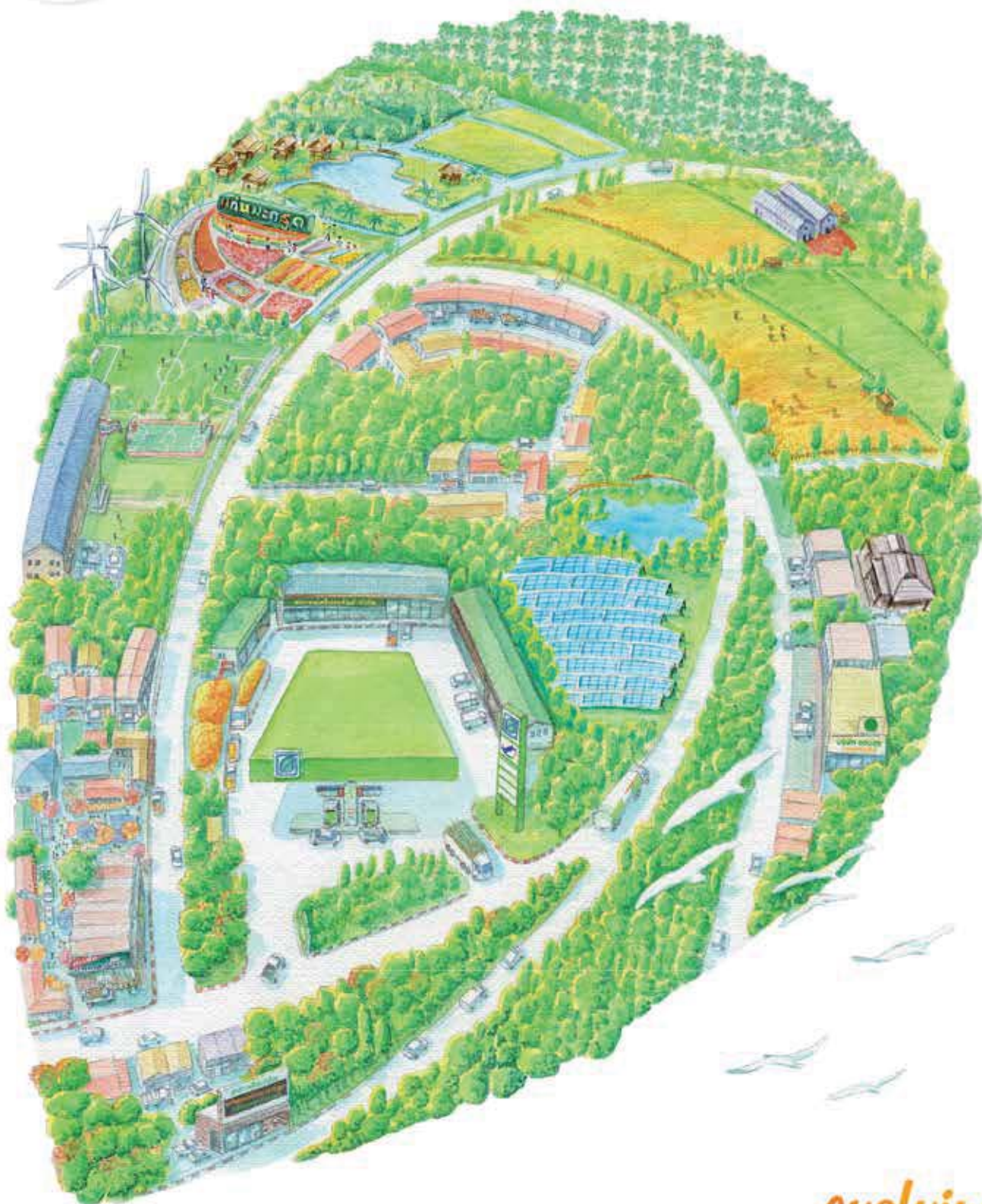




**Greenovate**  
our Tomorrow



*Sustainability Report 2018*

*Bangchak Corporation Public Company Limited*



To be the Leading Asian Greenovative Group,  
founded on Good Corporate Governance,  
through Inclusiveness and Sustainability

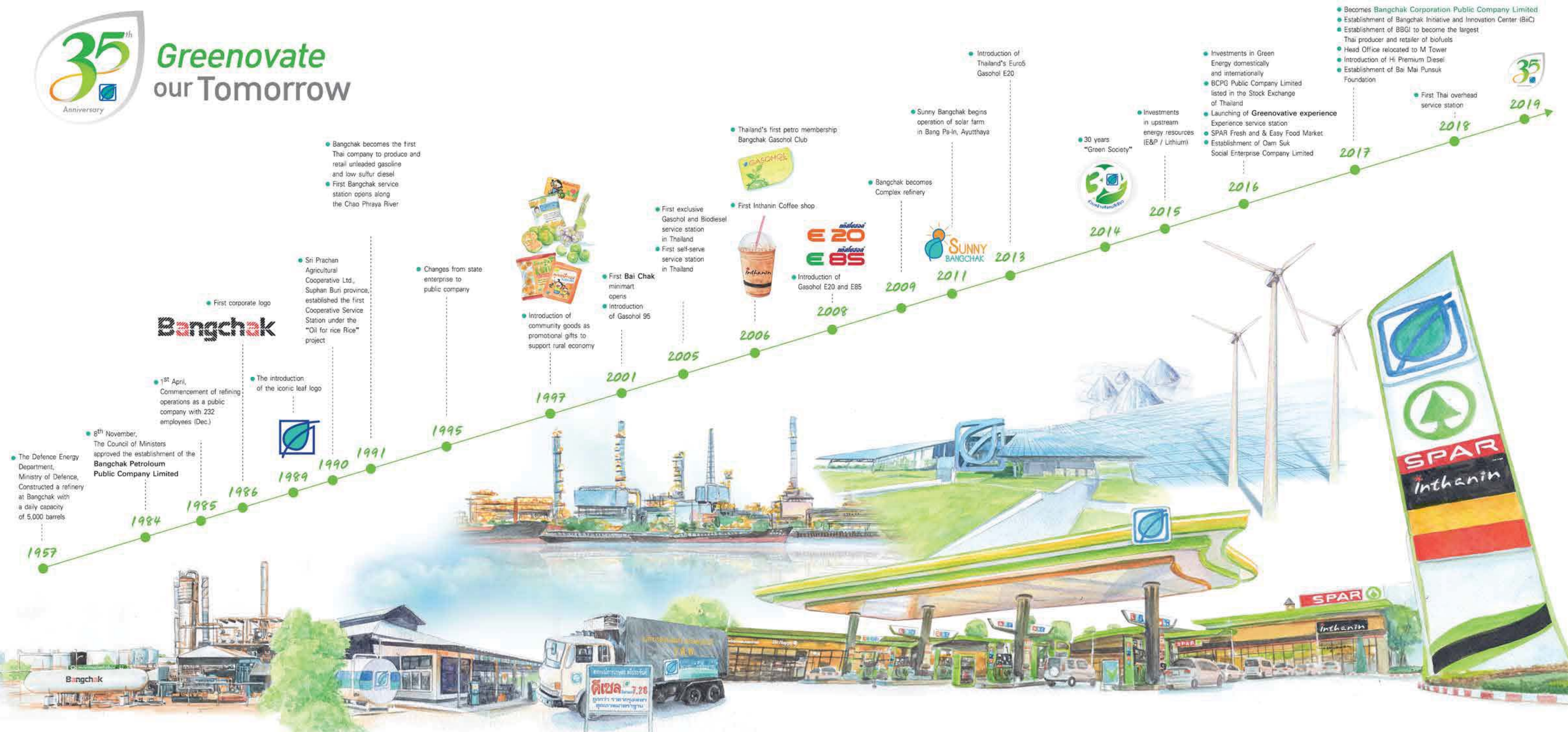


*Greenovate*  
our Tomorrow





# Greenovate our Tomorrow







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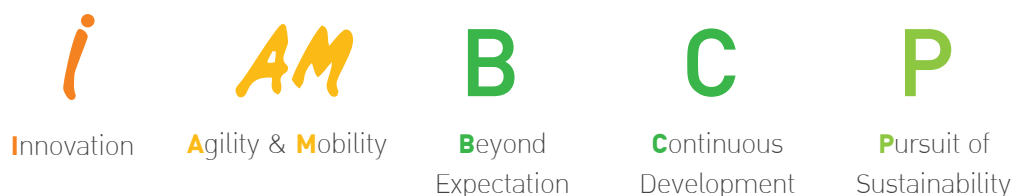


Vision :

**Mission :** BCP commits in bringing Disruptive and Inclusive Greenovation to Delight our customers, being a trusted partner and Value Creator for all Stakeholders, and promoting Sustainable Development to Society.

We emphasize Inclusive and Sustainable business, pursue Domestic and Overseas expansion, embrace Good Corporate Governance principles, and nurture a High-performance, 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





## Message from the President and CEO

(Disclosure 102-14)

In 2019, Bangchak celebrates its 35<sup>th</sup> year in business. We remain committed to “**innovating in an environmentally and socially sustainable way**” under our “**Evolving Greenovation**” vision.

We continue to implement our 3S (Security, Stability, Sustainability) business strategy and 4 Green “*Green Business, Green Production, Greenovative Experience and Green Society*” sustainability strategy. These strategies serve as frameworks for us to ensure that our business create long-term values for our stakeholders and help us to most effectively contribute to the United Nations Sustainable Development Goals (SDGs).

Our revenue increased by 12% as a result of our diversification efforts; however, profit was impacted by the volatility in global oil price, especially the sharp decline in the last quarter. Despite these challenges, we were able to maintain our 2<sup>nd</sup> position in retail volume with an overall market share of 15.6%.



**Green Business :** In 2018, we grew our solar power business both in Thailand and internationally. We piloted a blockchain project to trade electricity generated from onsite solar in a residential community. We expanded our wind power investment in Nakorn Srithammarat and in the Philippines as well as expanded our bio-based business through our subsidiary, BBGI, by increasing ethanol and bio-diesel production capacities and investing in high value bio-based products. In addition, we are exploring how to leverage our strengths, through the study of bio-economy and bioplastic trends to extend our business through out the value chain. Through our venture capital arm, Bangchak Initiative and Innovation Center (BiiC), we developed the Green Community Energy Management System (GEMS) to leverage our investments in renewable energy and lithium mining to support the growth of electric vehicles and lithium-ion battery. This innovative initiative was awarded the International Innovation Award by the Enterprise Asia.



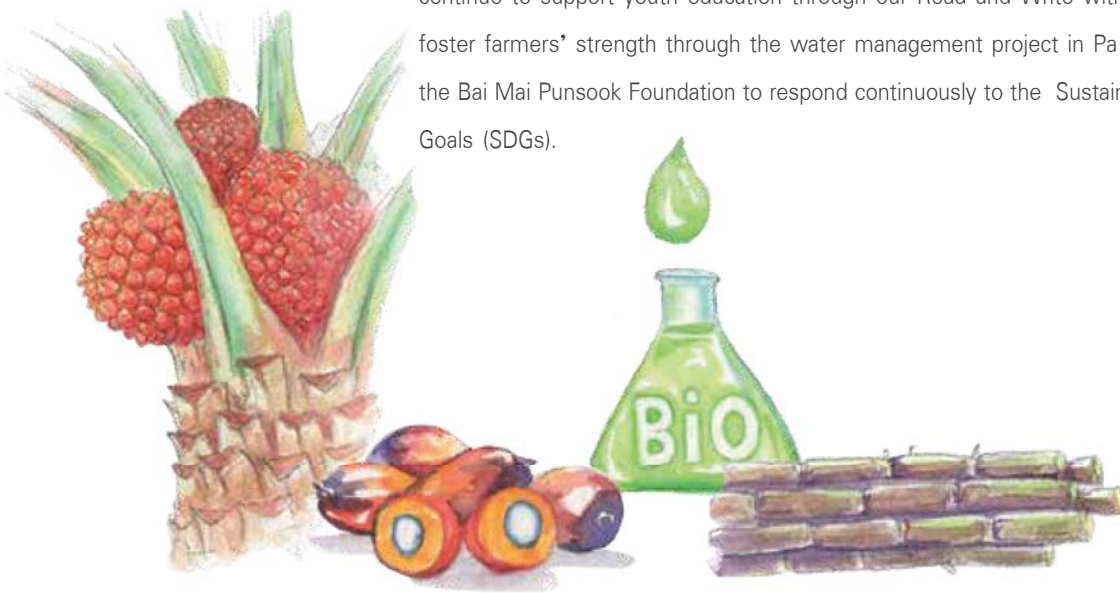
**Green Production :** In 2018, we commenced operations on our 12 MW natural gas co-generation plant #3, which enable us to reduce our greenhouse gas emissions and increase production reliability. In addition, we conducted water footprint study and received product carbon footprint label from the Thailand Greenhouse Gas Management Organization. Our 3E (Efficiency, Energy and Environment) project and turnaround maintenance activities were completed on schedule with proactive environmental measures resulting in zero complaint from the communities.

**Greenovative Experience :** In 2018, we developed two products that contain lower sulfur than Euro 4 standards: gasohol E20 and Hi-Premium Diesel S. These products were also designed to be compatible with Euro 5 engines. We also started offering biodiesel B20 for our trucks and marine logistic customers to reduce oversupply of palm oil. We further cemented our reputation as an eco-brand by banning plastic straws, using a new designed lip, and replacing plastic cups with plant-based biodegradable cups in our Inthanin Coffee shops. In addition, we expanded our non-oil business into neighboring countries with the opening of Inthanin Coffee shops in Cambodia and Laos.





**Green Society :** In 2018, we hosted the “Bio Economy: a new S-Curve” to the interested public. We firmly believe in the bio-economy to generate added values throughout the agricultural value chain and to alleviate the cycle of oversupply and low prices in the market. Together with our partners, we implemented the Circular Economy concept through the re-material of used lube oil bottles and PET bottles into raw material. We conducted a social enterprise contest for university students called “Bangchak Yunus & Youth Contest” to promote innovative solutions for social problems. In addition, we continue to support youth education through our Read and Write with Ease Project and foster farmers’ strength through the water management project in Pa Sak river basin by the Bai Mai Punsook Foundation to respond continuously to the Sustainable Development Goals (SDGs).



In 2019, we will continue to work toward bringing green and innovative products to our customers, improving the efficiency of our operations along with increasing the use of renewable energy, bolstering the energy security of the country as well as developing bio-based products to support the vision of growing our business toward the bio-economy future.

[Chaiwat Kovavisarach]  
President and CEO



“

*Bangchak will continue  
to work toward bringing  
green and innovative products  
to our customers bolstering  
the energy security  
of the country*

”



# About Bangchak

## Our Business (Disclosure 102-1)

Bangchak Petroleum Public Company Limited

Ticker Symbol : BCP

Bangchak's core businesses consist of Oil Refining and Trading, Marketing, Bio-Based Products, Green Power, Natural Resource and Business Development BCP's goals are to enhance national energy security while stepping into new business ventures for corporate continuity and sustainability.

(Disclosure 102-2)

## Date of establishment :

November 8, 1984

## Head office (Disclosure 102-3) :

2098 M Tower Building, 8<sup>th</sup> floor, Sukhumvit, Khwaeng Phra Khanong Tai, Khet Phra Khanong, Bangkok 10260

## Chief Executive Officer :

Mr. Chaiwat Kovavisarath

## Paid-up registered capital :

1,376,923,157 THB

## Employee headcount :

(Disclosure 102-7)

1,254 (as of December 31, 2018)

## Type of business :

Petroleum and alternative energy

## Membership of Association



(Disclosure 102-13)

## Refinery and Trading Business Group

- : Procure crude oil from domestic and overseas sources and refine it into various petroleum products
- : Overseas trading business

### Capacity

- Bangchak Refinery with Capacity: 120,000 barrels per day
- BCP Trading Pte. Ltd for Trading Business in Singapore



**Thailand**

1 main operating site



**Singapore**

1 main operating site

(Disclosure 102-4)

## Marketing Business Group

- : Sell refined petroleum products directly to consumers through its service station network across the country with a focus on renewable, including Gasohol 91/95 and E85 together with Gasohol E20 and Hi Premium Diesel S according to Euro V Standard
- : Engage in non-oil businesses at service stations, including distribution of consumer products at SPAR Convenience stores, Bai Chak outlets, Lemon Green, Inthanin Coffee and new brand named "Yoklor Coffee"
- : Lubrication and Car Wash Center

### Capacity

- Oil business: builds service station network with 555 standard and 620 community service stations
- Non-oil businesses : cover prime locations with non-oil businesses, including 45 SPAR Minimarts and 523 branches of Inthanin Coffee, 14 branches of Yoklor Coffee in Thailand and 3 branches in Cambodia
- Lubrication and Car Wash Center : Wash Pro 6 stations, Green Wash 64 stations, FURIQ Care 24 stations, Green Tyre 10 stations



**Thailand**



**Cambodia**

(Disclosure 102-4)



Listed Company in Stock Market



1 Operating site

1 Concession area under developing site



Concession area

1 under developing site

## Bio-Based Products Business

Invests in renewable energy for environmental friendly fuel i.e. biodiesel, and ethanol businesses

### Capacity

BBGI Company Ltd., the largest producer and seller of bioenergy in Thailand which comprised of subsidiaries as follow

- Bangchak Biofuel Co., Ltd., is engaged in the biodiesel business with an 930,000 liter/day capacity
- Bangchak Bioethanol (Chachoengsao) Co., Ltd., has a capacity of 150,000 liters/day of ethanol
- KSL Green Innovation Ltd. has a capacity of 350,000 liters/day of ethanol
- Ubon Bio Ethanol Co., Ltd., produces 400,000 liters/day of ethanol



**Thailand**

5 operating sites:

Ayutthaya province  
Chachengsao province  
Khon kaen province  
Kannchanaburi province  
Ubonratchathani province

(Disclosure 102-4)



Concession area  
3 Operating sites  
2 under developing sites

13 Operating sites  
1 under developing site

5 Operating sites  
1 Main Operating site

1,175 Service Stations  
523 Inthanin Coffee shops  
45 SPAR Convenience stores  
14 Yoklor Coffee shops  
104 Lubrication/Car Wash Centers

1 Operating site

3 Operating sites

3 Inthanin Coffee shops

5 Operating sites  
8 under developing sites

1 Operating site

Concession area  
2 Operating sites  
7 under developing sites



### Green Power Business

For green-energy diversity, Bangchak is engaged in power generation

#### Capacity

- BCPG Plc focus on renewable power generation with a capacity of 571.1 megawatts



#### Thailand

13 operating sites  
1 under developing site



#### Japan

5 operating sites  
8 under developing sites



#### Philippines

1 operating site



#### Indonesia

3 operating sites

(Disclosure 102-4)



### Natural Resources Business

#### Petroleum exploration and production business

Bangchak founded BCPR Pte. Ltd. in Singapore for investing in Petroleum Exploration and Production.

#### Capacity

- Investment in OKES AS in Norway and Nido Petroleum Limited with production plan of 25,000 barrels per day of crude oil.



#### Philippines

Concession area  
2 operating sites  
7 under developing sites



#### Norway

Concession area  
3 operating sites  
2 under developing sites

(Disclosure 102-4)



### Lithium Business

Bangchak founded BCP Innovation Pte. Ltd. in Singapore to engage in innovation-related businesses abroad

#### Capacity

Investment in Lithium Americas Corporation, a producer of lithium carbonate, a key raw material for battery manufacturing, with average production of 25,000 tons per year



#### Canada

Listed company in the stock market



#### Argentina

Concession area  
1 under developing site



#### USA

1 operating site  
1 concession area under developing site

(Disclosure 102-4)



### Business Development

Bangchak founded venture capital company in Thailand for joint in Startup(s).

#### Capacity

- BCV Bio Based Co., Ltd was founded for investing in Startup(s) Business related to Bio-based Products.
- BCV Energy Co., Ltd was founded for investing in Startup(s) Business related to Energy.
- BCV Innovation Co., Ltd was founded for investing in Startup(s) Business related to Innovation.
- BCV Partnership Co., Ltd was founded for investing in Startup(s) Business related to Innovation which incorporating with government or private sector.

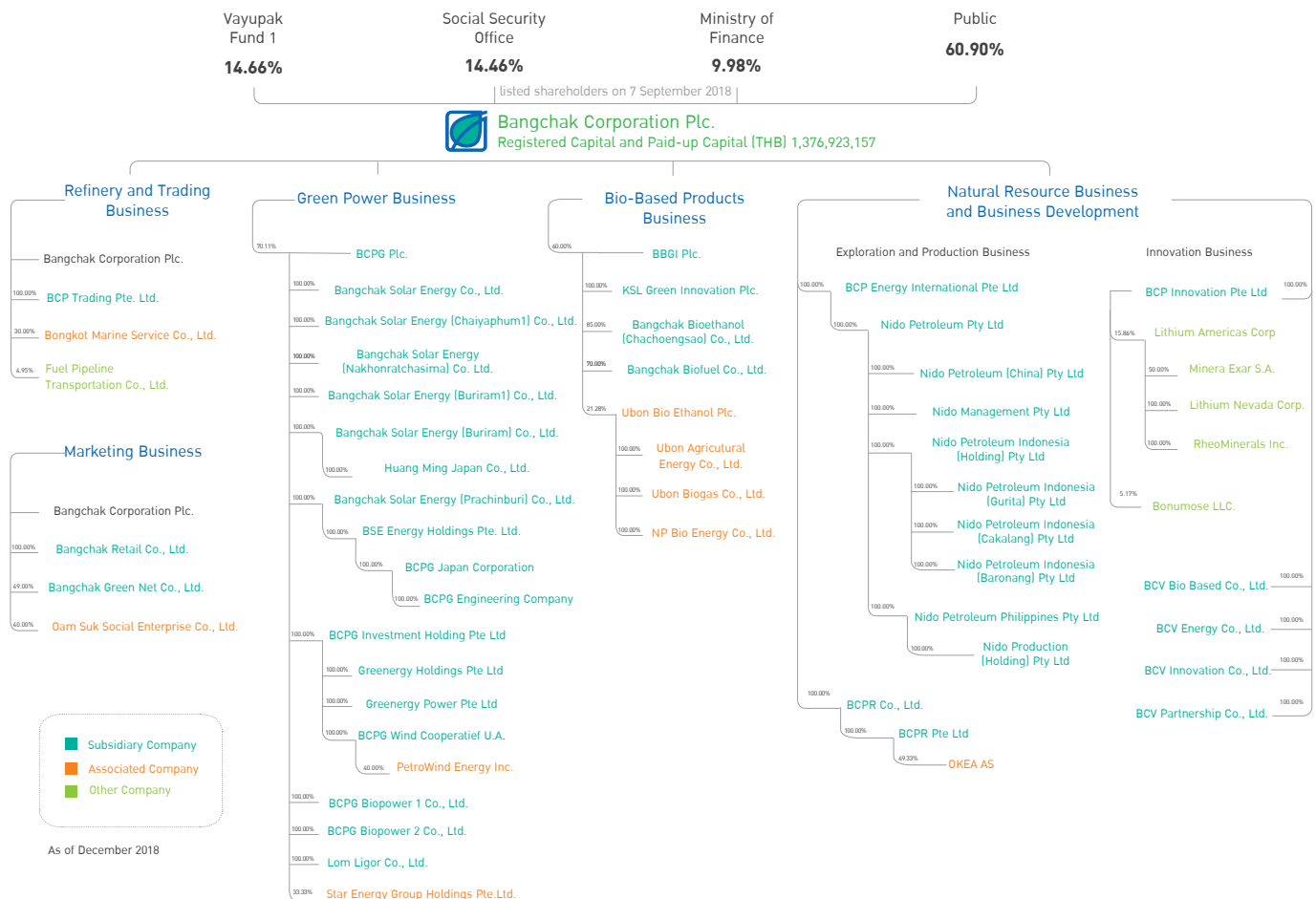


#### Thailand

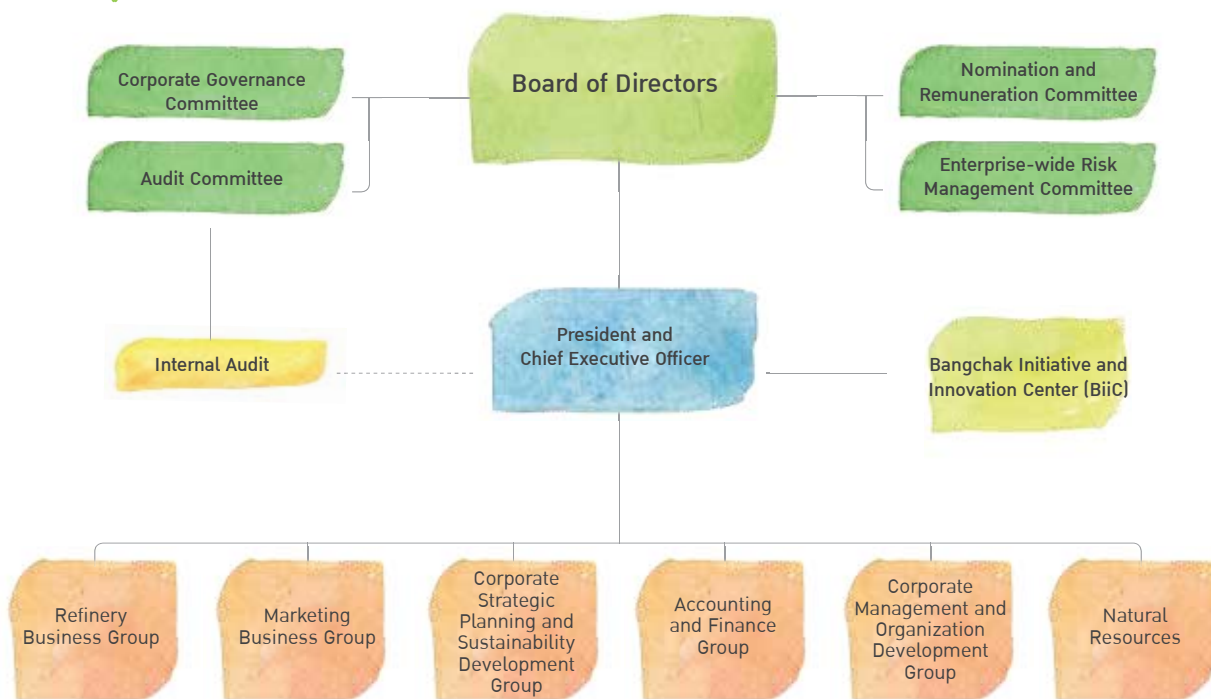
(Disclosure 102-4)



## Shareholding Structure (Disclosure 102-5)



## Management Structure (Disclosure 102-18, 102-20, 102-22, 102-23)



As of December 2018

## Value Chain (Disclosure 102-9)



### Natural Resources Business

Conduct petroleum exploration and production in order to increase competitiveness and diversify business risks.



### Refinery and Trading Business

Operate modern Refinery Complex to produce high quality, high value, and environmentally friendly products and ensuring the integration between refinery and marketing business.



### Green Power Business

Generate electricity from renewable sources to develop alternative energy and satisfy growing demand for electricity while reducing impacts on climate change and generating steady revenue for the company.



### Marketing Business

Response to stakeholders and customers demands by offering quality fuels that meet international standards and environmentally friendly. Develop service stations in high traffic and convenient areas as well as offer non-oil services to satisfy customers' demands and generate steady income.



### Bio-based Product Business

Increase production of bio-diesel and ethanol to reduce reliance on imported oil, generate steady revenue, and increase income to farmers.



### Innovation Business

Research and develop new products and clean energy to support the improvement and expansion of Bangchak's businesses.







# Bangchak at a glance in 2018



## Corporate Governance

The **15<sup>th</sup>**  
revision of  
CG Policy

Recertificate for  
membership  
of **CAC**  
[Thailand's Private Sector Collective  
Action Coalition against Corruption].

Suppliers declared  
their intention  
to join **CAC**

**97**  
suppliers



NO Gift Policy

**5**

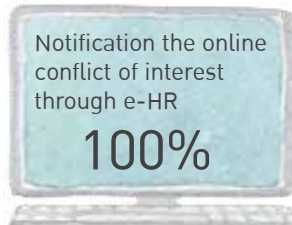
Consecutive years

Percentage of executives and employees  
acknowledging and passing  
the anti-corruption  
policy and test

**100%**

Notification the online  
conflict of interest  
through e-HR

**100%**



Corruption  
incidents

**0** case

## Economic Growth

Revenue

**193,340**

Million THB



Net Profit

**3,235**

Million THB

Earning per share

**1.35**

THB/share

EBITDA

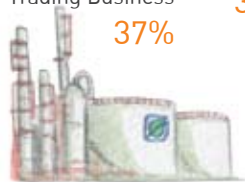
**10,201**

Million THB

### Accounting EBITDA

Refinery and  
Trading Business

**37%**



Green Power Business

**34%**



Marketing Business

**21%**



**7%** Bio-based  
Product Business



Natural  
Resources Business

**1%**



Create value from developing and  
improving business process

**147.3**

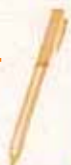
Million THB

Local purchases  
of Goods and  
Services  
[Thailand]\*

**4,424**

Million THB

**98 %**



### SCOC: Supplier Code of Conduct

**29** Suppliers

Agreed to conform  
SCOC

**29** Conduct

self-assessed in  
SCOC



Benefits  
from internal  
innovation  
promotion project



**113** Million THB

\*exclude Hydro Carbon Crude & Product

## In harmony with Environment

### GHG Emissions (Equity Share)

**0.96** Million tCO<sub>2</sub>e

### GHG Emissions by business (Equity Share)

Refinery Business  
**95.3%**  
Bio-based Product  
Business **3.7%**

Green Power Business  
**0.1%**  
Marketing Business  
**0.9%**

### Net energy consumption

**13,418**  
Terajoules

### Energy Intensity Index

(Refinery Business)

**EII = 100.5**

### Tap Water Withdrawal

**2.27**  
million cu.m.



### Water reuse / recycle



**1.10** million cu.m.  
of **46.21%**  
total water consumption

Water  
discharged  
**0.9** million cu.m

### 3Rs Waste Management

**99%**  
of total waste

### Number of significant oil and chemical spills

(more than 100 Barrels)

**0**

### Environmentally friendly Products



**Green Power  
Business**  
(Avoid Carbon Product)



**Green Product**  
(Low Carbon Product)

### Accidents from product transport

**0**

(financial loss > 1 million THB)

**45** SPAR  
convenience stores

**532** Inthanin  
Coffee Shop



Bangchak  
Service Station

**555**

**service stations**  
(increased by 74)

Community  
Service Station

**620**

**service stations**  
(increased by 5)



## and Creating Values for Society

### Safety



Numbers of accidents with  
loss time (LWC)

Employees **1**

Contractors **3**

Total Recordable Injury  
rate (TRIR)

**1.66** **0**  
Employees male female

**1.41** **0**  
Contractors male female

### Customers

Customer Satisfaction

**85.8%**

NPS Score

**TOP tied for  
1<sup>st</sup> Ranking**

### Employees

The Best  
Employer Score **67%**

Employee  
Engagement  
Score **69%**

Average Training Hour  
(hrs/person/yr) **46**



Employment of  
Disable **13** persons

### Society



Voluntary  
hours of  
employees.

**16,088** hours



value added  
agricultural products  
for selling through  
service stations



(SR01) Read and  
Write with Ease  
(Literacy) Project

มูลนิธิส่งเสริมการเรียนรู้

**1.19** Social Return Value per  
amount invested



### Bangchak's Sustainability Report 2017

As the Winner of Asia's Best SDG Reporting Award

And Highly Commended Awards of Asia's Best Stakeholder Reporting Award  
From Asia Sustainability Reporting Award (ASRA) 2018

By CSR Work International Pte. Ltd. In Singapore

(with 82 companies from 14 countries in the final round)

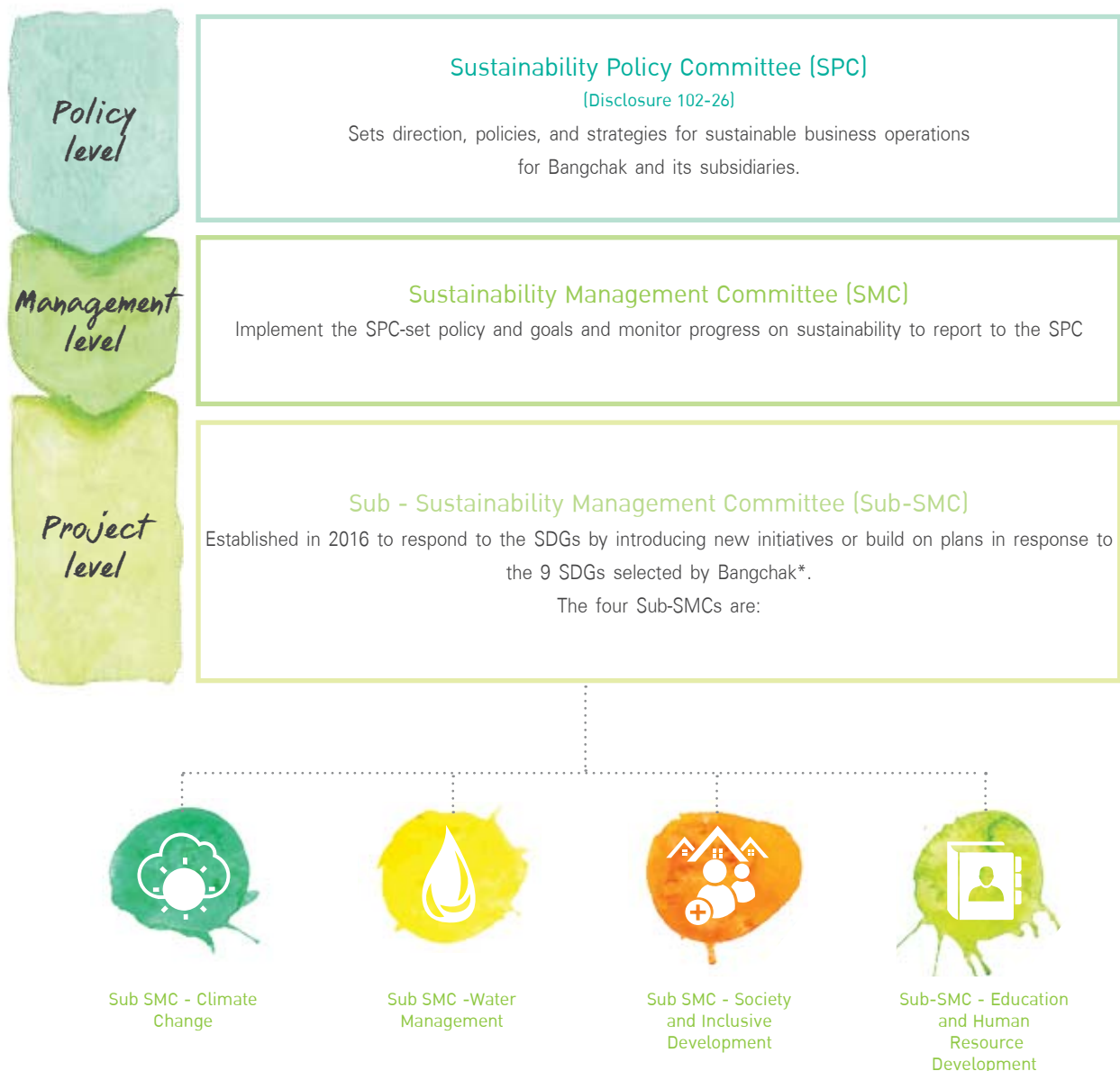




# Bangchak & Sustainability

Bangchak highly values corporate sustainability management that includes economic, environmental, and social aspects across all levels of the corporate structure. The company has taken into consideration both internal and external factors, global sustainability trends and direction, sustainability innovations, stakeholders' needs and expectations to determine our goals, strategies, and responses to various sustainability topics. In addition, 9 SDGs were selected based on the company's capacity and business interests to create a framework to facilitate business sustainability.

