (c) 2.00% per year.

The interest rate is to be adjusted every five years, referenced to the five-year government bond yield rate at the end of the two work days before the start of the new period of interest rate adjustment. The initial credit spread means the difference between the 5.00% per year interest rate and the five-year government bond yield as of September 17, 2019, which equaled 3.61% per year.

Dividend policy

Bangchak Corporation Public Company Limited

The Company has the policy to pay out dividend to the shareholders at the rate of not less than 30 percent of net profit after deduction of allocation of legal reserve. However, this is subject to the economic situation, the Company's cash flow and investment plans of the Company and its subsidiaries according to the necessary, appropriation and other concerning as the Board of Directors' consideration

Dividend Payment History

Year	2014	2015	2016	2017 (Restate)	2018 (Restate)	2019 (first half)
Earnings per share (Baht/share)	0.52	3.01	3.47	4.07	1.79	0.54
Annual dividend (Baht/share)	1.00	2.00	1.80	2.15	1.35	0.50
Dividend payout ratio (%)	192	66	52	53	75	93

Subsidiaries' dividend policies (only dividend-paying ones)

BCPG Plc.

This company's dividend payment is no lower than 40% of its net profit according to separate financial statements after deduction of all reserved funds under its regulations and related laws. The Board of Directors' resolution on dividend payment will be raised for the approval of the shareholders at the AGM, except for interim dividend payment, which the Board authorized to approve and make a subsequent report to shareholders' meeting. Dividend payment is subject to each year's economic situation, the company's cash flow, and investment plans of Bangchak and affiliates. The Board, however, will also take into consideration other factors as seen appropriate.

BBGI Plc.

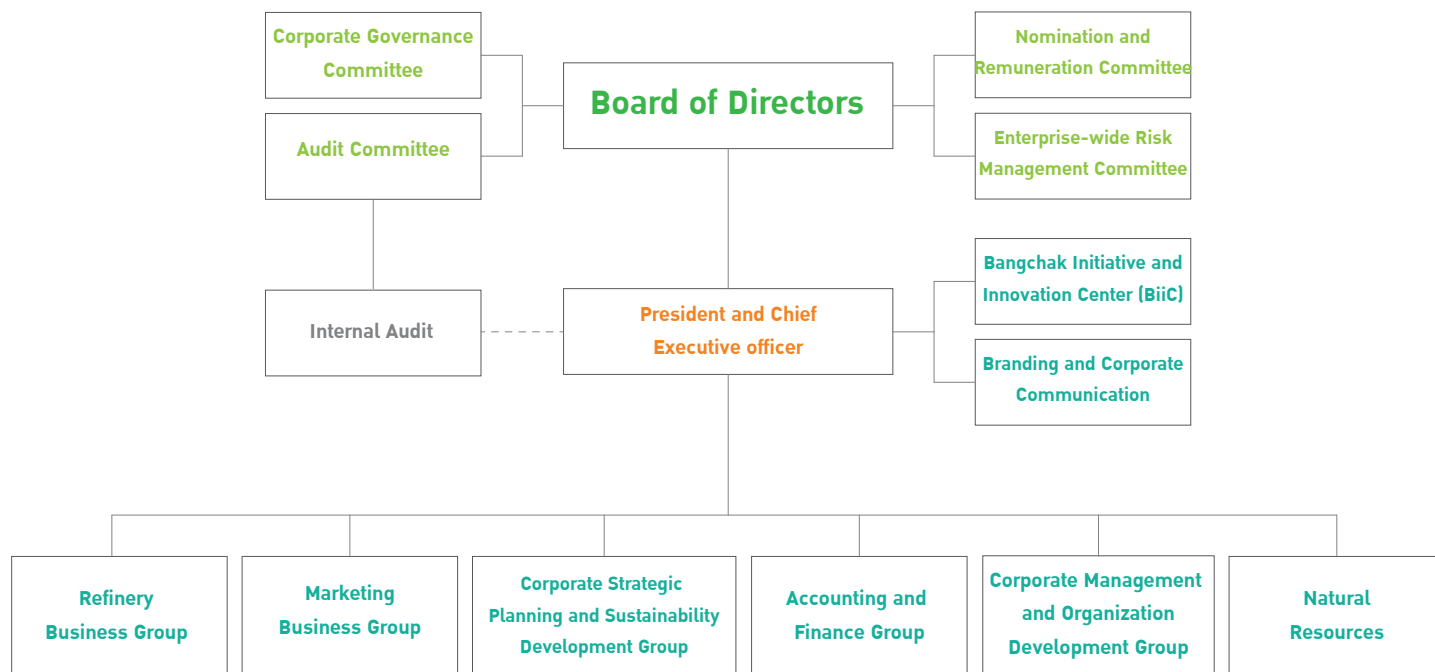
The Company has the policy to pay out dividend to the shareholders at the rate of not less than 40 percent of net profit after deduction of allocation of legal reserve and under BBGI's articles of association. This is still subject to the Company's cash flow after deducting subsidiaries' obligations, essential and appropriate annual investment plans, and other considerations endorsed by the board of directors of each subsidiary.

Bangchak Green Net Co., Ltd.

For a given fiscal year, the holders of preferred shares are entitled to annual dividends equivalent to the average daily interest rates for one-year fix deposits announced by Krungthai Bank Plc plus 3%. Dividends are paid in proportion to each paid-up share value when the dividends are paid out as stated in the resolution of the annual general meeting of shareholders (AGM). For a given year, if the company's profit is less than the dividends calculated for holders of preferred shares, all dividends are to be paid from such profit to holders of preferred shares only, and none is to be paid to holders of common shares. Any outstanding dividends for holders of preferred shares will be carried forward or accumulated to the following year along with those for the holders of common shares. For a given year, if the company's profit exceeds the dividends calculated for holders of preferred shares, the AGM will approve dividends for holders of common shares, case by case.

Management Structure

The Board of Directors and the management perform in the best interests of Bangchak and its shareholders under a clear, balanced, and accountable management structure. The Board monitors and ensures that the management implements its policies, plans and strategies, and that there is clear distinction of roles and responsibilities between the Board and the management.



Remark : The Audit Committee considers, appoints, transfers, dismisses, and undertakes annual evaluation of the Chief Audit Executive and review the independence of Internal Audit.

1. Board of Directors

There were 15 directors (As of 31 December 2019) as follows:

Name	Position	Appointment date
1. Mr. Pichai Chunhavajira	- Chairman (Independent director)	24 April 2012 (Independent director since 1 June 2017)
2. Mr. Surin Chiravisit	- Vice Chairman - Member of the Enterprise-wide Risk Management Committee - Member of the Corporate Governance Committee	8 April 2010
3. Mr. Suthep Wongvorazathe	- Independent director - Chairman of the Audit Committee - Chairman of the Nomination and Remuneration Committee	30 October 2012
4. Gen. Vitch Devahasdin	- Independent director - Chairman of the Corporate Governance Committee	5 April 2016

Name	Position	Appointment date
5. Adm. Sucheep Whoungmaitree	- Independent director - Member of the Nomination and Remuneration Committee	26 May 2015
6. Pol.Lt.Gen. Chaiwat Chotima	- Independent director - Member of the Audit Committee - Member and Secretary of the Nomination and Remuneration Committee	9 April 2014
7. Lt.Gen. Thammanoon Withee	- Independent director - Member of the Nomination and Remuneration Committee	28 September 2018
8. Mrs. Prisana Praharnkhasuk	- Independent director - Member of the Enterprise-wide Risk Management Committee	5 April 2016
9. Mr. Teerapong Wongsiwawilas	- Independent director - Member of the Corporate Governance Committee	26 January 2017
10. Dr. Porametee Vimolsiri	- Independent director - Member of the Audit Committee	7 June 2018
11. Mr. Suthi Sukosol	- Director (Representative of Social Security Office) - Member of the Corporate Governance Committee	26 July 2019 Replacing Mr. Jarin Chakkaphark
12. Mr. Prasong Poontaneat	- Director (Representative of Ministry of Finance) - Chairman of the Enterprise-wide Risk Management Committee	24 April 2012
13. Dr. Anuchit Anuchitanukul	- Director (Representative of Ministry of Finance) - Member of the Enterprise-wide Risk Management Committee	25 April 2018
14. Dr. Prasert Sinsukprasert	- Director - Member of the Enterprise-wide Risk Management Committee	5 April 2016
15. Mr. Chaiwat Kovavisarach	- President and Chief Executive Officer - Member and Secretary of Corporate Governance Committee - Member and Secretary of Enterprise-wide Risk Management Committee - Secretary of the Board of directors	30 October 2012

Directors whose terms were completed and resigned directors in 2019

1. Mr. Jarin Chakkaphark	- Director (Representative of Social Security Office) - Member of the Corporate Governance Committee	12 October 2017 (Resigned on 8 May 2019)
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The names and number of the authorized directors who have authority to sign on behalf of the Company are: Mr. Pichai Chunhavajira jointly with Mr. Chaiwat Kovavisarach with affixation of the Company's seal or any one of these two directors signs jointly with Mr. Surin Chiravisit or Mr. Suthep Wongvorazathe or Pol.Lt.Gen. Chaiwat Chotima or Adm. Sucheep Whoungmaitree or Mrs. Prisana Praharnkhasuk or Lt.Gen. Thammanoon Withee, being two persons, with affixation of the Company's seal.

Board structure

- ✔ Board diversity prevails, equipped with a series of skills matching Bangchak's business strategies, which are identified through Board Skill Matrix preparation.
- ✔ The Board consists of 5-15 directors without gender discrimination. **Today there are 15 of them, with one female member.**
- ✔ Independent directors account for more than one-third of the Board. Today there are 9 of them, which exceeds half of the Board, thus conforming to good governance.
- ✔ **The Chairman cannot be the same person as the President and Chief Executive Officer and does not belong to any Sub-Committee in view of clear-cut responsibilities and duties.**

Board Skills Matrix

Name/Specific Expertise	Oil business	Retail business	Energy business	International business	Accounting and finance	Management	Compliance	Organizational development and innovation	Society, environment, and safety	Risk and crisis management
1. Mr. Pichai Chunhavajira	X	X	X	X	X	X		X	X	X
2. Mr. Surin Chiravisit	X	X	X			X	X	X	X	X
3. Mr. Suthep Wongvorazathe	X	X	X	X	X	X				X
4. Gen. Vitch Devahasdin						X	X	X	X	X
5. Adm. Sucheep Whoungmaitree						X	X	X	X	X
6. Pol.Lt.Gen. Chaiwat Chotima	X	X	X			X			X	X
7. Lt.Gen. Thammanoon Withee						X	X	X	X	X
8. Mrs. Prisana Praharnkhasuk	X		X		X	X		X		X
9. Mr. Teerapong Wongsiwawilas						X	X	X		X
10. Dr.Porametee Vimolsiri			X	X	X	X		X	X	X
11. Mr. Suthi Sukosol						X		X	X	X
12. Mr. Prasong Poontaneat	X	X	X		X	X	X	X		X
13. Dr. Anuchit Anuchitanukul		X		X	X	X		X		X
14. Dr. Prasert Sinsukprasert	X	X	X			X				X
15. Mr. Chaiwat Kovavisarach	X	X	X	X	X	X		X	X	X
Total	8	8	9	5	7	15	6	12	9	15

Independent Directors

There is a need to ensure that independent directors are critical to good governance, looking after the interests of Bangchak and its shareholders by imposing checks and balances on Board decision-making and commanding awareness of their duties with due regard for righteousness and free views from any party's influence. The Board therefore devised definitions and qualifications of independent directors in Section 3.1 of the corporate governance policy, with stricter shareholding requirements than those of SEC and SET, that is, 0.5% against the legal maximum of 1% of the total eligible voting shares of Bangchak, its parent company, subsidiaries, associates, major shareholder or controller, and independent directors' related parties.

Appointment and Dismissal of Directors

1. Shareholder's meetings elect Directors through majority voting with one shareholder holding one vote per share held and can elect Directors individually. The candidates with the most votes are to be appointed Directors up to the number open at the meeting. If more candidates receive equal votes than the number of Directors required, the Chairman of the meeting must cast a deciding vote.
2. In every Annual General Meeting (AGM), one-third of the Directors must retire. If this number is not a multiple of three, then the number nearest to one-third. The names of the Directors to retire during the first and second year after the Company was registered are to be drawn by lots if not agreed otherwise. For subsequent years, those with the longest terms must retire. The retired Directors can be re-elected.
3. Other than the completion of term, a Director may retire for to the following reasons:
 - death
 - resignation
 - lack of qualifications according to the Public Company Limited Act and the Securities and Exchange Act
 - decision of the shareholders' meeting to resign according to the Public Company Limited Act
 - court order
4. In case a Director's position is vacant due to other reason than the completion of term, the Board of Directors is to elect a candidate with qualifications according to the Company's regulations in the next meeting except when the Director's term is to be completed in less than two months. At least, a three-quarter vote of the Directors present at the meeting is required. The elected Director holds the position until the completion of term of the Director they have replaced.

Policy on Director Nomination

To nominate Directors, the Company focuses on people with knowledge, capability, experience, sound career profile, leadership, vision, morality, ethics and good attitude toward the organization, who can dedicate adequate time for the Company's benefit. Moreover, consideration was also given to Board diversity and Board skill matrix in order to nominate the directors's qualifications **by considering skills which have been missing and also appropriate qualifications in compliance with the structure of Directors and in line with the Company's strategic directions. Bangchak will also use Director Pool from the Thai Institute of Directors (IOD) to nominate directors** through transparent procedures to bolster the confidence of shareholders.

Policy on Board Diversity

Nomination of directors takes into account diversity in several aspects, including educational background, career experience, skills, and expertise without any regard for gender, age, nationality, origin, religious belief, or other differences.

Directors' Nomination

1. Bangchak allows minor shareholders to nominate directors by submitting their names to it
2. The Nomination and Remuneration Committee (NRC) reviews Board structure for suitability and Bangchak's strategic needs
3. NRC defines the competency and experience for directors to be nominated by using Director Qualifications and Skill Matrix so that they may match Bangchak's goals and strategies
4. NRC proceeds with nomination and tables qualified persons for directors in place of those whose terms expire or for additional directors, using IOD's Director Pool as part of the nomination process. NRC is also to nominate directors to its secretary.
5. NRC selects those qualified to be directors and tables their names for the Board's endorsement
6. The Board endorses the list of directors for subsequent approval by the AGM.

Terms of Directorship

The appropriate term for directorship is no more than three consecutive terms (from 2008 onward) except for when a director is deemed suitable to hold the position for a longer period. The Board will consider the independence and effectiveness of the director who is under consideration and defend their decision to the shareholders. **Independent directors do not hold their positions for more than three consecutive terms from the date of the first appointment of their independent directorship. The Board will consider their reappointment based on reason and necessity and will consider them non-independent directors.**

Roles, Duties, and Responsibilities of the Board of Directors

1. Carry out duties under laws, objectives and regulations of the Company as well as resolutions of shareholders' meetings with honesty, protect the Company's benefit and have accountability to the shareholders.
2. Establish Clear Leadership Role and Responsibilities of the Board
 - 2.1 The board should demonstrate a thorough understanding of its leadership role, assume its responsibilities in overseeing the company, and strengthen good governance, including:
 - (1) defining objectives;
 - (2) determining means to attain the objectives; and
 - (3) monitoring, evaluating, and reporting on performance.
 - 2.2 To achieve sustainable value creation, the board should exercise its leadership role and pursue the following governance outcomes:
 - (1) competitiveness and performance with long-term perspective;
 - (2) ethical and responsible business;
 - (3) good corporate citizenship; and
 - (4) corporate resilience.
 - 2.3 The board should ensure that all directors and executives perform their responsibilities in compliance with their fiduciary duties, and that the company operates in accordance with applicable law and standards.
 - 2.4 The board should demonstrate a thorough understanding of the division of board and management responsibilities. The board should clearly define the roles and responsibilities of management and monitor management's proper performance of its duties.
3. Define Objectives that Promote Sustainable Value Creation
 - 3.1 The board should define objectives that promote sustainable value creation and governance outcomes as a framework for the operation of the company.
 - 3.2 The board should ensure that the company's annual and medium-term objectives, goals, strategies, and plans are consistent with the long-term objectives, while utilising innovation and technology effectively.

4. Strengthen Board Effectiveness

- 4.1 The board should be responsible for determining and reviewing the board structure, in terms of size, composition, and the proportion of independent directors so as to ensure its leadership role in achieving the company's objectives.
- 4.2 The board should select an appropriate person as the chairman and ensure that the board composition serves the best interest of the company, enabling the board to make its decisions as a result of exercising independent judgement on corporate affairs.
- 4.3 The board should ensure that the policy and procedures for the selection and nomination of directors are clear and transparent resulting in the desired composition of the board.
- 4.4 When proposing director remuneration to the shareholders' meeting for approval, the board should consider whether the remuneration structure is appropriate for the directors' respective roles and responsibilities, linked to their individual and company performance, and provide incentives for the board to lead the company in meeting its objectives, both in the short and long term.
- 4.5 The board should ensure that all directors are properly accountable for their duties, responsibilities and (in-) actions, and allocate sufficient time to discharge their duties and responsibilities effectively.
- 4.6 The board should ensure that the company's governance framework and policies extend to and are accepted by subsidiaries and other businesses in which it has a significant investment as appropriate.
- 4.7 The board should conduct a formal annual performance evaluation of the board, its committees, and each individual director. The evaluation results should be used to strengthen the effectiveness of the board.
- 4.8 The board should ensure that the board and each individual director understand their roles and responsibilities, the nature of the business, the company's operations, relevant law and standards, and other applicable obligations. The board should support all directors in updating and refreshing their skills and knowledge necessary to carry out their roles on the board and board committees.
- 4.9 The board should ensure that it can perform its duties effectively and have access to accurate, relevant and timely information. The board should appoint a company secretary with necessary qualifications, knowledge, skills and experience to support the board in performing its duties.

5. Ensure Effective CEO and People Management

- 5.1 The board should ensure that a proper mechanism is in place for the nomination and development of the chief executive officer and key executives to ensure that they possess the knowledge, skills, experience, and characteristics necessary for the company to achieve its objectives.
- 5.2 The board should ensure that an appropriate compensation structure and performance evaluation are in place.
- 5.3 The board should consider its responsibilities in the context of the company's shareholder structure and relationships, which may impact the management and operation of the company.
- 5.4 The board should ensure the company has effective human resources management and development programmes to ensure that the company has adequate staffing and appropriately knowledgeable, skilled, and experienced employees and staff.

6. Nurture Innovation and Responsible Business

- 6.1 The board should prioritise and promote innovation that creates value for the company and its shareholders together with benefits for its customers, other stakeholders, society, and the environment, in support of sustainable growth of the company.
- 6.2 The board should encourage management to adopt responsible operations, and incorporate them into the company's operations plan. This is to ensure that every department and function in the company adopts the company's objectives, goals, and strategies, applying high ethical, environmental and social standards, and contributes to the sustainable growth of the company.
- 6.3 The board should ensure that management allocates and manages resources efficiently and effectively throughout all aspects of the value chain to enable the company to meet its objectives.

- 6.4 The board should establish a framework for governance of enterprise IT that is aligned with the company's business needs and priorities, stimulates business opportunities and performance, strengthens risk management, and supports the company's objectives.
7. Strengthen Effective Risk Management and Internal Control
 - 7.1 The board should ensure that the company has effective and appropriate risk management and internal control systems that are aligned with the company's objectives, goals and strategies, and comply with applicable law and standards.
 - 7.2 The board shall establish an audit committee that can act effectively and independently.
 - 7.3 The board should manage and monitor conflicts of interest that might occur between the company, management, directors, and shareholders. The board should also prevent the inappropriate use of corporate assets, information, and opportunities, including preventing inappropriate transactions with related parties.
 - 7.4 The board should establish a clear anti-corruption policy and practices (including communication and staff training), and strive to extend its anti-corruption efforts to stakeholders.
 - 7.5 The board should establish a mechanism for handling complaints and whistleblowing.
8. Ensure Disclosure and Financial Integrity
 - 8.1 The board must ensure the integrity of the company's financial reporting system and that timely and accurate disclosure of all material information regarding the company is made consistent with applicable requirements.
 - 8.2 The board should monitor the company's financial liquidity and solvency.
 - 8.3 The board should ensure that risks to the financial position of the company or financial difficulties are promptly identified, managed and mitigated, and that the company's governance framework provides for the consideration of stakeholder rights.
 - 8.4 The board should ensure sustainability reporting, as appropriate.
 - 8.5 The board should ensure the establishment of a dedicated Investor Relations function responsible for regular, effective and fair communication with shareholders and other stakeholders (such as analysts and potential investors).
 - 8.6 The board should ensure the effective use by the company of information technology in disseminating information.
9. Ensure Engagement and Communication with Shareholders
 - 9.1 The board should ensure that shareholders have the opportunity to participate effectively in decision-making involving significant corporate matters.
 - 9.2 The board should ensure that the shareholders' meetings are held as scheduled, and conducted properly, with transparency and efficiency, and ensure inclusive and equitable treatment of all shareholders and their ability to exercise their rights.
 - 9.3 The board should ensure accurate, timely and complete disclosure of shareholder resolutions and preparation of the minutes of the shareholders' meetings.
10. Maintain the Company's inside information obtained from their job performance and refrain from exploiting such information for personal or other parties' gains. Undertake no securities transactions at least one month prior to announcement of financial statements and at least three days after such announcement
11. Report on one's own portfolio of securities, as well as those of their spouses, cohabitation partners, and minor children under legal age, including legal entities where they have more than 30% shareholding of the number of all voting rights to the monthly Board meeting and must report to the Company without delay in the following cases:
 - Directors or related person with vested interests in the Company's or its subsidiaries' management
 - Hold shares or debentures in the Company or subsidiary companies.
12. Each Director cannot hold the position of Director in more than other two listed companies in the Stock Exchange of Thailand (SET), excluding Directors' current positions (as of August 19, 2016), the policy-amending date. This excludes the executive director or CEO in the capacity of board director for companies in the group.

Roles and Responsibilities of the Chairman, leader of the Board

- Steer, monitor, and ensure efficient performance of the Board in fulfilling the Company's objectives and main goals.
- Ensure full participation by the Directors in advocating a corporate culture of ethics and good corporate governance.
- Set Board meeting agenda in consultation with the President and Chief Executive Officer, with measures to ensure that essential matters are included
- Allocate adequate time for the management to table matters and for Directors to thoroughly discuss important matters
- Promote Directors' exercising of full discretion, their attention to all matters brought to the meetings, and corporate governance matters
- Promote sound relations between the Board and the management. Support the management's management without interfering in day-to-day affairs.

The Board is authorized to approve various matters, including:

- Vision, short-term and long-term strategic plans
- Annual plans and budgets
- Investment and operation of key projects for Bangchak and affiliates
- Management restructuring
- Dividend policy
- Performance assessment of itself and the President and Chief Executive Officer
- Decision on the President and Chief Executive Officer's compensation
- Appointment of Directors who resign during the year and that of sub-committees
- Designation of Directors authorized to sign and bind Bangchak
- Appointment of executive vice presidents upward
- Appointment of Directors serving on Bangchak's affiliates and setting of oversight guidelines for such companies.

Board meetings

- The Board schedules its meetings at least **once a month (every third Thursday)** and as deemed necessary. The meeting schedule and agendas are agreed in advance for the year. The invitation letters accompanied by relevant documents are sent to the directors at least seven days in advance of each meeting.
- **Meetings among the non-management directors and the independent directors at least twice a year**, these preceded the Board meetings. The intention is to freely discuss general issues on management or corporate governance, with subsequent notification to the President and chief executive officer so that the management may take actions on such issues.
- Each Board meeting should be attended by at least three-quarters of all directors. Additionally, **at least three-fourths of all board members are needed to vote on an issue.**
- Each year, **directors should attend no less than 75% of all Board meetings.** (Directors should attend the meeting at least 9 of 12 times a year)

In 2019, **the Board held 12 meetings with exclusive meetings of the independent directors in April and September and meetings of the non-management directors in May and October, and one annual seminar on corporate strategies with the management to review and revise the corporate vision and set goals every five years** on annual basis under Bangchak's vision, mission, and values, together with an assessment of business circumstances. The Board of Directors reviewed and resolved that the Company's Vision, mission and core value shall remain unchanged.

New Directors' Orientation

Bangchak stages lectures and company visits and prepares a directors' manual for new directors to be informed of its business nature and approaches, relevant laws and regulations, corporate governance policy, and other essential information that will prove useful to their efficient performance. This year the following directors attended new directors' orientations:

- Mr. Suthi Sukosol on 14 August 2019

Directors' Development

Bangchak encourages its Board to undergo additional study and training to enhance their knowledge of Board roles and duties in efficient management under corporate governance. To this end, it applied for IOD memberships on behalf of all directors to benefit from related intelligence and knowledge accrual. This year the following directors took advantage of such training and study visits:

- A lectured entitled "Turning Big Data into Decisions" by Mr. Andreas Weigend, a Big Data expert, on March 6, 2019, delivered to Mr. Prasert Sinsukprasert
- A lecture entitled "Energy Sector Environment" by a speaker from McKinsey & Company, delivered to the Board of Directors at the annual corporate strategic seminar on July 12-13, 2109
- A study visit by the Board of Directors to OKEA ASA in Norway from August 31 to September 8, 2019
- A lecture entitled "Business Canvas" by Mr. Alex Osterwalders, a subject matter expert, delivered to the Board of Directors from December 11 to 12, 2019.

As of today, two directors have attended IOD's Director Accreditation Program (DAP) and ten have attended its Director Certification Program (DCP). Training details appear under "Boards of Directors".

Sub-Committees

The Board of Directors elected Sub-committees (or Committees) to facilitate the Company's business, undertaking with four sub-committees. The Committees can serve for three years in each term. Details about subcommittee charters appear in the corporate governance policy, publicized on Bangchak's website.

1. Audit Committee (AC)

The Audit Committee must be made up of independent directors. At least three independent directors form the Audit Committee, and at least one of them must be adequately knowledgeable or experienced in accounting, finance, or audit to review the credibility of financial statements.

Name	Position
1. Mr. Suthep Wongvorazathe	Chairman and Independent Director with expertise in accounting and finance
2. Dr. Poramatee Vimolsiri	Member and Independent Director with expertise in accounting and finance
3. Pol.Lt.Gen. Chaiwat Chotima	Member and Independent Director
4. Executive Vice President, Internal Audit	Secretary

Roles and Responsibilities

- 1 To ensure accuracy and adequacy of the Company's financial reporting according to Accounting Principles governed by laws.
- 2 To ensure that the Company has a suitable and efficient internal control system and internal audit and to ensure the efficiency and adequacy of the risk management system.

3. To review the performance of the Company to ensure compliance with the securities and exchange law, regulations of the exchange or laws relating to business of the Company.
4. To review a connected transaction or transaction that may lead to conflict of interest or acquisition and disposition of assets transaction to ensure compliance with the laws and regulations of the Stock Exchange of Thailand (SET), and that it is reasonable and brings the highest benefit to the Company.
5. To inspect and consider with the management on the defects that have been found and on the responses from the management.
6. To empower the auditing and investigating of all related parties under the authorization of the Audit Committee and also to authorize hiring of an expert so as to audit and investigate in compliance with the Company's regulations.
7. To prepare a report of the Audit Committee and disclose it in the annual report of the Company, and have such report signed by Chairman of the Audit Committee.
8. To consider, select, nominate the person who is independent to be the Company's auditor, recommend remuneration of the Company's auditor, recommend the removal of the Company's auditor and, at least once a year, attend the private meeting with an auditor without management.
9. To consider auditing scopes and plans of the external auditor and the Internal Audit so that they are contributory to each other and to reduce double operations as concerns financial auditing.
10. To approve the Charter, audit work plans, budget, training plans and manpower of the Internal Audit
11. To appoint, transfer, dismiss, and undertake annual evaluation of the Chief Audit Executive and review the independence of Internal Audit.
12. To review the efficiency and effectiveness of internal control and risk management focusing on the issue of information technology.
13. In performing the duty of the Audit Committee, if there is transaction or act which could extremely affect the Company's financial status and the Company's performance, namely
 - Transaction which lead to conflict of interest
 - Dishonest, extremely unusual or remiss internal control system
 - Breaking the securities and exchange law, regulations of the exchange or laws relating to business of the Company
 The Audit Committee has to report it to the Board of Directors so as to modify and revise within prescribed time. If the Audit Committee or executives does not modify and revise within the prescribed time, the Audit Committee is able to report this transaction or act to the Securities and Exchange Commission or the Stock Exchange of Thailand.
14. To review and consider the Self-Evaluation Tool for Countering Bribery of Thailand's Private Sector Collective Action Coalition Against Corruption (CAC).
15. To perform any other act assigned by the Board of Directors with approval of the Audit Committee.

The external auditor's employment contract may be revoked if it does not perform, neglects its duties, or is engaged in malfeasance.

2. Nomination and Remuneration Committee (NRC)

The Nomination and Remuneration Committee is made up of at least three persons, and more than half must be independent directors. At least one member must be knowledgeable or experienced in personnel management. The Chairman of the committee must be an independent director.

Name	Position
1. Mr. Suthep Wongvorazathe	Chairman and Independent Director
2. Adm. Sucheep Whoungmaitree	Member and Independent Director
3. Lt.Gen. Thammanoon Withee	Member and Independent Director
4. Pol. Lt. Gen. Chaiwat Chotima	Member and Secretary, Independent Director

Roles and Responsibilities

1. Define qualifications needed for potential Directors, and President and Chief Executive Officer.
2. Recommend qualified candidates for the positions of Directors, and President and Chief Executive Officer to the Board of Directors.
3. Define criteria of remuneration for Directors, and the President and Chief Executive Officer.
4. Submit the remuneration for Directors to the Board of Directors and then for the shareholders for approval.
5. Submit the remuneration for the President and Chief Executive Officer to the Board of Directors for approval.
6. Review and summarize the President and Chief Executive Officer's succession plan every year and report it to the Board of Directors.
7. Perform other tasks as assigned by the Board of Directors

3. Enterprise-wide Risk Management Committee (ERMC)

The ERMC is made up of at least three members, at least one of whom must be knowledgeable in risk management. Qualified external parties can serve as members.

Name	Position
1. Mr. Prasong Poontaneat	Chairman and Non-executive Director
2. Mr. Surin Chiravisit	Member and Non-executive Director
3. Mrs. Prisana Praharnkhasuk	Member and Independent Director
4. Dr. Prasert Sinsukprasert	Member and Non-executive Director
5. Dr. Anuchit Anuchitanukul	Member and Non-executive Director
6. Mr. Chaiwat Kovavisarach	Member and Secretary, Executive Director

Roles and Responsibilities

1. Set policy, strategies and objectives of the enterprise-wide risk management.
2. Develop enterprise-wide risk management system in view of continuous efficiency.
3. Promote enterprise-wide risk management at all levels of the organization.
4. Ensure that the Company has appropriate and efficient risk management.
5. The Chairman of the Enterprise-wide Risk Management Committee reports the findings to the Board of Directors' next meeting.
6. Perform other tasks as assigned by the Board of Directors

4. Corporate Governance Committee (CGC)

The Corporate Governance Committee is made up of at least three directors, and at least one of whom must be knowledgeable in corporate governance practices by international standards. An independent director must serve as Chairman of this committee.

Name	Position
1. Gen. Vitch Devahasdin	Chairman and Independent Director
2. Mr. Teerapong Wongsiwawilas	Member and Independent Director
3. Mr. Suthi Sukosol	Member and Non-executive Director
4. Mr. Chaiwat Kovavisarach	Member and Secretary, Executive Director

Roles and Responsibilities

1. Recommend the implementation of corporate governance to the Board of Directors
2. Monitor the work of the Committee and the management in compliance with the principles of corporate governance.
3. Review the implementation of corporate governance by comparing it with international standards and recommend it to the Board of Directors for continual follow-ups.
4. Provide the corporate governance policy to the Company's corporate governance working team.
5. Perform other tasks as assigned by the Board of Directors

Summary of Board and Sub-committees meeting attendance

Names	Meeting attendance / total (times)							Remarks
	Board of Directors			Sub-Committees				
	Meeting	Seminar	Total	AC	NRC	ERMC	CGC	
1. Mr. Pichai Chunhavajira ^{1/}	12/12	1/1	13/13	-	-	-	-	
2. Mr. Surin Chiravisit ^{2/}	12/12	1/1	13/13	-	1/1	5/5	3/3	
3. Mr. Suthep Wongvorazathe ^{3/}	12/12	1/1	13/13	12/12	4/4	-	-	
4. Gen. Vitch Devahasdin	11/12	0/1	11/13	-	-	-	3/3	
5. Adm. Sucheep Whoungmaitree	12/12	1/1	13/13	-	4/4	-	-	
6. Pol.Lt.Gen. Chaiwat Chotima	10/12	1/1	11/13	12/12	4/4	-	-	
7. Lt.Gen. Thammanoon Withee	12/12	0/1	12/13	-	1/4	-	-	
8. Mrs. Prisana Praharnkhasuk ^{4/}	12/12	1/1	13/13	-	-	4/4	-	
9. Mr. Teerapong Wongsiwawilas	12/12	1/1	13/13	-	-	-	3/3	
10. Dr. Porameteer Vimolsiri ^{5/}	12/12	1/1	13/13	11/12	-	-	-	
11. Mr. Suthi Sukosol ^{6/}	5/5	0/0	5/5	-	-	-	2/2	Appointed on 26 July 2019
12. Mr. Prasong Poontaneat	12/12	0/1	12/13	-	-	5/5	-	
13. Dr. Anuchit Anuchitanukul	11/12	1/1	12/13	-	-	4/5	-	
14. Dr. Prasert Sinsukprasert	12/12	1/1	13/13	-	-	5/5	-	
15. Mr. Chaiwat Kovavisarach	11/12	1/1	12/13	-	-	5/5	3/3	
Directors whose terms were completed and resigned directors in 2019								
1. Mr. Jarin Chakkaphark	3/4	-	3/4	-	-	-	-	Resigned on 8 May 2019

Remarks: ^{1/} Chairman did not join any Sub-Committee as Member

^{2/} Appointed as Member of CGC and dismissed from Chairman of NRC on 25 April 2019

^{3/} Appointed as Chairman of NRC on 25 April 2019

^{4/} Dismissed from Member of AC on 1 January 2019 and appointed as Member of ERMC on 25 April 2019

^{5/} Appointed as Member of AC and dismissed from Member of ERMC on 1 January 2019

^{6/} Appointed as Member of CGC on 26 July 2019

Assessment of directors' performances

The Board completes business performance assessment forms at least once a year, which the Company Secretary will arrange for delivery and collection for making an executive summary or the results for presentation at a Board meeting. Directors jointly consider business performance and suggest improvements. Assessment scores are given in percent, with >85% = excellent, >75% = very good, >65% = good, >50% = fair, and <50% = need improvement. The assessment is summarized below:

1) Individual directors

- Self-assessment relies on three topics, namely responsibility for their roles, training and self-development, and conformance to the corporate governance policy. The overall summary of assessment findings showed an average score of 94.3%, regarded as excellent.
- Cross-assessment by group (3-4 unnamed directors assessing another director) relies on two topics, namely responsibility for their roles and directors' independence. The overall summary of assessment findings showed an average of 96.0%, regarded as excellent.

2) **Entire Board** relies on topics, namely Structure and Skills, Strategic Direction and Planning, Policy, Monitoring and Supervision, Accountability, CEO and Succession, Leadership and Teamwork, and Agendas, Papers, Meetings and Minutes. The overall summary of assessment findings showed an average score of 96.7%, regarded as excellent.

3) **Sub-committees** relies on responsibilities and meetings; the evaluations of all Committees were as follows:

- Audit Committee, the group evaluation had the average score of 98.3%, rated excellent.
- Nomination and Remuneration Committee, the group evaluation had the average score of 97.5%, rated excellent.
- Corporate Governance Committee, the group evaluation had the average score of 93.3%, rated excellent.
- Enterprise-wide Risk Management Committee, the group evaluation had the average score of 94.7%, rated excellent.

Board Remuneration

- 1) The Board's remuneration comes in three forms: monthly (retainer) remuneration, meeting allowances, and bonus. Such remuneration, made comparable to those of the same industry, is linked to the performance of the Company and individual directors.
- 2) Directors with additional responsibilities, including subcommittee service, shall receive additional remuneration in proportion to such responsibilities.
- 3) In line with good corporate governance, the Board has instituted the reporting of individual directors' remuneration and the management's remuneration - which includes disclosure of the remuneration of directors or executives, or both, if they are appointed to other positions in subsidiaries - in the annual report.

Policy on Director Remuneration

In setting directors' compensation, Bangchak takes into account suitability for duties, assigned responsibility, and parity with SET-listed industry and business peers of comparable sizes. Such compensation must be attractive enough to inspire quality performance to achieve Bangchak's goals and business directions under a transparent process to bolster shareholders' confidence.

Director Remuneration approved by 2019 AGM of 11 April 2019 are as follows:

1) Monthly remuneration and meeting allowance

The Board of Directors	Monthly Remuneration (Baht/person)	Meeting Allowance (Baht/person/time) (Only for attending directors)
The Board of Directors	30,000	30,000
The Sub-Committees		
1. The Audit Committee	10,000	15,000
2. The Nomination and Remuneration Committee	-	15,000
3. Enterprise-wide Risk Management Committee	-	15,000
4. Corporate Governance Committee	-	15,000
5. Other committees that may be appointed in the future by the Board as seen fit and necessary	-	15,000

The Chairman of the Board of Directors and the Chairman of the Sub-Committees shall receive monthly remuneration and meeting allowances higher than those of members by 25 percent, whilst the Vice Chairman of the Board of Directors shall receive monthly remuneration and meeting allowances higher than those of members by 12.5 percent respectively.

2) Bonuses for Directors

0.75 percent of the net profit, but not over 3,000,000 Baht/year per director. The calculated amounts are to reflect individual periods of service. Moreover, the Chairman and Vice Chairman shall receive the bonus higher than those of members by 25 percent and 12.5 percent respectively.

3) Other Remuneration

Group health insurance

IPD+OPD treatment with annual health insurance not exceeding 50,000 Baht (excluding VAT) per one director

Directors' Other Expenses

1) Other Essential Business Expenses

- Position car for the Chairman's business convenience
- Driver for the Vice Chairman's business convenience
- Credit card for the Chairman's business use (credit limit 500,000 Baht)
- Fleet card for each director's business use (up to 400 liters/month/director)

2) Others

- Annual physical check-ups
- Directors' & Officers' liability insurance (limit of liability: 250 million Baht)

In 2019, the individual remuneration of Directors was as follows:

Names	Remuneration in Baht							Total
	BOARD	AC	NRC	ERMC	CGC	Bonus		
1. Mr. Pichai Chunhavajira	937,500	-	-	-	-	1,504,169.08	2,441,669.08	
2. Mr. Surin Chiravisit	877,500	-	18,750	75,000	45,000	1,353,752.16	2,370,002.16	
3. Mr. Suthep Wongvorazathe	780,000	375,000	71,250	-	-	1,203,335.25	2,429,585.25	
4. Gen. Vitch Devahasdin	690,000	-	-	-	56,250	1,203,335.25	1,949,585.25	
5. Adm. Sucheep Whoungmaitree	780,000	-	60,000	-	-	1,203,335.25	2,043,335.25	
6. Pol.Lt.Gen. Chaiwat Chotima	690,000	300,000	60,000	-	-	1,203,335.25	2,253,335.25	
7. Lt.Gen. Thammanoon Withee	720,000	-	15,000	-	-	1,012,120.34	1,747,120.34	
8. Mrs. Prisana Praharnkhasuk	780,000	-	-	60,000	-	1,203,335.25	2,043,335.25	
9. Mr. Teerapong Wongsiwawilas	750,000	-	-	-	45,000	1,203,335.25	1,998,335.25	
10. Dr. Poramettee Vimolsiri	780,000	285,000	-	-	-	685,736.25	1,750,736.25	
11. Mr. Suthi Sukosol ^{1/}	305,806.45	-	-	-	30,000	-	335,806.45	
12. Mr. Prasong Pootaneat	750,000	-	-	93,750	-	1,203,335.25	2,047,085.25	
13. Dr. Anuchit Anuchitanukul	750,000	-	-	60,000	-	824,202.23	1,634,202.23	
14. Dr. Prasert Sinsukprasert	780,000	-	-	75,000	-	1,203,335.25	2,058,335.25	
15. Mr. Chaiwat Kovavisarach	750,000	-	-	75,000	45,000	1,203,335.25	2,073,335.25	
Total	11,120,806.45	960,000	225,000	438,750	221,250	16,209,997.31	29,175,803.76	
Directors whose terms were completed and resigned directors in 2019								
1. Mr. Jarin Chakkaphark ^{2/}	216,774.19	-	-	-	-	1,203,335.25	1,420,109.44	
Total	216,774.19	-	-	-	-	1,203,335.25	1,420,109.44	

Remarks : ^{1/} Appointed as Director on 26 July 2019

^{2/} Resigned on 8 May 2019 and transferred bonus to the Social Security Fund in compliance with the regulations of the Office of the Social Security Fund

Bonuses for directors whose terms were completed and who resigned in 2018 (performance in 2018 paid in 2019)

Names	Bonus (Baht)	Remarks
1. Gen. Apirat Kongsompong	184,621.30	Resigned on 26 February 2018
2. Mr. Visit Vongruamlarp	379,133.02	Completed term on 25 April 2018
3. Mr. Krisada Chinavicharana	494,521.34	Resigned on 31 May 2018
Total	1,058,275.66	

Comparison of Remuneration of Directors in 2018 and 2019

Remuneration	2018		2019	
	Directors	Baht	Directors	Baht
Monthly remuneration and meeting allowance	15	14,755,566.00	15	13,182,580.64
Bonus	15	43,336,795.99	15	18,471,608.22
Total		58,092,361.99		31,654,188.86

Remark : Bonus for 2018 performance under the resolution of the 2018 AGM, held on 25 April 2018 (0.75 percent of the net profit, but not over 3,000,000 Baht/year per director. The calculated amounts are to reflect individual periods of service. Moreover, the Chairman and Vice Chairman shall receive the bonus higher than those of members by 25 percent and 12.5 percent respectively.)

Directors' Remuneration due to Directorship of subsidiaries, associates, and joint ventures in 2019

Company	Name	Total remuneration (Baht)						
		Monthly remuneration	Meeting allowance	Bonus	Sub-Committee remuneration	ESOP (Capital Gain)	Net total	Others
BCPG	Mr. Pichai Chunhavajira	450,000	487,500	1,769,855	-	510,000.00	3,217,355.00	-
	Mr. Chaiwat Kovavisarach	289,580	300,000	1,214,132	225,000	459,005.44	2,487,718.09	-
BBGI	Mr. Pichai Chunhavajira	450,000	175,000	168,698.32	-	-	793,698.32	-
	Mr. Surin Chiravisit	360,000	140,000	134,958.62	75,000	-	709,958.62	-
	Mr. Chaiwat Kovavisarach	360,000	120,000	134,958.62	50,000	-	664,958.62	-
NIDO	Mr. Chaiwat Kovavisarach	58,324.47 AUD (per annum)	-	-	-	-	1,252,809.62	-
OKEA	Mr. Chaiwat Kovavisarach	457,151 NOK	110,000 NOK	556,797 NOK	-	-	3,900,099.56	-
	Mrs. Prisana Prahmkhasuk	287,386 NOK	77,000 NOK	371,198 NOK	140,000 NOK	-	3,038,241.78	-
LAC	Mr. Chaiwat Kovavisarach	42,000 USD	-	-	2,500 USD	-	1,347,575.70	23,461 Deferred Share Units

Remarks :

- BCPG: BCPG Public Company Limited
- BBGI: BBGI Public Company Limited
- NIDO: Nido Petroleum Pty. Ltd.
- OKEA: OKEA ASA
- LAC: Lithium Americas Corp.
- Exchange rate AUD\$ 1 equivalent to approximately Baht 21.48
- Exchange rate NOK\$ 1 equivalent to approximately Baht 3.47
- Exchange rate USD\$ 1 equivalent to approximately Baht 30.28
- Deferred Share Units: Periodically convertible hypothetical share units into common shares

2. Executive Management

The Board has set the roles and duties of the management in Bangchak's day-to-day business management in line with the company's policies, plans, goals, regulations, and rules, as well as Board resolutions, within the approved budget. To this end, they are to conform strictly with integrity and care to maintain Bangchak's and its shareholders' interests to the best of their ability under corporate governance. They are to report updates on conformance to such resolutions together with key performance outcomes to the Board at least monthly. Today the management consists of 17 persons, No. 1 through No. 11 of whom are regarded as executives under SEC's definition (As of December 2019):

Name	Position
1. Mr. Chaiwat Kovavisarach	President and Chief Executive Officer
2. Mr. Yodphot Wongrukmit	Senior Executive Advisor, Corporate Management and Organization Development Group
3. Mr. Kiatchai Maitriwong	Senior Executive Advisor, Corporate Strategic Planning and Sustainability Development Group
4. Mr. Chalermchai Udomranu	Senior Executive Advisor, Refinery Business Group
5. Mr. Pongchai Chaichirawiwat	Senior Executive Vice President, appointed to BBGI Public Company Limited
6. Mr. Somchai Tejavanija	Chief Marketing Officer & Senior Executive Vice President, Marketing Business Group
7. Mr. Bundit Sapianchai	Senior Executive Vice President, appointed to BCPG Public Company Limited
8. Mr. Surachai Kositsareewong	Senior Executive Vice President, Accounting and Finance
9. Mr. Chokchai Atsawarangsali*	Executive Vice President acting Senior Executive Vice President, Corporate Management and Sustainability Development
10. Mr. Viboon Wongsakul*	Executive Vice President acting Senior Executive Vice President, Corporate Strategic Planning and Sustainability Development Group, appointed to Bangchak Retail Company Limited
11. Mr. Pativat Tivasasit*	Executive Vice President, Refinery Manufacturing Business acting Senior Executive Vice President, Refinery Business Unit
12. Mr. Pichit Wongrujiravanich	Executive Vice President, Internal Audit
13. Mr. Dhanajit Makarananda	Executive Vice President, appointed to BBGI Public Company Limited
14. Ms. Revadee Pornpatkul	Executive Vice President, appointed to BCPG Public Company Limited
15. Ms. Pakawadee Junrayapes	Executive Vice President, Sustainability Development and Corporate Compliance
16. Dr. Michael William Fischer	Executive Vice President, Natural Resources
17. Mr. Suwat Meemook	Executive Vice President, Bangchak Initiative and Innovation Center
18. Ms. Sattaya Mahattanaphanij	Executive Vice President, appointed to BCPG Public Company Limited
19. Ms. Phatpree Chinkkulkitnivat	Executive Vice President, appointed to BCPG Public Company Limited
20. Mr. Bundit Hansapaiboon	Executive Vice President, Planning and Trading Business
21. Mr. Kittiphong Limsuwannarot	Executive Vice President, appointed to BBGI Public Company Limited
22. Mr. Warakorn Kosolpitsikul	Acting Executive Vice President, Marketing Business and Oil Terminal

Remark : * Appointed as Acting Senior Executive Vice President, effective from September 1, 2019.

Succession Planning and Management Development

Under the Board's policy on the President and Chief Executive Officer's nomination, as long as he or she is suitable, an external or internal person may enter the selection process under Bangchak's given circumstances. Suitable persons are selected by NRC, which defines the nomination criteria and method.

To optimize benefit in the selection of the President and Chief Executive Officer, the Board assigns the management to appoint a "Personnel Development and Administration Panel" (PDA) to oversee training and competency development of senior executives. Also, the Board has laid down additional development guidelines for rotation of duties of senior management team members to promote all-round understanding, experience, and preparedness for corporate administration. Any executive from Senior Vice President and Chief Executive Officer upward may apply for nomination as President and Chief Executive Officer if they command the required qualifications.

Procedure

1. Define management positions requiring succession planning (President and chief executive officer and all senior executive vice presidents)
2. NRC defines the required competency and experience for each position
3. NRC specifies the qualified executives to succeed each position
4. Assign the President and chief executive officer to assess the performance and competency of qualified executives matching the required competencies needed so as to develop individual development plans (IDPs) to close the competency gaps
5. Assign PDA to look after the training and competency development of qualified executives
6. The President and chief executive officer institutes rotation of duties of qualified executives and lets senior executive vice presidents attend Board meetings so that they may understand and gain experience to be prepared for corporate administration as a whole
7. The President and chief executive officer periodically reports to NRC the performances and development outcomes under IDPs of qualified executives
8. Each year, NRC revises and summarizes succession planning outcomes for the President and chief executive officer and senior executive vice presidents for the Board's acknowledgment

Nomination and Appointment of the President and Chief Executive Officer

NRC nominates and reviews the qualifications of senior executives and others under NRC-set guidelines for the Board to appoint as President and chief executive officer. These include the legally required director qualifications and those required by Bangchak's regulations, together with essential skills and experience in Bangchak's best interests and alignment with Bangchak's business directions. The Board appointed Mr. Chaiwat Kovavisarach President and chief executive officer, effective from January 1, 2015, on account of his knowledge of investment in new businesses abroad and his sound financial knowledge, both of which align with Bangchak's business directions, with four-year term from 1 January 2019 to 31 December 2022.

Performance Appraisals of the President and Chief Executive Officer, and Senior Executives

Bangchak measures performance outcomes as KPIs (key performance indexes), including its own performance, common practices of peer listed companies of comparable sizes, roles and responsibilities, executive development, and overall economic circumstances. The President and chief executive officer must present his performance in various aspects, including the management of the refinery and marketing business units, business development, and organizational development, while discussing current management outcomes covering successes and obstacles, including the ability to expand business opportunities and competition, social and environmental policies, together with responses to public policies. NRC is to decide on the President and chief executive officer's compensation, which is then forwarded to the Board for approval. The President and chief executive officer earns benefits as the top management executive in addition to the compensation as a director.

Remuneration of Executives

- 1) Executives shall receive short-term remuneration, i.e. salary and bonus, and long-term remuneration, including the Employee Stock Option Program (ESOP) and the Employee Joint Investment Program (EJIP), which the Board will consider on a case-by-case basis. These payments motivate executives, are on a par with industry practice, correlate to the Balanced Scorecard principles and to each person's key performance indices (KPIs), and connect compensation with performance.
- 2) Executives who serve as a director in a joint venture will be compensated according to the Company's regulations on the appointment of directors of joint ventures. As for the President and chief executive officer who is tasked with additional roles and responsibilities, as a subcommittee member for instance, will be paid according to the Board's decision based on merit of that task or responsibility.
- 3) The Board has ordered a report on the remuneration of executives—including the disclosure of payments made to executives who are appointed a role in a subsidiary—to be included in the Company's annual report in compliance with the Corporate Governance Policy.

Remuneration for Executives as defined by the SEC (President & Chief Executive Officer and Senior Executive Vice Presidents)

Remuneration	2018		2019	
	Persons	Baht	Persons	Baht
Salary	8	57,797,017	11	83,899,655
Bonus & Retirement pay	8	35,037,965	11	42,964,594
Provident fund	8	5,443,224	11	7,364,004
Total	8	98,278,206	11	134,228,253

3. Directors and executives assigned to other companies

The Board appoints representative directors of subsidiaries, associates, and joint ventures under the guidelines for appointment of representative directors in joint ventures. To this end, the President and Chief Executive Officer selects fully qualified persons under such guidelines for the Board's appointment. Each subsequent change is to be reported by the President and chief executive officer for the Board's acknowledgment. Today, the following directors and executives are assigned as directors of subsidiaries, associates, and joint ventures:

Subsidiary Companies

1. BCPG Plc (BCPG)
2. BBGI Co., Ltd. (BBGI)
3. Bangchak Retail Co., Ltd. (BCR)
4. Bangchak Green Net Co., Ltd. (BGN)
5. Bangchak Solar Energy Co., Ltd. (BSE)
6. Bangchak Solar Energy (Prachinburi) Co., Ltd. (BSE-PRI)
7. Bangchak Solar Energy (Chaiyaphum 1) Co., Ltd. (BSE-CPM1)
8. Bangchak Solar Energy (Buriram) Co., Ltd. (BSE-BRM)
9. Bangchak Solar Energy (Buriram 1) Co., Ltd. (BSE-BRM1)
10. Bangchak Solar Energy (Nakhon Ratchasima) Co., Ltd. (BSE-NMA)
11. Thai Digital Energy Development Co., Ltd. (TDED)
12. BCPG Indochina Co., Ltd (BIC)
13. Lom Ligor Co., Ltd. (LLG)
14. Bangchak Biofuel Co., Ltd. (BBF)
15. Bangchak Bioethanol (Chachoengsao) Co., Ltd. (BBE)
16. KSL Green Innovation Plc (KGI)
17. BCV Biobase Co., Ltd. (BCVB)
18. BCV Energy Co., Ltd. (BCVE)
19. BCV Innovation Co., Ltd. (BCVI)
20. BCV Partnership Co., Ltd. (BCVP)
21. BCPR Co., Ltd. (BCPR)
22. BCPR Pte. Ltd. (BCPR SG)
23. NamSan 3A Sole Power Co.,Ltd. (NS3A)
24. BCP Trading Pte. Ltd. (BCPT)
25. BCP Innovation Pte.Ltd. (BCPI)
26. BCP Energy International Pte.Ltd. (BCPE)
27. Bangchak Ventures Pte. Ltd. (BCV)
28. BCPG Investment Holding Pte. Ltd. (BCPG Investment)
29. BSE Energy Holdings Pte. Ltd. (BSE Energy Holdings)
30. Greenergy Holdings Pte. Ltd. (Greenergy Holdings)
31. Greenergy Power Pte. Ltd. (Greenergy Power)

32. Huang Ming Japan Company Limited (Huang Ming)
33. BCPG Japan Corporation (BCPG Japan)
34. BCPG Engineering Company (BCPG Engineering)
35. BCPG Wind Cooperatief U.A. (BCPG Wind)
36. Nido Petroleum Pty Ltd (NIDO)

Associated Companies

1. Bongkot Marine Services Co., Ltd. (Bongkot Marine)
2. Oam Suk Social Enterprise Co., Ltd. (AomSuk)
3. Ubon Bio Ethanol Co., Ltd. (UBE)
4. Ubon Bio Gas Co., Ltd. (UBG)
5. Ubon Agricultural Energy Co., Ltd. (UAE)
6. NP Bio Energy Co., Ltd. (NPE)
7. PetroWind Energy Inc. (PWEI)
8. OKEA ASA (OKEA)
9. Impact Energy Asia Development Limited (IEAD)
10. BCPG Wind Cooperatief U.A.
11. Star Phoenix Geothermal JV B.V.(Star Phoenix)
12. Star Energy Group Holdings Pte. Ltd. (Star Energy)
13. Star Energy Geothermal Holdings (Salak - Darajat) B.V. (Star Energy1)
14. Star Energy Geothermal (Salak - Darajat) B.V. (Star Energy2)
15. Star Energy Geothermal Pte Ltd (Star Energy3)

Joint Ventures

1. Fuel Pipeline Transportation Co., Ltd. (FPT)
2. Lithium Americas Corp. (LAC)

Others

1. Happiness Sharing Foundation (Foundation)

4. Company Secretary

Under the Securities and Exchange law (Articles 89/15 and 89/16), Board Meeting No. 6/2009 appointed Ms. Pakawadee Janrayapes, Executive Vice President, Sustainability Development and Corporate Compliance, as Company Secretary, effective from July 1, 2009. Details of the company secretary profile appear in “Executive Management” section.

Roles and Responsibilities

- ✔ Prepare and maintain key documents, including the Board roster, meeting notices, minutes of Board meetings and shareholders’ meetings, annual reports, and reports of vested interests
- ✔ Schedule Board meetings and shareholders’ meetings under the law and company regulations. Coordinate conformance to the resolutions of Board and shareholders’ meetings
- ✔ Advise and support the performance of directors and the management under the law and relevant regulations
- ✔ Coordinate between the Chairman and the President and chief executive officer together with his management team, which includes coordination between Bangchak and its shareholders

- Encourage the directors, management, and employees to conform to corporate governance
- Perform other lawful tasks and Board-assigned tasks.

5. Personnel

On December 31, 2019, the Company had a total headcount of 1,242:

Employee	Persons
Corporate Management and Organization Development	109
Accounting and Finance	82
Corporate Strategic Planning and Sustainability Development	31
Marketing Business Group	348
Refinery Trading Business Group	576
The President and Chief Executive Officer	82
BCPG Plc	4
BBGI Plc	10

Significant changes in number employee for the past three years

- None (Total employee in year 2017 were 1,240 persons, which increased slightly to 1,242 persons in year 2019)

Remuneration of employee

Bangchak's policy provides for suitable compensation to employees in line with their performance outcomes. For the short term, this compensation is the bonus, in turn linked to company performance. For the long term, this compensation means the provident fund, a form of welfare that gives employees financial guarantee.

Employee receive remuneration in the form of salary; shift, night shift, overtime, and upcountry pay; operation at the refinery; and discipline remuneration. Employees have the right to apply for membership of "Bangchak Corporation Public Company Limited Provident Fund" by choosing the accumulated at a rate of five percent or ten percent or fifteen percent of the salary and the Company will pay the same rate but not over ten percent to the Fund. In 2019 the Company paid remuneration to the personnel in the form of salary, shift, night shift, overtime, upcountry, refinery stand-by pay, discipline pay, special bonus and other welfare, with a total of 1,892.89 million Baht. **The remuneration for President&CEO and Senior executive vice presidents upward is 7.35% of total remuneration of employee.**

Personnel Development

Bangchak focuses on continuing personnel development for greater operating capability matching corporate goals, policies, and directions—apart from international competitiveness to accommodate the growth of AEC (ASEAN Economic Community). To this end, it appointed a "Personnel Development and Administration Panel" to endorse personnel development, define guidelines for personnel administration, define an approach for corporate culture development, and forge a sound employee attitude so that the efficiency of Bangchak's corporate administration may be on a par with business peers and in keeping with its business status and goals.

In 2019, a variety of training courses were staged, averaging 45.30 hours/person/year. These included the staff's environmental capability development in courses, including a technical seminar on combustion efficiency measurement system and a practitioner course on industrial pollutant management, etc. (Training details are included in the Integrated Sustainability Report under Employee Stewardship, Environmental Expense Account, and Water Pollution).

The Board of Directors



Mr. Pichai Chuhavajira

Chairman and Director with Authorized Signature (Independent Director)

(Started on April 24, 2012 and Independent director since June 1, 2017)

Age 70

Education / Training

- Master of Business Administration, Indiana University of Pennsylvania, USA
- Bachelor of Business Administration (Accounting), Thammasat University
- Honorary Ph.D. (Accounting), Thammasat University
- Honorary Ph.D. (Financial Management), Maharakham University
- Honorary Ph.D. (Financial Management), Sripatum University
- Public and Private Joint Program Class 13, National Defence College
- Certified Auditor
- Director Accreditation Program (DAP49/2006), Thai Institute of Directors (IOD)
- Director Certification Program (DCP143/2011), Thai Institute of Directors (IOD)
- Capital Market Academy, Class 5, Stock Exchange of Thailand

Experience (5 years past experiences)

- 2014 - 2017 : Member of Board, Bank of Thailand
- 2001 - 2013 : Director, PTT Exploration and Production Public Company Limited
- 2010 - 2012 : Chairman, Thairoil Public Company Limited
- 2008 - 2012 : Chairman, Thairoil Ethanol Company Limited
- 2009 - 2011 : Director, PTT Public Company Limited
- : Director, IRPC Public Company Limited
- 2005 - 2011 : Director, Thai Airway International Public Company Limited
- 2000 - 2011 : Director, Thairoil Power Company Limited
- 1998 - 2011 : Director, The Bangchak Petroleum Public Company Limited

Other directorship positions / other positions at present

- Other listed companies
 - Chairman, BCPG Public Company Limited
- Non-listed companies
 - Chairman, BBGI Public Company Limited
 - President, Thailand Boxing Association
 - Vice President, National Olympic Committee of Thailand
 - Executive Committee Member, The International Boxing Association (AIBA)

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mr. Surin Chiravisit

Vice Chairman and Director with Authorized Signature

(Started on April 8, 2010)

Age 72

Education / Training

- Master of Laws, Chulalongkorn University
- Bachelor of Laws, Ramkhamhaeng University
- Bachelor of Education, Srinakharinwirot University
- Investigation of the criminal case program, Batch#44, The Royal Thailand Police
- Senior Administrator Program, Batch#29, Ministry of Interior
- Senior Executive Program, Batch#21, Office of The Civil Service Commission
- Certificate, National Defence Course (NDC40), The National Defence College
- Politics and Government in Democracy for Executives Class 6, King Prajadhipok's Institute
- Director Certification Program (DCP136/2010), Thai Institute of Directors (IOD)
- How to Develop a Risk Management Plan (HRP1/2012), Thai Institute of Directors (IOD)
- Successful Formulation and Execution of Strategy (SFE17/2013), Thai Institute of Directors (IOD)
- Role of the Nomination and Governance Committee (RNG4/2013), Thai Institute of Directors (IOD)
- Advanced Security Management Program Class 5, The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King.
- Public-private social peace and order management training course, Class 2, Royal Thai Police
- Senior Executive Program in Urban Development Management, Class 5, Institute of Metropolitan Development

Experience (5 years past experiences)

- 2019 : Director, National Reform Society
- 2006 : Secretary General, Social Security Office

Other directorship positions / other positions at present

- Other listed companies
 - Senior Consultant, Amata Corporation Public Company Limited
- Non-listed companies
 - Director, BBGI Public Company Limited

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mr. Suthep Wongvorazathe

Independent Director and Director with Authorized Signature

(Started on October 30, 2012)

Chairman of the Audit Committee and Chairman of the Nomination and Remuneration Committee

Age 71

Education / Training

- Master of Business Administration, University of Wisconsin, USA
- Bachelor of Business Administration, University of Wisconsin, USA
- Director Accreditation Program (DAP48/2005), Thai Institute of Directors (IOD)

Experience (5 years past experiences)

- 2015 - Present : Chairman, M.K. Real Estate Development Public Company Limited
- 2014 - Present : Chairman, Seamico Securities Public Limited Company
: Chairman of management committee, Krungthai Zmico Securities Company Limited
- 2012 - Present : Chairman, Khonburi Sugar Public Company Limited
- 2003 - 2016 : Chairman of Audit Committee and Independent director, Chumpom Palm Oil Industry Public Company Limited
- 2010 - 2011 : Chairman of the Executive Board, Export-Import Bank of Thailand

Other directorship positions / other positions at present

- Other listed companies
 - Chairman, Khonburi Sugar Public Company Limited
 - Chairman, Seamico Securities Public Limited Company
 - Chairman, M.K. Real Estate Development Public Company Limited
- Non-listed companies
 - Chairman of management committee, Krungthai Zmico Securities Company Limited
 - Director, Asia Kangnam Company Limited
 - Director, New Corp Company Limited
 - Director, Buntudthong Pattana Company Limited
 - Director, HSH-Siam Chaophraya Holdings Company Limited
 - Director, The Mall Group Company Limited
 - Director, The Mall Shopping Complex Company Limited

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Gen. Vitch Devahasdin

Independent Director

(Started on April 5, 2016)

Chairman of the Corporate Governance Committee

Age 69

Education / Training

- Bachelor of Business Administration (Management), Sripatum University
- Chulachomklao Royal Military Academy, Class 22
- Armed Forces Academies Preparatory School, Class 11
- Vajiravudh College

Experience (5 years past experiences)

- 2017 : Assistant Treasurer, National Olympic Committee of Thailand
- 2015 : Petroleum Committee, Department of Mineral Fuels, Ministry of Energy
- 2014 : Member, the National Legislative Assembly
- 2010 : Director, Industrial Estate Authority of Thailand
: Judge, Military Supreme Court
: Royal Guard on Special Assignments
: Chairman of the Advisory Board

Other directorship positions / other positions at present

- Other listed companies : None
- Non-listed companies
 - Director, Five Provinces Bordering Forest Preservation Foundation
 - Assistant Treasurer, National Olympic Committee of Thailand

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Adm. Sucheep Whoungmaitree
Independent Director and Director with Authorized

(Started on May 26, 2015)

Age 62

Education / Training

- Naval Academy Class 17
- General Line Officer School (Chief of Navy Cadet)
- Line Officers School
- Naval Command & Staff College
- Naval War College
- The National Defence College
- Electronics Warfare Course and Military Instructor Course, USA
- Field artillery battalion Course and Target Search programs, USA
- Director Certification Program (DCP221/2016), Thai Institute of Directors (IOD)
- Executive Program in Politics and Governance in Democratic Systems (class 22), King Prajadhipok's Institute

Experience (5 years past experiences)

- 2016 : Member of the National Legislative Assembly
: Commander-in-Chief, Royal Thai Fleet
- 2015 : Deputy Chief of Staff, Royal Thai Navy
- 2014 : Commander, First Naval Area Command
- 2013 : Commander, Patrol Squadron
- 2011 : Academic Dean, Academic Branch Royal Thai Naval Academy

Other directorship positions / other positions at present

- Other listed companies
 - Limited Director, Eastern Water Resources Development and Management Public Company Limited
- Non-listed companies
 - Retired government official, Ministry of Defence

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None

Lt.Gen. Thammanoon Withee

Independent Director and Director with Authorized Signature

(Started on February 28, 2018)

Age 58

Education / Training

- Master of Public Administration Program (MPA), Burapha University
- Bachelor of Science, Chulachomkiao Royal Military Academy, Class 33
- Air Logistics Course, Class 153
- Battlefield Course, Class 78
- Army Cadet Course, Infantry Corps, Class 78
- Army Senior Course, Infantry Corps, Class 56
- Ground Combat Aircraft (Aircraft Front Guided)
- Military officer, Class 31
- Army Command and General Staff College, Class 73
- Develop Resource Management for The National Defense, Class 7
- Certificate, National Defence Course (NDC58), The National Defence College

Experience (5 years past experiences)

- 2017 : 1st Corps Commander
- 2016 : 1st Army Area Deputy Commander Assembly
: Member of the National Legislative
- 2015 : Commanding General, 9th Infantry Division
- 2014 : Specialist, Royal Thai Army
- 2013 : Deputy Commanding General, 2nd Infantry Division, The King's Guard
- 2011 : Regimental Commanding Officer 12th Infantry Division, The King's Guard
- 2010 : Director of Royal Thai Survey, School Army Region 1
- 2008 : Deputy Regimental Commanding Officer 12th Infantry Division, The King's Guard

Other directorship positions / other positions at present

- Other listed companies : None
- Non-listed companies
 - 1st Army Area Commander

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Pol.Lt.Gen. Chaiwat Chotima

Independent Director and Director with Authorized Signature

(Started on April 9, 2014)

Age 67

Education / Training

- Masters degrees in Political Science, New Mexico University, USA
- Bachelor of Political Science, Thammasat University
- Advance Security Management Program (3/2011), National Defence College
- The Joint State - Private Sector Course (19/2006), National Defence College
- Advanced Police Administration Program, class 17, Institute of Police Administration Development
- Conference concerning Narcotics and launder money Control in others countries i.e. USA, UK, Canada, Germany, Australia, Japan, Hong Kong etc.
- Director Certification Program (DCP194/2014) Thai Institute of Directors (IOD)
- Financial Statements for Directors (FSD26/2014) Thai Institute of Directors (IOD)
- Executive Program, Energy Academy, Thailand Energy Academy (TEA7)
- Capital Market Academy, Class 15, Stock Exchange of Thailand

Experience (5 years past experiences)

- 2011 : Commissioner, Narcotics Suppression Bureau
- 2010 : Inspector-General (Inspection Division 8)

Other directorship positions / other positions at present

- Other listed companies : None
- Non-listed companies
 - Vice President and Secretary, Thailand Boxing Association
 - Vice Chairman, International Boxing Association (AIBA), Asian Zone
 - Youth Commission, World Boxing Foundation

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Dr. Porametee Vimolsiri

Independent Director

(Started on June 7, 2018)

Age 59

Education / Training

- Doctor of Philosophy (Ph.D.) (Economics) Public Finance and Policy, Carleton University, Canada
- Master in International Affairs (International Economics), Columbia University, USA
- Bachelor in Economics, Chulalongkorn University
- Certificate, National Defence Course (NDC), The National Defence College
- Director Certification Program (DCP86/2007) Thai Institute of Directors (IOD)
- Audit Committee Program (ACP42/2013) Thai Institute of Directors (IOD)
- Executive Creative Economy Training (EXCET)
- Chief Information Officer, Electronic Government Agency (EGA)
- Top Executive Program in Commerce and Trade (TEPCoT), University of the Thai Chamber of Commerce
- Successful Formulation&Execution of Strategy (SFE19/2013) Thai Institute of Directors (IOD)
- ASEAN Executive Management Programme
- Business Development and Industry Investment for Executive, Institute of Business and Industrial Development (IBID)

Experience (5 years past experiences)

- 2018 - Present : Deputy Permanent Secretary, Ministry of Social Development and Human Security
- 2015 - 2018 : Secretary General, Office of the National Economic and Social Development Board (NESDB)
- 2009 - 2015 : Deputy Secretary General, Office of the National Economic and Social Development Board (NESDB)

Other directorship positions / other positions at present

- Other listed companies : None
- Non-listed companies
 - Permanent Secretary, Ministry of Social Development and Human Security
 - Chairman, Bank of Thailand
 - Board Member, Electricity Generating Authority of Thailand
 - Chairman, Government Pawnshop Board

Shareholding in the Company:

None (Both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mrs. Prisana Praharnkhasuk

Independent Director and Director with Authorized Signature

(Started on April 5, 2016)

Age 65

Education / Training

- Master of Business Administration, Tarleton State University, USA
- Bachelor of Business Administration, Chulalongkorn University
- Bachelor of Business Administration (Accounting), Kirk University
- Certificate of Insurance, College of Insurance, London
- Sasin Senior Executive Program (SEP13), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Certificate of Completion CFO Certification Program, Federation of Accounting Professions under the Royal Patronage of His Majesty the King
- Certificate of NIDA-Wharton Executive Leadership Program, Wharton University of Pennsylvania
- Director Certification Program (DCP119/2009), Thai Institute of Directors (IOD)
- The Board's Role in Mergers and Acquisitions (M&A1/2011), Thai Institute of Directors (IOD)
- Capital Market Academy, Class 14, Stock Exchange of Thailand
- PTT Executive Leadership Development, GE Crotonville, USA
- Financial and Fiscal Management Program for Senior Executive, Class 1

Experience (5 years past experiences)

- 2017 - Present : Director, Industrial Estate Authority of Thailand
- 2017 - 2019 : Director, Siam Solar Power Public Company Limited
- 2016 - 2019 : Director, Industrial Estate Authority of Thailand
- 2015 - 2018 : Director, 10th Workmen's Compensation Fund Committee, Social Security Office
- 2014 - 2015 : Executive Vice President, Finance and Accounting, Thai Oil Public Company Limited
- 2006 - 2013 : Executive Vice President, Corporate Accounting, PTT Public Company Limited

Other directorship positions / other positions at present

- Other listed companies
 - Director, TOA Paint (Thailand) Public Company Limited
- Non-listed companies
 - Director, Siamese Asset Public Company Limited
 - Director, OKEA ASA

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mr. Teerapong Wongsiwawilas

Independent Director

(Started on January 26, 2017)

Age 55

Education / Training

- Bachelor of Laws, Thammasat University
- Certificate, National Defence Course (NDC57), The National Defence College
- Certificate, Public Law and Management (12/2013), King Prajadhipok's Institute
- Senior Executive Program Class 8, The office of the Civil Service commission
- Director Certification Program (DCP246/2017), Thai Institute of Directors (IOD)

Experience (5 years past experiences)

- 2017 - Present : Secretary-General to the Cabinet
- 2019 : Member, National Legislative Assembly Coordination Committee
- 2015 : Deputy Secretaries-General to the Cabinet
- 2014 : Advisor of the Secretariat of the Cabinet
- 2013 : Director of Bureau of Cabinet Submission Analysis
- 2009 : Director of Bureau of Strategic Development and Special Policy Monitoring

Other directorship positions / other positions at present

- Other listed companies : None
- Non-listed companies
 - Secretary-General to the Cabinet
 - Council of State No.7 (Natural Resources and Environment Law)
 - Qualified member, Science and Technology Development Board
 - Member, Office of Justice Affairs
 - Member, Public Organization and Other Government Agency
 - Member, Committee on Inspection of Draft Law and Subordinate Legislation for Submission to the Cabinet
 - Member, the interpretation and diagnosis of legal problems in the administration of national affairs, Office of the Public Sector Development Commission (OPDC)

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mr. Prasong Poontaneat

Director

(Started on April 24, 2012)

Chairman of the Enterprise-wide Risk Management Committee

Age 60

Education / Training

- Ph.D. in Public Administration (Management for Development College), Thaksin University
- Master of Business Administration (Organization Management), Dhurakij Pundit University
- Bachelor of Business Administration in Accounting, Rajamangala University of Technology
- Bachelor of Laws, Sukhothai Thammathirat Open University
- Director Certification Program (DCP76/2006), Thai Institute of Directors (IOD)
- Top Administrator Program Class 49, Interior College, Prince Damrong Rajanupab Institute of Research and Development
- Senior Police Officers Course Class 18, Police College
- Leader Program Class 14, Capital Market Academy, The Stock Exchange of Thailand
- Executive Program, Energy Academy, Thailand Energy Academy (TEA2)
- Certificate, National Defence Course (NDC52), The National Defence College

Experience (5 years past experiences)

- 2018 - Present : Permanent Secretary, Ministry of Finance
- 2014 - Present : Chairman, Airports of Thailand Public Company Limited
- 2018 : Chairman, TMB Bank Public Company Limited
- 2014 : Director General of the Revenue Department
- 2012 : Chairman, Erawan Hotel Public Company Limited
- 2011 : Chairman, Export-Import Bank of Thailand
- : Director General, State Enterprise Policy Office, Ministry of Finance
- 2010 : Director General, Customs Department, Ministry of Finance

Other directorship positions / other positions at present

- Other listed companies
 - Chairman, Airports of Thailand Public Company Limited
 - Chairman, TMB Bank Public Company Limited
- Non-listed companies
 - Permanent Secretary, Ministry of Finance
 - Member of university council, Mahasarakham University
 - Qualified Member, Anti-Money Laundering Office

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Mr. Suthi Sukosol

Director

(Started on July 26, 2019)

Age 58

Education / Training

- Master of Arts (M.A.) in Public Policy and Administration, University of Wisconsin- Madison, Wisconsin, USA
- Bachelor of Political Science (First Class Honours) in Politics and Government Thammasat University
- Top Administrator Program Class 41, Interior College, Prince Damrong Rajanupab Institute of Research and Development
- Foreign Affairs Executive Programme Class 2, Devawongse Varopakarn Institute of Foreign Affairs
- Certificate, National Defence Course (NDC57), The National Defence College
- Chief Human Resource Officer : CHRO Netherlands

Experience (5 years past experiences)

- 2019 - Present : Permanent Secretary, Ministry of Labour
- 2017 - 2019 : Director General, Department of Skill Development, Ministry of Labour
- 2016 - 2017 : Inspectors-General, Office of the Permanent Secretary, Ministry of Labour
- 2015 - 2016 : Assistant Permanent Secretary, Office of the Permanent Secretary, Ministry of Labour

Other directorship positions / other positions at present

- Other listed companies: None
- Non-listed companies
 - Permanent Secretary, Ministry of Labour

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None



Dr. Anuchit Anuchitanukul

Director

(Started on April 25, 2018)

Age 48

Education / Training

- Ph.D. (Computer Science), Stanford University, USA
- MSCS, Stanford University, USA
- Master of Business Administration, Chulalongkorn University
- Bachelor of Engineering (1st Class Honors), Chulalongkorn University
- Strategy and Innovation for Businesses in Asia (SIBA 2012), Massachusetts Institute of Technology (MIT), College Of Management Mahidol University
- Office Of Insurance Commission (OIC) (2012), OIC Advanced Insurance Institute (OIC AI)
- Top Executive Program in Commerce and Trade (TEPCoT2011), University of the Thai Chamber of Commerce
- TLCA Executive Development Program (EDP2009), Thai Listed Companies Association
- Executive Program for Senior Management, Fiscal Policy Research Institution Foundation
- Directors Certification Program (DCP93/2007), Thai Institute of Directors Association

Experience (5 years past experiences)

- 2016 - Present : Director, Aksorn Education Public Company Limited
- 2013 - Present : First Executive Vice President (Head of Process & Product Improvement and Alternative Channels Group), Kiatnakin Bank Public Company Limited
- 2018 - 2019 : Director, The Stock Exchange of Thailand
- 2010 - 2013 : Director, Krungthai AXA Life Insurance Public Company Limited
- : Senior Executive Vice President, Krungthai Bank Public Company Limited
- 2008 - 2013 : Director, Krungthai Panich Insurance Public Company Limited
- : Director, National ITMX Company Limited

Other directorship positions / other positions at present

- Other listed companies
 - First Executive Vice President (Head of Process & Product Improvement and Alternative Channels Group), Kiatnakin Bank Public Company Limited
- Non-listed companies
 - Director, Aksorn Education Public Company Limited
 - Qualified member, Commission policy on private participation in state affairs, State Enterprise Policy Office (SEPO.)
 - Qualified member, Committee for the Protection of Credit Information
 - Director, A Member of the Big Data Driven Board, Ministry of Finance
 - Director, In the Revenue Department drive the committee into digital revenue, The Revenue Department
 - Director, National e-Payment Committee, Office of the Prime Minister
 - Advisor, Identity provider (IdP) Committee, Ministry of Digital Economy and Society
 - State Enterprise Development Assessment Subcommittee for Digital transformation and Knowledge and Innovation management

Shareholding in the Company:

None (Both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Dr. Prasert Sinsukprasert

Director

(Started on April 5, 2016)

Age 53

Education / Training

- Doctor of Philosophy in Energy Management and Policy, University of Pennsylvania, USA
- Master of Energy Engineering ,George Washington University, USA
- Bachelor of Engineering (Civil), Chulalongkorn University

Experience (5 years past experiences)

- 2017 - Present: Inspector General, Office of the Permanent Secretary, Ministry of Energy
- 2014 : Deputy Director General ,Energy Policy and Planning Office, Ministry of Energy
- 2013 : Director, International Energy Cooperation Office, Ministry of Energy

Other directorship positions / other positions at present

- Other listed companies
 - None -
- Non-listed companies
 - Inspector General, Office of the Permanent Secretary, Ministry of Energy

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None

Executive Director



Mr. Chaiwat Kovavisarach

President and Chief Executive Officer

Director with Authorized Signature

(Started on October 30, 2012 and

served as the President since January 1, 2015)

Age 53

Education / Training

- M.Eng., Asian Institute of Technology (AIT)
- Master of Business Administration, Thammasat University
- B.Eng. (Honor), King Mongkut's Institute of Technology Ladkrabang (KMITL)
- Investment Banking, Kellogg Business School, Northwestern University
- Director Certification Program (DCP168/2013), Thai Institute of Directors (IOD)
- Role of the Nomination and Governance Committee (RNG4/2013), Thai Institute of Directors (IOD)
- Certificate, National Defence Course (NDC58), The National Defence College
- Executive Program, Energy Academy, Thailand Energy Academy (TEA10)

Experience (5 years past experiences)

- 2015 - Present : President and Chief Executive Officer, The Bangchak Corporation Public Company Limited
- 2007 - 2014 : Advisor, Avantgarde Capital Company Limited

Other directorship positions / other positions at present

- Other listed companies
 - Vice Chairman, BCPG Public Company Limited
 - Chairman, OKEA ASA (OSE)
 - Director, Lithium Americas Corp. (NYSE & TSX)
- Non-listed companies
 - Chairman, Bangchak Retail Company Limited
 - Director, BBGI Public Company Limited
 - Director, Nido Petroleum Pty. Ltd.
 - Director, BCPR Company Limited
 - Expert Member of Investment Committee, Government Pension Fund
 - Director, Suan Kulab Withthayalai Alumnus Association Under the Royal Patronage of H.M. the King
 - Vice Chairman, The Federation of Thai Industries and Chairman Of The Institute of Research Development and Innovation for Industry
 - Director of Thailand Management Association (TMA)
 - Director, Prachabodee Social Enterprise Foundation
 - Director of International Chamber of Commerce (ICC Thailand)
 - Director of Thai Listed Companies Association (TLCA)
 - Board of Trustees / Executive Committee / Audit Committee of Asian Institute of Technology (AIT)
 - Deputy President Asian Institute of Technology (AITAA Thailand)

Shareholding in the Company:

1,200,000 shares or 0.087150% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws:

None

Criminal records on violation of securities and futures contract laws:

None

The Executives



Mr. Yodphot Wongrukmit

Senior Executive Advisor, Corporate Management and Organization Development Group

Age 60

Education / Training

- Master of Business Administration, Middle Tennessee State University, USA
- BA (Economics) (2nd Class Honors), University of the Thai Chamber of Commerce
- Graduate Diploma Top Executive Program in Commerce and Trade (TEPCoT)
- Class 10/2017
- Graduate Diploma in Capital Market Academy (CMA21/2015)
- Diploma in Leadership Succession Program (LSP2/2014), IRDP
- Diploma, National Defence College, The State, Private Sector and Political Sectors Course Class 5
- Certificate, National Defence Course (NDC54), The National Defence College
- NIDA-Wharton Executive Leadership Program (6/2010)
- Certificate, Public Law and Management (9/2010), King Prajadhipok's Institute
- JCCP "Advanced Marketing" (Japan)
- Director Certification Program (DCP111/2008), Thai Institute of Directors (IOD)
- Successful Formulation & Execution of Strategy (SFE13/2011), Thai Institute of Directors (IOD)
- Anti-Corruption for Executive Program (ACEP6/2013), Thai Institute of Directors (IOD)

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Senior Executive Advisor, Corporate Management and Organization Development Group
- 2018 : Senior Executive Vice President, Corporate Management and Organization Development Group
- 2017 : Senior Executive Vice President, Corporate Management and Sustainability Development
- 2013 : Senior Executive Vice President, Corporate Administration and Information Technology
- 2012 : Senior Executive Vice President, Marketing Business
- 2011 : Acting Senior Executive Vice President, Marketing Business
- 2008 : Executive Vice President, Marketing Business
- 2007 : Executive Vice President, Retail Marketing

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non - listed companies
 - Chairman, Happiness Sharing Foundation
 - Director, Bangchak Green Net Company Limited
 - Director, Bangchak Retail Company Limited
 - Director, Provincial Electricity Authority
 - Director, PEA ENCOM International Company Limited
 - Director, TOT Public Company Limited
 - Vice Chairman, Happiness Sharing Foundation
 - Director, Thailand Smart Center (TSC), The Thai Chamber of Commerce
 - Director, Committee on Social Development, Thai Chamber of Commerce
 - Director, The Committee for Recruitment and Promotion of Voluntary Blood Donors of the Thai Red Cross Society

Shareholding in the Company: 44,096 shares or 0.003203% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Kiatchai Maitriwong

Senior Executive Advisor, Corporate Strategic Planning and Sustainability Development Group

Age 60

Education/Training

- Master of Business Administration, Thammasat University
- Bachelor of Science in Chemical Engineering, Chulalongkorn University
- Director Certification Program (DCP150/2011), Thai Institute of Directors
- Advanced Diploma, Public Administration and Public Law, Class 11/2012 King Prajadhipok's Institute
- Executive Development Program (EDP6), Fiscal Policy Research Institute Foundation
- Executive Development Program (EDP10), Thai Listed Companies Association (TLCA)
- Oil Price Risk Management, Morgan Stanley, USA
- Energy Leadership Development for Senior Managers (Class 4) Ministry of Energy
- Anti-Corruption for Executive Program (ACEP6/2013), Thai Institute of Directors
- Management Development Program (MDP18/2013), Thailand Management Association
- Leadership Succession Program (LSP3), IRDP
- Strategic CFO in Capital Markets Program (Class 1/2015), Thailand Securities Institute
- Advanced Management Programme (AMP105/2015), INSEAD, Fontainebleau, France
- Advanced Security Management Program (Class 7/2016) The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King
- Executive Management with Business Development and Investment (Class 4/2017) Institute of Business and Industrial Development
- Strategic Board Masterclass (SBM5/2018), Thai Institute of Directors

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Senior Executive Advisor, Corporate Strategic Planning and Sustainability Development Group
- 2018 : Senior Executive Vice President, Corporate Strategic Planning and Sustainability Development Group
- 2017 : Senior Executive Vice President
- 2016 : Senior Executive Vice President, Bio Based Products Business Unit
- 2015 : Senior Executive Vice President, Renewable Energy Business Unit
- 2014 : Acting Senior Petroleum Refining Executive, Refinery Business
- 2010 : Executive Vice President, Corporate Administration and Information Technology
- 2009 : Senior Advisor

Others

- Advisor, The Petroleum and Petrochemical College, Chulalongkorn University
- Advisor in Chemical Engineering, The Engineering Institute of Thailand under H.M. the King's Patronage
- Special instructor for refining and supply businesses, Petroleum Institute of Thailand
- Ethanol and Biodiesel Price Structure Improvement Guideline Taskforce

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - None

Shareholding in the Company: 11 shares or 0.000001% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Chalermchai Udomranu

Senior Executive Advisor, Refinery Business Group

Age 58

Education / Training

- Master of Business Administration, Thammasat University
- B. Engineering (Electrical), Chulalongkorn University
- Anti-Corruption for Executive Program (ACEP6/2013), Thai Institute of Directors (IOD)
- Director Certification Program (DCP170/2013), Thai Institute of Directors (IOD)
- Sasin Executive Program, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Advanced Diploma, Public Administration and Public Law, Class 14/2015, King Prajadhipok's Institute
- Leadership Succession Program (LSP6), Institute of Research and Development for Public Enterprises (IRDP)
- Advanced Security Management Program (ASMP), Class9, The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King
- Executive Program, Energy Academy, Thailand Energy Academy (TEA14)

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Senior Executive Advisor, Refinery Business Group
- 2016 : Senior Executive Vice President, Refinery Business Unit
- 2015 : Executive Vice President, Refinery Manufacturing Business
- 2012 : Executive Vice President, Refinery Business
- 2011 : Senior Vice President, Refinery Operation, Refinery Business
- 2009 : Vice President, Refinery Operation, Refinery Business
- 2005 : Vice President, Refinery Project
- 2003 : Senior Manager, Refinery Project
- 2001 : Senior Manager, Technical Service Division
- 2000 : Senior Manager, Maintenance Service Division
- 1997 : Manager, Maintenance Service Division

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, BCP Trading Pte. Ltd

Shareholding in the Company: 1,865 shares or 0.000135% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Pongchai Chaichirawiwat

Senior Executive Vice President, appointed to BBGI Public Company Limited

Age 59

Education / Training

- Master of Business Administration, Thammasat University
- Master of Engineering, Asian Institute of Technology (AIT), Thailand
- Bachelor of Engineering, Chulalongkorn University
- Certificate, Program for Senior Executives, Capital Market Academy (CMA28/2019) Stock Exchange of Thailand
- Leading in a Disruptive World Program (2018), South East Asia Center (SEAC) Stanford University
- The Executive Program In Energy Literacy for a Sustainable Future TEA Class 8 (TEA Class 8/ 2016), Thailand Energy Academy
- Advanced Certificate Course in Public Administration and Law for Executives (PLM.13/2014) King Prajadhipok's Institute
- NIDA-Wharton Executive Leadership Program (7/2014), NIDA-Business School, Center for Business Innovation
- TLCA Leadership Development Program (LDP0/2013), Thai Listed Companies Association
- Diploma, Senior Executive Program (SEP25/2012), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Director Certification Program (DCP154/2011), Thai Institute of Directors (IOD)
- Executive Development Program (EDP6/2010), Thai Listed Companies Association

Experience

Bangchak Corporation Public Company Limited

- 2018 - Present : Senior Executive Vice President, appointed to BBGI Public Company Limited
- 2017 : Chief Operation Officer and Senior Executive Vice President, Refinery Business Group
- 2016 : Chief Marketing Officer and Senior Executive Vice President, Marketing Business Group
- 2015 : Senior Executive Vice President, Marketing Business Unit
- 2014 : Senior Executive Vice President, Marketing Business
- 2011 : Executive Vice President, Renewable Energy Business, and Managing Director appointed to Bangchak Biofuel Company Limited
- 2008 : Senior Vice President (Managing Director appointed to Bangchak Biofuel Company Limited)

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director and Chief Executive Officer, BBGI Public Company Limited
 - Chairman, Bangchak Biofuel Company Limited
 - Director, Ubon Bio Ethanol Public Company Limited
 - Chairman, Ubon Agricultural Energy Company Limited
 - Chairman, Ubon Bio Gas Company Limited
 - Chairman, NP Bio Energy Company Limited
 - Chairman, KSL Green Innovation Public Company Limited
 - Director, Bangchak Retail Company Limited
 - Director, Bangchak Bioethanol (Chachoengsao) Company Limited

Shareholding in the Company: 64,332 shares (44,332 shares; spouse 20,000 shares) or 0.004672% (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Somchai Tejavanija

Chief Marketing Officer & Senior Executive Vice President, Marketing Business Group

Age 57

Education / Training

- Master of Business Administration, Thammasat University
- B.ENG (Engineering), Kasetsart University
- Stanford-SEAC Leading in a Disruptive World 4 (LDW 4) The Stanford Center for Professional Development (SCPD), Stanford University
- Strategy and Innovation for Business in Asia (SIBA7) Massachusetts Institute of Technology (MIT) - College of Management Mahidol University (CMMU)
- Director Certification Program (DCP157/2012), Thai Institute of Directors (IOD)
- Successful Formulation & Execution of Strategy (SFE28/2016), Thai Institute of Directors (IOD)
- Top Executive Program in Commerce and Trade (TEPCoT) 11/2018 , University of the Thai Chamber of Commerce
- Executive Management with Business Development and Investment (IBID 3), Institute of Business and Industrial Development
- Advanced Security Management Program (ASMP6), The National Defence College Association of Thailand
- Advanced Certificate Course in Public Administration and Law for Executives , King Prajadhipok' s Institute
- Thammasat Leadership Program (Class 4), Thammasat University
- Executive Development Program (Class 6), Thai Listed Companies Association
- Energy Leadership Development for Senior Managers (Class 4), Ministry of Energy

Experience

Bangchak Corporation Public Company Limited

- 2017 - Present : Chief Marketing Officer and Senior Executive Vice President, Marketing Business Group
- 2016 : Senior Executive Vice President, Natural Resources and Business Development
- 2014 : Senior Executive Vice President, Corporate Strategy and Business Development
- 2013 : Executive Vice President, Business Development and Strategy
- 2011 : Executive Vice President, Marketing Business, responsible for Retail Marketing, and Acting Vice President, Marketing Business Strategy and Planning
- 2010 : Senior Vice President-Marketing Business Strategy and Planning, Marketing Business

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, Bangchak Green Net Company Limited
 - Director, Bangchak Retail Company Limited

Shareholding in the Company: 28,522 shares or 0.002071% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Bundit Sapianchai

Senior Executive Vice President, appointed to BCPG Public Company Limited

Age 55

Education / Training

- Honorary Doctorate of Electrical Engineering, Rajamagala University of Technology Krungthep, Thailand
- Master of Engineering, Asian Institute of Technology (AIT), Thailand
- Bachelor of Engineering, King Mongkut's Institute of Technology Ladkrabang
- Director Accredited Program (DAP28/2004), Thai Institute of Directors (IOD)
- Director Certification Program (DCP53/2005), Thai Institute of Directors (IOD)
- Advanced Diploma, Public Administration and Public Law, Class 10/2011 King Prajadhipok's Institute
- Certificate, National Defence Course (NDC55), The National Defence College
- Certificate, Program for Senior Executives, Capital Market Academy (CMA20/2013) Stock Exchange of Thailand
- Certificate, Energy Literacy for The World (TEA11), Thailand Energy Academy
- Diploma, Executive Management with Business Development and Investment (IBID5), Institute of Business and Industrial Development

Experience

Bangchak Corporation Public Company Limited

- 2015 - Present : Senior Executive Vice President, appointed to BCPG Public Company Limited
- 2013 : Senior Executive Vice President, Renewable Energy Business
- 2012 : Senior Executive Vice President, Business Development and Strategy
- 1998 : Executive Vice President, Corporate Business Development

Others

- 2004 : Executive Vice President, Finance and Strategy, NFC Fertilizer Public Company Limited
- 1997 : Business Director, Air Liquid (Thailand) Company Limited
- 1994 : Marketing Director, PTT Petrochemical Company Limited
- 1988 : Commercial Manager, National Petrochemical Public Company Limited

Other directorship positions / Other positions at present

- Other listed companies
 - President, BCPG Public Company Limited
- Non-listed companies
 - Chairman, Bangchak Solar Energy Company Limited
 - Chairman, Bangchak Solar Energy (Prachinburi) Company Limited
 - Chairman, Bangchak Solar Energy (Chaiyaphum 1) Company Limited
 - Chairman, Bangchak Solar Energy (Buriram) Company Limited
 - Chairman, Bangchak Solar Energy (Buriram 1) Company Limited
 - Chairman, Bangchak Solar Energy (Nakhonratchasima) Company Limited
 - Director, Thai Digital Energy Development Co., Ltd.
 - Director, BCPG Indochina Co., Ltd.
 - Director, Huang Ming Japan Company Limited
 - Director, BCPG Wind Cooperatief U.A.
 - Director, Star Energy Group Holdings Pte. Ltd.
 - Director, PetroWind Energy Inc
 - Director, Impact Energy Asia Development Ltd.

Shareholding in the Company: 31,895 shares or 0.002316% directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Surachai Kositsareewong

Senior Executive Vice President, Accounting and Finance Group

(The person taking the highest responsibility in finance and accounting since August 1, 2009)

Age 57

Education / Training

- Master of Business Administration, Steton School of Economics and Business Administration Mercer University, USA
- BA, Faculty of Commerce and Accounting, Chulalongkorn University
- Director Certification Program (DCP152/2011), Thai Institute of Directors (IOD)
- Director Accreditation Program (DAP49/2006), Thai Institute of Directors (IOD)
- Audit Committee Program (ACP16/2007), Thai Institute of Directors (IOD)
- CFO Certification Program, Federation of accounting professions
- The Training Program on Structured Notes, Thailand Securities Institute
- Frontiers in Infrastructure Finance Distance Learning Course, The World Bank Institute
- Energy Training Program, AON
- Executive Development Program (EDP), Fiscal Policy Research Institute
- Intermediate Certificate Course in Good Governance for Middle Level Executives (Class 12) Public Director Institute
- Certificate, National Defence Course (NDC56), The National Defence College
- CEDI BABSON Entrepreneurial Leadership Program, Babson College Wellesley, Massachusetts, USA
- Certificate, Program for Senior Executives, Capital Market Academy (CMA23/2016) Stock Exchange of Thailand
- Certificate, Program for Thai - Chinese Leadership Institute, Huachew Chalermprakiet University
- Certificate, Program for Thammasat World Leadership Program (TWLP.3)
- Certificate, TFRS 3 (Business Combination), EY Office Limited (2019)
- Certificate, TFRS 9 (Fundamental of TFRS 9), Federation of accounting professions (2019)

Experience

Bangchak Corporation Public Company Limited

- 2015 - Present : Senior Executive Vice President, Accounting and Finance Group
- 2013 : Senior Executive Vice President, Accounting and Finance
- 2012 : Acting Senior Executive Vice President, Accounting and Finance
- 2009 : Executive Vice President, Accounting and Finance

Others

- 2012 - 2018 : Commissioner of the Arbitration Committee
- 2014 - 2017 : Commissioner, The Electronic Transactions Commission
- 2012 - 2014 : Director, MCOT Public Company Limited
- 2012 - 2014 : Director, Government Saving Bank
- 2007 - 2009 : Vice President (Administration) and Chief Finance Officer, Dhanarak Asset Development Company Limited

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, BCPR Pte. Ltd.
 - Director, BCPR Company Limited
 - Director, Bangchak Biofuel Company Limited
 - Director, BCP Energy International Pte. Ltd.
 - Director, BCP Innovation Pte.Ltd.
 - Director, BCP Trading Pte.Ltd
 - Director, BCV Bio Based Co., Ltd.
 - Director, BCV Energy Co., Ltd.
 - Director, BCV Innovation Co., Ltd.
 - Director, BCV Partnership Co., Ltd.
 - Director, Bangchak Ventures Pte.Ltd.

Shareholding in the Company: None (both directly and indirectly held)
(As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Chokchai Atsawarangsalit

Executive Vice President acting Senior Executive Vice President,
Corporate Management and Sustainability Development

Age 51

Education / Training

- Master of Business Administration, Kasetsart University
- BS (Engineering), Chulalongkorn University
- Company Secretary Program (CSP14/2005), Thai Institute of Directors (IOD)
- Effective Minute Taking (EMT2/2006), Thai Institute of Directors (IOD)
- Corporate Governance and Social Responsibility (CSR1/2007), Thai Institute of Directors (IOD)
- Director Certification Program (DCP108/2008), Thai Institute of Directors (IOD)
- Current Issue Seminar (R-CIS1/2009), Thai Institute of Directors (IOD)
- Successful Formulation & Execution of Strategy (SFE3/2009), Thai Institute of Directors (IOD)
- TCLA Executive Development Program (EDP), Thai Listed Companies Association
- Energy Leadership Development for Senior Managers, Class 6, Ministry of Energy
- Executive Development Program 2011, Minister of Finance
- Senior Executive Program (SEP-26), The Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Certificate Course in Thai - Asean Economic Community, Class 3, King Prajadhipok's Institute
- Diploma courses in Public Economics Management for Executives (Class 13) King Prajadhipok's Institute
- Leadership Succession Program (LSP5), Institute of Research and Development for Public Enterprises (IRDP)
- Leading in a Disruptive World Program, South East Asia Center (SEAC) Stanford University
- Thammasat Leadership Program, Thammasat for Society (Class 12)

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present: Executive Vice President acting Senior Executive Vice President, Corporate Management and Sustainability Development
- 2015 : Executive Vice President, Marketing Business and Oil Terminal
- 2015 : Executive Vice President, Exploration and Production, Corporate Strategy and Business Development
- 2014 : Senior Vice President, Exploration and Production, Corporate Strategy and Business Development
- 2012 : Senior Vice President, Business Development, Corporate Business Development
- 2009 : Vice President, Business Development, Corporate Business Development
- 2007 : Vice President, Company Secretariat, and Company Secretary

Other directorship positions / Other positions at present

- Other listed companies
None
- Non - listed companies
 - Vice Chairman, Happiness Sharing Foundation
 - Director, Fuel Pipeline Transportation Company Limited

Shareholding in the Company: 300 shares or 0.000022%
directly held (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Viboon Wongsakul

Executive Vice President acting Senior Executive Vice President,
Corporate Strategic Planning and Sustainability Development Group,
appointed to Bangchak Retail Company Limited

Age 52

Education / Training

- Master of Business Administrative (Marketing), University of Wisconsin-Whitewater, USA
- Bachelor of Business Administrative – Finance & Banking, Chulalongkom University
- Leading in a Disruptive World, Stanford University, USA
- Entrepreneurial Leadership Program, Boston, Babson University, USA
- Leadership Development Program, Harvard Business School
- Strategic Marketing in Action Program, IMD Business School, Switzerland
- Senior Executive Program (SEP), Sasin Business School
- Enterprise Leadership Program, Insead University

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Executive Vice President acting Senior Executive Vice President, Corporate Strategic Planning and Sustainability Development Group, and appointed to Bangchak Retail Company Limited
- 2018 : Executive Vice President, appointed to Bangchak Retail Co.Ltd.
- 2015 : Executive Vice President, Retail Business and Marketing Support
- 2015 : Executive Vice President, Marketing Business

Others

- 2013 : Vice President, Retail Business Department, PTT Public Company Limited
- 2007 : Deputy Managing Director, Marketing & Retail Business Support Department, PTT Retail Management Company Limited
- 2006 : Assistant Director Dry Food Merchandise & Buying, Big-C Supercenter Public Company Limited
- 1990 : Regional Manager - Asia Pacific Non-Oil Alliances, ExxonMobil Fuels Marketing Business
- : C-Store Manager, Retail Marketing and Investment Retail Strategist, Network Planning, Capital/Opex and Feasibility, ESSO Thailand
- : International Marketing, Motorola Inc., Chicago USA

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Managing Director, Bangchak Retail Company Limited
 - Director, Oam Suk Social Enterprise Company Limited
 - Director, Happiness Sharing Foundation

Shareholding in the Company:

None (both directly and indirectly held) (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None



Mr. Pativat Tivasasit

Executive Vice President, Refinery Manufacturing Business acting
Senior Executive Vice President, Refinery Business Unit

Age 59

Education / Training

- B.Sc. (Chemical Technology), Chulalongkorn University

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Executive Vice President, Refinery Manufacturing Business acting Senior Executive Vice President, Refinery Business Unit
- 2017 : Executive Vice President, Refinery Manufacturing Business
- 2016 : Acting Executive Vice President, Refinery Manufacturing Business
- 2015 : Senior Vice President, Refinery Operation
- 2014 : Vice President, Refinery Operation
- 2012 : Vice President, Safety Health and Environment
- 2009 : Senior Manager, Process Division 2
- 2006 : Senior Manager, Commissioning Project

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, Bongkot Marine Service Co., Ltd.

Shareholding in the Company: 12,000 shares (spouse 12,000 shares)
or 0.000872% (As of December 31, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Pichit Wongrujiravanich

Executive Vice President, Internal Audit

Age 59

Education / Training

- MS (Accounting), Thammasat University
- BA (Accounting), Thammasat University
- Higher Certificate in Auditing, Thammasat University
- Certified Public Accountant, license no. 3766
- Director Accreditation Program (DAP89/2011), Thai Institute of Directors (IOD)
- Audit Committee Program (ACP39/2012), Thai Institute of Directors (IOD)
- Anti-Corruption for Executive Program (ACEP5/2013), Thai Institute of Directors (IOD)
- Executive Development Program (EDP12), Thai Listed Companies Association.
- Director Certification Program (DCP198/2014), Thai Institute of Directors (IOD)
- Leadership Succession Program (LSP7), Institute of Research and Development for Public Enterprises (IRDP)

Experience

Bangchak Corporation Public Company Limited

- 2015 - Present : Executive Vice President, Internal Audit
- 2011 : Senior Vice President, Internal Control Office
- 2005 : Vice President, Internal Control Office

Others

- 1992 : Assistant to Executive Director, Yontrakit Group

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - None

Shareholding in the Company: 11,071 shares or 0.000804% (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Dhanajit Makarananda

Executive Vice President , appointed to BBGI Public Company Limited

Age 60

Education / Training

- Master of Science in Chemical Engineering, The University of Southwestern Louisiana, USA
- BS (Chemical technology), Chulalongkorn University
- Energy Leadership Development for Senior Managers, Class 5, Ministry of Energy
- Executive Development Program (EDP) 2013, Fiscal Policy Research Institute Foundation
- Senior Executive Program (SEP) 2014, Sasin Graduate Institute of Business Administration
- Advanced Diploma, Public Administration and Public Law, Class 15/2016 King Prajadhipok's Institute

Experience

Bangchak Corporation Public Company Limited

- 2017 - Present : Executive Vice President , appointed to BBGI Public Company Limited
- 2016 : Executive Vice President, Bioenergy and Energy Crop Business
- 2015 : Executive Vice President, Refinery Project Development
- 2015 : Executive Vice President, Associated Company Business, Renewable Energy Business
- 2014 : Senior Vice President, Associated Company Business, Renewable Energy Business
- 2013 : Senior Vice President, Refinery Technique, Refinery Business
- 2012 : Senior Vice President, Refinery Engineering, Refinery Business
- 2011 : Vice President, Refinery Engineering, Refinery Business
- 2009 : Vice President, Refinery Technique, Refinery Business

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Managing Director, Bangchak Biofuel Company Limited
 - Director, KSL Green Innovation Public Company Limited

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Ms. Revadee Pornpatkul

Executive Vice President, Human Resource Management,
appointed to BCPG Public Company Limited

Age 59

Education / Training

- Master of Business Administration, Thammasat University
- Bachelor Business Administration (Accounting), Ramkhamhaeng University
- Bachelor of Law, Sukhothai Thammathirat University
- Bachelor of Science, Chulalongkorn University
- Director Accreditation Program (DAP99/2012)
- Executive Development Program (EDP 12/2013)
- Company Secretary Program (CSP71/2016)
- Smart Disclosure Program (SDP/2016)
- Executive Energy Management Program (EEM/2017), Ministry of Energy
- Power Curriculum Program for Executives (Class 1/2017), Ministry of Energy
- Developing an Outward Mindset (2018)

Experience

The Bangchak Petroleum Public Company Limited

- 2018 - Present : Executive Vice President, Human Resource Management, appointed to BCPG Public Company Limited
- 2015 : Senior Vice President, Corporate Administration and Information Technology, BCPG Public Company Limited
- 2015 : Senior Vice President, Associated Company Business
- 2013 : Vice President, Associated Company Business, appointed to Bangchak Solar Energy Company Limited
- 2007 : Vice President, Accounting and Taxation, Accounting and Finance
- 2004 : Senior Manager, Accounting, and Acting Vice President, Accounting and Tax
- 2002 : Manager, Accounting

Other directorship positions / Other positions at present

- Other listed companies: None
- Non - listed companies
 - Director, Lomligor Company Limited
 - Director, BSE Energy Holdings Pte. Ltd.
 - Director, BCPG Japan Corporation
 - Director, BCPG Engineering Company
 - Director, Bangchak Solar Energy Company Limited
 - Director, Bangchak Solar Energy (Prachinburi) Company Limited
 - Director, Bangchak Solar Energy (Chaiyaphum1) Company Limited
 - Director, Bangchak Solar Energy (Buriram) Company Limited
 - Director, Bangchak Solar Energy (Buriram 1) Company Limited
 - Director, Bangchak Solar Energy (Nakhonratchasima) Company Limited
 - Director, Thai Digital Energy Development Co., Ltd.
 - Director, BCPG Indochina Co., Ltd.
 - Director, Happiness Sharing Foundation

Shareholding in the Company: 16,967 shares or 0.001232% (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Ms. Pakawadee Junrayapes

Executive Vice President, Sustainability Development and Corporate
Compliance Company Secretary

Age 58

Education / Training

- Master of Law, Ramkhamhaeng University
- Bachelor of Law, Thammasat University
- Thai Barrister at law, The Institute of Legal Education Thai Bar Association Under The Royal Patronage
- Certificate in Business Law, Thammasat University
- Certificate in English for Specific Careers (Law), Sukhothai Thammathirat Open University
- Company Secretary Program (CSP34/2010), Thai Institute of Directors (IOD)
- Director Certification Program (DCP142/2010), Thai Institute of Directors (IOD)
- Executive Development Program (EDP2012), Ministry of Finance
- Successful Formulation and Execution of Strategy (SFE16/2012), Thai Institute of Directors (IOD)
- Anti-Corruption: The Practical Guide (ACPG2/2013) Thai Institute of Directors (IOD)
- Thailand and the ASEAN Economic Community class 4/2013, King Prajadhipok's Institute
- Advances for Corporate Secretaries, Class 2/2017, Thai Listed Companies Association (TLCA)
- Certificate of Top Management (2017), Company cooperate with Thailand Management Association (TMA) and Duke Corporate Education (DUKE)
- Advanced Diploma, Public Administration and Public Law, Class 17/2018 King Prajadhipok's Institute
- Executive Program for Senior Justice class 23/2018, Judicial Training Institute
- Boards that Make a Difference (BMD) class 9/2019, Thai Institute of Directors (IOD)

Experience

Bangchak Corporation Public Company Limited

- 2018 - Present : Executive Vice President, Sustainability Development and Corporate Compliance and Company Secretary
- 2015 : Senior Vice President, Corporate Compliance and Company Secretary, and Company Secretary
- 2011 : Vice President, the Secretary to the Board of the Directors Office, and Company Secretary
- 2009 : Senior Manager, the Secretary to the Board of the Directors Office, and Company Secretary
- 2007 : Senior Manager, Legal Office

Others

- 2006 - 2008 : Personal Specialist of National Legislative Assembly Member and Sub-Committee on Energy

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, BCPR Pte. Ltd.
 - Director, BCPR Company Limited
 - Director, BCP Innovation Pte. Ltd
 - Director, Bangchak Ventures Pte.Ltd.

Shareholding in the Company: 15,500 shares or 0.001126% (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Dr. Michael William Fischer

Executive Vice President, Natural Resources Business Unit

Age 61

Education / Training

- PH.D Doctor of Philosophy, University of Wales
- Bachelor Degree of Science, University of Leeds

Experience

Bangchak Corporation Public Company Limited

- 2018 - Present : Executive Vice President, Natural Resources business unit, Bangchak Corporation Public Company Limited

Others

- 2015 - Present : Managing Director & CEO, Nido Petroleum Ltd
- 2014 - 2015 : President, Africa Business Unit, Ophir Energy Ltd
- 2005 - 2006 : Senior Vice President, Exploration, Operations and Projects, OMV Exploration and production GmbH
- 2004 : Asset/Exploration Manager, Woodside Energy Ltd, Perth

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non - listed companies
 - Managing Director and Chief Executive Officer, Nido Petroleum Pty Ltd
 - Board member, OKEA ASA
 - Director, BCPR Pte. Ltd.
 - Director, BCPR Company Limited
 - Director, BCP Energy International Pte. Ltd.

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Suwat Meemook

Executive Vice President, Bangchak Initiative and Innovation Center (Biic)

Age 54

Education / Training

- Master of Business Administration, Mississippi College, USA
- Bachelor of Science in Civil Engineering, Chulalongkorn University
- Director Certification Program (DCP 268/2018), Thai Institute of Directors (IOD)
- Dale Carnegie Course, Dale Carnegie, Washington D.C., USA

Experience

Bangchak Corporation Public Company Limited

- 2018 - Present : Executive Vice President, Bangchak Initiative and Innovation Center

Others

- 2015 - 2018 : Executive Vice President, Digital Business Development, King Power International Company Limited
- 2012 - 2014 : General Manager, G-Able Company Limited
- 2011 : Vice President, Bangkok Bank Public Company Limited
- 1999 - 2011 : Senior Finance Manager, World Wide Small Medium Business, Service and Partner, Microsoft Corporation, Washington D.C., USA

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non - listed companies
 - Director, BCP Innovation Pte. Ltd
 - Director, BCV Bio Based Co., Ltd.
 - Director, BCV Energy Co., Ltd.
 - Director, BCV Innovation Co., Ltd.
 - Director, BCV Partnership Co., Ltd.
 - Director, Bangchak Ventures Pte. Ltd.