Corporate structure of business sustainability is comprised of 3 levels as described below (Disclosure 102-19, 102-20, 102-22):



\*For more information about SDGs selection, please see Bangchak's Sustainability Report 2016

## Principles and Framework for Sustainability Management (Disclosure 102-16)

Bangchak uses the Sufficiency Economy Philosophy, ISO 26000 Social Responsibility, the UN Global Compact, the Sustainable Development Goals (SDGs) and stakeholders' needs and expectations as frameworks for setting our Corporate Sustainability Policy and sub-policies for conducting businesses in the value chain.

### *“Corporate Sustainability Policy”*

|          | Areas of Sustainability Policy  | Sub-Policies   | Guidelines/ Relevant Tools/ Standards   |
|----------|---|--|---|
| <b>1</b> | Corporate Governance  | <ul style="list-style-type: none"> <li>• Corporate Governance Policy</li> <li>• Business Continuity Management Policy</li> <li>• Intellectual Property Management Policy</li> <li>• Tax Policy</li> </ul>  | <ul style="list-style-type: none"> <li>• CAC: Thailand's Private Sector Collective Action Coalition Against Corruption</li> <li>• ISO 31000/ COSO ERM / ISO 22301 BCM</li> <li>• Supplier Code of Conduct (SCOC)</li> <li>• SDG 16</li> </ul>   |
| <b>2</b> | Fair Business Conduct   | <ul style="list-style-type: none"> <li>• Corporate Governance Policy</li> </ul>  | <ul style="list-style-type: none"> <li>• Business Governance Manual</li> <li>• ISO 26000 Social Responsibility</li> </ul>   |
| <b>3</b> | Human Rights and Employment for Developing Sustainable Economy  | <ul style="list-style-type: none"> <li>• Human Resource Management Policy</li> <li>• Welfare and Benefits Policy</li> <li>• Corporate Learning and Personnel Development Promotion Policy</li> <li>• Human Rights Policy</li> </ul>                        | <ul style="list-style-type: none"> <li>• Best Employer Framework</li> <li>• ISO 26000 Social Responsibility</li> <li>• Supplier Code of Conduct (SCOC)</li> <li>• SDG 8</li> </ul>  |
| <b>4</b> | Water and Climate Change Management   | <ul style="list-style-type: none"> <li>• SHEE (Security, safety, health, environment, and energy) Policy</li> </ul>  | <ul style="list-style-type: none"> <li>• ISO 14001 Environmental Management System</li> <li>• ISO 50001 Energy Management System</li> <li>• SDG 6,12,13</li> </ul>  |
| <b>5</b> | Goods Production & Service with Responsibility and Promotion of Sustainable Society   | <ul style="list-style-type: none"> <li>• SHEE Policy</li> <li>• Quality Policy for Laboratory Division</li> <li>• Proactive Marketing Communication Policy</li> <li>• Customer Centricity Management Policy</li> <li>• Green Procurement Policy</li> </ul> | <ul style="list-style-type: none"> <li>• OHSAS/TIS 18001 Occupational Health and Safety Assessment Series</li> <li>• ISO/IEC 17025</li> <li>• Most Admired Brand / NPS Score</li> <li>• Thai Environment Institute's environmental standard for Inno-Green Stations</li> <li>• SDG 6,12,13</li> </ul> |
| <b>6</b> | <ul style="list-style-type: none"> <li>• Investment in clean-energy business</li> <li>• Engagement in development of educational quality</li> <li>• Engagement in community and social development and promotion of sustainable innovation</li> </ul> |  | <ul style="list-style-type: none"> <li>• ISO 26000 Social Responsibility</li> <li>• SDG 4, 7, 9, 11</li> </ul>  |



## Bangchak's Responses to the SDGs

Bangchak has achieved its sustainability goals (SDG Mapping Mark referred from GRI Sustainability Development Report 2016-2017) on different criteria with its past operations and intends to complete more goals that are in line with the company's capacity and business interests by selecting 9 SDGs that encompass economic, environmental, and social dimensions. The 4 sub-committees (Sub-SMCs) have been established to initiate projects in response to the 9 selected SDGs, which are comprised of Continuous Improvement Project, Expansion Project, and New Initiative.

| SDGs          |   | Targets  | Plans<br>(Continuous improvement/Expansion/New initiative)   |
|---------------|---|--|--|
| Core          |    | 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix<br>7.3 By 2030, double the global rate of improvement in energy efficiency  | <ul style="list-style-type: none"> <li>• Increase energy efficiency of the Refinery business</li> <li>• Increase installed capacity of renewable energy business</li> </ul>  |
|               |    | 6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally<br>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity<br>6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes   | <ul style="list-style-type: none"> <li>• Improve water efficiency and wastewater quality</li> <li>• Manage water based on Sufficiency Economy Philosophy with agricultural cooperatives</li> </ul>   |
|               |    | 12.2 By 2030, achieve the sustainable management and efficient use of natural resources<br>12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment<br>12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse  | <ul style="list-style-type: none"> <li>• Manage industrial waste using 3Rs principle</li> <li>• Develop Inno-Green Stations</li> <li>• Use environmentally friendly materials and products</li> <li>• Manage waste using Circular Economy Business Model</li> </ul>        |
|               |  | 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries<br>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning  | <ul style="list-style-type: none"> <li>• Reduce GHG emissions through renewable energy businesses</li> <li>• Increase youth awareness related to climate change through Green Blood project</li> </ul>   |
|               |  | 16.5 Substantially reduce corruption and bribery in all their forms  | <ul style="list-style-type: none"> <li>• Provide knowledge and support for Bangchak Group subsidiaries and business partners to join Thailand's Private Sector Collective Action Coalition against Corruption (CAC)</li> </ul>   |
| Additional    |  | 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value   | <ul style="list-style-type: none"> <li>• Employ disabled people to be Bangchak's employees</li> </ul>  |
|               |  | 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes<br>4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy<br>4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development | <ul style="list-style-type: none"> <li>• Alleviate illiteracy problems of children in elementary schools</li> <li>• Improve vocational education the youth</li> <li>• Support and co-ordinate undergraduate programs in energy, environment, and sustainability</li> </ul> |
| Supplementary |  | 9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries  | <ul style="list-style-type: none"> <li>• Collaborate with industries and universities on research and development</li> <li>• Encourage employees to propose new innovation projects</li> </ul>   |
|               |  | 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning   | <ul style="list-style-type: none"> <li>• Increase safety in the community through emergency drills</li> <li>• Establish community enterprises and improve career prospects</li> </ul>  |

- Note:**
- 1) The shade intensity of blue background indicates priority of each target for the company. Prioritization is based on Bangchak's capabilities, industry's interests, and Thailand's policies. (Core Level/ Supplementary Level/ Additional Level)
  - 2) Text color indicates 3 types of action plans: 1) continuously improve on existing plans, 2) expand on existing plans/ projects, 3) develop new initiatives (more details on action plans and target can be found in Sustainability Strategy Chapter))



| Benefits to Bangchak   | Benefits to environment and society  | 2020 Targets  | 2018 Status   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>Energy consumption reduction</li> <li>Cost reduction</li> <li>Revenue stability improvement</li> <li>Support government policy by increasing proportion of renewable energy consumption</li> </ul>              | <ul style="list-style-type: none"> <li>Renewable energy expansion</li> <li>Climate change impact reduction</li> </ul>  | <ul style="list-style-type: none"> <li>Energy Intensity Index (EII) : 98</li> <li>298 MW of solar installed capacity</li> <li>30 MW of wind installed capacity</li> <li>935,000 liters/day of biodiesel capacity</li> <li>900,000 liters/day of ethanol capacity</li> </ul>   | <ul style="list-style-type: none"> <li>EII : 100.5</li> <li>209 MW of solar installed capacity</li> <li>14 MW of wind installed capacity</li> <li>Achieved</li> <li>Achieved</li> </ul>   |
| <ul style="list-style-type: none"> <li>Water security for business operations</li> <li>Cost reduction</li> <li>Corporate image enhancement</li> </ul>  | <ul style="list-style-type: none"> <li>Elimination of negative water impacts to communities</li> <li>Long term and sustainable flood and drought prevention for agricultural activities in Pa Sak River Basin</li> <li>Reclamation of forest area in Pa Sak River Basin</li> </ul> | <ul style="list-style-type: none"> <li>Reduce water consumption of the Refinery Business by 15% (compared to 2015 baseline)</li> <li>Manage water in agricultural areas for at least 30 agricultural cooperatives</li> </ul>  | <ul style="list-style-type: none"> <li>Refinery water reduction : 4.95% compared to 2015 baseline</li> <li>Numbers of agricultural cooperatives : 8</li> </ul>  |
| <ul style="list-style-type: none"> <li>Resource efficiency</li> <li>GHGs reduction</li> <li>Reduction of costs for raw materials and waste management</li> <li>Increased value added and</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental sustainability</li> </ul>   | <ul style="list-style-type: none"> <li>Achieve Zero Waste to Landfill target for Bangchak's business group</li> <li>25 Inno-Green Stations</li> <li>Promote green procurement and have 20 environmentally friendly products in the list</li> </ul>  | <ul style="list-style-type: none"> <li>Expanding Zero Waste to Landfill to Bangchak's subsidiaries</li> <li>6 Inno-Green Stations</li> <li>30 environmentally friendly products in the list</li> </ul>  |
| <ul style="list-style-type: none"> <li>Climate change impacts and risks reduction for business operations</li> </ul>   | <ul style="list-style-type: none"> <li>Environmental impact reduction to support 2 degrees Celsius limit</li> <li>Youth participation in climate change efforts</li> </ul>   | <ul style="list-style-type: none"> <li>At least 60% reduction in GHG emission</li> <li>80,000 students participated in the project annually</li> </ul>  | <ul style="list-style-type: none"> <li>35% GHGs reduction</li> <li>120,000 students participated in the project annually</li> </ul>   |
| <ul style="list-style-type: none"> <li>Business transparency and good relationships among companies within the CAC network</li> <li>Corporate sustainability</li> </ul>  | <ul style="list-style-type: none"> <li>Corruption reduction in the society</li> </ul>  | <ul style="list-style-type: none"> <li>Become an acknowledged corporate model against corruption</li> </ul>   | <ul style="list-style-type: none"> <li>Certified the CAC (Thailand's Private Sector Collective Action Coalition Against Corruption) (3<sup>rd</sup> consecutive years)</li> <li>Encouraging suppliers to join the CAC to be certified = 48 companies and 7 SME</li> </ul> |
| <ul style="list-style-type: none"> <li>Support government policy on employment of disabled people</li> </ul>   | <ul style="list-style-type: none"> <li>Equal career opportunities in the society</li> </ul>  | <ul style="list-style-type: none"> <li>Employ at least 13 disabled employees</li> </ul>   | <ul style="list-style-type: none"> <li>Achieved</li> </ul>  |
| <ul style="list-style-type: none"> <li>Social development according to the company's mission</li> <li>Quality youth in the pipeline to support market needs</li> <li>Informational exchange between educational institution and the company</li> </ul> | <ul style="list-style-type: none"> <li>High quality personnel for the labor market</li> <li>Youth employment opportunity improvement</li> </ul>  | <ul style="list-style-type: none"> <li>800 elementary school students participated in Read and Write with Ease (Literacy) project each year</li> <li>Jointly develop a vocational curriculum with 3 institutions</li> <li>Jointly develop an undergraduate curriculum with 2 higher education institutions</li> </ul> | <ul style="list-style-type: none"> <li>682 students participating in the Project</li> <li>In progress</li> <li>In progress</li> </ul>   |
| <ul style="list-style-type: none"> <li>Innovative corporate culture</li> <li>New products and services to support businesses</li> <li>Research networks</li> </ul>   | <ul style="list-style-type: none"> <li>Research and development in science and technology to develop the country</li> </ul>  | <ul style="list-style-type: none"> <li>8 researchers</li> <li>2 IP products</li> </ul>  | <ul style="list-style-type: none"> <li>4 researchers</li> </ul>   |
| <ul style="list-style-type: none"> <li>Strengthen relationship with communities and increase trust in the company</li> </ul>   | <ul style="list-style-type: none"> <li>Community development in terms of career prospects, environment, and safety</li> </ul>  | <ul style="list-style-type: none"> <li>Create 11 safe communities and expand the concept to other communities</li> <li>Establish 3 community enterprise and expand the network</li> </ul>   | <ul style="list-style-type: none"> <li>8 safe communities</li> <li>1 community enterprise</li> </ul>  |





# Bangchak and Stakeholders

## Stakeholder Engagement

Bangchak has improved the strategic planning process to be consistent with the current trends and global events through the development of guidelines / frameworks related to strategic planning including business environment scanning, big data, and scenario and risk assessment (intelligent risks). At the end of 2018, we conducted a review and identification of the key stakeholders of the organization (Disclosure 102-42) to ensure inclusiveness, especially for our suppliers and customers, in line with our business expansion. The stakeholder engagement results will be used to develop strategic plan for 2019.

In 2018, Bangchak categorized our stakeholders into 9 groups (Disclosure 102-40) namely employees, suppliers, customers, shareholders, society and community, media, creditors, government agencies and competitors. Performance reported are for the entire calendar year 2018. Responsible functions within the Bangchak Group have the resources, personnel, communication channels, short-term and long-term measures, as well as work plans to respond to interests, concerns, and expectations for various stakeholders. In 2018, we conducted stakeholder engagement activities as follows:

### Media

1. Press Briefing/ Press Release
2. Quarterly visit to media outlets
3. Press Tour
4. Special interviews as requested by media



### Creditors

1. Analyst meetings
2. Consultation visits
3. Site visits



### Competitors

1. Follow industry activities from the Department of Energy Business and provide reports to management
2. Conduct research on competitors based on financial data and report findings to management
3. Participate in working team that are relevant to competitors as requested by the government
4. Follow news and marketing activities
5. Provide marketing information without impacts on competitors



### Government agencies

1. Face-to-face meetings
2. Participations in government activities
3. Site visits



# Stakeholder Engagement Process (Disclosure 102-43)

## Employees

1. Employee engagement survey
2. Engagement Ambassador and related activities to promote employee engagement
3. Quarterly CEO Town Hall
4. Collect feedbacks via CEO Box and provide answers via emails and radio program
5. Internal electronic communication
6. Employee Lifestyle Survey
7. Employees' committee

## Communities and Society

1. Annual expectations and satisfaction survey
2. Community leaders focus group
3. Community visits and through community relations personnel
4. Seminars for community committee, education committee, and co-op committee
5. Other communication channels/ complaint channels/direct phone lines/community announcement boards

## Suppliers

1. Annual suppliers meeting
2. Monthly performance meeting
3. Satisfaction/ Need and Expectation survey
4. Site visits

## Shareholders

1. Annual General Shareholder Meeting
2. IR Activities, such as Analyst meeting/ Roadshow/ Site visit/ Company visit/ Conference call/ SET Opportunity Day/ SET in the city
3. Discussions, inquiries, and feedback
4. IR Website / IR material such as ND&A and quarterly e-News letter which contain management interviews

## Customers

1. Service station Net Promoter Score (NPS)
2. Customer satisfaction survey
3. Call Center
4. BCP's Line Official & Social Media
5. BCP's Club Card
6. BCP's Mobile Application
7. Service station personnel

## Industrial customers/Engine oil customers

1. Marketing representative/ Managers
2. Customer seminars
3. Technicians/Specialists

## Service station tenants

1. Partner meetings
2. Joint on-site inspection
3. Knowledge sharing on prime locations

## Service stations (Service station owners/ Agriculture Cooperatives/ Bangchak Green Net Co., Ltd)

1. Marketing representative/ Managers
2. Monthly and quarterly subgroup meetings
3. Customer experience management function/ customer relationship management function/ product warranty and network improvement function/ service station area management function
4. Annual CO-OP seminar
5. CO-OP DC committee members
6. Service station managers meetings
7. Service personnel seminar
8. Maintenance contact personnel LINE group
9. Call Center
10. Satisfaction survey

Color indicators for engagement frequency (Disclosure 102-43)

- Regularly/ monthly
- Quarterly
- Annually





# Stakeholder Engagement Framework

| Stakeholders  | Needs/Expectations<br>(Disclosure 102-44)   | 2018 Responses<br>(Disclosure 102-43)   |
|---|---|---|
|  <p><b>Employees*</b></p> <p>*All Bangchak employees are under full-time and long-term employment contract. We do not have short-term hires, part-time, self-employed or seasonal workers.</p> | <ol style="list-style-type: none"> <li>1. Annual performance review</li> <li>2. Career advancement</li> <li>3. Awards and recognitions</li> <li>4. Talent management</li> <li>5. Feedback from direct supervisor and suggestions for improvement</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Communicate and provide counsel on appraisal criteria, promotion expectations, and appraisal process to all functions</li> <li>1.2 Expanded 360-degree performance assessment method to include Senior Manager and above</li> <li>2.1 Develop Job Family framework based on technical competency and soft skill to show employees how to grow in their chosen career path and encourage learning</li> <li>2.2 Trusted Leader: to provide communication techniques for managers to communicate to their subordinates about performance evaluation and career path</li> <li>3.1 Studied compensation management and long-terms compensation in accordance with expectations of new generation employees resulting in salary structure adjustment and more flexibility.</li> <li>4.1 Set employee selection criteria based on employee performance evaluation, competency and leading expertise with Assessment Center (Talent Pool) for successor plan for critical position</li> <li>5.1 Developed Leadership Tips &amp; Tools for team leaders and focus on one on one coaching</li> <li>5.2 Conducted trainings on Coaching and Feedback</li> </ol> |
|  <p><b>Communities and Society</b></p>   | <p><b>Local Communities</b></p> <ol style="list-style-type: none"> <li>1. Safe operations</li> <li>2. Environmental protection</li> <li>3. Prompt communication during emergencies</li> <li>4. Participation in communities' events</li> </ol>              | <ol style="list-style-type: none"> <li>1.1 Proactive safety measures and PSM</li> <li>1.2 Conducted refinery site-visit for the local communities</li> <li>2.1 Proactive environmental protection system and process through the implementation of Carbon Footprint, Water Footprint, and 3Rs in operations</li> <li>2.2 Proactive environmental monitoring through the installation of Air Quality Monitoring System (AQM) and LED board displaying environmental conditions around the refinery</li> <li>3.1 Reviewed emergency plan, fire drill, and basic first aid trainings (CPR and AED) for communities, schools, and condominiums around the refinery</li> <li>4.1 Provided for communities in 8 areas: education, environment, safety, quality of life, economy, sports, relationship, and public interest.</li> </ol>  |

| 2018 Targets  | 2018 Results  | Future Plans  |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Employee engagement survey response higher than 2017 (year 2017: 99.75%)</li> <li>2. Employee engagement score: 64%</li> <li>3. 10% – 15% promotion rate of talents</li> <li>4. Turnover rate lower than 5% compared to the oil and gas business</li> </ol>   | <ol style="list-style-type: none"> <li>1. Highest employee engagement survey response at 99.84%</li> <li>2. Conducted annual employee engagement survey in 2018. Overall score improved over 2017 at 69%.<br/>Main issues include: <ul style="list-style-type: none"> <li>- Appraisal process improved from 46% to 58%</li> <li>- Career advancement improved from 46% to 52%</li> <li>- Awards and recognition improved from 49% to 52%</li> <li>- Talent management improved from 44% to 51%</li> <li>- Feedbacks from direct supervisor improved from 52% to 62%</li> </ul> </li> <li>3. Promotion rate: 13.92%</li> <li>4. Turnover rate : 3.55%</li> </ol>   | <ol style="list-style-type: none"> <li>1. Develop Job Family framework based on technical competency and soft skill to show employees how to grow in their chosen career path and encourage learning (target completion by 2019)</li> </ol>   |
| <ol style="list-style-type: none"> <li>1. Initiate 2 new PSMs</li> <li>2. Air quality within limits 100%</li> <li>3. Conduct and verified Carbon Footprint</li> <li>4. Implement 3Rs for waste management</li> <li>5. Conduct at least 1 fire drill per year per school/ condominium</li> <li>6. Review emergency and evacuation plans with local communities annually</li> <li>7. Community satisfaction score of at least 84.4</li> </ol> | <ol style="list-style-type: none"> <li>1. Trained relevant personnel to implement quality assurance and machine integrity systems to ensure safe operations during the major turnaround</li> <li>2. Air quality as measured by Third Party within limits 100% (all parameters were 20% below limits)</li> <li>3. Carbon Footprint certified</li> <li>4. Full implementation of 3Rs</li> <li>5. Conducted fire drills for 8 communities, 19 schools, and 14 condominiums</li> <li>6. Community satisfaction score <ul style="list-style-type: none"> <li>- Satisfaction 98%</li> <li>- Friendliness 77.2%</li> <li>- Beneficial 75.8%</li> <li>- Feeling of safety 75.1%</li> <li>- Trust 75.1%</li> <li>- Engagement 76.2%</li> </ul> </li> </ol> | <ol style="list-style-type: none"> <li>1. Conduct community engagement survey to collect feedbacks and expectations</li> <li>2. Review and improve community activities in line with community expectations and Bangchak's goals</li> <li>3. Promote and disseminate information and Bangchak's community related activities to internal and external stakeholders</li> </ol> |



| Stakeholders  | Needs/Expectations<br>(Disclosure 102-44)  | 2018 Responses<br>(Disclosure 102-43)  |
|---|--|--|
|  <p><b>Communities and Society</b></p> | <p><b>Thai Society (The youth)</b></p> <ol style="list-style-type: none"> <li>1. On-going activities (although formats and topics can be changed)</li> <li>2. Improve schools and students' performance</li> </ol><br><p><b>Thai Society (Farmers)</b></p> <ol style="list-style-type: none"> <li>1. Education and support to become more self-sufficient and to improve quality of life</li> <li>2. Channels to sell products</li> <li>3. Increase income through processed production</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Modified Bangchak Green Blood project to hold contest on innovative environmental, energy, and community products for students</li> <li>1.2 Held Bangchak YY Contest in partnership with AIT to identify social enterprises that support SDGs for high school students</li> <li>2.1 Held "Read and Write with Ease" program for students who cannot read and write in Chachoengsao province</li> </ol><br><ol style="list-style-type: none"> <li>1.1 Developed water management project using sufficiency economy philosophy for farmers in Pa Sak watershed</li> <li>2.1 Developed areas and communication system through social media</li> <li>3.1 Co-developed value-added community products</li> </ol> |
|  <p><b>Suppliers</b></p>             | <p><b>Suppliers<br/>(Contractors / Logistics providers)</b></p> <ol style="list-style-type: none"> <li>1. Clear requirements for products and services</li> <li>2. Effective, transparent, and auditable procurement process</li> </ol>  | <ol style="list-style-type: none"> <li>1.1 Conducted annual supplier seminar to communicate direction and receive feedbacks</li> <li>1.2 Fostered collaborations between the procurement team and users through a meeting between marketing business and refinery business</li> <li>2.1 Developed plans to collaborate between the procurement team and users to ensure timeliness and accuracy for each supplier contract</li> <li>2.2 Established Approved Vendor List Committee for categorizing high performance vendors to shorten the bidding process</li> </ol>   |

| 2018 Targets   | 2018 Results   | Future Plans  |
|--|--|---|
| <ol style="list-style-type: none"> <li>1. At least 80,000 youths/year educated on innovation and environmental issues to combat climate change</li> <li>2. At least 600 youths/year educated on social enterprises to support the SDGs</li> <li>3. At least 800 youths/year participated in “Read and Write with Ease” program</li> </ol>  | <ol style="list-style-type: none"> <li>1. Over 200 students proposed 46 environmental innovations and 19 community product innovations, which reached 121,196 youths through social media</li> <li>2. Over 600 university students from 19 universities created over 80 social enterprises which resulted in 2 product launch (seedlings bag from rubber plant and heat reduction system for air conditioning)</li> <li>3. 682 students participated in Read and Write with Ease program.</li> </ol>   |   |
| <ol style="list-style-type: none"> <li>1. Develop pilot program “Pun Sook Farmers” in Pa Sak watershed communities and surrounding areas.</li> <li>2. Increased the number of tourists in Kaen Makrut community (50,000 persons)</li> <li>3. Encouraged substitute crops (other than corns) and developed 3 processed products from bananas.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Conducted trainings on natural farming methods and sustainable farming techniques through sound water management for 9 farmers (32 rais)</li> <li>2. Participated in tourism promotional activities with local government agencies resulting in 45,000 tourists visiting Kaen Makrut areas during New Year holidays.</li> <li>3. Promoted the planting of sugar cane to be sold in SPAR and developed 3 processed products from bananas resulting in over 23,000 THB of additional revenues to the communities.</li> </ol> | <ol style="list-style-type: none"> <li>1. Promote cultural tourism throughout the year.</li> <li>2. Develop “Kaen Makrut” Learning Center</li> </ol>  |
| <ol style="list-style-type: none"> <li>1. Increase suppliers’ interests and competitive pricing</li> <li>2. Identified more capable suppliers resulting in increase in satisfaction score (80%)</li> <li>3. Reduce procurement time (behind schedule) by 100%</li> <li>4. Realized 280 million THB in cost saving with over 70 million THB coming from Category strategy Project</li> <li>5. 29 suppliers with contracts under 500,000 USD signed the Supplier Code of Conduct (SCOC)</li> </ol> | <ol style="list-style-type: none"> <li>1. Achieved clear requirements for innovative products that attracted vendors resulting in more competitive pricing</li> <li>2. Identified more capable suppliers resulting in increase in satisfaction score of 80.36%</li> <li>3. Reduce procurement time (behind schedule) by 65%</li> <li>4. Achieve 640 million THB in cost saving with over 70 million THB coming from Category strategy Project</li> <li>5. 29 suppliers with contracts under 500,000 USD signed the Supplier Code of Conduct</li> </ol>               | <p>Develop plan to reduce late procurement (behind schedule) to achieve 100% reduction target.</p> <ol style="list-style-type: none"> <li>1. Ensure collaboration between procurement team and users to develop clear scope and products and services requirements</li> <li>2. Unclear and incomplete procurement order in Shopping Card will be rejected and send back to originator to complete/ correct</li> </ol> |

| Stakeholders  | Needs/Expectations<br>(Disclosure 102-44)  | 2018 Responses<br>(Disclosure 102-43)  |
|---|--|--|
|  <p><b>Suppliers</b></p> | <p><b>Truck transportation suppliers</b></p> <ol style="list-style-type: none"> <li>1. Consistent and stable incomes from transportation jobs</li> <li>2. Clear direction for the next round of transportation contract</li> <li>3. Co-development of suppliers and improved work conditions</li> </ol>  | <ol style="list-style-type: none"> <li>1.1 Emphasized the use of semi-trailers for transportation and developed 24-hours operational system including backhaul</li> <li>1.2 Ensured that suppliers receive equitable amount of work</li> <li>1.3 Dispatched from Bangchak Depot instead of Bang Pa In and Samut Sakorn Depots to increase work for suppliers</li> <li>2.1 Held biddings and negotiations for existing suppliers to expedite contract renewable process.</li> <li>2.2 Used e-auction system for contract renewable to increase transparency</li> <li>3.1 Conducted monthly meetings</li> <li>3.2 Renovated facilities at Bang Pa In Depot and improve ethanol and B100 unloading systems at Bangchak depot</li> </ol> |
|                          | <p><b>Marine transportation suppliers</b></p> <ol style="list-style-type: none"> <li>1. Fair and reasonable incomes for transportation services</li> <li>2. Joint efforts to improve process</li> <li>3. No spills, reduce transportation losses and reduce the number of times ships are damaged and must be taken out of services</li> </ol>   | <ol style="list-style-type: none"> <li>1.1 Conducted negotiations with suppliers and agree upon prices and minimum numbers of trips prior to signing contracts</li> <li>2.1 Developed 24-hours CCTV and GPS systems</li> <li>2.2 Developed monthly Terminal Feedback report to ensure equipment readiness</li> <li>2.3 Conducted Tanker Management and Self Assessment (TMSA) to ensure performance according to International Safety Management</li> <li>2.4 Conducted emergency drills for Floating Storage Unit (FSU) spill incident</li> <li>3.1 Developed monthly Safety Dialogue reports</li> </ol>  |
|                        | <p><b>Raw materials suppliers</b></p> <ol style="list-style-type: none"> <li>1. Returns that are in line with the quality of products and services</li> <li>2. Fair and transparent procurement process</li> <li>3. Regular purchasing frequency</li> <li>4. On-time payment</li> <li>5. Sustainable business partnership</li> <li>6. Flexibility and continuity of raw material receiving operations</li> </ol> | <ol style="list-style-type: none"> <li>1. Held monthly meetings on crude oil sourcing to exchange knowledge and information on global market conditions and communicate crude needs to suppliers</li> <li>2. Cooperated with suppliers during procurement and operations</li> <li>3. On-time payment</li> </ol>  |



| 2018 Targets  | 2018 Results  | Future Plans  |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Delivery effectiveness : 80 %</li> <li>2. 0.9 complaints/ 1,000 trips</li> <li>3. Usage of semi-truck increased by 2% annually</li> <li>4. 600 backhaul trips</li> </ol>  | <ol style="list-style-type: none"> <li>1. Delivery effectiveness</li> <li>2. 0.5 complaints/ 1,000 trips</li> <li>3. Usage of semi-truck increased from 30% to 35%</li> <li>4. 700 backhaul trips</li> <li>5. Effective management of contracts (average 80%)</li> <li>6. Improved working conditions for contractors from the renovation projects</li> </ol> | <ol style="list-style-type: none"> <li>1. Use results from the supplier survey to develop future plans</li> </ol>                   |
| <ol style="list-style-type: none"> <li>1. Transported crude oil into refinery on schedule</li> <li>2. No complaints regarding late delivery</li> <li>3. 0.58% In transit Loss (on Delivery volume)</li> <li>4. No significant oil and chemical spills (over 100 barrels)</li> </ol> | <ol style="list-style-type: none"> <li>1. Transported crude oil into refinery on schedule</li> <li>2. No complaints regarding late delivery</li> <li>3. 0.56% Intransit Loss (on Delivery volume), better than target of 0.58%</li> <li>4. No significant oil and chemical spills (over 100 barrels)</li> </ol>   |   |
| <ol style="list-style-type: none"> <li>1. Supplier satisfaction score : 5</li> </ol>  | <ol style="list-style-type: none"> <li>1. Supplier satisfaction score : 4.9</li> </ol>  | <ol style="list-style-type: none"> <li>1. Closer collaboration with suppliers to increase understanding and satisfaction</li> </ol> |

| Stakeholders   | Needs/Expectations<br>(Disclosure 102-44)   | 2018 Responses<br>(Disclosure 102-43)  |
|--|---|--|
|  <p><b>Service Stations<br/>Customers</b></p> <ul style="list-style-type: none"> <li>- Bangchak Green Net Co., Ltd</li> <li>- Dealers</li> <li>- Agricultural Cooperatives</li> </ul> | <ol style="list-style-type: none"> <li>1. Higher and reasonable revenue</li> <li>2. Support to maintain service station competitiveness with focus on marketing</li> <li>3. Expansion of non-oil businesses to cater to customers' needs</li> <li>4. Effective marketing and advertising campaigns</li> <li>5. On time delivery of fuel at the correct volume, no corruption</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Improved the capability of service station owners through various activities and programs such as Service Warm up</li> <li>1.2 Implemented Refresh project at COCO (Company Own Company Operate) service stations to increase sales</li> <li>1.3 Installed Automation Point Of Sale at service stations and developed EDC POS to facilitate work at fuel dispensing unit</li> <li>2.1 Developed sales tools such as BCP Prepaid Card</li> <li>2.2 Conducted activities and trainings to frontline staff</li> <li>2.3 Exceed expectation awards for service personnel</li> <li>2.4 Implemented the Automatic Order System (AOS) for Bangchak Green Net's stock management system</li> <li>3.1 Developed new business models and new non-oil businesses to increase revenue for service station owners</li> <li>4.1 Continually develop sales and promotional events to increase topline income from each customer segment such as membership car and quality product offerings</li> <li>4.2 Conducted promotional activities for high margin products such as premium diesel, rebranding lubricant oil (FURiO), and gasohol E20 and E85</li> <li>5.1 Developed tracking system for transportation trucks so that service station owners can monitor shipment and ensure accurate delivery</li> </ol> |
|  <p><b>Consumers</b></p>  | <ol style="list-style-type: none"> <li>1. Brand image and safety within the service station</li> <li>2. Locations of service stations</li> <li>3. Availability and diversity of amenities</li> <li>4. Shops and brand varieties within the service stations</li> <li>5. Fast and quality service, personnel politeness</li> <li>6. Promotions: oil and non-oil</li> </ol>               | <ol style="list-style-type: none"> <li>1.1 Adopted Inno-Green Station criteria of Thailand Environmental Institute (TEI) for service station development</li> <li>1.2 Used Mystery Shopper Program to control service standard and brand image and Mobile Lab Test to control product quality</li> <li>1.3 Developed new products such as Hi-Premium Diesel S, E20S, and lubricant, FURiO</li> <li>2.1 Expanded service stations into areas that have not been served</li> <li>3.1 Used technology to improve customers' experience by installing hanging fuel dispenser in stations with limited area</li> <li>4.1 Developed new business model and business partners for non-oil such as add SPAR minimart, improve Inthanin coffee</li> <li>5.1 Utilized SOP to improve service quality</li> <li>5.2. Developed Flagship Service Station Standard</li> <li>5.3 Increase payment accuracy and timeliness as well as transparency by connecting EDC with POS</li> </ol>   |