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Ms. Sattaya Mahattanaphanij

Executive Vice President, appointed to BCPG Public Company Limited

Age 54

Education / Training

- Master of International Business and Information Management System, Widener University, USA
- Bachelor's degree, Business Administration (Finance and Banking), Assumption University
- Certificate, Board Nomination and Compensation Program (BNCP 5/2019), Thai Institute of Directors (IOD)
- Certificate, Company Secretary Program (CSP 82/2017), Thai Institute of Directors (IOD)
- Committee of Occupational Safety, Health and Work Environment (SEP/2017)
- Advance Senior Executive Program (ASEP-3) Sasin and Kellogg School of Management

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Executive Vice President, appointed to BCPG Public Company Limited

Others

- 2018 - Present : Senior Executive Vice President, Corporate Excellence
- 2016 - 2017 : Executive Vice President, Finance and Accounting, BCPG Public Company Limited
- 2006 - 2016 : Executive Director, Advantgarde Capital Company Limited

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, BCPG Investment Holdings Pte. Ltd.
 - Director, Greenergy Holdings Pte. Ltd.
 - Director, Greenergy Power Pte. Ltd
 - Director, Advantgarde Capital Company Limited

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Ms. Phatpuree Chinkkulkitnivat

Executive Vice President, appointed to BCPG Public Company Limited

Age 45

Education / Training

- Master of Business Administration (High Distinction), School of Business Administration, University of Michigan, Ann Arbor, USA
- Bachelor of Economics (First Class Honors), Faculty of Economics Chulalongkorn University, Thailand
- Advanced Management Program, Harvard Business School (AMP 192/2017)
- Bain APAC Executive Digital Immersion, Beijing (2017)
- Bain Executive Digital Immersion, Silicon Valley, (2016)
- CEDI-BABSON Entrepreneurial Leadership Program, Babson College (2013)
- Pacific Rim Bankers Program, Foster School of Business, University of Washington (2011)
- Euro Money Training on Country Risk Analysis (2007)
- CFA ("Chartered Financial Analyst") Charter holder (2002)
- Lecturer in Corporate Finance for College of Management Mahidol University (2000)

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present: Executive Vice President, appointed to BCPG Public Company Limited

Others

- 2018 - Present: Senior Executive Vice President, Finance and Accounting, BCPG Public Company Limited
- 2014 - 2018 : Senior Vice President, Strategic Planning Head/ Office of President, Commercial Banking Group
- 2012 - 2014 : Senior Vice President and Regional Manager, Commercial Banking Group

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, Impact Energy Asia Development Limited

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Bundit Hansapaiboon

Executive Vice President, Planning and Trading Business

Age 47

Education / Training

- Master of Business Administration, LEHIGH University, USA
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present: Executive Vice President, Planning and Trading Business and Vice President, Planning and Logistics

Others

- 2018 - 2019 : Senior Vice President, Planning and Logistics and Trading Business
- 2017 : Senior Vice President, Strategic and Supply Planning
- 2016 - 2017 : Vice President, Business Operation Division Bio-product Business Group
- 2014 - 2016 : Vice President, Renewable Energy Business Group
- 2012 - 2014 : Senior Manager, Bangchak Biofuel Company Limited

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, Bongkot Marine Service Co., Ltd.

Shareholding in the Company: 696 shares or 0.000051% (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Kittiphong Limsuwanarot

Executive Vice President, appointed to BBGI Public Company Limited

Age 55

Education / Training

- Master of Business Administration, University of Dallas, Texas, USA
- Bachelor of Science (B.Sc.) Chemical Engineering, Chulalongkorn University

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present: Executive Vice President, appointed to BBGI Public Company Limited

Others

- 2015 - Present: Vice President - Downstream Market Development PTT Global Chemical Public Company Limited
- : President Thai Bioplastics Industry Association : TBIA
- 2014 - 2018 : Managing Director, Solution Creation Co.,Ltd.

- 2013 - 2015 : Vice President - Green Chemical Business
- PTT Global Chemical Public Company Limited
- 2007 - 2012 : Product manager, Global Polypropylene and Global Hydrocarbon Fluids ExxonMobil Chemical, Texas, USA

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - None

Shareholding in the Company: None (As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Mr. Warakorn Kosolpitsikul

Acting Executive Vice President, Marketing Business and Oil Terminal

Age 53

Education / Training

- Master of Business Administration, Stetson School of Business and Economics, MERCER UNIVERSITY, Atlanta Georgia, USA
- Bachelor of Business Administration, Bangkok University
- Certificate of Top Management, Duke Corporate Education
- Leadership Succession Program (LSP), Institute of Research and Development for Public Enterprises (IRDP)
- Smart Branding & Marketing for Digital Economy (Smart Marketing)
- Executive Development Program (EDP), FPRI & Kellogg
- Middle level energy executive, Ministry of Energy
- Top Executive Program in Commerce and Trade (TEPCoT) Class 12

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present : Acting Executive Vice President, Marketing Business and Oil Terminal
- 2018 : Senior Vice President, Marketing Business Strategy and Planning
- 2013 : Vice President, Retail Business
- 2012 : Vice President, Associated business of Bangchak Green Net Company Limited
- : Managing Director Bangchak Green Net Company Limited
- 2003 : Manager, Business Development Division
- 2001 : Manager, Central District Division
- 1997 : Assistant Manager, Metropolitan District Division

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - Director, Bangchak Green Net Company Limited
 - Director, Happiness Sharing Foundation

Shareholding in the Company: 19,885 shares or 0.001444%

(As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Ms. Chantip Wongchieowittaya

Acting Vice President, Financial Accounting

(The person supervising accounting since June 10, 2019)

Age 41

Education / Training

- Master of Accountancy, Faculty of Commerce and Accountancy, Chulalongkorn University
- Bachelor degree of Accountancy, Faculty of Commerce and Accountancy, Thammasat University
- Financial Management and Business Planning (Year 2019), Japan Cooperation Center Petroleum (JCCP)
- Executive Management Development Program (EMDP) (Year 2019), Thailand Management Association (TMA)
- CFO Focus on Financial Reporting Class 6 (Year 2018), Federation of Accounting Professions

Experience

Bangchak Corporation Public Company Limited

- 2019 - Present: Acting Vice President, Financial Accounting
- 2017 - 2018 : Manager, Accounting Policy and Consolidation Division

Others

- 2014 - 2016 : Senior Manager, EY Office Limited

Other directorship positions / Other positions at present

- Other listed companies
 - None
- Non-listed companies
 - None

Shareholding in the Company: None (both directly and indirectly held)

(As of August 29, 2019)

Familial relationship between directors and executives: None

Criminal records on violation of securities and futures contract laws: None

Corporate Governance



- > **A**ccountability
- > **R**esponsibility
- > **T**ransparency
- > **E**quitable Treatment
- > **V**ision to Create Long Term Value
- > **E**thics



1. Corporate Governance and Anti-Corruption

- **Policy** Since 2003 the Board of Directors has defined a written corporate governance (CG) policy as a guideline for directors, management, and employees, which is to be revised annually. This year the Company revised its policy (Revision 16) concerning the notification of a wish to trade the Company's securities by at least one day ahead of such trading, the hiring of an external consultant to aid the assessment of Board of Directors' performance at least every three years, and the rotation of external auditors in line with the announcement of the Capital Market Supervisory Board No. Thaw Jaw 75/2561
- **Communication**
 - A talk on corporate governance as part of the orientation for new directors. (August 14, 2019)
 - A talk on corporate governance as part of the orientation for new employees. (March 25, 2019 and September 17, 2019)
 - Organized the 15th annual CG Day to promote understanding of and cultivate awareness of the CG Policy by inviting employees of Bangchak Group to join the "CG's GOT TALENT" show, embracing the communication of Bangchak CG's six fundamental principles called ARTEVE (accountability, responsibility, transparency, equitable treatment, vision to create long-term value, and ethics). Joining the judging panel were Dr. Mana Nimitmongkol, Anti-Corruption Organization of Thailand Secretary-General, and Admiral Sucheep Whoungmaitree, Bangchak director. (October 18, 2019)
 - Organized the annual Suppliers' Seminar under the "Code of Suppliers' Conduct for Sustainable Business Development" theme to inform and advise suppliers of the importance and benefit to jointly establish Bangchak's ecology of transparent business conduct, free of fraud and bribery of all forms. Participants also joined in declaring their resolve and joined certified CAC membership (April 30, 2019), thus making Bangchak one of the five winners of the CAC Change Agent Award-in honor of companies whose businesses are marked by transparent, clean practices throughout the supply chain. (October 18, 2019)



- **Measures and Guidelines**
 - All employees are required to pass certain criteria to ensure proper understanding. The test may be done on the e-HR system or the online knowledge management system ("We Share") (November 8-22, 2019)
 - Political neutrality without rendering assistance to any political party, directly or indirectly
 - Donation is strictly for charity, including sponsorship for the Company's business, which is not to be used as excuses for corruption and requires clear documented proofs in line with the Company's regulations
 - No acceptance of gifts or objects of any value on all occasions. No acceptance of and no giving of entertainment and other unnecessary and inappropriate expenses to government officials or those dealing with the Company's business. If any is received, employees must refuse and report the incident to their superiors for acknowledgment.
 - Annual notification to stakeholders on Bangchak's "No Gift" policy for the New Year and other occasions so as to elevate good corporate governance and set a standard for conducting business with all related parties fairly.

Internal Control, Risk Management, and Internal Audit:

In order to monitor compliance to this corporate governance policy, Bangchak instituted internal control, risk management, and internal audit systems for key business functions, such as procurement and accounting. Bangchak also closely monitored the progress of risk management plan on a regular basis.

Audit

Internal Audit formulates the annual audit plans and reports audit findings to the Audit Committee and the Board for acknowledgment.

Bangchak values good corporate governance and anti-corruption alike. Bangchak also joined the UN Global Compact and in 2013 was one of the first 22 companies to achieve CAC (Collective Action Coalition against Corruption) membership certification. Achieving the first CAC membership in 2013 thanks to ongoing transparent business conduct, in 2019 it won the second membership recertification since its first membership recertification in 2016.

2. Committees

The Board appointed a number of committees, namely the Audit Committee, Nominating and Remuneration Committee, Corporate Governance Committee, and Enterprise-wide Risk Management Committee, to ensure proper checks and balances between the Board of Directors and the management to aid Bangchak's corporate governance. Details of these committees appear under "Management Structure".

3. Nomination and appointment of directors and the top executive

Today, Bangchak has 15 directors, 9 of whom are independent ones. Eleven are SEC-defined executives, with the President & CEO serving as the top executive. Appointment of directors and the President must be reviewed by the Nomination and Remuneration Committee. Bangchak has made it possible for directors and shareholders to play a part in nominating qualified directors, in addition to using the Director Pool of Thai IOD. Details of the qualifications of independent directors and the nomination and appointment of directors and the President appear under "Management Structure".

4. Oversight of subsidiaries, associates, and joint-venture companies

Bangchak runs its businesses through subsidiaries, associates, and joint-venture companies, as detailed under "Shareholding Structure". The Board commands a mechanism for supervising the management and the responsibility of subsidiaries, associates, and joint-venture companies to safeguard the interests of Bangchak's investment capital, including

- Secondment of executives by the Board to serve as directors and executives in those companies proportionate to its own shareholding. Details appear under "Management Structure".
- Definition of an oversight approach for joint-venture companies for representative directors to uphold so that the businesses of subsidiaries, associates, and joint-venture companies may be uniform and in line with Bangchak's policy approach and relevant legislation. Voting or actions on important matters must secure prior approval from the President & CEO, Board, or shareholders, depending on the case.
- Institution of a corporate governance policy and a suitable, watertight internal control system in each of the subsidiaries.
- Supervision of disclosure of these companies' financial status and performance outcomes, as well as engagement in key transactions, must be properly done in line with Bangchak's criteria.

5. Monitoring the Use of Inside Information

The Company has a policy detailing the accepted practices of director, executive and employees and forbidding the disclosure of important secret information to the public for personal or other gains, as well as policies on the buying and selling of Company shares as follows:

1. Directors and executives, as well as their spouses, cohabitation partners, and minor children under legal age, including legal entities where they have more than 30% shareholding of the number of all voting rights of the juristic person, according to Article 258 of the Securities and Exchange Act of 1992 must notify and distribute information about shares held, as well as reporting any changes to SEC every time they buy, sell, transfer, or receive shares within three days of the change to comply with Article 59 or face punishment according to Clause 275 of the Securities and Exchange Act of 1992.
2. Notify the Directors and executives of the financial information which affects the price of shares. Avoid buying or selling Company shares one month prior to the disclosure of information and three days after disclosure, as well as not disclosing information to others before it is made available to the public.

The Company also has penalties against employees who use the Company's inside information for personal gains, ranging from a warning to termination of employment.

6. Audit fee

For the fiscal year 2019, the Company and its subsidiaries paid for audit fees amounting to 10.83 Million Baht to KPMG in Thailand and KPMG member firms in overseas, which the auditors worked for, and to persons or businesses related to the auditors and audit firm. This audit fee amount excluded the remuneration paid by associates.

In this regard, KPMG in Thailand and KPMG member firms in overseas and its auditors do not have any relationships or interests involving the Company, management, or major shareholders, including their related persons.

🕒 Audit fees for the year 2019

1. Fees for annual audit and quarterly review of the Company and consolidated financial statements amounted to 2.04 Million Baht to KPMG.

Audit fees of the Company

1.	Annual audit fee for the Company's financial statement	0.42 Million Baht
2.	Fees for annual audit and quarterly review of the Company and consolidated financial statements	1.62 Million Baht
Total audit fees of the Company		2.04 Million Baht

2. Fees for the annual audit of subsidiaries and quarterly review of listed subsidiaries performed by KPMG Thailand and KPMG overseas in which the fees were absorbed by the subsidiaries were as follows

Audit fees of subsidiaries

1.	Fees for annual audit of the subsidiaries' financial statements and quarterly review of listed subsidiaries on the Stock Exchange of Thailand	
	- Number of subsidiaries	17 Companies
	- Amount	4.92 Million Baht
2.	Fees for annual audit of the overseas subsidiaries' financial statements	
	- Number of subsidiaries	38 Companies
	- Amount (equivalent)	3.87 Million Baht
Total audit fees of subsidiaries		8.79 Million Baht

○ Non-audit fee

The Company and its subsidiaries paid for other fees amounting to 3.90 Million Baht and the subsidiaries paid for auditing compliance with the conditions of the BOI Promotion Certificate amounting to 1.58 Million Baht to the audit firm and persons or businesses related to the auditors and the audit firm.

7. Compliance with corporate governance for listed companies

The Stock Exchange of Thailand (SET) established "The Principles of Good Corporate Governance for Listed Companies 2012". The Securities and Exchange Commission (SEC) issued its "Corporate Governance for listed companies 2017", which contains eight major practical guidelines. This year Bangchak continued its compliance with these principles by following these five aspects:

1) Shareholders' rights

The Board of Directors has defined a policy on shareholders' rights in Section 3.3 of the corporate governance policy, as implemented below.

- A Record Date for the AGM was set so that shareholders may have enough time to review meeting notices and various data ahead of the meeting.
- Informed the shareholders about two months ahead of the meeting so that they may schedule meeting attendance, which exceeds what is required by law.
- The meeting notices with information for each agenda item and the proxy form were sent to shareholders for consideration in advance.
- Allowed the shareholders to submit queries needing Bangchak's explanation on certain points of the agenda for the AGM ahead of the meeting since August 30, 2019.
- Facilitated and supported shareholders to attend the shareholders' meeting of either by themselves or through proxies.
- Facilitated shareholders on the meeting date:
 - The AGM was held at the Company's headquarters for travel convenience. Parking spaces are adequately reserved, and shuttle buses are arranged for the shareholders at the BTS Bangchak Station in case they are traveling on their own.
 - Adopted the Barcode system for registration and vote-tallying for efficiency and speed.
 - Applied the shareholders' meeting software to registration and vote-tallying for efficiency and transparency.
 - Supplied duty stamps for proxy assignment free of charge.
 - Prepared stickers for those that had already registered for getting in and out of the meeting room without rechecking.

- Before the meeting, the Company Secretary clarified the method for voting and vote-tallying for each agenda item and requests shareholders' representatives to witness vote-tallying together with the inspector.
- During the meeting
 - Conducted the meeting by the agenda items sent to the shareholders without adding or switching the agenda items
 - Allowed the shareholders equal rights for expressing views and posing questions on each agenda item and recorded key concerns and views in the minutes.
- After the meeting:
 - Publicized the resolutions and vote tallies on each agenda item through SET's channels and Bangchak's website by the evening of the meeting date
 - Publicized the minutes through SET's channels and Bangchak's website, and delivered to the shareholders that expressed views at the meeting.

At the 2019 AGM, Bangchak invited Mr. Visith Uevirojnangkoon, an independent legal counselor, to serve as an independent inspector to validate the votes and ensure transparency and compliance with the law and the Company's article of association. This included examination of documents of shareholders or their proxies with the right to attend the meeting, quorum, stakeholders whose voting right was not exercised, and whether the voting process followed the Company's article of association or what was announced by the chair of the meeting, as well as collection of ballots, verification of meeting resolutions, as well as ballot casting. One representative from the shareholders joined the witnesses verifying the AGM ballot-counting

2) Equitable Treatment of Shareholders

The Board of Directors has defined a policy on equitable treatment of shareholders in the corporate governance policy, as implemented below.

- Publicized meeting documents on its website 31 days ahead of the meeting and delivered them to the shareholders 28 days ahead of the meeting.
- Allowed the shareholders to propose additional AGM agenda items and nominate directors from August 30 to December 31, 2019. Bangchak disclosed the criteria and methods at its website and informed the shareholders through SET's channels. The Board's policy is against adding agenda items without prior notice, particularly crucial items for which the shareholders need time to study before making a decision.
- Supported the shareholders' use of proxy forms to steer voting at the meeting (Form B) and nominated six independent directors as proxy alternatives at the meeting.
- Used ballots on every agenda item, particularly that dealing with directors' election where individual directors were voted on. To this end, the votes equaled the number of shares held for the election of one director.
- Required that directors with vested interests should have no votes and stay outside the meeting on such agenda item, as mentioned in the corporate governance policy.
- Defined practices for employees on the maintaining of Bangchak's confidential information and avoidance of benefit-seeking for themselves by exploiting such confidential information, as mentioned in the corporate governance policy

3) Roles of stakeholders

In the corporate governance policy, the Board defined a policy for its roles toward the stakeholders. In the corporate governance system, several key groups of stakeholders are found, including customers, employees, business partners, shareholders, investors, creditors, and residents of neighboring areas, society, and the environment. Bangchak values the importance of the rights of all groups, which includes actions violating their rights and intellectual properties. Below are the policy and practices (detailed under "Sustainability Report"):

Employees

- ces Individual Development Plans (IDPs) to raise staff knowledge and caliber.
- Performance assessment is based on the Balance Scorecard principles whereby all employees have Key Performance Indicators (KPIs) and will be compensated in accordance with their performance.
- Gives a competitive and fair compensation, depending on the overall performance of the company, in the short term and the long term. In this regard, an annual salary survey is carried out with other companies in the same industry. Bangchak, moreover, provided staff welfare exceeding what was required by law, which included the provident fund, medical welfare, shuttle-bus service, staff relations activities, as well as an employee club with various recreational activities.

Customers

- The Company is dedicated to improving the quality and reliability of products and services for maximum customer satisfaction. Its policy is to deliver quality goods and services which meet or exceed customers' demands under fair conditions. Bangchak brand service stations were ranked 1st (tie for 1st place) as measured by Net Promoter Score for the second consecutive year.
- The Company is also committed to consumers' safety by delivering standard-certified products and by giving accurate, adequate information about its products and services.

Suppliers/Contractors

- The Company has a suppliers' code of conduct and a policy to select and treat Suppliers/Contractors with equality and fairness. It has produced a "Business Contact" manual and drawn up a "Dealer/Station Operator Policy" for distribution to business contacts and dealers/station operators so that they may have proper understanding and strictly comply with Bangchak's corporate governance and business ethics. Bangchak also firmly adheres to contract provisions. Whenever any condition cannot be complied with, Bangchak urgently informs Suppliers/Contractors in advance to jointly solve problems.
- The Company has defined strict criteria for Suppliers/Contractors selection to bolster fair and equal procurement procedures without violation of human rights. It invites those qualified to register with it. Qualified companies are allowed to make offers to compete with others in the same business. The procurement committee then proceeds with the selection, based on price and technical aspects.

Creditors

The Company treats its creditors fairly, responsibly, and transparently and seeks to fulfill all its contractual and financial obligations, especially guarantee conditions, capital management, and payment, collaterals, potential obligations and debts, as well as appropriate capital structure management to ensure creditors of its financial status and ability of repayment. If it cannot fulfill one or more of its obligations, it must notify creditors in advance so that a resolution can be mutually agreed.

Competitors

The Company conducts business with ethics, transparency, and engages in fair competition with its competitors under the guidance of fair competition. It does not seek to find information about Competitors through dishonest or inappropriate means, for example, bribing a competitor's employees. The Company does not engage in slander or discrediting its competitors.

Shareholders

The Company is determined to follow the principles of corporate governance and is focused on creating a business which has financial stability and sustainability to maximize the value of shares for the benefit of the shareholders.

Communities surrounding the refinery, society, and the environment

- The Company conducts its business with adherence to environmental management standards, such as ISO 14000. The Company considers health and safety and the environment an integral part of the business, and has a written guideline on health, safety and the environment for the Directors, Executives, and employees to uphold. This year Bangchak held an SHEE Excellence Day 2019 to inform participants of Circular Economy issues. The concept is part of the BCG Economy (Green, Bio, and Circular Economy).
- Environmental stewardship
 - Internally, the Company campaigned on reducing printing jobs or photocopying and reliance on electronic communication means instead of paper, including printing on both pages instead of one. It modified business processes to electronic, while educating employees on occupational health, safety, and energy, as well as providing knowledge and training for employees on occupational safety, health, and environment, as well as energy
 - External efforts by arranging for E-Procurement for business partners in making offers in procurement and E-Complaint for customers in filing their complaints or making recommendations, to reduce the use of paper.
- The Company produces “Krob Krua Bai Mai” (Leaf Family) newsletter and “Rob Rua Bangchak” (Bangchak Neighbors) magazine for distribution every other month to allow the community to know the goings-on of the Company as well as receiving interesting information, such as how to save energy, how to ensure safety in daily life, and health tips and how to protect the environment. This is another way for the Company to communicate with and take care of communities around its refinery

Consumption of resources

The Company continually raises the efficiency of resource (energy, water and chemical) consumption, suiting the size of the business and efficiently managing waste and use it to its full potential.

Sanctity of intellectual properties

Bangchak has its policy on intellectual property management to define clear guidelines for the prevention and sanctity of intellectual properties. Compliance with this policy is the direct responsibility of the executives, employees, affiliates, and contractors working on behalf of Bangchak.

Whistleblowing and complaint-filing channels

Bangchak’s Board of Directors has laid down measures regarding whistleblowing or concerns about any wrongdoing or misconduct that may lead to fraud involving people in the organization, be they staff or stakeholders. Whistleblowing can also be applied to suspicious financial statements or a lax internal control system. Bangchak has a mechanism to protect staff or whistleblowers by establishing a confidential database accessible only by authorized persons. This is to encourage cooperation from stakeholders in better protecting its interests. If a concern about wrongdoing is raised, a committee comprising members of units relevant to the issue will be set up to launch an investigation, the result of which is forwarded to the whistleblower through:

E-mails	ico@bangchak.co.th
Letters:	Internal Audit Bangchak Corporation Public Company Limited 2098 M Tower Building, 8th Floor, Sukhumvit Rd., Phra Khanong Tai, Phra Khanong, Bangkok 10260 Tel: 0 2335 4566

This year Bangchak monitored complaint or grievance reports filed through Internal Control, finding no such complaint or grievance submitted through ico@bangchak.co.th about corrupt, immoral, or unethical practices.

Contact channels

The Board of Directors
 Tel: 0 2335 4638
 Fax: 0 2016 3982
 E-mail: bcpsecretary@bangchak.co.th

Company Secretary
 Tel: 0 2335 4050
 Fax: 0 2016 3982
 E-mail: pakawadee@bangchak.co.th

Investor Relations
 Tel: 0 2335 8663
 Fax: 0 2335 8000
 E-mail: ir@bangchak.co.th

4) Information disclosure and transparency

The Board of Directors has defined a policy on information disclosure and transparency in the corporate governance policy, as implemented below.

- Disclosed performance outcomes, company information, and outlooks to analysts and investors (domestic and international) every quarter.
- Distributed key company data and documents, including the memorandum of association, certification, and regulations beyond the corporate governance policy on its website.
- Investor Relations coordinated with analysts, investors, and other parties that need financial data, performance outcomes, company status, and transactions affecting Bangchak.
- Publicized Bangchak's key information regularly through SET's channels, annual information disclosure forms, annual report, and its website in Thai and English

5) Board responsibilities

In the corporate governance policy, the Board defined a policy for the roles, duties, and responsibilities of the Board. Details appear under "Management Structure", and below are Bangchak's actions taken this year:

- Review the vision, objectives, key goals, and business strategies and applying innovations and technologies to key resource allocation to supplement sustainable value to the business so that Bangchak may achieve its objectives, by pursuing useful information, and by fully sharing views.
- Oversee the management's translation of strategic plans into operational plans, assess the outcomes and steer affiliates by requiring their management to report their performances and other key matters for the Board's acknowledgment every month.
- Held an annual corporate strategy seminar with the management to review the vision and set corporate goals.
- Staged a meeting of the independent directors in April and September, and a meeting of the non-management directors in May and October.
- Educated the Board of Directors and enriched their experience, which aids their performance and business investment review, this year Bangchak organized a study visit for the Board of Directors on natural resources at the operation of OKEA ASA, where Bangchak held shares.
- Developed performance assessment forms for the Board: individual (self-assessment and cross-assessment), group, and committee.
- Revised and defined Bangchak's annual vision, missions, strategies, business plan goals, and budgets every year to maximize value to businesses and for shareholders' security. In addition, the Board endorses key strategies and policies, particularly financial KPIs (key performance indicators) and work plans. Endorsement of KPIs and metric-setting is done early in the year, with periodic tracking.

- Monitored management performance and ensured strategic implementation. Required that progress updates and company performance should be reported each month to Board meetings.
- Instituted an effective internal control system, internal audit, and risk management measures together with regular tracking at Board meetings.
- Established the Compliance unit to monitor all functions to ensure complete compliance, including preparation of legal assessment for Bangchak units, oversight of license renewals with an alert system for responsible superiors and subordinates, and legal education through channels like Outlook, intercom, and annual law training.

The Board of Directors is determined to manage businesses in compliance with good governance so that Bangchak's businesses may become transparent, efficient, and responsible to all stakeholders. The Board recognizes its duties under the new CG Code's guidelines, to apply each Principle and Sub-Principle by means that are suitable for the company's business. Such application review takes place at least annually. The Company has fully complied with the Corporate Governance Code for listed companies 2017, except the following matters which are the aspects not yet applied, which will in time be adapted as seen fit.

CG Code Principle	Justification or Alternative Measure
<ul style="list-style-type: none"> • The board should comprise at least 5 directors and should not be more than 12 directors. (Guideline 3.1.2) 	<p>Bangchak values corporate governance in parallel with the recruitment of competent people to manage businesses. It recognizes the necessity and benefit of recruiting additional such directors. Today the Board consists of 15 directors.</p>

8. Conflicts of Interest

Under the corporate governance policy, the guidelines for directors, management and employees stipulated that they must refrain from any act posing potential conflicts of interest with the Company, i.e. any act potentially depriving the Company of its interests or its fair share of interests, including competing with the Company, incurring personal gains from private business dealing with the Company, abuse of Company information for personal gain and holding shares in the Company's business competitors.

The Company, in order to prevent potential conflicts of interest, has set the following forms:

✔ CG Commitment and Conflict of Interests Disclosure Form

To comply with the policy on corporate governance, which forbids directors, management and employees to commit any act which might deprive the Company of its interests, the Company has prepared the above-mentioned form to ensure that all employee acknowledge the CG policy and fill any acts or activities that might be in conflict with the Company's business interests and deliver it to Internal Control through their supervisors through the e-HR.

✔ Report of Directors and Management's Stake Form

The Securities and Exchange Act stipulates that directors and the management are to report to the Company his/her or connected persons' stakes connected with the business operations of the Company or its subsidiaries. The Company has therefore prepared the above-mentioned form for its directors and management to fill out and report any change to the Company. The Corporate Secretary will forward a copy of the form to the Chairman of the Audit Committee to ensure that the directors and management perform their duties with integrity.

✔ Report on connected transactions form

To ensure that transactions between the Company and any related parties or businesses are transparent and comply with SET's rules and regulations, the Company has defined a policy and guidelines on connected transactions and prepared the above-mentioned form for responsible employees to fill out and forward it to the Secretary to the Board of Directors Division with a copy to Internal Audit for acknowledgment.

☑ Intention to trade Bangchak Corporation's securities form

To enable directors and the management to inform the Company of the intention to trade Bangchak shares through Internal Control at least one day in advance, for reporting to the Audit Committee every quarter. Written notices can be sent through ICO@bangchak.co.th or other electronic channels, including the LINE application.

9. Investor Relations

The Company realizes that its information, both financial and non-financial, affect the decision-making process for investors and stakeholders. Therefore the management values accurate and full disclosure in a regular and timely manner, in accordance with SEC and SET regulations. The Investor Relations department acts as a center for giving out important information to investors. Bangchak allowed all information to be equally publicized, whether financial reports, performance outcomes and business outlooks, data affecting Bangchak stock prices, or quality-assured data disclosed to investors and stakeholders. Directly and indirectly, Bangchak presented its performance outcomes and company information, summarized below:

- ☑ **Direct :** Bangchak staged meetings between its executives and shareholders, stock analysts, investors, and employees via regular activities to present performance outcomes through analyst meetings, roadshows, conference calls, participation in conferences (domestic and abroad), participation in meetings with minor investors at the "Opportunity Day" or at "SET in the City", hosted by SET, or company visits by shareholders to enable them to appreciate company businesses more. In addition, institutional investors (domestic and international) and stock analysts may make appointments with executives to inquire about company data through company visits.

Activity	Number (times)
Foreign Roadshow	4
Local Roadshow	5
Analyst Meetings	4
Opportunity Day (organized by the SET)	4
Company Visit	6
Conference Call	4
Answering Inquiries by E-mail/telephone	528 (twice a day in average)
E-newsletter	4
Factsheet	4
Site Visit	3
Shareholder and Minor Investors Get-together	2
Press Conference (2020 Business Plan)	1

- ☑ **Indirect :** Bangchak provided assorted data, performance outcomes, financial statements, and other information given to SET. Other data were presented through meeting documents, video and audio recordings, and E-Newsletters, as well as other reports submitted to SET on the Company's website www.bangchak.co.th, where interested parties can read and download this information. The Investor's Relations page contains information in Thai and English which is updated frequently.

Investors and related parties can make queries or ask for the Company's information at Ms. Supamol Eamaon, tel. 0 2335 8663 or e-mail address: ir@bangchak.co.th

Report of the Audit Committee

To the Shareholders

The Audit Committee consists of qualified directors who are independent and experienced, with Mr. Suthep Wongvorazathe serving as Chairman, with Pol. Lt. Gen. Chaiwat Chotima and Dr. Poramettee Vimolsiri serving as members.

This year the committee met 12 times, eight of which with the management (in the absence of those with invested interests on applicable items). Below are the meeting attendance records.

Name	Attendance
Mr. Suthep Wongvorazathe	12 / 12
Pol. Lt. Gen. Chaiwat Chotima	12 / 12
Dr. Poramettee Vimolsiri	11 / 12

In addition, the committee twice met with the Enterprise-wide Risk Management Committee (ERMC).

Below are the highlights of the committee's deliberations:

- Reviewed the quarterly and annual financial statements, related financial reports, information disclosure that was adequate and timely, compliance with generally accepted accounting practices, accounting standards, and key changes in accounting policies. Also, reviewed connected transactions between shareholders and subsidiaries or related companies. The committee met Bangchak's law team to get updates on significant cases where Bangchak had been sued in court, the outcome of which could have key repercussions on its businesses.
- Reviewed and ensured that Bangchak
 - ✔ A suitable, transparent, and efficient internal control system and internal audit practices are in place, complete with independent and efficient monitoring of Internal Control's performance, including its views on internal control weaknesses on pricing and discounts provided by the Marketing Business and the work inspection by the Refinery Business.
 - ✔ Supported
 - Internal Audit's counseling for subsidiary BBGI Plc.'s and BCPG Plc.'s internal audit system
 - Internal Audit's participation in the ISO 22301 assessment project and counseling on internal audit to the management
 - A program was constantly developed to aid ACL audit (Script) together with OCR (Optical Character Recognition) application to audit work. Ordered more training courses on emerging technologies, including AI and Blockchain
 - Formed a project on the Community of Practices for Internal Audit (COP IA) to develop the competency of internal auditors of Bangchak Group
 - ✔ Recognized stringent safety for looking after unused equipment, a possible cause of accidents in the refinery
- Reviewed Bangchak's compliance with all announced accounting standards, legal provisions, SET's requirements, and applicable laws in a thorough, accurate fashion under corporate governance principles, with a focus on exceeding compliance.

4. Selected, nominated, and proposed pay for KPMG Phoomchai Audit Ltd. as Bangchak's external auditor for 2018; held quarterly discussions with the external auditor about audit-related problems and timely corrective actions on key issues.
5. Reviewed the adequacy of Bangchak's risk management processes and proceeded with audit under the existing risks. This year meetings were held with ERM, where this committee advised that committee to
 - Recommended investigation of locating SPAR outlets and merchandise models, including software designed to aid merchandise management. Besides, the shop configuration of SPAR and Inthanin Café located in One Roof buildings should be reviewed for suitability.
 - Recommended risk investigation upon the promulgation of the Personal Data Protection Act
 - Took seriously up-to-date rights of access to assorted business processes
 - Hired additional IT-savvy personnel for higher audit efficiency.
6. Urged and ensured compliance with the refinery's safety and environmental stewardship standards for the surrounding communities and society.
7. Revised the committee's charter in line with SEC's and SET's rules and requirements as well as the corporate governance policy to ensure shareholders, business partners, customers, and other stakeholders that Bangchak's business complies with requirements and the code of conduct while upholding an efficient internal control system.
8. Reviewed Internal Audit's policy and handbook to embrace roles, duties, and responsibility of the Audit Committee and Internal Audit to guide its tasks.
9. Advocated international-standard quality for internal auditor development.

Monitoring Bangchak's performance this year under the assigned scope of duties and responsibility, the Audit Committee feels that Bangchak had prepared materially correct financial statements under the generally accepted accounting principles. Data for connected transactions or those that might produce conflicts of interest were duly disclosed. In place were an internal control system and risk management practices that were adequate and fit business circumstances. Finally, Bangchak accurately and thoroughly abided by the laws, SET's requirements, and applicable legal provisions.

(Signed) *Suthep Wongvorazathe*

(Mr. Suthep Wongvorazathe)

Chairman, Audit Committee

January 23, 2020

Report of the Corporate Governance Committee

To the Shareholders

The Board of Directors of Bangchak Corporation Plc appointed the Corporate Governance Committee, chaired by General Vitth Devahasdin, with Mr. Surin Chiravisit, Mr. Teerapong Wongsiwawilas, Mr. Suthi Sukosol and Mr. Chaiwat Kovavisarach as members.

This year the committee held three meetings to monitor compliance with good corporate governance plans, with the following performance summary:

1. Rights of shareholders

- ✔ Publicized AGM data on Bangchak's website 31 days ahead of the AGM and sent documents to the shareholders 28 days ahead of the AGM
- ✔ Arranged enough AGM registration points for the attending shareholders for swift registration
- ✔ Publicized the minutes of AGM on the Company's website within 14 days from the shareholders' meeting date.
- ✔ Allowed the shareholders to submit queries needing answers from August 30, 2019 onward.

2. Equitable treatment of shareholders

- ✔ Nominated 6 independent directors as proxy choices at the AGM
- ✔ Allowed the shareholders to nominate agenda items and directors from August 30 to December 31, 2019
- ✔ Reported the directors' and management's securities portfolios each month at Board meetings.

3. Roles of stakeholders

- ✔ Monitored the reports on complaint-making and tips through Internal Audit, Email: ICO@bangchak.co.th; this year there was no complaints concerning fraud, corruption or violation of the code of conduct.

4. Information disclosure and transparency

- ✔ Announced corporate performance, data, and outlooks to analysts and domestic and overseas investors every quarter
- ✔ Greeted shareholders during site visits this year.

5. Board responsibilities

- ✔ Enhanced skills and expertise for directors (the corporate leaders) for effectiveness, ability to pursue short-term and long-term goals, and leadership toward sustainability
- ✔ With the management, participated in Bangchak's annual corporate strategies seminar to review and revise Bangchak's vision and goals
- ✔ Held exclusive meetings of the independent directors in April and September and meetings of the non-management directors in May and October.

6. Corporate Governance Policy

- ✔ Amended the Corporate Governance Policy (Revision 16) concerning notification to buy Bangchak securities; the Board may commission external consultants to conduct Board performance assessment at least every three years for disclosure in the annual report; and auditor rotation may be considered.
- ✔ Arranged for all employees' acknowledgment and taking of the annual policy test through the "e-HR" online human resource administration system and the "We Share" knowledge management system
- ✔ Developed infographics to communicate the Corporate Governance Policy concerning whistleblowing or complaints to all employees via the intranet.

7. Participation in publicizing the corporate governance code

Bangchak management served as speakers on the sharing of its corporate governance policy and experiences on various occasions; Bangchak also welcomed public and private agencies, as well as educational institutions, on their visits to its business sites, experience sharing, and study visits on Bangchak's corporate governance.

8. Publicity to promote the corporate governance culture, including:

- ✔ Corporate governance talk at directors' orientation
- ✔ Corporate governance talk at employees' orientation
- ✔ Corporate governance talk for external agencies
- ✔ Staged the 2019 CG Day for the 15th year to promote understanding and cultivate awareness of the CG policy. Bangchak Group employees were encouraged to participate in the "CG's GOT TALENT" show to campaign on six fundamental principles (ARTEVE) of corporate governance. The secretary general of ACT (Dr. Mana Nimitmongkol) and Admiral Sucheep Whoungmaitree, a Bangchak Corporation director, joined the panel of judges.

9. Anti-corruption

- ✔ This year Bangchak was recertified as member of Private Sector Collective Action Against Corruption (CAC) for the second time in a row since 2013.
- ✔ Bangchak organized its annual supplier seminar and encouraged suppliers to apply for CAC membership; it was one of the five winning companies of the CAC Change Agent Awards.
- ✔ Bangchak valued and stressed the No-Gift Policy for any occasion in a bid to upgrade corporate governance practices while setting a commendable standard for conducting fair business with all involved parties.

Thanks to Bangchak's valuing of corporate governance, this year it continually earned corporate governance awards of two levels:

1. Regional

- ✔ For the sixth consecutive year, a Platinum Award presented at The Asset ESG Corporate Awards 2019 event for outstanding companies in ESG (Environmental, Social & Governance) practices, embracing corporate governance, information disclosure to shareholders and all stakeholders, socio-environmental responsibility and stewardship, and application of technology and innovation to business development, leading to international acceptance. The award was organized by The Asset magazine (Hong Kong).

2. National

- ✔ Board of the Year 2018 Award, presented to efficient boards of directors for corporate governance, returns to shareholders, and fair treatment of all stakeholders. The award was organized by IOD.
- ✔ CAC Change Agent Award. Bangchak was one of the five winners of this award, which saluted companies that valued the encouragement of private business entities to adopt anti-fraud systems and measures to form transparent and fraud-free business networks. The 10th CAC National Conference Day was organized by CAC.

(Signed) *Vitch Devahasdin*

(Gen. Vitch Devahasdin)

Chairman, Corporate Governance Committee

December 20, 2019

Report of the Nomination and Remuneration Committee

To the Shareholders

Bangchak Corporation's Board Meeting No. 4/2019 appointed the current Nomination and Remuneration Committee, chaired by Mr. Suthep Wongvarazathe, with Adm. Sucheep Whoungmaitree, Lt. Gen. Thammanoon Withee as members, and Police Lt. Gen. Chaiwat Chotima served as member and committee secretary. For true performance freedom, all were independent directors.

This year four meetings were held by the committee, with the following highlights.

Director and the President & CEO nomination: The committee recruited directors for nomination, replacing the retiring ones whose terms were completed and who resigned before term completion. In doing so, it took into consideration competencies, experience, sound career history, and visionary leadership. They must not only be virtuous and ethical, but also possess a good attitude toward Bangchak, and must be able to dedicate enough time for Bangchak's business. In addition, it considered Board diversity and developed a Board skills matrix to define the desired qualifications, taking into consideration needed skills and due qualifications in line with the Board composition and Board structure fitting Bangchak's business strategies. IOD's Director Pool was also reviewed. Today the Board consists of 15 directors, 9 of whom are independent and five are non-management directors. The President & CEO is a management director. Their profiles appear under "The Board". Besides, revision was considered for the criterion governing shareholders' advance nomination of directors and AGM agenda items by benchmarking the practice with that of other leading listed companies with excellent CGR assessment outcomes.

Determination of the Board and President & CEO's compensation: Taken into consideration were suitability for assigned duties and responsibilities, linked to Bangchak's own performance outcomes, in relation to SET-listed companies of peer industries and sizes. Such compensation must serve as a sufficient incentive for them to deliver quality performance, while pursuing Bangchak's goals and business directions. Remuneration data appear under "Management Structure".

The Nomination and Remuneration Committee performed its duties with freedom and under the corporate governance code to give the nomination and compensation-setting processes transparency and bolster confidence among the shareholders and all stakeholders.

(Signed) *Suthep Wongvarazathe*

(Mr. Suthep Wongvarazathe)

Chairman, Nomination and Remuneration Committee

December 20, 2019

Report of the Enterprise-wide Risk Management Committee

To the Shareholders

To ensure ongoing business conduct under ever-changing circumstances, Bangchak appointed an Enterprise-wide Risk Management Committee (ERMC), responsible for overseeing the management of risk and uncertainties potentially facing its operations, meaning strategic, operation, financial, and reputation risks. The Bangchak Board of Directors Meeting No. 4/2562 appointed Ms. Prisana Praharnkhasuk an additional member of ERMC.

This year the Board consulted the management and the internal auditor on five meetings and held two meetings with the Audit Committee, as highlighted below:

○ Supervised and reviewed policy, and managed key risks for connectivity and alignment with the TQA and DJSI criteria in parallel with corporate strategic plan formulation. Set and monitored were key risk indicators, which would affect corporate KPIs of the Company, which is facing dynamic circumstantial changes (internal and external), including safety, impacts on the environment, society, and communities, compliance with the law, anti-corruption, and vigilance over cybersecurity. To ensure sustainable development hand in hand with the environment and society under corporate governance (environmental, social, and governance), the Board valued risk management for Bangchak Group so that it may properly engage in businesses while remaining vigilant for overall impacts to keep risks manageable. On the whole, Bangchak Group successfully managed these risks.

○ Made recommendations on Bangchak's new investment so as to accommodate domestic and international investment growth of Bangchak Group. Bangchak therefore required that investment projects considered significant to its operations must command risk management plans for submission to ERMC before securing Board approval. This move is to ensure that a given undertaking commands proper risk management practices, does not impact communities and the environment, and is likely to achieve its goals. This year the Board made recommendations and observations on the formulation of risk management plans under the investment project through OKEA (a subsidiary engaging in petroleum exploration and production in Norway) and organized knowledge sharing on the risk management process in conjunction with the management.

○ Supported the Business Continuity Management (BCM) process by focusing on preparedness of strategies, processes, and resources, particularly knowledge enhancement for related personnel. It therefore staged a BCM Internal Audit training course, a BCM Introduction and Awareness training course, and a Level 3 emergency plan drill to promote awareness of duties and recommended actions. It also revised and finetuned BCM plans for greater connectivity and efficient management under all circumstances. As a result, this year Bangchak continually earned the ISO 22301:2012 certification for its Headquarters at M Tower, Bangchak Refinery, Bangchak Oil Distribution Center, Central Region Business Office, and Bang Pa-in Oil Distribution Center. Stakeholders can therefore be confident in Bangchak's uninterrupted business, even under crises.

The Enterprisewide Risk Management Committee is committed to ensuring that Bangchak commands due supervision and risk management. Thanks to the steps taken, it is confident that Bangchak indeed proceeds with efficiency and will successfully achieve enterprisewide goals.

(Signed) *Mr. Prasong Poontaneat*

(Mr. Prasong Poontaneat)

Chairman, Enterprisewide Risk Management Committee

December 20, 2019

Changes in the Securities Portfolios of Directors and Executives

The Company has notified all Board of Directors and Executive members of the Securities and Exchange Commission (SEC) announcement, calling on them to report their portfolios, including those of their spouses, cohabitation partners, and minor children under legal age, including legal entities where they have more than 30% shareholding of the number of all voting rights of the juristic person, to SEC within 30 days of their appointment to the Board and the management rank, respectively, and to do so with each change in portfolio within 3 business days.

Each month the portfolios and changes of the Board and the executives are reported to the Board at their meeting. These portfolios were as follows.

Name	Shares as of Year-end 2018	Shares as of Year-end 2019	Increase (Decrease)
Board of Directors			
1. Mr. Pichai Chunhavajira	-	-	-
2. Mr. Surin Chiravisit	-	-	-
3. Mr. Suthep Wongvorazathe	-	-	-
4. Gen. Vitch Devahasdin	-	-	-
5. Adm. Sucheep Whoungmaitree	-	-	-
6. Pol.Lt.Gen. Chaiwat Chotima	-	-	-
7. Lt.Gen. Thammanoon Withee	-	-	-
8. Mrs. Prisana Praharnkhasuk	-	-	-
9. Mr. Teerapong Wongsiwawilas	-	-	-
10. Dr. Poramettee Vimolsiri	-	-	-
11. Mr. Suthi Sukosol ^{1/}	-	-	-
12. Mr. Prasong Poontaneat	-	-	-
13. Dr. Anuchit Anuchitanukul	-	-	-
14. Dr. Prasert Sinsukprasert	-	-	-
15. Mr. Chaiwat Kovavisarach	1,060,000	1,200,000	140,000
Executive Management			
1. Mr. Yodphot Wongrukmit	44,096	44,096	-
2. Mr. Kiatchai Maitriwong	11	11	-
3. Mr. Chalermchai Udomranu	1,865	1,865	-
4. Mr. Pongchai Chaichirawiwat	64,332	64,332	-
- Mr. Pongchai Chaichirawiwat	44,332	44,332	-
- Mrs. Siriwan Chaichirawiwat (Spouse)	20,000	20,000	-
5. Mr. Somchai Tejavanija	28,522	28,522	-
6. Mr. Bundit Sapianchai	31,895	95	(31,800)
7. Mr. Surachai Kositsareewong	-	-	-
8. Mr. Chokchai Atsawarangsalit ^{2/}	-	300	-
9. Mr. Viboon Wongsakul ^{2/}	-	-	-
10. Mr. Pativat Tivasasit ^{2/}	-	12,000	-
- Mr. Pativat Tivasasit	-	-	-
- Mrs. Suvimol Tivasasit (Spouse)	-	12,000	-

Note: Directors and executives do not have any indirect shareholding (except the executive no.4 and 10).

^{1/} Appointed to the Board on July 26, 2019

^{2/} Appointed as Senior Executive Vice President on September 1, 2019

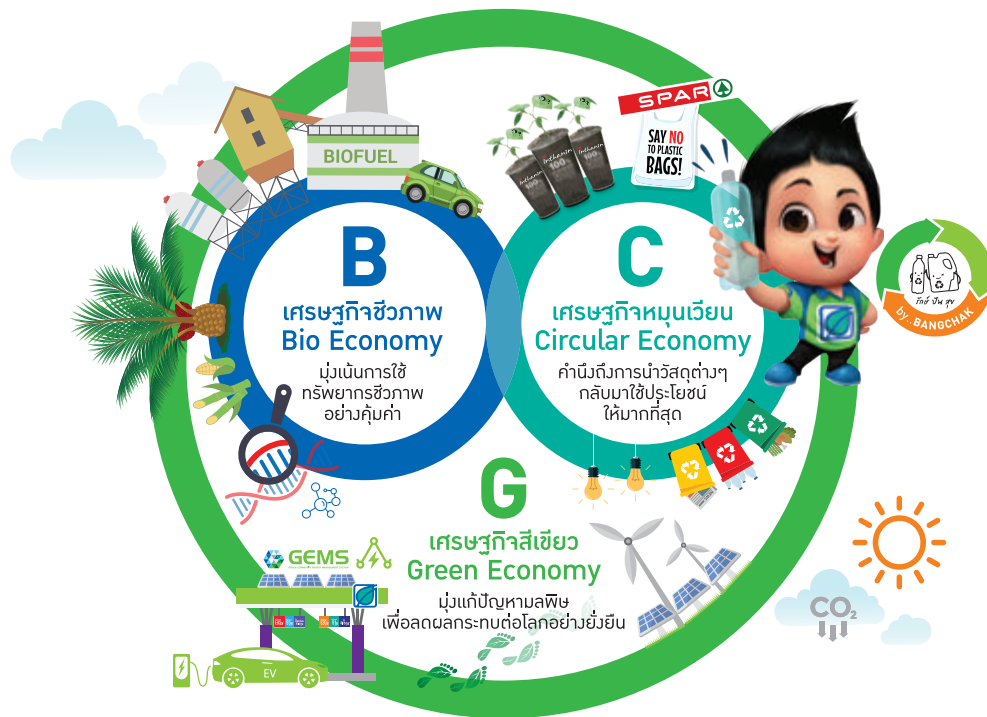
Bangchak and Sustainability

Bangchak is constantly committed to sustainable business innovation in tandem with environmental and social sustainability under its 3Ss corporate strategies (Security, Stability & Sustainability) and its 4 Greens Strategies (Green Business, Green Production, Greenovative Experience & Green Society). To achieve this ambition, Bangchak integrates these strategies with nine Sustainability Development Goals (SDGs) chosen for alignment with national development policies, business capability, Bangchak's interest, and stakeholders' needs and expectations. The outcomes drive and develop its businesses, namely refinery & trading, marketing, green power plant, bio-based products, and natural resource businesses, for security and sustainable accommodation of growth while looking after the environment and society in line with its Evolving Greenovation vision and SDGs.

Amid today's highly volatile world economy, politics, environment, and society, Bangchak strives to develop and invest in undertakings or projects that are compatible with its economic model leading to sustainable development, which represents a new-age economic development model characterized by three economies:



- **Bio Economy** This system focuses on cost-effective exploitation of biological resources with the application of advancements in science, technology, and innovation. In fact, Bangchak has taken steps here with its bio-based product business that processes agricultural produce into bio-based products of higher economic values.
- **Circular Economy** This system focuses on cost-effective consumption of resources, raw materials, and products through reuse or recycling along with zero-waste product and process design via innovation and transformation based on the 3Rs principle.
- **Green Economy** This system focuses on running green businesses through the development and improvement of production processes along with ongoing environmental management - this has in fact been Bangchak's underlying business development model from day one. In short, Bangchak strives to improve people's lives in parallel with environmental and social stewardship.



As for the development of organization sustainability and internal processes, Bangchak is determined to become a sustainability leader and a high-performance organization, leveraging frameworks, tools, and international standards to guide management, namely DJSI, TQA, UNGC's 10-point agreement on human rights, labor, the environment, and anti-fraud together with other sustainability-related guidelines and standards so as to duly build on its work processes and sustainability for excellence so as to securely sustain upcoming change while efficiently meeting stakeholders' needs and expectations.

As for the environment, Bangchak remains committed to becoming a green refinery that is modern, safe, and environment-friendly. This year it earned the Water Footprint standard certification for six products from the Federation of Thai Industries out of its Water Management preparation through the Water Footprint of Product Program. As a result, Bangchak became the **first Thai oil refinery** to be so certified, implying efficient water resource management, a lower production cost, and heightened competitiveness, which values conservation of natural resources and the environment while pursuing sustainable development goal success.

Finally, for social development, Bangchak has initiated new projects with proficient third-party networks to grow its social activities and align them with sustainable national development needs. To this end, Bangchak strives to strengthen society by working on the majority of people-society's grassroots-by focusing first on education and promotion of farmers' and the new generation's development of goods and services, leveraging innovation and technology to hone national competitiveness while nourishing growth concepts for business sustainability and happiness. To this end, diverse social development projects are in place: Education for the Future, Co-development School, Green Impact (to develop an online marketing platform for groups of farmers, the youth, communities, and startups), and the "Stop Soil Erosion with Royal Scientific Knowledge" project.

For more information, please visit www.bangchak.co.th, which contains the Integrated Sustainability Report prepared under GRI Sustainability Reporting Standards (GRI Standards).

Internal Control

Bangchak Corporation Public Company Limited values a sound internal control system under the scope of The Committee of Sponsoring Organizations of the Treadway Commission (COSO), which requires these components of internal control: control environment, risk management, control activities, information and communication, and monitoring activities.

Having reviewed the recommendations, the Board provided its views on the adequacy and suitability of the internal control system. Below is a summary of assessment findings.

1. Control environment

Bangchak's work environment favors proceeding under the internal control system. Legal and Corporate Compliance centralizes compliance efforts for laws and regulations of agencies in a clear, concrete way so as to guide employees' performance. Internal Control Division promotes and steers compliance with the internal control system under COSO. Amendment is made to business policies, employee manual, operating manual, and organization and taskforce structuring to render the management's efficiency. Finally, Bangchak relentlessly values business integrity and ethics under its corporate governance (CG) policy, sustainable business development with the environment and society, as well as compliance.

Bangchak values the issues of fraud risks and conflicts of interest, as evident in its requirement for employees to provide data on their conflicts of interest via the e-HR system for their convenience and up-to-date data every year.

Bangchak organized the 2019 CG Day (15th year) under the "CG's GOT TALENT" theme to enhance employees' understanding and awareness of the CG policy by inviting Bangchak Group employees to join a contest under this theme to communicate the ARTEVE (Accountability, Responsibility, Transparency, Equitable Treatment, Vision to Create Long Term Value, and Ethics) fundamental principles of Bangchak's CG. Also, this year's annual suppliers' seminar (held for the sixth consecutive year) educated and supported suppliers to join CAC to stress ongoing commitment to combating corruption.

Bangchak underwent assessment and was acclaimed by third-party agencies this year. In Asia it earned the ASEAN Corporate Governance Award for Top 50 ASEAN PLCs for the second year in a row; this represented an exercise relying on the ASEAN CG Scorecard (ACGS) as a central criterion for assessing and ranking listed companies. Also, The Asset magazine presented a Platinum Award – Excellence in Environmental, Social and Governance at The Asset Corporate Awards 2018. On the domestic front, for the second year in a row, Bangchak garnered the Best Sustainability Award 2018, an upgrade from the award for reports on corporate governance and social responsibility; it also accepted from SET an Excellent Sustainability Award, echoing its comprehensive integration of business sustainability in line with the corporate governance code.

2. Risk assessment

Bangchak appointed an Enterprise-wide Risk Management Committee (ERMC) to steer risk management for the entire corporation and develop a continually efficient enterprise risk management system under the ISO 31000 international standard embracing strategic, operation, financial, and reputation risks. These risks imply safety and occupational health risks; risks of impacts on the environment, society, and communities; compliance risks; and risks of corrupt practices, among others. Risk management processes cover the entire corporation, namely the corporate, business group/functional group, section, and work process groups. Also in place is a formulating process for investment project risk management in each of Bangchak's projects worldwide. And to promote ESG (Environmental, Social and Governance), the Board values risk management by affiliates and joint ventures so that they may operate suitably, stay vigilant, and monitor overall impacts for manageable risk control. On the whole, Bangchak Group successfully managed these risks.

Bangchak's defined policy and key risk management practices have been well-aligned with TQA and Dow Jones Sustainability Indices (DJSI) in parallel with corporate strategic plan formulation. Key risk indicators (KRIs) have been applied to the vigilance monitoring of risk likelihood to finetune and define additional risk management plans to ease impacts on corporate goals and achieve manageable key corporate risk control and desired outcomes.

To enable Bangchak to handle unforeseen risks that could hurt business capability, including natural catastrophes, sabotage, political change, and other incidents, it appointed a Business Continuity Management Taskforce to develop a system, oversee preparedness, and revise plans to cope with risks and crises more effectively so that Bangchak's businesses may proceed uninterrupted and mitigate repercussions. To this end, it has introduced the ISO 22301:2012 system to the corporation, embracing Head Office, Bangchak Refinery, and Bangchak Oil Distribution Center, Central Region Business Office, and Bang Pa-in Oil Distribution Center since 2013 (for six consecutive years). This move certifies that Bangchak indeed commands a system to handle crises, manage business continuity on a par with international standards, and bolster confidence among stakeholders that it is capable of coping with crises, and of continuing to deliver products. The acquired ISO 22301:2012 certificate has been monitored each year by the standard certifier.

3. Control activities

Bangchak's control activities rely on KPIs for planning and exerting control. Duties and responsibilities are segregated for checks and balances, as are the revision and definition of authority levels and approval authority for each level for business suitability. Checks and balances and authority inspection are the mandates of dedicated units and committees, including Internal Audit, the Investment Committee, and ERMC.

Bangchak has adopted a system for documents and evidence of delegating responsibility should errors arise. Custody of company assets prevents losses or abuses, as does the monitoring of transactions with long-term corporate commitment, under which agreed terms are to be honored. Measures are in place to prevent exploitation of opportunities or benefits from personal gain. This year Bangchak rolled out a "How to manage and control inside information" manual so that all functions may effectively comply and refrain from causing damage to Bangchak.

At Bangchak, procedures ensure compliance with laws and applicable regulations as well as key operating procedures. Technology systems have been developed for promoting internal control. This year Bangchak rolled out its "Work process management policy", which takes seriously proper work practices by designated work processes. Work processes are constantly improved for effectiveness with due regard for points of control and control measures to lessen risks; these efficient processes are modern and align with Bangchak's directions and goals. Finally, Bangchak appointed a taskforce to manage personal information, which organized a seminar to educate the workforce to prime them for compliance with the Protection of Personal Information Act B.E. 2562 (2019), effective from May 2020 onward.

At Bangchak, watertight measures are in place for its transactions with major shareholders, directors, among others, to avert the siphoning of benefits. For instance, such transactions must be approved by those without vested interests and such transactions' data must be disclosed under SEC's rules, including data on parties or related undertakings under accounting standards.

Bangchak has appointed an ISMS Management Team to oversee and manage information security. The team revises Bangchak's policy and requirements for IT system security under ISO 27001 and regularly informs employees about risks, prevention of cyberthreats, and IT security requirements. As a result, it achieved an Information Security Management System, ISO/IEC 27001:2013, and earned a letter of compliance under ISO/IEC 27032:2012 (Guidelines for Cybersecurity) as the first entity in Thailand under the certification of Bureau Veritas Certification (Thailand) Co., Ltd.

Bangchak commands a monitoring system for the regular oversight of subsidiaries under its business strategies, policy scope, and guidelines.

4. Information and communication

Every year Bangchak revises its Digital Roadmap to agree with its strategic plans on refinery management, marketing, and key business processes, namely finance, accounting, personnel administration. To this end, new technologies heled map out business processes to grow business caliber, including IoT (Internet of Things). Sensors were installed inside the refinery so that their data may be analyzed under the Predictive Maintenance Project to allow maintenance planning and cut down on unplanned shutdowns. In marketing, data analytics analyzes customers' data, leading to personalized marketing and enhanced customer experience ability to further meet their needs. Finally, Bangchak has applied Robotic Process Automation in supporting work processes characterized by numerous data and repetitive actions.

Bangchak's various employee communication channels and processes educate employees on various issues in a swift manner to ensure that messages get through, including the Intranet, e-mails, intercom, and digital message boards, in addition to informal but popular channels like LINE Group. Also, communication with external stakeholders is carried out through multiple media, especially online media, today's popular means of communication due to its data transmission speed, including its website and Facebook. The purpose is easy access and application as well as successful data search results through mobile devices to quickly and efficient meet business demand.

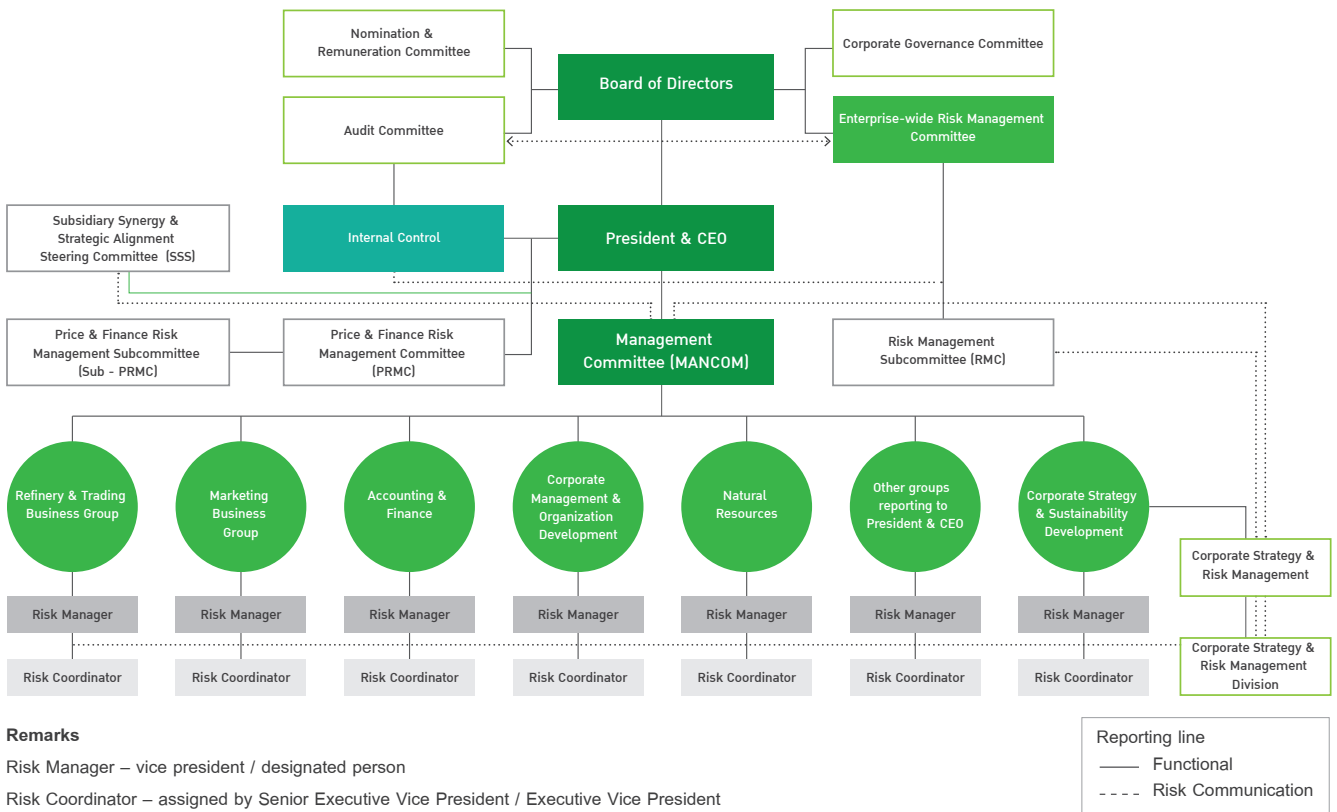
Bangchak has set up complaint channels as well as a whistleblowing system for employees and stakeholders, who can use phone numbers or e-mails; they are to be duly protected and enter the fact-finding process for eventual correction.

5. Monitoring

Bangchak's performance monitoring system regularly compares actual performance with goals. Should parameters be found that affect performance outcomes, proper adjustment is made to strategic plans to agree with performance outcomes so that outcomes may meet goals. Internal Control Division, Corporate Sustainability Development, is the owner of the control self-assessment (CSA) process of adequacy and suitability assessment under the corporate internal control system, done by relevant executives. This year Bangchak developed online e-CSA for such executives for greater assessment efficiency. Reporting to the Audit Committee, assesses internal control outcomes before informing responsible parties of shortcomings so as to constantly develop the effectiveness of the internal control system.

Enterprise-wide Risk Management

Bangchak has adopted an international integrated enterprise-wide risk management system based on COSO ERM and ISO 31000 for more than 15 years to define management directions and measures to prevent and minimize impacts from a variety of risks preventing it from achieving goals. The risk management system has provided not only the capability for Bangchak to operate all businesses successfully under a relentlessly changing environment, but has also warranted confidence among all stakeholders. All executives and staff, as well as joint ventures, fully participate in this international risk management system aligned with the corporate strategy and planning, as well as the sustainability development policy involving environmental, social and governance (ESG), under the supervision and monitoring of an Enterprise-wide Risk Management Committee (ERMC), with reporting lines and organizational network illustrated below.



Risk Management Outcomes

The sluggish global and domestic economy haunted the manufacturing and household sectors throughout 2019. Moreover, the extraordinary volatility of Thai Baht currency, crude oil price and prices of agricultural produce directly impacted the growth of all industries and business performance of Bangchak. Enterprise-wide risk management significantly provided Bangchak and its joint ventures with the ability to pursue all businesses with minimal negative impacts under continuous monitoring and tracking mechanisms as well as mitigating risks to acceptable levels with appropriate mitigation plans. From a broad enterprise-wide perspective, Bangchak met all its targets with such risk management system.

To cope with constant business changes and sustainability, the system has taken into account global megatrends and risks to provide Bangchak with the ability to successfully manage medium-term to long-term risks including business and industrial competitiveness, economic conditions, consumer behavioral changes, changes in the environment and climate from global warming, transformation of technologies and innovations, particularly those on renewable energy and energy storage, advancement in electric vehicles, biological technology, and movement of regulatory controls. These studies have been integrated with primary data of stakeholders' expectations and needs for further analyses of future impacts and directions of risk management in parallel with integrated corporate strategy to strive for mutual sustainability.

Bangchak has grouped its risk management framework into 1) corporate risk management, 2) project investment risks, and 3) business continuity management. This framework helps formulate appropriate risk management system and assessment. Below is a progress report in these three areas

1. Corporate Risk Management

Corporate risk management includes management of all internal and external risks incorporated with an assessment of future trends which could affect the organization in the short, medium, and long terms. The system incorporates risks in strategy, operation, finance, and reputation. The system is managed with specific key risk indicators (KRIs) to monitor and track the likelihoods and severity of all identified risks and provides treatment plans to mitigate and minimize the risks and drive operations to succeed as planned. In 2019, Bangchak assessed and managed corporate risks aligned with the corporate strategy and sustainability development involving the environment, society and governance as follows.

Economic Risks

Risks of volatile prices of oil and feedstock

The risks of volatile prices of oil and feedstock directly affect the revenue stream of Bangchak's core petroleum and petroleum-related businesses. With this in mind, Bangchak manages these risks with short-term and long-term plans as follows.

- ✔ Put in place a mechanism to track the movement of the crude oil price, spreads between crude and refined product prices, and regular development of new risk management tools for members of the subcommittee and risk management committee on prices and finance to consider and decide suitable options to manage, and report directly to the executive management committee.
- ✔ Diversify risks arising from price fluctuation of agricultural produce through investment in bio-based businesses operated by BBGI to upgrade business competitive edge in biofuels, biodiesel and ethanol, a stepping stone to high-value bio-based product development and value additions to the company.

Risks of managing feedstock and supply chain

Management of risks associated with supply chains and suppliers on delivery of feedstock, raw materials, machines, equipment and related services for the production and distribution is critical to uninterrupted operations, fostering confidence among all stakeholders and giving a competitive advantage for the organization. The risk management plan on feedstock and supply chains covers:

- ✔ Procure quality crude oil suitable for production processes to optimize refining margins and generate additional value for the business.
- ✔ Develop long-term crude sales agreements with domestic and international suppliers to secure consistent supply for the refinery.
- ✔ Vertically expand its natural resource business upstream. This includes acquisition of OKEA ASA, an upstream entity developing and producing crude oil in Norway, securing continuous crude supply for the existing business and supporting new and future businesses.
- ✔ Properly diversify supplier risks by classification and segmentation of suppliers, raw materials and feedstock, products and services to ensure optimal value. Proper assessment of supplier risks affecting economic, societal, and environmental values to Bangchak is essential to ensure business continuity throughout the supply chain.

Risks of volatility of exchange rates and interest rates

The exchange rate of the Baht currency fluctuated wildly throughout 2019 due to the uncertain exchange rate policies of many countries and aggressive trading policies of certain large economies. Bangchak's businesses in petroleum and trading in international markets therefore relate directly to exchange risks. The company's risk management on exchange rates and interest rates includes:

- Adopt natural hedges on transactions with international currencies on both income and expenses.
- Manage major costs of capital toward fixed and consistent interest rates.
- Closely monitor movement and trends of international monetary markets to execute proper hedging on exchange rates and interest rates decided by the Risk Management Committee on pricing and finance to ensure successful businesses as planned.

Risks of energy innovation transformation

Transformation of energy innovation is an external factor shaping Bangchak's businesses. Bangchak has therefore developed risk assessment and converted advancement of energy innovation into business opportunities as follows.

- Invest through Lithium Americas Corp. in lithium mining to expand its natural resource business and energy innovation in preparation for lithium battery production and production of electric vehicles.
- Establish Bangchak Initiative and Innovation Center (BiiC) as an institute for innovations and business startups for Green Ecosystems to promote innovative development of green energy and bio-based businesses.
- Promote the initiation of business opportunities from energy innovation through regular campaigns among staff and subsidiaries, through introduction of Design Thinking to help develop new products and services to cope with future changes. To this end, BiiC can act like a business incubator and eventually commercialize selected initiatives.

Societal Risks

Risks of impacts on communities and society

Bangchak is fully committed to operating its businesses in a friendly way with communities, the public and the environment in a sustainable way. Work processes have therefore been continuously upgraded to ensure safety and zero impact on communities and the public under the following risk management plan.

- Consistently develop safety and occupational health systems under ISO 45001 to raise safety and health standards and systematize work processes in relation to associated risks, regulatory controls and other constraints. Thanks to these successful efforts, Bangchak was certified with the ISO 45001 standard in May 2019.
- Install an enclosed ground flare to minimize community impacts due to glare and noise from flaring. The project construction, completed in 2019, is set to be commissioned in early 2020.
- Commissioned a new oil spill prevention system with the Sri Thararak 8 vessel equipped with side-collecting booms and automatic belt skimmers capable of collecting up to 30,000 liters of spill per hour. This vessel can operate independently, replacing the old system that required three vessels to operate jointly. This new system can operate with much higher efficiency and speed. Bangchak is ready to exploit this system to support spill prevention and other tasks required by the authorities and IESG (Oil Industry Environmental Safety Group Association) upon request.
- Pursue oil spill protection by redefining crude oil and refined-product vessel specifications from single-hull to double-hull and equip them with emergency accessories and spill prevention control. Conduct oil spill prevention drills with double-boom laying during offloading every six months, together with full staffing for training and development, and all safety, instrument and machinery gear and port and harboring systems under the Oil Company International Marine Forum Institute standard.
- Routinely conduct risk management with systems of Safety Integrity Level, Reliability-Centered Maintenance, and Risk-Based Inspection to ensure the efficiency of all equipment and work processes for accurate preventive maintenance programs.
- Perform hazard and operability study assessment and install the process safety management system at all procedural levels of refining processes in conjunction with leading engineering consulting firms to ensure international work standards and practices.
- Install an online air quality metering system with automatic display on all monitors in the refinery and its vicinity for the communities surrounding the facilities to get real-time air quality information, leading to higher public confidence in Bangchak's operation.

- Consistently organize community educational activities for people living near the refinery facilities, schools, temples, and condominiums to understand, learn and be fully aware of safety. The programs include sharing of knowledge and practical drills on evacuation, firefighting, and first-aid medical treatment, as well as community safety alert and warning systems. Community members have actively participated in these programs.
- Escalate ERMC's year-round roles in overseeing risks in the surrounding communities such as water disposal treatment involving joint-venture operations. This program is designed to monitor and prevent negative impacts on surrounding communities.

Environmental Risks

Risks of climate and environmental changes and measures on GHG emission control

Bangchak's focuses on reducing all impacts causing global warming by cutting down on energy consumption and carbon dioxide or greenhouse gas (GHG) emissions with the following programs.

- Through BCPG Public Company Limited, expand businesses to green power, generating power from clean renewable energy sources including solar, wind, hydro, and geothermal in domestic and international markets. Bangchak has so far been capable of reducing carbon dioxide emission from generating power by 645,399 tons per year, equivalent to plantation of up to 474,558 rai of forest.
- With a commitment to continuously managing the reduction of GHGs, Bangchak won three awards in 2019 for excellent management of GHG emission reduction, presented by Thailand Greenhouse Gas Management Organization (Public Organization); an award on Carbon Footprint of Product (CFP), an award on Thailand Voluntary Emission Reduction Program (T-VER) in its third consecutive year – a voluntary program awarded to refineries capable of reducing GHGs with a 2% target – and an award on Carbon Footprint Reduction (CFR). These accolades honor extraordinary achievements as a role model for others, aimed to promote project development efficiency while protecting the ecology and project economics toward sustainability of the refining business.
- Install a continuous catalyst regeneration unit in place of the catalytic reforming unit to increase oil distillation efficiency and decrease energy consumption. The system is set for commissioning in 2020.
- Replace fuel oil with natural gas to generate power and steam in the combined-cycle plant and deploy it as a primary energy source for the distillation units, resulting in higher energy efficiency and reduction of carbon dioxide emissions.
- Focus on sale of environmentally friendly oil products from renewable sources to the industry. In 2019, Bangchak heavily promoted sale of Bangchak Hi-Diesel B20 S, mixed with clean and environmentally friendly biodiesel B100, a specialty product reducing pollutants and volatile dust from ignition. Most sales were made to the industrial group, large vessels and trucks. This special diesel product is available nationwide, and its business directly supports palm farmers through an alternative market for their produce and stable income.
- Remodel resource consumption with the 3Rs strategy of Reduce, Reuse and Recycle to achieve sustainable and environmentally friendly business success. This includes collection of plastic bottles from customers voluntarily to produce recycled products for society, collection of depleted plastic lubricant containers for recycling to produce polymers and eventually reproduce such containers. These programs are aimed to reduce public waste and sustain the values of resources through reuse and recycling to optimize their values to the environment, society and communities in a sustainable way.
- Organize campaigns of the non-oil activities to reduce plastics, including the "Gaew Phaw Gla" (recycling for seedling) project to collect used Inthanin coffee cups from customers and recycle them as a container (Gaew) for nursing seedlings (Phaw Gla) to support plantation. The project is jointly run with the Royal Forest Department, intended to reduce black garbage bags for nursing seedlings, which is the current practice. Another campaign is the ending of plastic-bag use in all "SPAR" convenient stores at Bangchak, intended to reduce waste and impacts on the environment.

- Nurture environmental and social stewardship and care as a corporate culture by iterating energy conservation and care for the environment. Examples are campaigns on banning styrofoam for food packaging for all activities in the offices, banning plastic bags in the company's canteens, cutting down on printing workloads and stop using paper for photocopying while converting communication and coordination activities to more online in the digital format, reducing the use of fuels for all individual transport between Headquarters and the refinery by using EV (electric vehicle) buses. These buses also help reduce the volumes of dust, volatile pollutants from exhaust pipes, and carbon dioxide emissions on Sukhumvit Road.

Water Shortage Risks

Water shortage has been identified as an imminent global crisis. Global warming and a booming population are the main causes of uncertainty on available water for consumption. Bangchak has paid its full attention to water management to conserve water in production processes as follows.

- Monitored risks from climate change, such as drought, by monitoring and staying vigilant over daily water situations of the Metropolitan Waterworks Authority to assess the water shortage risk affecting refining processes, to ensure emergency water source availability, and to define proactive measures in case of risk arising from lower Chao Phraya River water levels, which may affect navigation, while ensuring minimal effects on stakeholders. Monitored flood situations and took proactive steps, for example, monitoring the levels of water in the major rivers during the rainy season, inspecting the readiness of flood prevention equipment by establishing a risk management plan in response to flood possibility and severity in order to ensure continuous business operation.
- This year Bangchak successfully reduced the water used in tap water quality improvement via the micro-filtration, reverse osmosis, and electro de-ionization systems by 50,650 cubic meters. It also reused condensate water and stripped water in its production processes, which saved 633,440 cubic meters. In addition, it improved mildly contaminated condense water and treated wastewater via the reverse osmosis system, resulting in 525,179 cubic meters of reused water. Thanks to these water reduction measures, Bangchak saved the equivalent of water used by 3,185 households.
- Implement water management in all processes with the water footprint of product (WFP) program to track and record Gate-to-Gate (G2G) water consumption in detail in each process. These records are analyzed to directly and indirectly optimize the consumption pattern and production efficiency. Bangchak was Thailand's first refinery recipient of the Water Footprint of Product certificate in 2019, with six products certified by the Water and Environment Institute for Sustainability of the Thai Federation of Industries.
- Promote the reduction of water consumption in all production processes with all affiliates and business units, led by the water recycling program by the Bio-based Product Business Group. Moreover, a project of drilling for groundwater was initiated for water storage and supply for the facilities.
- Bangchak has also partnered with the World Soil Association, Land Development Department, and Pidthong Lang Phra Institute (Pidthong Institute) in initiating the "Stop Soil Erosion, Save our Future" program by promoting King Rama IX's philosophy on halting soil erosion at Tambon Kaen Makrut, Uthai Thani, classified as a watershed forest bordering a national forest reserve. The philosophy defines ways to protect soil erosion so that water can be fully preserved. The area therefore becomes green and the community will avoid drought and food shortage in the long run.

Emerging Risks

Risks of digital technology transformation and cybersecurity

Risks of digital technology transformation and cybersecurity are external risks that have rapidly evolved, driven by strong business competition, reliance on competitive technologies, and connectivity of hardware and software through Internet technology. These technologies are designed for increasing work efficiency and competitive edge of the organization and industry. However, risks borne by digital technology transformation and cybersecurity can paralyze the entire business. Assessment and treatment of these risks are therefore critical and are managed as follows.

- Establish a digital technology unit in charge of planning, monitoring and procuring proper digital technologies for Bangchak to cope with changes in consumer behavior, work process improvement toward increasing competitive advantages, and adding value and efficiency to its services. The following additional technologies were applied in 2019.
 - Introduce the Robotic Process Automation (RPA) system to increase productivity and decrease turnaround time in work processes, including business partner verification, service station maintenance planning, and sales document processing.
 - Install predictive maintenance technology for pre-planning maintenance shutdowns of the refining facilities. The technology is connected and interactive with databases, equipment and an analytical system to ensure flawless timing for maintenance shutdowns.
 - Develop personalized marketing by applying data analytics to examine individual consumer behavior to develop tailor-made service patterns specific to each consumer and hence increase customer satisfaction.
- Establish a dedicated cybersecurity function, tasked with planning, monitoring and tracking, testing and procuring necessary equipment and systems to counter threats from cyber-attacks. During 2019, the ERMCM approved the purchase of cybersecurity tools and systems for Bangchak's computer center and development of cybersecurity system architecture. The approval was initiated to prevent Bangchak's operations from cyber interruptions. The system provides real-time security system alerts through key risk indicators.
- Develop a refinery cybersecurity system program to safeguard work systems from cyber-attacks or interruptions which might affect refining processes. Bangchak was certified with the ISO 27001 standard covering the Distributed Control System, a central controlling system of the overall processes, thus ensuring no interruption to the refining processes and company businesses.
- Determined preventive measures for personal data protection in compliance with the Personal Information Protection Act B.E. 2562 (2019) by establishing a taskforce consisting of representatives from relevant departments to work closely with a renowned consulting firm to manage and control personal information, including establishing preventive and corrective measures in case of personal information breach or abuse that might harm Bangchak.

Risks to reputation from social media

With the transformation of the social media platform, where news and information of Bangchak's products and services are exchanged among consumers, moved to online, lightning response rates have become crucial. More importantly, online negative news and distortions could go viral, thus tarnishing Bangchak's reputation. Managing reputation risk therefore demands a dedicated team to relentlessly monitor movements of online social media. These tasks increase communication efficiency under normal circumstance and crises, and reduce negative impacts. The system also calls for regular drills to ensure crisis preparedness.

Risks of managing human resources for future growth

To support additional investments for security and sustainability of income, Bangchak needs to satisfy higher demand for diversified and highly skilled human resources for each business and to maintain a proper generation gap within the organization to drive future businesses. Managing risks of human resources for future growth to align with business strategies is defined and treated with consistent programs and sessions of lessons learned and knowledge exchange among staff of Bangchak Group. These sessions hone skills, identify career advancement, and sustain business continuity as well as strengthening ties among staff workers and Bangchak. Activities in these sessions are organized and analyzed jointly by the management through the Subsidiary Synergy and Strategic Alignment Steering Committee.

2. Project Investment Risks

In addition to strategic directions and returns on investment, project investment risk management is another crucial component of business success. All investment projects must therefore be reviewed for risk management with risk treatment at various stages as follows.

- Development phase risk
- Construction phase risk
- Operation phase risk including risks concerning operation, finance, taxation imposed by the tax policy of the country of investment, business, and reputation
- Natural disaster risk. The major project investment risk determined, approved and monitored by ERM in 2019 was the acquisition of additional shares in OKEA AS (“OKEA”), an operator of petroleum development and production in Norway. During 2019, OKEA successfully listed on the Oslo Stock Exchange, leading to higher liquidity for Bangchak to expand its business in the development of petroleum resources.

3. Business Continuity Management (BCM)

To ensure the ability to continue its businesses even during crises, Bangchak has developed and installed a Business Continuity Management (BCM) system. In 2019, Bangchak won the ISO 22301: 2012 BCM award covering Headquarters, Bangchak refinery and Bangchak Oil Distribution Center, Central Region Business Office and Bang Pa-in Oil Distribution Center for the sixth consecutive year since 2013. The award is a guarantee of its preparedness to continue its businesses with maximum efficiency under international standards even during crises, and high confidence for all stakeholders on the ability of Bangchak to fully operate during crises and constantly deliver products to its clients.

During 2019, Bangchak made significant improvement in its enterprise-wide crisis management and BCM, including development of new key indicators and a review of all resources. A drill was conducted on both crisis management and business continuity with a simulated port collision by a cargo vessel. The drill involved communication between and among internal executives and responsible staff. External authorities and observers included officials from the Department of Energy Business, Pollution Control Department, Marine Department, Port Authority of Thailand, Phra Khanong District Office, Oil Industry Environmental Safety Group Association (IESG), and the Bang Nam Phueng community. The outcome was later brought up for analyses to continuously improve work processes and procedures under BCM to ensure the ability of Bangchak to end the crisis and operate its businesses uninterrupted.

Connected transactions

1. Connected transactions with subsidiaries, jointly-controlled businesses, associated companies and related companies during 2018 and 2019 consisted of the following:

1.1 Sale of products and services to subsidiaries, jointly-controlled businesses, associated companies and related companies

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	34,501.22	33,298.87	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
Bangchak Biofuel Co., Ltd.	0.04	0.03	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	7,752.79	10,650.21	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	9.21	11.55	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	9.04	5.05	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
KSL Green Innovation Plc.	-	0.79	- BBGI (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Associated companies				
Ubon Bio Ethanol Plc.	9.60	15.07	- BBGI (Bangchak's subsidiary) holds 21.28% of the shares	- Bangchak delegates its representatives as directors
Ubon Agricultural Energy Co., Ltd.	1.98	0.52	- Ubon Bio Ethanol Plc. (associated company) holds 100% of the shares	- Bangchak delegates its representatives as directors

1.2 Purchase of products and services from subsidiaries, jointly-controlled businesses, associated companies and related companies

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	0.18	0.18	- BCP holds 49% of the shares	- Bangchak delegates its representatives as directors
Bangchak Biofuel Co., Ltd.	4,019.00	4,942.08	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	22,903.10	24,073.52	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	1,062.37	1,001.09	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
KSL Green Innovation Plc.	906.42	1,756.77	- BBGI (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Associated company				
Ubon Bio Ethanol Plc.	1,368.04	1,327.40	- BBGI (Bangchak's subsidiary) holds 21.28% of the shares	- Bangchak delegates its representatives as directors
Joint venture				
Bongkot Marine Services Co., Ltd.	490.00	459.52	- Bangchak holds 30% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd	443.28	453.56	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.3 Revenue from investment and other revenues from subsidiaries, jointly-controlled businesses, associated companies and related companies

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	39.95	30.35	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
Bangchak Biofuel Co., Ltd.	1.99	0.69	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
Nido Petroleum Pty. Ltd.	126.40	6.94	- BCP Energy International Pte. Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
BBGI Plc.	48.47	47.83	- Bangchak holds 60% of the shares	- Bangchak delegates its representatives as directors
BCPG Plc.	936.38	971.37	- Bangchak holds 70.04% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	0.63	0.60	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	22.89	20.19	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPR Co., Ltd.	-	0.24	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	-	2.78	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCP Innovation Pte. Ltd.	2.62	37.86	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
KSL Green Innovation Plc.	0.50	0.50	- BBGI (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPR Pte. Ltd.	2.88	14.98	- BCPR Co., Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Associated company				
OKEA ASA	-	4.14	- BCPR Pte. Ltd. (Bangchak's subsidiary) holds 46.52% of the shares	- Bangchak delegates its representatives as directors

1.3 Revenue from investment and other revenues from subsidiaries, jointly-controlled businesses, associated companies and related companies (Continued)

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Joint venture				
Bongkot Marine Service Co., Ltd.	24.00	15.00	- BCP holds 30% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd.	4.90	4.73	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.4 Other expenses paid to subsidiaries, jointly-controlled businesses, associated companies and related companies

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	23.67	32.09	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
BCPG Plc.	0.25	0.01	- Bangchak holds 70.27% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	4.62	6.44	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	0.11	-	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	8.05	2.12	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd.	-	0.25	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.5 Debtors, advance payments and short-term loans to related businesses

1.5.1 Trade debtors

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	1,080.28	1,085.28	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
Bangchak Biofuel Co., Ltd.	-	0.02	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	3.20	1.64	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	1,133.77	932.10	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	0.71	-	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
Associated companies				
Ubon Bio Ethanol Plc.	1.57	1.56	- BBGI (Bangchak's subsidiary) holds 21.28% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd.	0.33	0.33	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.5.2 Debtors and loans to related businesses

1.5.2.1 Loans

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Nido Petroleum Pty. Ltd.	1,291.39	1,199.07	- BCP Energy International Pte. Ltd. (Bangchak's subsidiary)	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	410.00	610.00	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCP Innovation Pte, Ltd.	197.75	878.69	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPR Pte, Ltd.	3,228.48	3,103.70	- BCPR Co., Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd.	10.51	7.10	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.5.2.2 Other debtors

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Biofuel Co., Ltd.	0.74	0.06	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
Bangchak Solar Energy Co.,Ltd.	0.39	-	- BCPG (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Nido Petroleum Pty. Ltd.	10.42	10.42	- BCP Energy International Pte. Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	4.62	3.13	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPG Plc.	3.06	9.04	- Bangchak holds 70.27% of the shares	- Bangchak delegates its representatives as directors

1.5.2.2 Other debtors (Continued)

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	0.01	0.05	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
BBGI Plc.	5.01	4.38	- Bangchak holds 60% of the shares	- Bangchak delegates its representatives as directors
BCP Innovation Pte, Ltd.	2.60	35.82	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPR Co., Ltd.	-	0.15	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCV Bio Based Co., Ltd.	0.01	-	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCV Energy Co., Ltd.	0.01	-	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCV Innovation Co., Ltd.	0.01	-	-- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
BCV Partnership Co., Ltd.	0.01	-	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Associated company				
OKEA ASA	-	0.14	- BCPR Pte. Ltd. (Bangchak's subsidiary) holds 46.52% of the shares	- Bangchak delegates its representatives as directors

1.6 Creditors of related businesses

1.6.1 Trader creditors

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	0.02	-	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
Bangchak Biofuel Co., Ltd.	152.06	441.08	- BBGI (Bangchak's subsidiary) holds 70% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte. Ltd.	503.24	240.23	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	102.51	96.13	- BBGI (Bangchak's subsidiary) holds 85% of the shares	- Bangchak delegates its representatives as directors
KSL Green Innovation Plc.	71.07	92.30	- BBGI (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Associated company				
Ubon Bio Ethanol Plc.	109.93	148.89	- BBGI (Bangchak's subsidiary) holds 21.28% of the shares	- Bangchak delegates its representatives as directors

1.6.2 Other creditors

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
Bangchak Green Net Co., Ltd.	3.33	4.67	- Bangchak holds 49% of the shares	- Bangchak delegates its representatives as directors
BCPG Plc.	0.04	0.04	- Bangchak holds 70.27% of the shares	- Bangchak delegates its representatives as directors
BCP Trading Pte, Ltd.	3.67	-	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors
Bangchak Retail Co., Ltd.	1.83	2.54	- Bangchak holds 100% of the shares	- Bangchak delegates its representatives as directors

1.6.2 Other creditors (Continued)

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Nido Petroleum Limited	-	10.98	- BCP Energy International Pte. Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
Joint venture				
Bongkot Marine Services Co., Ltd.	12.59	1.99	- Bangchak holds 30% of the shares	- Bangchak delegates its representatives as directors
Related business				
Fuel Pipeline Transportation Co., Ltd.	43.66	48.42	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1.7 Other non-current assets

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiary				
Nido Petroleum Limited	321.65	305.40	- BCP Energy International Pte. Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors
BCPR Pte, Ltd.	2.86	17.86	- BCPR Co., Ltd. (Bangchak's subsidiary) holds 100% of the shares	- Bangchak delegates its representatives as directors

1.8 Other current liabilities: These items are Bangchak's revenue received in advance for land lease and demanded guarantee payment for building lease.

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Subsidiaries				
BCPG Plc.	6.00	5.78	- Bangchak holds 70.04% of the shares	- Bangchak delegates its representatives as directors

- 1.9 Other non-current liabilities: These items are Bangchak's revenue received in advance for land lease from related companies.

Related company	2018 THB (million)	2019 THB (million)	Relationship for the year ended 31 December 2019	
			Shareholding	Management
Related business				
Fuel Pipeline Transportation Co., Ltd.	2.02	1.54	- Bangchak holds 4.95% of the shares	- Bangchak delegates its representatives as directors

1. Connected transactions with Bangchak Green Net Co., Ltd.

Bangchak Green Net managed Bangchak service stations and consumer product sales at Lemon Green and Bai Chak outlets. These connected transactions followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

2. Connected transactions with Bangchak Biofuel Co., Ltd.

Bangchak Biofuel Co., Ltd., an indirect subsidiary through BBGI Company Limited (BBGI), which holds 70% of its shares, was set up to produce and sell biodiesel. These connected transactions followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

3. Connected transactions with BCP Innovation Pte. Ltd.

A subsidiary company in Singapore, BCP Innovation Pte. Ltd. was set up to engage in innovation-related businesses. The service fees followed normal business terms and were based on market prices.

4. Connected transactions with BCP Trading Pte. Ltd.

A subsidiary company in Singapore, BCP Trading Pte. Ltd. was set up to trade commodities including crude oil, petroleum products, petrochemicals and related chemicals and to conduct other businesses that would benefit the company, including but not limited to oil hedging, chartering, storage and distribution. These connected transactions followed normal business terms and were based on market prices.

5. Connected transactions with Nido Petroleum Pty. Ltd.

Nido Petroleum Pty. Ltd. (an indirect subsidiary in Australia) was formed to run the upstream petroleum business. These connected transactions followed normal business terms and were based on market prices.

6. Connected transactions with BCPG Plc.

A subsidiary company, BCPG Plc. was established to engage in power generation from solar cells. Service fees among the two followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

7. Connected transactions with Bangchak Retail Co., Ltd.

A subsidiary company, Bangchak Retail is engaged in franchise businesses and intellectual property acquisition. Service fees among the two followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

8. Connected transactions with BBGI Plc.

A subsidiary company, BBGI Plc. was established to engage in bio-based product manufacturing. Service fees among the two followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

9. Connected transactions with Bangchak Bioethanol (Chachoengsao) Co., Ltd.

An indirect subsidiary company through BBGI, which holds 85% of its shares, Bangchak Bioethanol (Chachoengsao) is engaged in cassava-based ethanol production. The ethanol was used in gasohol production. Purchases and service fees followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

10. Connected transactions with KSL Green Innovation Plc.

An indirect subsidiary company through BBGI, engages in ethanol production primarily from molasses (a byproduct of the sugar process). Purchases followed normal business terms and were based on market prices.

11. Connected transactions with BCPR Co., Ltd.

A subsidiary company, BCPR Co., Ltd., was formed to be holding company which invests in BCPR Pte. Ltd., a subsidiary company in Singapore. Service fees among the two followed normal business terms, based on market prices, and conformed to details stated in the operating agreement.

12. Connected transactions with BCPR Pte. Ltd.

A indirect subsidiary company in Singapore, BCPR Pte. Ltd. was formed to undertake petroleum exploration and production. These connected transactions followed normal business terms and were based on market prices.

13. Connected transactions with BCV Bio Based Co., Ltd.

A subsidiary company, BCV Bio Based Co., Ltd. was established to engage in a startup business in Thailand. These connected transactions followed normal business terms and were based on market prices.

14. Connected transactions with BCV Energy Co., Ltd.

A subsidiary company, BCV Energy Co., Ltd. was established to engage in a startup business in Thailand. These connected transactions followed normal business terms and were based on market prices.

15. Connected transactions with BCV Innovation Co., Ltd.

A subsidiary company, BCV Innovation Co., Ltd. was established to engage in a startup business in Thailand. These connected transactions followed normal business terms and were based on market prices.

16. Connected transactions with BCV Partnership Co., Ltd.

A subsidiary company, BCV Partnership Co., Ltd. was established to engage in a startup business in Thailand. These connected transactions followed normal business terms and were based on market prices.

17. Connected transactions with OKEA ASA

An indirect associated company in Norway, OKEA ASA was formed to undertake petroleum exploration and production. These connected transactions followed normal business terms and were based on market prices.

18. Connected transactions with Ubon Bio Ethanol Plc.

An indirect associated company through BBGI, with 21.28% equity, engages in ethanol production from fresh cassava and cassava chips for gasohol production for domestic sale and export to China for the most part. Purchases and service fees followed normal business terms, based on market prices, and conform to details stated in the operating agreement.

19. Connected transactions with Ubon Agricultural Energy Co., Ltd.

Transactions with Ubon Agricultural Energy Co., Ltd., a related company through Bangchak's associated company, Ubon Bio Ethanol Plc., which holds its shares, followed normal business terms and were based on market prices.

20. Connected transactions with Bongkot Marine Services Co., Ltd.

The Company entered into a contract for the use of Bongkot oil depot service with Bongkot Marine Services Co., Ltd., a joint venture which provides floating storage unit services. The transaction followed normal business terms, based on market prices, and conform to details stated in the operating agreement.

21. Connected transactions with Fuel Pipeline Transportation Co., Ltd.

Bangchak entered into contracts with FPT to take its oil products from Bangchak Depot to its Bang Pa-in Depot and sell them to its customers in the Central, Northern and Northeastern regions, followed normal business terms and were based on market prices.

These transactions were undertaken in the normal course of business, with none representing extraordinary transactions. No siphoning of interests occurred among Bangchak, subsidiary companies, connected companies and shareholders. Approvals were scrutinized by the President, who duly approved them as authorized under Bangchak's regulations.

Disclosure of connected transactions follows the rules of the Office of the Securities and Exchange Commission (SEC), as well as the accounting standards for the disclosure of information on connected parties and businesses, as defined by the Federation of Accounting Professions.

Policy for future connected transactions

In undertaking future connected transactions, Bangchak will continue its product and oil pipeline transport service transactions with connected companies since these represent normal business practices in the same industry. The pricing of products and services follows market practices or the details stipulated in commercial contracts, or both. The connected transaction shall be dealt on a fair and arm's length basis. However, in such cooperation, Bangchak takes into consideration its best interests. The Audit Committee and the Internal Audit supervise and review Bangchak's businesses to ensure its conformance to Securities and Exchange Act and SET's rules and regulations, notifications, orders and requirements. In addition, for whichever transactions involving Bangchak executives, they are not allowed to cast their votes in meetings. Major connected transactions must be reviewed and approved by the Board.

Financial Status and Operational Results

Management's Discussion and Analysis for Business Operations

Executive Summary

Summary of the Company and its subsidiaries' operating results for the year ended 31th December 2019

Unit: THB Million	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Total Revenue	50,146	46,481	8%	48,781	3%	190,489	192,025	-1%
Accounting EBITDA	2,420	2,141	13%	(317)	862%	8,709	10,201	-15%
<i>Refinery and Trading Business Group</i> ^{1/}	1,073	631	70%	(1,421)	175%	2,871	3,928	-27%
<i>Marketing Business Group</i> ^{2/}	359	680	-47%	465	-23%	2,279	2,177	5%
<i>Power Plant Business Group</i> ^{3/}	795	710	12%	570	40%	2,964	3,569	-17%
<i>Bio-Based Product Business Group</i> ^{4/}	374	296	26%	68	449%	1,000	692	44%
<i>Natural Resource Business Group</i> ^{5/}	(57)	(101)	44%	94	-161%	(36)	117	-131%
<i>Others</i> ^{6/}	(124)	(75)	-66%	(92)	-35%	(369)	(282)	-31%
Net profit attributable to owners of the parent	620	370	68%	(1,546)	140%	1,732	2,463	-30%
Basic earnings per share (Baht)	0.38	0.27		(1.12)		1.18	1.79	

Note: 1/ EBITDA from Refinery Business of the Company, BCP Trading Pte. Ltd. and share of profit from associated companies

2/ EBITDA from Marketing Business of the Company, Bangchak Green Net Co.,Ltd., Bangchak Retail Co., Ltd., and share of profit from associated companies

3/ EBITDA from Power Plant Business of BCPG Plc., its subsidiaries, and share of profit from associated companies

4/ EBITDA from BBGI Plc., its subsidiaries, and share of profit from associated companies

5/ EBITDA from Natural Resources business of Nido Petroleum Pty. Ltd., BCP Energy International Pte. Ltd., BCP Innovation Pte. Ltd., BCPR Co., Ltd. and share of profit from associated companies

6/ Others items and elimination

As for performance in Q4/2019, Bangchak Corporation Plc. ("the company") and its subsidiaries earned revenue from selling of goods and rendering of service of THB 50,146 million (8% QoQ, 3% YoY), recorded EBITDA of THB 2,420 million (13% QoQ, 862% YoY), and recorded net profit of THB 620 million **of which the net profit attributable to owners of the parent THB 620 million** (68% QoQ, 140% YoY). Earnings per share was THB 0.38.

As for 2019 performance of the company and its subsidiaries, it is still affected by the fluctuations in oil price of the global market, where the oil business is in on a downward trajectory following slowing global economy due to the trade war between the US and China. The Dubai crude price in 2019 averaged at 63.51 \$/BBL, a decline of 6.14 \$/BBL or 10% compared to previous year. This has led to performance from 2018 to 2019 of the refinery industry, including the company's, to decline. In 2019, the company and its subsidiaries to earn THB 190,489 million (-1% YoY) in revenue from selling of goods and rendering of service, recorded EBITDA THB 8,709 million (-15% YoY), and recorded net profit of THB 1,732 million **of which the net profit attributable to owners of the parent THB 1,732 million** (-30% YoY). Earnings per share was THB 1.18, with performance from each business group as follow:

Refinery and Oil Trading Business Group, the refinery had an average crude run of 112.6 KBD or 94% utilization rate; the average crude run was higher than 2018 which underwent Turn Around Maintenance, and was able to average crude run at a historic high rate of 123.5 KBD during this past September. Meanwhile, Operating GRM declined by 1.69 \$/BBL from the previous year, which was affected by the crack spread of finished product and referenced crude oil price of every products; stemming from a state of excess supplies of finished products in the market, and declining demand from the

receding state of the global economy. Furthermore, crude oil price in the global market has been fluctuating throughout the year, especially between the periods of May to September 2019, where crude oil price declined from the tensions generated by the escalating trade war between the US and China. In tandem with the appreciating THB compared to the USD. As a result, the refinery business recorded an Inventory Loss of THB 1,253 million (including a reversion of lower of cost or market (LCM) THB 689 million) in 2019, which adversely affected the performance of the refinery business. As for the oil trading business operated by BCPT Trading Pte., Ltd. saw improvements in performance from last year. The amount of trade and transaction of crude oil and finished product increased from the move to expand transactions with its trade partners and introducing new products, under the company's strategic plan to expand the business.

Marketing Business Group recorded total sales volume increased 5% YoY, mainly from the retail market increasing by 7% YoY, stemming from the company's strategy to focus on expanding its customer base, and to actively push the sales of the B20 and B10 diesel with special grade within Bangchak service stations to increase availability coverage. The company developed the "Bangchak Hi-Diesel B20 S" and "Bangchak Hi-Diesel S B10" which upgraded the quality of fuel with the Green S technology that would bring out maximum engine performance. The products were well-received by customers. The company is able to continuously grow its market shares in terms of throughput per station, the company's cumulative market share of 2019 is at 16.0% and recorded an all-time high market share of 16.5% in September. Moreover, improvements were made to quality of service, and expanded the locations of service stations simultaneously with expansion of Non-Oil businesses, the total number of service as of the end of 2019 is more than 1,200 locations across the country. In terms of Net Marketing Margin, it declined from the previous year resulting from crude oil price in the global market increased during Q1/2019 and Q4/2019, and B100 product cost rose near the end of the year causing inconsistency between the retail price at service stations and rising finished product costs.

Power Plant Business Group recorded increase in electricity sales 24% YoY from the entire year's realization of revenue from the cooperative solar projects in collaboration with the War Veterans Organization of Thailand (WVO), and the commencement of commercial operation of the "Lom Ligor" wind power plant project, and the Solar Power Plant project in conjunction with the private floating solar "Bang Pa-In". Furthermore, the company extended its investment into the hydro power plant project in Laos PDR "Nam San 3A" which BCPG Plc. has acquired 100% shares as of the previous September. Thus, currently, the total PPA is 405.61 MW. The company realized a share of profit from associated companies THB 355 million, an increase from the geothermal power plant business in Indonesia. However, performance declined compared to 2018 due to the previous year realizing profit of THB 793 million from the divestment of the Nikaho and Nagi project to the Infrastructure Fund in Japan.

Bio-Based Product Business Group, by the Biodiesel Business reported production and sales volume of B100 products increased from the previous year with respect to the various measures taken by the government sector to solve the excess crude palm oil dilemma, including policies to promote the use of Biodiesel fuel (B100) within the energy sector. This has increased the demand for consumption of the product, consequently increasing the price of B100 products. Concurrently, the company prepared the production of B100 to follow the new standard of Monoglyceride content not exceeding 0.4%. Together with ability to efficiently manage raw material cost, gross profit was improved from the previous year.

Moreover, the company was able to efficiently manage raw material cost, improving gross profit from the previous year. As for **the Ethanol Business**, the quantity produced and sold increased from the previous year due to the KSL Green Innovation Plc. plant at Bo Ploy district, Kanchanaburi province increasing its production capacity from 66 million liters per year to 99 million liters per year, and the plant located at Nam Pong district, Khon Kaen province increased its production capacity from 45 million liters per year to 49.5 million liters per year. Moreover, the Bangchak Bioethanol (Chachoengsao) Co.,Ltd. also increased its production capacity. In addition to the improvement of raw material cost management - leading to increase

in gross profit, even though the average selling price of Ethanol declined due to domestic ethanol stock remaining at high levels.

Natural Resources Business Group recorded declines in performance due to in 2018, the business realized gains from the share divestment of Nido Production (Galoc) Pty.Ltd which held the rights to the Galoc oil field THB 78 million. With respect to the divestment, there was not realized revenue from Nido. Most of its 2019 performance derived from administrative expenses. The company realized share of profit from its investment in OKEA THB 26 million, even though share of profit from operation in this fiscal year was a loss, due to loss from the depreciated Norwegian Krone (NOK), and the impairment on Technical Goodwill from investments in the Gjøa field. However, the company realized gains from changes in investment interest at THB 82 million from initial public offering, resulting in an increase in share of profit from associated companies.

Important Events in 2019

January

- Important change in accounting policy from the International Financial Reporting Standards 15, Revenue from Contract with Customers (IFRS 15) which was enforced on the 1st January, 2019. The Group adopted protocols from IFRS 15 by way of realizing cumulative effect from the enforcement of the protocol from the first day of adoption (the 1st January 2019). The Company group did not restate any of its information representing 2018, of which IFRS 15 did not have any significant effect towards the Group's other revenue accounting policy, except for the sales of steam according to the Minimum take or pay contract of an associated company's group in Indonesia. Revenue recognition according to IFRS 15 will be realized once the business has accomplished its obligations. Therefore, the Company restated its financial statement as of the 1st January, 2019, with effect of the financial statement as follow:

Asset:	Investments in associated company declined	THB 54 million
Shareholder's equity:	Retained Earnings declined	THB 38 million
	None controlling interest declined	THB 16 million

- The annual general meeting of the BCP Innovation Pte.Ltd. approved a resolution to increase its registered capital from USD 42 million (attributed to 42 million shares, valued at USD 1 per share) to USD 45 million (attributed to 45 million shares, valued at USD 1 per share). The share capital has been paid up in full.
- The Company, via its Bangchak Initiative and Innovation Center or BIIC has invested in additional Startups through BCP Innovation Pte.Ltd., a subsidiary of the Company in January 2019. The company has invested in Enevale Corporation situated in California, USA, a reputable company of which specializes in vehicle lithium battery production technology. With its advanced innovation, it is able to sustain charges 10 times faster than normal charging

February

- The company started selling B20 Diesel in Bangchak Service Stations under the "B20 for large vehicles, reducing pollution, and saves money" campaign introduced by the Ministry of Energy for large vehicles, to help ease the pollution, and is a method to support farmers producing which is currently in a state of market oversupply and are selling at low price levels.

March

- The Company detected an irregularities in the Hydrocracking Unit's gas compressor, the unit's operation had to be temporarily halted to undergo a thorough examination and repair efforts on the compressor was carried out.

April

- On 5th April 2019, the Labor Protection Act was amended to include a requirement that an employee who is terminated after having been employed by the same employer for an uninterrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group has therefore amended its retirement plan in accordance with the changes in the Labor Protection Act. As a result of this change, the provision for retirement benefits and past service cost recognized during the second quarter of 2019 in the

consolidated and separate financial statements increased by an amount of Baht 140 million and Baht 133 million, respectively.

- The Extraordinary General Meeting of shareholders of BCP Innovation Pte. Ltd., a subsidiary of the Company, approved the increase in the registered capital from USD 45 million (divided to 45 million shares valued at USD 1 per share) to USD 46 million (divided to 46 million shares valued at USD 1 per share). The subsidiary had called up for the share subscription and received full payment at paid-up capital.
- The Company via Bangchak Initiative and Innovation Center or BIIC, had invested in additional Startups through BCP Innovation Pte. Ltd., a subsidiary of the Company, which has increased its investments in Bonumose, a company specializes in the production of healthy sugar from plant based material with high carbohydrate content. The technology is considered high potential, adding value to agricultural products, and able to add value to the Company's Bio-based business.
- Lom Ligor Co., Ltd., (a subsidiary of BCPG PLC.), an operator of the Wind Power Plant Project "Lom Ligor" with PPA capacity of 8.965 MW (Installed capacity of 10 MW) situated at Pakphanang district, Nakhon Si Thammarat province, has commenced its commercial electricity sales to the Provincial Electricity Authority on the 11th April 2019. The project receives revenue in electricity selling rate under an Adder scheme at the rate of THB 3.50 per unit for a period of 10 years.

June

- OKEA ASA ("OKEA") offered its share to the initial public offering (IPO) by issuing 15,000,000 shares in the Norwegian Stock Exchange (Oslo Stock Exchange) with an offering price of NOK 21 per share. BCPR purchased additional ordinary share under conditions which were part of the initial investment agreement, along with a purchase of IPO shares. In addition to this IPO, Greenshoe option was exercised and ended on 17th July 2019. As a result, BCPR held 47,477,563 ordinary shares with voting rights or equivalent to 46.62% of registered share capital of OKEA.
- The Company debuted the "Hi-Diesel B20S" product which is raised the quality of the B20 Diesel through the Green S technology resulting in increased cetane levels, boosting engine power, and a more effective engine cleanser, allowing the engine to operate at peak performance. B20S products are sold in Bangchak service stations at the same price as the original B20 Diesel product, offering consumers quality fuel at a bargain price, and acts as incentive to adopt B20 products.
- The Company debuted its line of B10 Diesel in Bangchak service stations under the name of "S B10", piloted in 2 service stations during the first month of its debut, and expanding availability to 12 service stations, currently comprising of 7 Bangkok locations, 2 more locations in its vicinity, and 3 up-country locations, i.e. Phetchabun, Nakhon Pathom, and Udon Thani. With further plans to expand B10 Diesel's availability in Bangchak service stations for nationwide coverage within the 1st March 2020, as a way to further pursue the policy to drive B10 sales continuously.

July

- The Company halted operations of the Hydrocracking Unit for 30 days from mid-July to mid-August, in order to maintain the unit's efficiency coinciding with the Company's crude run plan, while other units in the refinery were still operating as normal.

August

- The Company announced its interim dividend payment for the first six-month period of 2019 to the Company's shareholders at THB 0.50 per share, totaling THB 688 million. The dividend has been paid to the shareholders on 10th September 2019.
- The Company established BANGCHAK VENTURES PTE LTD. in Singapore, with registered capital of USD 100,000 under the goal of investing in Startup businesses pertaining to innovation, and the Company holds 100% shareholding.

September

- BCPG Indochina Company Ltd. (Subsidiary of BCPG Plc.) invested in a hydropower plant project in Laos PDR with total installed capacity of 69 MW. The indirect subsidiary acquired of 100% share of Nam San 3A Power Sole Co., Ltd. ("Nam San 3A") from Phongsubthavy Roads and Bridges Construction and Irrigation Sole Co., Ltd. for an amount of not exceeding USD 174 million (approximately THB 5,352 million). Nam San 3A is a Build-Operate-Transfer concessionaire to develop and operate the Project, and is a contracting party to the power purchase agreement with Take-or-Pay Condition with Électricité du Laos ("EDL"). The contract duration is 27 years starting from 29th January 2016.

October

- The Company issued subordinated perpetual debentures for a total credit facility of Baht 10,000 million which are name registered, unsecured, unconvertible, with a bond holder representative and no predetermined repayment schedule. The repayment schedule is a bullet payment upon the dissolution of the Company or upon the exercise of the issuer's call option as stipulated in the agreement. The interest rate for 1st - 5th year is a fixed rate of 5 percent per annum and with revisions every 5 year. The interest payment schedule is semi-annual for which the Company has an ability to indefinitely postpone the interest payment. The Company completed the sales of 10 million units, totally Baht 10,000 million debenture on 17th October 2019.

November

- The company approved the share repurchase program for financial management purpose in the maximum amount not exceeding THB 2,100 million and the number of the share to be repurchased is approximately 5.00% of the total issued shares. The repurchase on the Stock Exchange of Thailand period covers the duration of 6 months, starting from 6th December 2019 to 5th June 2020.

December

- The Company reported the result its Share Repurchase Program for Financial Management Purposes (Treasury Stocks). Since the start of the program until the 30th December 2019, the cumulative number of shares repurchased was 16,492,800 shares, with the total value of THB 431,860,810, or 1.20% of paid-up shares.