| 2018 Targets  | 2018 Results   | Future Plans   |
|---|--|--|
| <ol style="list-style-type: none"> <li>1. Maintain 2nd position in retail sales with 15.5% market share</li> <li>2. Mystery Shopper scores at very good and good level greater than 75</li> <li>3. Add additional 30 SPAR minimarts and 200 Inthanin coffee shops</li> <li>4. Complaints related to transportation less than or equal to 3.5 / 1,000 trips</li> </ol>                                       | <ol style="list-style-type: none"> <li>1. Revenue from retail sales increased 5.1% while overall sales increase 2.7%</li> <li>2. Maintained 2<sup>nd</sup> position in retail sales with 15.6% market share (15.4% in 2017)</li> <li>3. Monthly sales per service station : 496 thousand liters/month/station, a decrease of 2.7% with overall reduction of 4.1%</li> <li>4. Expanded COCO (Company Own Company Operate) service stations 11 locations</li> <li>5. Mystery Shopper scores at very good and good level at 80</li> <li>6. Added additional 13 SPAR minimarts and 149 Inthanin coffee shops</li> <li>7. Increase non-oil businesses in 280 locations and acquired 71 new partners</li> <li>8. Sales of E20 and E85 increase 3.5% and 15.6%, respectively</li> <li>9. Sales of premium diesel increased by 1.9 million liters per month</li> <li>10. Complaints related to transportation less than or equal to 0.5 per 1,000 trips</li> </ol> | <ol style="list-style-type: none"> <li>1. Develop new non-oil partners to increase revenues to service station owners</li> <li>2. Add 20 SPARs and 200 Inthanin Coffee shops</li> <li>3. Develop Greenovative Service Station</li> </ol>   |
| <ol style="list-style-type: none"> <li>1. Develop 6 Inno-Green Stations</li> <li>2. Maintain 1<sup>st</sup> rank NPS score</li> <li>3. Add 80 service stations</li> <li>4. Add additional 30 SPAR minimarts and 200 Inthanin coffee shops</li> <li>5. Mystery Shopper scores at very good and good level greater than 75%</li> <li>6. Develop mobile application for Bangchak GreenMiles and CRM</li> </ol> | <ol style="list-style-type: none"> <li>1. Developed 6 Inno-Green Stations</li> <li>2. Maintained NPS Score of 71.5%, no significant difference from 1<sup>st</sup> place</li> <li>3. Added 74 service stations</li> <li>4. Increased customers' convenience during filling-up</li> <li>5. Added new businesses to 280 service stations and acquired 71 new partners</li> <li>6. Added additional 13 SPAR minimarts and 149 Inthanin coffee shops</li> <li>7. Mystery Shopper scores at very good and good level at 80%</li> <li>8. Numbers of service stations participating in Flagship Service Station Standard : 25</li> <li>9. Bangchak Mobile Application had 502,000 downloads</li> <li>10. Developed 39 new member benefit partners</li> </ol>  | <ol style="list-style-type: none"> <li>1. Continue to create Greenovative experience</li> <li>2. Add 70 service stations</li> <li>3. Add 20 SPAR minimarts and 200 Inthanin Coffee Shops</li> <li>4. Acquire new business partners</li> <li>5. Develop Greenovative Service Station</li> <li>6. Improve CRM system to analyze customers' expectations</li> </ol> |



| Stakeholders   | Needs/Expectations<br>(Disclosure 102-44)   | 2018 Responses<br>(Disclosure 102-43)   |
|--|---|---|
|  <p><b>Industrial customers/<br/>Engine oil customers</b></p> |   | <p>6.1 Developed and increase benefits for Bangchak GreenMiles such as new process for new members, improved points redemption system, adding new benefit partners and using mobile application</p>   |
|  | <ol style="list-style-type: none"> <li>1. Quick and convenient order process, inexpensive pricing</li> <li>2. Support for engine oil dispensing and collection equipment</li> <li>3. Technical services and marketing services, especially after sales services and emergency drills</li> <li>4. On-going promotional campaigns</li> <li>5. Long-term business partnership</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Added credit card payment method</li> <li>1.2 Added online sales channel and conducted promotional activities during 11/11 and 12/12</li> <li>1.3 Added FURiO Care service points for end users</li> <li>1.4 Introduced fleet card for customers</li> <li>1.5 Improved credit line and payment terms</li> <li>2.1 Lending program for oil and lubricant dispensing equipment as well as maintenance services</li> <li>3.1 Provided customers on technical knowledge for new products, such as HSD and B20</li> <li>3.2 Testing services for used lubricant</li> <li>3.3 Improved the number of technicians who support customers to increase communication and reach out to new customers</li> <li>4.1 Conducted trade promotions throughout the year</li> <li>5.1 Held seminar for industrial customers and conducted meetings for dealers to exchange knowledge</li> </ol> |
|  <p><b>Service station tenants</b></p>                      | <ol style="list-style-type: none"> <li>1. Work together to expand the number of service station (existing brands)</li> <li>2. Build partners who can scale and expand to new service stations quickly</li> <li>3. Cross promotional activities</li> </ol>   | <ol style="list-style-type: none"> <li>1.1 Offered new locations based on Brand's expansion plans</li> <li>2.1 Implemented Brand's recommendations and expectations</li> <li>3.1 Conducted quarter meeting to update and share information as well as promote good working relationships</li> </ol>   |

| 2018 Targets   | 2018 Results  | Future Plans  |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. Acquired over 100 new industrial customers</li> <li>2. Over 20 engine oil customers signed up for new accounts</li> <li>3. Acquired new Fleet Card customers (more than 20 customers/year)</li> <li>4. 38% lubricant sales increase</li> </ol> | <ol style="list-style-type: none"> <li>1. 290 industrial customers opened new accounts</li> <li>2. 28 engine oil customers signed up for new accounts</li> <li>3. Fleet card sales increase over 20 times/year</li> <li>4. Overall satisfaction score of 70%</li> <li>5. Customers willing to recommend Bangchak's products – 88%</li> <li>6. Lubricant sales increase 17%</li> </ol> | <ol style="list-style-type: none"> <li>1. Redraw industrial customer service areas and increase personnel and outsource sale representatives</li> <li>2. Introduce high quality products</li> </ol> |
| <ol style="list-style-type: none"> <li>1. Manage areas to maximize returns by offering new services and businesses</li> </ol>  | <ol style="list-style-type: none"> <li>1. Source businesses for empty space in new service stations prior to opening</li> <li>2. Promoted local brand and businesses into 5 service stations</li> <li>3. Acquired new business partners who previously voiced concerns over expansion</li> <li>4. New partners were able to quickly scale and expand</li> </ol>                       | <ol style="list-style-type: none"> <li>1. Manage areas to maximize returns by offering new services and businesses</li> </ol>   |

| Stakeholders  | Needs/Expectations<br>(Disclosure 102-44)   | 2018 Responses<br>(Disclosure 102-43)  |
|---|---|--|
|  <p><b>Government agencies</b></p> <ul style="list-style-type: none"> <li>- Central government agencies</li> <li>- Local government agencies</li> </ul>              | <ol style="list-style-type: none"> <li>1. Compliance with the laws or better</li> <li>2. Corporate social responsibility and good relations with communities as well as environmental protection</li> <li>3. Environmental protection and safety processes in the refinery</li> <li>4. Provide information on a timely basis and support government projects</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Complied with relevant laws and regulations. Conducted business with transparency.</li> <li>1.2 Conducted Legal Assessment and SHEE Audit</li> <li>1.3 Provided prompt and accurate information to regulators</li> <li>1.4 Kept superior control of environmental quality beyond legal requirements</li> <li>1.5 Quality assurance of products (prior to sales)</li> <li>2.1 Dedicated community outreach function conducted community activities in 8 areas</li> <li>3.1 ISO 14001 and OHSAS 18001 certified</li> <li>4.1 Provided supports for government environmental projects</li> <li>4.2 Provided supports for government projects such as improving a police outpost near Sukhumvit 62</li> </ol>   |
|  <p><b>Shareholders</b></p> <ul style="list-style-type: none"> <li>- Major shareholders</li> <li>- Individual shareholders</li> <li>- Funds/ Institutions</li> </ul> | <ol style="list-style-type: none"> <li>1. Higher capital gain</li> <li>2. Satisfactory dividend payments at regular interval</li> <li>3. Steady and robust revenue growth</li> <li>4. Projects are on-schedule</li> <li>5. Clear direction and target for business expansion</li> <li>6. Sustainable business practices</li> </ol>                                      | <ol style="list-style-type: none"> <li>1.1 Maintained high production yield at the refinery</li> <li>2.1 Paid suitable dividends on a par with peers</li> <li>3.1 Increased communication channel for shareholders to receive information on the company</li> <li>3.2 Updated Investor Relations website to improve user experience, added a Chatbot</li> <li>3.3 Developed an investment factsheet to introduce investors to the company and report quarterly earnings</li> <li>4.1 Conducted seminars on new businesses and update knowledge to institutional investors</li> <li>5.1 Staged activities for executives to meet with major and individual shareholders such as Opportunity Day, SET in the city, and site visits</li> <li>5.2 Increase frequency of shareholder engagement including staging Roadshows both in Thailand and internationally, participating in conferences, and events such as analyst meeting every quarter as well as participation in various conferences</li> <li>6.1 Managed business under Sufficiency Philosophies, ISO 26000, UNGC, and DJSI</li> </ol> |



| 2018 Targets  | 2018 Results   | Future Plans  |
|---|--|---|
| <ol style="list-style-type: none"> <li>1. Submit application for renewal of all licenses before the license expires.</li> <li>2. Maintain Green Industry Level 5</li> <li>3. Zero complaints related to environmental performance from government agencies</li> <li>4. Provide timely and accurate reports to regulators</li> </ol> | <ol style="list-style-type: none"> <li>1. Maintained all licenses</li> <li>2. Maintained Green Industry Level 5</li> <li>3. Zero complaints related to environmental performance from government agencies and communities</li> <li>4. Complied with all relevant laws and regulations</li> </ol>   | <ol style="list-style-type: none"> <li>1. Keep abreast of new and updated laws and regulation to ensure full compliance</li> <li>2. Conduct Legal Assessment and SHEE Audit</li> <li>3. Cooperate with governmental agencies to promote environmental projects</li> </ol>   |
| <ol style="list-style-type: none"> <li>1. Rank good to very good by the Stock Exchange of Thailand's SET Awards for Investor Relations</li> </ol>   | <ol style="list-style-type: none"> <li>1. Received SET Awards 2018 for investor relations</li> <li>2. Asian Excellence Recognition Awards 2018 : Best Investor Relations Company</li> <li>3. Maintained high interests in site visit</li> <li>4. The Asset Corporate Awards 2018: Best Investor Relations Team - Highly Commanded</li> <li>5. Invitation to various domestic and international Roadshows</li> <li>6. TSR Avg. 3-yrs: 4.41%</li> <li>7. Satisfaction score : 80 %</li> <li>8. 3G CSR Award 2018 and 3G Sustainability of Performance Award 2018 from 3G Award 2018 event</li> </ol> | <ol style="list-style-type: none"> <li>1. Increase the frequency of investors outreach activities and add communication channel to expand coverage</li> <li>2. Increase information provided on the IR webpage and improve the look and feel of the website</li> <li>3. Increase access to sell side analysts to understand their views and concerns in order to communicate expectations to executives and management</li> </ol> |

| Stakeholders  | Needs/Expectations<br>(Disclosure 102-44)   | 2018 Responses<br>(Disclosure 102-43)  |
|---|---|--|
|  <p><b>Media</b></p> <p>Include both traditional media and social media</p> <ul style="list-style-type: none"> <li>- Newspaper</li> <li>- Magazine</li> <li>- Television</li> <li>- Radio</li> <li>- Online media</li> </ul> | <ol style="list-style-type: none"> <li>1. Demand for accurate, timely information on updates of existing businesses as well as future business expansion plans</li> <li>2. Grant exclusive interviews of top executives on specific issues</li> <li>3. Demand for top management to issue statements in order to create trust and interests in the news.</li> </ol> | <ol style="list-style-type: none"> <li>1.1 Held press conference and issued press releases regularly</li> <li>1.2 Responded to media's requests on issues that area beneficial to company and society</li> <li>2.1 Supported media activities that are beneficial to the society to foster good working relationships</li> <li>2.2 Maintained good relationships with media who cover energy sectors</li> </ol>  |
|  <p><b>Creditors</b></p> <ul style="list-style-type: none"> <li>- Financial Institutions</li> <li>- Bondholders</li> </ul>   | <ol style="list-style-type: none"> <li>1. Honoring terms and agreements on loan and debenture contracts</li> </ol>  | <ol style="list-style-type: none"> <li>1.1 Strictly meeting conditions of loan and debenture agreements</li> <li>1.2. Strictly observing regulations of financial institutions issued by government agencies</li> <li>1.3. Giving accurate, prompt answers to questions from loan officers</li> <li>1.4. Arranging site visits to instill confidence in business performance and to enhance good relations with financial institutions and shareholders</li> </ol> |
|  <p><b>Competitors</b></p> <p>Energy companies,<br/>Oil trader/retailers</p>   | <ol style="list-style-type: none"> <li>1. Conducting businesses with transparency under fair competition</li> </ol>   | <ol style="list-style-type: none"> <li>1.1 Conducted businesses under free competition and fair marketing campaigns</li> </ol>   |

| 2018 Targets  | 2018 Results  | Future Plans  |
|---|---|---|
| 1. Increase Media Value from 2017   | 1. Bangchak was regularly featured in various media and publications<br>2. Media Value increased 20% over 2017<br>3. Media coverage was extensive and accurate                    | 1. Respond to media's requests on issues that are beneficial to company and society |
| 1. Assessment of overall responsiveness financial institution and bond holders - high<br>2. Assessment of meeting conditions of loan and debenture agreements - high to very high | 1. Assessment of overall responsiveness financial institution and bond holders - high<br>2. Assessment of meeting conditions of loan and debenture agreements - high to very high | 1. Strictly meeting conditions of loan and debenture agreements                     |
| 1. Zero complaints  | 1. No complaints or negative media related to competitive practices<br>2. No complaints from competitors about unfair practices   | 1. Continue business operations under fair and free competition                     |



# Key Sustainability Issues

Bangchak operates its business to ensure business sustainability, while being responsive to stakeholder and adding value to the society and the environment. We identified key sustainability issues through a materiality analysis process that takes into account stakeholders' needs and expectations and business considerations.

## Materiality

### 1. Identification of key sustainability issues for Bangchak and stakeholders

Key sustainability issues which have potential impacts on sustainability are compiled and reconciled from both internal and external factors that may impact on the corporate sustainability in the areas of economy, environment and society.

- Internal factors (targets and business plans), were derived from the executive brainstorming workshops as well as sustainability issues and enterprise risks with potential short-term and long-term impacts.
- External factors (global sustainability trends and expectations of stakeholders), comprise of global trends, SDGs, DJSI, UNGC, Thailand National Economic and Social Development Plan and the expectations of 9 stakeholder groups from structured or unstructured and formal or informal channel such as forums, focus groups, conferences, seminars, or interviews as well as the global direction on sustainability or SDGs, DJSI, United Nations Global Compact (UNGC), Thailand's national economic and social development plan, All these issues were then grouped and prioritized for further review.

(Disclosure 102-40)

### 2. Prioritization

The prioritization of key sustainability issues was conducted using correlation and conformance between the set of key sustainability issues significant to business and stakeholders and GRI indicators in accordance with the GRI Standards. A total of 78 issues were categorized into 24 topics and mapped in the Materiality Matrix with two distinctive considerations:

**2.1 Horizontal axis :** Key sustainability issues significant impacts, opportunities/ risks to Bangchak by considering short-term and long-term impacts.

**2.2 Vertical axis :** Key sustainability issues significant to stakeholders by considering impact level may occur.

### Identification of key sustainability issues for Bangchak



## Materiality Matrix Analysis



### Prioritization Key Criteria



### Materiality Matrix



#### Governance (2 issues)

1. Law & regulatory compliance
2. Business ethics and transparency

#### Economic (8 issues)

1. Continuous business growth
2. Good image of service stations/ New product development
3. Product transportation/ Effective management system of service station and corruption prevention
4. Fair procurement process
5. Sustainable supplier development
6. Clear scopes of procurement

#### Environmental (8 issues)



1. Energy consumption
2. No oil spill incidents
3. GHGs emissions/ Water consumption/ Water recycled and reused/ Environmental protection, wastewater and oil stain
4. Air emissions
5. Waste management

#### Social (6 issues)

1. Safe operations
2. Participation in communities' events
3. Annual performance appraisals
4. Business education and service training
5. Career development
6. Talent management

### 3. Validation



Results of materiality assessment have been endorsed by the Sustainability Policy Committee (Disclosure 102-32, 102-33). This year the issue raised by customers with respect to expectations on products and services have been addressed in more detail. The materiality analysis Included global trends in sustainability in the energy industry and the issue has driven Bangchak to double our efforts to innovate and grow our green energy and bio-based businesses. We have set

| Area  | Issues<br>(Disclosure 102-47)  | Impacts  |  | Significance  |
|---|--|--|--|---|
|   |  | Internal   | External                                     |   |
| <br>Governance | Law & Regulatory Compliance  | BCP<br>   | Communities and Society, Government Entities | Maintain strict compliance with relevant laws and regulations to ensure business continuity                                     |
|   | Business Ethics and Transparency   | BCP<br>   | Shareholders, Competitors                    | Implement fair practices and anti-corruption measures as well as provide transparency to stakeholders in accordance with SDG 16 |
| <br>Economic   | Continuous Business Growth   | BCP/ BCPG/ BBF/ BBE/ BGN/ BCR<br>   | Shareholders                                 | Maintain business growth, distribute income to stakeholders, and ensure operational reliability                                 |
|   | Good Image of Service Stations   | BCP/ BGN<br>  | Service Station Customers                    | Improve customer satisfaction and brand loyalty through Greenovative Experience   |
|   | New Product Development  | BCP/ BGN<br><br> | Service Station Customers                    | Improve customer satisfaction and brand loyalty through Greenovative Experience   |
|   | Accurate and Timely Delivery of Oil Products                             | BCP/ BGN<br>  | Service Station Customers                    | Improve customer satisfaction and brand loyalty through Greenovative Experience   |
|   | Effective Management System of Service Station and Corruption Prevention | BCP/ BGN<br>  | Service Station Customers                    | Improve customer satisfaction and brand loyalty through Greenovative Experience   |
|   | Fair Management of Supplier Contracts                                    | BCP<br>   | Suppliers                                    | Fairly distribute contracts to suppliers to build confidence and equitability   |
|   | Sustainable Suppliers Development  | BCP<br>   | Suppliers                                    | Capability building for major suppliers to improve safety and quality in line with Sustainability Policy and SDG 12             |
|   | Clear scope of procurement   | BCP<br>   | Suppliers                                    | Increase efficiency of packaging procurement process to reduce errors, improve timeliness, and reduce costs.                    |



a structure to respond to issues raised by stakeholders. The level of importance and appropriateness of the four levels are: Initiative Base, Strategic Focus, Mission Driven, and Sustainability Leader. In addition, indicators were developed to track progress at corporate, division, and initiative levels. Indicators have also been integrated into employees' and management's performance assessment in appropriate proportions (Disclosure 102-28) to foster a culture of sustainability. In 2018, the materiality assessment results are as follows:

| GRI Topic   | Reporting Content  | Topic-Specific  | Page           |
|---|--|---|----------------|
| GRI 307:<br>Environmental Compliance  | <ul style="list-style-type: none"> <li>Corporate Governance</li> <li>Anti-corruption</li> </ul>      | 307-1 Non-compliance with environmental laws and regulation   | 48<br>49       |
| GRI 419:<br>Socioeconomic Compliance  | <ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> <li>Air emissions</li> </ul> | 419-1 Non-compliance with laws and regulations in the social and economic area  | 14-17<br>81-82 |
| GRI 205:<br>Anti-Corruption   | <ul style="list-style-type: none"> <li>Corporate Governance</li> <li>Anti-corruption</li> </ul>      | 205-2 Communication and training about anti-corruption policies and procedures<br>205-3 Confirmed incidents of corruption and action taken        | 48<br>49       |
| GRI 201:<br>Economic Performance  | <ul style="list-style-type: none"> <li>Economic Performance</li> <li>Revenue</li> </ul>              | 201-1 Direct economic value generated and distributed   | 122<br>58      |
| Product and Service Development   | <ul style="list-style-type: none"> <li>Sustainable Product and Service Development</li> </ul>        | BCP Indicator : Numbers of service stations that have been renovated  | 84-89          |
| Product and Service Development   | <ul style="list-style-type: none"> <li>Sustainable Product and Service Development</li> </ul>        | BCP Indicator : Net Promoter Score (NPS) and customer satisfaction score  | 84-89          |
| Product Transport   | <ul style="list-style-type: none"> <li>Product Transportation</li> </ul>                             | BCP Indicator : Percentage of service station customers who are satisfied with products and services/ number of complaint related to late         | 90-92          |
| Product and Service Development   | <ul style="list-style-type: none"> <li>Sustainable Product and Service Development</li> </ul>        | BCP Indicator : Numbers of services stations that have been updated   | 84-89          |
| GRI 204:<br>Procurement Practice  | <ul style="list-style-type: none"> <li>Supply Chain Management</li> </ul>                            | 204-1 Proportion of spending on local suppliers   | 62-64,<br>122  |
| GRI 308:<br>Supplier Environmental Assessment<br>GRI 414:<br>Supplier Social Assessment | <ul style="list-style-type: none"> <li>Supply Chain Management</li> </ul>                            | 308-2 Negative environmental impacts in the supply chain and actions taken<br>414-2 Negative social impacts in the supply chain and actions taken | 62-64          |
| Sustainable Supplier Development  | <ul style="list-style-type: none"> <li>Supply Chain Management</li> </ul>                            | BCP Indicator : Management of time to procure packaging in an effective manner  | 62-64          |

| Area   | Issues<br>(Disclosure 102-47)                       | Impacts   |   | Significance   |
|--|---|---|---|--|
|  |   | Internal  | External  |  |
| <br>Environmental | Energy Consumption                                  | Strategic Focus<br>BCP/ BCPG/ BBF/ BBE/ BGN/ BCR                          | Communities and Society, Government Entities            | Achievement of corporate target on energy efficiency (SDG 7)   |
|  | Oil Spill Prevention                                | Strategic Focus<br>BCP  | Marine Transportation Suppliers                         | Spill prevention   |
|  | Greenhouse Gas Emissions                            | Sustainability Leader<br>Strategic Focus<br>BCP/ BCPG/ BBF/ BBE/ BGN/ BCR | Communities and Society, Government Entities            | Achievement of corporate target on GHG emissions and climate change (SDG 7 and SDG 13)   |
|  | Water Consumption                                   | Sustainability Leader<br>Strategic Focus<br>BCP                           | Communities and Society, Government Entities            | Better management of water consumption by conducting Water Footprint assessment with third-party   |
|  | Water Recycled and Reused                           | Strategic Focus<br>BCP  | Communities and Society, Government Entities            | Better management of water consumption by conducting Water Footprint assessment with third-party   |
|  | Environmental protection, wastewater, and oil stain | Strategic Focus<br>BCP  | Communities and Society                                 | Wastewater management and oil stain management through wastewater treatment process to discharge water with better quality than required by laws |
|  | Air Emission  | Mission Driven<br>BCP   | Communities and Society, Government Entities            | Quality of air emissions better than regulatory limits   |
|  | Waste Management                                    | Mission Driven<br>BCP   | Communities and Society, Government Entities            | Waste management using 3Rs   |
| <br>Social      | Safe operations                                     | Strategic Focus<br>BCP  | Suppliers, Communities and Society, Government Entities | Zero incidents that may impact the well-being and properties of employees, contractors, and local communities causing broad complaints           |
|  | Participation in community relations activities     | Strategic Focus<br>BCP  | Communities and Society, Government Entities            | Create value to the society and communities around the refinery  |
|  | Annual performance appraisals                       | Strategic Focus<br>BCP  |   | Expand 360 degree feedback process to include personnel at the director level and above  |
|  | Training to improve business and service quality    | Strategic Focus<br>BCP/ BGN   | Service Station Customers                               | Improve customer satisfaction and brand loyalty through Green-ovative Experience   |
|  | Career development                                  | Strategic Focus<br>BCP  |   | Develop career paths for technical and general career tracks to promote employees' loyalty to the organization                                   |
|  | Talent management                                   | Strategic Focus<br>BCP  |   | Develop Talent group and promote High Performance Culture  |

## Levels of stakeholder responsive work plans



**Project/event** that are not operation oriented organized by specific Division to achieve short-term target. Results are measured once. The operation of the responsible section.



Operation or business process improvement efforts to **corporate vision/strategy** that require collaboration among multiple functions to achieve medium-term goal and impacts on the value chain.

| GRI Topic  | Reporting Content  | Topic-Specific  | Page                           |
|--|--|---|--------------------------------|
| GRI 302:<br>Energy   | <ul style="list-style-type: none"> <li>Energy Consumption and Climate Change</li> </ul>  | 302-1 Energy consumption within the organization  | 73-75, 123                     |
| GRI 306:<br>Effluents and Waste  | <ul style="list-style-type: none"> <li>Significant Spills</li> </ul>   | 306-3 Significant spills  | 80                             |
| GRI 305:<br>Emissions<br>Product transportation  | <ul style="list-style-type: none"> <li>Energy Consumption and Climate Change</li> <li>Community and Social Engagement</li> <li>Product Transportation</li> </ul> | 305-1 Direct (Scope 1) GHG emissions<br>305-2 Energy indirect (Scope 2) GHG emissions<br>BCP Indicator : Significant environmental impacts of transporting products | 73-75, 123<br>112-121<br>90-92 |
| GRI 303:<br>Water  | <ul style="list-style-type: none"> <li>Water Consumption</li> </ul>  | 303-1 Water withdrawal by source  | 76-78, 124                     |
| GRI 303:<br>Water  | <ul style="list-style-type: none"> <li>Water Consumption</li> </ul>  | 303-3 Water recycled and reused   | 76-78, 124                     |
| GRI 306:<br>Effluents and Waste<br>Environmental protection<br>expenditure and investment type | <ul style="list-style-type: none"> <li>Wastewater</li> <li>Oil and chemical spills</li> <li>Environmental Cost Accounting</li> </ul>                             | 306-1 Water discharge by quality and destination<br>BCP Indicator : Environmental protection expenditure and investment type  | 78-79, 124<br>80<br>94-95      |
| GRI 305:<br>Emissions  | <ul style="list-style-type: none"> <li>Air Emissions</li> </ul>  | 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions   | 81-82, 124                     |
| GRI 306:<br>Effluents and Waste  | <ul style="list-style-type: none"> <li>Waste Management</li> </ul>   | 306-2 Waste by type and disposal method<br>306-3 Significant spills   | 83, 125                        |
| GRI 403:<br>Occupational Health and Safety   | <ul style="list-style-type: none"> <li>Safety and Occupational Health</li> </ul>   | 403-2 Types of injury and rates of injury, occupational diseases, lost days and absenteeism, and number of work-related fatalities                                  | 98-101, 128                    |
| GRI 413:<br>Local Communities  | <ul style="list-style-type: none"> <li>Community and Social Engagement</li> </ul>  | 413-1 Operations with local community engagement, impact assessments, and development programs  | 112-121                        |
| GRI 404:<br>Training and Education   | <ul style="list-style-type: none"> <li>Employee Stewardship and Education</li> </ul>   | 404-3 Percentage of employees receiving regular performance and career development reviews  | 104-110                        |
| Product and Service<br>Development   | <ul style="list-style-type: none"> <li>Sustainable Product and Service Development</li> </ul>  | BCP Indicator : Numbers of projects/service stations participating in CO-OP Turn Pro/ CO-OP Coaching programs   | 84-89                          |
| GRI 401:<br>Employment   | <ul style="list-style-type: none"> <li>Employee Stewardship</li> </ul>   | GRI 401-1 New employee hires and employee turnover  | 104-110, 126-127               |
| Labor Management Relation  | <ul style="list-style-type: none"> <li>Employee Stewardship</li> </ul>   | BCP Indicator : Best Employer Score by AON Hewitt   | 104-110, 126-127               |



The same structure as the Executive Committee in line with **business direction and goals** with aim to create a competitive advantage in order to create value to the organization and stakeholders. Goals are integrated into the entire organization.



**Business processes** that are self-sustain, well managed, and recognized as the industry leader. Goals are set long-term and values are created for the organization, stakeholders as well as the wider environment and society.



# Sustainability strategy

Bangchak prioritizes its commitment to sustainable business development that also protects the environment, while integrating clean-energy innovations to be in line with our organization's vision of **"Evolving Greenovation"** and to humbly induce the philosophy of Sufficient Economy for a balance between **"value"** and **"sustainability"** throughout our business operations. Our goal is to boost double profit growth in 5 years by employing the 3S strategy

**3S Strategy: Security Stability Sustainability** remains the key business strategy for Bangchak to advance its business growth and sustainability to be in line with global megatrends and the needs and expectations of all stakeholders.



## **S1 : Security :**

**Enhance national energy security**

Our core business strategy that combines the refinery, marketing, alternative energy and natural resource, such as petroleum and lithium, are raw materials of existing and new businesses.

## **S2 : Stability :**

**Manage portfolio for business development growth and diversify portfolio into businesses with more income stability**

Focus on businesses with more stable incomes and low external risks domestically and internationally, such as green energy businesses.

## **S3 : Sustainability :**

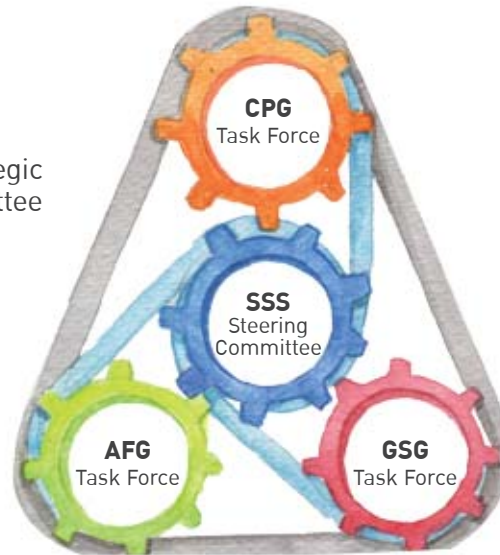
**Improve and leverage core business for the growth and sustainability**

Create sustainable business development growth by leveraging our core business to ensure that we are ready for future technology change.

## Bangchak Group's Governance Structure

### SSS Steering Committee

Subsidiary Synergy & Strategic Alignment Steering Committee



### Group Functional Task Force

- CPG** Task Force : Corporate Planning, Corporate Compliance, Innovation and Business Development
- AFG** Task Force : Account and Finance
- GSG** Task Force : General Operation Support Corporate Image and Sustainability

The BCP Way of Conduct is established as a management guideline so that all businesses within the Bangchak Group's portfolio management conduct operations that are aligned to support sustainable business growth. It is overseen by the SSS Steering Committee (Subsidiary Synergy & Strategic Alignment Steering Committee) who determines the guideline and supervision for investment strategies and operations between all companies. The committee also launched group functional task forces to ensure that Bangchak Group's vision and strategies are carried out accordingly, including the CPG Task Force (Corporate Planning, Corporate Compliance, Innovation and Business Development), AFG Task Force (Account and Finance), and GSG Task Force (General Operation Support Corporate Image and Sustainability).

The company still maintains the 4 Green (4G) strategy as its guideline in creating sustainable operations and investments.



## 1. Green Business

The company prioritizes its commitment to new sustainable businesses that also preserve the environment and integrating clean-energy innovations to build on new investments from current practices, including Bangchak Innovation and Initiative Center (BiiC), developing high value bio products, building Green Community Energy Management System (GEMS), and diversifying into lithium battery production to support the growth of EV Car, to ensure continuous growth and pushing Bangchak Group to the forefront of Asia's sustainable green energy innovations.

## 2. Green Production

Upgrading our production to be environmentally-friendly and safe by managing our resources efficiently, particularly in efficient consumption of water and energy resources. Our operations are also controlled by ISO 14001 environmental management system, ISO 50001 energy management system. Also, preparations are underway to adjust from OHSAS 18001 to ISO 45001 which is the new standard in occupational health and safety in the workplace and applied Process Safety Management (PSM) concept.





### 3. Greenovative Experience

The strategy focuses on development of green experience and green innovation to support the modern Thai lifestyle where everyone is encouraged to be a participant in preserving the environment sustainably

- Greenovative Product** All products developed and produced to satisfy customers' needs must be environmentally friendly. Bangchak distributed EURO 5 standard fuel including Gasohol E20 and Hi Premium Diesel S and plans on selling Diesel B20 to transport truck customers which helps to ensure the combustion will be completed and cleaned and reduced emissions. The company also launched premium-grade engine oil "FURIO", has exceeded the API SN standard, the current highest standard for engine oils, in efficiency. In non-oil businesses, Bangchak raised environmental awareness by using biodegradable coffee cups and campaigned for no straws at Inthanin coffee shops and reducing plastic bags for customers at SPAR convenience stores.
- Greenovative Service Station** Modernizing retail stations providing services using the 4 Rs process of Renewable, Recycle, Reuse, and Reduce, such as the Green Community Energy Management System (GEMS) to lay the foundations as a model flagship station that can generate and sell electricity has produced from solar rooftop installations on the service station's canopy. The service station has dedicated energy storage system using a 1 MW lithium battery, installed an EV charger usage of energy-saving materials, expansion of green and shaded areas.
- Greenovative Mind** Bridging technology and information systems to improve customer database management and to increase the speed and efficiency in service.
- Greenovative Communities** Creating experiences that allow the customers to be a part in helping society, the environment, and preserving culture such as turning oversupplied products like sugarcane and pineapples into promotional gifts for service station customers or pushing sales of environmentally-friendly products.