Statement of Income

Consolidated Statement of Income (Unit: Million Baht)	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Revenue from sale of goods and rendering of services	50,146	46,481	8%	48,781	3%	190,489	192,025	-1%
Cost of sale of goods and rendering of services	(47,130)	(44,034)	7%	(48,357)	-3%	(180,257)	(180,594)	-0.2%
Gross Profit	3,017	2,447	23%	424	612%	10,232	11,431	-10%
Interest income and dividend income	59	31	90%	16	262%	158	55	186%
Other income	81	97	-16%	129	-37%	337	1,260	-73%
Selling and administrative expenses	(2,266)	(1,730)	31%	(2,148)	5%	(7,614)	(7,376)	3%
Exploration and evaluation expense	4	(0.1)	N/A	(15)	128%	(1)	(45)	99%
Gain (loss) from crude and product oil price hedging contract	140	6	N/A	(138)	N/A	147	(442)	N/A
Gain (loss) from foreign currency forward contracts	2	(4)	N/A	95	N/A	13	162	N/A
Gain on foreign exchange	274	115	N/A	52	N/A	614	415	N/A
Loss from impairment of assets	(34)	-	N/A	(15)	N/A	(34)	(441)	N/A
Share of profit of associate and JV	52	38	36%	21	144%	404	254	59%
Profit/(loss) before finance costs and income tax expense	1,329	1,001	33%	(1,579)	N/A	4,257	5,273	-19%
Finance costs	(425)	(412)	3%	(405)	5%	(1,701)	(1,545)	10%
Profit/(loss) before income tax expense	903	589	53%	(1,984)	N/A	2,556	3,728	-31%
Income tax (expense) credit	(36)	(38)	-4%	509	-107%	(68)	(493)	-86%
Profit for the period	867	551	57%	(1,475)	N/A	2,488	3,235	-23%
Owners of the parent	620	370		(1,546)		1,732	2,463	
Non-controlling interests	247	181		71		757	772	
Earnings per share (Baht per Share)	0.38	0.27		(1.12)		1.18	1.79	

The company and its subsidiaries reported a consolidated net profit of THB 2,488 million, a decline of 23% YoY. Net profit attributable to owners of the parent was THB 1,732 million, a decline of 30% YoY and earnings per share was THB 1.18, mainly due to the following reasons:

1. Revenue from sales of goods and rendering of services totaled at THB 190,489 million, a decrease slightly, mainly from petroleum related businesses. For the Company, it was affected by average selling price per unit that significantly declined with respect to global oil price. While the company's total product sales volume rose 4% YoY, additionally, trade transaction for crude oil and finished product under BCPT Trading Pte., Ltd. rose 71% YoY.
2. Gross profit was recorded at THB 10,232 million, a decline of 10% YoY, mainly from Total GRM which was USD 4.55 per barrel, compared to USD 5.61 per barrel in 2018 due to the crack spread of every category of finished product and referenced crude oil price declining. Also in 2019 the refinery business incurred Inventory

Loss of THB 1,253 million (including a reversion lower of cost or market (LCM) THB 689 million), which declined from the previous year which recorded Inventory Loss of THB 1,489 million (including lower of cost or market (LCM) THB 689 million). Furthermore, Net Marketing Margin in 2019 declined from THB 0.78 per liter to THB 0.75 per liter, result from fluctuations of oil price throughout the year and B100 product cost that rose sharply near year's end. Whereas, the company was unable to adjust its retail price at service station to adequately correspond with rising costs.

3. Other incomes were recorded at THB 337 million, a decline of 73% YoY. In 2018, BCPG Plc. recorded a profit from selling of solar power plant assets to infrastructure fund in Japan at THB 793 million, and recorded insurance compensation for the damages from typhoons in Japan of THB 104 million.
4. Selling and administrative expense was THB 7,614 million, an increase of 3% YoY. Mostly from the personnel expenses in the company group, and the provision for employee benefits from the Labor Protection Act, which was amended on the 5th April 2019, requiring employees who had provided services for an uninterrupted period of twenty years or more to be entitled to severance valued at 400 days' worth of their final wage rate from 300 days.
5. Gains from foreign exchange was THB 614 million due to the appreciation of Thai Baht, leading to most gains being generated from accounts payable, and loans from foreign currencies.
6. Loss from asset impairment THB 34 million, most of the loss was incurred from impairment of Material Supplies, and fixed asset attributed to the company. In 2018 loss was incurred from impairment of petroleum exploration and production assets of the Galoc
7. Share of profit from associated companies was THB 404 million, comprising of (1) Star Energy Holdings Pte. Ltd. THB 328 million (2) PetroWind Energy Inc. THB 27 million (3) Ubol Bio Ethanol Plc. THB -9 million (4) Bongkot Marine Services Co., Ltd. THB 32 million (5) OKEA ASA THB 26 million.
8. Finance cost was THB 1,701 million, an increase of 10% YoY, mostly attributed to finance cost of the company from issuing a debenture in the amount of THB 4,000 million coupon rate of 2.13 - 3.42% with 2-7 years maturity, and issued another debenture in the amount of THB 7,000 million coupon rate of 4.04% with 10 year maturity in August and December 2018, respectively. However, during April 2019 a previous debenture worth THB 4,000 million reached maturity.

Summary of the Company and its subsidiaries'

Performance by Business unit

1.) Refinery and Oil Trading Business Group

Crude Oil Price Situation

(Unit : USD/BBL)

Crude oil price	Q4/2019			Q3/2019		QoQ	Q4/2018	YoY	2019	2018	YoY
	Max	Min	AVG	AVG	+/-	AVG	+/-	+/-			
Dubai (DB)	67.90	57.40	62.03	61.26	0.78	68.30	-6.26	63.51	69.65	-6.14	
Dated Brent (DTD)	69.37	57.81	63.08	62.00	1.08	68.81	-5.73	64.21	71.31	-7.10	
DTD/DB	4.32	-1.83	1.05	0.74	0.30	0.52	0.53	0.70	1.66	-0.96	

Crude Oil Price Situation

Dubai crude price in Q4/2019 on average, increased by 0.78 \$/BBL compared to Q3/2019. This is supported by the efforts of the OPEC members to lower the production quantity of crude oil, as to stabilize crude oil price. As well as Saudi Arabia's desiring to keep oil price at high levels, the rise in oil price levels is beneficial to the budget and Initial Public Offering of the Saudi Arabian state enterprise's Saudi Aramco company. Furthermore, during the 5th to the 6th December 2019, the OPEC members and their allies held a meeting in Vienna where they agreed to deepen the crude oil production quantity cut by another 0.5 million barrels per day from the previous agreed upon 1.2 million barrels per day reduction, therefore the total amount of crude oil production to be reduced is 1.7 million barrels per day from the beginning of 2020. Moreover, the OPEC members and their allies will reconvene to further establish their production policy in early March 2020. In addition, crude oil price is supported by the brisk pace of the trade negotiation between the US and China, the said news has renewed hope of the end of the trade war that has transpired for the past several months; expecting an increase in demand for oil.

Average Dubai crude price in 2019 compared to 2018 declined by 6.14 \$/BBL, the oil price was pressured throughout the year by a slowing global economy due to the trade war between the US and China, which inadvertently lowered global oil demand. This also coincides with the International Monetary Fund (IMF) estimating the world economy was on a direction towards the slowest growth since the 2008 financial crisis, and also revised their 2019 global economic growth estimate to just 2.9 percent. Also, the International Energy Agency (IEA) adjusted their estimate of global oil demand growth to just 1.0 million barrels per day, a reduction of 0.4 million barrels per day from the forecast made in early 2019.

Dated Brent and Dubai spread (DTD/DB) in Q4/2019 on average increased by 0.30 \$/BBL when compared to Q3/2019, due to the support received from the mounting demand of light crude in Asia, to prep for the production of the bunker oil with Sulphur content not exceeding 0.5% in 2020.

When comparing Dated Brent and Dubai spread (DTD/DB) average between 2019 and 2018, a decline of 0.96 \$/BBL, this is due to pressures from light crude supplies that has reverted to its excess position in the market compared to the previous year where supplies were tight. As such, crude production from the US which is the light crude increased to the level of 12.85 million barrels per day in late 2019.

Crack Spreads Situation

(Unit: USD/BBL)

Crack Spreads	Q4/2019			Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
	Max	Min	AVG	AVG	+/-	AVG	+/-			
UNL95/DB	20.62	7.08	12.97	11.63	1.34	4.92	8.06	9.07	10.57	-1.51
IK/DB	17.96	11.51	13.94	15.74	-1.80	15.74	-1.80	13.73	15.38	-1.65
GO/DB	17.71	11.64	14.32	15.34	-1.02	14.98	-0.67	13.72	14.68	-0.96
FO/DB	-5.82	-29.19	-18.59	1.11	-19.70	1.33	-19.92	-4.91	-2.64	-2.28

Crack Spreads Analysis

- Gasoline and Dubai crack spread (UNL95/DB) in Q4/2019 averaged at 12.97 \$/BBL, an increase of 1.34 \$/BBL when compared to the previous quarter, due to support from the still solid Gasoline demand from India, in which the region's domestic refineries are still closed for turnaround maintenance as to prepare for the production of clean fuel in 2020.

Gasoline and Dubai crack spread (UNL95/DB) in 2019 averaged at 9.07 \$/BBL, a decline of 1.51 \$/BBL compared to 2018, due to pressures from the tense situation engendered by the trade war between the US and China causing the Gasoline demand to retract and further pressure stems from the quantity of Shale Oil, which has a Gasoline yield of 52.2%, rising by 1.2 million barrels per day leading to supplies of Gasoline to remain in a state of market excess compare to 2018.

- Jet (Kerosene) and Dubai crack spread (IK/DB) in Q4/2019 averaged at 13.94 \$/BBL, a decline of 1.80 \$/BBL compared to the previous quarter. Due to pressure from slowing economic condition and the trade war between the US and China caused demand to lower within the air transport and tourism industries.

Jet (Kerosene) and Dubai crack spread (IK/DB) in 2019 averaged at 13.73 \$/BBL, a decline of 1.65 \$/BBL compared to 2018. This is due to pressure from supply build up after refineries increased production capacity during their preparation for the imminent adoption of the bunker oil with Sulphur content not exceed 0.5% in 2020.

- Gasoil and Dubai crack spread (GO/DB) in Q4/2019 averaged at 14.32 \$/BBL, a decline of 1.02 \$/BBL compared to the previous quarter. Due to pressure from increasing supplies from Chinese exports, in which the various refineries rushing to export in accordance to the 2019 quota they had received within the year. As well as Indian export numbers growing significantly from economic growth slowdown affecting the demand for Diesel within India to decline tremendously, combined with a longer than usual Monsoon season.

Gasoil and Dubai crack spread (GO/DB) in 2019 averaged at 13.72 \$/BBL, a decline of 0.96 \$/BBL compared to 2018. This is due to pressure from increasing supplies after refineries increased production capacity during their preparation for the imminent adoption of the bunker oil with Sulphur content not exceed 0.5% in 2020. Whereas demand for Diesel within the region has not increased in a capacity that is of significance to mirror estimates made by the market earlier, as traders switch their reserve stocks more towards the proportion of Low Sulphur Fuel Oil which has a lower price as oppose to Diesel fuel, and stocking supplies to readily cater to the market.

- Fuel Oil and Dubai crack spread (FO/DB) in Q4/2019 averaged at -18.59 \$/BBL, a decline of 19.70 \$/BBL compared to the previous quarter, this is due to the pressure from the demand of High Sulphur Fuel Oil that has successively plummeted prior to the enforcement of the usage of the bunker oil with Sulphur content not exceeding 0.5% by International Maritime Organization (IMO) which will start on the 1st January 2020.

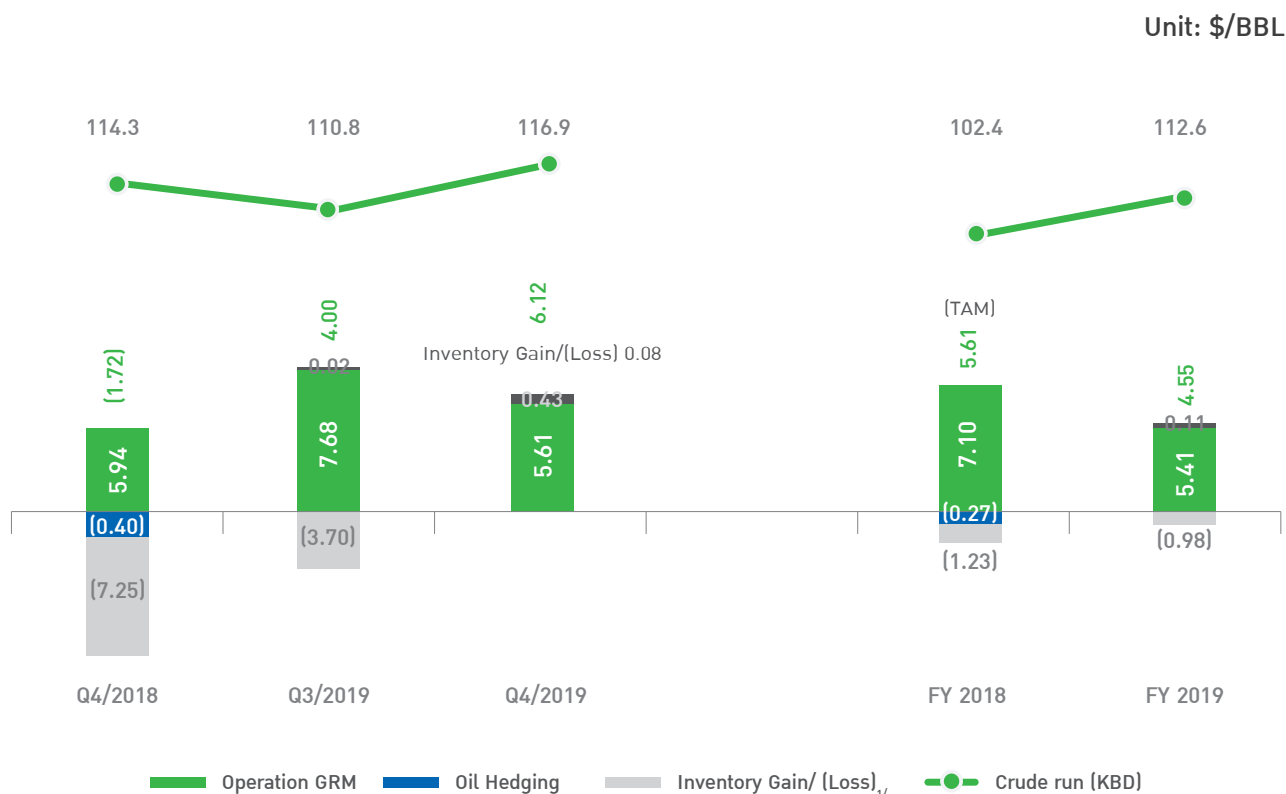
Fuel Oil and Dubai crack spread (FO/DB) in 2019 averaged at -4.91 \$/BBL a decrease of 2.28 \$/BBL when compared to 2018, due to pressures from the demand for High Sulphur Fuel Oil that lowered in succession prior to the enforcement of the usage of the bunker oil with Sulphur content not exceeding 0.5% would be enacted.

Refinery and Trading Business Group Performance

Refinery Business Performance	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2562	2561	YoY
Average Crude Run (KBD)	116.9	110.8	6%	114.3	2%	112.6	102.4	10%
Utilization Rate (%)	97%	92%		95%		94%	85%	
Average FX (THB/USD)	30.45	30.89		32.98		31.22	32.49	
(Unit: Million Baht)								
Operating GRM	1,837	2,416	-24%	2,060	-11%	6,944	8,626	-20%
GRM Hedging	140	6	N/A	(138)	201%	147	(328)	145%
Inventory Gain/ (Loss) ^{1/}	26	(1,163)	102%	(2,517)	101%	(1,253)	(1,489)	16%
Total GRM	2,003	1,258	59%	(595)	437%	5,838	6,809	-14%
EBITDA	1,073	631	70%	(1,421)	175%	2,871	3,928	-27%

Note: 1/ Inventory Gain/(Loss) in the table included LCM

GRM and Crude Run



Note: 1/ Inventory Gain/(Loss) in the table included LCM

Unit: Million Liters

Total Sales Volume in each market category of the Company						Unit: Million Liters		
	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Marketing Business								
Retail	1,095	1,077	2%	1,025	7%	4,297	4,020	7%
Industrial	536	447	20%	501	7%	1,921	1,925	-0.2%
Total	1,631	1,523	7%	1,526	7%	6,218	5,945	5%
Wholesale Business								
Petroleum traders in accordance with section 7	147	151	-3%	149	-2%	584	622	-6%
Export	316	323	-2%	334	-5%	1,090	1,026	6%
Total	463	474	-2%	483	-4%	1,674	1,648	2%
Total Sales Volume	2,094	1,998	5%	2,009	4%	7,892	7,593	4%

Note: Sales volume does not include oil swaps between major oil companies (petroleum traders in accordance with section 7) and sales of crude oil products

Performance for Q4/2019, the refinery business recorded EBITDA THB 1,073 million, an increase of THB 442 million compared to Q3/2019 with the following factors affecting performance as follow:

1. The Bangchak refinery averaged its production in Q4/2019 at 116.9 KBD or 97% utilization rate, which is higher than the previous quarter's average production that experienced a temporary halt of the Hydrocracking Unit during the mid-July to mid-August. The refinery returned to full capacity after maintenance of the Hydrocracking Unit was completed. However, during the final month of the quarter there was a reduction in production capacity down to the level that is most economically optimal due to most of the crack spread between the finished product and referenced crude oil declined drastically. As well as, the crude cost increased with significance.

2. Within this quarter, the refinery's Total Gross Refinery Margin (Total GRM) was THB 2,003 million or 6.12 \$/BBL, an increase of 59% compared to Q3/2019 which had Total GRM of THB 1,258 million or 4.00 \$/BBL, mainly due to the following reasons:

- Operating GRM lowered THB 578 million, compared to Q3/2019, mainly from most finished product price and crude oil price crack spread adjusting downward from the slowing of the Global economy and the trade war between the US and China, lowering oil demand. With average Gasoil and Dubai crack spread (GO/DB) lowering 1.02 \$/BBL while the average Kerosene and Dubai crack spread (IK/DB) lowered by 1.80 \$/BBL. And the average Fuel Oil and Dubai crack spread (FO/DB) declined 19.70 \$/BBL due to the lowered demand for High Sulphur Fuel Oil from the preparation preceding the enforcement of the adoption of the Low Sulphur Fuel Oil under measures mandated by the IMO, combined with crude cost that rose from rising spread between the price of Dated Brent and Dubai (DTD/DB) average rising by 0.30 \$/BBL. As well as increasing the shipping freight cost, after the US announced their sanction of subsidiaries of the COSCO group, which is one of the largest transport and logistic company in China during late September 2019, effectively lowering the Operating GRM.
- During this quarter, the refinery received gains from crude and product oil price hedging contract THB 140 million due to the oil price volatility of the period, the company revised its portfolio to manage oil price fluctuation. Whereas in Q3/2019, the refinery realized gain of THB 6 million.
- The refinery business realized slight inventory gain even when crude price throughout the global market continue to increase since early October to December 2019 from the efforts of the OPEC members to

lower production quantity, and the trade negotiations between the US and China progressed smoothly. However, the average crude cost used for production in Q4/2019, partially reflects the high crude oil price during Q3/2019. However, inventory loss was logged in at THB 1,163 million in previous quarter (including a reversion of lower of cost or market (LCM) THB 15 million) from the average crude oil price which adjusted downward significantly since early August until early September.

3. BCP Trading Co., Ltd. (“BCPT”) booked higher gross profit than in Q3/2019 from increases in its transactions in both terms of trade volume and transactions with new trade partners. During this quarter BCPT transacted trade of crude oil and petroleum product 7.58 million barrels, an increase of 0.78 million barrels (+12%) compared to the previous quarter. Most of the increase can be attributed to trade with partners abroad in the form of Overseas Trading (Out-Out) for Low Sulphur Fuel Oil products and fuel oils that were further refined to add more value to the product. Since the market has begun trading Low Sulphur Fuel Oil adhering to the IMO standards that would take effect on the 1st January 2020.

Performance comparison between 2019 and 2018, the refinery business group recorded EBITDA decreases of THB 1,057 million, with the following factors affecting performance:

1. The Bangchak refinery’s average production rate in 2019 was at 112.6 KBD or 94% utilization rate of total refinery production which is higher than the average production capacity of 2018 that underwent a Turn Around Maintenance.

2. Total Gross Refinery Margin (Total GRM) declined THB 971 million compared to 2018, mainly due to the following reasons:

- Operating GRM decreased THB 1,682 million compared to 2018. Mainly from the crack spread of finished product and reference crude oil for every product declining. This is due to the market being in a state of excess supplies and market demand declining from the slowdown of the global economy. Gasoline and Dubai crack spread (UNL/DB) on average declined 1.51 \$/BBL, Gasoil and Dubai crack spread (GO/DB) on average declined 0.96 \$/BBL, Kerosene and Dubai crack spread (IK/DB) on average declined 1.65 \$/BBL, and demand for High Sulphur Fuel Oil declined before the measures introduced by IMO were to be enforced causing the Fuel Oil and Dubai crack spread (FO/DB) average to decline by 2.28 \$/BBL. Furthermore, the Thai Baht had appreciated 1.27 THB/USD when compared to 2018.
- During 2019, the refinery business made gains from crude and product oil price hedging contract THB 147 million, whereas in 2018 suffered a loss of THB 328 million from fluctuations of global oil price throughout the year.
- The refinery business encountered an inventory loss of THB 1,253 million (including a reversion of lower of cost or market (LCM) THB 689 million) from the fluctuations made by the oil price in the global market throughout the year 2019, especially from the period between May to September; the decline during the aforementioned period was a result of the tension caused by the trade war between the US and China escalating in intensity – leading to decline in oil demand. Moreover, the Thai Baht has appreciated. Whereas in 2018 inventory loss was recorded at THB 1,489 million (including lower of cost or market (LCM) THB 689 million) due to the sharp decline of crude oil price in the global market between November and December 2018 since the market being in a state of supply excess.

3. BCP Trading Co., Ltd. recorded higher gross profit from 2018 due to an increase in finished product and crude oil transactions by 10.82 million barrels (+71%) compared to 2018. The main products that were transacted include crude oil, Gasoline, and Fuel Oil. Within this year BCPT was able to expand their market to new regions such as Australia, Taiwan, and the US. As well as, trading new products such as Heavy Aromatic and Ethanol for instance. As such, BCPT is still going forward with the expansion of trade transactions with new partners, along the company’s strategic plans to expand the business.

2.) Marketing Business Group

Marketing Business

Sales Volume (Million Liters)	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Retail (Service Stations)	1,095	1,077	2%	1,025	7%	4,297	4,020	7%
Industrial	536	447	20%	501	7%	1,921	1,925	-0.2%
Total	1,631	1,523	7%	1,526	7%	6,218	5,945	5%
Sales volume in each product category (Million Liters)								
LPG	46	36	30%	41	13%	152	163	-7%
Gasoline	12	8	55%	10	19%	35	32	10%
Gasohol	437	428	2%	432	1%	1,705	1,672	2%
Jet Fuel	258	239	8%	204	27%	951	836	14%
Diesel	841	776	8%	795	6%	3,224	3,056	5%
Fuel Oil and Others	36	38	-4%	43	-16%	152	185	-18%
Total Sales Volume	1,631	1,523	7%	1,526	7%	6,218	5,945	5%
Total Marketing Margin (Baht/Liter)	0.70	0.77	-9%	0.85	-18%	0.75	0.78	-4%
EBITDA (Million Baht)	359	680	-47%	465	-23%	2,279	2,177	5%

Note: marketing margin of Bangchak only

Performance of Q4/2019 compared to Q3/2019, the Marketing Business Group recorded an EBITDA of THB 359 million which declined by THB 321 million compared to Q3/2019, with the following factors affecting performance:

1. Total sales volume of the marketing business increased 7% QoQ, mainly from the volume of fuel sold through the industrial market increasing 20% QoQ, with the sales push during periods when demand of customers within the industrial market was higher; due to the harvest season for the groups of agriculture customer approaches, as well as the traveling season kicking into gear. Combined with the fact that during this quarter, other domestic refineries had undergone Turn Around Maintenance, causing domestic supplies to drop. As for the retail market, sales volume increased 2% from the previous quarter, as such the retail market has plans to grow continuously from the expansion of their customer base from implementation of the strategies formed by the company. In addition, the amount of domestic demand for oil has grown substantially. This has led to the amount of Diesel and Gasohol product sales to rise significantly, whereas the previous quarter was within the rainy season bringing about flooding in various regions causing the frequency of automobile use and consumption of oil to falter.

2. Net marketing margin declined compared to the previous quarter due to finished product cost rising following the hike of oil price in the global market, and the increase in the cost of the B100 products near the end of the year. Whereas, the company was unable to adjust retail price at service stations to adequately coincide with the rising cost of oil products. Moreover, the declined margin was also affected from unadjusted oil price upward as a gift for the Thai people during the New Year celebrations from the 27th December 2019 to the 3rd January 2020.

3. The company has been operating under the strategy to expand its customer base and to garner higher throughput per stations, by expanding the number of standard sized service stations to cover more areas with high potential. There was a total 17 new stations opening in this quarter. As a result, the company's market retail shares through service stations has continuously increased, with the cumulative market share of 2019 at 16.0%. During this quarter, the company has also expanded the number of service stations with B10 Diesel availability in accordance with policies mandated by the

Ministry of Energy that stipulates that the B10 Diesel will become the standard High-Speed Diesel fuel since the 1st January 2020. Moreover, the company has developed the specification of the B10 Diesel with the Green S technology, simultaneously adding the S Super Booster additive to improve engine combustion performance, and the S Super Purifier as a cleaning agent for fuel injectors; in order to yield highest quality B10 Diesel product. As well as contributing to the lowering of the PM 2.5 pollutant, the company has proceeded to improve the quality of all Diesel products sold through the Bangchak service stations in the vicinity of Bangkok to be at Euro 5 standards, with Sulphur content measuring lower than 10 PPM, and has 5 times lower Sulphur content compared to the Euro 4 standard. The Euro 5 standards will be sold at the same price of the Euro 4 standard from the 15th December 2019 to the 29th February 2020.

4. Bangchak Retail Co., Ltd. (“BCR”) is still continuously developing and expanding the Inthanin coffee shop business. The coffee shops have been opened both inside and outside the perimeter of Bangchak service stations, in order to broaden its customer base and be able to better reach consumers. In this quarter, a total of 53 branches of Inthanin were opened. Branches were opened in hotels, universities, convenience stores, and department stores e.g. hotels in the Khao Sarn area, the Faculty of Science and Technology Thammasat University, Tesco Lotus, and Central Plaza Salaya, instance; as well as having exhibition booths at various exposition events. As for the SPAR convenience store, the brand established more varied sales promotion campaigns e.g. SPAR Aroi-Tua-Thai which brings foods and desserts from reputable proprietors to be sold in various branches, and participating in the “Taste, Shop, Spend” program launched by the government. Overall, from the expansion of branches, the development of store management, and activities to promote sales through various channels have led to BCR’s revenue to increase by 12%QoQ. As for the selling and administrative expenses rose from the increase in sales promotion associated with the long weekends and the end of the year, employee related expenses, as well as costs that varied with higher sales volume such as logistics cost. Within this quarter EBITDA declined by 7%.

5. It is a common occurrence for this quarter to bear higher selling and administrative expenses from employee related expenses, promotional expenses, also including the annual maintenance cost of service stations, which has caused EBITDA to decline from the previous quarter.

Marketing Business performance in 2019 recorded EBITDA of THB 2,279 million, an increment of THB 103 million when compared to 2018, with factors affecting operations as follow:

1. Total sales volume of the marketing business group grew 5% YoY, primarily from the sales volume of oil in the retail market adjusting upward 7% YoY, due to expansion of its customer base following the company’s strategy and the sales push for special grade B20 and B10 Diesel fuel within the Bangchak service stations to provide consumers with high quality oil that is environmentally friendly through the reduction of pollution emission from the combustion process, while serving to assist farmers. Whereas the industrial market recorded marginally lower oil sales compared to the previous year due to the intense competition brewing within the industrial market, and stock management within the refinery during the Hydrocracking Unit maintenance period – as to not affect the sales of the retail market.

2. Net marketing margin in 2019 declined 4% compared to 2018, during Q1/2019 and Q4/2019 the price of oil in the global market rose and the cost of B100 products also rose during the end of the year which has caused the retail price at service stations to become inconsistent with rising in finished product costs. While in Q4/2018, the price of oil in the global market dropped drastically due to pressures from the global oversupply of crude oil. This allowed the company to set its retail price to adequately match the product cost, combined with the intense state of the price driven competition in the industrial market, culminating in net marketing margin of 2019 to decline compared to the previous year.

3. The company’s cumulative market share in 2019 was at 16.0%, whereas the cumulative share in 2018 was at 15.6%, the number of BCP service stations as of year end 2019 amounts to 1,201 locations, with 48 new service

stations commencing operation. The company also promoted the sales of B20 Diesel in support of the “Bangchak B20 for large vehicles, reducing pollution, and saves money” campaign which began with the sales of B20 Diesel in service stations since Q1/2019 and began selling B10 Diesel in June 2019. Furthermore, the company developed the “Bangchak Hi-Diesel B20S” product and the “Bangchak Hi-Diesel S B10” product that exalted the qualities of the product with the Green S technology, which helps engines run at peak performance. Moreover, the company has increase the B10 and B20 Diesel availability in more of its service stations, which has been well-received by customers.

4. The Non-oil business, under the supervision of Bangchak Retail Co., Ltd. (“BCR”) is still developing and expanding its business continuously. As of 2019, the number of SPAR convenient stores was 46 locations, which has received numerous successive sales promotion campaign, as well as a revamp of the product mix to serve customer demands with higher precision such as ready meal products. Meanwhile, the number of Inthanin Coffee Shops was 600 locations, with 111 locations opening in 2019, in which their locations are situated in areas with high potential e.g. universities, convenience stores, supermarkets, department stores, including branches in office buildings. The expansion of branches, the development and improvement of store management, and the various sales promotion campaigns has led to BCR to increase revenue by 34% YoY and recorded a rise in EBITDA by 30% YoY.

3.) Power Plant Business Group

Power Plant Business Performance	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Solar Power Business – Thailand	75.63	65.75	15%	73.03	4%	286.59	270.00	6%
<i>Phase 1-3 (118 MW – Adder 8 THB)</i>	66.25	57.57	15%	64.53	3%	251.63	244.90	3%
<i>Cooperative Solar (12 MW – FIT 5.66 THB)</i>	5.07	4.61	10%	4.89	4%	19.21	18.84	2%
<i>Government Solar (8.94 MW – FIT 4.12 THB)</i>	3.60	3.26	10%	3.55	1%	14.17	6.20	129%
<i>Solar Rooftop (0.80 MW)</i>	0.33	0.30	11%	0.06	N/A	1.19	0.06	N/A
<i>Private Floating Solar – Bang Pa In (2.1 MW)</i>	0.39	N/A	N/A	N/A	N/A	0.39	N/A	N/A
Solar Power Business – Japan (14.7 MW)	3.52	5.00	-30%	3.92	-10%	18.00	41.83	-57%
Wind Power Business – Thailand (9.0 MW - Adder 3.5 THB)	3.19	4.29	-26%	N/A	N/A	10.02	N/A	N/A
Hydro Power Business - Laos (69.0 MW)	64.34	7.70	N/A	N/A	N/A	72.04	N/A	N/A
Total Electricity Sales (Million kWh)	146.69	82.74	77%	76.95	91%	386.65	311.83	24%
Revenue (Million Baht)	981	790	24%	815	20%	3,427	3,320	3%
Share of profit (loss) from associated companies								
Wind Power Plant	(7)	16	-141%	11	-164%	27	39	-32%
Geothermal Power Plant	54	107	-49%	(8)	N/A	328	164	99%
EBITDA (Million Baht)	795	710	12%	570	40%	2,964	3,569	-17%

Performance of the Power Plant business in Q4/2019 recorded an EBITDA of THB 795 million an increase of THB 85 million when compared to Q3/2019, with the following factors affecting operations as follow:

1. Solar power plant projects in Thailand recorded total electricity sales increase by 15% QoQ, mainly due to higher average irradiation hours, which is a result of the clear weather and lower amount of rainfall from the previous quarter, as well as commercial operation of a private floating solar - Bang Pa In commenced in November 2019 (PPA 2.1 MW).

2. Solar power plant projects in Japan recorded a decrease in electricity sales by 30% QoQ, due to Japan transitioning into its winter season, leaving little exposure to light, as well as bouts of clouds and fogs spread throughout various areas, causing to a lower average irradiation hours.

3. Wind power plant project in Thailand, “Lom Ligor”, recorded lower electricity sales by 26% QoQ, due to faltering wind speed that was sweeping through the project location, causing to the power plant to produce less electricity than the previous quarter.

4. Hydro power plant project in Laos “Nam San 3A”, recorded electricity sales of 64.34 Million kWh, an increase by 56.65 Million kWh from the previous quarter. Due to Q4/2019 being the first quarter to realize full performance after 100% shares of the project was acquired by BCPG Plc. in late September 2019.

5. Recorded shares of profit from investments in associated companies in amount of THB 48 million, which was lower than the previous quarter by THB 76 million, with details as follow:

- Share of loss from the wind power plant business in the Philippines was recorded at THB 7 million, comprised of share of profit from operation THB 1 million, and an amortization in rights in agreement to sell electricity in amount of THB 8 million. As such share of profit from operation declined from the previous quarter by THB 23 million, mainly due to Q4/2019 experiencing unusually lower wind speed compared to Q3/2019 which was under the influence of tropical depressions that swept through more frequently than usual.

- Share of profit from the geothermal power plant in Indonesia was THB 54 million, attributed to share of profit from operation THB 146 million, and an amortization in right in agreement to sell electricity THB 91 million. Share of profit from operation declined from the previous quarter THB 54 million, mainly due to longer maintenance shutdown period of the Geothermal Power Plant, compared to the previous quarter.

Performance in 2019 of the Power Plant Business recorded EBITDA of THB 2,964 million, a decline of THB 605 million when compared to 2018, with the following factor affecting operation as follow:

1. Solar power plant projects in Thailand recorded increased total electricity sales 6% YoY, mainly due to clear weather and lower rainfall compared to the previous year. In tandem with the full revenue recognition of two cooperative solar projects in collaboration with the War Veterans Organization of Thailand (WVO) (PPA 8.94 MW), which have commenced commercial operations since July 2018. Also, commercial operation of a Private floating Solar - Bang Pa In commenced in November 2019 (PPA 2.1 MW).

2. Solar power plant projects in Japan recorded a decrease in electricity sales by 57% YoY, mainly attributed to a reduction in production after the divestment of the Nikaho and the Nagi project (total PPA 19.3 MW) to the Infrastructure Fund in Japan during September 2018 and realized gain from the selling of asset in the amount of THB 793 million.

3. Wind power plant project based in Thailand, "Lom Ligor", recorded electricity sales of 10.02 Million kWh. The Lom Ligor project commenced commercial selling of its electricity since the 11th April 2019 to the Provincial Electricity Authority with PPA 8.965 MW.

4. The Hydro Power Plant project in Laos PDR "Nam San 3A" sold electricity in the amount of 72.04 Million kWh. The project started to realize revenue from the selling of electricity in late September 2019 after BCPG Plc. acquired 100% of its shares.

5. Recorded the share of profit from investments in associated companies THB 355 million, compared to the same period of the previous year which increased by THB 151 million, due to the following factors:

- Share of profit from the wind power plant business in the Philippines was THB 27 million, attributed to share of profit from operations THB 59 million, and an amortization in right in agreement to sell electricity THB 32 million. Share of profit from operation declined THB 14 million due to drops in wind speed blowing through the project location when compared with the previous year and an increase in interest expense followed a higher of the policy rate in the Philippines. However, the associated company has already negotiated to the similar level as before.
- Share of profit from the geothermal power plant business in Indonesia was THB 328 million, attributed to share of profit from operations THB 703 million, and an amortization in right in agreement to sell electricity THB 375 million. Share of profit from operations lowered by THB 58 million, mainly due to longer planned maintenance shutdown period in 2019. However, net share of profit increased by THB 164 million due to 2018 recorded full amortization of deferred issuance cost resulted from refinancing activity in the amount of THB 123 million and a tax provision in an amount of THB 84 million.

4.) Bio-Based Product Business Group

Performance of the Bio-based Product Business Group in Q4/2019 recorded EBITDA was THB 374 million, an increase of THB 78 million when compared to Q3/2019. As for performance in 2019 recorded EBITDA of THB 1,000 million, an increase of THB 308 million when compared to 2018.

Biodiesel Business

Biodiesel Business Performance	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
B100 Production Volume (Million Liters)	78.49	79.51	-1%	69.11	14%	299.38	264.10	13%
B100 Sales Volume (Million Liters)	87.53	86.94	1%	73.99	18%	327.69	281.08	17%
Revenue (Million Baht)	1,543	1,604	-4%	1,401	10%	5,875	6,186	-5%
Gross Profit (Million Baht)	209	66	220%	43	384%	393	349	13%
Average Sales Price (Source: Department of Energy Business, Ministry of Energy)								
B100 (Baht/Liter)	25.25	21.74	16%	21.85	16%	22.21	24.16	-8%
Crude Palm Oil (CPO) (Baht/Kg.)	22.47	16.85	33%	16.94	33%	18.10	19.59	-8%

Performance comparison between Q4/2019 and Q3/2019 are as follow:

1. B100 product production volume in Q4/2019 was at 78.49 million liters, and the B100 product sales volume was at 87.53 million liters, both production and sales volume remain in the high level similar to the numbers attained during previous quarter. A result of government policy to advocate the adoption of B20 and B10 Diesel, in support of higher consumption of the biodiesel fuel (B100) in the energy sector.

2. Average selling price of B100 product increased significantly from the previous quarter, which corresponded to the rising price of crude palm oil, resulting from measures taken by the government sector to propagate the usage of the B10 Diesel. Combined with the quarter being a low crop season for palm coming into the market, which shrank the amount of domestic crude palm oil stock. Moreover, increasing in the average B100 product price should subsequently resulted in this quarter recording higher revenue from sales. However, due to adjustment to the recognition of revenue from the sales of B100 product, this has caused revenue from sales in this quarter to be recorded at THB 1,543 million, a decline of 4% from the previous quarter.

3. Gross profit in Q4/2019 recorded at THB 209 million, an increase of 220% QoQ. Mainly from the average selling price of B100 product that adjusted upward from the previous quarter, in tandem with the ability to proficiently manage raw material cost; leading to inventory gain in the Biodiesel business during this quarter.

Performance comparison between 2019 and 2018 are as follow:

1. B100 production volume in 2019 was 299.38 million liters, an increase of 13% YoY, which coincided with the direction of the amount of B100 product sold that rose by 17% YoY. Mainly attributed to the increase in B100 product purchase order made by Bangchak with respect to the government sector's advocacy for the increase in consumption of Biodiesel fuel (B100) within the energy sector, and from the capacity improvements made to the production process which allowed for full capacity utilization.

2. Average selling price of B100 product declined from the previous year, in the same direction as the crude palm oil price that declined. However, in the latter half of 2019, price started to climb as a result from various measures

taken by the government sector to alleviate the excess crude palm oil problem in the market e.g. the Electricity Generating Authority of Thailand (EGAT) has offered to buy and use crude palm oil as fuel in electricity generation. The government sector has increased measures to facilitate the use of B10 and B20 diesel, as well as, designating the B10 diesel as the standard diesel type in the market. The B100 price (according to announcements made by the Department of Energy Business) has adjusted upward to peak levels during late December 2019 at 34.86 THB/Liter, and from adjustment to the recognition of the sales of B100 products affected revenue from sales declined 5% YoY, despite the B100 product sales volume increasing.

3. Gross profit in 2019 was recorded at THB 393 million, an increase of 13% YoY, although sales revenue from B100 product declined. However the outstanding adeptness to manage raw material cost has caused the Biodiesel business to achieve an Inventory Gain.

Ethanol Business

Ethanol Business Performance	Q4/2019	Q3/2019	QoQ	Q4/2018	YoY	2019	2018	YoY
Production Volume (Million Liters)								
Bangchak Bioethanol (Chachoengsao) (BBE)	12.84	13.15	-2%	12.34	4%	46.84	44.57	5%
KSL Green Innovation (KGI)	30.81	40.02	-23%	13.96	121%	147.64	105.19	40%
Ethanol Sales Volume (Million Liters)	44.51	51.18	-13%	32.31	38%	189.43	149.17	27%
Revenue (Million Baht)	969	1,096	-12%	744	30%	4,138	3,602	15%
Gross Profit (Million Baht)	142	182	-22%	5	N/A	503	281	79%
Average Sales Price (Source: Department of Energy Business, Ministry of Energy)								
Ethanol (Baht / Liter)	22.04	21.96	0.4%	23.31	-5%	22.08	23.70	-7%

Performance comparison between Q4/2019 and Q3/2019

1. Total production volume of Ethanol product was at 43.65 million liters, a decline of 18% QoQ, with the decreasing in production volume of the KSL Green Innovation Plc. ("KGI") by 23%, due to the plants at the Bo Ploy district, Kanchanaburi province and Nam Pong district, Khon Kaen province underwent their turnaround maintenances. Whereas, the Bangchak Bioethanol (Chachoengsao) Co., Ltd. ("BBE") also underwent maintenance to improve production capacity, leading to production to quantity to decline by 2%

2. Total ethanol sales volume was recorded at 44.51 million liters, a decline of 13% QoQ, mainly from KGI's volume of Ethanol sales volume lowering by 17% QoQ, corresponding with KGI's plans for its turnaround maintenance.

3. Average selling price of Ethanol product was similar to levels attained in the previous quarter. However due to the declined in amount of Ethanol product volume sold, has caused this quarter to realize lower revenue by 12% QoQ.

4. Gross profit from the Ethanol business declined 22% QoQ, as a result from the amount of Ethanol product sold declining in conjunction with KGI's turnaround maintenance plan.

Performance comparison between 2019 and 2018.

1. Total production volume of Ethanol product was at 194.48 million liters, an increase of 30% YoY. By which KGI produced 147.64 million liters, an increase of 40% YoY due to the increase in the production capacity of the plant at the Bo Ploy district, Kanchanaburi province from 66 million liters per year to 99 million liters per year, and the plant at Nam Pong district, Khon Kaen province expanded from 45 million liters per year to 49.5 million liters per year.

Furthermore, BBE production volume was 46.84 million liters, an increase of 5% YoY, due to improvements made to the capabilities of the production process.

2. Total ethanol product sales volume was at 189.43 million liters, an increase of 27% YoY, primarily from increased sales volume by KGI following the capacity expansion which allowed it to accommodate the demand for Ethanol in Thailand which rose by 6% YoY (information provided by the Department of Energy Business) which corresponds with the trajectory of the consumption of Gasohol fuel that has been expanding with each passing year, and the increase in new car models that supports E20 and E85 Gasohol fuel with high Ethanol mixture.

3. Average selling price of Ethanol product declined from the previous year which adjusted following to the decreasing in raw material cost. Moreover, the amount of Ethanol produced into the market exceeded consumption demand, leading to high Ethanol stocks, and an Ethanol price competition occurred. However, the increased in sales volume has led to 2019 to earn more revenue from sales by 15% YoY.

4. Gross profit from Ethanol business increased 79% YoY due to declining in both raw material and processing cost of KGI, comparing to previous year. Moreover, BBE had the efficiency in raw material cost management.

5.) Natural Resources Business Group

Natural Resources Business Group Performance	Q4/2562	Q3/2562	QoQ	Q4/2561	YoY	2562	2561	YoY
EBITDA (THB Million)	(57)	(101)	44%	94	-161%	(36)	117	-131%
Share of Profit from OKEA (THB Million)	4	(88)	104%	(3)	N/A	26	(3)	N/A
Production Volume - Net to OKEA (KBD)	17.02	18.13	-6%	N/A	N/A	18.66	N/A	N/A
Net Sold Volume - Net to OKEA (KBD)	13.84	16.70	-17%	N/A	N/A	19.48	N/A	N/A

Performance of Natural Resources Business Group in Q4/2019 recorded an EBITDA loss of THB 57 million, an improvement of THB 44 million from Q3/2019, by the following operating factors

1. Realized increased share of profit from associated company OKEA

- Within this quarter sales of petroleum products proceeded under normal circumstances, with 1 cargo of crude oil from the Draugen field and natural gases coming via pipeline from the Gjoa field. Although profits from operations was on a downward direction within this quarter, but the business group realized gain from the depreciating US Dollar against Norwegian Krone (NOK). Furthermore, tax expenses also declined, leading OKEA to see improvements in its profit this quarter.
- This quarter recorded Technical Goodwill from the Gjoa Field due to gas prices fluctuating at low levels. (according to practices in Norway, a test on impairment of Technical Goodwill on investments in the Gjøa and Draugen field has to be carried out every quarters.)

2. Recorded a gain on foreign exchange forward contract at THB 24 million. Whereas, in the previous quarter the gain on foreign exchange forward contracts was THB 1 million.

Performance comparison between 2019 and 2018 of the Natural Resources Business Group recorded EBITDA decline of THB 153 million, by the following operating factors.

- In 2019, OKEA recorded production and sales within proximity of the plan. Whereas, rising in the exploration expenses, and realized loss from foreign exchange rate with the depreciating Norwegian

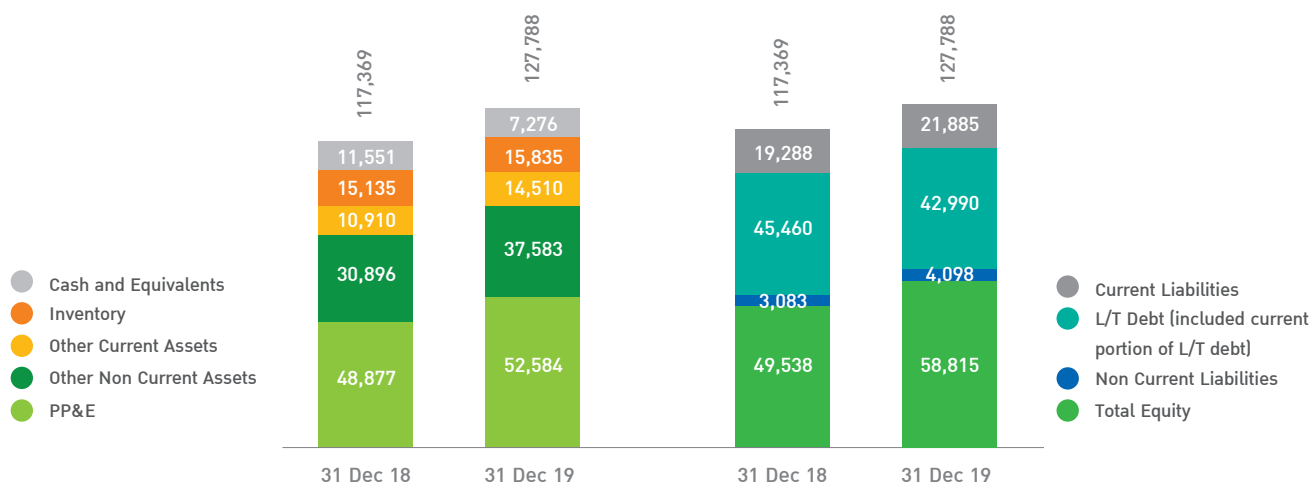
Krone (NOK). Also, there was an impairment loss on Technical Goodwill at Gjøa field, resulting in share of loss from operation of OKEA. However, gain from changes in investment interest were recorded THB 82 million from OKEA's initial public offering (IPO) of its shares, which affected share of profit from associated company OKEA at THB 26 million.

- The Natural Resources Business Group recorded gain on foreign exchange forward contract from THB 75 million to THB 118 million in 2019.
- In 2019, its performance was not realized revenue from Nido due to the divestment of Nido Production (Galoc) Pty. Ltd, which held the rights to the Galoc oil field, to Tamarind Galoc Pte.Ltd, and realized profit from divestment approximately THB 78 million. Then, the administrative expenses was mainly in the performance.

Statement of Financial Position

Financial Position of the Company and its subsidiaries (Consolidated)

Unit: THB million



Assets

As of 31st December 2019, the Company and its subsidiaries recorded Total Assets in the amount of THB 127,788 million, an increase of THB 10,419 million compared to 31 December 2018, changes in assets are as follows:

- Cash and cash equivalents decreased by THB 4,275 million. Details are stated in analysis of the Cash Flow Statement.
- Inventories increased by THB 700 million, mainly from the increase in the company's inventory stock of crude oil and finished product while the average cost of product is reduced and the company has the reversion of lower of cost or market (LCM) THB 689 million.
- Other current assets increased THB 3,599 million, mainly from:
 - Trade accounts receivable increased by THB 2,069 million, mainly increase in quantity and price of BCPT's finished product in December 2019.
 - Oil fuel fund subsidies receivable increased THB 907 million, due to the rise in sales volume and average compensation rate of B20
- Other non-current assets rose by THB 6,687 million, mainly due to:
 - Long term loan to related parties increased by THB 837 million, mostly from long term loan to LAC, according to contractual obligations.
 - Other long term investments increased by THB 254 million, primarily from the Company's subsidiary BCP Innovation Pte. Ltd.'s investment in 5 additional Startup businesses for USD 11.5 million or approximately THB 357 million. Moreover, there was an additional investment in LAC of USD 0.5 million or approximately THB 17 million. While there was a decreasing adjustment in Fair value on available-for-sale investment (LAC) by THB 37 million. (Fair value on available-for-sale investment (LAC) rose THB 5 million, and the effect of exchange rate decreased by THB 42 million). LAC share price increased from CAD 4.31 as of 31st December 2018 to CAD 4.16 as of 31st December 2019.

- Goodwill and intangible assets increased THB 318 million and THB 4,836 million, respectively. This was a result of BCPG Plc.'s investment in hydro power plant, Namsan 3A Power Sole Co.,Ltd, in Laos PDR by acquiring 100% shareholding in September 2019.
5. Property, plant and equipment net increased by THB 3,707 million. (Depreciation for the period was THB 4,478 million.) There were investments made chiefly in Efficiency, Energy, and Environment Enhancement Project (3E) and investments for equipment in preparation for the refinery's annual turnaround maintenance in 2020 in amount THB 5,800 million. Investment in power plant business (BCPG) both in Japan and Thailand of THB 1,478 million, and Bio-based products business of the BBGI group's additional investment of THB 1,101 million to expand the ethanol production plant's capacity and the construction of its refined glycerin plant.

Liabilities

As of 31st December 2019, the Company and its subsidiaries has Total Liabilities of THB 68,973 million, an increase of THB 1,142 million, changes in liabilities are as follows:

1. Current Liabilities increased by THB 2,597 million, mainly contributed by:
 - Trade Accounts Payable increased by THB 3,876 million, mainly from increase in crude purchase volume and price in December 2019 when compare with the previous year.
 - Excise tax and oil fuel fund payable decreased by THB 2,145 million because Excise Department change payment period of excise tax. The department has shifted the payment due to be sooner than prior year.
 - Long-term provisions increased by THB 733 million, from BCPG Plc's investment in hydro power plant in Laos PDR.
2. Long term loans from financial institutions and debentures (including current portion of long term debt) decreased by THB 2,470 million, comprised of debenture repayment at maturity by THB 4,000 million, loan repayment by THB 4,879 million, and the Company and its subsidiaries loan drawdown by THB 6,817 million. There was also adjustments for the effects of exchange differences on translating financial statement resulted in a gain of THB 408 million.
3. Other non-current liabilities increased by THB 1,015 million, mainly from the provisions for employee benefits from changes in principal actuarial assumptions, as well as the Labor Protection Act, which was amended on the 5th April 2019, requiring employers to increase remuneration to a terminated employee who had provided services for an uninterrupted period of twenty years or more to be entitled to severance valued at 400 days' worth of their final wage rate, and the liabilities on long-term lease

Equities

As of 31st December 2019, the Company and its subsidiaries' total equity was THB 58,815 million, increased by THB 9,277 million. The increment was mainly from the net profit for the year of THB 2,488 million, paid dividend by THB 1,760 million, effects from change in accounting policy resulting in a reduction of retained earnings by THB 54 million, while other comprehensive income decreased by THB 982 million (a result of differences in net fair value change in available for-sale investment (LAC) which increased by THB 5 million, translating financial statement, comprehensive income of associates, and principal actuarial assumptions which decreased by THB 987 million). Moreover, in 2019, there was an issuance of subordinated perpetual debenture net of THB 9,941 million, and treasury stock of THB 432 million. Total equity attributable to owners of the parent was THB 51,604 million, and book value per share (exclude subordinated perpetual debenture) was THB 30.26.

Cash Flows Statement of the Company and its subsidiaries (Concolidated)

As of 31st December 2019, the Company and its subsidiaries recorded net cash from operating activities of THB 6,749 million, net cash used in investing activities of THB 14,554 million, net cash from financing activities of THB 3,712 million, and decrease from the effect of exchange rate changes on cash and cash equivalents in the amount of THB 182 million. As a result, net cash and cash equivalents decreased by THB 4,275 million. There was cash in the amount of THB 11,551 million as of 1st January 2019, resulting in remaining cash as of 31st December 2019 to be recorded at THB 7,276 million. Details for each activity are as follows:

Cash Flows (Unit: Million Baht)	2019	2018
Net cash from (used in) operating activities	6,749	5,950
Net cash from (used in) investing activities	(14,554)	(9,100)
Net cash from (used in) financing activities	3,712	4,725
Effect of exchange rate changes on cash and cash equivalents	(182)	(131)
Net increase (decrease) in cash and cash equivalents	(4,275)	1,445
Cash and cash equivalents as at 1 January	11,551	10,106
Cash and cash equivalents as at 31 December	7,276	11,551

Details of cash received and used are as follows:

1. Net cash from operating activities in the amount of THB 6,749 million, mainly attributed to:

- Cash received from operating activities was THB 8,899 million, which was generated from net profit of THB 2,488 million, added back non-cash expenses of THB 4,642 million, added back finance costs and income tax expense of THB 1,769 million.
- Net cash used for operating assets and liabilities of THB 1,623 million, mainly from (1) trade accounts receivable increased by THB 2,198 million (2) other receivables increased by THB 1,267 million (3) inventory increased by THB 35 million (4) other non-current assets increased by THB 105 million. (5) trade accounts payable increased by THB 4,077 million (6) other payables and other liabilities decreased by THB 2,096 million.
- Corporate income tax paid was THB 527 million.

2. Net Cash used in investing activities of THB 14,554 million, mainly from:

- Cash received from interest in the amount of THB 124 million.
- Cash paid for investment in subsidiaries companies, associated companies and other investments of THB 5,506 million. Comprised of increasing in share of BCP Innovation Pte., Ltd. for invest in startup, BCPR increased its investment in OKEA's initial public offering (IPO) of its ordinary shares and BCPG's acquisition of Hydro power plant in Laos PDR.

- Cash paid for investment in Property, Plant and Equipment was THB 7,835 million. Mostly are asset under construction on the Efficiency, Energy, and Environment Enhancement Project (3E), investment for equipment in preparation for the refinery's annual turnaround maintenance in 2020, power plant business, and bio-based product business.
 - Cash paid for loan to related parties was THB 873 million, mainly comprised of loans to LAC, under contractual obligation.
 - Cash paid for the leasehold right and Intangible assets by THB 655 million.
3. Net cash from financing activities was THB 3,712 million, mainly from:
- Cash paid as finance cost in the amount of THB 2,073 million.
 - Dividend payment was THB 1,760 million, comprising of the Company's at THB 1,377 million, BCPG Plc.'s dividend payment to non-controlling interests in the amount of THB 383 million.
 - Cash paid for debenture repayments at maturity THB 4,000 million.
 - Cash received from subordinated perpetual debenture THB 10,000 million.
 - Cash paid for treasury shares THB 432 million.
 - Cash received from long term loans from financial institution amounted to THB 6,817 million.
 - Repayment of long-term loans from financial institutions THB 4,879 million.