### 4. Green Society

Green Society is another major strategy that Bangchak continuously deploys to preserve the environment and improve the quality of life in Thai society, particularly with SMEs (small and medium-sized enterprises) and local farmers to sustainably generate higher income, while promoting the concept of community-responsible production and consumption in line with the UN Sustainable Development Goals (SDG) 11 and 12 under various programs as follow:

- CSR in Process
- CSR after Process
- CSR as Process
- Broaden sustainability network with Supplier Code of Conduct (SCOC)
- Expanding Social Enterprise (SE)

## Strategy 1 : Sustainable, responsible investments and value-creation (Green Business)

| Plans  | Results  | 2023 Targets  |
|--|--|---|
| 1.1 Develop power generation businesses from solar, wind and geothermal energy by becoming an Asian player ★ | <ul style="list-style-type: none"> <li>• Able to generate and distribute 209 MWdc of solar power, 192 MWdc in Thailand and 17 MWdc in Japan</li> <li>• Managed the asset transaction for solar power business in Japan to an infrastructure fund to support investment for new projects and maximize growth and returns domestically and internationally</li> <li>• Commenced construction for solar power generation project for War Veterans Organization with total production of 8.94 MW. Project completed in 2018</li> <li>• Commenced construction for Lom Ligor wind power project in Nakhon Si Thammarat province with production capacity of 8.97 MW. Project expected to be completed in mid-2019</li> </ul>  | <ul style="list-style-type: none"> <li>• Improvement: Improve project developments by focusing on efficient assets management and increasing assets value</li> <li>• Investment: Invest in business or new projects that can produce results according to targets</li> <li>• Innovation: Lead in innovation by integrating technology and business and using digital energy management within the framework of power generation businesses</li> <li>• Intelligence: Employ a knowledgeable and specialized workforce with a focus on customers to promote and drive the business towards</li> </ul> |
| 1.2 Develop biofuel business and expand business in high value bio products ★                                | <ul style="list-style-type: none"> <li>• Operations commenced under BBGI Company Ltd, the company established in 2017 after the amalgamation between BBP Holdings Ltd. and KSL Green Innovation Ltd.</li> <li>• Operated total biodiesel production at 930,000 liters/day with a throughput of 86% (Bangchak Biofuel Co., Ltd.)</li> <li>• Operated tapioca-based ethanol production capacity (Bangchak Bioethanol Co., Ltd.) at 150,000 liters/day with an average production rate at 91% incorporated with Ubon Bio Ethanol Co., Ltd. which has ethanol production capacity at 400,000 liters/day with an average production rate at 93% for total production capacity at 550,000 liters/day</li> <li>• Operated and expand sugar-based ethanol production capacity through KGI-BP project with ethanol production capacity at 200,000 liters/day with an average production rate at 97%</li> <li>• Operated and expand sugar-based ethanol production capacity through KGI-NP project with ethanol production capacity at 150,000 liters/day with an average production rate at 94%</li> <li>• Screened high value bio products to develop commercially such as bioplastics and biochemicals</li> </ul> | <ul style="list-style-type: none"> <li>• Increase bio-diesel production to 1,000,000 liters/day and increase ethanol production to 1,200,000 liters/day</li> <li>• Develop bio-based business by establishing Bio-Complex to leverage our biofuel into high value bio product, expand business opportunities, and support research and development in energy crops such as sugar cane, tapioca, palm oil, and algae as well as to add value to agricultural products to support farmers</li> </ul>  |
| 1.3 Develop innovative business to add value and expand business opportunities ★                             | <ul style="list-style-type: none"> <li>• Established BCP Innovation Pte. Ltd. (BCPI) in Singapore to engage in overseas innovation-based business. BCPI expanded its investment in lithium mine in Lithium Americas Corporation. It is in the process of developing the Cauchari project in Argentina with an expected production capacity within the first phase at 25,000 tonnes/year in 2020</li> <li>• Bangchak Innovation and Initiative Center (Biic) founded Corporate Venture Capital (CVC) to invest in startups through international incubation and in-house pitching. Established 4 subsidiaries to provide funding support and investment in startups in the past year. Cooperated academically and develop projects with different institutions and universities such as Mahidol University (MU), Kasetsart University (KU), Thammasart University (TU), Rajamangala University of Technology Phra Nakhon (RMUTP), Thailand Institute of Scientific and Technological Research (TISTR) and Asian Institute of Technology (AIT). Invested 9.0M USD in Startup 3 Project. Achieved 168M THB of EBITDA from innovative products and services</li> </ul>   | <ul style="list-style-type: none"> <li>• Expand investment in lithium mine. Increase production capacity to 50,000 tonnes/year and leverage development into related businesses such as lithium batteries</li> <li>• Invest in incubator and startup businesses with focus on green energy such as energy storage and bio based business that are beneficial to society and the environment</li> </ul>  |

## Strategy 2 : Upgrading of environmental and safety management (Green Production)



| Plans   | Results   | 2023 Targets  |
|---|---|---|
| 2.1 Improve stability and efficiency in energy consumption ★  | <ul style="list-style-type: none"> <li>Implemented YES-R+ project to increase yield, energy efficiency, safety and reliability</li> <li>Improved energy consumption by lowering refinery's Energy Intensity Index (EII) to 100.5</li> <li>Construction of 3E project on schedule <ul style="list-style-type: none"> <li>Continuous Catalyst Regeneration Unit (CCR)</li> <li>Debottlenecking to improve distillation unit efficiency</li> </ul> </li> <li>Operated electricity generation and steam production from GTG-3 plant with a capacity of 12 MW instead of boilers. Significantly reduced the use of fuel and provide stable and continuous production from the previous year</li> </ul>   | <ul style="list-style-type: none"> <li>Complete YES-R+ project to increase yield, energy efficiency, safety and reliability</li> <li>Energy Intensity Index (EII) = 98 (2020 target)</li> <li>Complete construction of 3E project on schedule <ul style="list-style-type: none"> <li>Continuous Catalyst Regeneration Unit (CCR) in 2020</li> <li>Debottlenecking to improve distillation unit efficiency in 2020</li> </ul> </li> </ul>          |
| 2.2 Knowledge-sharing and raise public awareness to support the effort to limit the global temperature rise to 2 degrees Celsius  | <ul style="list-style-type: none"> <li>Raised public awareness with youths on a larger scale through social media with projects such as "Green Blood" (an estimate of 121,000 youths participated in the project). Organized seminar on Bio-Economy for the general public to attend</li> </ul>   | <ul style="list-style-type: none"> <li>Share knowledge and raise public awareness with youths on a larger scale through social media. Enroll more than 80,000 youths/year in the project</li> </ul>   |
| 2.3 Improve the efficiency of water consumption for production processes by reducing consumption and reuse-recycle  | <ul style="list-style-type: none"> <li>Reduced tap water consumption by 4.95% (based year 2015)</li> <li>Improved water consumption efficiency to 56.8 cu.m./1000 barrels of crude oil processed</li> <li>Develop a Water Footprint to manage water consumption throughout product life-cycles</li> </ul>   | <ul style="list-style-type: none"> <li>Reduce tap water consumption by 15% (compared to base year 2015) (2020 target)</li> <li>Increase water efficiency per production output to 56.6 cu.m./barrel of oil equivalent (2020 target)</li> </ul>  |
| 2.4 Implement a Process Safety Management (PSM) system and enlarge surrounding community areas to promote awareness of safety, occupational health, and the environment | <ul style="list-style-type: none"> <li>Developed safety management systems in accordance with the Process Safety Management (PSM) covering 3 areas which are Management of Change Technology - Facilities (MOC-T, F), and Pre-Startup Safety Review (PSSR)</li> <li>Practiced business continuity plan in the case of community protest. Conducted Table Top evacuation drills with the 8 communities surrounding the refinery in the Phra Khanong district with the help of Phra Khanong Office and Phra Khanong Fire Station</li> <li>Online monitoring of air quality at stacks, work areas, and in the surrounding communities to ensure higher air quality than required by law and to ensure there are no complaint related to air quality</li> <li>Implement 3Rs for waste management in the refinery for at least 99% of all waste</li> </ul> | <ul style="list-style-type: none"> <li>Improve safety systems in all 14 areas</li> <li>11 communities are safer through emergency and evacuation drills (2020 target)</li> <li>No incidents that lead to community complaints</li> <li>No complaints related to air emissions</li> <li>Encourage other companies in the industrial sector to implement the 3Rs in waste management. Recognize for 3Rs Award and Zero Waste to Landfill</li> </ul> |



## Strategy 3 : Development of green and innovation experience (Greenovative Experience)

12.2 12.4 12.5

| Plans  | Results  | 2023 Targets  |
|--|--|---|
| <p>3.1 Develop customer-centric service stations, including concept and image redesign, service upgrade, complimentary and value-added services to deliver novel experience to customers ★</p> | <ul style="list-style-type: none"> <li>• <b>Greenovative Product</b> <ul style="list-style-type: none"> <li>- Sales of gasohol E20 S and Hi-Premium Diesel S Euro 5 standard</li> </ul> </li> <li>• <b>Greenovative Service</b> <ul style="list-style-type: none"> <li>- Revamped service standard and conducted trainings across the country. Expanded POS Automation to 787 stations and improved IT system to manage customer database in order to improve service quality and increase customer satisfaction</li> <li>- Joined SCG Chemicals Co., Ltd. and Indorama Ventures Co., Ltd. to launch plastic recycling project under the name “Rak Pan Sook” with Bangchak gas stations set up as donation points</li> <li>- Developed Bangchak service stations in accordance with the Inno-Green Station criteria of Thailand Environment Institute (TEI) with the concepts of environmental awareness, safety, and quality of life. 6 Bangchak service stations were certified with Platinum level in 2018</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• The Most Admired Brand recognition</li> <li>• Increase share in service station market by 20%. Ensure significant benchmark in Net Promoter Score against other market leaders</li> <li>• Develop at least 25 service stations into Inno-Green Stations through energy, water, and waste management (2020 target)</li> </ul> |

## Strategy 4 : Develop business/activities that are beneficial to society and the environment (Green Society)



| Plans  | Results  | 2023 Targets   |
|--|--|--|
| 4.1 Promote social activities and social enterprises that create value for society and ensure environmental protection (CSV) | <ul style="list-style-type: none"> <li>Added value to agricultural products, boosted support for agricultural sector and leverage oversupply crisis into value-added products by purchasing 460 and 70 tonnes of pineapples by Bangchak and COOP service stations respectively at fair price and processing them into “Sapparot Jai Dee” dried pineapples to give as promotional gifts for service station patrons</li> <li>Co-developed additional 13 service stations with community agricultural cooperatives</li> <li>Upgraded high-potential community service stations with Smart P&amp;L to measure COOP Coaching and COOP Turn pro at 60 community service stations and 12 community service stations, respectively</li> </ul>   | <ul style="list-style-type: none"> <li>Support products from agricultural cooperative by providing shelf space in SPAR stores domestically and for exports as well as continue to use these products as promotional gifts at Bangchak service stations every year</li> <li>Continuously develop service stations with agricultural cooperatives</li> <li>Upgrade service potentials for community service stations</li> </ul>  |
| 4.2 Develop activities for society to directly respond and tackle national issues  | <ul style="list-style-type: none"> <li>Broadened the sustainability network with 29 suppliers whose overall transactions did not exceed USD \$500,000 by sharing the business Code of Conduct and enforcing self-assessment</li> <li>Conducted social enterprise activities through Oam Suk Social Enterprise to expand business partnerships with farmers by leveraging business knowledge and marketing channel to increase value of agricultural products such as rice and organic crops. Worked with the Buddhist Economic Foundation Network in Chiang Rai province on project called “Ariyasap by Inthanin” and held coffee business seminar in Chiang Rai</li> <li>Continued to support community enterprise “Khun Jaew Cleaning Service” and increased participants’ personal income on average to 4,000 THB/month/person. Conducted community kitchen during renovation project for 28 days with 34 participating businesses to generate income through product support and community service and increased average income to 2,000 THB/business/day</li> <li>Conducted 184 activities with 28,328 participants to improve economic, environment, and social conditions of communities around the refinery</li> <li>Improved education for Thai youths and raised living standards for farmers through Bai Mai Punsook Foundation <ul style="list-style-type: none"> <li>Literacy development program for 1,968 elementary youths</li> <li>Project that used natural methods and design on plots to improve water management and capacity building for 14 farmers in the Pa Sak Basin</li> <li>Kaen Makrut project to support and develop agricultural tourism in plots. Promoted sugarcane production to increase crop diversity for commercial sales and using product as raw material for sugarcane juice sold at SPAR convenience stores</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>All qualified suppliers to participate in code of conduct programs and self-ethical assessment</li> <li>Conduct community survey to assess the friendliness, benefits, safety and overall engagement level with score of 85%. Support at least 3 community enterprises (2020 target)</li> <li>Develop youths to achieve academic goals at every age (2020 target) <ul style="list-style-type: none"> <li>Develop at least 2,000 children to achieve literacy per year (2020 target)</li> <li>Develop one vocational curriculum to support the labor market and Thailand 4.0 (2020 target)</li> <li>Co-develop one undergraduate program to support business, environment, and sustainable development</li> <li>Help at least 50 farmers in sustainable agriculture zones to design and improve water management on their plots (2020 target)</li> </ul> </li> </ul> |

**Note:** 1) Target are set for 2020 and 2023 to be in line with 5 year corporate strategy and SDGs  
★ 2) Designates sustainability indicator that ties to the President & CEO’s performance assessment in 2018

Please refer to Corporate Governance and Anti-Corruption chapters for our responses to SDG 16 and Employee stewardship chapters for SDG 8.

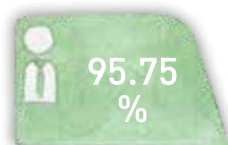
# Corporate Governance

Good corporate governance is the cornerstone of the business. Ever since its inception, Bangchak has established **Corporate Governance Policy** (Disclosure 102-16) to guide its directors, executives, and employees in conducting the business. A **Corporate Governance Committee** oversees Bangchak's policies to maintain good conduct. The committee places great importance on conducting business based on honesty, transparency, accountability, and anti-corruption practices at every level to continually develop and raise the standard of Bangchak's Corporate Governance for greater effectiveness. This practice builds trust for all stakeholders and ensures long-term growth. The committee annually revises its practices to keep pace with international standards. In 2018, meetings were held to monitor the results of corporate governance development plans as follows.



| Policy Revision  | Determined Commitment  | Sharing Perspectives   |
|--|--|--|
| <p>The 15<sup>th</sup> version of the policy undertook the following revisions:</p> <ul style="list-style-type: none"> <li>Added the roles and responsibilities of the committee to align with Corporate Governance Policy for publicly listed companies</li> <li>Limited the terms of board members of other listed subsidiaries, not including executive directors in the group</li> <li>Limited the Independent Director to no more than three consecutive terms</li> <li>Reported stakeholding changes according to SEC. Sor Jor. 38/2561</li> </ul> | <ul style="list-style-type: none"> <li>Required all employees to acknowledge and complete annual test on the policy through the online management portal WeShare</li> <li>Required all employees to annually provide information concerning conflicts of interest through the human resources portal</li> <li>Staged CG Day 2018 (14<sup>th</sup> Year) by having Professor Emeritus Kasem Watanachai presenting on being a good citizen and implementing knowledge for the benefit of the society</li> <li>Conveyed No Gift Policy for every occasion to employees and all concerned parties in Bangchak group</li> </ul> | <ul style="list-style-type: none"> <li>Shared experiences on corporate governance and anti-corruption to students from King Prajadhipok's Institute and Program to Develop Young Executives for Change by Committee to Develop Government Processes</li> <li>Held "BCP CAC-SME Executive Briefing &amp; Workshop," an annual business seminar</li> </ul> |

For corporate governance practices to achieve full effectiveness, the Board has required performance assessments in three categories at least once per year. In addition, each subcommittee was assessed individually. Details under Management Structure in the 2018 annual report.



### 1. Individual self-assessment

Average score: 95.75%  
Excellent



### 2. Individual cross-assessment

(The process requires 3-4 anonymous directors to assess each director)  
Average score: 96.80%  
Excellent



### 3. Group assessment

Average score: 97.47  
Excellent



## Anti-Corruption

Continually combating corruption, Bangchak has been certified since 2016 (certified for 3 years) by CAC (Thailand's Private Sector Collective Action Coalition Against Corruption). Bangchak was among the first 22 companies to receive this certification and has remained certified without break.

Bangchak is committed to anti-corruption in the following ways:

- **Communication and Education:** Bangchak communicates through the online portal "WeShare" to allow executives and employees to learn and complete tests on corporate governance policy. This helps them to understand the policy correctly and learn efficiently.
- **Anti-Corruption Measures:** Informed employees, subsidiaries, and related parties on a **No Gift Policy** (Disclosure 102-16) during festive periods and other occasions to stress Bangchak's commitment to building a solid foundation for conducting fair business for all parties.
- **Sharing Perspectives:** In 2018, Bangchak, in partnership with CAC, conducted an annual seminar with our business partners. This "BCP CAC-SME" Executive Briefing & Workshop encouraged an anti-corruption drive among partnered SMEs and prepared them to get certified by "Thai Corporates Drive Against Corruption" (CAC) for the fifth straight year. As a result, 48 businesses agreed to the principles and were certified by CAC. For the 7 SME businesses, 6 are business partners with Bangchak. In total, 54 business partners were certified with CAC. (Disclosure 205-2)



Executives and employees who have acknowledged and learned the policy and completed the test  
(Disclosure 205-2)



Acknowledged the policy

100%



Completed test

100%



Notification of conflict of interest through an online e-HR system  
(Disclosure 102-25)

100%



Number of corruption cases  
(Disclosure 205-3)



0 case

### Numbers of partners

|                          | 2015 | 2016 | 2017 | 2018 |
|--------------------------|------|------|------|------|
| Agreed to the principles | 22   | 58   | 91   | 97   |
| Certified by CAC         | 0    | 2    | 3    | 48   |
| Certified by CAC-SME     | 0    | 0    | 0    | 6    |



In addition, Bangchak emphasized the importance of anti-corruption to its subsidiaries. Together, we organized the Annual CG Day 2018 (the 14<sup>th</sup> year) to discuss policies for anti-corruption among Thai companies. Professor Emeritus Kasem Watanachai, presented on being a good citizen and implementing knowledge for the benefit of the society to executives and employees of Bangchak and its subsidiaries.

As a result of placing great importance on corporate governance, this year Bangchak received many awards for good corporate governance, as follows:

### • International Awards

- Platinum Award for the fifth consecutive year in the Asset Corporate Awards 2018 ceremony. The award was for Bangchak's outstanding corporate governance and our responsibility towards society and the environment. Organized by the Asset Magazine (Hong Kong).
- Top 50 ASEAN PLCs by ASEAN Corporate Governance Award for the second consecutive year. The ASEAN corporate governance was assessed by ASEAN CG Scorecard (ACGS), which is the committee setting the standard and ranking corporate governance performance of registered companies in ASEAN countries. Grouped by listed companies in ASEAN and principally supported by the Asian Development Bank.



### • National Awards

- Best Sustainability Awards 2018 for the second consecutive year under the category of outstanding listed company. This was an honored award for companies with great corporate governance and long-term business plans that reflect a comprehensive integration of sustainability in business. Organized by the Stock Exchange of Thailand.



**A** รับผิดชอบต่อการตัดสินใจและการกระทำ  
*Accountability*

**R** สำนึกต่อหน้าที่ความรับผิดชอบ  
*Responsibility*

**T** โปร่งใส เปิดเผยข้อมูล และตรวจสอบได้  
*Transparency*

**E** ปฏิบัติต่อผู้เกี่ยวข้องทุกฝ่ายอย่างเท่าเทียมกัน  
*Equitable Treatment*

**V** มีวิสัยทัศน์สร้างมูลค่าเพิ่มแก่กิจการระยะยาว  
*Vision to Create Long Term Value*

**E** มีคุณธรรมและจริยธรรม  
*Ethics*

Corporate risk management is an important process to systematically plan for and mitigate risks, especially in the fast changing and dynamic business environment. Bangchak has adopted an enterprise-wide COSO, ERM, and ISO 31000 as tools for its risk management system and applied them to all levels (Disclosure 102-11) from business groups to divisions, functions, and all investment projects. Corporate risk management process has been standardized and deployed to all subsidiaries where risk management structure has been implemented to ensure full coverage of all business operations and successful achievement of short-term and long-term targets in line with the sustainable development strategy.

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graph TD
    CRMS[Corporate Risk Management Structures]
    NRC[Nomination and Remuneration Committee]
    AC[Audit Committee]
    IA[Internal Audit]
    PRMC[Price and Finance Risk Management Committee (PRMC)]
    MANCOM[Management Committee (MANCOM)]
    ERMC[Enterprise-wide Risk Management Committee (ERMC)]
    RMC[Risk Management Sub-Committee (RMC)]

    CRMS --- NRC
    CRMS --- AC
    CRMS --- IA
    CRMS --- PRMC
    CRMS --- MANCOM
    CRMS --- ERMC
    ERMC --- RMC

    RMC --- B1[President and Chief Executive Officer/  
Senior Executive Vice President/  
Refinery Business Unit]
    RMC --- B2[Chief Marketing Officer & Senior Executive Vice President/  
Marketing Business Group]
    RMC --- B3[Senior Executive Vice President/  
appointed to BCPG Public Company Limited]
    RMC --- B4[Senior Executive Vice President/  
appointed to BBGI Company Limited]
    RMC --- B5[Executive Vice President  
Natural Resources]
    RMC --- B6[Senior Executive Vice President/  
Accounting and Finance Group]
    RMC --- B7[Senior Executive Vice President/  
Corporate Management and Organization Development Group]
    RMC --- B8[Senior Executive Vice President/  
Planning and Sustainability Development Group]

    B1 --- RM1[Risk Manager]
    B2 --- RM2[Risk Manager]
    B3 --- RM3[Risk Manager]
    B4 --- RM4[Risk Manager]
    B5 --- RM5[Risk Manager]
    B6 --- RM6[Risk Manager]
    B7 --- RM7[Risk Manager]
    B8 --- RM8[Risk Manager]

    RM1 --- RC1[Risk Coordinator]
    RM2 --- RC2[Risk Coordinator]
    RM3 --- RC3[Risk Coordinator]
    RM4 --- RC4[Risk Coordinator]
    RM5 --- RC5[Risk Coordinator]
    RM6 --- RC6[Risk Coordinator]
    RM7 --- RC7[Risk Coordinator]
    RM8 --- RC8[Risk Coordinator]

    RC1 -.-> CSD[Corporate Strategy and Risk Management Division (CSD)]
    RC2 -.-> CSD
    RC3 -.-> CSD
    RC4 -.-> CSD
    RC5 -.-> CSD
    RC6 -.-> CSD
    RC7 -.-> CSD
    RC8 -.-> CSD

    CSD --- CP[Corporate Strategy and Business Portfolio (CP)]
    CSD --- CSD2[Corporate Strategy and Risk Management Division (CSD)]
  
```

Risk Manager - Vice presidents or appointed persons

## Reporting

Functional

----- Risk Communication

Bangchak Corporation Public Company Limited 051




## Promoting Risk Culture throughout Bangchak Group


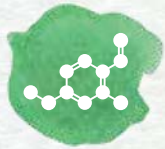
Risk management at Bangchak covers strategic risks, operational risks, financial risks, and reputational risks that may arise from health and safety, environmental, social and community, and regulatory issues. In 2018, Bangchak assessed internal and external factors that could impact businesses. We also took into account megatrends to identify impacts and opportunities to the business. We have divided risk management framework into 3 areas: Corporate Risk Management, New Business Investment Risk Management and Business Continuity Management (BCM) in order to effectively assess and manage impacts according to the nature of risks.

### 1. Corporate Risk Management

#### Economic Risks (Disclosure 102-29)

| Risks  | Mitigation Measures   |
|--|---|
| <p>1) Oil and raw materials price volatility</p> <p><b>Impact :</b> Revenue fluctuation in petroleum and other businesses</p>  | <ul style="list-style-type: none"><li>• Closely monitoring oil price and develop new tools and measures to manage the spread between crude and refined products. The Price Risk Management Committee (PRMC) is responsible for selecting measures to mitigate price risks.</li><li>• Secure raw materials for biofuel production from reliable sources at a price that ensure profitability for Bangchak. Develop high value products to increase revenue.</li><li>• Increase investment in new businesses, specifically green power generation both in Thailand and overseas through subsidiary, BCPG .</li><li>• List a new subsidiary, BBGI, on the Stock Exchange of Thailand in 2019. BBGI business focuses on biofuel production to increase competitiveness and diversify risk of raw materials price fluctuation from tapioca, molasses, and crude palm oil prices.</li></ul> |

## Economic Risks (Disclosure 102-29)

| Risks  | Mitigation Measures   |
|--|---|
| <p>2) Supply chain and raw material management</p> <p><b>Impact :</b> Business disruption and cost increase</p>                       | <ul style="list-style-type: none"> <li>Secure long-term crude supply agreements from both domestic and overseas sources to ensure stable supply of crude oil for production.</li> <li>Procure crude oil with quality that is more suitable to existing technologies to maximize yield and value to the company.</li> <li>Categorize suppliers with a focus on high-value raw materials and feedstock, goods, and services properly processed with appropriate sets of risk assessment, i.e. economic, environmental and social, to ensure business continuity.</li> </ul> |
| <p>3) Changes in technologies and energy innovations</p> <p><b>Impact :</b> Decrease in revenue growth from petroleum businesses</p>  | <ul style="list-style-type: none"> <li>Invest in lithium mining to support the growing trend in battery usage and electric vehicles</li> <li>Explore new breakthrough in green and bio-based energy through the Bangchak Initiative and Innovation Center (BiiC) and collaborate with industry network to create Green Ecosystem that supports green innovation.</li> </ul>   |

## Social Risks (Disclosure 102-29)

| Risks  | Mitigation Measures   |
|--|---|
| <p>4) Operational impacts to communities and society</p> <p><b>Impact :</b> Public and community confidence in Bangchak's operations</p>  | <ul style="list-style-type: none"> <li>Utilize Safety Integrity Level (SIL), Reliability Centered Maintenance (RCM) and Risk-Based Inspection (RBI) systems to ensure equipment and process safety and plan for preventative maintenance to reduce chances of accidents</li> <li>Continuously improve safety and occupational health system based on under OHSAS 18001 to increase occupational health and safety performance.</li> <li>Conduct Hazard And Operability Study (HAZOP) and implement safety management system at every step of the Process Safety Management System (PSM)</li> <li>Environmental quality control within or exceed the standards</li> <li>Install air quality monitoring equipment that automatically send real-time measurements to communities around the refiner</li> <li>Construct an enclosed ground flare unit to reduce emission from flares. Construction is scheduled to complete by mid-2019.</li> <li>Conduct events to disseminate knowledge, understanding, and awareness around safety issues such as emergency evacuation, fire suppression, and first-aid to communities around the refinery including at schools, temples, and condominiums. In addition, communication and warning systems are installed throughout the communities and communities representatives are invited to observe safety drills.</li> </ul> |

| Risks  | Mitigation Measures  |
|--|--|
| <p>5) Climate change</p> <p><b>Impact :</b> Regulatory changes, raw material costs, and technology costs</p>                            | <ul style="list-style-type: none"> <li>• Monitor potential risks that may arise from climate change (e.g. floods) and put in place plans (based on impact level) to ensure business continuity</li> <li>• Generate electricity and steam from the natural-gas cogeneration power plant replacing fuel-oil based power plant, resulting in higher energy efficiency and lower GHG emission.</li> <li>• Promote environmental stewardship culture within the company focusing on energy and environmental conservations.</li> <li>• Develop green energy business by expanding renewable energy power generation through BCPG and ethanol and bio-diesel production through BBGI.</li> <li>• Collaborate in research and development effort for “Environmental technology Development for Sustainable Refinery”</li> </ul>   |
| <p>6) Water supply shortage</p> <p><b>Impact :</b> Insufficient water for production processes</p>                                     | <ul style="list-style-type: none"> <li>• Use reverse osmosis system for water recycling, resulting in 4.95% reduction in total water consumption (in 2018)</li> <li>• Develop a Water Footprint to find the opportunities for improvement</li> <li>• Promote water efficiency in Bangchak Group’s operations by reusing process water and constructing new water reservoirs to increase water reserve</li> </ul>   |
| <p>7) Ecosystem collapse</p> <p><b>Impact :</b> Oil spill from marine transportation could cause severe impacts to the ecosystem</p>  | <ul style="list-style-type: none"> <li>• Deploy oil spill prevention measures by requiring that transportation vessels for both crude oil and refined oil products must be double hulls</li> <li>• Maintain the readiness and effectiveness of spill response system by ensuring that oil clean-up equipment are in place, testing oil transfer pipeline every 6 months, using oil spill booms during oil transfers, and conducting drills in case of spills and fire from transportation vessels and from Floating Storage Unit.</li> <li>• Continually improve safety-related technologies, equipment, systems, and instruments at ports in accordance to the standards defined by Oil Company International Marine Forum (OCIMF) such as the upgrade of the firefighting system and redesigning the wharf to become a Quick Release Hook, and installation of additional closed-circuit television (CCTV) system at the jetties.</li> <li>• Conducted joint spill response exercise with the Marine Department of the Navy, Pollution Control Department, and the Department of Disaster Prevention and Mitigation focused on Floating Storage Unit oil spill.</li> </ul> |



## 2. New Business Investment Risk Management

In 2018, we developed risk assessment plan for investment project in OKEA AS (“OKEA”), a petroleum company in Norway through a subsidiary, as well as searched for new strategic areas for expanding new businesses. Furthermore, we analyzed risk events in every project timeline to ensure that our investment will be achievable and will not be negative environmental, human rights, and social impacts. Each new business investment risk management plan must be approved by the Enterprise-wide Risk Management Committee prior to Board’s approval.

Investment risk management considered risks in terms of project timelines:

- 1) Development Phase Risk
- 2) Construction Phase Risk
- 3) Operational Phase Risk (including financial risks, tax regulation risks in various countries, business risks, and reputational risks)
- 4) Natural Disaster Risk

## 3. Business Continuity Management (BCM)

Bangchak continues to be ISO 22301:2012 certified for its Head Office, refinery, Bangchak Oil Distribution Center, Central Region Business Office, and Bang Pa-in Oil Distribution Center, the same certification for six consecutive years for an international standard and efficiency on crisis management and an emergency response system.

In 2018, Bangchak reviewed and updated the Business Continuity Plans (BCP) and Crisis Management Plans to specify trigger points for putting response plans into actions, assess the response and risk mitigation plans, systematically identify and detect any potential incidents as well as ensure smooth integration and alignment among all the plans. This year our emergency response drill focused on crude oil tank crisis in high level and used Business Continuity Management plan covered communications among top management, first responders, and relevant personnel at the refinery and the Head Office at M Tower. Results and lessons learned from the drill will be used to improve response plans and acquire additional equipment to continually improve Bangchak’s emergency responses and crisis management.



# Economic Growth

Net Profit

**3,235** million THB

Total Revenue

**193,340** million THB

EBITDA

**10,201** million THB

Tax payment to government  
and local authorities

**194** million THB









## Revenue (Disclosure 201-1)

In 2018, Bangchak and its subsidiaries generated 192,025 million THB in revenue, a 12% YoY increase, from the sales of our products and services in refinery and oil sales business, marketing business, power generation business, bio-based business, and natural resources business. The net profit was 3,235 million THB. Our earnings before interest, taxes, depreciation, and amortization (EBITDA) decreased 24% YoY to 10,201 million THB due to the global oil price volatility and the sharp drop in crude oil price in the last quarter of the year. The refinery business posted 3,928 million THB EBITDA from an average 102.39 thousand barrels per day production per day with an all-time high production volume of 123 thousand barrels per day in March.

## Production



## Costs

issued

3,091

million  
THB



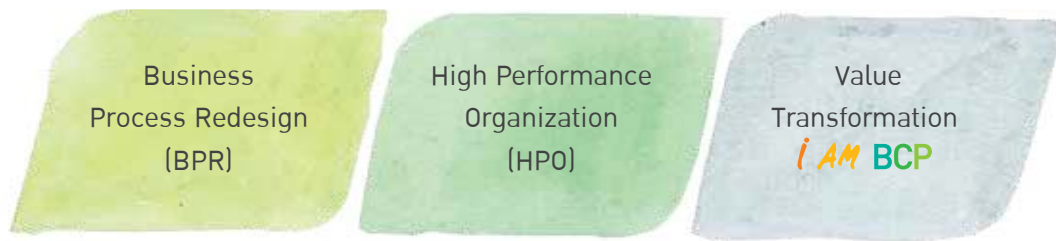
In 2018, our operating cost increased by 21,998 million THB due to the uptick in marketing costs of our products and services inline with the revenue increase. Production cost increase 578 million THB from fuel, water, and electricity prices increase of 540 million THB.

Other expenses include expenses associated with our community development activities including monetary and in-kind donations of approximately 99 million THB.

In 2018, employee wages and benefits expenses by 33 million THB while interests and bond expenses increased 56.76 million THB. The payment of taxes to the government and local authorities decreased by 350 million THB, according to the greatly reduced net profit. In 2018, we issued 3,091 million THB in dividend back to our shareholders.

# Change Management

In order to realize our vision, Bangchak has placed importance on change management to ready ourselves for the dynamic business environment. Our principles for change management are:



**Business Process Redesign (BPR):** Bangchak still focuses on process improvement to maximize operational efficiency, reduce costs, and respond to customers' needs.

## Strategy

1. Integrate our strategic direction into corporate innovation efforts to create synergies and to share knowledge and resources.
2. Apply Lean Sigma to increase more operational efficiency

## Target

- Create added values and reduce costs from the BPR by 1 billion THB by 2023



## 2018 Performance

In 2018, we achieved over 200 million THB saving by redesigning business processes as well as improve efficiency and become more responsive to our customers. BPR projects in 2018 include:



Implemented 4G/LTE technology in the refinery, resulting in 92 million THB cost saving infrastructure

**92**  
million THB



Redesigned production process of gasohol 91 during the 2018 major turnaround, resulting in 19.82 million THB saving on the operational cost

**19.82**  
million THB



Redesigned the transportation process of refined oil, resulting in 15.2 million THB saving on transportation costs

**15.2**  
million THB



Redesigned the hydrogen production process, resulting in 12.45 million THB saving at the hydrogen production unit

**12.45**  
million THB



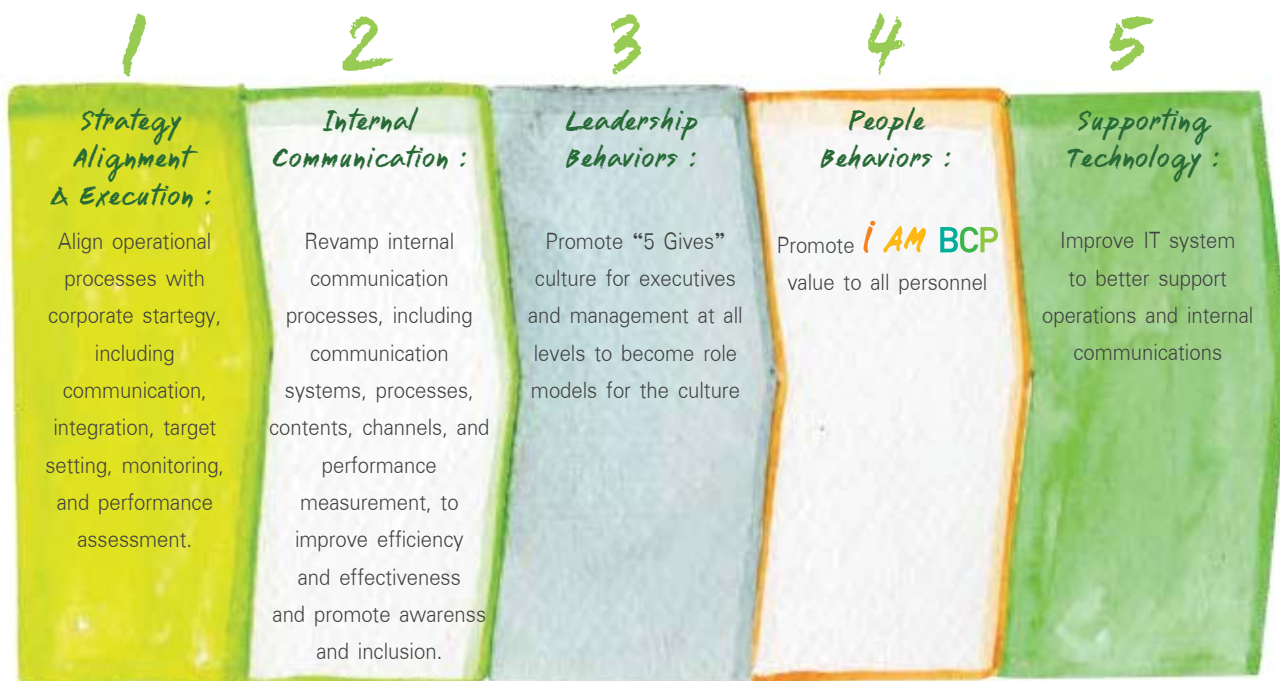
Managed cost for SAP system, resulting in 7.8 million THB saving for Bangchak Group

**7.8**  
million THB

**High Performance Organization (HPO):** Bangkok has adopted the High Performance Organization guideline as a tool for driving organizational changes resulting in internal process improvement.

## Strategy

Promote the collaboration in main topics at the corporate level as the followings:



**Target: Become a High Performance Organization in 2020**

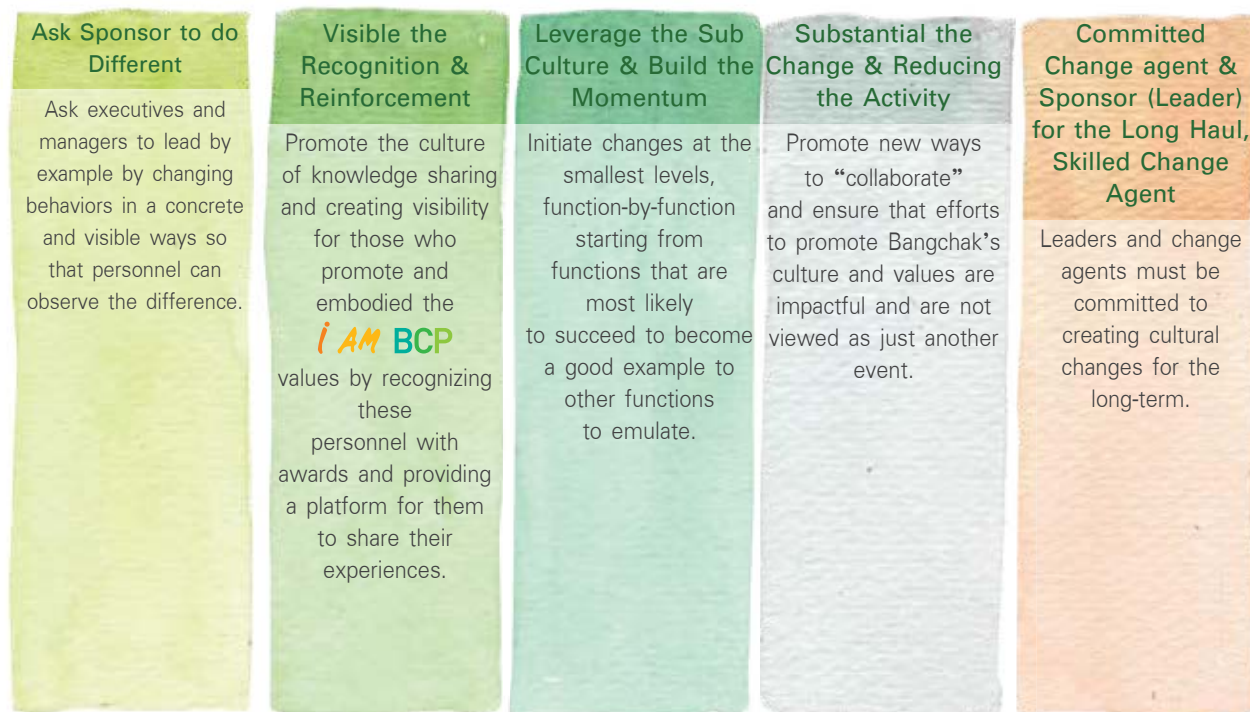
### 2018 Performance

In 2018, besides the progress and 2017 status monitoring of each process, such as the cross functional in form of the HPO Taskforce, the HPO Taskforce worked in collaboration in order to review supports and connection of operational processes by conducting the BCP HPO Model.



**New Core Value Behavior Promotion:** Promote *i AM BCP* values through work processes that are in line with corporate goals and vision. Promote positive work environment and collaboration of all personnel and management through 5 strategies:

## Strategy



## 2018 Performance

1. Executives change communication to promote BCP Townhall, BEx Talk and Go Together
2. Promoted 3 personnel shared their believes and visions with their fellow employees at the BEx Talk.



## Results

Bangchak conducted an employee survey to assess the awareness and behavior guidelines according to the new corporate values. The results were improved from 4.28/6 (medium) in 2017 to 4.40/6 (high) in 2018. This improvement reflects the success of all Bangchak’s personnel who worked together to make change happens and to act according to the *i AM BCP* values.

# Supply Chain Management

Supply chain management is an important strategy for sustainability management which requires good relations and working processes between all of the stakeholders in order to procure products and services that are environmentally friendly and socially responsible while maintaining good corporate governance and ensure inclusiveness.

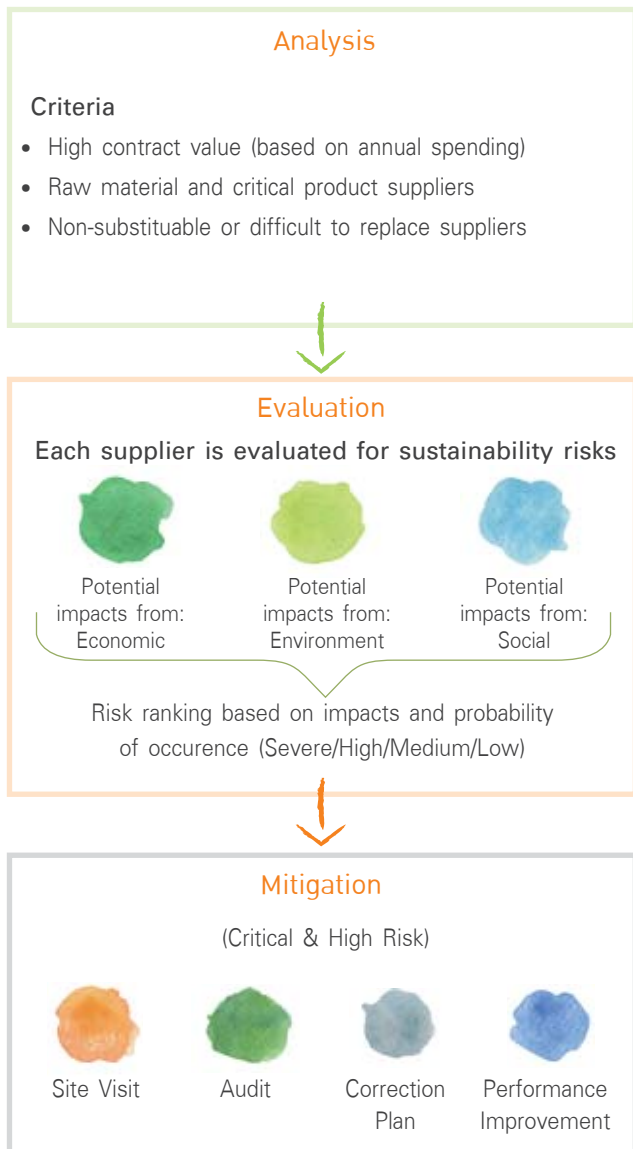
Bangchak recognizes the importance of our “business partners/suppliers.” We aim to continually develop this important stakeholder group to ensure that they can grow with us long-term. We encourage all of our business partners to sign and adhere to the BCP Supplier Code of Conduct (SCOC) that specifies guidelines related to the environment, society, and good governance. We assess our suppliers in 5 areas:

- Business ethics
- Labors practices and Human rights
- Safety and Occupational health
- Environment
- Community participation and development



Each year the company selects business partners and suppliers using the results from our supplier risk assessment, which include environmental, social, economic, and contract size as criteria. In 2018, all 29 of our Tier 1 suppliers with

## Process for Supply Chain Risk Assessment



contract size smaller than 500,000 USD participated in a seminar and were assessed along the above criteria. We also aim to expand our network of sustainable suppliers to include all major suppliers by 2020.

Besides, the Company has also conducted risk assessment of all suppliers including the groups of raw material, transportation, products and services providers. The process starts from evaluating significant suppliers, followed by assessing risk may affect the company in terms of economic, environmental and social aspects in addition to contract size. The suppliers with high risk or critical suppliers would be visited to communicate details of the Code of Conduct as well as provide feedback based on actual assessments in order to help suppliers to improve their performance by the staff of Purchasing Department and Corporate Sustainability Development Department.

From the risk assessment in 2017 (every 3 years), 798 suppliers were assessed and found that there were 97 critical suppliers. The risks associated with suppliers include: 1) economic (risk of late delivery / delivery of quality goods); 2) social (risk of complaint by the community due to improper operations); 3) environment (risk of chemical and oil spills). Whereby suppliers with economic risks accounted for 13%, social risks 8%, and environmental risk 7%. The Company has put in place diversified risk mitigation measures to prevent and reduce any impacts that may occur from these risks (100%) without any termination. (Disclosure 308-2/414-2)

Bangchak also held seminars to receive suppliers' feedbacks and suggestions to collaborate on process improvement. A special seminar on "Global Economics Change in the Next Decade" was conducted by Mr. Teeranun Srihong. The Company also invited suppliers to visit the Bangchak Learning Center to foster better understanding of Bangchak's mission.

## Results



Satisfaction of services provided by procurement offers: 88.38%



Satisfaction of services provided by suppliers/business partners: 80.36%



### 2020 Targets

1. Develop all critical suppliers/business partners on BCP Suppliers Code of Conduct
2. Reduce procurement cost by at least 5% annually
3. Support Green Procurement
4. Develop suppliers' capability and relationships by conducting seminar at least once per year



### 2018 Strategy

1. Develop strategic procurement for Bangchak Group
2. Educate the CoP Procurement group on Bangchak's procurement guideline to facilitate work between procurement officers, Bangchak Group, and main
3. Promote BCP Supplier Code of Conduct to suppliers and business partners

## 2018 Performance

• **Developed procurement process within Bangchak and Bangchak Group to support strategic procurement process** using Category Strategy to analyze products, services, vendors, and service providers based on UNTAD WTO as follows:

1. Analyzing products and services from risk make better understanding of tasks resulting in better management and more appropriate strategy
2. Analyzing suppliers based on common interest and contract size. Insights from the analysis were used to improve management and to formulate negotiation strategy with suppliers.
3. Using the above results to develop strategy specific to each type of suppliers. For example:



### Marketing Business Group

Developed category strategy for underground tank and fuel dispenser procurement

**Result :** achieved 30% reduction in procurement costs.



### Refinery Business Group

Used category strategy to procurement pump spare parts.

**Result :** achieved over 10% cost reduction and obtained additional benefits from the collaboration improvement proposal with suppliers.



Moreover, the company has organized a Category Strategy Contest in the group of companies. Allowing all procurement staff to present their work in order to share knowledge, understanding from work experience, and opinion exchanges.

## Results

Percentage of on-time procurement



Cost reduction in procurement budget (million THB)



- **Implemented Approved Vendor List (AVL) project.**

In addition to developing suppliers through the Supplier Code of Conduct, Bangchak is implementing Approved Vendor List project for each work function to ensure that vendors lists are up-to-date. A working group for the AVL project comprised of personnel from Refinery Group, Marketing Group, and IT Group who are the main users of products and services. Trainings on Approved Vendor List Methodology were held for the CoP Procurement and AVL working group.

- **Economic and Environmental Promotion**

Bangchak is aware of economic and environmental issues domestically. Therefore, the company developed a procurement handbook/guideline emphasizing that purchasing of domestic and environmental-friendly products is a priority and including employment of construction, service station maintenance and offices.

## Numbers of purchased environmental friendly products

### Target



### Performance

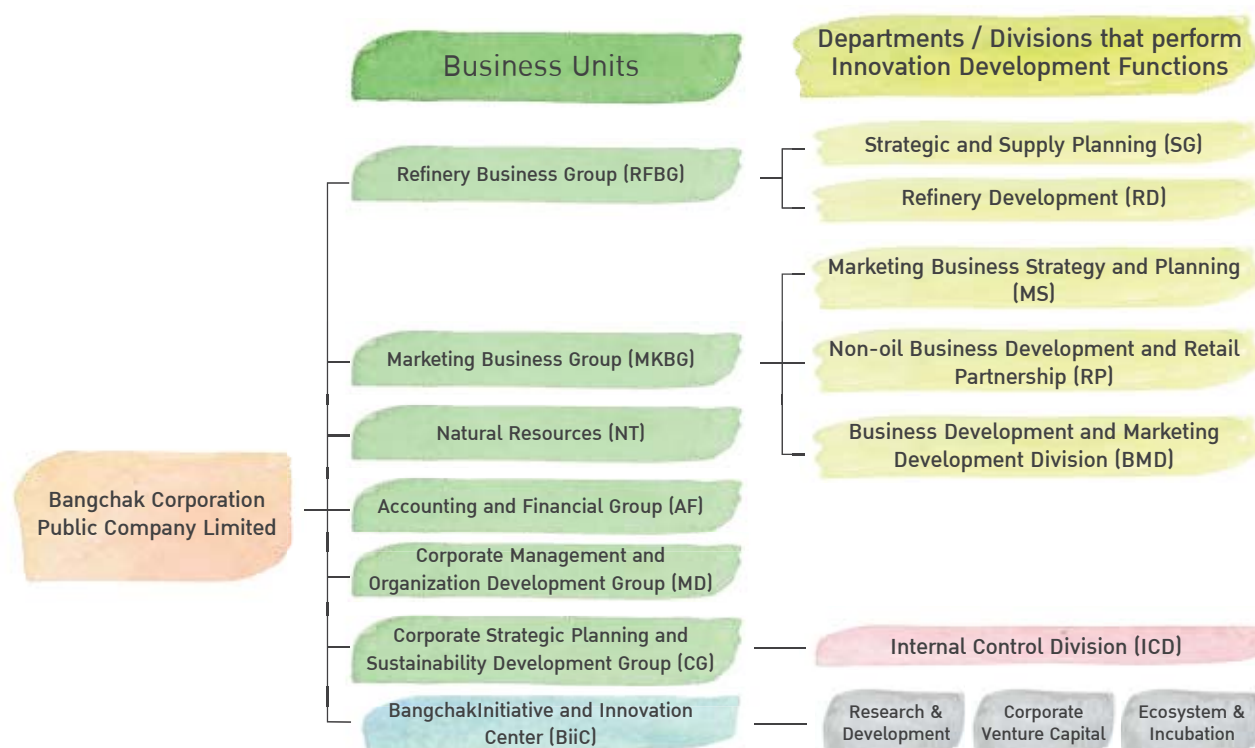


# Innovation Management & Knowledge Management

It is commonly accepted that innovation is essential to business competitiveness and sustainability. Bangchak places importance on innovation, in 2016, we set a new Corporate Vision (Evolving Greenovation) and Corporate Values (**i AM BCP**) to emphasize our commitment to innovation. The “i” in **i AM BCP** stands for Innovation which means being innovative in our work. In addition, we developed policy to promote learning across the organization and to develop our human capital. We also reorganized our management structure that will foster both process and product innovations as well as creating new businesses.

## Organizational Structure to Promote Innovation

- **Business unit that generates revenue** has a business development department/division (as shown) that identify new opportunities and develop projects to add value to the business unit.



Bangchak Initiative and Innovation Center (BiiC) is responsible for engaging and collaborating with external institutions focusing on business innovation projects that return more revenues and profits. The BiiC is made up of 3 divisions:

### Group 1 Research & Development

Collaborate with external research institutions/labs on researches focusing on new energy technologies. Bangchak may provide funding to external institutions in exchange for future share of revenue and/or patents for product development.

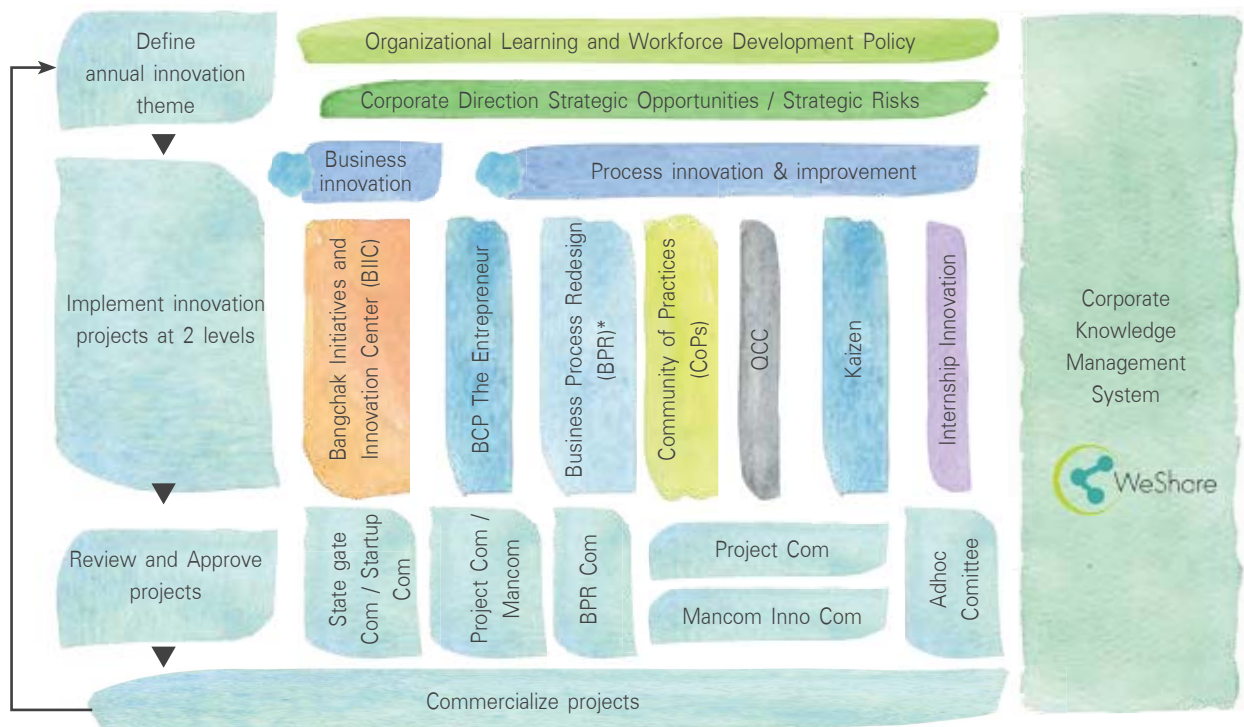
### Group 2 Corporate Venture Capital

Collaborate with startups both domestic and international to develop new businesses within and outside of Bangchak's current industries, such as Green energy, Bio based, IoT to generate new S-Curve.

### Group 3 Ecosystem & Incubation

Build networking and business ecosystem by finding the opportunities to collaborated with government sectors, universities, partners, and startups for developing the national business system in line with the Industry 4.0 Policy. Moreover, we develop Open Innovation in our organization applying the Design Thinking Concept to contribute new innovations and businesses to responded Customer Greenovative Experience

**Corporate and Individual Innovation:** Internal Control Division is responsible for designing processes and tools to enhance innovation projects at operations level.



Bangchak deploys various necessary tools and projects to design Process Innovation & Improvement in cross-functional employee teams as described below

| Tools / Projects                              | Details   | Staff groups   |
|---|---|--|
| Kaizen  | Improve individual processes to cut cost, raise efficiency, and improve work environment  | Companywide  |
| QCC (Quality Control Circle)                  | To cut costs and raise efficiency, which are complicated and need multiple data analysis. This year, we encourage in Cross Functional group building to invent the high value of projects.  | Refinery Business Group & Transportation and Terminaling |
| Community of Practice (CoP)                   | Grouping by professional expertise to develop specialized knowledge<br>CoP IT: Activities include IT Share, IT Talk, IT Clinic, IT Day<br>CoP Procurement: organizing the Strategic Sourcing project to developing Subsidiaries'' procurement process more efficient and agile.<br>CoP Planner: analyzing Business Trends with external consult to formulating Long Term Corporate Strategies.<br>CoP 64 Next Station: developing competency of internal radio broadcaster. | Groups of professional practitioners                     |
| Business Process Redesign (BPR)               | Improving internal processes to make more benefits by using business process redesign concept.  | Groups of related positions                              |
| Cascade for Innovation / BCP The Entrepreneur | Format development of businesses, products, or services under each year's project theme, set in line with strategies  | Companywide  |
| Internship Innovation                         | Grouping of student interns to devise new work improvement projects or new businesses   | Interns  |



Projects at different levels call for deliberation by their corresponding panels, including the Kaizen and the QCC panels. The Corporate Innovation Committee or the Management Committee, which consists of Bangchak's management team members, has been responsible for the corporate project approval for further development or commercialization.

To advocate the innovation culture, Bangchak has set innovation project participation as an individual KPI for employees. The executives also join the activities in each step of project launch, project-awarding, and commendation. That way, employees may recognize the value of innovation and modify their behavior for the desired culture under the new corporate's core value.



Knowledge derived from innovation projects is recorded, distributed, shared, and extended in the corporation through “WeShare” under the BCP Knowledge Management system. All employees have ready access (called Anywhere, Anyplace, Anytime) through computer devices and mobile phones. A “Gamification Function” attracts employees’ participation round the clock.



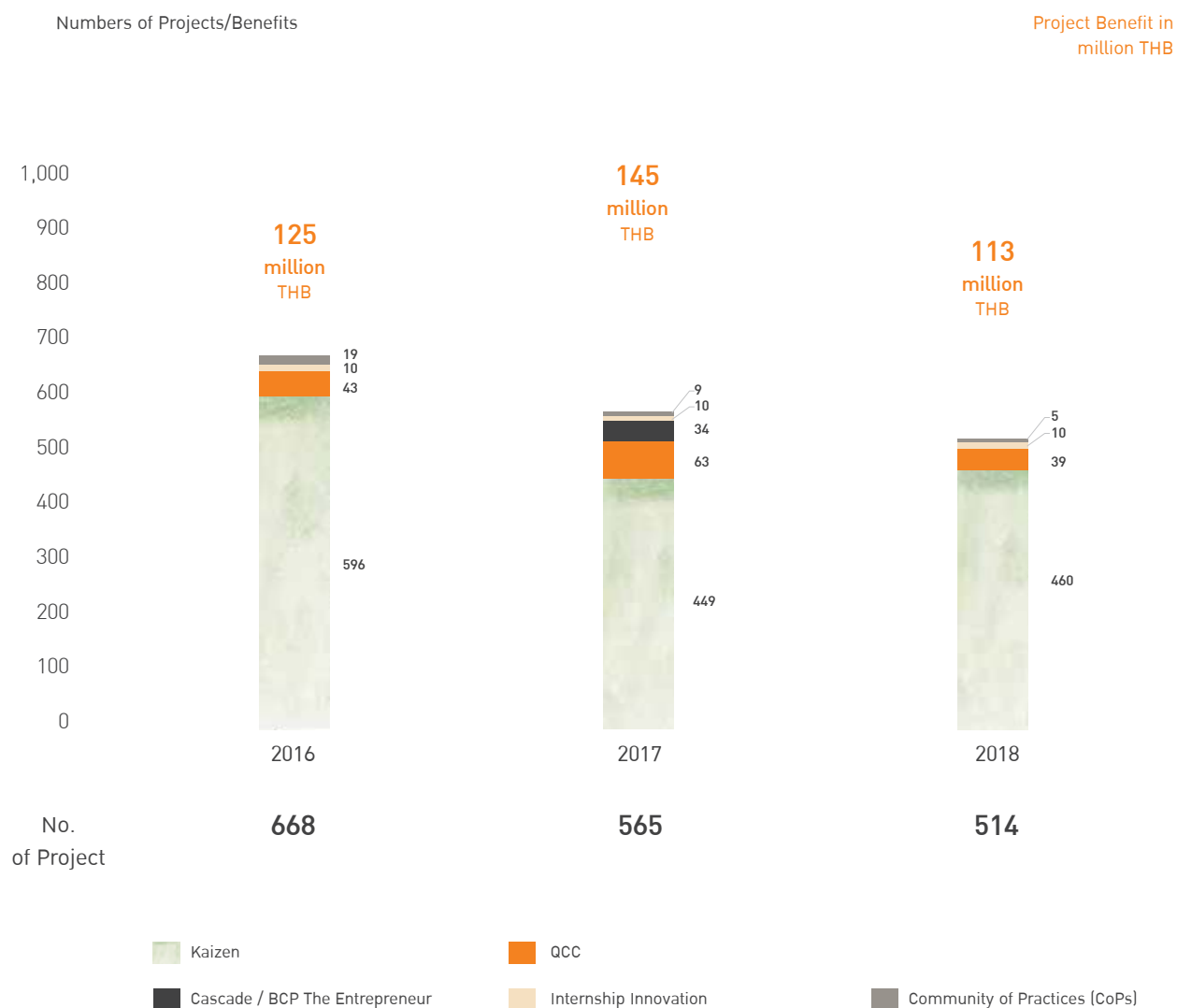
Bangchak has also appointed for all business groups **innovation facilitators** to promote understanding, to cultivate a learning culture, and to improve work done by respective business groups in line with the ultimate “Learning Organization” goal. This year, Bangchak conducted Productivity Facilitator Project with Thailand productivity institute to develop Facilitators’ competencies focused on communication and Positive Thinking to develop internal processes and new innovation thinking. The Innovation Facilitators are the business groups’ representative, take responsibility to:

- Brainstorming for WeShare (Knowledge Management Platform) Improvement.
- Studying on Knowledge Management Process to properly build internal knowledge.
- Defining the meaning and collecting of internal Lesson Learned and directly deploy to subsidiaries

In 2018 the innovation proposal of BCP The Entrepreneur 2017 contest’s winner has developed into Implementation Phase. The winner team will get onto business development process, innovation building, new business modelling focused on idea generation, project management to develop management skills from Lessons Learned and closely work with external and internal experts and Bangchak Initiative and Innovation Center (BiIC) consultant.



## 2016-2018 Performance



### Digital & Innovation Awards

|                              | 2016 | 2017 | 2018 |
|------------------------------|------|------|------|
| Thailand ICT Excellent Award | 1    | 1    | -    |
| International QCC Awards     | 2    | 2    | 3    |

#### Note :

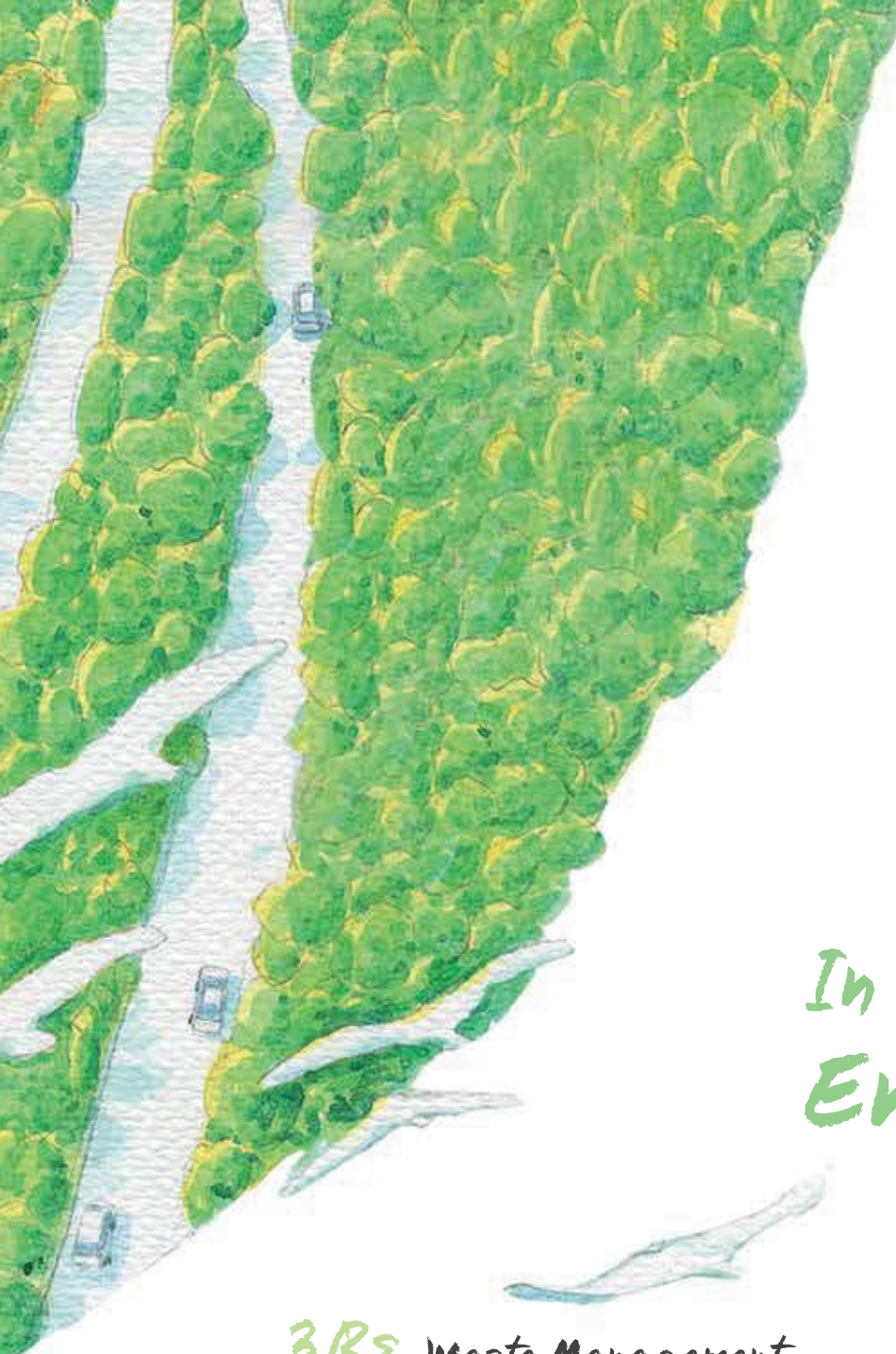
- Number of QCC Projects in 2017 higher than annual average because of changing project selective method
- The benefit of Kaizen in 2018 was decreased because of increasing the various type of innovation projects.





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## In harmony with Environment

3Rs Waste Management  
99% of total waste

Tap Water Withdrawal

2.27  
million cu.m.

Water Reused / Recycled

1.10  
million cu.m.

Net Energy Consumption

13,418  
TeraJoules

GHG Emissions

0.96  
million tCO<sub>2</sub>e

## Operational Eco Efficiency

In 2018, the refinery business maintained an average capacity of 102,390 barrels per day which was achieved the target. Bangchak places great importance in making our processes as efficient and as clean as they can be due to climate change and resource scarcities. Bangchak's proactive environmental management system, ISO 14001, has been maintained and led to continuous environmental development. In addition, Bangchak has earned Green Industry Level 5 (Green network) certification, which is highest recognition from the Department of Industrial Works given to companies that exemplify environmental management best practices including efforts to support environmental management throughout the value chain and creating a green network within the surrounding communities (Disclosure 102-12).

In addition, we are investing in digital technologies and IT systems to improve effectiveness and stability of our processes. We also use technologies to build our employees' capabilities such as the Operator Training Simulator. The system is being continually implemented, the production data will be implemented in 2018.

Average production capacity

**102,390**

barrels per day



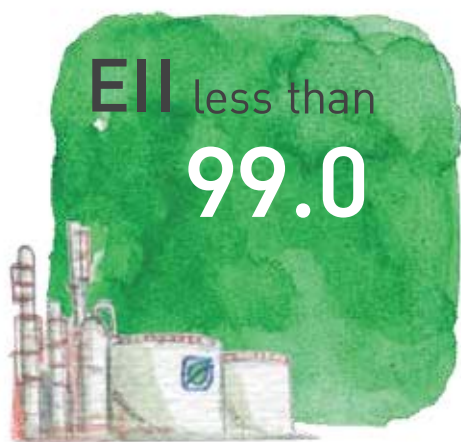


## Energy Consumption

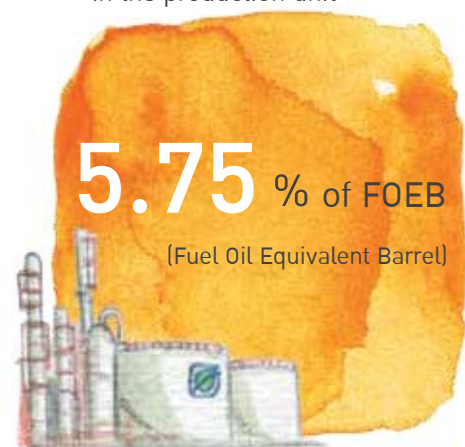
Since the refinery business is an industry with high energy consumption, Bangchak deeply recognizes the importance of energy and its impacts. As a result, Bangchak has conducted energy management system in accordance with ISO 50001 continuously for controlling and reducing energy consumption that has annual short-term goals and intermediate-term projects by the process improvement called Yield optimization, Energy efficiency, Safety excellence, and Reliability enhancement—more commonly referred to as YES-R for increasing energy efficiency and effective oil refinery. In addition, Bangchak has invested in long-term projects to significantly reduce energy consumption, called the 3Es Project (Efficiency, Energy, and Environmental improvement).

### 2018 Energy Efficiency Targets

Energy Intensity Index (EII)



Energy consumption  
in the production unit



### 2018 Performance

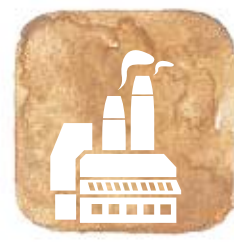
In 2018, Bangchak invested in fuel consumption reduction projects during major turnaround maintenance period and completed three energy efficiency projects:



Installation of IS-Limiter parallel existing reactant for loss reduction in GTG-2 reactant at Cogeneration power plant



Installation of heat exchanger to exchange heat from desalter waste water in distillation unit 2



Resurfacing the internal lining of the Hydrocracking Unit (HCU) and Hydrogen Production Unit (HPU)

From the implementation of the initial project, we achieved our energy consumption target of 5.46% FOEB (Target is 5.75% FOEB); however, our EII performance of 100.5 was slightly above our target due to the maintenance at our cogeneration power plant which required us to switch to less efficient boilers to generate electricity and steam in 2018.

## Performance of Refinery Business

Energy Intensity Index (EII)  
(Disclosure 302-3)

| Year    | 2015  | 2016* | 2017  | 2018* |
|---------|-------|-------|-------|-------|
| Targets | 109   | 102.5 | 101.5 | 99.0  |
| Results | 105.8 | 103.1 | 103.1 | 100.5 |