Financial Ratios

Financial Ratios (Consolidated)

Profitability Ratios (%)	Q4/2019	Q3/2019	Q4/2018	2019	2018
Gross Profit Margin	6.02%	5.26%	0.87%	5.37%	5.95%
EBITDA Margin	4.83%	4.61%	-0.65%	4.57%	5.31%
Net Profit Margin	1.73%	1.19%	-3.02%	1.31%	1.68%
Return on Equity ^{1/} (ROE)	4.10%	-1.00%	5.59%		
Return on Assets (ROA)	3.47%	1.14%	4.56%		

1/ Profit and Total equity attributable to owners of the parent

	31 Dec 19	30 Sep 19	31 Dec 18
Liquidity Ratios (Times)			
Current Ratio	1.39	1.19	1.47
Quick Ratio	0.69	0.57	0.80
Financial Policy Ratios (Times)			
Interest Bearing Debt to Equity	0.82	1.08	1.02
Net Interest Bearing Debt to Equity	0.69	0.94	0.78
	Q4/2019	Q3/2019	Q4/2018
DSCR ^{2/} (Times)	2.10	1.50	1.77

2/ DSCR Calculation is not including long term debt prepayment

Financial Ratios Calculation

▪ Gross Profit Margin	=	Gross Profit / Revenue from sale of goods and rendering of services
▪ EBITDA Margin (%)	=	EBITDA / Revenue from sale of goods and rendering of services
▪ Profit Margin (%)	=	Profit attributable to owners of the parent / Revenue from sale of goods and rendering of services
▪ Return on Equity (%)	=	Profit attributable to owners of the parent (Yearly) / Total Equity attributable to owners of the parent (Average)
▪ Return on Assets (%)	=	EBIT (Yearly) / Total Asset (Average)
▪ Current Ratio (times)	=	Current Asset / Current Liabilities
▪ Quick Ratio (times)	=	(Cash & Equivalents + Short term investments + Trade Account Receivable) / Current Liabilities
▪ Interest bearing Debt to Equity (times)	=	Interest bearing Debt / Total equity
▪ Net Interest bearing Debt to Equity	=	(Interest bearing Debt – Cash and cash equivalents – Current investments) / Total equity
▪ DSCR	=	EBITDA (Yearly) / (Paid for long-term debt + Finance cost)

Note:

1/ Average Total Equity attributable to owners of the parent

Yearly = (Total Equity attributable to owners of the parent of the year before + Total Equity attributable to owners of the Company of this year) / 2

Quarterly = (Total Equity attributable to owners of the parent of the quarter of the year before + Total Equity attributable to owners of the parent of the quarter this year) / 2

2/ Average Total Assets

Yearly = (Total Assets of the year before + Total Assets of the Company of this year) / 2

Quarterly = (Total Assets of the Company of the quarter of the year before + Total Assets of the Company the quarter this year) / 2

3/ The numerator of ROE is defined as the Profit attributable to owners of the parent and have to be annualized.

4/ The numerator of ROA is defined as EBIT and have to be annualized.

5/ Interest Bearing Debt defined as Short-term loans + Long-term loans (including current portion of long-term loans) + Debentures (including current portion of long-term debentures) + Finance lease liabilities (including current portion of finance lease liabilities)

Environment Management Accounting (EMA)

Having the environmental concerns and social responsibilities, the Company has prepared the environmental management accounting report to publish in sustainability report since 2005, aiming to enable the benefit of its usage for other organizations as well as for the Company. The environmental cost accounting helps the Company to keep track with the information which is useful for enhancing the environmental management effectiveness and resource utilization.

The Environmental Cost Accounting report covers refinery business unit, Bangchak and Bang Pa-in Oil distribution Centre.

(Unit: Million Baht)

Environment Management Accounting : EMA	2019	2018	Δ
Material Costs of Product Outputs			
: Crude oil, ethanol, biodiesel, chemical, energy and utilities in production	103,177.73	103,551.72	(373.98)
Material Costs of Non-Product Outputs			
: Consist of slop and sludge oil, waste water, chemical surplus	68.64	111.94	(43.29)
Waste and Emission Control Costs			
: Maintenance cost of environmental control equipment and depreciation and other fees	340.36	315.48	24.89
Prevention and Other Environmental Management Costs			
: Monitoring and measurement cost, environmental management system expenses	16.86	9.38	7.49
Total Expenses	103,603.59	103,988.52	(384.90)
Benefit from by-product and waste recycling (Negative number means revenue)	(18.36)	(15.62)	(2.75)

Total environmental cost in 2019 decreased from 2018 by approximately THB 384.90 million (-37% YoY) mainly due to Material Cost of Product Output which was lower by THB 373.98 million, with respect to the crude cost which declined by 11% from last year. Although, the Company's crude run rose from 102.39 KBD in 2018 to 112.62 KBD in 2019. Material Costs of Non-Product Outputs was lower by THB 43.29 million, in accordance with the fall in products that were below quality standard.

Waste and Emission Control Costs along with Prevention and Other Environmental Management Costs increased by THB 32.37 million (+10% YoY), primarily from depreciation of the pollution control equipment increased by THB 33.73 million, monitoring and measurement cost increased by THB 7.26 million, and effluent treatment cost increased by THB 2.08 million. On the other hand, environmental equipment maintenance cost and waste disposal cost decreased by THB 4.00 million, and THB 6.92 million, respectively.

Benefits from by-products and waste recycling increased by THB 2.75 Million (+18% YoY), mostly due to amount of sellable liquid sulfur which increased.

Air quality from the refinery's flue

To monitor the environment, the Company has been constantly measuring air quality emitted from the refinery's various flues, to which the amount of pollutant such as dust, nitrogen oxide, and sulfur dioxide emitted is far below the required standard set by the Thai Ministry of Industry.

Management's Perspective Towards 2020 Performance

2020 Economic Situation Perspective

According to the World Economic Outlook reported by the International Monetary Fund (IMF) published in January 2020, projects the global economy in 2020 to expand at the rate of 3.3%, an increase from the estimated growth 2.9% in 2019. Recovery is likely from the deals reached from the first round of negotiations of the trade war between the US and China. As well as the relief in pressure from the No-Deal BREXIT situation. However, there are persisting negative factors from geopolitics, and especially, the outbreak of the new strain of the Corona virus (COVID-19) in China at the beginning of this year; being the world's second largest economy. The virus is still spreading to various countries and regions around the world, of which would make the recovery of the global economy not proceed as expected by the IMF.

The economy of the Asia Pacific region is still continuously expanding at a decreasing rate, due to the influence of the trade war, an outbreak of a virus, as well as the prolonged demonstration in Hong Kong; leading to economic contraction. The Chinese economy expanded at a slow pace due to the outbreak and the trade embargo that affected domestic consumption and its export sector, mainly. As for member countries of the ASEAN, they are expected to remain on par with the previous year. However, the recovery of global trade volume will have to confront various aforementioned risk factors.

Crude Oil Price and Crack spread situation

The International Energy Agency (IEA) estimated that global demand for crude oil will grow by 1.2 million barrels per day in 2020 compared to the 1.0 million barrels per day growth in 2019, coinciding with assessments from the International Monetary Fund (IMF) in regards to global economic growth exceeding the previous year. Asia would remain the central region to support the growth of global oil demand. Especially, China and India, although still affected by the trade war between the US and China, witnessing slowdowns in industrial activities, but the policies to invest in basic national infrastructure still drives demand to grow. As for oil production from non-OPEC members, there is a propensity for supplies to increase by 2.1 million barrels per day in 2020 compared to 2019; mainly from the increasing of US production, which is estimated to increase by 1.1 million barrels per day in 2020. With respect to the new crude oil pipeline and new infrastructure which has commenced full operation, resulting in US Shale Oil production to increase continuously. Moreover, the technological capabilities for production has progressed to the point where it enables the US to have low production cost, allowing them to still produce oil even with low price level. The aforementioned factors may lead the global oil market to be accosted by a state of excess supply. Assessment of Dubai crude price for 2020, the price will be moving within the 55-65 \$/BBL range. Crude oil price will be under pressure from lagging oil demand due to concerns over receding economies, stemming from the trade war between the US and China, in conjunction with the outbreak of the new strain of the Corona virus that may continue to spread in China; being the world's second largest consumer of oil. The outbreak of this virus may affect tourism and oil demand. Whereas, supply has a tendency to increase from non-OPEC members, especially supplies of crude oil from the US. However, oil price is still supported by the conflict between Iran and the US, which has caused unrest within the Middle East, consisting of countries that are the major producers of crude oil. Meanwhile, OPEC members and their allies are still collaborating to lower production in order to stabilize oil price.

Dated Brent and Dubai spread (DTD/DB) is expected to average between 0.0-0.2 \$/BBL with support from demand for Light crude oil with low Sulphur within regions that are expected to have demand growth in order to produce fuel for the bunker oil with low Sulphur content – enforcement of fuel usage would be enacted on the 1st January 2020.

However, Brent crude is still under pressure from supplies of Light crude that has returned to a state of market excess, especially supplies of crude oil from the US, with tendencies of supplies to further increase.

As for the gross refining margin (GRM) in 2020, it is estimated that the GRM of Dubai crude for Hydrocracking refineries in Singapore is expected to slightly decrease from 2019. It is expected that supplies of finished product in Asia will decelerate due to concerns about the state of the economy, since the trade war between the US and China have persisted, even with progress towards dispute resolutions in the trade. Furthermore, the outbreak of the new strain of the Corona virus may have detrimental effects on tourism and oil demand. However, the change in specification for the bunker oil with Sulphur content not exceeding 0.5% may become a supporting factor for GRM in Asia to increase.

Declaration of the Directors' Responsibility for the Financial Statements

The Board of Directors of Bangchak Corporation Plc has prepared the Company's financial statements to show its financial status and performance for 2019 under the Public Company Limited Act of 1992, the Accounting Act of 2000, the Securities and Exchange Act of 1992, and the announcement of the Capital Market Supervisory Board concerning the criteria, conditions, and reporting method for the disclosure of information on financial status and performance of companies that issue securities.

The Board recognizes its duties and responsibility for directing a listed company, particularly the responsibility for financial statements of the Company and its subsidiaries – including financial information that appears in the annual report of 2019. Such statements have been prepared under generally accepted accounting standards, which regularly complies with a suitable accounting policies and due and reasonable discretion exercised in the preparation of financial statements. Adequate significant information has been disclosed in the notes to these financial statements for transparent use by shareholders and investors at large.

The Board has instituted and maintained effective risk management and internal control systems to become reasonably confident of accurate, complete, and adequate accounting information to retain Company assets and prevent frauds or significant anomalies in operation.

The Audit Committee, acting on behalf of the Board, has been assigned responsibility for the quality of financial reports and internal control system, and its opinions duly appear in its own report found in this publication.

It is our view that the Company's overall internal control system is satisfactory and can reasonably ensure that the financial statements of the Company and its subsidiaries for the year ended December 31, 2019, represented true and fairness, and showed essentially accurate financial positions, performance outcomes, and cash flows under financial reporting standards.

(Signed) *Mr. Pichai Chunchavajira*

(Mr. Pichai Chunchavajira)

Chairman of the Board

(Signed) *Mr. Chaiwat Kovavisarach*

(Mr. Chaiwat Kovavisarach)

President and Chief Executive Officer

Independent Auditor's Report

To the shareholders of Bangchak Corporation Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of Bangchak Corporation Public Company Limited and its subsidiaries (the "Group") and of Bangchak Corporation Public Company Limited (the "Company"), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2019, the consolidated and separate statements of income and comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2018 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements* section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants issued by the Federation of Accounting Professions that is relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Fair value assessment of net assets acquired from an acquisition of investment in associate in Norway	
Refer to Notes 4 (a) and 5 (a) to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>During 2019, the Group has completed the fair value assessment of net assets acquired from an acquisition of investment in associate in Norway which operates petroleum exploration and production during 2018.</p> <p>Due to the materiality of the transactions and the significant judgment and complexities involved in determining the fair value, I considered as the key audit matter.</p>	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> - Inquired management and understood on the procedures on identification of fair value on net assets acquired which was prepared by the management. - Read the share sale and purchase agreement, evaluated the appropriateness of the identification of the net assets acquired at the date of acquisition. - Evaluated the independence and competency of independent appraiser. - Involved KPMG specialist to evaluate valuation methodology and financial parameters applied to the discount rate of intangible assets. - Evaluated significant assumptions underpinning the valuations reference to internal and external information and mathematical accuracy. - Considered the adequacy of disclosures in accordance with Thai Financial Reporting Standard.

Acquisition of investment in subsidiary	
Refer to Notes 4 (a), 5 (b) and 12 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>In September 2019, the Group has completed the acquisition of hydropower plant project in The Lao People's Democratic Republic. The management has estimated the fair value of net assets acquired including consideration transferred with the differences which was recognised as goodwill.</p> <p>Due to the materiality of the transactions and the significant judgment and complexities involved in determining the fair value, I considered as the key audit matter.</p>	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> - Inquired management and understood on the procedures on identification of fair value on net assets acquired which was prepared by the management. - Read the share sale and purchase agreement and significant related agreements, evaluated the appropriateness of the identification of net assets acquired at the date of acquisition. - Evaluated the independence and competency of independent appraiser. - Involved KPMG specialist to evaluate valuation methodology and financial parameters applied to the discount rate. - Evaluated significant assumptions underpinning the valuations reference to internal and external information and mathematical accuracy. - Considered the adequacy of disclosures in accordance with Thai Financial Reporting Standards.

Impairment testing of investment in associates, investment in subsidiaries, oil exploration & production assets and goodwill	
Refer to Notes 4 (m), 12, 13, 16 and 18 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
<p>The Group has investment in many countries and there are risks from various external factors such as the fluctuation in economies, politics and laws. There is a risk that the operating results and the investments might be significantly less than the initial forecast and budget and might result in the assets' carrying value being higher than the recoverable amounts, which might represent losses from impairment.</p> <p>Due to the materiality of the transactions, the management's significant judgment and complexities involved in estimating a recoverable amount of investment in associates, investment in subsidiaries, oil exploration & production assets and goodwill from discounted cash flow method, I considered as the key audit matter.</p>	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> - Understood the management's operation plan, process of the indicators identification and impairment testing process and tested the calculation of recoverable amount prepared by the management. - Assessed the key assumptions estimated by the management with reference to internally and externally derived sources after taking into account the historical forecasting accuracy. - Evaluated the appropriateness of valuation methodology and financial parameters applied to the discount rate. - Considered the adequacy of disclosures in accordance with Thai Financial Reporting Standards.

Valuation of inventories	
Refer to Notes 4 (g) and 11 to the financial statements.	
The key audit matter	How the matter was addressed in the audit
Inventories are measured at the lower of cost and net realizable value. As a result of fluctuation in crude oil and oil products price which may cause the net realizable value to be lower than cost.	<p>My audit procedures included the following:</p> <ul style="list-style-type: none"> - Evaluated the appropriateness of inventories valuation by management. - Verified the appropriateness of the net realizable value calculation. - Checked the selling prices of finished goods with the reference market price and contract price. - Considered the adequacy of disclosures in accordance with Thai Financial Reporting Standard.

Emphasis of Matter

I draw attention to note 5 (b) to the financial statements. The Group acquired a business in The Lao People's Democratic Republic in September 2019 for which the fair value of identifiable net assets and the allocation of purchase price have been provisionally determined and are subject to potential amendment. My opinion is not modified in respect of this matter.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to those charged with governance and request that the correction be made.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so. Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.



(Waiyawat Kosamarnchaiyakij)
Certified Public Accountant
Registration No. 6333

KPMG Phoomchai Audit Ltd.
Bangkok
20 February 2020

Statement of financial position

Bangchak Corporation Public Company Limited and its Subsidiaries

Liabilities and equity	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2019	2018	2019	2018
		(Baht)			
Current liabilities					
Short-term loan from					
financial institutions	21	5,051,000,000	5,004,251,770	-	3,258,251,770
Trade accounts payable	6, 22	10,556,354,764	6,680,251,253	8,005,318,441	5,943,970,679
Other payables	6, 23	2,890,504,059	3,156,969,925	1,906,896,415	2,359,228,358
Current portion of long-term loans					
from financial institutions	21	2,198,187,068	2,215,713,897	375,153,846	350,153,846
Current portion of debenture	21	3,000,000,000	4,000,000,000	3,000,000,000	4,000,000,000
Excise tax and oil fuel fund payable		1,241,894,297	3,386,701,600	1,241,894,297	3,386,701,600
Income tax payable		144,539,571	121,162,314	64,803,426	-
Long-term provisions	5	733,046,858	-	-	-
Other current liabilities	6	1,267,531,263	938,559,168	1,201,088,231	874,246,676
Total current liabilities		27,083,057,880	25,503,609,927	15,795,154,656	20,172,552,929
Non-current liabilities					
Long-term loans from					
financial institutions	21	19,807,451,813	18,264,242,477	2,339,407,988	2,725,923,077
Debentures	21	17,984,746,501	20,980,046,802	17,984,746,501	20,980,046,802
Deferred tax liabilities	19	608,592,026	466,688,080	-	-
Liabilities on long-term lease		32,515,789	37,863,157	32,515,789	37,863,157
Non-current provisions for					
employee benefits	24	2,588,110,805	2,053,674,454	2,489,668,146	1,983,783,849
Provision for the decommissioning cost		322,896,880	355,355,345	-	-
Other non-current liabilities	6	545,567,524	169,583,507	65,664,633	71,980,567
Total non-current liabilities		41,889,881,338	42,327,453,822	22,912,003,057	25,799,597,452
Total liabilities		68,972,939,218	67,831,063,749	38,707,157,713	45,972,150,381

The accompanying note are an integral part of these financial statements.

Statement of financial position

Bangchak Corporation Public Company Limited and its Subsidiaries

Liabilities and equity	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2019	2018	2019	2018
		(Baht)			
Equity					
Share capital	25				
Authorised share capital		<u>1,376,923,157</u>	<u>1,376,923,157</u>	<u>1,376,923,157</u>	<u>1,376,923,157</u>
Issued and paid-up share capital (1,376,923,157 ordinary shares of Baht 1 each)		1,376,923,157	1,376,923,157	1,376,923,157	1,376,923,157
Treasury shares	26	(431,860,810)	-	(431,860,810)	-
Share premium on ordinary shares	25	11,157,460,051	11,157,460,051	11,157,460,051	11,157,460,051
Capital surplus on share reduction	25	189,617,759	189,617,759	189,617,759	189,617,759
Other surpluses	25	1,382,845,921	1,370,360,559	-	-
Surplus from business combination	25	1,170,410,780	1,170,410,780	-	-
Warrants		2,121,880	8,400,091	-	-
Retained earnings					
Appropriated					
Legal reserve	27	153,164,346	153,164,346	153,164,346	153,164,346
Treasury shares reserve	27	431,860,810	-	431,860,810	-
Unappropriated		27,146,932,121	27,453,937,691	26,069,027,367	26,983,747,098
Other components of equity		<u>(916,343,328)</u>	<u>(165,309,358)</u>	<u>-</u>	<u>-</u>
Equity attributable to owners of the parent		41,663,132,687	42,714,965,076	38,946,192,680	39,860,912,411
Subordinated perpetual debentures	28	<u>9,940,796,710</u>	<u>-</u>	<u>9,940,796,710</u>	<u>-</u>
Total owners of the parent		51,603,929,397	42,714,965,076	48,886,989,390	39,860,912,411
Non-controlling interests		<u>7,211,114,913</u>	<u>6,822,589,012</u>	<u>-</u>	<u>-</u>
Total equity		58,815,044,310	49,537,554,088	48,886,989,390	39,860,912,411
Total liabilities and equity		127,787,983,528	117,368,617,837	87,594,147,103	85,833,062,792

(Pichai Chunhavajira)
Chairman

(Chaiwat Kovavisarach)
Chief Executive Officer and President

The accompanying note are an integral part of these financial statements.

Statement of income

Bangchak Corporation Public Company Limited and its Subsidiaries

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2019	2018	2019	2018
		(Baht)			
Revenue from sale of goods and rendering of services	6, 29, 38	190,488,588,378	192,025,318,117	162,226,974,145	175,036,170,746
Cost of sale of goods and rendering of services	6	(180,256,901,884)	(180,594,365,584)	(157,041,653,982)	(168,127,680,595)
Gross Profit		10,231,686,494	11,430,952,533	5,185,320,163	6,908,490,151
Interest income and dividend income	6, 30	157,902,057	55,140,379	1,076,222,049	1,005,929,422
Other income	6, 31	337,184,269	1,259,951,534	225,456,388	259,244,694
Selling expenses	6, 32	(4,533,076,061)	(4,360,312,226)	(3,146,217,384)	(3,028,580,163)
Administrative expenses	6, 33	(3,080,722,373)	(3,015,400,534)	(1,877,318,014)	(1,844,482,084)
Exploration and evaluation expense		(517,662)	(45,313,805)	-	-
Gain (loss) from crude and product oil price hedging contract		146,561,560	(441,941,380)	146,561,560	(328,050,706)
Gain (loss) from foreign currencies forward contract		13,473,248	161,782,598	(9,058,147)	87,191,479
Gain on foreign exchange		614,205,007	415,153,583	526,107,758	462,270,917
Loss from impairment of assets	12, 13	(33,750,058)	(440,822,936)	(33,750,058)	(301,020,595)
Share of profit of associates and joint ventures	13	404,380,979	254,002,734	-	-
Profit before finance costs and income tax expense		4,257,327,460	5,273,192,480	2,093,324,315	3,220,993,115
Finance costs	36	(1,701,161,120)	(1,545,146,230)	(1,029,963,025)	(919,834,053)
Profit before income tax expense		2,556,166,340	3,728,046,250	1,063,361,290	2,301,159,062
Income tax income (expense)	37	(67,673,449)	(493,350,516)	26,790,599	(238,346,587)
Profit for the year		2,488,492,891	3,234,695,734	1,090,151,889	2,062,812,475
Profit loss attributable to:					
Owners of the parent		1,731,572,179	2,462,881,096	1,090,151,889	2,062,812,475
Non-controlling interests		756,920,712	771,814,638	-	-
Profit for the year		2,488,492,891	3,234,695,734	1,090,151,889	2,062,812,475
Basic earnings per share	39	1.18	1.79	0.72	1.50

(Pichai Chunchavajira)
Chaiman

(Chaiwat Kovavisarach)
Chief Executive Officer and President

The accompanying note are an integral part of these financial statements.

Statement of comprehensive income

Bangchak Corporation Public Company Limited and its Subsidiaries

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	<i>(Baht)</i>			
Profit for the year	2,488,492,891	3,234,695,734	1,090,151,889	2,062,812,475
Other comprehensive income (loss)				
<i>Items that will be reclassified subsequently to profit or loss</i>				
Exchange differences on translating foreign operations	(790,345,369)	(13,679,665)	-	-
Gains (losses) on remeasuring available-for-sale investments	5,016,074	(2,589,609,728)	-	-
Total items that will be reclassified subsequently to profit or loss	(785,329,295)	(2,603,289,393)	-	-
<i>Items that will not be reclassified subsequently to profit or loss</i>				
Gains (losses) on remeasurements of defined benefit plans	(192,688,353)	18,105,570	(196,104,328)	-
Share of other comprehensive income (loss) of associates	(3,649,598)	28,020,286	-	-
Total items that will not be reclassified subsequently to profit or loss	(196,337,951)	46,125,856	(196,104,328)	-
Other comprehensive income (loss) for the year, net of income tax	(981,667,246)	(2,557,163,537)	(196,104,328)	-
Total comprehensive income for the year	1,506,825,645	677,532,197	894,047,561	2,062,812,475
Total comprehensive income (loss) attributable to				
Owners of the parent	788,625,198	(98,779,643)	894,047,561	2,062,812,475
Non-controlling interests	718,200,447	776,311,840	-	-
Total comprehensive income for the year	1,506,825,645	677,532,197	894,047,561	2,062,812,475

The accompanying note are an integral part of these financial statements.

Statement of changes in equity

Bangchak Corporation Public Company Limited and its Subsidiaries

	Separate financial statements					Total equity
	Issued and paid-up share capital	Share premium	Capital surplus on share reduction	Retained earnings	Unappropriated	
Note				Legal reserve		
Year ended 31 December 2018						
Balance at 1 January 2018	1,376,923,157	11,157,460,051	189,617,759	153,164,346	27,605,862,794	40,483,028,107
Transactions with owners, recorded directly in equity						
<i>Distributions to owners</i>						
Dividends to owners of the Company	-	-	-	-	(2,684,928,171)	(2,684,928,171)
Total	-	-	-	-	(2,684,928,171)	(2,684,928,171)
Comprehensive income for the year						
Profit or loss	-	-	-	-	2,062,812,475	2,062,812,475
Other comprehensive income	-	-	-	-	-	-
Total comprehensive income for the year	-	-	-	-	2,062,812,475	2,062,812,475
Balance at 31 December 2018	1,376,923,157	11,157,460,051	189,617,759	153,164,346	26,983,747,098	39,860,912,411

The accompanying notes are an integral part of these financial statements.

The accompanying note are an integral part of these financial statements.

Statement of changes in equity

Bangchak Corporation Public Company Limited and its Subsidiaries

	Note	Separate financial statements							Total equity		
		Issued and paid-up share capital	Treasury shares	Share premium	Capital surplus on share reduction	Legal reserve	Retained earnings	Unappropriated		Total owners of the parent	Subordinated perpetual debentures
Year ended 31 December 2019											
Balance at 1 January 2019		1,376,923,157	-	11,157,460,051	189,617,759	153,164,346	-	26,983,747,098	39,860,912,411	-	39,860,912,411
Transactions with owners, recorded directly in equity											
<i>Distributions to owners</i>											
Treasury shares purchased	26	-	(431,860,810)	-	-	-	431,860,810	(431,860,810)	(431,860,810)	-	(431,860,810)
Dividends to owners of the Company	40	-	-	-	-	-	-	(1,376,906,482)	(1,376,906,482)	-	(1,376,906,482)
Total		-	(431,860,810)	-	-	-	431,860,810	(1,808,767,292)	(1,808,767,292)	-	(1,808,767,292)
Comprehensive income (loss) for the year											
Profit or loss		-	-	-	-	-	-	1,090,151,889	1,090,151,889	-	1,090,151,889
Other comprehensive income (loss)		-	-	-	-	-	-	(196,104,328)	(196,104,328)	-	(196,104,328)
Total comprehensive income for the year		-	-	-	-	-	-	894,047,561	894,047,561	-	894,047,561
Issue of subordinated perpetual debentures	28	-	-	-	-	-	-	-	-	10,000,000,000	10,000,000,000
Issuance cost of subordinated perpetual debentures	28	-	-	-	-	-	-	-	-	(59,203,290)	(59,203,290)
Balance at 31 December 2019		1,376,923,157	(431,860,810)	11,157,460,051	189,617,759	153,164,346	431,860,810	26,069,027,367	38,946,192,680	9,940,796,710	48,886,989,390

The accompanying note are an integral part of these financial statements.

Statement of cash flows

Bangchak Corporation Public Company Limited and its Subsidiaries

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	(Baht)			
<i>Cash flows from operating activities</i>				
Profit for the year	2,488,492,891	3,234,695,734	1,090,151,889	2,062,812,475
<i>Adjustments for</i>				
Income tax (income) expense	67,673,449	493,350,516	(26,790,599)	238,346,587
Finance costs	1,701,161,120	1,545,146,230	1,029,963,025	919,834,053
Depreciation	4,478,309,278	4,456,864,246	3,413,775,531	3,254,990,764
Amortisation	553,522,651	445,420,819	434,971,128	377,667,685
Allowance for bad and doubtful debts expenses	3,446,697	10,618	3,369,760	387,711
Unrealised (gain) loss on foreign exchange	428,004,019	37,934,468	457,624,688	(23,907,255)
(Reversal of) losses on inventories devaluation	(706,635,160)	696,204,261	(688,560,092)	688,560,092
Loss from impairment of assets	33,750,058	440,822,936	33,750,058	301,020,595
(Gain) loss on disposal of property, plant and equipment	6,594,200	(760,630,886)	2,036,686	22,950,524
Loss on disposal of intangible assets	1,402,373	-	-	-
Gain on disposal of other investment	(318,512)	-	-	-
Gain on sale of investment in subsidiaries	-	(78,127,829)	-	-
Interest income and dividend income	(157,902,057)	(55,140,379)	(1,076,222,049)	(1,005,929,422)
Non-current provision for employee benefits	354,615,710	189,199,725	319,339,350	159,280,885
Provision for customer loyalty programmes	57,185,005	48,769,481	57,185,005	48,769,481
Deferred revenue	(7,190,211)	(7,130,622)	(7,190,211)	(7,130,622)
Share-based payment transactions	1,185,378	6,896,908	-	-
Share of profit of associates and joint ventures, net of tax	(404,380,979)	(254,002,734)	-	-
	8,898,915,910	10,440,283,492	5,043,404,169	7,037,653,553
<i>Changes in operating assets and liabilities</i>				
Trade accounts receivable	(2,197,550,153)	514,434,825	430,850,200	133,828,682
Other receivables	(1,266,792,604)	(920,659,553)	(827,789,122)	(493,797,351)
Inventories	(34,741,998)	(399,678,656)	(148,620,747)	(485,574,211)
Other non-current assets	(105,123,343)	(393,724,699)	61,514,179	(236,024,451)
Trade accounts payable	4,076,867,330	(2,965,385,746)	2,059,199,778	(2,280,216,225)
Other payables	(487,863,766)	178,096,725	(451,536,733)	315,907,010
Other current liabilities	(1,861,927,294)	400,260,238	(1,876,466,489)	333,216,589
Non-current provisions for employee benefits	(60,253,172)	(47,819,526)	(58,585,462)	(42,874,346)
Other non-current liabilities	314,386,749	274,068,415	(6,257,947)	64,138,531
Net cash generated from operating activities	7,275,917,659	7,079,875,515	4,225,711,826	4,346,257,781
Income tax paid, net	(526,649,603)	(1,129,843,546)	(152,087,556)	(1,046,216,548)
Net cash from operating activities	6,749,268,056	5,950,031,969	4,073,624,270	3,300,041,233

The accompanying note are an integral part of these financial statements.

Statement of cash flows

Bangchak Corporation Public Company Limited and its Subsidiaries

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	<i>(Baht)</i>			
<i>Cash flows from investing activities</i>				
Interest received	123,942,932	47,004,171	114,661,797	45,781,626
Dividend received	56	66,554,800	926,190,052	940,090,052
Increase in current investments	(26,222,031)	(42,455,248)	-	-
Payment for other investments	(373,629,366)	(100,130,745)	-	(3,164,959)
Proceeds from disposal of other investments	-	3,000,000	-	3,000,000
Net cash outflow from calling up of subsidiary's share capital	-	-	(357,198,400)	(840,148,380)
Proceeds from the increase of the subsidiary's share capital	49,999,975	-	-	-
Acquisition of subsidiaries and associates, net of cash acquired	(5,132,678,956)	(3,821,979,892)	-	-
Proceeds from capital reduction in associated companies	67,229,200	-	-	-
Proceeds from sale of investments	81,540,712	730,728,836	-	-
Acquisition of property, plant and equipment	(7,835,306,291)	(7,705,262,705)	(5,528,309,741)	(5,618,951,357)
Proceeds from sale of property, plant and equipment	19,674,032	3,030,875,431	49,050,686	26,263,291
Loans to related parties	(873,493,029)	(198,755,025)	(937,668,094)	(3,823,730,644)
Proceeds from loan to related party	-	-	-	818,000,000
Payment for leasehold right	(459,284,689)	(805,116,424)	(459,284,689)	(805,116,424)
Acquisition of intangible assets	(195,955,222)	(304,046,743)	(78,526,996)	(180,435,451)
Net cash used in investing activities	(14,554,182,677)	(9,099,583,544)	(6,271,085,385)	(9,438,412,246)
<i>Cash flows from financing activities</i>				
Financial cost paid	(2,073,199,811)	(1,617,613,105)	(1,481,514,267)	(1,019,568,613)
Dividend paid	(1,759,835,743)	(3,090,516,263)	(1,376,906,482)	(2,684,928,171)
Increase (decrease) in short-term loans from financial institutions	14,560,000	981,714,225	(3,290,440,000)	5,720,000
Proceeds from exercise of share options	24,510,333	53,597,494	-	-
Proceeds from issuance of debentures	-	11,000,000,000	-	11,000,000,000
Redemption of debentures	(4,000,000,000)	-	(4,000,000,000)	-
Proceeds from subordinated perpetual debentures	10,000,000,000	-	10,000,000,000	-
Redemption of treasury shares	(431,860,810)	-	(431,860,810)	-
Proceeds from long-term loans from financial institutions	6,817,408,331	1,628,848,750	2,550,616,000	-
Repayment of long-term loans from financial institutions	(4,879,426,423)	(4,231,101,209)	(2,900,769,846)	(325,153,846)
Net cash from (used in) financing activities	3,712,155,877	4,724,929,892	(930,875,405)	6,976,069,370
Net increase (decrease) in cash and cash equivalents, before effect of exchange rates	(4,092,758,744)	1,575,378,317	(3,128,336,520)	837,698,357
Effect of exchange rate changes on cash and cash equivalents	(182,055,235)	(130,641,101)	-	-
Net increase (decrease) in cash and cash equivalents	(4,274,813,979)	1,444,737,216	(3,128,336,520)	837,698,357
Cash and cash equivalents at 1 January	11,550,619,801	10,105,882,585	7,215,200,606	6,377,502,249
Cash and cash equivalents at 31 December	7,275,805,822	11,550,619,801	4,086,864,086	7,215,200,606

The accompanying note are an integral part of these financial statements.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Note	Contents
1	General information
2	Basis of preparation of the financial statements
3	Change in accounting policies
4	Significant accounting policies
5	Acquisition of associate and subsidiary
6	Related parties
7	Cash and cash equivalents
8	Investments
9	Trade accounts receivable
10	Other receivables
11	Inventories
12	Investments in subsidiaries
13	Investments in associates and joint ventures
14	Investment property
15	Property, plant and equipment
16	Goodwill
17	Leasehold rights
18	Intangible assets
19	Deferred tax
20	Other non-current assets
21	Interest-bearing liabilities
22	Trade accounts payable
23	Other payables
24	Non-current provisions for employee benefits
25	Share capital
26	Treasury shares
27	Reserves
28	Subordinated perpetual debentures
29	Segments information
30	Interest and dividend income
31	Other income
32	Selling expenses
33	Administrative expenses
34	Employee benefit expenses
35	Expense by nature
36	Finance costs
37	Income tax
38	Promotional privileges
39	Earnings per share
40	Dividends
41	Financial instruments
42	Commitments with non-related parties
43	Contingent liabilities and contingent assets
44	Events after the reporting period
45	Thai Financial Reporting Standards (TFRS) not yet adopted

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were approved and authorised for issue by the Board of Directors on 20 February 2020.

1 General information

Bangchak Corporation Public Company Limited, the “Company” is incorporated in Thailand and was listed on the Stock Exchange of Thailand. The Company’s registered office as follows:

Head office : 2098 M Tower Building, 8th Floor, Sukhumvit Road, Phra Kanong Tai, Phra Kanong, Bangkok.

Refinery plant : 210 Moo 1, Soi Sukhumvit 64, Sukhumvit Road, Phra Kanong Tai, Phra Kanong, Bangkok.

As at 31 December 2019, major shareholders of the Company were Vayupak Fund 1 and Social Security Office holding 14.66% and 14.77% of issued and paid-up capital, respectively (31 December 2018: 14.66% and 40.46%, respectively).

The principal businesses of the Group are operating an oil refinery and marketing the finished products through its service stations under its company’s brand. The Group’s oil market includes consumers in various sectors, such as transportation, aviation, shipping, construction, industrial, agriculture and sale of oil is also made through the major and the minor oil traders, production and distribution of electricity from solar cell and investment in alternative energy business, manufacturing and distributing of biofuel product and relating products and exploration and production of petroleum.

Details of the Company’s subsidiaries as of 31 December 2019 and 2018 are given in note 6 and 12.

2 Basis of preparation of the financial statements

(a) Statement of compliance

The financial statements are prepared in accordance with Thai Financial Reporting Standards (“TFRS”), guidelines promulgated by the Federation of Accounting Professions and applicable rules and regulations of the Thai Securities and Exchange Commission.

New and revised TFRS are effective for annual accounting periods beginning on or after 1 January 2019. The initial application of these new and revised TFRS has resulted in changes in certain of the Group’s accounting policies. There is no material impact on the Group’s financial statements. The Group has initial applied TFRS 15 *Revenue from Contracts with Customers* which replaces TAS 18 *Revenue*, TAS 11 *Construction Contracts* and related interpretations. The effects of these changes, where such effects are considered material to the financial statements, are disclosed in note 3.

In addition, the Group has not early adopted a number of new and revised TFRS which are not yet effective for the current period in preparing these financial statements. Those new and revised TFRS that are relevant to the Group’s operations are disclosed in note 45.

(b) Functional and presentation currency

The financial statements are prepared in Thai Baht, which is the Company’s functional currency.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

(c) *Use of judgements and estimates*

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of the Group's accounting policies. Actual results may differ from these estimates. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

(i) Judgment

Information about judgements made in applying accounting policies that have the most significant effects on the amounts recognised in the financial statements is included in the following notes:

5, 13	Consideration of investments using the equity method: whether the Group has significant influence in the businesses in which the Group invests
28	The classification of capital - similar debentures into equity

(ii) Assumptions and estimation uncertainties

Information about assumption and estimation uncertainties at 31 December 2019 that have a significant risk of resulting in a material adjustments to the carrying amounts of assets and liabilities in the next financial year is included in the following notes:

5, 13	Acquisition of subsidiary: fair value of the consideration transferred (including contingent consideration) and fair value of the assets acquired and liabilities assumed, measured on a provisional basis
12, 13, 16, 18	Impairment test: key assumption underlying recoverable amounts
19	Recognition of deferred tax assets: availability of future taxable profit against which deductible temporary differences and tax losses carried forward can be utilised
24	Measurement of defined benefit obligations: key actuarial assumptions

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

3 Changes in accounting policies

From 1 January 2019, the Group has adopted TFRS 15 using the cumulative effect method, taking into account the effect of initially applying this standard only to contracts that were not completed before 1 January 2019 as an adjustment to the retained earnings at 1 January 2019. Therefore, the Group has not restated the information presented for 2018, as previously reported under TAS 18 and related interpretations. The disclosure requirements of TFRS 15 have not generally been applied to comparative information.

Under TFRS 15, the Group recognises revenue when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax and after deduction of any trade discounts and volume rebates. Judgement is required in determining the timing of the transfer of control for revenue recognition - at a point in time or over time. Under TAS 18, the Group recognised revenue from sale of goods when the significant risks and rewards of ownership of the goods were transferred to the buyer, and recognised revenue from rendering of services by reference to the stage of completion of the transaction at the end of the reporting period. No revenue was recognised if there was continuing management involvement with the goods or there were significant uncertainties regarding recovery of the consideration due.

The detail and quantitative impact of the change in accounting policy policies are disclosed as follows:

Sale of steam under minimum take or pay arrangement

For the sale of steam under minimum take or pay arrangement of an associate in Indonesia. Under TFRS 15, revenue should be recognised upon fulfilment of the performance obligation.

TFRS 15 did not have any material impact on the Group's accounting policies with respect to other revenue streams.

The following table summarises the impact, net of tax, of adopting TFRS 15.

<i>As at 1 January 2019</i>	Consolidated financial statements	Separate financial statements
	<i>(in million Baht)</i>	
<i>Asset</i>		
Decrease in investment in associate	54	-
Decrease in total assets	54	-
<i>Equity</i>		
Decrease in retained earnings	38	-
Decrease in non-controlling interest	16	-
Decrease in total equity	54	-

There is no material impacts on the consolidated and separate statement of cash flows for the year ended 31 December 2019 from the adoption of TFRS 15.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

4 Significant accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these financial statements except as explained in note 3.

(a) *Basis of consolidation*

The consolidated financial statements relate to the Company and its subsidiaries (together referred to as the “Group”) and the Group’s interests in associates and joint ventures.

Business combinations

The Group applies the acquisition method for all business combinations when control is transferred to the Group, as describe in subsidiaries section, other than those with entities under common control.

The acquisition date is the date on which control is transferred to the acquirer. Judgment is applied in determining the acquisition date and determining whether control is transferred from one party to another.

Goodwill is measured as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less the net recognised amount (generally fair value) of the identifiable assets acquired and liabilities assumed, all measured as of the acquisition date. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred includes the fair values of the assets transferred, liabilities incurred by the Group to the previous owners of the acquiree, and equity interests issued by the Group. Consideration transferred also includes the fair value of any contingent consideration.

Any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

Transaction costs that the Group incurs in connection with a business combination, such as legal fees, and other professional and consulting fees are expensed as incurred.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Acquisitions from entities under common control

Business combination under common control are accounted for using a method similar to the pooling of interest method. Under that method the acquirer recognises assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the moment of the transaction. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognised as surplus or discount from business combinations under common control in shareholder's equity. The surplus or discount will be transferred to retained earnings upon divestment of the businesses acquired.

The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is later, until control ceases.

Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

Non-controlling interests

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

Loss of control

When the Group loses control over a subsidiary, it derecognises the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture.

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and joint ventures are accounted for using the equity method. They are recognised initially at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealised income or expenses arising from intra-group transactions, are eliminated. Unrealised gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

(b) Foreign currencies

Foreign currency transactions

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions.

Monetary assets and liabilities denominated in foreign currencies are translated to the functional currency at the exchange rate at the reporting date.

Non-monetary assets and liabilities measured at cost in foreign currencies are translated to the functional currency at the exchange rates at the dates of the transactions.

Foreign currency differences are generally recognised in profit or loss. However, foreign currency differences arising from the translation of the following items are recognised in other comprehensive income:

- available-for-sale equity investments (except on impairment in which case foreign currency differences that have been recognised in other comprehensive income are reclassified to profit or loss)

Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated to Thai Baht at the exchange rates at the reporting date.

The revenues and expenses of foreign are translated to Thai Baht at rates approximating the exchange rates at the dates of the transactions.

Foreign exchange differences are recognised in other comprehensive income and accumulated in the translation reserve, except to extent that the translation difference is allocated to non-controlling interest.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal. If the Group disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to non-controlling interests. When the Group disposes of only part of an associate or joint venture while retaining significant influence or joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

When the settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the foreign currency translation reserve in equity until disposal of the investment.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

(c) Derivatives

Derivatives are used to manage exposure to foreign exchange, interest rate arising from operational, financing and investment activities. Derivatives are not used for trading purposes. However, derivatives that do not qualify for hedge accounting are accounted for as trading instruments.

(d) Hedging

Hedge of future foreign currency transactions

Gains and losses from forward exchange contracts and currency swaps used to hedge anticipated future currency transactions are deferred until the forecasted transaction occurs. Where the hedged item is a recognised asset or liability, it is translated at the contracted forward rates. Transaction fee and discounts are amortised to profit and loss on a straight-line basis over the life of the agreements.

Hedge of interest rates

Interest differentials under swap arrangements are accrued and recorded as adjustments to the interest expense relating to the hedged loans.

Hedge of oil prices

Difference between the fixed prices of contracts and the settlement prices are recognised in the statement of income in the period in which the contracts mature.

(e) Cash and cash equivalents

Cash and cash equivalents in the statements of cash flows comprise cash balances, call deposits, highly liquid short-term investments and bank overdrafts that are repayable on demand are a component of for the purpose of the statement of cash flows.

(f) Trade and other accounts receivable and contract assets

A receivable is recognised when the Group has an unconditional right to receive consideration. If revenue has been recognised before the Group has an unconditional right to receive consideration, the amount is presented as a contract asset.

A receivable is stated at invoice at value less allowance for doubtful accounts which is determined based on an analysis of payment histories and future expectations of customer payments. Bad debts are written off when incurred.

(g) Inventories

Inventories are measured at the lower of cost and net realisable value.

Cost is calculated using the weighted average cost principle, and comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition. In the case of manufactured inventories and work-in-progress, cost includes an appropriate share of production overheads based on normal operating capacity.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

(h) Investments

Investments in associates, subsidiaries and joint ventures

Investments in associates, subsidiaries and joint ventures in the separate financial statements of the Company are accounted for using the cost method. Investments in associates and joint ventures in the consolidated financial statements are accounted for using the equity method.

Investments in other debt and equity securities

Debt securities that the Group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are stated at amortised cost, less any impairment losses. The difference between the acquisition cost and redemption value of such debt securities is amortised using the effective interest rate method over the period to maturity.

Debt securities and marketable equity securities, other than those securities held for trading or intended to be held to maturity, are classified as available-for-sale investments. Available-for-sale investments are, subsequent to initial recognition, stated at fair value, and changes therein, other than impairment losses and foreign currency differences on available-for-sale monetary items, are recognised directly in equity. Impairment losses and foreign exchange differences are recognised in profit or loss. When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in profit or loss. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in profit or loss.

Equity securities which are not marketable are stated at cost less any impairment losses.

The fair value of financial instruments classified as available-for-sale is determined as the quoted bid price at the reporting date.

Disposal of investments

On disposal of an investment, the difference between net disposal proceeds and the carrying amount together with the associated cumulative gain or loss that was reported in equity is recognised in profit or loss.

If the Group disposes of part of its holding of a particular investment, the deemed cost of the part sold is determined using the weighted average method applied to the carrying value of the total holding of the investment.

(i) Investment properties

Investment properties are properties which are held to earn rental income, for capital appreciation or for both, but not for sale in the ordinary course of business, use in the production or supply of goods or services or for administrative purposes.

Investment properties are stated at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the investment property. The cost of self-constructed investment property includes the cost of materials and direct labour, and other costs directly attributable to bringing the investment property to a working condition for its intended use and capitalised borrowing costs.

No depreciation is provided on land.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

(j) Property, plant and equipment

Recognition and measurement

Owned assets

Property, plant and equipment are stated at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the assets to a working condition for their intended use, the costs of dismantling and removing the items and restoring the site on which they are located, and capitalised borrowing costs. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Any gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment, and are recognised net within other income in profit or loss.

Subsequent costs

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

Depreciation

Depreciation is calculated based on the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation is charged to profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment. The estimated useful lives are as follows:

Buildings	10 - 50 years
Machinery, equipment refinery plants and terminal	2 - 30 years
Equipment solar plants	10 - 25 years
Marketing and office equipment	3 - 20 years
Vehicles	5 - 7 years

No depreciation is provided on freehold land and assets under construction.

Depreciation methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Oil and Gas Properties

When the technical and commercial feasibility of an undeveloped oil or gas field has been demonstrated, the field enters its development phase. The costs of oil and gas assets are transferred from exploration and evaluation expenditure and reclassified into development phase.

The costs of oil and gas properties include past exploration and evaluation costs, pre-production development costs and the ongoing costs of continuing to develop reserves for production as well as decommission costs.

Depletion charges are calculated using a unit of production method over the life of the estimated Proved plus Probable reserves.

(k) Leasehold rights

Leasehold rights are the rights obtained from the land lease contracts, which are amortised on a straight-line method over the contractual period.

Leasehold rights are presented at cost deducted by accumulated amortisation and impairment losses.

(l) Intangible assets

Goodwill

Goodwill that arises upon the acquisition of subsidiaries is included in intangible assets. The measurement of goodwill at initial recognition is described in note 4 (a). Subsequent to initial recognition, goodwill is measured at cost less accumulated impairment losses. In respect of equity-accounted investees, the carrying amount of goodwill is included in the carrying amount of the investment, and an impairment loss on such an investment is not allocated to any asset, including goodwill, that forms part of the carrying amount of the equity-accounted investee.

Other intangible assets

Other intangible assets that are acquired by the Group and have finite useful lives are measured at cost less accumulated amortization and accumulated impairment losses.

Subsequent expenditure

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated goodwill and brands, is recognised after profit or loss as incurred.

Amortizations

Amortization is based on the cost of the asset, or other amount substituted for cost, less its residual value.

Amortization is recognised in profit or loss on a straight-line basis over the estimated useful lives of intangible assets, other than goodwill, from the date that they are available for use, since this most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The estimated useful lives for the current and comparative years are as follows:

Right to use and cost of development of computer software	3 - 10	years
Right to connect electrical transmission line	20 - 25	years
Power purchase agreement	20	years
Power purchase agreement under concession agreement	28	years

Amortization methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

Exploration and Evaluation Expenditure

Exploration and evaluation expenditure is stated at cost as intangible assets and is accumulated in respect of each identifiable area of interest. These costs are capitalised until the viability of the area of interest is determined.

Accumulated costs in relation to an abandoned area are written off through profit or loss in the period in which the decision to abandon the area is made.

Once an area of interest enters the development phase, exploration and evaluation expenditures are transferred to oil and gas properties.

(m) Impairment

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised if the carrying amount of an asset exceeds its recoverable amount. The impairment loss is recognised in profit or loss unless it reverses a previous revaluation credited to equity, in which case it is charged to equity.

When a decline in the fair value of an available-for-sale financial asset has been recognised directly in equity and there is objective evidence that the value of the asset is impaired, the cumulative loss that had been recognised directly in equity is recognised in profit or loss even though the financial asset has not been derecognised. The amount of the cumulative loss that is recognised in profit or loss is the difference between the acquisition cost and current fair value, less any impairment loss on that financial asset previously recognised in profit or loss.

Calculation of recoverable amount

The recoverable amount of held-to-maturity securities carried at amortised cost is calculated as the present value of the estimated future cash flows discounted at the original effective interest rate.

The recoverable amount of available-for-sale financial assets is calculated by reference to the fair value.

The recoverable amount of a non-financial asset is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Reversals of impairment

An impairment loss in respect of a financial asset is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised in profit or loss. For financial assets carried at amortised cost and available-for-sale financial assets that are debt securities, the reversal is recognised in profit or loss. For available-for-sale financial assets that are equity securities, the reversal is recognised in other comprehensive income.

An impairment loss in respect of goodwill is not reversed. Impairment losses recognised in prior periods in respect of other non-financial assets are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

(n) Interest-bearing liabilities

Interest-bearing liabilities are recognised initially at fair value less attributable transaction charges. Subsequent to initial recognition, interest-bearing liabilities are stated at amortised cost with any difference between cost and redemption value being recognised in profit or loss over the period of the borrowings on an effective interest basis.

(o) Trade and other accounts payable

Trade and other accounts payable are stated at cost.

(p) Contract liabilities

A contract liability is the obligation to transfer goods or services to the customer. A contract liability is recognised when the Group receives or has an unconditional right to receive non-refundable consideration from the customer before the Group recognises the related revenue.

(q) Employee benefits

Defined contribution plans

Obligations for contributions to defined contribution plans are expensed as the related service is provided.

Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount.

The calculation of defined benefit obligations is performed every 3 years by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognised asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any application minimum funding requirements.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period, taking into account any changes in the net defined benefit liability during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

Other long-term employee benefits

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognised in profit or loss in the period in which they arise.

Short-term employee benefits

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

(r) Share-based payments

The grant-date fair value of equity-settled share-based payment awards granted to employees is generally recognised as an expense, with a corresponding increase in equity, over the vesting period of the awards. The amount recognised as an expense is adjusted to reflect the number of awards for which the related service and non-market performance conditions are expected to be met, such that the amount ultimately recognised is based on the number of awards that meet the related service and non-market performance conditions at the vesting date. For share-based payment awards with non-vesting conditions, the grant-date fair value of the share-based payment is measured to reflect such conditions and there is no true-up for differences between expected and actual outcomes.

(s) Provisions

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as finance cost.

(t) Measurement of fair values

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: inputs for the asset or liability that are based on unobservable input.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

(u) Share capital

Ordinary shares

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of ordinary shares are recognised as a deduction from equity.

Treasury shares

When share capital recognised as equity is repurchased, the amount of consideration paid, including directly attributable costs, is classified as treasury shares and recognised as a deduction from equity. An equal amount is appropriated from retained earnings and taken to a reserve for treasury shares within equity. When treasury shares are sold, the amount received is recognised as an increase in equity by crediting the cost of the treasury shares sold, calculated using the weighted average method, to the treasury shares account and transferring the equivalent amount back from reserve for treasury shares to retained earnings. Surpluses on the sale of treasury shares are taken directly to a separate category within equity, 'Surplus on treasury shares. Net deficits on sale or cancellation of treasury shares are debited to retained earnings after setting off against any remaining balance of surplus on treasury shares.

(v) Subordinated perpetual debentures

Subordinated perpetual debentures are recognised as equity when the Company has the sole right and discretion to early redeem the debentures per conditions as stipulated in the terms of the debentures and to defer interest and cumulative interest payment without time and deferral amount limitation and the coupon payments are discretionary. Accordingly, any coupon payments are accounted for as dividends and are recognised directly in equity at the time the payment obligation arises. Coupon payments are recognised in the statement of cash flows in the same way as dividends to ordinary shareholders.

(w) Revenue

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax and is after deduction of any trade discounts and volume rebates.

Sale of goods and services rendered

Revenue from sales of goods is recognised when a customer obtains control of the goods, generally on delivery of the goods to the customers. For contracts that permit the customers to return the goods, revenue is recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur. Therefore, the amount of revenue recognised is adjusted for estimated returns, which are estimated based on the historical data.

For bundled packages, the Group accounts for individual products and services separately if they are distinct (i.e. if a product or service is separately identifiable from other items and a customer can benefit from it) or the multiple services are rendered in different reporting periods. The consideration received is allocated based on their relative stand-alone selling prices which are determined based on the price list at which the Group sells the products and services in separate transactions.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Income from sale of electricity

Income from the sale of electricity is recognised in profit or loss in accordance with delivery units supplied as stipulated in the contract. Income from the sale of electricity for some entities within Thailand is entitled to receive ADDER for a period of 10 years from the commencement of commercial sales. Thereafter, subsequent to this initial period income from sale of electricity is recognised at normal rates.

Sale of steam under minimum take or pay arrangement

For the sale of steam under minimum take or pay arrangement of an associate in Indonesia. Under TFRS 15, revenue should be recognised upon fulfilment of the performance obligation.

Income from operating rights

Income from operating right is recognised in accordance with the timing of the rights utilization and with conditions as stipulated in the contract.

Loyalty programmes

The consideration received are allocated based on the relative stand-alone selling price of the products and the loyalty points. The amount allocated to the loyalty points is recognised as contract liabilities and revenue is recognised when loyalty points are redeemed or the likelihood of the customer redeeming the loyalty points becomes remote. The stand-alone selling prices of the points is estimated based on discount provided to customers and the likelihood that the customers will redeem the points, and the estimate shall be reviewed at the end of the reporting period.

(x) Rental income

Rental income from investment properties is recognised in profit or loss on a straight-line basis over the lease term. The initial expenses which are incurred specifically for the occurrence of the lease are recognised as a part of the total rental fee under the contract. The rental fee that may occur is recognised as income in the accounting period in which the rent is incurred.

(y) Investment income

Investment income comprises dividend and interest income from investments and bank deposits. Dividend income is recognised in profit or loss on the date the Group's right to receive payments is established. Interest income is recognised in profit or loss as it accrues.

(z) Finance costs

Finance costs is recognised using the effective interest method and comprises interests expense on borrowings, unwinding of the discount on provisions and contingent consideration.

Borrowing costs that are not directly attributable to the acquisition, construction or production of a qualifying asset are recognised in profit or loss using the effective interest method.

(aa) Lease payments

Payments made under operating leases are recognised in profit or loss on a straight line basis over the term of the lease. Lease incentives received are recognised in profit or loss as an integral part of the total lease expense, over the term of the lease.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Contingent lease payments are accounted for by revising the minimum lease payments over the remaining term of the lease when the lease adjustment is confirmed.

(bb) Income tax

Income tax expense for the year comprises current and deferred tax. Current and deferred tax are recognised in profit or loss except to the extent that they relate to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted or substantively enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the following temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries and jointly-controlled entities to the extent that it is probable that they will not reverse in the foreseeable future.

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date.

In determining the amount of current and deferred tax, the Group takes into account the impact of uncertain tax positions and whether additional taxes and interest may be due. The Group believes that its accruals for tax liabilities are adequate for all open tax years based on its assessment of many factors, including interpretations of tax law and prior experience. This assessment relies on estimates and assumptions and may involve a series of judgements about future events. New information may become available that causes the Group to change its judgement regarding the adequacy of existing tax liabilities; such changes to tax liabilities will impact tax expense in the period that such a determination is made.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognise a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences, are considered, based on the business plans for individual subsidiaries in the Group. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

(cc) Earnings per share

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

(dd) Related parties

A related party is a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that are under common control or under the same significant influence as the Group; or the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making of a person or entity.

(ee) Segment reporting

Segment results that are reported to the Group's president (the chief operating decision maker) include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

5 Acquisition of associate and subsidiary

(a) Acquisition of investment in associate OKEA ASA

At the Board of Director meeting of the Company held on 14 June 2018, the meeting approved the Company's investment plan to establish BCPR Co., Ltd. which is a subsidiary in Thailand. BCPR Co., Ltd. established an indirect subsidiary in Singapore ("BCPR Pte. Ltd.") for the purpose of jointly invest with Seacrest Capital Group through the investment by means of subscribing new shares of OKEA AS (subsequently changed the name to OKEA ASA), a company established under Norwegian law, which has developed and produced petroleum in Norway. Subsequently, on 21 November 2018, BCPR Pte. Ltd. subscribed for newly issued shares of OKEA at the total investment amount of NOK 939 million (or equivalent to Baht 3,618 million), calculated as 49.33% of total authorised share capital in OKEA and received the shares.

The Group holds 43% ordinary shares and also hold non-voting right ordinary shares which can be converted to ordinary shares at any time. Effectively, the Group will be holding 49.33% of total OKEA authorised share capital.

TFRS required Management to make preliminary assessment of the fair values of the assets, liabilities and contingent liabilities specified at the acquisition date. The Group hired an independent appraiser to determine the fair value of assets and liabilities acquired during the measurement period, which must not exceed one year from the acquisition date to reflect new information obtained about facts and circumstance that existed as of the acquisition date. Finalisation of the valuation of net assets of investment was completed in November 2019.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The following summarises the consideration transferred to acquire of investment, and the fair value of net assets acquired (liabilities) assumed at the acquisition date as interest in Group's investment:

	Recognised value as proportionate of to the acquisition	Adjustment <i>(in million Baht)</i>	Fair value as proportionate of to the acquisition
Trade and other receivable	5,791	-	5,791
Exploration and production of petroleum assets	1,941	21	1,962
Long-term loan from financial institution	(4,735)	-	(4,735)
Other net assets (liabilities)	(345)	8	(337)
Total identifiable net assets acquired (liabilities)	2,652	29	2,681
Goodwill	966	(29)	937
Consideration transferred - cash	3,618	-	3,618

The fair value of exploration and production of petroleum assets was determined based on income approach. Key assumptions included forecast oil and gas price, oil reserve, production capacity and discount rate.

Acquisition-related costs

The Group incurred acquisition-related costs of Baht 44 million related to external legal fees and due diligence costs. The legal fees and due diligence costs have been included in administrative expenses in the Group's consolidated statement of comprehensive income.

(b) Acquisition of investment in subsidiary Nam San 3A Power Sole Co., Ltd.

On 20 September 2019, BCPG Biopower 2 Co., Ltd., (an indirect Subsidiary of the Company which subsequently changed its the name to BCPG Indochina Co., Ltd.) invested in a hydropower plant project in Laos PDR with total installed capacity of 69 megawatts. The indirect subsidiary acquired 100% share of Nam San 3A Power Sole Co., Ltd. ("Nam San 3A") from Phongsubthavy Roads and Bridges Construction and Irrigation Sole Co., Ltd. ("Phongsubthavy") for an amount of not exceeding USD 174 million (equivalent to Baht 5,352 million) or including net working capital adjustments to be repaid to the seller the amount shall not exceed USD 174 million (equivalent to Baht 5,357 million) which consists of USD 96 million (equivalent to Baht 2,958 million) for the shares and USD 78 million (equivalent to Baht 2,400 million) for a repayment of loan which the hydropower plant company owed to Phongsubthavy. Currently, BCPG Indochina Co., Ltd. has already completed the share transfer from Phongsubthavy. During the period of acquisition date until 31 December 2019, the business contributed revenue of USD 5 million (equivalent to Baht 151 million) and net profit of USD 3 million (equivalent to Baht 81 million) to the Group's results. If the acquisition had occurred on 1 January 2019, management estimates that consolidated revenue would have increased by Baht 402 million and consolidated profit from normal operation for the year ended 31 December 2019 would have increased by Baht 236 million. In determining these amounts, management has assumed that the fair value adjustments, determined provisionally, that arose on the date of acquisition would have been the same if the acquisition had occurred on 1 January 2019.

Management believes that acquisition of this business will enable the Group to increase the Group's potential to expand their investment, development and operating renewable energy business within Asia.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The Group has hired an independent appraiser to determine the fair value of net assets acquired at acquisition date. However, the report on the review has not yet been finalised, and the fair value of net assets acquired from the acquisition of investment in subsidiary is provisionally recognised at value based on management estimates. The result of the appraisal will be subsequently used to amend the fair value of net assets acquired.

The following summarises the major classes of consideration transferred, and the recognised amounts of assets acquired and liabilities assumed at the acquisition date:

Consideration transferred

	Recognised value <i>(in million Baht)</i>
Cash	4,460
Contingent consideration	897
Total	<u>5,357</u>

In December 2019, the Group settled the payment of USD 150 million (equivalent to Baht 4,614 million). Subsequently, in January 2020 the Group additionally settled the payment of USD 23 million (equivalent to Baht 712 million).

Contingent consideration

In January 2020, the Group had entered into new power purchase agreement with Vietnam Electricity for Nam San 3A project, which is considered to be a completion of a contingent consideration at the amount of USD 23 million (equivalent to Baht 711 million), resulting in an increase in fair value of the power purchase agreement and a decrease in goodwill from the first assessment in September 2019.

In addition, with reference to the share purchase agreement, the Group has additional contingent consideration to be paid based on stipulated condition at the amount of USD 6 million (equivalent to Baht 185 million).

Identifiable assets acquired and liabilities assumed

	Book value	Adjustment <i>(in million Baht)</i>	Recognized value
Cash and cash equivalents	1	-	1
Trade accounts receivable	69	-	69
Property, plant and equipment	9	-	9
Intangible asset	3,130	2,067	5,197
Other payables	(64)	-	(64)
Long-term loan from Phongsubthavy group	(2,400)	-	(2,400)
Deferred tax liabilities	-	(179)	(179)
Total identifiable assets and liabilities	<u>745</u>	<u>1,888</u>	<u>2,633</u>
Repayment of loan from Phongsubthavy group under the condition of business acquisition	2,400		2,400
Net assets and liabilities acquired by the Group	<u>3,145</u>		<u>5,033</u>
Goodwill			324
Consideration transferred			<u>5,357</u>

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The fair value of power purchase agreements under concession agreement which was classified as intangible asset was determined based on income approach using Multi-period Excess Earning Method (MEEM) with remaining operating period 28 years under power purchase agreement and related conditions. Key assumptions included forecast revenue and discount rate.

The investment in Nam San 3A creates an opportunity to expand the Group's business in Laos and its neighboring countries. This is a main factor that causes the goodwill arising from the acquisition.

Acquisition-related costs

The Group incurred acquisition-related costs of Baht 23 million related to external legal fees, due diligence, technical advisor and other costs which were included in administrative expenses in the consolidated statement of income for the Group's period which incurred.

6 Related parties

Relationships with subsidiaries, associates, joint venture and other related parties were as follows:

Name of entities	Country of incorporation/ nationality	Nature of relationships
<i>Major shareholders</i>		
Vayupak Fund 1	Thailand	Some common directors
Social Security Office	Thailand	Some common directors
<i>Subsidiaries or indirect subsidiaries</i>		
Bangchak Green Net Co., Ltd.	Thailand	Representative from the Company as director
BCPG Public Company Limited	Thailand	Representative from the Company as director
BBGI Public Company Limited	Thailand	Representative from the Company as director
Bangchak Retail Co., Ltd.	Thailand	Representative from the Company as director
BCPR Co., Ltd.	Thailand	Representative from the Company as director
BCV Bio Based Co., Ltd.	Thailand	Representative from the Company as director
BCV Energy Co., Ltd.	Thailand	Representative from the Company as director
BCV Innovation Co., Ltd.	Thailand	Representative from the Company as director
BCV Partnership Co., Ltd.	Thailand	Representative from the Company as director
BCP Energy International Pte. Ltd.	Singapore	Representative from the Company as director
BCP Innovation Pte. Ltd.	Singapore	Representative from the Company as director
BCP Trading Pte. Ltd.	Singapore	Representative from the Company as director
BCPR Pte. Ltd.	Singapore	Representative from the Company as director
Bangchak Solar Energy Co., Ltd.	Thailand	Representative from the subsidiary as director

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Name of entities	Country of incorporation/ nationality	Nature of relationships
<i>Subsidiaries or indirect subsidiaries (Continue)</i>		
Bangchak Solar Energy (Prachinburi) Co., Ltd.	Thailand	Representative from the subsidiary as director
Bangchak Solar Energy (Chaiyaphum1) Co., Ltd.	Thailand	Representative from the subsidiary as director
Bangchak Solar Energy (Buriram) Co., Ltd.	Thailand	Representative from the subsidiary as director
Bangchak Solar Energy (Buriram1) Co., Ltd.	Thailand	Representative from the subsidiary as director
Bangchak Solar Energy (Nakhon Ratchasima) Co., Ltd.	Thailand	Representative from the subsidiary as director
Thai Digital Development Company Limited (Formerly: BCPG Biopower 1 Co., Ltd.)	Thailand	Representative from the subsidiary as director
BCPG Indochina Company Limited (Formerly: BCPG Biopower 2 Co., Ltd.)	Thailand	Representative from the subsidiary as director
Lomligor Co., Ltd.	Thailand	Representative from the subsidiary as director
BCPG Investment Holdings Pte. Ltd.	Singapore	Representative from the subsidiary as director
BSE Energy Holdings Pte. Ltd.	Singapore	Representative from the subsidiary as director
BCPG Japan Corporation	Japan	Representative from the subsidiary as director
Greenergy Holdings Pte. Ltd.	Singapore	Representative from the subsidiary as director
Greenergy Power Pte. Ltd.	Singapore	Representative from the subsidiary as director
Tarumizu Solar Solutions Godo Kaisha	Japan	Representative from the subsidiary as director
Nakatsugawa PV Godo Kaisha	Japan	Indirect Subsidiary of the subsidiary, affiliate in TK investment
Godo Kaisha Inti	Japan	Representative from the Subsidiary as director
Takamori PV Godo Kaisha	Japan	Indirect Subsidiary of the subsidiary, affiliate in TK investment
Nojiri PV Godo Kaisha	Japan	Indirect Subsidiary of the subsidiary, affiliate in TK investment
Godo Kaisha Aten	Japan	Representative from the Subsidiary as director
Nikaho PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Gotenba 2 PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Godo Kaisha Horus	Japan	Representative from the Subsidiary as director
Yabuki PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Komagane PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Godo Kaisha Helios	Japan	Representative from the Subsidiary as director

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Name of entities	Country of incorporation/ nationality	Nature of relationships
<i>Subsidiaries or indirect subsidiaries (Continue)</i>		
Godo Kaisha Lugh	Japan	Representative from the Subsidiary as director
Godo Kaisha Phoenix	Japan	Representative from the Subsidiary as director
Gotenba 1 PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Komagane Land Lease Godo Kaisha	Japan	Representative from the Subsidiary as director
Nagi PV Godo Kaisha	Japan	Representative from the Subsidiary as director
Godo Kaisha Natosi	Japan	Representative from the Subsidiary as director
Godo Kaisha Amaterasu	Japan	Representative from the Subsidiary as director
Godo Kaisha Mithra	Japan	Representative from the Subsidiary as director
Godo Kaisha Sol	Japan	Representative from the Subsidiary as director
Godo Kaisha Saule	Japan	Representative from the Subsidiary as director
Godo Kaisha Shamash	Japan	Representative from the Subsidiary as director
Godo Kaisha Pusan	Japan	Representative from the Subsidiary as director
Godo Kaisha Apolo	Japan	Representative from the Subsidiary as director
Godo Kaisha Surya	Japan	Representative from the Subsidiary as director
Nagi Land Lease Godo Kaisha	Japan	Representative from the Subsidiary as director
Godo Kaisha Rangi	Japan	Representative from the Subsidiary as director
Godo Kaisha Dazbog	Japan	Representative from the Subsidiary as director
Godo Kaisha Narang	Japan	Representative from the Subsidiary as director
Godo Kaisha Malina	Japan	Representative from the Subsidiary as director
Godo Kaisha Legba	Japan	Representative from the Subsidiary as director
J2 Investor Godo Kaisha	Japan	Representative from the Subsidiary as director
J1 Investor Godo Kaisha	Japan	Representative from the Subsidiary as director
BCPG Engineering Company	Japan	Representative from the Subsidiary as director
Godo Kaisha Tarumi Takatoge	Japan	Indirect Subsidiary of the subsidiary, affiliate in TK investment
Huang Ming Japan Company Limited	Japan	Representative from the Subsidiary as director

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Name of entities	Country of incorporation/ nationality	Nature of relationships
<i>Subsidiaries or indirect subsidiaries (Continue)</i>		
BCPG Wind Cooperatief U.A.	Netherland	Representative from the Subsidiary as director
Nam San 3A Power Sole Co., Ltd.	Laos	Subsidiary's director and management as director and management
KSL Green Innovation Public Company Limited	Thailand	Representative from the Company as director
Bangchak Biofuel Co., Ltd.	Thailand	Representative from the Company as director
Bangchak Bioethanol (Chachoengsao) Co., Ltd.	Thailand	Representative from the Company as director
Nido Petroleum Pty. Ltd. Group	Australia/ British Virgin Islands/ Bahrain	Representative from the Subsidiary as director
Bangchak Ventures Pte. Ltd.	Singapore	Representative from the Company as director
<i>Indirect associates and joint venture</i>		
Bongkot Marine Services Co., Ltd.	Thailand	Representative from the Company as director
Oam Suk Social Enterprise Co., Ltd.	Thailand	Representative from the Company as director
Ubon Bio Ethanol Public Company Limited (Formerly: Ubon Bio Ethanol Co., Ltd.)	Thailand	Representative from the Subsidiary as director
Ubon Agricultural Energy Co., Ltd.	Thailand	Representative from the Subsidiary as director
PetroWind Energy Inc.	Philippines	Representative from the Subsidiary as director
Star Energy Group Holdings Pte. Ltd.	Singapore	Representative from the Subsidiary as director
OKEA ASA (Formerly : OKEA AS)	Norway	Representative from the Company as director
Impact Energy Asia Development Limited	Hong Kong	Representative from the Subsidiary as director
<i>Other related parties</i>		
Fuel Pipeline Transportation Ltd.	Thailand	Representative from the Company as director
Key management personnel	Thailand	Persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of the Group.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The pricing policies for particular types of transactions are explained further below:

Transactions	Pricing policies
Sale of goods	Market price/ Contractually agreed prices
Rendering of service	Contractually agreed prices
Purchase of goods/raw materials	Market price/ Contractually agreed prices
Receiving of services	Contractually agreed prices
Management service fee	Contractually agreed prices
Royalty expense	Contractually agreed prices
Sale fixed assets and other assets	Contractually agreed prices
Interest expense	Contractually agreed rate with reference to market rate and contract rate

Significant transactions with related parties for the year ended 31 December as follows;

<i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Subsidiaries and indirect subsidiaries				
Sales of goods	-	-	43,966	42,272
Purchases of goods	-	-	31,774	28,891
Dividend income	-	-	911	916
Other income	-	-	110	239
Interest income	-	-	71	28
Other expenses	-	-	41	37
Sale fixed assets and other assets	-	-	42	-
Indirect associates and joint ventures				
Sales of goods	16	12	16	12
Purchases of goods	1,327	1,368	1,327	1,368
Dividend income	-	-	15	24
Other income	4	75	4	-
Other expenses	460	490	460	490
Key management personnel				
Key management personnel compensation				
Short-term employee benefits	300	314	143	148
Post-employment benefits and other long-term benefits	14	34	9	8
Share-based payments	-	1	-	-
Total key management personnel compensation	314	349	152	156
Other related party				
Other income	4	5	5	5
Interest income	59	5	-	-
Pipeline transportation expenses	454	443	454	443

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Balances as at 31 December with related parties were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Trade accounts receivable				
Subsidiaries and indirect subsidiaries	-	-	2,019	2,218
Direct and indirect associate	2	2	2	2
Total	2	2	2,021	2,220
Less allowance for doubtful accounts	-	-	-	-
Net	2	2	2,021	2,220
Bad and doubtful debts expense for the year	-	-	-	-
Other receivables				
Subsidiaries and indirect subsidiaries	-	-	63	27
Indirect associate and joint ventures	-	74	-	-
Other related party	28	5	-	-
Total	28	79	63	27

	Interest rate	Consolidated financial statements			
		At 31 December (% per annum)	At 1 January	Increased rates (in million Baht)	Effect of change in exchange rates
Movement of loans to 2019					
Indirect associate					
Impact Energy Asia Development Limited	4.7	-	154	(2)	152
Other related party					
Lithium Americans Corp.	8.0	199	720	(35)	884
Total		199	874	(37)	1,036
Less current portion due within one year		-	-	-	-
Total loans to related parties		199			1,036
2018					
Other related party					
Lithium Americans Corp.	8.0	-	198	1	199
Total		-	198	1	199
Less current portion due within one year		-	-	-	-
Total loans to related parties		-			199

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Interest rate	Separate financial statements				
		At 31 December (% per annum)	At 1 January	Increased	Decrease (in million Baht)	Effect of change in exchange rates
Movement of loans to 2019						
Subsidiaries						
Bangchak Retail Co., Ltd.	4.2	410	200	-	-	610
BCP Innovation Pte. Ltd.	4.5	198	738	-	(58)	878
Indirect subsidiaries						
Nido Petroleum Pty. Ltd.	0.5	1,291	-	-	(92)	1,199
BCPR Pte. Ltd.	0.5	3,229	-	-	(125)	3,104
Total		5,128	983	-	(275)	5,791
Less current portion due within one year		-				-
Total loans to related parties		5,128				5,791
2018						
Subsidiaries						
Bangchak Retail Co., Ltd.	4.2	90	320	-	-	410
BCP Innovation Pte. Ltd.	4.5	-	202	-	(4)	198
Indirect subsidiaries						
Nido Petroleum Pty. Ltd.	0.5	2,113	-	(818)	(4)	1,291
BCPR Pte. Ltd.	0.5	-	3,302	-	(73)	3,229
Total		2,203	3,824	(818)	(81)	5,128
Less current portion due within one year		-				-
Total loans to related parties		2,203				5,128
		Consolidated financial statements		Separate financial statements		
		2019	2018	2019	2018	
		(in million Baht)				
Other non-current assets						
Indirect subsidiary		-	-	323		325
Other related party		7	10	7		10
Total		7	10	330		335
Trade accounts payable						
Subsidiaries and indirect subsidiaries		-	-	870		829
Indirect associate		149	110	149		110
Total		149	110	1,019		939
Other payable						
Subsidiaries and indirect subsidiary		-	-	18		9
Joint ventures		2	13	2		13
Other related parties		49	43	49		43
Total		51	56	69		65
Other current liabilities						
Subsidiaries		-	-	6		6
Total		-	-	6		6

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
<i>Other non-current liabilities</i>				
Other related party	2	2	2	2
Total	2	2	2	2

Significant agreements with related parties

Fuel Pipeline Transportation Agreement

The Company entered into a Fuel Pipeline Transportation Agreement with a related company. The related company will provide transportation service of fuel products to Don-mueang and Suvarnabhumi International Airport and transportation service for petroleum products to fuel depot at Bang-pa-in. The agreement has no specified expiry date and can be terminated by either party by giving at least 60 days written notice for termination to the other party.

Oil Terminal Rental Agreement

The Company has entered into an Oil Terminal Rental Agreement with a joint venture. The rental fee is stipulated in the agreement which will be expired in 2022.

Bio-diesel Sales and Purchase Agreement

The Company entered into a Bio-diesel Sales and Purchase Agreement with an indirect subsidiary. Such agreement has effective since April 2018 to October 2027 and will be automatically renewed unless terminated by either party as stipulated in the agreement. The Company will purchase bio-diesel oil at yearly average volumes not less than 60% of maximum bio-diesel production capacity of indirect subsidiary at the price reference to market as stipulated in the agreement.

Denature Ethanol Sales and Purchase Agreement

The Company entered into a Denatured Ethanol Sales and Purchase Agreement with a subsidiary. Such agreement has effective since April 2018 to October 2027 and will be automatically renewed unless terminated by either party as stipulated in the agreement. The Company will purchase denatured ethanol at yearly average volumes not less than 50% of denatured ethanol production per year of the indirect subsidiary within the same Group at the price reference to market as stipulated in the agreement.

Fuel Product Sale and Purchase Agreement

The Company entered into a fuel product sale and purchase agreement with a subsidiary. The Company will purchase fuel product at quantity and price in accordance with obligation under the agreement.

Service Station Operating Right Agreement

The Company entered into Service Station Operating Right Agreement which include the right to operate related business within service station, selling and purchasing of fuel products with a subsidiary for a period of 5 years. Operating right fee and sale and purchase price are as stipulated in the agreement.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Store Operation Right Agreement

The Company entered into Store Operation Right Agreement with a subsidiary to operate retail stores within service stations under the Company's brand for a period of 5 years. Fee is as stipulated in the agreement.

Information Technology Service Agreement

The Company has entered into information technology service agreements with subsidiaries and indirect subsidiaries. Agreements will be reviewed annually. The Company is responsible for management information system, system structure, maintenance system and advisory in accordance with subsidiaries' direction. Service fees is as stipulated in the agreement.

Management Service Agreement

The Company entered into management service agreement with subsidiaries and indirect subsidiaries for general management service for a period of 1 to 3 years. The Company agreed to provide human resources to manage operation process in accordance with subsidiaries' direction. Service fees is as stipulated in the agreement.

Land Rental Agreement

The Company has entered into land rental agreement with BCPG Public Company Limited, a subsidiary for the purpose of 38 MW solar farm project at Bang Pa-In establishment and related objectives. The agreement term is for a period of 22 years effective from 1 December 2015 to 30 November 2037. The rental fee is as stipulated in the same agreement.

The Company has entered into additional land rental agreement with BCPG Public Company Limited, a subsidiary for the purpose of related objectives of solar farm project. The agreement term is for a period of 21 years 2 months effective from 1 October 2016 to 30 November 2037. The rental fee is as stipulated in the same agreement.

Joint Development Area Agreement

The Company has entered into operating rights agreement with a subsidiary to operate a service and product distribution in service station under its subsidiary's operation for a period of not exceeding 20 years. The subsidiary agrees to pay operating right fee as stipulated in the agreement.

Lending Agreement

The Company has an unsecured lending agreement with Nido Petroleum Pty. Ltd., an indirect subsidiary of the Company for the credit facility of USD 120 million. The loan bears interest and repayment schedule as stipulated in the agreement. Subsequently, the Company has restructured a loan with the subsidiary by revision of interest rate and repayment conditions.

During the year 2018, the Company entered into an unsecured loan agreement with Bangchak Retail Company Limited, a subsidiary of the Company, for the credit facility of Baht 500 million. The interest rate and repayment schedule are as stipulated in the agreement. During the year 2019, the Company cancelled several original loan agreements with such subsidiary, which has a total outstanding loan of Baht 410 million and has entered into a new unsecured loan with such subsidiary with a credit facility of Baht 700 million. The loan bears interest and repayment schedule as stipulated in the agreement.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The Company has an unsecured lending agreement with BCP Innovation Pte. Ltd. “BCPI”, a subsidiary of the Company for the credit facility of USD 80 million. The loan bears interest and repayment schedule as stipulated in the agreement. BCPI has entered into Amended and Restated Credit and Guarantee Agreement with Lithium Americas Corp. “LAC” to grant LAC a credit facility of USD 80 million for investment in Project Cauchari-Olaroz (Phase I). Such loan bears interest and repayment schedule as stipulated in the agreement.

During 2018, the Company had an unsecured lending agreement with BCPR Pte. Ltd., an indirect subsidiary of the Company for the credit facility of USD 120 million. Subsequently in 2019, the Company amended the lending agreement by revision lending currency of the loan of USD 100 million to NOK 917 million. The loan has a repayment schedule, bears interest and conditions as stipulated in the agreement.

BCPG Public Company Limited, a subsidiary of the Group Company entered into an unsecured loan agreement with Impact Energy Asia Development Limited, an associated company of the subsidiary, in the total credit lines of USD 6 million. The loan has a repayment schedule, bears interest and conditions as stipulated in the agreement.

Guarantee Agreement

BCPG Public Company Limited, a subsidiary of the Company has entered into guarantee agreement with BCPG Engineering Company, an indirect subsidiary of the Company, in accordance with solar power system operation and maintenance of power system from solar energy contract which BCPG Engineering Company has with Tarumizu Solar Solution Godo Kaisha in the event that BCPG Engineering Company causes damage to the assets within the power plant of Tarumizu Solar Solutions Godo Kaisha and is not able to compensate. The guarantee agreement is JPY 28 million per annum respectively, with a guarantee facility totalling JPY 280 million, covering the period of operation and maintenance of power system from solar energy contract. Under the conditions within the loan agreement between Tarumizu Solar Solutions Godo Kaisha and certain financial institution, it is specified that the parent company is responsible for the guarantee of possible damage loss.

BCPG Public Company Limited, a subsidiary of the Company has signed the Amendment and Restatement and Novation Agreement (Sponsor Support Agreement) for the purpose of changing the sponsor for Bangchak Solar Energy Company Limited, an indirect subsidiary of the Company under Sponsor Support Agreement from Bangchak Corporation Public Company Limited to BCPG Public Company Limited, with a facility of Baht 700 million. Through the Sponsor Support Agreement, BCPG Public Company Limited guarantees the facility.

Lithium Purchase Agreement

BCPI and LAC have entered into Lithium Purchase Agreement. Such agreement grants BCPI the right to purchase 20% of all LAC right from Project Cauchari-Olaroz (Phase I) for 20 years from the commencement operation date. However, the Company has an obligations according to the agreement in case of BCPI is unable to pay the lithium purchase.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

7 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Cash on hand	101	102	-	-
Cash at banks - current accounts	891	1,412	27	265
Cash at banks - savings accounts	4,146	5,955	2,060	2,950
Highly liquid short-term investments	2,138	4,082	2,000	4,000
Total	7,276	11,551	4,087	7,215

As at 31 December 2019, certain indirect subsidiaries has a restricted deposits at financial institution totaling Baht 259 million (2018: Baht 230 million) under the long-term loan agreement with several financial institutions which required such indirect subsidiaries to obtain a permission on withdrawal of restricted deposits with the financial institution.

8 Investments

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Current investments				
Short-term deposits at financial institutions	288	262	200	200
	288	262	200	200
Other long-term investments				
Available-for-sale equity security				
Lithium Americas Corp.	1,349	1,432	-	-
Non-marketable equity securities				
Fuel Pipeline Transportation Ltd.	234	234	234	234
Others	483	146	-	-
Non-marketable equity securities - net	2,066	1,812	234	234
Debt securities held to maturity				
Government bonds	3	3	3	3
Add: Premium on investments	-	-	-	-
Debt securities held to maturity - net	3	3	3	3
Other long-term investments	2,069	1,815	237	237
Total	2,357	2,077	437	437

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Movement of available-for-sale security during the year ended 31 December was as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Other long-term investments				
Available-for-sale securities				
At 1 January	1,432	4,061	-	-
Increase	17	-	-	-
Disposal	(2)	-	-	-
Valuation adjustment	5	(2,590)	-	-
Effect of change in exchange rate	(103)	(39)	-	-
At 31 December	1,349	1,432	-	-

9 Trade accounts receivable

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Related parties	6	2	2	2,021	2,220
Other parties		9,050	6,980	4,667	4,909
Total		9,052	6,982	6,688	7,129
Less: allowance for doubtful accounts		(14)	(13)	(14)	(13)
Net		9,038	6,969	6,674	7,116
Bad and doubtful debts expense for the year		3	-	3	-

Aging analyses for trade accounts receivable were as follows:

Related parties

Within credit terms	2	2	2,021	2,220
Less: allowance for doubtful accounts	-	-	-	-
Net	2	2	2,021	2,220

Other parties

Within credit terms	8,676	6,256	4,399	4,654
Overdue:				
Less than 3 months	296	678	223	229
3 - 6 months	23	11	20	3
6 - 12 months	23	15	7	8
Over 12 months	32	20	18	15
	9,050	6,980	4,667	4,909
Less: allowance for doubtful accounts	(14)	(13)	(14)	(13)
Net	9,038	6,969	4,653	4,896

The normal credit term granted by the Group ranges from 1 days to 90 days.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

10 Other receivables

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Related parties	6	28	79	63	27
Other parties					
Receivable from oil hedging contract:		44	40	44	40
Receivable from forward exchange contracts		-	161	-	87
Prepaid expenses		160	132	76	58
Advance payment		662	223	-	-
Receivable from revenue department		278	537	160	304
Other accounts receivable		863	471	311	205
Total		2,035	1,643	654	721

11 Inventories

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Crude oil and other raw materials	7,936	8,214	7,374	7,648
Finished oil products	6,743	6,575	5,926	5,544
Materials and supplies	1,114	1,047	1,032	992
Consumer products	73	72	-	-
Semi - finished products	145	87	-	-
	16,011	15,995	14,332	14,184
Less: allowance for obsolete and slow moving	(171)	(149)	(171)	(149)
allowance for decline in value	(5)	(711)	-	(689)
Net	15,835	15,135	14,161	13,346
Inventories recognised in cost of sale of goods (Note 35)				
- Cost	105,824	105,714	97,939	98,282
- (Reversal of) write-down to net realisable value	(706)	696	(689)	689
Total	105,118	106,410	97,250	98,971

As at 31 December 2019 and 2018, the Company's inventories included petroleum legal reserve of 413 million liters with approximated value of Baht 5,668 million and 389 million liters with approximated value of Baht 5,873 million, respectively.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

12 Investments in subsidiaries

	Separate financial statements	
	2019	2018
	<i>(in million Baht)</i>	
At 1 January	13,179	12,610
Increase	357	840
Impairment losses	-	(271)
At 31 December	13,536	13,179

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Investments in subsidiaries as at 31 December 2019 and 2018, and dividend income from the investment for the years then ended were as follows:

	Separate financial statements												
	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income		
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	
	(in million Baht)												
Subsidiaries													
Bangchak Green Net Co., Ltd.	49.00	49.00	1	1	-	-	-	-	-	-	15	20	
BCPG Public Co., Ltd.	70.04	70.11	9,994	9,984	7,000	7,000	-	-	7,000	7,000	896	896	
Bangchak Retail Co., Ltd.	100.00	100.00	800	800	800	800	-	-	800	800	-	-	
BCP Energy International Pte. Ltd.	100.00	100.00	3,673	3,673	3,673	3,673	(2,203)	(2,203)	1,470	1,470	-	-	
BCP Innovation Pte. Ltd.	100.00	100.00	1,790	1,433	1,790	1,433	-	-	1,790	1,433	-	-	
BCP Trading Pte. Ltd.	100.00	100.00	35	35	35	35	-	-	35	35	-	-	
BBGI Public Co., Ltd.	60.00	60.00	2,532	2,532	1,700	1,700	-	-	1,700	1,700	-	-	
BCPR Co., Ltd.	100.00	100.00	661	661	661	661	-	-	661	661	-	-	
BCV Bio Based Co., Ltd.	100.00	100.00	20	20	20	20	-	-	20	20	-	-	
BCV Energy Co., Ltd.	100.00	100.00	20	20	20	20	-	-	20	20	-	-	
BCV Innovation Co., Ltd.	100.00	100.00	20	20	20	20	-	-	20	20	-	-	
BCV Partnership Co., Ltd.	100.00	100.00	20	20	20	20	-	-	20	20	-	-	
Bangchak Ventures Pte. Ltd.	100.00	-	-	-	-	-	-	-	-	-	-	-	
			15,739	15,382	(2,203)	(2,203)	(2,203)	(2,203)	13,536	13,179	911	916	

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Change in investment in subsidiaries

During the year 2019, at the Extraordinary Meeting of the Shareholders of BCP Innovation Pte. Ltd., the meeting approved the increase of the registered capital in January, April, August and December from USD 42 million (divided into 42 million shares at par value of USD 1 per share) to USD 53 million (divided into 53 million shares at par value of USD 1 per share). The subsidiary had called up and received full payment of paid-up capital in January, April, August and December 2019, respectively.

On 6 August 2019, the Company established Bangchak Ventures Pte. Ltd., a registered company in Singapore, in which the company holds 100 percent of shares, registered capital of USD 0.1 million (divided into 0.1 million shares with a par value of 1 USD) to invest in start-up businesses specifically related to innovation. The Company has paid for the shares of 1 share at a value of USD 1 per share.

Impairment of oil exploration & production assets and investment in subsidiary

The recoverable amount of investment in BCP Energy International Pte. Ltd. "BCPE" calculated based on the estimated future cash flows are discounted to their present value. The key assumptions used in the cash flow projections include the oil prices, oil reserve, production profile, discount rates, and capital expenditure. The key assumption were estimated by the Management. The forecast oil price are based on the world market and upon past experience of the industry. Production profiles are based on a proved and probable reserve and also the long-term view of global supply and demand. The discount rate is derived from weighted average cost of capital of the Group. The capital expenditure was determined based on project management estimation and long term planning.

The impairment test has been prepared by the management and no impairment charges are required for oil exploration and production assets and investment in subsidiary.

The sensitivity analysis in the key assumption was estimated. The calculations were performed assuming a change to the variable being tested only. It is estimated that if the discount rate were to be increased by around 0.23% or the oil price assumption were to be decreased by around 0.79%, the estimated recoverable amount will be equal to the carrying amount.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

13 Investments in associates and joint ventures

<i>Year ended 31 December</i>	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Indirect associates					
At 1 January -					
as previously reported		17,956	14,081	-	-
Effect from changing in accounting policies	3	(54)	-	-	-
At 1 January - as restated		17,902	14,081	-	-
Increase		226	3,618	-	-
Decrease		(77)	-	-	-
Share of net profit of associates		372	215	-	-
Share of other comprehensive					
Income (loss) of associates		(4)	28	-	-
Dividend income		(24)	-	-	-
Effect of change in exchange rates		(468)	14	-	-
At 31 December		17,927	17,956	-	-
Joint ventures					
At 1 January		92	77	73	73
Share of net profit of joint ventures		33	39	-	-
Dividend income		(15)	(24)	-	-
At 31 December		110	92	73	73
Total					
At 1 January -					
as previously reported		18,048	14,158	73	73
Effect from changing in accounting policies	3	(54)	-	-	-
At 1 January - as restated		17,994	14,158	73	73
Increase		226	3,618	-	-
Decrease		(77)	-	-	-
Share of net profit of associates and joint ventures		405	254	-	-
Share of other comprehensive					
Income (loss) of associates		(4)	28	-	-
Dividend income		(39)	(24)	-	-
Effect of change in exchange rates		(468)	14	-	-
At 31 December		18,037	18,048	73	73

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Investments in associates and joint ventures as at 31 December 2019 and 2018, and dividend income from those investments for the years then ended, were as follows:

	Consolidated financial statements													
	Ownership interest (%)		Paid-up capital		Cost		Equity		Impairment		At equity - net		Dividend income for the year	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
	<i>(in million Baht)</i>													
Indirect associates														
Ubun Bio Ethanol Plc.	21.28	21.28	2,740	2,740	763	763	799	808	-	-	799	808	-	-
PetroWind Energy Inc.	40.00	40.00	895	895	922	922	1,126	1,206	-	-	1,126	1,206	24	-
Star Energy Group Holding Pte. Ltd.	33.33	33.33	28,169	28,237	11,889	11,956	12,497	12,295	-	-	12,497	12,295	-	-
OKEA ASA														
(Formerly: OKEA AS)	46.52	49.33	38	31	3,844	3,618	3,505	3,647	-	-	3,505	3,647	-	-
Impact Energy Asia Development Limited.	45.00	-	-	-	-	-	-	-	-	-	-	-	-	-
					17,418	17,259	17,927	17,956			17,927	17,956	24	
Joint ventures														
Bongkot Marine Services Co., Ltd.	30.00	30.00	240	240	72	72	109	91	-	-	109	91	15	24
Oam Suk Social Enterprise Co., Ltd.	40.00	40.00	3	3	1	1	1	1	-	-	1	1	-	-
					73	73	110	92			110	92	15	24
Total					17,491	17,332	18,037	18,048			18,037	18,048	39	24

None of the Group's indirect associates and joint ventures equity-accounted investee is publicly listed and consequently does not have published price quotations, except for OKEA ASA, which is listed on the Norwegian Stock Exchange. As at 31 December 2019, fair value is NOK 831 million (equivalent to Baht 2,813 million) (2018: None).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Ownership interest (%)		Paid-up capital		Separate financial statements (in million Baht)				Dividend income for the year	
	2019	2018	2019	2018	Cost	Impairment	At cost - net	2019	2018	
Joint ventures										
Bongkot Marine Services Co., Ltd.	30.00	30.00	240	240	72	-	72	72	15	24
Oam Suk Social Enterprise Co., Ltd.	40.00	40.00	3	3	1	-	1	1	-	-
Total					73	-	73	73	15	24

None of the Company's joint ventures equity-accounted investee is publicly listed and consequently does not have published price quotations.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Changes in investments in associates

OKEA ASA and the initial public offering of OKEA ASA

On 5 April 2019, BCPR Pte. Ltd. (“BCPR”), an indirect subsidiary of the Company, converted 901,061 A ordinary shares in OKEA ASA (“OKEA”), which did not feature voting rights, to common ordinary shares with voting rights, bringing the total number of common ordinary shares owned by BCPR to 4,054,775 shares equivalent to 49.33% of total shareholders’ equity of OKEA. On 9 May 2019, OKEA split its shares by changing the par value from NOK 1 per share to NOK 0.1 per share, bringing the total number of shares owned by BCPR to 40,547,750 shares.

On 18 June 2019, OKEA increased its share capital for the purpose of the initial public offering (IPO) of its shares on the Oslo Stock Exchange in Norway by issuing 15,000,000 shares out of which BCPR acquired 2,891,574 shares at an offering price of NOK 21 per share. On the IPO date, BCPR also acquired an additional 4,171,570 ordinary shares under conditions which were part of the initial investment agreement. BCPR paid for new share acquisition with a price of 0.1 NOK per share, totaling NOK 61 million (equivalent to Baht 226 million). After the issuance of the new shares, OKEA has a registered and issued and paid-up share capital of 101,839,050 shares out of which BCPR held 47,610,894 ordinary shares, equivalent to 46.75% of the share capital of OKEA. As a result, the dilution of its interest, the Group has recognised a gain from changes in investment interest amounting to NOK 26 million (equivalent to Baht 94 million) which was recorded in the consolidated income statement under share of profit in an investment in associates and joint ventures.

Under the Greenshoe option arrangement with the managers of the IPO, BCPR lend 1,500,000 OKEA’s shares to the managers to facilitate price stabilization by the managers after the IPO until 17 July 2019. At that date, the Managers delivered back to the Group 1,366,669 shares and settled for the remaining balance at the IPO price, totaling NOK 3 million (equivalent to Baht 10 million) resulting in BCPR finally holding 47,477,563 shares, equivalent to 46.62% of OKEA’s share capital.

On 10 September 2019, OKEA issued 225,000 rights to purchase additional shares to their directors and employees. As a result, OKEA has 102,064,050 registered and paid-up share capital, which resulting in BCPR’s shareholding in OKEA to decrease from 46.62% to 46.52%.

Impact Energy Asia Development Limited

On 8 April 2019, BCPG Public Company Limited (“BCPG”) co-established Impact Energy Asia Development Limited (“IEAD”) which registered at Hong Kong Special Administrative Region of the People’s Republic of China with an initial registered capital of HKD 200 and a purpose to operate a renewable energy power plant development project in the future. BCPG acquired 90 shares with HKD 1 per share, totaling HKD 90 (equivalent to Baht 369). BCPG has 45% of shareholding in the total issued and paid up shares of IEAD.

Star Energy Group Holding Pte. Ltd.,

During the year ended 31 December 2019, Star Energy Group Holding Pte. Ltd. reduced its registered share capital from USD 840 million to USD 834 million and distributed USD 6 million back to its shareholders. The Group received a distribution based on the Group’s ownership interest at 33.33%, calculated as USD 2 million (equivalent to Baht 67 million).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Impairment testing for cash generating unit containing goodwill in investment in associate, Star Energy Group Holdings Pte. Ltd.

The recoverable amount of investment in associate, Star Energy Group Holdings Pte. Ltd., which contained goodwill, was value-in-use by discounted future cash flow from the continuing operation of power plants in Indonesia.

The key assumptions used in the estimation of the future cash flows were based on the concession agreements, power purchase agreements, estimated selling price and production unit of electricity and steam, with reference to historical data and external source such as exchange rate and inflation.

The key assumption used in the estimation of value in use are as set out below:

	Consolidated financial statements	
	2019	2018
		(%)
Discount rate - Geothermal power plants	7.1 - 7.6	7.2 - 7.6

The discount rate was weighted average after-tax cost of capital by using Capital Asset Pricing Model (CAPM). Risk free rate was derived from long-term U.S. treasury bond yield. The adjustment for market risk premium to reflect risk of equity investment and country risk premium is also taking into consideration.

Revenue projection

The total revenue projections for the power plant assets was determined in accordance with the power purchase agreements, concession agreements and related announcements. The assumptions included electricity and steam selling price from thermal power plants, production unit, electricity unit, exchange rate, inflation and other related factors.

The impairment testing has been prepared by the Group's management. The estimate revenue and expenses were based on historical data, external source and other related factors which included management's estimate and long term business plan. The management have also conducted sensitivity test by increasing discount rate 0.6% - 0.7% and found no impairment for investment in associate, Star Energy Group Holdings Pte. Ltd.

Dispute with Government authority of Indonesia

As at 31 December 2019, an affiliate of Star Energy Group Holding Pte. Ltd. ("SEGHPL") has a dispute with Directorate General of Budget ("DGB"), the Bureau of the Budget under the Ministry of Finance Indonesia regarding the calculation of profit sharing distributed to the government. There is a different interpretation on the definition of expenditure relating to profit sharing calculation. SEGHPL paid additional profit sharing and recorded as a refundable tax. SEGHPL submitted an objection letter to request for a refund. This dispute is currently under resolution process. However, the Group has already reserved the allowance for doubtful account on the refundable tax in full in the consolidated financial statements.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Associates

The following table summaries the financial information of the associates as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group's interest in these companies.

	OKEA ASA.		Star Energy Group Holdings Pte. Ltd.	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Statement of income				
Revenue	11,015	1,303	15,860	16,939
Net profit (loss)	(267)	(599)	3,860	3,633
Other comprehensive income (loss)	-	-	(484)	484
Total comprehensive income (loss) for the year	(267)	(599)	3,376	4,117
Group's share of total comprehensive income (*)	26	(3)	324	192

(*) Group's share of total comprehensive income of OKEA ASA for the year 2018 was calculated from total comprehensive income since the acquisition date to end of period.

	OKEA ASA.		Star Energy Group Holdings Pte. Ltd.	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
As at 31 December				
Statement of financial position				
Current assets	8,175	6,242	9,029	10,960
Non-current assets	28,931	33,795	103,064	110,385
Current liabilities	(5,963)	(4,756)	(4,835)	(6,421)
Non-current liabilities	(25,622)	(29,534)	(71,169)	(78,840)
Net assets (100%)	5,521	5,747	36,089	36,084
Group's share of assets	2,568	2,681	8,124	7,922
Goodwill	937	966	4,373	4,373
Carrying amount of interest in associates	3,505	3,647	12,497	12,295

Immaterial associates and joint ventures

The following is summarised financial information for the Group's interest in immaterial of associates and joint ventures based on the amounts reported in the Group's consolidated financial statements:

	2019	2018
	<i>(in million Baht)</i>	
Carrying amount of interests in immaterial of associates and joint ventures	2,035	2,106
Share of net profit from investment in associates and joint ventures in Consolidated financial statements:		
- Profit for the year	51	93
- Other comprehensive income	-	-
- Total comprehensive income	51	93

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

14 Investment property

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Cost				
At 1 January	127	343	683	899
Transfer to property, plant and equipment	-	(216)	-	(216)
At 31 December	127	127	683	683
Depreciation and impairment losses				
At 1 January	-	-	-	-
At 31 December	-	-	-	-
Net book value				
At 1 January	127	343	683	899
At 31 December	127	127	683	683
Fair value	346	346	984	984

During the year 2018, the Company transferred partial of investment property to land, since the Company starting the land development for company's operation.

The fair value is appraised by an independent appraiser at market comparison value.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

15 Property, plant and equipment

Cost	Consolidated financial statements (in million Baht)										Total
	Land	Buildings	Machinery, equipment refinery plants and terminal	Electricity producing equipment	Exploration and production of petroleum assets	Marketing and office equipment	Platinum catalyst	Vehicles	Other assets	Construction work in progress	
At 1 January 2018	3,236	3,578	47,636	12,757	7,713	7,681	239	394	28	2,365	85,627
Additions	489	10	96	1	1	50	-	35	-	7,459	8,141
Transfers	216	227	2,515	647	(42)	1,058	-	1	-	(4,493)	129
Disposals	-	(56)	(1,036)	(2,097)	(7,587)	(360)	-	(37)	-	-	(11,173)
Effect of movement in exchange rate	4	-	-	31	(85)	-	-	-	-	8	(42)
At 31 December 2018 and 1 January 2019	3,945	3,759	49,211	11,339	-	8,429	239	393	28	5,339	82,682
Acquired from business acquisition (Note 5)	-	3	-	6	-	-	-	-	-	-	9
Additions	206	207	50	1	-	18	-	48	-	7,973	8,503
Transfers	4	179	988	640	-	535	-	-	-	(2,446)	(100)
Disposals	-	(84)	(161)	(2)	-	(157)	-	(21)	-	-	(425)
Effect of movement in exchange rate	(22)	(9)	-	(73)	-	(1)	-	-	-	(103)	(208)
At 31 December 2019	4,133	4,055	50,088	11,911	-	8,824	239	420	28	10,763	90,461

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Consolidated financial statements

	Land	Buildings	Machinery, equipment refinery plants and terminal	Electricity producing equipment	Exploration and production of petroleum assets	Marketing and office equipment	Platinum catalyst	Vehicles	Other assets	Construction work in progress	Total
<i>(in million Baht)</i>											
Depreciation and impairment losses											
At 1 January 2018	(12)	(1,044)	(23,893)	(1,613)	(6,498)	(4,283)	-	(231)	(4)	-	(37,578)
Depreciation charge for the year	-	(174)	(2,972)	(566)	(133)	(567)	-	(44)	(1)	-	(4,457)
(Reversal of) impairment losses	6	-	(13)	-	(412)	1	-	-	-	-	(418)
Transfer	-	-	(2)	-	-	3	-	-	-	-	1
Disposals	-	18	1,011	200	6,963	340	-	37	-	-	8,569
Effect of movement in exchange rate	-	-	-	(2)	80	-	-	-	-	-	78
At 31 December 2018 and 1 January 2019	(6)	(1,200)	(25,869)	(1,981)	-	(4,506)	-	(238)	(5)	-	(33,805)
Depreciation charge for the year	-	(177)	(3,137)	(520)	-	(595)	-	(48)	(1)	-	(4,478)
Impairment losses	-	-	(10)	-	-	(1)	-	-	-	-	(11)
Transfer	-	-	-	-	-	1	-	-	-	-	1
Disposals	-	74	157	1	-	145	-	21	-	-	398
Effect of movement in exchange rate	-	6	-	11	-	1	-	-	-	-	18
At 31 December 2019	(6)	(1,297)	(28,859)	(2,489)	-	(4,955)	-	(265)	(6)	-	(37,877)

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

		Consolidated financial statements										
		Machinery, equipment refinery plants and terminal	Electricity producing equipment	Exploration and production of petroleum assets	Marketing and office equipment	Platinum catalyst	Vehicles	Other assets	Construction work in progress	Total		
		<i>(in million Baht)</i>										
<i>Net book value</i>												
At 1 January 2018		3,224	2,534	23,743	11,144	1,215	3,398	239	163	24	2,365	48,049
At 31 December 2018 and 1 January 2019		3,939	2,559	23,342	9,358	-	3,923	239	155	23	5,339	48,877
At 31 December 2019		4,127	2,758	21,229	9,422	-	3,869	239	155	22	10,763	52,584

As at 31 December 2019, certain subsidiaries have mortgaged its land, buildings and machinery as collateral with financial institutions for credit facilities totaling Baht 12,561 million (2018: Baht 13,478 million).

As at 31 December 2019, Capitalised borrowing costs relating to construction of the new factory amounted to Baht 196 million (2018: Baht 76 million), with a capitalization rate of 3.00 - 4.41% (2018: 1.85 - 4.55%) (see note 36).

The gross amount of the Group's fully depreciated plant and equipment that was still in use as at 31 December 2019 amounted to Baht 11,113 million (2018: Baht 8,368 million).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Separate financial statements

	Land	Buildings	Machinery, equipment refinery plants and terminal	Electricity producing equipment	Marketing and office equipment <i>(in million Baht)</i>	Platinum catalyst	Vehicles	Other assets	Construction work in progress	Total
Cost										
At 1 January 2018	1,728	744	43,462	-	7,154	239	338	28	1,369	55,062
Additions	384	-	49	-	-	-	29	-	5,271	5,733
Transfers	216	29	2,255	72	1,006	-	-	-	(3,402)	176
Disposals	-	(16)	(1,032)	-	(352)	-	(36)	-	-	(1,436)
At 31 December 2018 and 1 January 2019	2,328	757	44,734	72	7,808	239	331	28	3,238	59,535
Additions	41	-	24	-	-	-	26	-	5,796	5,887
Transfers	-	10	570	-	477	-	-	-	(1,144)	(87)
Disposals	-	(151)	(153)	-	(178)	-	(16)	-	-	(498)
At 31 December 2019	2,369	616	45,175	72	8,107	239	341	28	7,890	64,837
Depreciation and impairment losses										
At 1 January 2018	(12)	(561)	(22,855)	-	(4,018)	-	(205)	(4)	-	(27,655)
Depreciation charge for the year	-	(26)	(2,702)	(3)	(488)	-	(35)	(1)	-	(3,255)
(Losses) reversal of impairment losses	6	-	(13)	-	1	-	-	-	-	(6)
Disposals	-	10	1,010	-	332	-	36	-	-	1,388
At 31 December 2018 and 1 January 2019	(6)	(577)	(24,560)	(3)	(4,173)	-	(204)	(5)	-	(29,528)
Depreciation charge for the year	-	(19)	(2,838)	(6)	(513)	-	(37)	(1)	-	(3,414)
Impairment losses	-	-	(10)	-	(1)	-	-	-	-	(11)
Disposals	-	113	153	-	164	-	16	-	-	446
At 31 December 2019	(6)	(483)	(27,255)	(9)	(4,523)	-	(225)	(6)	-	(32,507)

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

		Separate financial statements									
		Land	Buildings	Machinery, equipment refinery plants and terminal	Electricity producing equipment	Marketing and office equipment <i>(in million Baht)</i>	Platinum catalyst	Vehicles	Other assets	Construction work in progress	Total
<i>Net book value</i>											
At 1 January 2018		1,716	183	20,607	-	3,136	239	133	24	1,369	27,407
At 31 December 2018 and 1 January 2019		2,322	180	20,174	69	3,635	239	127	23	3,238	30,007
At 31 December 2019		2,363	133	17,920	63	3,584	239	116	22	7,890	32,330

Capitalised borrowing costs relating to construction of the new plant amounted to Baht 188 million (2018: Baht 75 million), with a capitalization rate of 4.00 - 4.41% (2018: 4.12 - 4.55%) (see note 36).

The gross amount of the Company's fully depreciated plant and equipment that was still in use as at 31 December 2019 amounted to Baht 10,580 million (2018: Baht 8,135 million).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

16 Goodwill

	Consolidated financial statements <i>(in million Baht)</i>
Cost	
At 1 January 2018	1,602
At 31 December 2018 and 1 January 2019	1,602
Acquired from business acquisition <i>(Note 5)</i>	324
Effect of movement in exchange rate	(5)
At 31 December 2019	1,921
Impairment losses	
At 1 January 2018	-
At 31 December 2018 and 1 January 2019	-
At 31 December 2019	-
Net book value	
At 1 January 2019	1,602
At 31 December 2018 and 1 January 2019	1,602
At 31 December 2019	1,921

Impairment testing for the cash generating unit containing goodwill

For goodwill amounted to Baht 1,602 million from business combinations of BBGI Public Company Limited Group, the Group have calculated the recoverable amount by using the value in use models which was determined by discounting future cash flows for the next 5 years. The key assumptions used in the estimation of the recoverable amount included the discount rate which was a post-tax measure based on the rate of 10 year government bonds issued by the government in the relevant market and in the same currency as the cash flows, adjusted for a risk premium to reflect both the increased risk of investing in equities generally.

The discount rates of the relevant industries in which the subsidiary operates are ranged from 5 - 10%. The subsidiary's discount rate which applied in the calculation of recoverable amounts was fall within the industries' range.

The impairment test has been prepared by the management and no impairment charges are required for goodwill.