\*Major turnaround year



Energy consumption in the production unit  
[% of FOEB]

| Year    | 2015 | 2016* | 2017 | 2018* |
|---------|------|-------|------|-------|
| Targets | 6.07 | 5.92  | 5.84 | 5.75  |
| Results | 5.70 | 5.69  | 5.43 | 5.46  |



## Future Plans

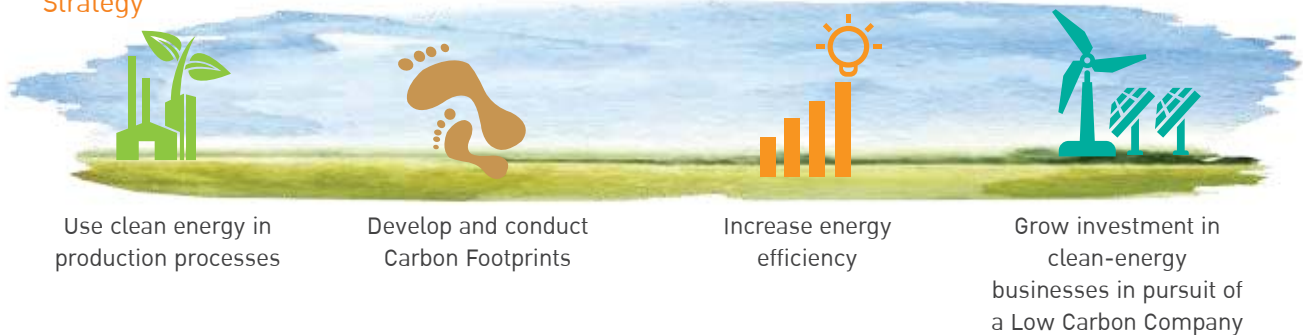
The company has initiated several energy efficiency projects which can help reduce energy consumption (approximately 0.3 EII). The projects which will be implemented in 2019 are:

1. Replacement of high pressure steam with low pressure steam piping from blowdown system of cogeneration power plant
2. Replacement of high pressure steam in cogeneration power plant with low pressure steam piping from distillation unit 3
3. Increasing low pressure steam production for reducing energy loss in vacuum distillation furnace
4. Feasibility study of quality improvement of production and energy consumption reduction of refinery operations in 2019 and will be implemented in 2020.

## Climate Change

Recognizing the changes in our climate and its devastating impacts on property and lives, Bangchak has set a proactive operational approach with responsibility starting from production, transportation, procurement, and supporting services. In addition, Bangchak has also set up a KPI for the performance assessment in reducing greenhouse gas emissions and energy consumption reduction within the group. Our efforts reflect the commitment to keep temperature rise to under 2 degrees Celsius. Bangchak has set GHG reduction target, by carbon offset approach within the Group.

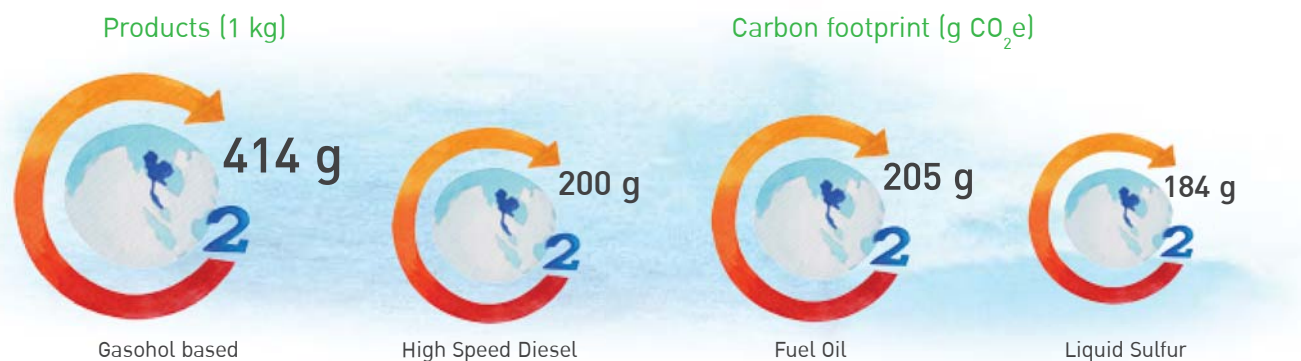
### Strategy



### 2018 Performance

In 2018, Bangchak had major turnaround period to maintain the distillation unit efficiency which lead to fuel reduction in production processes. This resulted in 914,812 tCO<sub>2</sub>e of scope 1 and scope 2 GHG emissions of the refinery business. The 2018 GHG emissions decreased by 15.6% compared with 2015 baseline (2015 GHG emissions: 1,084,090 tCO<sub>2</sub>e).

Bangchak collaborated with the Thailand National Metal and Materials Technology Center (MTEC) and the National Science and Technology Development Agency (NSTDA) to conduct carbon footprint assessment for our refinery business. As a result, Bangchak was certified to register the carbon label products according to the PCR standard (Product Category Rule: PCR) by the Greenhouse Gas Management Organization (TGO) in 2018.





# Water Management

Bangchak is keenly aware of the on-going water crisis in Thailand and around the world. We are mindful of the risks posed by flooding and drought. Because of this, we have set targets to reduce water consumption and increase water reuse and recycling. In 2018, we conducted water footprint study to identify production hotspots and improve overall water usage.



## Strategy

1. Use 3Rs principles to improve efficiency through reduce, reuse, and recycle.
2. Manage water consumption using modern tools and technologies

## 2020 Targets


- Limit raw water usage to 56.6 cubic meter/1,000 barrels of production
- Reduce tap water consumption by an additional 15% (based on year 2015)

## 2018 Performance

Bangchak used 2.27 million cubic meter of raw water from the Metropolitan Waterworks Authority (MWA) and 0.1 million cubic meter from the Chao Praya river for oil tank maintenance and testing of safety equipment. Due to the major turnaround maintenance, 8,005 cubic meter of groundwater was used to reduce tap water consumption. In all 2.38 million cubic meter was used (Disclosure 303-1) (approximately 0.062 cubic meter/barrel of production) which was a slight increase from the previous year (2018 was the first year we collected data of water consumption of Chao Praya river for safety equipment testing). When compared the water consumption using the same baseline as 2017, 2018 water consumption declined due to measures to reduce water consumption and water discharge.

In 2018, using existing measures\*, we were able to reduce water consumption by 1.1 million cubic meter which was equal to 31.68% of total water consumption (or an additional 4.95% compared to 2015 baseline).

## Water Reduction

| Continuous Plans from 2017  |  | 2018 Performance  |
|---|--|---|
|  | Improved tap water quality by using: <ul style="list-style-type: none"><li>- Micro-filtration system</li><li>- Reverse Osmosis (RO) System</li><li>- Electro De-Ionization System: to improve feed water quality prior to entering the demineralization system in the power plant.</li></ul> | <b>Reduced water consumption by 23,016 cubic meter/year</b><br>0.66% of total water demand, approximately 599 cubic meter/ 1 million barrels of production) |

## Water Reuse

| Continuous Plans from 2017 |   | 2018 Performance  |
|----------------------------|---|---|
| 2                          | Reused condensate water from production process in the boilers  | <b>Reduced water consumption by 461,010 cubic meter/year</b><br>(13.25% of total water demand, approximately 11,995 cubic meters/1 million barrels of production) |
| 3                          | Reused stripped water from the sour water stripping unit and the stripping steam from refinery unit 3 in the desalter | <b>Reduced water consumption by 55,945 cubic meter/year</b><br>(1.61% of total water demand, approximately 1,456 cubic meters/1 million barrels of production)    |

## Water Recycling

|   |   |   |
|---|---|---|
| 4 | Recycled condensate water from refinery unit 4 to be used as boiler feed water                                | <b>Reduced water consumption by 395,442 cubic meter/year</b><br>(11.37% of total water demand, approximately 10,289 cubic meters/1 million barrels of production) |
| 5 | Recycled treated water using micro-filtration system and reverse osmosis system to be used in cooling process | <b>Reduced water consumption by 166,505 cubic meter/year</b><br>(4.79% of all water consumption, approximately 4,332 cubic meter per barrel of oil production)    |

\*Compared to 2015 baseline from reusing condensate water in boilers and the 4th refinery unit plus treated water from oil treatment unit using RO, and include treated water from wastewater treatment units using RO for cooling towers

## Performance Indicators

Control water consumption per equivalent of oil output  
(Target less than 53.9 cu.m./ 1000 barrels equivalent of oil output)

**56.8**  
cu.m./ 1,000 barrel

Water saving  
(Households equivalent)

\*based on data from Metropolitan Waterworks Authority (2015) of water consumption in Bangkok metropolitan area. The Pha Khanong district where the refinery is located has an average of 1.85 people/ household and consume water around 0.56 cubic meter/person/day or 1.04 cubic meter/ household/day

**2,903**  
households\*

Percentage of water saved compared with annual water demand

(Percentage and water saved)

|                                      |                                      |                                      |
|--------------------------------------|--------------------------------------|--------------------------------------|
| <b>32.97</b> %                       | <b>31.98</b> %                       | <b>31.68</b> %                       |
| Water saved<br>1.15<br>million cu.m. | Water saved<br>1.19<br>million cu.m. | Water saved<br>1.10<br>million cu.m. |

Total water demand

|   |   |   |
|---|---|---|
| <b>3.51</b><br>million<br>cu.m.<br>2016 | <b>3.73</b><br>million<br>cu.m.<br>2017 | <b>3.48</b><br>million<br>cu.m.<br>2017 |
|---|---|---|

## Future Plans

- Increase capacity of the wastewater treatment plant with the RO system and electro De-Ionization System for raw water quality improvement before entering de-mineralization System at the Power Plant.
- Conduct water footprint for refinery business and be certified by the Water Institute for Sustainability of the Federation of Thai Industries. It is expected that a baseline will be created and used for finding significant water consumption hotspots, which will lead to water consumption efficiency improvement project in the future.

## Wastewater

Bangchak uses physicochemical treatment and biological treatment processes to remove oil, heavy metals, and dissolved organic matter prior to discharge. All wastewater is treated to meet the Department of Industrial Work's 2017 wastewater standards prior to discharge. Testing of treated water is conducted by our laboratory which has been certified by the Department of Industrial Works under the ISO/IEC 17025 standard on a daily basis. In addition, Bangchak has implemented a COD level monitoring system (COD Online) where data on our wastewater quality can be accessed by the Department of Industrial Works and surrounding communities in real-time. In 2018, 1.8 million cubic meter was discharged to the environment. The discharged water quality and COD Online system were continuously monitored by various personnel within Bangchak including operations and maintenance personnel ensuring that both the discharged water quality and the integrity of the COD Online monitor system meet the Department of Industrial Works standards.

In addition, we have developed a handbook and training class for operators to be able to detect any system irregularities and to provide suggestions for improving the wastewater treatment system. We also implemented additional water treatment measures during major turnaround maintenance to reduce risks associated with wastewater discharged to the surrounding communities. We also completed the WWTU project as follows:

- Applying slow sand filter to pre-treat wastewater prior to entering further treatment
- Sending wastewater with COD exceeding internal treatment facility limits to be treated by outside facilities
- Issuing daily waste water quality report
- Procuring emergency tank to be used to hold excess waste water prior to prior to being sent for treatment.



## 2020 Targets

Wastewater treatment operators are experts who can systematically troubleshoot and operate the system effectively

Increase automation level of the wastewater treatment system

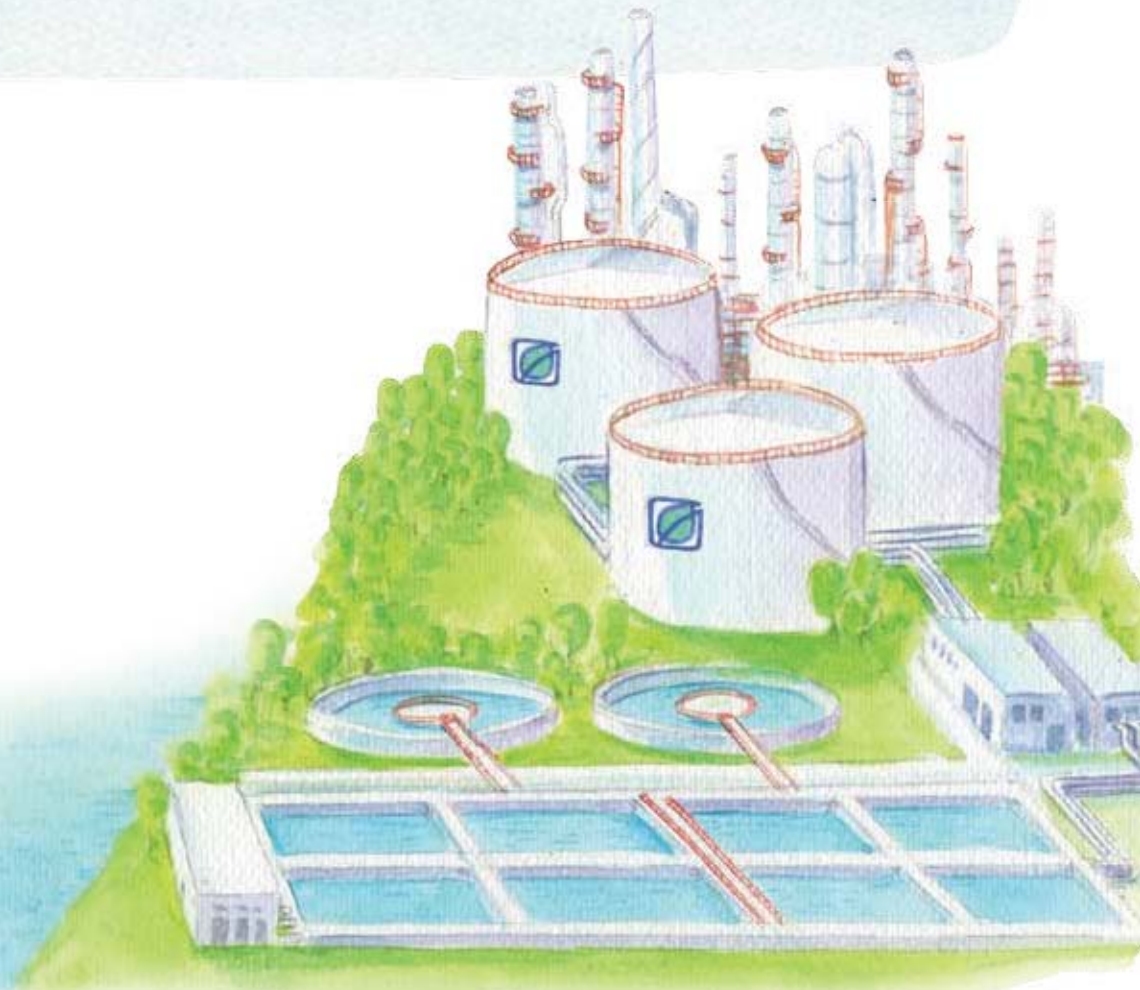
## Performance in 2018

- No findings inconsistency issue from ISO audit
- All operators are trained on “Wastewater Operator” training program
- Operators score at least

**90%**

after receiving relevant trainings

- Automatic garbage trap at the Oily Water Pond (OWP) to collect trash from upstream and prevent damages to the pumping system
- Automatic control system to regulate the flow of wastewater into physical treatment system to be in line with the suited for the physicochemical system; thus, reducing the need for intervention by system operators
- Automatic pH controller and nutrient feeder at the Oil Free Pond (OFP) to regulate the pH and nutrient level of the wastewater to optimize conditions for the microorganisms in the biological treatment system



## Oil and Chemical Spills

Bangchak recognizes the importance of making sure that our operations do not cause oil or chemical spills that can adversely impact the surrounding communities and the environment. This includes all of operations from crude oil transportation by large vessels to the small transport vessels, from large ship to refinery to refining processes, all the way to transportation to oil depots in Samut Sakhon and Surat Thani provinces and to our customers. Measures taken by Bangchak include:

- Selecting oil tankers that have been inspected, assessed, and passed international standards
- Developing and improving safety technologies, equipment, system and tools in compliance with the Oil Company International Marine Forum (OCIMF), such as upgrading of fire system at jetty and the installation of additional CCTV
- Ensuring that oil tanks, pipelines, and equipment are designed and installed in compliance with international standards
- Developing procedures and providing appropriate training to relevant staff
- Developing systems and plans for the preventative maintenance of monitoring equipment
- Building capacity of emergency response personnel by participating in training class and drills with stakeholders from government and players in the oil industry
- Putting in place plans to prevent and contain spills, including conducting an annual emergency drill
- Ensuring the availability and readiness of emergency equipment and oil cleanup suppliers as well as inviting local communities to observe drills to build their confidence in Bangchak's operations
- Anchoring an oil spill cleanup boat at the Bangchak's jetty to ensure fastest response in case of any spills

In addition to these safety measures, Bangchak also conducts risk assessment to review and add new measures as necessary. Results are reported to the Process Safety Management Governance Committee and the Risk Management Sub-committee and Enterprise-wide Risk Management Committee on a monthly basis. These processes are in place to ensure that we are managing risks and operations related to oil and chemical spills effectively. As a result, there were no significant leakage of oil and chemicals. Our performance has assured communities near our operations of Bangchak's ability to ensure safety and protect the environment.

### Oil and Chemical Spills (case)

Number of significant oil and chemical spills  
(exceeding 100 barrels)



## Air Emissions

Bangchak highly values the air quality released to the atmosphere because it can impact health of employees and contractors in the refinery area. Also, the surrounding communities and environment of the refinery can be affected. Moreover, the high-rise buildings are currently being developed following the expansion of the BTS. Because of this, Bangchak aims to minimize air pollution emissions by investing in refinery reliability improvement to prevent any abnormal conditions, reduce air pollution and choose the

cleanest fuel for production including fuel gas and natural gas. In addition, we daily monitor the air quality by online measurement devices at the vent, the leakage of volatile organic compounds by the device to control quality within or above legal and air quality monitoring by Third Party to ensure that air quality in both the refinery and nearby area are safe for health and property of stakeholders.

### Strategy



- Increase stability of the refining unit to prevent emergency shutdowns



- Reduce targets of vented emissions from the stacks (internal control) at 80% of the standard value



- Monitor air quality online from the vent, working areas and the atmosphere around the refinery



- Communicate online environmental quality to the public in transparent manners

### 2020 target



- Zero air pollution complaints



- Completed Enclosed Ground Flare installation

### 2018 Performance

After the operation of co-generation unit in the end of 2017, Bangchak demolished the original boilers that uses fuel oil and combustion gas to dramatically decrease the amount of sulfur dioxide ( $\text{SO}_2$ ) and total suspended particulate (TSP) from the previous year. However, the oxide of nitrogen ( $\text{NO}_x$ ) increased in accordance with the property of natural gas used in the new co-generation power plant. Also, we discontinued the use of biodiesel production units resulting in the decrease in amount of leakage of volatile organic compounds (Fugitive VOCs). Nonetheless, in 2018, we had a recordable complaint 1 time because a power system failure and emergency shutdown has been occurred that cause to the high flame and loud noise from the flare tower.

In order to strictly monitor air pollution around the refinery in line with the proactive environmental policy, in 2018, Bangchak invested in air pollution monitoring equipment installation around the refinery as followed;

1. Installed the air quality monitoring station (AQMs: Air Quality Monitoring System) and LED board at Khung Bang Chao Chao area, Samut Prakarn province (Opposite Bangchak's Pier), the west side of the refinery





2. Surveyed and found the new area to install air quality monitoring stations (AQMs: Air Quality Monitoring System) and LED Board in the south of the refinery, near the Sanphawut intersection, Bang Na district, which will be completed in 2019 replacing the Sai Jai Thai Foundation area. It will be making air pollution monitoring cover surrounding areas of the refinery including east, west, north and south.

Moreover, in 2018, during the annual refinery turnaround maintenance, Bangchak took the opportunity to build an environmental networking with contractors by requiring all contractors must have an environmental officer to control and avoid environmental impacts during working through the various encouraging activities such as certificate giving to “Smart Jor.Sor”, “TAM is clean, because we help each other”, “Clean and Clear Awards”. This resulted in the decrease in environmental impacts from work, clean and safe work environment, reducing the chance of accidents and directly control the operation of contractors to comply with laws and regulations. In addition, the new process “Returning to the area of the environment after the end of the annual refinery turnaround” has been occurred. This is a new development for environmentally-friendly maintenance system.

## Results



# Waste Management

Bangchak ensures that our operations are always in compliance with relevant laws and regulations. We continually improve our waste management through the 3Rs implementation including reduce, reuse and recycling in accordance with international standards to reduce impacts on the environment and to achieve our Zero Waste to Landfill goal. We aim to find extract the highest value from our waste stream prior to disposal.

In 2018, our waste volume increased due to the major turnaround activities of the refinery. However, we were able to reuse and recycle 99% of our waste, thus, achieving our zero waste to landfill target.

## Strategy

- Use 3Rs principles to manage waste
- Ensure full compliance with relevant laws and regulations

## 2020 Target

- Zero Waste to Landfill
- Reduce waste sent to disposal by increasing reuse and recycling



## 2018 Work Plans

- Sort and dispose of waste using 3Rs principles
- Zero Waste to Landfill

## 2018 Performance

Percentage of waste generated in 2018



Hazardous waste

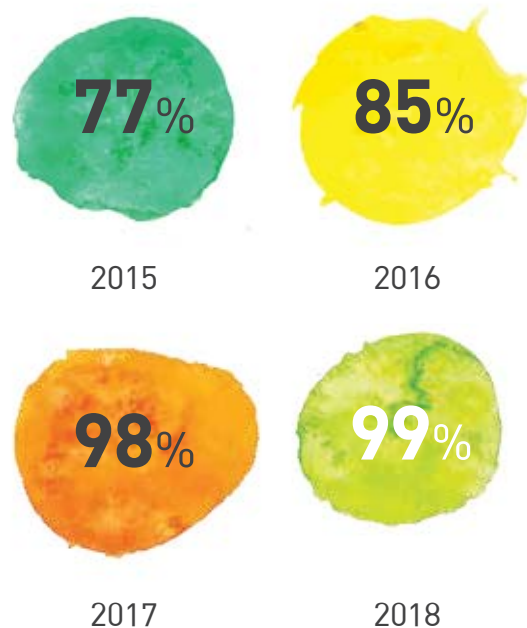
**30%**



Non-Hazardous waste

**70%**

## 3Rs Waste Management (% of total waste)



## Sustainable Product and Service Development

Customers are one of our most important stakeholders. Our Customer Centric strategy includes end users (retail customers), dealers, cooperative (CO-OP) service stations and direct customers, such as industries, transportation, construction, etc. Under the “Bangchak Greenovative Experience” concept, we aim to produce innovative products and services in our service stations that are also socially and environmentally responsible. We use the Net Promoter Score (NPS) and customer satisfaction as metrics to monitor and control products and services qualities. Using a standard service procedure, we also conduct random service audits through the mystery shopper program which assess the quality of services and services stations’ conditions. Bangchak also has the Mobile Training and Lab program where we test our products to ensure that we deliver quality product and services to our customers.

### 2023 Targets



Become  
“The Most Admired Brand”  
as assessed by Net Promoter  
Score.



Increase service  
stations market  
share to greater  
than 20%.



Improve service quality,  
service stations,  
and non-oil businesses under  
the Bangchak Greenovative  
Experience strategy  
to cater to our customers’  
lifestyles and engage  
in environmental  
protection efforts



Add 300 new service  
stations nationwide with at  
least 800 standard service  
stations (currently there  
are 547 standard service  
stations).



Upgrade cooperative (CO-OP)  
service stations to be the  
same level as the standard  
service station.



Develop non-oil and service  
businesses in service stations  
to respond to customers’  
expectations and contribute  
to environmentally-friendly  
products and services.



Increase the quality  
and customers’ acceptance  
of Bangchak’s lubricant  
products.



Build Bangchak membership  
program, Bangchak  
GreenMiles to be  
the Best Loyalty Program  
for customers.



## Strategy

Based on customer satisfaction survey results, leading expectations include: **service quality, timeliness, number of service station and their locations, product quality, non-oil business offering (e.g. convenient store and restaurants), and rest rooms availability and cleanliness.** These expectations are incorporated into Bangchak's strategy, work plans, and goals as parts of our journey towards becoming the Most Admired Brand.

## 1<sup>st</sup> The Most Admired Brand

Customer Centric



## 2018 Performance

### Greenovative Products, Services, and Experience

**Green Products** : elivering on specification and high quality products that are environmentally-friendly

- Bangchak is the only retailer in Thailand that offer 2 products that meet Euro 5 standard: **Gasohol E20S** and **Hi-Premium Diesel S**. These products not only contain lower level of sulfur than Euro 4, but they are designed to be used in Euro 5 engine so that vehicles run more efficiently.
- Bangchak supports government's policy by developing **biodiesel B20** product for our logistics and transportation business customers both in delivery trucks and passenger boats. The B20 product aims to help palm oil growers who are suffering from low palm oil prices and oversupply. In addition, customers who switched to B20 can lower their fuel costs when oil prices increase as well as help to reduce their environmental impacts.





#### Greenovative Service Stations : implementing innovation and technology in our service stations

- Improved brand image through infrastructure and service improvements at 33 service stations along the main highways (Renovate, Bright & Clean, Refresh).
- Developed high-potential community service stations that ready to expand business and additional service through the CO-OP Coaching (60 locations) and CO-OP Turn Pro (12 locations) programs.
- Expanded Fleet Card customer base to increase sales from service stations.
- Adopted Inno-Green Station criteria of Thailand Environment Institute (TEI) that integrate environmental awareness, innovation, safety, and quality of life of customers into the friendly design for Bangchak service stations development. In 2018, our 6 service stations were certified with the “Platinum” level.

- Bangchak continues to promote the use of renewable energy. We increased the number of service stations that offer E20 from 794 locations to 866 stations. Service stations that offer E85 were increased from 351 stations to 411 stations. In addition, we maintain our market share of E20 and E85as ranked 2<sup>nd</sup> at 18% and 46%, respectively and have the highest E85 sales per service station.
- Bangchak was the first Thai company to receive ISO 9001, Quality Management, and ISO/TS 16949, Quality Management system for automotive production and relevant service part organizations, certifications for our lubricant business. The certifications cover sourcing, products development, sales, and after sale services ensuring that our products and our operations are in accordance with international standards.
- Bangchak developed the **Respoplex Technology**” for our new **Furio lubricant** that was tested in partnership with a leading racing team at a 24-hour race in Le Mans, France.



Scan the QR code for  
Inno-Green Station





- Utilized Green Community Energy Management System (GEMS) with solar power generation and AI to predict electricity demand and revenue from power generation on an hourly basis at our Sri Nakarin service station.
- Piloted the Overhead Type fuel dispenser, suitable for land constraint area service station, at our Sukhumvit 62 service station to improve convenient to customers so they don't have to worry about parking on the right side of the fuel tank cap.
- Developed Flagship Service Stations along the main highways tailored to major tourist destinations in various provinces under the Greenovative Service Station and Unique Theme Design concepts to provide customers with varied experience.
- Expanded non-oil business into more service stations with Intanin cabs at 523 locations, "Kafe Yok Lor" coffee at 14 locations, and SPAR at 45 locations.
- Improved service station management to increase revenue by adding new businesses such as: food kiosk, food truck, restaurants, and automatic drop boxes.

**Greenovative Mind :** improving services with care through the implementation of IT technology in order to improve responsiveness to customers and provide more efficient services.

- Improved service quality of service stations in targeted areas by upgrading hardware such as POS and automatic filler in accordance with the Flagship Service Standard to ensure fast service (within three minutes) and provide 24-hour coverage of rest room maintenance to create the best experience to our customers.
- Controlled products and services qualities by conducted random unannounced service audits through our Mystery Shopper program.







- Developed Bangchak Link Application which enables service station operators to access important information such as auto ordering system (AOS) and Smart P&L, an assessment system for service station management) in real-time
- Developed a Digitized Loyalty Program by unveiling the “Bangchak GreenMiles” membership card along with the new Bangchak Mobile Application., Responding to digital lifestyle under “More than what is given is attention” concept.

**Greenovative Communities :** more than service station, Bangchak aims to provide an inclusive experience to our customers by promoting environmental stewardship, social responsibility and good culture

- “Term Nummun Pan Jai” project – Bangchak enable our customers to give back to the society though various initiatives,. In 2018, Bangchak bought over 530 tons of pineapples from local farmers at a fair price to help alleviate oversupply in the market. The pineapples were processed, dried, and sold under “Happy Pineapple” label and was given to our customers as thank you gifts..
- Disabled and Elderly Employment project – Bangchak provide employments to disabled and elderly personnel into suitable roles. In addition, we also support products produced by disable groups.



- Chemical-free vegetable project – Bangchak and Bangchak Green Net developed chemical—free vegetable projects in 130 service stations across the country. The project started by utilizing unused land in the back of service stations for planting vegetable to help reduce food cost for employees while excess produced are given to customers and communities. Knowledge on how to grow vegetable gardens are shared with schools around the areas.

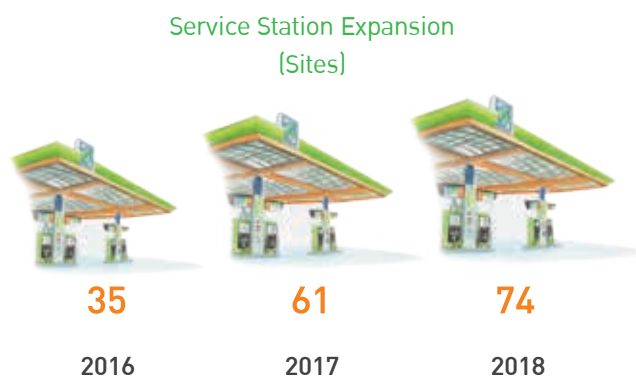
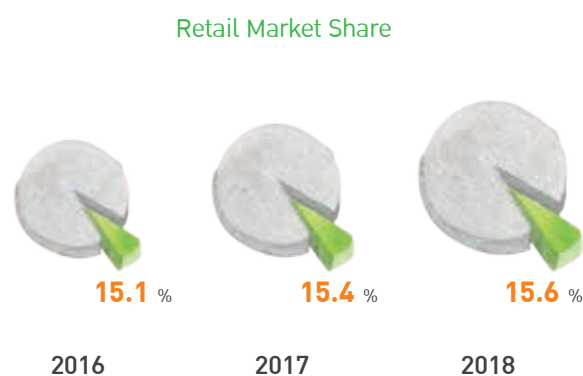
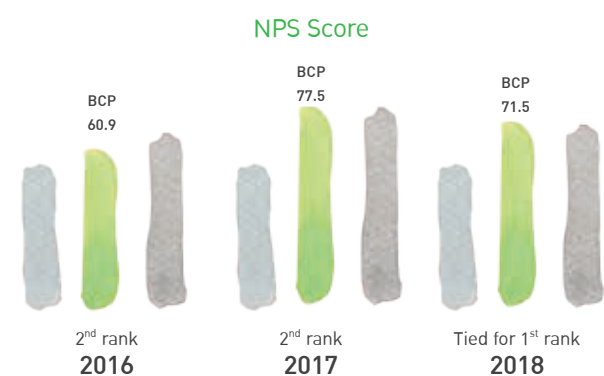
- “Rak Pan Sook” project – Bangchak collaborated with Siam Cement Group (SCG) and Indorama Ventures (IVL) to reduce plastic waste by encouraging customers to bring their used PET bottles and empty lubricant containers in for recycling; thus, promoting the circular economy concept. Revenue from this project is donated to non-profit organization.
- Green Coffee project – Inthanin coffee introduced a new cap that eliminate the use of plastic straws as well as made a switch to bio-cups for hot beverages. All Inthanin cups are now plant-based and can be 100% degradable within 180 days. Hope to create awareness about environment and social responsibility.

- Thai Tradition Promotion project – Bangchak promotes Thai cultural experiences to our customers through various initiatives such as letting employees wear traditional Thai costumes and promoting products during various holidays such as giving jasmine flowers for Mother’s day, giving croton trees for Father’s day, and giving out kratong on Loy Kratong day.



## Results

Bangchak brand service stations were ranked 1<sup>st</sup> (tied for 1<sup>st</sup> place) as measured by Net Promoter Score for the second consecutive year. (based on 2,000 customers survey conducted by 3<sup>rd</sup> party)

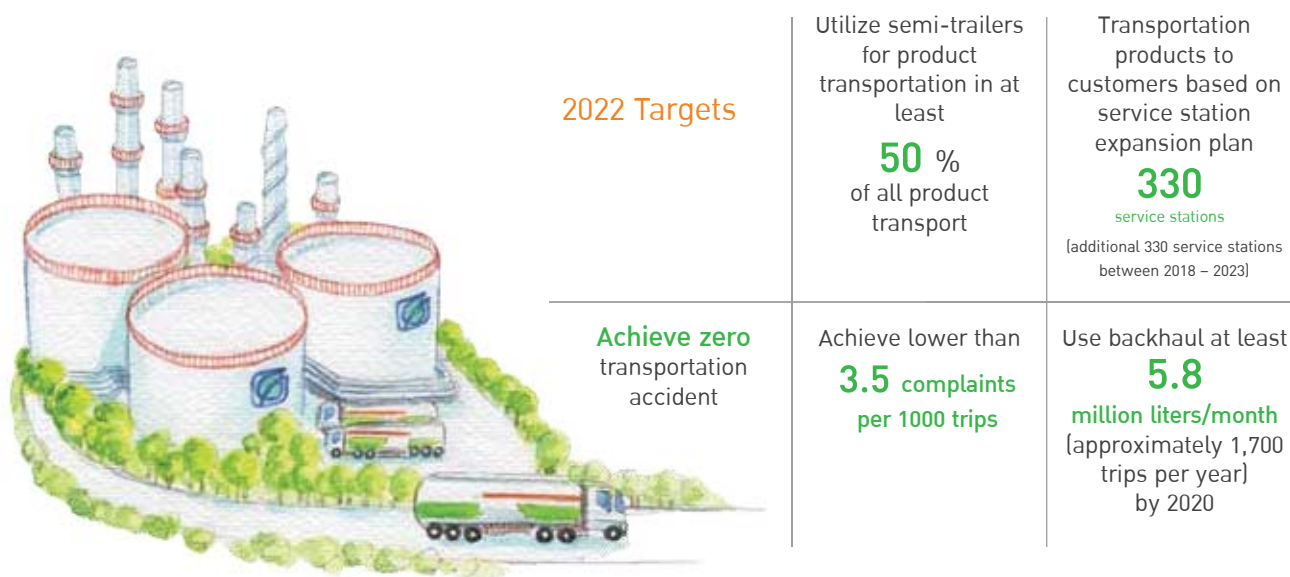


CO<sub>2</sub> emission reduction from using Bangchak membership cards (tCO<sub>2</sub>e)



## Product Transportation

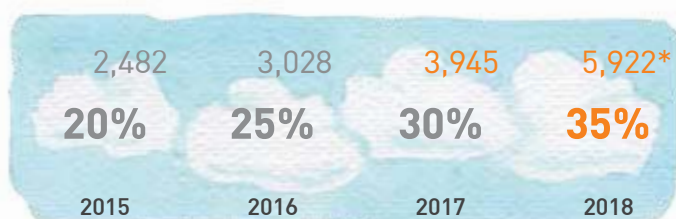
Product transportation to service stations and industrial customers must be accurate, timely, and safe. Bangchak's products are transported via pipelines, trucks, and ships based on customer's orders. Improvements of product transportations must involve our business partners to ensure common standards. Bangchak provides capacity building to all business partners (transportation providers) to promote good working and business partnerships. In addition to Supplier Code of Conduct (SCOC), Bangchak also provides seminars, trainings, and relationship building events to our partners so that they have the knowledge to carry out product transport effectively.



### Performance Indicators

Percentage of product transport using semi-trailer, help to reduce GHG by reducing number of trips  
(Target: 2% annual increase in semi-truck usage)

GHG emission reduction (tCO<sub>2</sub>e)

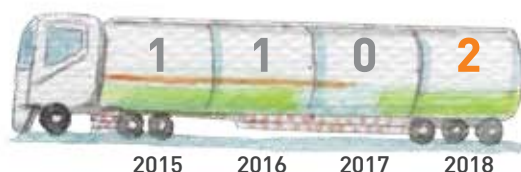


\*Used B7 fuel for product transportation in 2018

Number of complaints related to transportation  
(Target : ≤ 3.5 per 1,000 trips)



Transportation accident\*  
(Target : Zero accident)



(\*damages exceeding 1 million THB)



## Strategy 1

### Project to increase the use of semi-trailer trucks

Bangchak switched from using 2 standard trucks to 1 semi-trailer (40,000 liters) to reduce transportation costs as well as reduce GHG emissions and chances of accidents. To support this initiative we:

- Designed all new service stations to have space for semi-trailer
  - Utilized semi-trailer for Green Net's service stations (which are owned and operated by Bangchak Green Net, a Bangchak Group's subsidiary) using multi-drop strategy to maximize the use of semi-trailers
  - Provided discounts to cooperatives and dealer-owned service stations that receive products from semi-trailers
- These efforts have increased the percentage of semi-trailer utilization by 5% better than the target and resulted in over 46 million THB of cost saving and GHGs reduction 5,922 tCO<sub>2</sub>e

### Backhaul Project

In general, when transporting oil to service stations or industrial customers, the trucks are empty on the return trip, resulting in lost business opportunities. To improve efficiency, Bangchak initiated a project to utilize transportation trucks to carry ethanol from producers located on the same route back to Bangchak for processing. In 2018, the backhaul project resulted in over 1 million THB saving in raw material transportation cost.

### E85 dispatch from Bang Pa In and Surat Thani Terminals

Expand the dispatch of E85 to Bang Pa In and Surat Thani Terminals in addition to Bangchak Terminal, Bangkok to reduce lead time to order for our customers, reduce chances of accidents and reduce transportation costs.



## Strategy 2

### Developing professional drivers

Provided trainings on safe driving practices, fire suppression knowledge, terminal operations, Transportation Management System (TMS), and SAP management system to develop professional drivers and ensure the highest standards for our service station customers.

As a result of our strategy we were able to manage our product transportation to our customers effectively (average 80%)



## Strategy 3

### Developing effective transportation technologies

#### Smart Transportation

Transportation Management System (TMS) is a project to improve existing practices by monitoring delivery plans and drivers' behaviors including driving speed, driving route, CCTV and on-board GPS. The data collected are sent to Bangchak office, which is manned 24 hours. The system allows Bangchak to monitor irregularities and prevent accidents and potential corruptions. In addition, we have developed a smart phone application so that service station owners can monitor CCTV feeds and truck's location in real-time. This allows all parties involved to monitor product transportation and bring transparency to the process while improving customers' satisfaction and reduce complaints.



#### Development of Auto Ordering System (AOS) and E-Complaint

**Auto Ordering System (AOS) :** To improve the efficiency and accuracy of service station orders and transportation planning, Bangchak has developed an Automated Ordering System to enable the over 200 of Bangchak's owned service stations (Bangchak Green Net) to calculate sales and remaining inventory on a daily basis and execute an automatic order to ensure timely delivery. The system enables the service stations to manage transportation plan and delivery trucks more effectively.

**E-Complaint system :** Bangchak developed an online complaint channel to monitor complaints related to transportation and systematically manage and address the complaints effectively. In addition, we are working on integrating the E-Complaint system with the transportation payment based on SAP system to calculate fines to transportation service providers for incidents, which resulted in negative impacts on Bangchak's image.

#### Future Plans

- Expand E20 dispatch from Surat Thani Terminal to Song Kha Terminal to reduce chances of accident and reduce transportation cost and time.
- Install equipment to prevent drivers from falling as-sleep at the wheel which is one of the main cause of transportation accident by 2022 for every product transport trucks

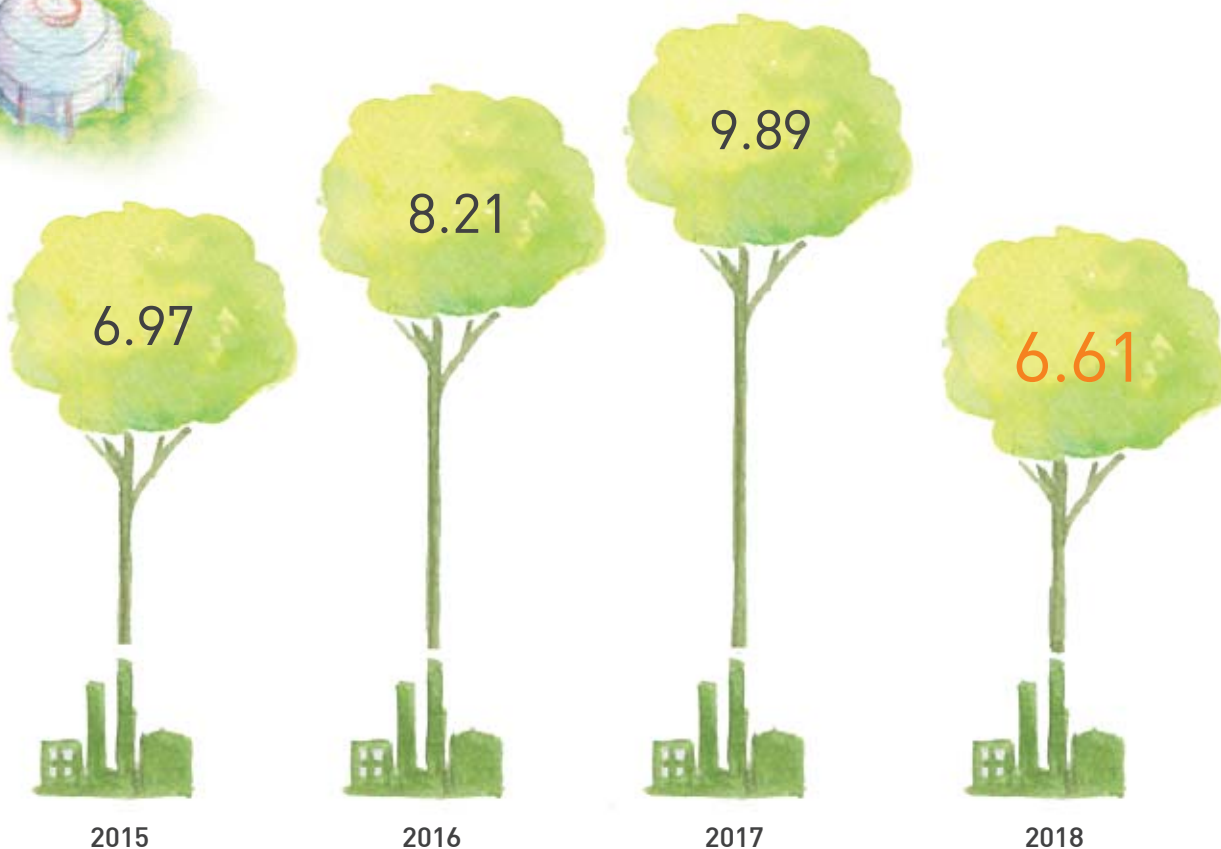
## Eco-Efficiency

The balance between economic growth and environmental protection is important to Bangchak in order to pursue sustainable development. Because of this, eco-efficiency has been applied as an indicator to demonstrate the comparison between economic growth and environmental impacts. For economic growth, Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) is used to reflect economic growth. On the other hand, carbon dioxide (CO<sub>2</sub>) emission which is a significant environmental material of oil and gas industry is used for representing environmental impacts. The high eco-efficiency indicates high production efficiency with low level of environmental impacts.



For the eco-efficiency of the year 2018, it was decreased due to the impact of the oil price situation in the world market that has been greatly reduced, resulting in a decrease in EBITDA. However, the amount of carbon dioxide equivalent in 2018 was lower than the past year, demonstrated the continuous sustainable growth with less environmental impacts of the business.

Eco-efficiency : THB thousand/ tCO<sub>2</sub>e



Note: EBITDA and CO<sub>2</sub>e (scope 1 and 2) for the Refinery Business



## Environmental Cost Accounting

Bangchak has prepared and developed environmental cost accounting, embracing oil refining processes, Bangchak Oil Depot, and Bang Pa-In Oil Depot. Such accounting has been publicized to external agencies and investors through its quarterly MD&A articles and IR Newsletters. In addition, knowledge has been constantly transferred to students and other interested agencies.

The total environmental expenses of 2018 raised by 8,621 million THB (9%) compared with year 2017, mainly due to the increase in material costs of product outputs approximately 8,570 million THB. Resulting from increased world oil price up from previous year by 25% and due to Bangchak has major Turnaround Maintenance period, material costs of non-product outputs costed 18.75 million THB in line with the increasing cost of slop oil by 18.69 million THB.

In addition, the cost of environmental control equipment increased by 36.30 million THB due to the installation of environmental control equipment. Causing the depreciation of pollution control equipment and environmental equipment maintenance costs to increase by 33.38 and 1.64 million THB respectively

By the way, the waste disposal cost increased by 1.79 million THB as a result of waste during Turnaround Maintenance. On the other hand, the cost of environmental protection decreased by 3.57 million THB (reduction of environmental quality measurements for operation period due to no need to measure during maintenance).

And the benefits of byproduct and reuse of waste (The amount of scrap and aluminum that can be sold) increased by 3.36 million THB or 27%.



| Environmental Cost Accounting                              | 2016      | 2017      | 2018      |
|--|-----------|-----------|-----------|
| <b>Material costs of product outputs</b>                   |           |           |           |
| Crude oil  | 60,029.81 | 80,433.78 | 89,862.78 |
| Ethanol  | 6,668.93  | 7,648.60  | 7,562.06  |
| B100 biodiesel   | 4,966.32  | 4,607.19  | 4,000.11  |
| B100 biodiesel-Premium                                     | -         | 28.37     | 42.62     |
| Wasted cooking oil   | 12.93     | 6.37      | 1.48      |
| Chemicals  | 145.04    | 162.45    | 168.07    |
| Process water  | 25.45     | 26.52     | 20.82     |
| Process energy   | 1,511.03  | 2,068.72  | 1,893.77  |
| <b>Material costs of non-product outputs</b>               |           |           |           |
| Slop oil   | 65.50     | 81.68     | 100.36    |
| Oil sludge from crude/fuel oil tanks                       | -         | -         | -         |
| Effluent   | 10.97     | 11.20     | 11.38     |
| Excess chemicals from neutralizing pond                    | 0.21      | 0.31      | 0.13      |
| Low-quality sulfur   | 0.59      | -         | 0.07      |
| <b>Waste and emission control costs</b>                    |           |           |           |
| Environmental equipment maintenance                        | 38.82     | 26.65     | 28.29     |
| Pollution control equipment depreciation                   | 245.44    | 233.90    | 267.28    |
| Effluent treatment   | 8.81      | 8.15      | 7.63      |
| Waste disposal   | 21.48     | 10.48     | 12.27     |
| Environmental fees and taxes                               | N.A.      | N.A.      | N.A.      |
| Fines  | -         | -         | -         |
| <b>Prevention and other environmental management costs</b> |           |           |           |
| Monitoring and measurement                                 | 24.58     | 10.20     | 7.68      |
| Waste storage area depreciation                            | 0.13      | 0.13      | 0.11      |
| Management system operation                                | 0.23      | 2.57      | 1.59      |
| Environmental equipment maintenance                        | 0.26      | 0.04      | -         |
| <b>Benefits of by-products and recycling</b>               |           |           |           |
| Liquid sulfur  | (10.18)   | (10.63)   | (9.86)    |
| Glycerine  | (0.33)    | (0.16)    | (0.05)    |
| Iron and aluminum scrap                                    | (5.11)    | (1.47)    | (5.70)    |
| Paper  | -         | -         | -         |

# Creating Values for Society

## Safety

Total Recordable Injury Case (TRIC)

Employees **3** male **0** female

Contractors **6** male **0** female

Total Recordable Injury Rate (TRIR)

Employees **1.66** male **0** female

Contractors **1.41** male **0** female

## Employees

Best Employer Score

**67** %

Average Training Hours

**46** (hrs/person/yr)

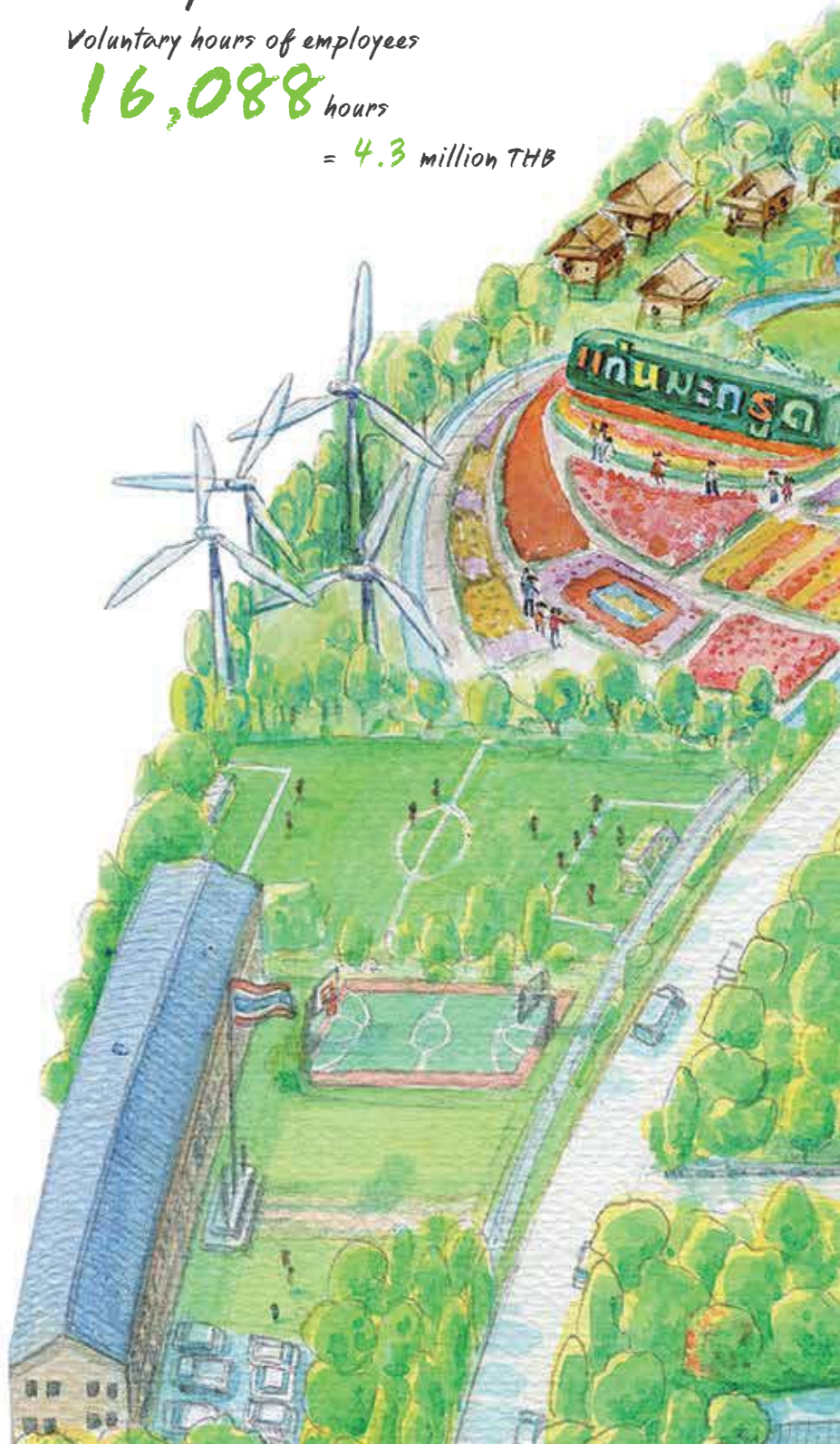
Internal Promotion Rate

**13.92** %

## Society

Voluntary hours of employees

**16,088** hours  
= **4.3** million THB









# Occupational Health & Safety

Security, safety, and occupational health are the most important issues of the petroleum industry, not only for the company but for our stakeholders including employees, contractors, and communities. Therefore, we take our commitment to the Bangchak Security, Safety, and Occupational Health (SHEE) Policy very seriously. We mandate that all our employees and contractors are responsible for their own safety as well as the safety of those working alongside them. In addition, employees and contractors must be obligated to comply with all relevant safety regulations and standards. We implemented the OHSAS 18001 and Process Safety Management (PSM) together with the Safety, Security, Health, Environment and Energy (SHEE) management structure to ensure the continuous performance improvement in our operations.



Projects that have been implemented since 2015 include:

- Felt Leadership (FL) project – to promote leadership in safety
- Field Risk Assessment (FRA) – to increase awareness and understanding of safe work process in order to prevent any incidents
- Implementation of safety work process such as LOTO (Lock Out Tag Out), LB (Line Break), and HW (Hot Work)
- Institutionalization of Process Safety Information (PSI) - to ensure that basic knowledge of processes is readily available for employees
- Process Hazard Analysis (PHA) – a tool to identify and analyze potential hazards in the process and to develop preventative solutions
- Incident Investigation (II) – a systematic process to identify root causes of incidents and to utilize information and data gathered to develop safety processes
- Management of Change Technology-Facilities (MOC-T,F) – a change management process for production process to ensure that safety considerations are factored into any operational changes and reviewed by experts in relevant functions. The process also ensure that changes are communicated to personnel so that everyone can reduce the risks associated with any process modifications.
- Pre-Startup Safety Review (PSSR) – a process to test equipment and operations related to the production process to ensure safe operations prior to commencing work after shutdowns and turnaround maintenances.

## Safety Management Process



In addition, Bangchak promotes safety and occupational health awareness to our employees and contractors on an on-going basis through internal and external activities called “Safety 24 Hours.”

Activities to promote safety within work included:

- Safety Culture Transformation – to promote safety culture through “**Line Walk**” conducted by executives to promote the importance of safety and through **Field Risk Assessment (FRA)** conducted by employees to spot safety risks to prevent near misses and incidents.
- SHEE Excellence Day
- Awareness raising through multiple communication channels, such as Outlook emails, posters, Safety Radio Channel in several formats such as news, informational, warning message, and games.
- Monthly area safety meetings and walkthrough conducted by safety officers and contractors.

In addition, Bangchak conducted campaigns to promote safety practices outside work, such as defensive driving and wearing motorcycle helmets and seatbelts.

Due to the major turnaround activities in 2018, large equipment and machinery as well as outside contractors were brought onsite. To ensure safety during the turnaround maintenance period, we conducted additional safety initiatives including:

- Joint daily meeting with the contractors and daily walk down of work area with the contractor’s safety personnel
- A Management Line Walk program to strengthen morale and reinforce safety practices to employees and contractors
- Implementation of safe work practices such as LOTO (Lock Out Tag Out), LB (Line Break), HW (Hot Work)



- Safety parade to promote safe work practice and to handout mineral drinks and chin straps to contractors
- Safety theme recreation activities, such as contractor singing contest and comedy night
- First-aid and Automated External Defibrillator (AED) trainings
- Communication of safety targets and goals through bulletin boards during the turnaround
- Presentation of safety awards for contractors who complied with safety procedures and requirements, including the proper use of personal protective equipment.

Our on-going efforts to promote safety culture and ensure safe practices resulted in over 1 million work hours with zero loss-time incident.



**Target :** Complete all 14 PSM elements by 2021

Bangchak established a Process Safety Management Governance Committee (PSM GC) and continues to implement the Process Safety Management (PSM) since 2015 under the 3Es values:



#### 2018 Safety Performance

In 2018, Bangchak initiated 2 new PSM processes including:

- Mechanical Integrity (MI) – a process to test equipment effectiveness and conduct preventative maintenance following the design requirements
- Quality Assurance (QA) – a process to ensure that equipment and machineries are installed according to design and are ready for use

#### 2018 Occupational Health Performance

Bangchak continued to use a proactive occupational health approach. Personnel Health Risks Assessments, hazard control at point sources, and workplace monitoring were conducted to ensure that appropriate preventive measures were in place. In addition, modifications to improve safety and monitoring of occupational health issues were continuously performed through:



- Employee health checkup before, during, and after work
- Employee annual health checkup both for general health and risk-based assessment according to risk-level determined by Bangchak's occupational health doctors and industrial hygiene specialists. In 2018, we added prostate cancer, pancreatic cancer, and gastrointestinal cancer screening to our employee annual health checkup program.
- Implemented international medical and health surveillance program standards. Determined proactive requirements and guidelines for at-risk workers.
- Implemented occupational health programs for contractors, including workplace preparation, procedures, protective equipment, and education.
- Executed medical emergency drills so that Bangchak's emergency rescue team and contracted hospitals understand their roles and responsibilities, consequently enhance coordination and effectiveness of the response
- Employed occupational health specialist doctors to assess and improve occupational health programs
- Conducted various health promotion activities, such as "200 days 1 million steps" program and "Fight for Fit: Do it Yourself" project which lets employees choose fitness activities based on their interest with the goal to reduce body fat and increase muscle.



Bangchak monitors Injury Frequency Rate (IFR), Injury Severity Rate (ISR), and Total Recordable Injury Rate (TRIR) of our employees and contractors. These indicators are used to manage Bangchak's safety performance.

|  | 2016* |        | 2017 |        | 2018* |        |
|--|-------|--------|------|--------|-------|--------|
|  | Male  | Female | Male | Female | Male  | Female |
| <b>Injury Frequency Rate (IFR)</b>         |       |        |      |        |       |        |
| • Employees                                | 0     | 0      | 0    | 0      | 0.55  | 0      |
| • Contractors                              | 0.22  | 0      | 0.   | 0      | 0.71  | 0      |
| <b>Injury Severity Rate (ISR)</b>          |       |        |      |        |       |        |
| • Employees                                | 0     | 0      | 0    | 0      | 7.75  | 0      |
| • Contractors                              | 10.24 | 0      | 0    | 0      | 9.18  | 0      |
| <b>Total Recordable Injury Rate (TRIR)</b> |       |        |      |        |       |        |
| • Employees                                | 1.8   | 0      | 0.74 | 0      | 1.66  | 0      |
| • Contractors                              | 0.67  | 2.96   | 0    | 0      | 1.41  | 0      |

\* Major turnaround year

The above statistics shows that IFR, ISR and TRIR for both employees and contractors continued to be high. To reduce the injury rates, Bangchak has implemented additional root cause analysis and used lessons learned from past incidents to improve work processes and preventative measures to reduce repeat incidents. In addition, we have implemented short-term and long-term plans, corrective actions monitoring, and communication plans to relevant personnel along with promoting safety culture through personal safety related activities.

# Customer Relationship and Responsibility



## Target: The Most Admired Brand

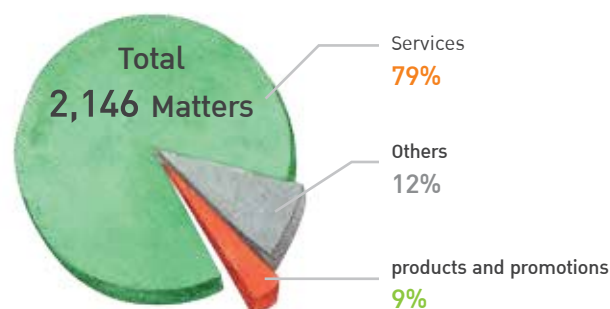
| Development of two-way communication tools between customers and Bangchak  | Development of systems and technology to support relationship   | Relationship management to maintain current customers and obtain new ones  |
|--|---|--|
| <p><b>1. Seeking Information</b></p> <ul style="list-style-type: none"> <li>Develop offline and online social media                             <ul style="list-style-type: none"> <li>Market representatives</li> <li>Call Center 1651</li> <li>Facebook</li> <li>Website</li> <li>Email</li> <li>Line Official</li> <li>Line@</li> <li>Live Chat</li> <li>Mobile Application</li> </ul> </li> <li>Use Net Listening Software to search for customers' information from social media</li> </ul> <p><b>2. Obtaining Service</b></p> <ul style="list-style-type: none"> <li>Developed program to allow customers to order fuel through the 24-hour call center since 2007. Customers and coop service station operators can place fuel order via the Call Center, web ordering, and mobile application.</li> <li>Increase payment channels for customers</li> </ul> <p><b>3. Feedback</b></p> <ul style="list-style-type: none"> <li>Increase Call Survey system to assess service station customers' satisfaction</li> <li>Assess customers' satisfaction and develop reports which include complaints, inquiries, compliments, promotional and advertising information, as well as suggestions. The report is distributed to all relevant functions to improve service quality.</li> <li>Conduct annual market research</li> <li>Conduct focus groups to find out customers' needs and satisfaction levels</li> <li>Document cases where customers provide positive feedbacks to award employees who provided good services.</li> </ul> | <ul style="list-style-type: none"> <li>Develop Customer Relation Management (CRM) to accommodate emerging new features</li> <li>Install Point of Sale Automation system at service stations that customers can register for membership (787 stations)</li> <li>Develop mobile application system to meet customers' demand such as finding location of service station, checking member point, and donating points to non-profit organizations</li> <li>Develop Live Chat system</li> <li>Add Line@channel</li> </ul> | <p><b>Consumers</b></p> <ul style="list-style-type: none"> <li>New Bangchak card members receive privileges for registering their membership card. Current members receive special points once they update their information.</li> <li>Bangchak card members can donate their point to non-profit organizations using the Bangchak Mobile Application.</li> <li>Setup sale promotion activities on the date that fuel price is increased. Membership will receive the difference in fuel price with point</li> <li>Increase rewards channels by exchanging customers' points to products, foods and beverages from subsidiaries and partnerships through Bangchak Mobile Application</li> <li>Provide marketing products such as drinking glass, water, tree, dry pineapple, tour package in 55 provinces as second tier tourism provinces book, lucky coupons, and promotional products such as exercise watches</li> <li>Provide membership privilege such as travelling insurance, emergency care for road accident, free annual car checking during on public holidays</li> <li>Provide games playing through Facebook and Line Official Compensate customers for damages caused as indicated in the requirement</li> </ul> <p><b>CO-OP service station operators and community service stations</b></p> <ul style="list-style-type: none"> <li>Increase business management capability through the Triple M course</li> <li>Developed Professional Franchise Scheme for more efficient management of service stations</li> <li>Provide education to develop service station personnel, including education on products, service tasks and promotion</li> </ul> <p><b>Industrial Customers</b></p> <ul style="list-style-type: none"> <li>Provide trainings on products / emergency planning / after-sales service / equipment support / equipment check / machinery care</li> </ul> |



In 2018, 2 staff from Bangchak's Call Center received **The Best Contact Center Support Professional of The Year Awards**, under Individual categories, from TCCTA (Thai Contact Center Trade Association).



## Complaints and Recommendations



## Results

Satisfaction of Bangchak's responses to complaints and suggestions  
(Target: 90%)



Customers' return to Bangchak  
(Target: 95%)



**No significant case of non-compliance with regulations concerning marketing communications in 2018**

(Disclosure 417-3)

## 2019 Plan

In 2019, Bangchak will continue to provide the best experiences and developing green innovation for our customers. We plan to increase numbers of standard service stations to more than 80 stations, 10 CO-OP service stations, 20 SPAR branches and 200 Inthanin coffee branches. We plan to grow the number of our business partners and non-oil businesses. Additionally, to strengthen our leadership position in green innovation, we will develop Inno-Green Stations and CRM system by using innovation to analyze our customers' demands as well as increase opportunities for our customers to positively contribute to the communities and the environment.

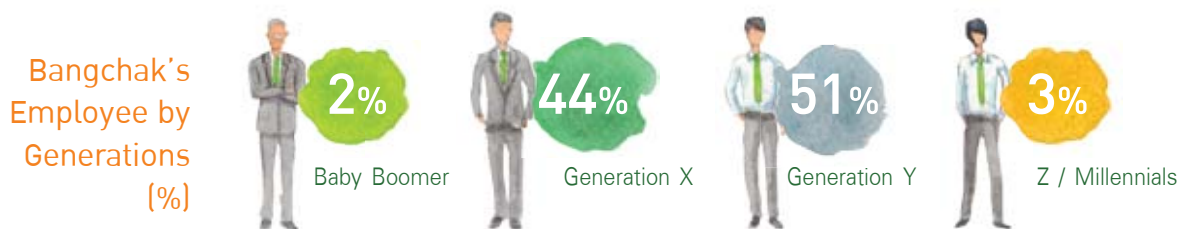
## Employee Stewardship

Considering that employees are key driver for efficient and effective performance of the organization, responses to their needs and expectations are highly prioritized. The most important priority is the care and development of employees. Bangchak is determined to become the Best Employer emphasizing four main factors as the followings:

### The Best Employer



Bangchak implements strategic plans and accountability of various business groups through Management Development Sub Committee (Sub MDC) prior to the Management Development Committee (MDC) because each committee is familiar with the specific work processes and in close contact with their employees. This helps better analyze and properly respond to various generations of employees.



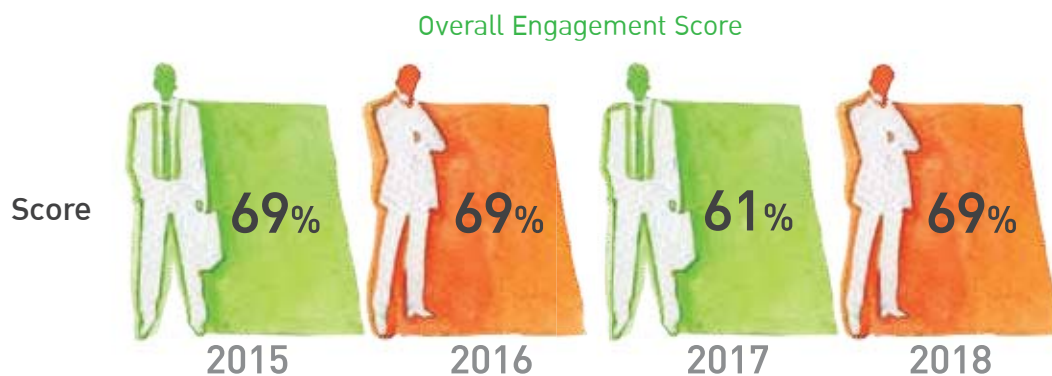
### Building Employee Engagement

Bangchak conducts employee engagement survey on an annual basis. The survey results are used to develop and improve employee engagement. In 2018, the company used the survey results to analyze and improve plans and procedures in the following ways:

- Motivated and improved leadership principles for supervisor and management level.
- Guided communication skill to heads of departments to aid in managing employees, especially career paths of employees.
- Encouraged employees in their personal development within and beyond the organization. Organized Knowledge Management through WeShare system for employees to share and exchange their work ideas and experiences, lesson learned, and tips and tricks.
- Conducted lifestyle survey to modify future benefits and working hours and organized multiple channels of communication through voice memos, Intranet, Outlook, and direct communication during a Town Hall meeting emphasizing understanding of business direction, necessary changes, and motivation for employees

- Continued Engagement Ambassador project from 2017. This project selects employees from each division as representatives to foster connection and aid in the communication about policies between the company and employees. The representatives also relay information from groups of employees to high-ranking executives.
- Supported digital channels for communication for speed and convenience of work, i.e. MS-Outlook 365, Skype for Business, WebEx, etc.
- Replaced desktops with laptops for employees and purchased tablets for executives. Set up high speed Wi-Fi covering the premise for convenience of work.
- Supported up-to-date work processes allowing ease of work, anywhere, anytime, i.e. Smart Me human resource system, EZ-Pay, e-Procurement, e-Catering, Smart Meeting, and Smart Office.
- Improved work regulations, i.e. flexible working hours to suitably adapt to modern city life for employees of every age and their families.

## Result



## Compensation Management and Employee Retention

Compensation management is an important expectation from employees. The company conducts an annual benchmark survey for compensation and benefit in the petroleum and related industries to analyze and revise the optimum compensations. The survey extends to determining benefits that are attractive to younger generations and long-term compensations. This year resulted in changes in salary structure and greater flexibility. There was no difference in compensation and promotion opportunity between gender.

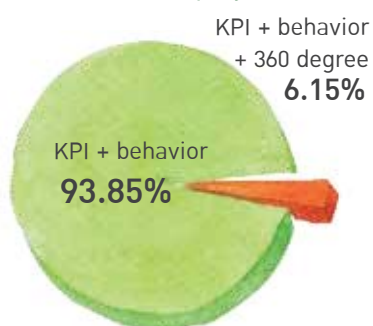
The compensation level is determined by two factors that stem from the company's goals. The two factors are 50% Key Performance Index (KPI) and 50% preferred behavior assessed by the direct supervisor. For the director level, a 360-degree behavior assessment is implemented in tandem with the regular assessment since 2016. In 2018, senior-level managers also entered the 360-degree behavior assessment with inputs by senior-level managers from other departments, co-workers, and subordinates. In all, 6.15% of total employees underwent this process. This allows employees to receive evaluations and suggestions for improvement and development from beyond their direct supervisor. The results of these assessments are implemented for more efficient strategies.



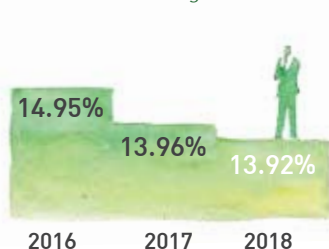
Bangchak continually emphasizes talent attraction and retention in order to receive results and achieve our vision. Besides fostering relationships between departments, The company selected employees from a criteria of performance evaluation, appropriate skills, satisfactory evaluation, and leadership skills according to the Assessment Center. The Talent Pool will receive special development and will be placed in succession for critical positions. This allows the company to prepare itself for changes and rapid business growth in the future.

## Result

### Employee performance evaluation (% of employee)



### Internal Promotion Rate (Percentage)



### Employee Turnover Rate (2018 Target : less than 3%)



### Female-to-Male Compensation Ratio



**0.98 : 1**  
Manager  
level



**0.95 : 1**  
Officer  
level



**1 : 0.84**  
Operational  
level

## Negotiation

As Bangchak highly values employees, the company gives opportunities for the communication between executives and employees to negotiate on compensations and benefits. In doing so, the employees of Bangchak established a legally registered employee labor union. Currently 55% of the employees belong to the union (Disclosure 102-41). The union focuses on the welfare of the employees and is in constant communication with the executive team. The union has the right to appoint an employee committee (currently 13 committee members) and negotiate compensations and benefits with the executive representatives to ensure that the employees receive proper benefits according to their desires and suitability. The union holds meetings with the executive team every quarter according to the law. In 2018, after reviewing the compensations, benefits, desires, and suitability of the employees, the company added mammogram screening for female employees above 35 years old in the annual health check-up program.

## Employee Development

The company plans to develop the capabilities of employees to be able to drive the organization effectively under the High Performance Culture guided by The Best Employer. The employees are the ones **“Driving the Business”** and need understanding and preparation for changes. They need **“Interdependence”**– cooperation and teamwork to **“Creating the Future,”** meaning to get ahead in terms of changes in technology and innovation. The company annually compares the required skills to the current skills to develop training and education plans for all employees in their personal development and career advancement.

### Strategy

### 2020 Targets

|  |  |  |
|--|--|--|
| Manage career advancement  |  | Develop career advancement plan for every job  |
| Develop experts and train successors in the same career path   |  | Plan for succession in event of job opening or new positions in new businesses   |
| Develop training courses for each level to be suitable for business growth and creating leadership for employees |  | Develop Talent Program for skilled employees and Mandatory Every program is in line with <b>i AM BCP</b> value for the next generation of leaders. |
| Develop applications for human resource management   |  | Create applications for up-to-date education and training for employees' convenience   |

## 2018 Performance

### Curriculum Development

The company focuses on systematic and continuous personnel development in order to foster professionalism in employees. The company has developed a Training Roadmap consisting of understanding the business and skills to manage in a changing world, as follows:

| Executive Development Plan  | Mandatory Courses for all levels   | Core Competency Courses   | Management Courses  | Efficiency Course   |
|---|--|---|---|---|
| In accordance with Leadership DNA, executives must attend domestic and international training to develop the company's capabilities to respond to growth and expand business networks | Focus on developing knowledge in business management and leadership development, according to each level | Develop business knowledge with focus on entrepreneurship perspective | Focus on developing management skills and the understanding of businesses under change and technological innovation | Create work standards throughout the organization, support business expansion to other countries, language programs ie. English and Chinese, technology skills development to support Thailand 4.0 and Industry 4.0 |

## Promoting Career Advancement

In 2018, besides implementing development coursework, Bangchak took into account the development of individual characteristics for employees to become more self-aware and empathetic to colleagues. The Assessment Center was set up to analyze and develop various capabilities of employees as follows:

- **DISC Test** : Tool for analyzing behavior in order to know their personal style and be able to analyze others' behaviors to convey the appropriate communication style for better collaboration
- **Strengths Finder Test** : To find the employees' talents and develop them into strengths to fully utilize their potential

## Results

### Numbers of average training hours (hours/person)



44

2016



45

2017



46

2018

### Numbers of appraised employees

Target: 100 %

[Disclosure 404-3]



100%

2016



100%

2017



100%

2018

### Return on Training Investment

(only Bi-ChEPs)

Unit: times



25

2018