If the assumption used in the calculation on impairment tests for goodwill change, the discount rate increased by 1% per annum, there is still no impairment of goodwill.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

17 Leasehold rights

	Consolidated and Separate financial statements	
	2019	2018
	<i>(in million Baht)</i>	
<i>Cost</i>		
At 1 January	4,184	4,038
Additions	459	805
Disposals	(3)	(659)
At 31 December	4,640	4,184
<i>Amortisation and impairment losses</i>		
At 1 January	(1,283)	(1,727)
Amortisation charge for the year	(235)	(215)
Disposals	3	659
At 31 December	(1,515)	(1,283)
<i>Net book value</i>		
At 1 January	2,901	2,311
At 31 December	3,125	2,901

On 27 February 2004, The Treasury Department permitted the Company to settle by instalments, the leasehold fee of Baht 552 million for an extension of the lease agreement of state-owned land on which the Company's refinery is located. The initial lease agreement, which due for expiration on 1 April 2015, will be extended for period of 18 years under the new lease agreement, which will expire on 31 March 2033. The Company has extended the amortisation period of existing leasehold rights to 31 March 2033, which corresponds to the period of the new agreement. As at 31 December 2019 and 2018, the Company has no remaining liability from the leasehold rights.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

18 Intangible assets

	Consolidated financial statements						Total
	License fee and cost of development of computer software	Exploration and evaluation expenditure	Right to connect power distribution system and right to use land <i>(in million Baht)</i>	Power purchase agreement	Power purchase agreement under concession agreement		
Cost							
At 1 January 2018	1,175	3,435	114	1,607	-	6,331	
Additions	294	8	2	-	-	304	
Transfer	(5)	-	6	-	-	1	
Disposals	(1)	-	(43)	(190)	-	(234)	
Effect of movements in exchange rates	3	(25)	1	17	-	(4)	
At 31 December 2018 and 1 January 2019	1,466	3,418	80	1,434	-	6,398	
Acquired from business acquisition (Note 5)	-	-	-	-	5,197	5,197	
Additions	91	74	8	-	-	173	
Transfer	10	-	-	-	-	10	
Disposals	(148)	-	-	-	-	(148)	
Effect of movements in exchange rates	(17)	(242)	(2)	(84)	(101)	(446)	
At 31 December 2019	1,402	3,250	86	1,350	5,096	11,184	

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Consolidated financial statements					Total
	License fee and cost of development of computer software	Exploration and evaluation expenditure	Right to connect power distribution system and right to use land <i>(in million Baht)</i>	Power purchase agreement	Power purchase agreement under concession	
Amortisation and impairment losses						
At 1 January 2018	(445)	(2,097)	(8)	(49)	-	(2,599)
Amortisation for the year	(140)	-	(4)	(29)	-	(173)
Disposals	1	-	4	15	-	20
Effect of movements in exchange rates	-	14	-	(2)	-	12
At 31 December 2018 and 1 January 2019	(584)	(2,083)	(8)	(65)	-	(2,740)
Amortisation for the year	(169)	-	(4)	(22)	(54)	(249)
Disposals	147	-	-	-	-	147
Effect of movements in exchange rates	-	148	-	4	-	152
At 31 December 2019	(606)	(1,935)	(12)	(83)	(54)	(2,690)
Net book value						
At 1 January 2018	730	1,338	106	1,558	-	3,732
At 31 December 2018 and 1 January 2019	882	1,335	72	1,369	-	3,658
At 31 December 2019	796	1,315	74	1,267	5,042	8,494

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Separate financial statements	
	Right to use and cost of development of computer software	
	2019	2018
	<i>(in million Baht)</i>	
Cost		
At 1 January	969	789
Additions	79	181
Disposals	(145)	(1)
At 31 December	903	969
Amortisation and impairment losses		
At 1 January	(518)	(413)
Amortisation for the year	(131)	(106)
Disposals	145	1
At 31 December	(504)	(518)
Net book value		
At 1 January	451	376
At 31 December	399	451

19 Deferred tax

Deferred tax assets and liabilities as at 31 December were as follows:

	Consolidated financial statements			
	Assets		Liabilities	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Total	1,187	1,063	(675)	(703)
Set off of tax	(66)	(236)	66	236
Net deferred tax assets (liabilities)	1,121	827	(609)	(467)

	Separate financial statements			
	Assets		Liabilities	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Total	1,122	1,017	(52)	(225)
Set off of tax	(52)	(225)	52	225
Net deferred tax assets	1,070	792	-	-

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Movements in total deferred tax assets and liabilities during the year were as follows:

	At 1 January 2019	Consolidated financial statement (Charged)/Credited to:				At 31 December 2019
		Profit/loss (Note 37)	Other comprehensive income (in million Baht)	Net from disposal of assets and investment	Exchange differences	
Deferred tax assets						
Loss from impairment of assets	484	6	-	-	-	490
Property, plant and equipment	90	(13)	-	-	-	77
Non-current provisions for employee benefits	408	56	50	-	-	514
Loss carry forward	27	6	-	-	-	33
Others	54	19	-	-	-	73
Total	1,063	74	50	-	-	1,187
Deferred tax liabilities						
Property, plant and equipment	(233)	81	-	-	(1)	(153)
Intangible assets	(359)	96	-	(179)	26	(506)
Leasehold rights	(1)	-	-	-	-	(1)
Others	(110)	5	-	-	-	(15)
Total	(703)	182	-	(179)	25	(675)
Net	360	256	50	(179)	25	512

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Consolidated financial statement					
	At 1 January 2018	Profit/loss (Note 37)	Other comprehensive income (in million Baht)	Net from disposal of assets and investment	Exchange differences	At 31 December 2018
	(Charged)/Credited to:					
Defered tax assets						
Loss from impairment of assets	426	58	-	-	-	484
Property, plant and equipment	282	(9)	-	(181)	(2)	90
Non-current provisions for employee benefits	382	26	-	-	-	408
Loss carry forward	94	(4)	-	(63)	-	27
Others	43	11	-	-	-	54
Total	1,227	82	-	(244)	(2)	1,063
Defered tax liabilities						
Property, plant and equipment	(304)	(87)	-	163	(5)	(233)
Intangible assets	(418)	6	-	52	1	(359)
Leasehold rights	(1)	-	-	-	-	(1)
Provision for the decommissioning cost	(77)	-	-	76	1	-
Others	(17)	(110)	-	17	-	(110)
Total	(817)	(191)	-	308	(3)	(703)
Net	410	(109)	-	64	(5)	360

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Separate financial statements

	At 1 January 2019	(Charged)/Credited to:		At 31 December 2019	At 1 January 2018	(Charged)/Credited to:		At 31 December 2018
		Profit/loss (Note 37) (in million Baht)	Other comprehensive income (in million Baht)			Profit/loss (Note 37) (in million Baht)	Other comprehensive income (in million Baht)	
Deferred tax assets								
Loss from impairment of assets	484	6	-	490	425	59	-	484
Property, plant and equipment	85	(15)	-	70	95	(10)	-	85
Non-current provisions for employee benefits	397	52	50	499	374	23	-	397
Others	51	12	-	63	43	8	-	51
Total	1,017	55	50	1,122	937	80	-	1,017
Deferred tax liabilities								
Property, plant and equipment	(128)	77	-	(51)	(36)	(92)	-	(128)
Inventories	(96)	96	-	-	-	(96)	-	(96)
Leasehold rights	(1)	-	-	(1)	(1)	-	-	(1)
Total	(225)	173	-	(52)	(37)	(188)	-	(225)
Net	792	228	50	1,070	900	(108)	-	792

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

20 Other non-current assets

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Fixed deposit for staff welfare	407	406	407	406
Investment in service stations	300	252	300	252
Deposit	372	611	363	538
Others	575	449	559	566
Total	1,654	1,718	1,629	1,762

21 Interest-bearing liabilities

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Current				
Short-term loan from financial institutions				
secured	3,030	280	-	-
unsecured	2,021	4,724	-	3,258
	5,051	5,004	-	3,258
Current portion of long-term loans				
from financial institutions				
secured	1,728	1,666	-	-
unsecured	470	550	375	350
	2,198	2,216	375	350
Debenture				
unsecured	3,000	4,000	3,000	4,000
	3,000	4,000	3,000	4,000
Total current	10,249	11,220	3,375	7,608
Non-current				
Long-term loans from financial institutions				
secured	17,125	15,538	-	-
unsecured	2,682	2,726	2,339	2,726
	19,807	18,264	2,339	2,726
Debenture				
unsecured	17,985	20,980	17,985	20,980
	17,985	20,980	17,985	20,980
Total non-current	37,792	39,244	20,324	23,706
Total	48,041	50,464	23,699	31,314

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Details of the Group's loans from financial institutions as at 31 December 2019 was as follows:

Currency	Facilities (million)	Interest rates (% per annum)	Principle's repayment Terms
Short-term loans from financial institutions			
<i>Subsidiary</i>			
Baht	300	MRR	Interest is payable monthly and at maturity date along with principal repayment. Promissory note period is not over 180 days.
Baht	2,500	BIBOR plus a margin	Interest is payable monthly and at maturity date along with principal repayment. Promissory note period is not over 12 months.
<i>Indirect subsidiary</i>			
Baht	500	Fixed Interest Rate	Repayment as stipulated in agreement
Baht	300	Fixed Interest Rate	Repayment as stipulated in agreement
Baht	400	Fixed Interest Rate	Repayment as stipulated in agreement
Baht	300	Fixed Interest Rate	Repayment as stipulated in agreement
Baht	200	Fixed Interest Rate	Repayment as stipulated in agreement
Long-term loans from financial institutions			
<i>The Company</i>			
Baht	4,200	Fixed Interest Rate	Semi-annually in 26 instalments starting in March 2013
Baht	3,500	THBFIX 6M plus a margin	Semi-annually in 23 instalments starting in December 2011
<i>Subsidiaries and Indirect subsidiaries</i>			
Baht	2,049	Fixed Deposit 6M Rate plus a margin	Quarterly in 24 instalments starting in January 2017
Baht	400	THBFIX 6M plus a margin	Semi-annually in 13 instalments starting in August 2017
Baht	170	THBFIX 6M plus a margin	Semi-annually in 11 instalments starting in August 2018
Baht	1,000	Fixed Interest Rate	Semi-annually in 10 instalments starting in April 2015
Baht	450	THBFIX 6M plus a margin	Semi-annually in 17 instalments starting in December 2016
Baht	270	THBFIX 6M plus a margin	Semi-annually in 17 instalments starting in December 2016
Baht	750	FDR 6M plus a margin	Semi-annually in 29 instalments starting in December 2016
Baht	1,050	THBFIX 6M plus a margin	Semi-annually in 15 instalments starting in December 2017
Baht	630	THBFIX 6M plus a margin	Semi-annually in 15 instalments starting in December 2017
Baht	1,750	FDR 6M plus a margin	Semi-annually in 27 instalments starting in December 2017
Baht	2,400	THBFIX 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
Baht	2,740	THBFIX 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
JPY	4,200	JPYTIBOR 6M plus a margin	Semi-annually in 17 instalments starting in December 2016
JPY	570	JPYTIBOR 6M plus a margin	Semi-annually in 17 instalments starting in December 2016

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Currency	Facilities (million)	Interest rates (% per annum)	Principle's repayment Terms
<i>Subsidiaries and Indirect subsidiaries (Con't)</i>			
JPY	9,800	JPYTIBOR 6M plus a margin	Semi-annually in 15 instalments starting in December 2017
JPY	1,330	JPYTIBOR 6M plus a margin	Semi-annually in 15 instalments starting in December 2017
JPY	7,896	JPYTIBOR 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
JPY	1,128	JPYTIBOR 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
JPY	8,310	JPYTIBOR 6M plus a margin	Principal repayment at year 3 from agreement signing date (Monthly interest payment)
USD	10	USDLIBOR 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
USD	40	USDLIBOR 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
USD	20	USDLIBOR 6M plus a margin	Principle repayment at year 6 from signing date (Semi-annually interest payment)
Baht	754	THBFIX 6M plus a margin	Semi-annually in 20 instalments starting in August 2013
Baht	754	Fixed interest rate 6 years	Semi-annually in 34 instalments starting in August 2013
USD	12	Fixed Interest Rate	Semi-annually in 34 instalments starting in August 2013
JPY	254	Fixed Interest Rate	Quarterly in 68 instalments starting in April 2015
JPY	355	Fixed Interest Rate	Quarterly in 68 instalments starting in July 2015
JPY	349	Fixed Interest Rate	Quarterly in 68 instalments starting in July 2015
JPY	2,578	Fixed Interest Rate	Quarterly in 68 instalments starting in March 2016

The loan agreements contain certain conditions such as maintaining certain financial ratios such as maintaining of certain debt to equity ratio, debt service coverage ratio and current ratio and transfer right of any agreements. These loans are secured by mortgage of the land, building, land improvement and infrastructure, machinery and 33.33% shares of issued and paid up capital of Star Energy Group Holdings Pte. Ltd and total shares of issued and paid up capital of BCPG Indochina Company Limited, an indirect subsidiary of the Company.

As at 31 December 2019, the Group and the Company had unutilised credit facilities totalling Baht 15,126 million and Baht 10,675 million, respectively (2018: Baht 15,229 million and Baht 11,895 million, respectively).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Debentures

Detail of debentures as at 31 December 2019 and 2018 were as follows:

	Consolidated and Separate financial statements	
	2019	2018
	<i>(in million Baht)</i>	
Debentures	21,000	25,000
Less Unamortised deferred expenses on debentures	(15)	(20)
	20,985	24,980
Less Current portion due within one year	(3,000)	(4,000)
Total	17,985	20,980

The Company issued long-term debentures which are named-registered, unsubordinated, unsecured and no bond holder (except debenture no. 8 to 11 have bond holder) and no early redemption with representative with a face value of Baht 1,000 each with interest is payable semi-annually. The details are as follows:

No.	Consolidated and Separate financial statements		Interest rate (% per annum)	Term (years)	Maturity Date
	2019	2018			
	<i>(in million Baht)</i>				
1	-	2,000	4.92	7	30 April 2019
2	1,000	1,000	5.35	10	30 April 2022
3	-	2,000	4.35	5	11 April 2019
4	2,500	2,500	4.81	7	11 April 2021
5	3,500	3,500	5.18	10	11 April 2024
6	2,000	2,000	4.72	12	3 March 2027
7	1,000	1,000	5.05	15	3 March 2030
8	3,000	3,000	2.13	2	10 August 2020
9	400	400	2.96	5	10 August 2023
10	600	600	3.42	7	10 August 2025
11	7,000	7,000	4.04	10	20 December 2028
	21,000	25,000			

In connection with the terms of the rights and responsibilities of the debentures issuer, the Company, as the issuer, has to comply with certain restrictions and conditions as stipulated therein, such as maintaining certain financial ratios etc.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

The periods to maturity of interest-bearing liabilities as at 31 December were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Within one year	10,249	11,220	3,375	7,608
After one year but within five years	25,246	21,924	9,737	9,020
After five years	12,546	17,320	10,587	14,686
Total	48,041	50,464	23,699	31,314

Secured interest-bearing liabilities as at 31 December were secured on the following assets:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Property, plant and equipment	12,561	13,478	-	-
Investment in associates	12,505	12,295	-	-
Restricted cash at bank	52	52	-	-
Total	25,118	25,825	-	-

22 Trade accounts payable

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Related parties	6	149	110	1,019	939
Other parties		10,407	6,570	6,986	5,005
Total		10,556	6,680	8,005	5,944

23 Other payables

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Related parties	6	51	56	69	65
Other parties					
Accrued expenses		827	946	476	654
Accrued interest		124	296	67	273
Payable for project construction		388	97	82	-
Liabilities from forward contract		57	50	57	47
Other accounts payable		1,444	1,712	1,156	1,320
Total		2,891	3,157	1,907	2,359

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

24 Non-current provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Statement of financial position				
Non-current provisions for:				
Post-employment benefits	2,531	2,008	2,438	1,942
Other long-term employee benefits	57	46	52	42
Total	2,588	2,054	2,490	1,984
Year ended 31 December				
Statement of comprehensive income:				
Recognised in profit or loss				
Post-employment benefits	342	182	307	154
Other long-term employee benefits	13	7	12	5
Total	355	189	319	159
Recognised in other comprehensive income:				
Actuarial (gain) losses recognised in the year	239	(23)	245	-
Cumulative actuarial losses recognised	661	422	695	450

Defined benefit plan

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Group to actuarial risks, such as longevity risk, currency risk, interest rate risk and market (investment) risk.

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
At 1 January	2,054	1,949	1,984	1,867
Include in profit or loss:				
Current service costs and Interest on obligation	215	189	187	159
Past service cost	140	-	132	-
	355	189	319	159

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Included in other comprehensive income				
Actuarial (gain) loss				
- Demographic assumptions	-	(11)	-	-
- Financial assumptions	246	-	245	-
- Experience adjustment	(6)	(8)	-	-
Effect of movements in exchange rate	(1)	(4)	-	-
	239	(23)	245	-
Others				
Benefit paid	(60)	(48)	(58)	(42)
Acquired through business acquisition (disposal)	-	(13)	-	-
At 31 December	2,588	2,054	2,490	1,984

On 5 April 2019, the Labor Protection Act was amended to include a requirement that an employee who is terminated after having been employed by the same employer for an uninterrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group has therefore amended its retirement plan in accordance with the changes in the Labor Protection Act in 2019. As a result of this change, the provision for retirement benefits as well as past service cost recognised increased.

<i>Principal actuarial assumptions</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Discount rate	0.1 - 3.95	0.32 - 3.95	1.61	2.57
Future salary growth	2 - 6	2 - 6	6	6
Turnover rate	0 - 64	0 - 64	1 - 8	1 - 8

Assumptions regarding future mortality have been based on published statistics and mortality tables.

At 31 December 2019, the weighted-average duration of the defined benefit obligation was 10 - 29 years (2018: 10-29 years).

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below.

<i>Impact to the employee benefits obligation At 31 December</i>	Consolidated financial statements			
	1% increase in assumption		1% decrease in assumption	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Discount rate	(226)	(206)	262	239
Future salary growth	292	243	(254)	(213)
Turnover rate	(113)	(90)	124	102

<i>Impact to the employee benefits obligation At 31 December</i>	Separate financial statements			
	1% increase in assumption		1% decrease in assumption	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Discount rate	(217)	(199)	251	232
Future salary growth	281	236	(245)	(206)
Turnover rate	(101)	(83)	118	96

25 Share capital

	Par value per share <i>(in Baht)</i>	2019		2018	
		Number	Baht	Number	Baht
Authorised shares at 31 December		<u>1,377</u>	<u>1,377</u>	<u>1,377</u>	<u>1,377</u>
<i>Issued and paid-up shares</i>					
At 1 January					
Ordinary shares	1	<u>1,377</u>	<u>1,377</u>	<u>1,377</u>	<u>1,377</u>
At 31 December					
Ordinary shares	1	<u>1,377</u>	<u>1,377</u>	<u>1,377</u>	<u>1,377</u>

Share premium

Section 51 of the Public Companies Act B.E. 2535 (1992) requires companies to set aside share subscription monies received in excess of the par value of the shares issued to a reserve account (“share premium”). Share premium is not available for dividend distribution.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Capital surplus on registered and paid-up share reduction

On 6 July 2004, the Company registered with the Ministry of Commerce, the reduction in the Company's registered share capital from Baht 1,032,761,220 to Baht 843,143,461 and the paid-up share capital from Baht 753,040,940 to Baht 563,423,181. These changes were due to the reduction of 189,617,759 shares held by the Siam DR Co., Ltd. to be consistent with the number of "Depository Receipts of BCP's Ordinary Shares (DR)" which were issued and offered by the Siam DR Co., Ltd. The Company received consent from the Siam DR Co., Ltd. for reducing the mentioned number of shares without capital payback. The Company proceeded the share reduction to Capital on registered and paid-up share reduction account.

Other surplus

Surplus from the change in the ownership interest in subsidiaries

Change in parent's ownership interest in subsidiaries within equity comprises of effect from dilution of percentage of holding of the Company in a subsidiary and difference from changes in parent's ownership interest in subsidiaries that do not result in a loss of control.

Surplus from business combination

Surplus from business combination represents the measurement of net assets acquired and recognised at fair value from business combination.

26 Treasury shares

On 21 November 2019, the meeting of the Board of Directors approved the share repurchase program for financial management purpose (Treasury Stock), in the maximum amount of share repurchase not exceeding Baht 2,100 million and maximum number of shares not exceed 70 million shares with a par value of Baht 1 per share. The number of shares to be repurchased is 5% of the total issued shares. The Company can purchase the share during the period from 6 December 2019 to 5 June 2020 with the condition that the share purchase must be resold after 6 months from the date that the repurchase is completed but must not exceed 3 years.

As at 31 December 2019, the Company has repurchased treasury shares under such program totaling 16 million shares, at Baht 432 million and presented as a separated item in equity and as a deduction item in equity in the consolidated financial statements. Accordingly, the Company has appropriated retained earnings at the same amount as treasury share reserve.

27 Reserves

Reserves comprise:

Appropriations of profit and/or retained earnings

Legal reserve

Section 116 of the Public Companies Act B.E. 2535 (1992) Section 116 requires that a company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward (if any), to a reserve account ("legal reserve"), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Treasury shares reserve

The treasury shares reserve is the amount appropriated from the retained earnings equal to the cost of the Company's own shares held by the Company. The treasury shares reserve is not available for dividend distribution.

Other components of equity

Currency translation differences

The currency translation differences account within equity comprises all foreign currency differences arising from the translation of the financial statements of foreign operations, as well as from the translation of liabilities that hedge the Company's net investment in a foreign operation.

Fair value changes in available-for-sale investments

The fair value changes in available-for-sale investments account within equity comprises the cumulative net change in the fair value of available-for-sale investments until the investments are derecognised or impaired.

28 Subordinated perpetual debentures

On 18 October 2019, the Company completed the issuance of Subordinated Perpetual Debentures of Baht 10,000 million. The debentures are unsecured, unconvertible, with debenture holder representatives and no scheduled repayment of principal. Bullet payment is upon dissolution of the Company or upon the exercise of the debenture issuer's early redemption right per conditions as stipulated in the terms and conditions of the debentures. These debentures bear fixed interest rate of 5% per annum during the first year to the fifth year. The debenture issuer will adjust the interest rate of the debentures every 5 years and interest is payable on a semi-annual basis throughout the term of the debentures. The Company has the sole right to unconditionally defer interest and cumulative interest payments to debentures holders without time and deferral amount limitation. If the Company defers the interest payment, the Company shall not declare and make any dividend payment. From the determination of the terms and conditions of the debentures, Subordinated perpetual debentures are classified as equity. Issuance cost of debentures of Baht 59 million are recognised as a part of equity in the consolidated and separate financial statements as at 31 December 2019.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

29 Operating segments

Management determined that the Group has six reportable segments, as described below, which are the Group's strategic divisions. For different products and services, and are managed separately because they require different technology and marketing strategies. The following summary describes the operations in each of the Group's reportable segments.

<i>Segment 1</i>	<i>Refinery and oil trading</i>
<i>Segment 2</i>	<i>Marketing</i>
<i>Segment 3</i>	<i>Electricity</i>
<i>Segment 4</i>	<i>Bio-based product</i>
<i>Segment 5</i>	<i>Natural resource</i>
<i>Segment 6</i>	<i>Others</i>

Each segment's performance is measured based on segment profit before tax, financial costs, depreciation and amortization, gain on foreign exchange and impairment losses on assets ("Group's EBITDA"), as included in the internal management reports that are reviewed by the Group's CODM. Group's EBITDA is used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries. Inter-segment pricing is determined on an arm's length basis.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	2019							
	Refinery and oil trading	Marketing	Electricity	Bio-based product <i>(in million Baht)</i>	Natural resources	Others	Eliminations	Total
External revenue	48,694	136,045	3,427	2,313	9	1	-	190,489
Inter-segment revenue	126,786	6	-	7,700	-	-	(134,492)	-
Total revenue	175,480	136,051	3,427	10,013	9	1	(134,492)	190,489
Profit (loss) from operating segment	2,871	2,279	2,964	1,000	(36)	(369)	-	8,709
Depreciation and amortisation								(5,032)
Gain on foreign exchange								614
Loss from impairment of assets								(34)
Finance costs								(1,701)
Income tax expense								(68)
Profit for the year								2,488
Interest income	51	28	15	1	63	-	-	158
Financial costs	(648)	(218)	(568)	(103)	(113)	(51)	-	(1,701)
Depreciation and amortisation	(2,905)	(1,009)	(690)	(388)	(2)	(38)	-	(5,032)
Segments assets	53,547	17,404	37,134	8,914	10,879	-	-	127,878
Investments in associate and joint ventures	109	1	13,623	799	3,505	-	-	18,037
Capital expenditure	(5,102)	(1,036)	(6,506)	(1,037)	(78)	-	-	(13,759)

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	2018							
	Refinery and oil trading	Marketing	Electricity	Bio-based product (in million Baht)	Natural resources	Others	Eliminations	Total
External revenue	43,411	140,524	3,320	3,807	963	-	-	192,025
Inter-segment revenue	131,404	9	-	5,981	-	-	(137,394)	-
Total revenue	174,815	140,533	3,320	9,788	963	-	(137,394)	192,025
Profit (loss) from operating segment	3,928	2,177	3,569	692	117	(268)	(14)	10,201
Depreciation and amortisation								(4,902)
Gain on foreign exchange								415
Loss from impairment of assets								(441)
Finance costs								(1,545)
Income tax expense								(493)
Profit for the year								3,235
Interest income	26	26	8	2	8	-	(15)	55
Financial costs	(633)	(197)	(521)	(103)	(52)	(64)	25	(1,545)
Depreciation and amortisation	(2,767)	(922)	(693)	(349)	(141)	(30)	-	(4,902)
Segments assets	48,360	20,251	31,550	7,332	9,876	-	-	117,369
Investments in associate and joint ventures	91	1	13,501	808	3,647	-	-	18,048
Capital expenditure	(4,393)	(2,327)	(1,499)	(623)	(8)	-	-	(8,850)

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Disaggregation of revenue

Timing of revenue recognition of major revenues of the Group and the Company are point in time.

Geographical segments

In presenting information on the basis of geographical segments, segment sales are based on the entity's country of domicile. Segment non-current assets (exclude derivatives and deferred tax) are based on the geographical location of the assets.

<i>Geographical information</i>	Consolidated financial statements			
	Revenue		Non-current assets	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Thailand	153,908	165,453	55,757	54,159
Malaysia	2,295	4,043	-	-
Japan	219	451	5,160	4,500
Korea	3,890	4,551	-	-
Philippines	18	57	2,392	2,562
Singapore	28,413	15,162	437	5
Indonesia	-	-	12,497	12,295
Norway	-	-	3,505	3,647
Laos	1,342	1,663	5,370	-
Others	404	645	3,928	1,777
Total	190,489	192,025	89,046	78,945

Major customer

Revenues from one customer of the Group's 1 and 2 segments represents approximately Baht 12,714 million (2018: Baht 17,069 million) of the Group's total revenues.

30 Interest and dividend income

	<i>Note</i>	Consolidated		Separate	
		financial statements		financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
<i>Dividend income</i>					
Related parties	6	-	-	926	940
		-	-	926	940
<i>Interest income</i>					
Related parties	6	59	5	68	28
Other parties		99	50	82	38
		158	55	150	66
Total		158	55	1,076	1,006

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

31 Other income

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Fee for land utilisation and management fee for NGV service station	30	39	29	35
Gain on sale of investments	-	78	-	-
Gain on sales of assets	-	793	-	-
Management service fee for subsidiaries	-	-	97	95
Penalty income from insurance	-	104	-	-
Others	307	246	102	129
Total	337	1,260	225	259

32 Selling expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Personnel	1,264	1,158	593	521
Advertising	503	536	364	389
Depreciation and amortisation	932	833	852	764
Distribution	503	548	405	450
Rental	351	314	317	290
Others	980	971	615	615
Total	4,533	4,360	3,146	3,029

33 Administrative expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Personnel	1,391	1,241	849	721
Advertising	136	178	135	177
Depreciation and amortisation	280	270	208	208
Professional and consultant fees	327	362	150	179
Others	947	964	535	559
Total	3,081	3,015	1,877	1,844

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

34 Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Wages and salaries	2,415	2,313	1,262	1,198
Defined contribution plans	130	120	99	93
Pension	334	175	320	159
Others	730	702	455	439
Total	3,609	3,310	2,136	1,889

Defined contribution plans

The defined contribution plans comprise provident funds established by the Group for its employees. Membership to the funds is on a voluntary basis. Contributions are made monthly by the employees at rates ranging from 3% to 15% of their basic salaries and by the Group at rates ranging from 3% to 10% of the employees' basic salaries. The provident funds are registered with the Ministry of Finance as juristic entities and are managed by licensed Fund Manager.

35 Expenses by nature

The statements of income include an analysis of expenses by function. Expenses by nature disclosed in accordance with the requirements of various TFRS were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
<i>Included in cost of sales of goods and rendering of services:</i>				
Changes in inventories of finished goods and work in progress	636	642	382	290
Raw materials and consumables used	105,824	105,714	97,939	98,282
Tax expenses and oil fuel fund	30,471	26,763	30,471	26,763
Depreciation	3,664	3,701	2,717	2,599
(Reversal of) loss on decline in value of inventories	(706)	696	(689)	689
<i>Included in selling expenses:</i>				
Depreciation	638	580	559	511
<i>Included in administrative expenses:</i>				
Depreciation	176	176	138	145

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

36 Finance costs

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Interest expense					
Financial institutions		904	826	268	249
Debentures		935	733	935	733
Total interest expense		1,839	1,559	1,203	982
Amortisation of transaction costs capitalised		53	58	13	11
Others finance costs		5	4	2	2
		1,897	1,621	1,218	995
<i>Less</i> Amount included in the cost of qualifying assets:					
- Property, plant and equipment under construction	15	(196)	(76)	(188)	(75)
Net		1,701	1,545	1,030	920

37 Income tax

	Note	Consolidated financial statements		Separate financial statements	
		2019	2018	2019	2018
		<i>(in million Baht)</i>			
Current tax expense					
Current year		332	400	215	153
Over provided in prior years		(8)	(16)	(14)	(23)
		324	384	201	130
Deferred tax expense					
Movements in temporary differences	19	(256)	109	(228)	108
		(256)	109	(228)	108
Total tax expense		68	493	(27)	238

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Reconciliation of effective tax rate				
Profit before income tax expense	2,556	3,728	1,063	2,301
Corporate income tax rate (%)	20.00	20.00	20.00	20.00
Income tax using the Thai corporation tax rate	511	746	212	460
Effect of difference tax rates in foreign jurisdictions	(4)	42	-	-
Income not subject to tax / Expenses that are deductible at a greater amount	(717)	(676)	(266)	(236)
Expenses not deductible / Other adjustments	92	295	41	37
Recognition of previously unrecognised tax losses	-	(96)	-	-
Current year losses for which no deferred tax assets was recognised	197	194	-	-
Over provided in prior years	(8)	(16)	(14)	(23)
Others	(3)	4	-	-
Total	68	493	(27)	238
Tax rate (%)	2.66	13.22	(2.54)	10.34

38 Promotional privileges

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the Group has been granted privileges by the Board of Investment relating to Petroleum Refinery process, production of Biodiesel and production of electricity from solar cell. The privileges granted include:

Production of Biodiesel, Ethanol and Biogas

- (a) Exemption from payment of import duty on machinery approved by the Board;
- (b) Exemption from payment of income tax for certain operations for a period of six and eight years from the date on which the income is first derived from such operations.

Production of electricity from solar cell

- (a) Exemption from payment of import duty on machinery approved by the Board;
- (b) Exemption from payment of income tax for certain operations for a period of eight years from the date on which the income is first derived from such operations.
- (c) A 50% reduction in the normal income tax rate on the net profit derived from certain operations for a period of five years, commencing from the expiry date in (b) above.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

As promoted companies, the Group must comply with certain terms and conditions prescribed in the promotional certificates.

Summary of revenue from promoted and non-promoted businesses:

	Consolidated financial statements					
	2019			2018		
	Promoted businesses	Non- promoted businesses	Total	Promoted businesses	Non- promoted businesses	Total
	<i>(in million Baht)</i>					
Export sales	41	43,370	43,411	49	57,010	57,059
Local sales	8,406	214,269	222,675	8,921	197,039	205,960
Eliminations	-	-	(75,597)	-	-	(70,994)
Total Revenue	8,447	257,639	190,489	8,970	254,049	192,025

The Company has no revenue from promoted business.

39 Earnings per share

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht / million shares)</i>			
Profit for the period attributable to ordinary shareholders of the Company	1,732	2,463	1,090	2,063
<i>Less Cumulative</i> interest expense for the period on Subordinated perpetual debentures	(103)	-	(103)	-
Profit for calculating earnings per share	1,629	2,463	987	2,063
Number of ordinary shares outstanding	1,377	1,377	1,377	1,377
Effect of treasury shares	(1)	-	(1)	-
Weighted average number of ordinary shares outstanding	1,376	1,377	1,376	1,377
Earnings per share (basic) <i>(in Baht)</i>	1.18	1.79	0.72	1.50

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

40 Dividends

Dividends paid to shareholders are as follows:

	Approval Date	Dividend payment date	Baht per share (Baht)	Amount (in million Baht)
2019				
An interim dividend 2019	15 August 2019	10 September 2019	0.50	689
Annual dividend 2018	11 April 2019	24 April 2019	1.35	1,858
An interim dividend 2018	24 August 2018	19 September 2018	(0.85)	(1,170)
Dividend payment during the year 2019			1.00	1,377
2018				
An interim dividend 2018	24 August 2018	19 September 2018	0.85	1,170
Annual dividend 2017	25 April 2018	7 May 2018	2.15	2,960
An interim dividend 2017	31 August 2017	26 September 2017	(1.05)	(1,445)
Dividend payment during the year 2018			1.95	2,685

41 Financial instruments

Financial risk management policies

The Group is exposed to normal business risks from changes in market interest rates and currency exchange rates and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivative financial instruments for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The Group has a system of controls in place to create an acceptable balance between the cost of risks occurring and the cost of managing the risks. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

Capital management

The Board's policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Board monitors the return on capital, which the Group defines as result from operating activities divided by total shareholders' equity, excluding non-controlling interests and also monitors the level of dividends to ordinary shareholders.

Interest rate risk

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because debt securities and loan interest rates are mainly floated. The Group is primarily exposed to interest rate risk from its borrowings (Note 21). The Group mitigates this risk by ensuring that the majority of its debt securities and borrowings are at fixed interest rates and uses derivative financial instruments, principally interest rate swaps, to manage exposure to fluctuations in interest rates on specific debt securities and borrowings.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Consolidated financial statements

	Effective interest rate (% per annum)	Maturity period			Total
		Within 1 year	After 1 year but within 5 years (in million Baht)	After 5 years	
As at 31 December 2019					
Assets					
Non-current					
Loan to related party	4.5 - 8.0	-	1,036	-	1,036
Total		-	1,036	-	1,036
Liabilities					
Current					
Loans from financial institutions	1.3 - 5.3	7,249	-	-	7,249
Debentures	2.1	3,000	-	-	3,000
Non-current					
Loans from financial institutions	1.3 - 5.3	-	17,851	1,956	19,807
Debentures	2.9 - 5.4	-	7,396	10,589	17,985
Total		10,249	25,247	12,545	48,041
2018					
Assets					
Non-current					
Loan to related party	8.0	-	199	-	199
Total		-	199	-	199
Liabilities					
Current					
Loans from financial institutions	1.8 - 5.2	7,220	-	-	7,220
Debentures	4.3 - 4.9	4,000	-	-	4,000
Non-current					
Loans from financial institutions	1.8 - 5.6	-	15,030	3,234	18,264
Debentures	2.1 - 5.4	-	6,894	14,086	20,980
Total		11,220	21,924	17,320	50,464

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Separate financial statements				Total
	Effective interest rate (% per annum)	Maturity period			
		Within 1 year	After 1 year but within 5 years	After 5 years	
<i>(in million Baht)</i>					
As at 31 December 2019					
Assets					
Non-current					
Loan to related party	0.5 - 4.5	-	5,791	-	5,791
Total		-	5,791	-	5,791
Liabilities					
Current					
Loans from financial institutions	4.2 - 4.4	375	-	-	375
Debentures	2.1	3,000	-	-	3,000
Non-current					
Loans from financial institutions	4.2 - 4.4	-	2,339	-	2,339
Debentures	3.0 - 5.4	-	7,396	10,589	17,985
Total		3,375	9,735	10,589	23,699
2018					
Assets					
Non-current					
Loan to related party	0.5 - 4.5	-	5,128	-	5,128
Total		-	5,128	-	5,128
Liabilities					
Current					
Loans from financial institutions	3.3 - 4.4	3,608	-	-	3,608
Debentures	4.4 - 4.9	4,000	-	-	4,000
Non-current					
Loans from financial institutions	4.1 - 4.4	-	2,126	600	2,726
Debentures	2.1 - 5.4	-	6,894	14,086	20,980
Total		7,608	9,020	14,686	31,314

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Foreign currency risk

The Group is exposed to foreign currency risk relating to purchases and sales which are denominated in foreign currencies. The Group primarily utilizes forward exchange contracts with maturities of less than one year to hedge such financial assets and liabilities denominated in foreign currencies. The forward exchange contracts entered into at the reporting date also relate to anticipated purchases and sales, denominated in foreign currencies, for the subsequent period.

Consolidated financial statements

Assets and liabilities denominated in foreign currencies at 31 December	2019			2018				
	United States Dollars	Japanese Yen	Other	Total (in million Baht)	United States Dollars	Japanese Yen	Other	Total
Cash and cash equivalents	877	1,732	-	2,609	1,302	1,756	-	3,058
Trade accounts receivable and other receivables	5,134	196	-	5,330	1,719	195	-	1,914
Receivable from oil hedging contracts	44	-	-	44	6	-	-	6
Long-term loans to related parties	1,036	-	-	1,036	199	-	-	199
Trade accounts payable and other payables	(4,496)	(73)	(2)	(4,571)	(1,248)	(73)	(2)	(1,323)
Payable from oil hedging contracts	(21)	-	-	(21)	-	-	-	-
Interest-bearing liabilities	(2,276)	(6,571)	-	(9,027)	(4,356)	(6,563)	-	(10,919)
Gross statement of financial position exposure	298	(4,896)	(2)	(4,600)	(2,378)	(4,685)	(2)	(7,065)
Net currency forwards	40	-	-	40	(304)	-	-	(304)
Cross currency swap contracts	-	-	-	-	188	-	-	188
Net exposure	338	(4,896)	(2)	(4,560)	(2,494)	(4,685)	(2)	(7,181)

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

<i>Assets and liabilities denominated in foreign currencies at 31 December</i>	Separate financial statements	
	2019 United States Dollars	2018 United States Dollars
	<i>(in million Baht)</i>	
Cash and cash equivalents	141	606
Trade accounts receivable and other receivables	1,434	1,422
Receivable from oil hedging contracts	44	-
Long-term loans to related parties	5,181	4,718
Trade accounts payable and other payables	(2,093)	(503)
Payable from oil hedging contracts	(21)	(6)
Interest-bearing liabilities	-	(3,258)
Gross statement of financial position exposure	4,686	2,979
Net currency forwards	-	(423)
Net exposure	4,686	2,556

Credit risk

Credit risk is the potential financial loss resulting from the failure of a customer or counterparty to settle its financial and contractual obligations to the Group as and when they fall due.

Management has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on all customers requiring credit over a certain amount. At the reporting date there were no significant concentrations of credit risk. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the balance sheet. However, due to the large number of parties comprising the Group's customer base, Management does not anticipate material losses from its debt collection.

Liquidity risk

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

Fair values of financial assets and liabilities

As at 31 December 2019 and 2018, fair value of financial assets and liabilities is taken to approximately the carrying value, except the following item;

	Carrying amount	Consolidated financial statements			
		Fair value			
		Level 1	Level 2	Level 3	Total
<i>(in million Baht)</i>					
31 December 2019					
<i>Financial assets and financial liabilities measured at fair value</i>					
<i>Financial assets</i>					
Equity securities available for sale	1,349	1,349	-	-	1,349
Cross currency and interest rate swap contracts	19	-	27	-	27
Loan to related party (fixed rate)	1,036	-	1,340	-	1,340
<i>Financial liabilities</i>					
Debentures	20,985	-	22,859	-	22,859
Long-term loans (fixed rate)	2,496	-	2,695	-	2,695
Cross currency contracts	-	-	6	-	6
Interest rate swap contracts	-	-	65	-	65
Cross interest rate swap contracts	-	-	52	-	52
Crude and product oil price hedging contracts	-	-	28	-	28
31 December 2018					
<i>Financial assets and financial liabilities measured at fair value</i>					
<i>Financial assets</i>					
Equity securities available for sale	1,432	1,432	-	-	1,432
Forward exchange contracts	161	-	161	-	161
Interest rate swap contracts	-	-	5	-	5
Crude and product oil price hedging contracts	-	-	143	-	143
Loan to related party (fixed rate)	199	-	245	-	245
<i>Financial liabilities</i>					
Debentures	24,980	-	25,888	-	25,888
Long-term loans (fixed rate)	2,932	-	3,011	-	3,011
Forward exchange contracts	-	-	16	-	16
Cross interest rate swap contracts	-	-	42	-	42
Crude and product oil price hedging contracts	-	-	139	-	139

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

	Carrying amount	Separate financial statements			Total
		Fair value			
		Level 1	Level 2	Level 3	
		<i>(in million Baht)</i>			
31 December 2019					
<i>Financial assets and financial liabilities measured at fair value</i>					
<i>Financial assets</i>					
Cross currency and interest rate swap contracts	19	-	27	-	27
Loan to related party (fixed rate)	5,791	-	5,854	-	5,854
<i>Financial liabilities</i>					
Debentures	20,985	-	22,859	-	22,859
Long-term loans (fixed rate)	1,801	-	1,892	-	1,892
Forward exchange contracts	-	-	13	-	13
Crude and product oil price hedging contracts	-	-	28	-	28
31 December 2018					
<i>Financial assets and financial liabilities measured at fair value</i>					
<i>Financial assets</i>					
Crude and product oil price hedging contracts	-	-	143	-	143
Forward exchange contracts	87	-	76	-	76
Loan to related party (fixed rate)	1,489	-	1,373	-	1,373
<i>Financial liabilities</i>					
Debentures	24,980	-	25,888	-	25,888
Long-term loans (fixed rate)	2,101	-	2,133	-	2,133
Crude and product oil price hedging contracts	-	-	139	-	139

Level 2 fair values for simple over-the-counter derivative financial instruments are based on broker quotes. Those quotes are tested for reasonableness by discounting expected future cash flows using market interest rate for a similar instrument at the measurement date. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Group and counterparty when appropriate.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

42 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in million Baht)</i>			
Capital commitment				
Construction projects	1,521	2,440	1,091	726
Total	1,521	2,440	1,091	726
Future minimum lease payments under non-cancellable operating leases				
Within 1 year	1,113	964	1,089	939
1 - 5 years	2,832	3,086	2,719	3,032
After 5 years	3,490	3,018	3,285	2,937
Total	7,435	7,068	7,093	6,908
Other commitment				
Bank guarantees	121	109	28	23
Total	121	109	28	23

As at 31 December 2019, the Company, subsidiaries and indirect subsidiaries have significant derivatives as follow

Company

- Oil price hedging contracts with foreign oil traders of 0.1 million barrels for the periods between April 2020 and June 2020.
- Foreign currency buying forward contracts cover the period to December 2020 amounting to USD 54 million and CHF 0.2 million or equivalents to Baht 1,631 million.
- Cross currency swap contract to buy U.S. Dollar currency of USD 180 million and sell Thai Baht currency of Baht 5,440 million. The contract expires in November 2020. All counter parties agree to pay the interest and the notional amount in accordance with the terms and conditions specified in the contract.

Subsidiary and indirect subsidiaries

- Interest rate swap agreement for loans from bank with a floating interest rate of 6M USDLIBOR plus margin, the swap portion is only 6M USDLIBOR to a fixed rate of 2.60% per annum. The total principal amount is USD 28 million with interest payments due every six months and the contract ends in 2023.
- The foreign currency buying forward contracts cover the period to June 2020 amounting to USD 4 million or equivalents to Baht 140 million.
- Cross currency swap contracts to buy U.S. Dollars currency of USD 12 million and sell Thai Baht currency of Baht 334 million. The contract expires in 2030. All counterparties agree to pay the interest and the notional amount in accordance with the terms and conditions specified in the contract.
- Interest rate swap agreements for loans from bank with a floating interest rate of 3M TIBOR plus 180 BPS per annum, to a fixed rate of 2.94% per annum. The total principal amount is JPY 2,577 million with interest payments due every three months and the contracts end in 2022.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

43 Contingent liabilities and contingent assets

During the second quarter of 2016, the Company (the first defendant) was co-accused with another company (the second defendant) for alleged breach of a lubricant product distribution contract for a claim totalling Baht 46 million. Subsequently, the plaintiff filed additional claim against the Company for alleged breach of a contract as a result of ceasing lubricant product distribution for a claim totalling Baht 688 million. During the first quarter of 2017, the civil court ordered a dismiss on both cases. The plaintiff was re-appealed to the Appeal Court. Subsequently, during the second quarter of 2018, the Appeal Court had ordered the Company to pay the plaintiff for two claims totalling Baht 1 million. Currently, the case is under consideration of the Supreme Court.

44 Events after the reporting period

At the Board of Directors' meeting held on 20 February 2020, the Board approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2019 dividend payment at the rate of Baht 0.80 per share, of which Baht 0.50 per share was paid as an interim dividend on 10 September 2019 as disclosed in note 40. Thus, the remaining dividend will be at the rate of Baht 0.30 per share payable to the shareholders entitled to receive dividends. This dividend is subject to the approval of the Shareholders at the Annual General Meeting to be held on 10 April 2020.

At the Board of Directors' meeting of the subsidiary held on 18 February 2020, the Board of subsidiary approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2019 dividend payment at the rate of Baht 0.64 per share, of which Baht 0.48 per share the subsidiary was paid as an interim dividend. Thus, the remaining dividend will be at the rate of Baht 0.16 per share payable to the shareholders entitled to receive dividends. This dividend is subject to the approval of the Shareholders at the Annual General Meeting to be held on 9 April 2020.

On 13 February 2020, the subsidiary has entered into the Credit Facility Agreement with Export-Import Bank of Thailand in the amount of USD 3 million. The credit facility period is 5 years. The interest rate is USDLIBOR 6M plus a margin per annum. This credit facility will be used for foreign investments in the energy sector.

On 30 January 2020, BCPG Indochina Ltd., the Company's indirect subsidiary, has entered into the Credit Facility Agreement with Industrial and Commercial Bank of China (Thai) Plc. and Export-Import Bank of Thailand in the amount of USD 100 million. The credit facility period is 10 years. The interest rate is USDLIBOR 6M plus a margin per annum. This credit facility will be used for the acquisition of Nam San 3A Power Sole Co., Ltd. as disclosed in Note 5.

At the Board of Director's meeting No. 2/2020 of the Company's subsidiary held on 20 January 2020, the board approved BCPG Indochina Co., Ltd. ("BIC"), an indirect subsidiary of the Company, to invest in hydro power plant project in the Lao People's Democratic Republic and investment in the construction and operation of transmission line system and electrical substation to the Socialist Republic of Vietnam by acquiring 100% shares of Nam San 3B Power Sole Co., Ltd. Subsequently, on 10 February 2020, BIC entered into the share purchase agreement to invest in such project. In this regards, the Company's subsidiary and the seller are in progress of completing the condition precedents stipulated in the share purchase agreement. Once all of the condition precedents have been satisfied, the shares shall be transferred to the purchaser and the payment shall be made to the seller.

Notes to the financial statements

Bangchak Corporation Public Company Limited and its Subsidiaries

For the year ended 31 December 2019

45 Thai Financial Reporting Standards (TFRS) not yet adopted

New and revised TFRS, which are relevant to the Group's operations, expected to have material impact on the consolidated and separate financial statements when initially adopted, and will become effective for the financial statements in annual reporting periods beginning on or after 1 January 2020, are as follows:

TFRS	Topic
TFRS 7*	Financial Instruments: Disclosures
TFRS 9*	Financial Instruments
TFRS 16	Leases
TAS 32*	Financial Instruments: Presentation
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments

* TFRS - Financial instruments standards

(a) *TFRS - Financial instruments standards*

These TFRS - Financial instruments standards establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting. When these TFRS are effective, some accounting standards, interpretations and guidance which are currently effective will be cancelled.

(b) *TFRS 16 Lease*

TFRS 16 introduces a single lessee accounting model for lessees. A lessee recognises a right-of-use asset and a lease liability, with recognition exemptions for short-term leases and leases of low-value items. As a result, the Group will recognise new assets and liabilities for its operating leases. Lease accounting for lessor remains similar to the current standard, i.e. lessors continue to classify leases as finance or operating leases. When this TFRS is effective, some accounting standards and interpretations which are currently effective will be cancelled.

Management is currently considering the potential impact from these TFRS on the financial statements in the initial period adopted.

General and Other Key Information

Company Information

Bangchak Corporation Public Company Limited

Registration No 0107536000269

Company Establishment and Commercial Operation

November 8, 1984 and April 1, 1985

Nature of Business:

Oil refinery and trading business, marketing business, green power business, bio-based products business, Natural Resource Business and Business Development

Contact

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Email: ico@bangchak.co.th

✔ **Investor Relations Division**

Tel. 0 2335 8663 Fax. 0 2335 8000

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✔ **The Secretary to the Board of the Directors Division**

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Email: bcpsecretary@bangchak.co.th

✔ **Company Website**

<http://www.bangchak.co.th>



Office and Terminals

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Chiang Mai 50000
Tel. 053 300 484
Fax. 053 300 485

Phichit Oil Terminal

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Tel. 0 2335 8728
Email: bphcenter@bangchak.co.th

Samut Sakhon Oil Distribution Center

100/149 Moo 1, Tambon Tha Chin, Amphoe
Muang, Samut Sakhon 74000
Tel. 034 820 519-20

Southern Region Business Office

126/70 Moo 6, 4th Floor, P.C. Tower, 126/70
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Amphoe Muang, Surat Thani 84000
Tel. 077 224 792
Fax. 077 224 793

Surat Thani Oil Distribution Center

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Tel. 077 275 056-8

Song Kla Oil Distribution Center

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Amphoe Singha Nakorn, Song Kla 90280
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Fax. 074 332 783

Rayong Oil Distribution Center

1, 3B Road, Tambon Map Ta Phut,
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Fax. 038 609 413

Northeastern Region Business Office

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Fax. 043 261 790

Sri Racha Oil Distribution Center

115/14 Moo 10, Tambon Thung
Sukhla, Amphoe Si Racha,
Chon Buri 20230
Tel. 038 493 179
Fax. 038 493 129

Central Region Business Office and Bang Pa-In Terminal

99 Moo 9, Tambon Bang Krasan, Amphoe
Bang Pa-in, Ayutthaya 13160
Tel. 035 350 289, 035 350 292
Fax. (Central Region Business Office) 035 350 290
Tel. (Bang Pa-In Terminal) 035 276 999

Head Office

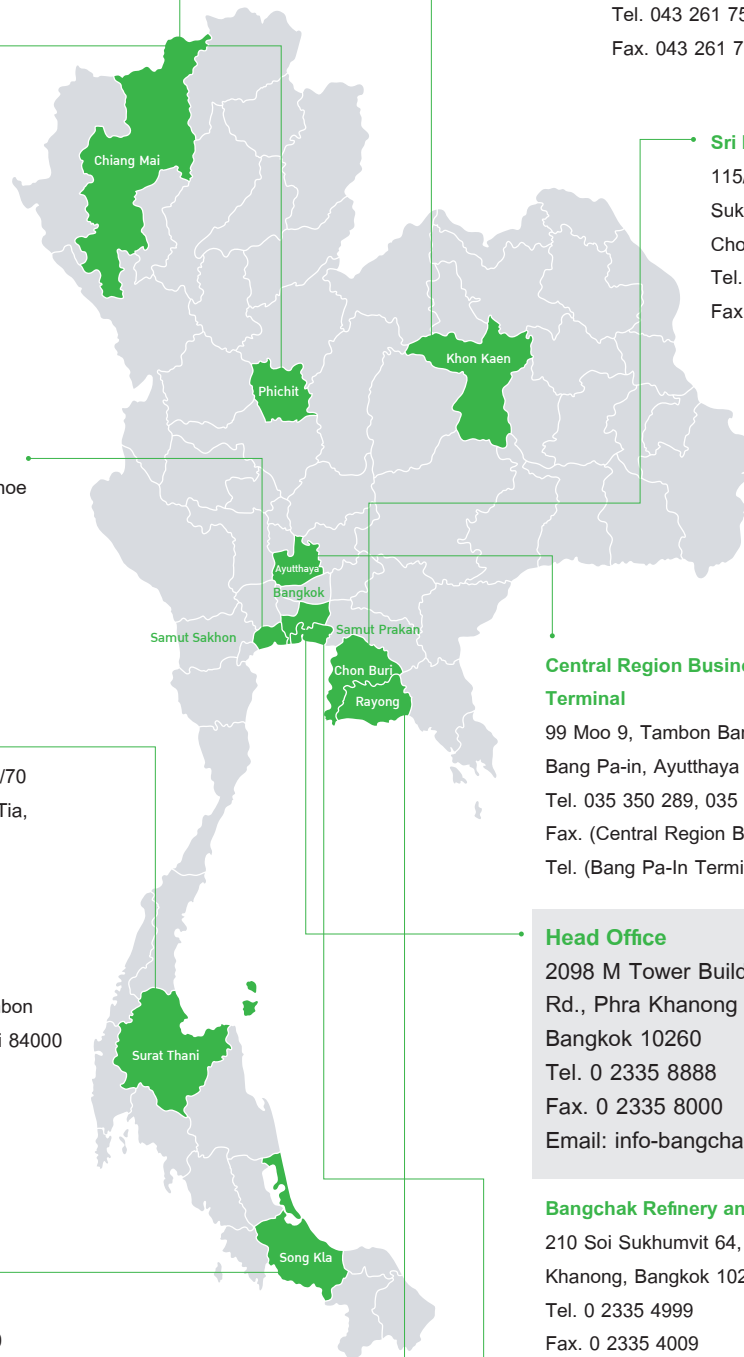
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Bangchak Refinery and Terminal

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Suksawat Lubricant Oil Distribution Center

196 Moo 1, Suksawat Road, Tambon Pak
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Chedi, Samut Prakan 10290
Tel. 0 2815 6997- 8



Subsidiaries

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Fax. 0 2335 8900

Email: info@bcpggroup.com

Website: <http://www.bcpgroup.com>

BBGI Public Company Limited

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Fax. 0 2335 8800

Website: <http://www.bbgroup.com>

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Bangchak Green Net Co., Ltd.

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Road., Bangna, Bangna, Bangkok 10260

Tel. 0 2367 2699

Fax. 0 2745 7945

BCPR Co., Ltd.

2098 M Tower Building, 8th Floor, Sukhumvit Road., Phra
Khanong Tai, Phra Khanong, Bangkok 10260

Tel. 0 2335 8654

BCV Partnership Co., Ltd.

BCV Bio Based Co., Ltd.

BCV Energy Co., Ltd.

BCV Innovation Co., Ltd.

2098 M Tower Building, 20th Floor, Sukhumvit Road.,
Phra Khanong Tai, Phra Khanong, Bangkok 10260

Tel. 0 2335 4999

Fax. 0 0335 4572

BCP Trading Pte. Ltd.

160 Robinson Road # 25-03, Spore Business Federation
CTR, Singapore 068914

BCP Energy International Pte. Ltd.

BCP Innovation Pte. Ltd.

BCPR Pte. Ltd.

Bangchak Ventures Pte. Ltd.

8 Marina Boulevard # 05-02, Marina Bay Financial Centre,
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Nido Petroleum Pty. Ltd.

Level 46, Tower One - International Towers Sydney, 100
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Fax: 0 2009 9991

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Floors 48-51, Empire Tower

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Fax: 0 2677 2222

Debenture Registrar and Payment Agent

(for BCP224A, BCP273A, and BCP303A)

Bangkok Bank Public Company Limited

333 Silom Road, Silom, Bangrak, Bangkok 10500

Tel: 0 2230 1478

Fax: 0 2626 4545-6

Website: www.bangkokbank.com

Debenture Registrar and Payment Agent

(for BCP214A and BCP244A)

Debenture Registrar, Payment Agent, and Debenture Holders' Representative

for BCP208A, BCP238A, BCP258A, and BCP28DA)

Bank of Ayudhya Public Company Limited

1222 Rama III Road, Bang Phongphang, Yannawa

Bangkok 10120

Tel: 0 2296 5715

Fax: 0 2683 1298

Website: www.krungsri.com

Debenture Registrar, Payment Agent, and Debenture Holders' Representative

(for BCP19PA)

Krung Thai Bank Public Company Limited

Floor 3, S.M. Tower

977/2, Phahonyothin Road, Phaya Thai, Phaya Thai

Bangkok 10400

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Fax: 0 2298 0835

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Chandler MHM Limited

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Others

- Investor support service
- Reporting share certificates losses
- Change of investor's information

Issuer Support Unit

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For additional information, please log on to
www.sec.or.th or www.bangchak.co.th
for Bangchak's Annual Information Filing (56-1)
and Integrated Sustainability Report



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