## Career Path Management

The company conducted a study on the direction, policies, and capabilities of employees. After analysis, the company created "Job Family" according to Technical Competency and Soft Skills so the employees could be aware of their career path and are motivated to develop themselves further. The company is in the process of developing Career Passport, a tool that allows communication between employees and their supervisors on career advancement.

In addition, the company has a policy to develop experts, especially in the refinery business to be able to drive the business forward continually with efficiency, safety, and environmental protection, along with building confidence in the local community. The company set up Technical Career Ladder, which is a track for developing experts according to international standards. Other various projects develop in 2018 are as follows:

- Developed skills under Technical Career Ladder ranging from Aware, Can do, Competence, Advance, until Expert in every field: Chemical, Mechanical, Electrical, Instrumental, Environmental Engineer,

Safety, Analysis. Also assessed Technical Competency of employees in all branches to plan personal development in the following years

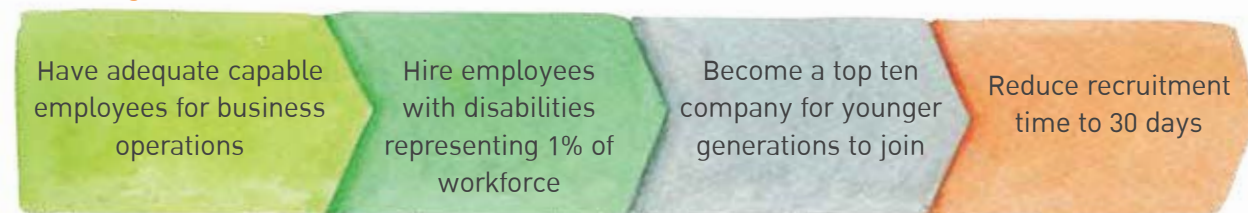
- Collaborated with domestic and international experts to foster the exchange of knowledge and technical expertise as follows:
  - MOA signing ceremony between Bangchak and Japan Corporation Center Petroleum (JCCP) for Technical Collaboration for Improvement of Maintenance and Operation Project
  - Project to promote the exchange of knowledge and experience with SK Refinery, South Korea, in terms of Maintenance & Reliability Engineer and Operation Staff training
  - Knowledge exchange with experts for PTES in Tank Inspection and Advance Process Control
  - Bi-ChEPs project to enhance engineering knowledge for supervisors of distillation unit in order to understand and control the unit efficiently and safely, also to manage projects to fix real-time problems or improve the distillation unit



## Employee Capacity Planning and Recruitment

With continued growth, planning for adequate numbers of employee and recruitment is highly important. The company has to be prepared and ready for operations to achieve the vision. The company assesses individuals who are “talented and good” and have appropriate knowledge and competence.

### 2020 Targets



| Strategy  | 2018 Performance  |
|---|---|
| <ul style="list-style-type: none"> <li>Plan for adequate number of employees and capabilities to match with the company's 3-year strategic plan</li> </ul>        | <ul style="list-style-type: none"> <li>Developed new competency test for recruitment</li> <li>Funded project for Vocational Programs to develop employees' knowledge and skills to be ready for company's growth, including subsidiaries</li> </ul>   |
| <ul style="list-style-type: none"> <li>Hire quality personnel with fairness, open opportunity for people with disabilities to foster a happy society</li> </ul>   | <ul style="list-style-type: none"> <li>Hired 13 employees with disabilities with skills appropriate to their roles to fulfill 1% quota of all employees in accordance with Section 33 of the Promotion and Development of Quality of Life of Persons with Disabilities Act 2550, which also accomplish SDG 8</li> </ul>   |
| <ul style="list-style-type: none"> <li>Create a good company image through various online media to attract younger generations to work for the company</li> </ul> | <ul style="list-style-type: none"> <li>Talent Internship Program opened for internships for Thai and foreign students studying in Thailand to participate in annual internship program, learn working experience, and create opportunities for work in the future. In 2018, 82 Thai and international students participated in the program.</li> <li>Expanded channels to create good company image to provincial educational institutions. Developed website for job recruitment and Facebook for Bangchak Career to add channels of communication with the younger generation.</li> </ul> |
| <ul style="list-style-type: none"> <li>Decrease recruitment time</li> </ul>   | <ul style="list-style-type: none"> <li>Developed English and IQ tests using a computer system to administer and grade the test for quicker results in 2018</li> <li>Continued work on Smart ME personnel management system for recruitment and selection through automated computer system.</li> </ul>  |

### Most Attractive Employer Survey (rank)

|                   |  |      |           |
|-------------------|--|------|-----------|
| Business field    |  | 58   | <b>39</b> |
| Engineering field |  | 25   | <b>12</b> |
| Science field     |  | 14   | <b>14</b> |
|                   |  | 2016 | 2018      |

\*conducted by Universum with set of students

## Results

Percentage of successful projected recruitment



Employees with disabilities (persons)



Recruitment time (Target)



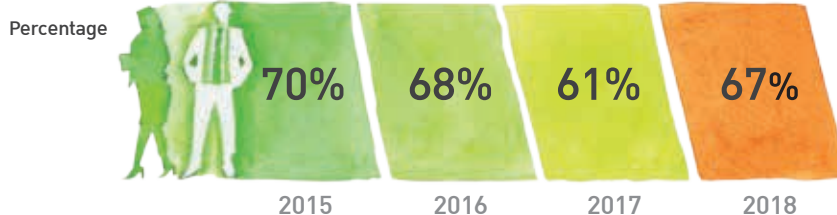
New recruitments (persons)



International interns (persons)



The Best Employer Score (2018 Target: 60%)



## Human Rights

With rapidly changing in economy, society and politics together with the expansion of the company and affiliates in different region resulting in complexity of business activities throughout the value chain and relevant to wide range of stakeholders, in 2017, we developed Human Rights Policy in accordance with the UN Global Compact, ISO 26000, the Universal Declaration of Human Rights, and the UN Guiding Principles on Business and Human Rights (UNGP) to ensure that our business operations will not violate human rights and to show our commitment on this issue. The policy provides expectations to our Board of Directors, executives, and employees on human rights issues.

Bangchak conducted a through human rights risk assessment for refinery, oil trading, Head Office. The assessment was completed in 2018.

Human rights risks assessment for our suppliers will be built upon requirements in the Supplier Code of Conduct which covers labors and human rights, occupational health and safety, and the environment.



## Human Rights Risk Management

### Step 1

Prepare and Declare  
Policy Commitment

### Step 2

Conduct Human Rights  
Due Diligence  
Prepare an impact assessment  
form to check  
Human rights in all aspects

### Step 3

Conduct Human Rights  
Impact Assessment.  
The scope covers both internal  
and external stakeholder groups.  
The assessment should define  
vulnerable groups, human rights issues,  
and complaints. In addition, mitigation  
measures must be develop to reduce  
potential impacts from business  
operations.

### Step 4

Engage impacted groups  
in the development of remedies  
in an event that a human rights  
violation is found. This include  
assessment of risks  
and indicators selection.

### Step 5

Monitor Progress  
Report results to  
management and public.



# Community and Social Engagement

Bangchak conducts business operations with corporate social responsibility as a part of the company's mission. Over the years, we continue to take part in social development both near our operations (local area) as well as at the national level. In 2018, our community and social engagement activities were implemented on two levels:

1. Local community development
2. National development





## Local Community Development (Disclosure 413-1)

Due to main and important operation of the refinery (90%), Bangchak categorizes communities around our refinery into four groups to properly respond to each group's needs and expectations. The most common needs and expectations are: **safe operations, prompt communication in case of emergencies, emergency preparedness, and engaging the communities in social and community development activities.** Bangchak has set community relations strategy and conducted social and community development activities covering eight areas which are education, safety, sports, quality of life, environment, relationship promotion, cultural conservation, economy, and public benefits. During 2018, over 236 activities were held, providing benefits to 28,974 people.

### Community Relations Strategy

### 2020 Targets



|  | <br>Communities                                 | <br>Households | <br>Schools | <br>Condominium |
|--|--|---|---|--|
| Approximated population  | 10 communities in Bang Na / Phra Khanong<br>1 military at 1 Bang Nam-phueng subdistrict in Phra Pradaeng district<br>17,587 people | 5,424 households who are subscribers of Khrob Khrua Bai Mai bulletin<br>5,424 people              | 19 schools in Bang Na, Phra Khanong districts, and Bang Nam-phueng subdistrict<br>14,363 people | 14 condominiums around the refinery<br>10,102 people   |
| Participants in activities (number/percentage)                   | 13,541 people<br><b>76.99 %</b>  | 5,424 people<br><b>100%</b>   | 8,111 people<br><b>56.47%</b>   | 940 people<br><b>9.31%</b>   |
| THB-31-million social investment (development budget / donation) | Development budget<br><b>50.06%</b><br>Donation budget<br><b>6.7%</b>  | Development budget<br><b>6.87 %</b>   | Development budget<br><b>27.6%</b><br>Donation budget<br><b>1.12%</b>                           | Development budget<br><b>7.65 %</b>  |

## 2018 Performance

### Economy

**1. Khun Jaew Clean Service Community Enterprise** This project, started in 2015, is a platform of housekeepers to create additional income by providing cleaning services to condominium around the refinery. The project helps to build capabilities of housekeepers by encouraging members participations in designing and operating the business so that they learn management and nancial skills to be able to manage the project.



In 2018, the community enterprise generated over 30,000 THB/month, increasing from the previous year. This income helped them to self-sufficient, increased happiness, built capability of systematic management, team work skills and performance development.

**2. Supported local products and services during Bangchak's events** Bangchak invites local businesses around the refinery to come sell food and drinks in the refinery complex during annual turnaround. In addition to catering to our contractors who are working during the turnaround; the event also generated over 1.9 million THB for 34 local businesses. We also supported local businesses to sell their products at the “Aoon I Rak Khlai Khwam Nao” (“Love and Warmth at Winter's End”) Festival, which generated over 125,000 THB for the community.

**3. E-commerce training for our neighbors in condominiums** Bangchak held an e-commerce training for communities living in condominium to enhance their quality of life by increasing another source of income from e-commerce. Bangchak invited community members who are interested to participate in the training conducted by e-commerce experts. The first group of participants (the program started in 2016) generated around 40,250 THB per month of additional income which allow them to have more time with their family.



## Environment

**Firefly Route Project** Biodiversity project: Firefly Route is a conservation and restoration project to improve the ecological system in Bang Kacho area. Started in 2013, the project taskforce comprised of 6 representatives from communities in Bang Kacho and academics from Kasetsart University and Chandrakasem Rajabhat University.

**Survey:** create community awareness to protect natural resources at this area by recruiting locals to be part of a survey team to monitor and document the number of fireflies.

**Research:** support researches to enhance awareness and understanding about firefly conservation by transferring academic findings from Kasetsart University to the communities.

**Disseminate:** expand conservation volunteer network to restore ecological system in Bang Kacho area and disseminate data and knowledge from firefly survey to the communities to raise awareness and encourage collaborative efforts to protect local fireflies.

**Establish route:** promote Bang Kacho as a tourist destination for observing fireflies. Bangchak organized the first Firefly World Day event at Bangnamphung Floating Market. The activities included with Q&A about firefly, fireflies in a stimulation room and a night tour to see fireflies. More than 8,000 people participated in this two-day event.

## Education

### Youth Development in the 21<sup>st</sup> Century and Thailand 4.0

Bangchak recognizes the importance of capability development for teachers and students; therefore, we created BCP Innovative & Active Learning training class for math teachers. This class focused on teaching skills and educational material development that help all students to learn, understand and participate so that they not only understand the materials, but also enjoy the learning process.

To promote safety in schools, Bangchak established the “First Aid – How to Save Lives with CPR and AED and How to Handle Medical Emergency in School” training to teachers, students, and school personnel on the basic first-aid knowledge, how to perform CPR, and how to use automated external defibrillators (AED) so that they can perform the lives saving actions in an emergency.



## Sport

Bangchak promotes and supports youths to participate in sports activities. The “Bangchak Youth Sports” program has been on-going since 2016. The program encourages youths from around the communities to become more active, lead a healthy life-style, and stay away from drugs. The program also promotes comradery among community members and Bangchak.

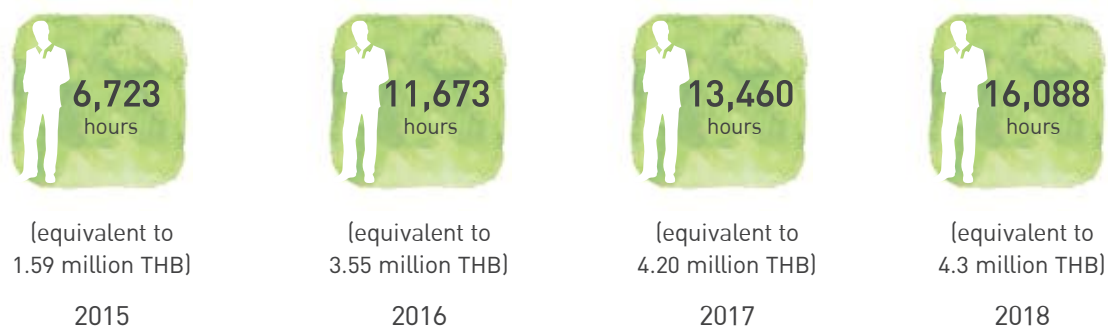
In addition, Bangchak created Bangchak Football Camp with BGFC program during the World Cup season. Over 160 athletes from schools near the refinery participated in the program with BG FC football club at Yamaoka Hanasaka Academy (YHA) in Rangsit Khlong 4.



## 2018 Community Engagement Performance



## Bangchak staff's man-hours on volunteer projects (hours-THB)



## Satisfaction score for community relations projects around the refinery (%)



## On-going Projects

| Areas                    | Objectives   | On-going Projects  |
|--------------------------|--|--|
| Education                | <ul style="list-style-type: none"> <li>Youths' learning and development that suit their ages, and awareness of being both ethical and capable</li> </ul> | <ul style="list-style-type: none"> <li>Citizen Awareness, Year 9</li> <li>Bangchak Youth Scholarships, Year 14</li> <li>Read and Write with Ease (Literacy), Year 5</li> <li>Fill up knowledge with Bangchak, Year 13</li> </ul>   |
| Safety                   | <ul style="list-style-type: none"> <li>Confidence in the refinery's safety</li> <li>Swift and effective safety response in an emergency</li> </ul>       | <ul style="list-style-type: none"> <li>Arrangement of emergency exercises and fire drills for schools, communities, and neighboring condominiums</li> <li>Donation of fire extinguishers and other apparatus (For more information on the refinery's safety development to address all stakeholder groups' expectations, please refer to "Safety" and "Air Emissions" chapters.)</li> </ul>  |
| Sports                   | <ul style="list-style-type: none"> <li>Strong and healthy youths</li> <li>Increased educational</li> </ul>   | <ul style="list-style-type: none"> <li>Bangchak Youth Soccer Club, Year 12</li> <li>Bangchak Youth Futsal, Year 15</li> </ul>  |
| Quality of Life          | <ul style="list-style-type: none"> <li>Better quality of life, health and mind</li> </ul>  | <ul style="list-style-type: none"> <li>One Family, Year 25</li> <li>Healthy Community, Year 8</li> <li>Elderly and Healthy, Year 2</li> <li>Bangchak Good Youth, Year 3</li> </ul>   |
| Environment              | <ul style="list-style-type: none"> <li>Recognition of environmental problems and efficient use of resources</li> </ul>                                   | <ul style="list-style-type: none"> <li>Thot Pha Pa, Raksa Ton Nam, Chaiyaphum province, Year 14</li> <li>Purchase of used vegetable oil from communities around the refinery, Year 7</li> <li>Firefly Routes, Conservation Way, Year 5</li> <li>Youth Love Earth, Year 4</li> <li>Bai Mai Family, Year 14</li> <li>Roving Communities, Year 10</li> </ul>  |
| Relationship and Culture | <ul style="list-style-type: none"> <li>Cordial relations between the refinery and neighboring communities</li> </ul>                                     | <ul style="list-style-type: none"> <li>Roving Communities, Year 10</li> <li>Khrob Khrua Bai Mai bulletin (Year 14) and Rop Rua newsletter (Year 13)</li> <li>Bangchak Children's Day, Year 34</li> <li>Paying respects to senior citizens in communities on Songkran Day, Year 16</li> <li>Community visit during special holidays such as Mother's day, Father's day, and New Year day, Year 16</li> <li>Movie Night, Year 11</li> <li>Condo neighbors, Year 8</li> </ul>   |
| Economy                  | <ul style="list-style-type: none"> <li>Income generation and more opportunities for local residents to leverage their knowledge and skills</li> </ul>    | <ul style="list-style-type: none"> <li>Sufficiency Community, Year 4 teach family budgeting and was able to reduce expenses for 70% of the participants.</li> <li>Khun Jaew Clean Service Community Enterprise. This generated more than 30,000 THB/month.</li> <li>Supports local businesses by using community products and services in company's activities resulting in over 500,000 THB of wealth distribution</li> <li>Provide free space for local food suppliers to sell products in the Head Office's cafeteria creating income of over 1,000 THB/shop/day</li> <li>Provide free space for local food supplies to sell products to contractors during turnarounds, generating more than 1,900,000 THB.</li> </ul> |

### Future Plan

Bangchak recognizes the important of local community engagement and activities to enhance quality of life, improve household earnings, and strengthen relationship between communities and the company to create a sustainable, friendly, safe, and mutually benefitting relationships.

## National Development

At the national level, Bangchak focuses its efforts on two groups of stakeholders: 1) the youth – who will be the driving force of the future, 2) farmers – who are the main customers and majority group of the country. We incorporated the details within the 12<sup>th</sup> National Economic and Social Development Plan, Thailand 4.0 Policy, and the United Nations Sustainable Development Goals (SDGs) into our assessment of stakeholders' needs and expectation in order to design projects and programs targeted to our stakeholders.

Moreover, in 2018, we improved our social impact measurement method through financial tools that measure both positive and negative impacts to the society, where the results are used in management's decision-making process. The tools will be utilized for all major social and community programs in order to achieve continuous improvement and social outcomes.

As a result, in 2018, we extended our social programs to social enterprises corporate social responsibility, and a foundation to expand our reach and leverage existing efforts to promote innovation and improve economic outcomes of root grass communities. We also modified our strategies for dealing with our stakeholders as the followings:



### Strategy

1.

Improve economic outcomes of farmers and Thai society by expanding Bangchak service station network and social enterprise



2.

Integrate environmental activities into school curriculum to support policy to reduce time in classrooms and increase learning time in order to improve literacy rate



3.

Create learning process to teach the youth about social responsibility and social enterprises in order to instill Bangchak's DNA into the youth

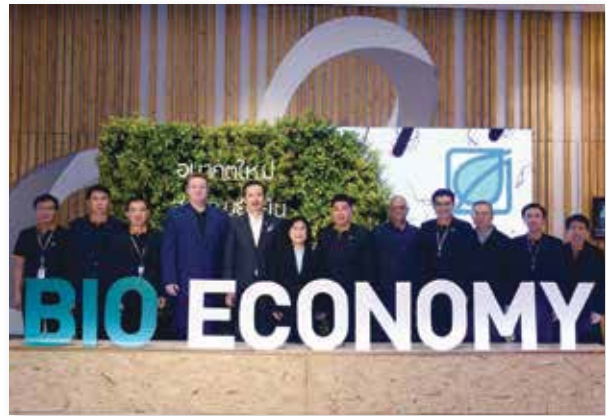
### 2021 Targets

- Promote socially responsible activities in at least 30 service stations per year
- Establish a social enterprise related to sustainable organic agriculture
- Increase sustainable farm areas by partnering with at least 30 cooperative members in Tambon Kaen Makrut, Ban Rai, Uthai Thani province (target was reduced from 50 members due to the readiness of the farmers and well as changing weather condition)
- Each year at least 80,000 youths learn about innovation and environmental issues in order to help alleviate climate change
- Overcome the illiteracy issue of at least 800 students/ year
- Each year at least 600 youths gain knowledge about social responsibility and social enterprises in order to help achieve Sustainable Development Goal (SDGs)



## 2018 Performance

**General Public:** Hosted “Bio Economy - New Future for a Sustainable World” seminar to help Thailand become more sustainable and to achieve Sustainable Development to maintain temperature increase within 2 degrees Celsius (SDG 13), sustainable consumption (SDG 12) and support innovation (SDG 9). The seminar showed the promises and importance of Bio Economy in managing climate change, waste and plastic waste problems as well as food security issue.



**Youth:** Conducted a contest under the theme “Smart Living, It’s possible” under Bangchak Green Blood Project in collaboration with the Office of the Basic Education Commission (OBEC). The contest aims to increase environmental awareness and reduce resource consumption through creative and innovative process to shift Thai consumers’ behaviors. Over 65 ideas and processed agriculture products were submitted from 51 schools nationwide. The innovation and products are features and broadcast online to another 120,000 youths.

**Youth: Bangchak Yunus & Youth Contest** in collaboration with Asia Institute of Technology. A social enterprise contest was conducted to promote innovative solutions for social issues. Over 600 students from 19 universities participated and was given guidance on how to start a social enterprise. This year winner was Greensery, a team from the Prince of Songkla University, who proposed a way to help increase rubber price and reduce plastics waste by making seedling bags out of natural rubber material which is biodegradable. The seedling bags made of natural rubber also help with water retention and hold nutrient that plants can use. The “Natural Rubber Seedling Bags Enterprise” offers product that increase the value of agricultural commodity and help to directly address a social problem of plastics waste at the same time.



**Youth: “Read and Write with Ease”** project in Phanom Sarakham district, Sanamchai Khet district, in Chachoengsao province continued in 2018 with over 682 students. This year Bangchak implemented the process to calculate social return on investment (SROI) by quantifying social benefits and outcomes from the project. We compared and contrasted the outcomes of two schools under different contexts under the cost-benefit analysis framework. We found that the project returns quantifiable benefits to the society from year one with 1:1.19 ratio. The main beneficiaries of the projects are schools, teachers, and parents, respectively. We also found that small schools reap higher benefits from the program due to less complex management and through regular follow up by school management. The project helps to reduce government’s budget for helping kids to read and write and to reduce the number of kids who have to repeat a grade.





## Farmers and Community

**1. Community Service Stations** – as a result of Bangchak's partnership with agricultural cooperatives, the service stations not only reduce fuel costs for communities but also increase revenue for the cooperative through dividends and profit sharing based on equity shares as well as additional benefits from being a member of the cooperative. Bangchak aims to open 10 community service stations per year in expand the business partnership benefits to another 120,000 agricultural households (from the current 1 million households) by 2021. Agricultural cooperatives who are Bangchak's partners still expects Bangchak to help with marketing and management process under a competitive market. In 2018, Bangchak opened community service stations in the Southern provinces and added 13 community service stations nationwide.



Introduction video of Pan-Sook farmers  
Khun Suphaporn Karnjaree, an agricultural  
cooperative member  
Self-Developing Estate, Khok Tum, Mueang  
District, Lop Buri province

**2. Aom Sook Social Enterprise** – established with partnership from the Buddhist Economic Foundation Network in late 2016, to buy and market processed agricultural products from local communities. In addition, the social enterprise conducts research to improve product quality. In 2018, the social enterprise established a coffee business, “Ariyasap” at Rai Cheong Tawan in Chinag Rai province. Bangchak shared knowledge on the coffee business from our experiences with Inthanin to the enterprise. The Ariyasap coffee shop will serve as learning center for local farmers who are interested in coffee plantation and as an outlet for community products from the students in the Buddhist Economic rice farming project.

**3. “Pan-Sook Farmer”** – a model for change for community to take the path of sustainability. In 2018, the Baimai Pansook foundation conducted the “Water Management under Self-Sufficiency Philosophy” for the second consecutive year in Pa Sak river basin. The project aims to improve the livelihoods of residents and to increase forest area to alleviate drought and flood. The Project helps local farmers to redesign their land plots to ensure enough water for farming and increase yields using organic farming methods, so that they do not need to encroach into the forest. The project created 9 Pan-Sook farmers as models for the communities and will expand its reach to more farmers in the future.



**4. Self-Sufficient Integrated Model at Kaen Makrut, Ban Rai, Uthai Thani province** – Bangchak had the opportunity to work with the Mae Fah Luang Foundation, Pid Tong Lung Phra Foundation, and private sectors under TEAM D project to help develop local areas. Bangchak selected areas in Kaen Makrut to help local communities protect Huay Ka Kaeng national forest. We conducted a survey of the local community in mid-2018 and found that the high-land environment and local Karen population provides a unique context. Bangchak worked with enterprises within the network to develop 4 strategies for the area: 1) water shed establishment and reforestation 2) value-added agricultural product development to increase revenue 3) the replacement of animal feed corn with other plants and 4) tourism promotion. The work done by Bangchak will help these communities to become stronger and live in harmony with the forest.



### Future Plan

Bangchak will continue to implement the King's Sufficiency Economy Philosophy to develop and improve root grass communities around the country so that agricultural communities can become more self-sufficient (enough to live, enough to eat, enough to use, enough for peacefulness). We will also leverage technology and innovation to create new opportunities for Thai people in the digital age. In addition, we will continue to support educational efforts in partnership with agricultural cooperatives from various provinces and 20 schools in the government network in 9 provinces in Thailand.





# Sustainability Performance Statistics

## Economic Performance

| Revenue (Million THB) (Disclosure 201-1) | 2015       | 2016       | 2017       | 2018       |
|--|------------|------------|------------|------------|
| Sales and services                       | 151,140.36 | 144,705.29 | 172,138.24 | 192,025.32 |
| Total Revenue                            | 151,683.24 | 145,232.40 | 173,378.94 | 193,340.41 |
| Net profit                               | 4,097.38   | 4,729.41   | 6,163.00   | 3,234.70   |
| EBITDA                                   | 11,081.00  | 11,363.00  | 13,420.00  | 10,201.00  |

| Expenditure for income contribution to stakeholders (Million THB) (Disclosure 201-1) | 2015       | 2016       | 2017       | 2018       |
|--|------------|------------|------------|------------|
| Operating expenses   | 139,686.22 | 132,809.35 | 158,595.55 | 180,594.37 |
| Interest expenses paid to financial institution creditors                            | 1,560.15   | 1,489.61   | 1,502.30   | 1,559.06   |
| Tax payment to government and local authorities                                      | 647.32     | 822.32     | 544.16     | 194.45     |
| Financial supports for encouraging public policies                                   | -          | -          | -          | -          |
| Community and social development   | 37.45      | 38.88      | 32.98      | 36.00      |
| Donation to society and schools  | 57.62      | 37.82      | 73.61      | 62.94      |
| Dividend payment to shareholders   | 2,039.44   | 2,753.52   | 3,310.75   | 3,090.52   |
| Dividend payment to shareholders (Baht/Share)  | 1.40       | 1.80       | 2.15       | 1.35       |
| Wages and employee benefits  | 2,419.60   | 2,903.82   | 3,277.33   | 3,310.33   |

## Corporate Income Tax (Bangchak Corporation PCL.) (Million THB)

| Tax Jurisdiction | Revenue       |        |                 |         |         |         | Profit / (Loss)   |       | Income Tax Paid   |       | Income Tax Accrued |      |
|------------------|---------------|--------|-----------------|---------|---------|---------|-------------------|-------|-------------------|-------|--------------------|------|
|                  | Related Party |        | Unrelated Party |         | Total   |         | before Income Tax |       | (on a Cash Basis) |       | Current Year       |      |
|                  | 2017          | 2018   | 2017            | 2018    | 2017    | 2018    | 2017              | 2018  | 2017              | 2561  | 2017               | 2018 |
| Thailand         | 41,859        | 50,328 | 167,596         | 176,425 | 209,455 | 226,753 | 9,093             | 5,309 | 264               | 1,104 | 680                | 13   |
| Singapore        | 7,424         | 22,919 | 5,261           | 14,978  | 12,685  | 37,897  | (911)             | (114) | 15                | 4     | 5                  | 12   |
| Philippines      | 59            | 36     | 1,530           | 1,293   | 1,589   | 1,329   | (920)             | 225   | 16                | 64    | -                  | -    |
| Japan            | 198           | 317    | 572             | 1,396   | 770     | 1,713   | (51)              | 409   | 8                 | 96    | 5                  | 138  |

| Supply chain management (Disclosure 204-1)           | 2015  | 2016  | 2017  | 2018  |
|--|-------|-------|-------|-------|
| Local purchases of goods and services*               | 5,407 | 4,351 | 5,749 | 4,424 |
| Percentage of local purchases of goods and services* | 93    | 98    | 84    | 98    |

\*Local purchasing in Thailand, exclude raw materials and crude oil

## Environmental Performance

| Details                   | Refinery Business |           |           |           | Bio-based Product Business |         |         |         | Green Power Business |      |      |      |
|---------------------------|-------------------|-----------|-----------|-----------|----------------------------|---------|---------|---------|----------------------|------|------|------|
|                           | 2015              | 2016      | 2017      | 2018      | 2015                       | 2016    | 2017    | 2018    | 2015                 | 2016 | 2017 | 2018 |
| <b>Material</b> (Ton)     |                   |           |           |           |                            |         |         |         |                      |      |      |      |
| - Renewable Material      | 360,650           | 305,374   | 395,578   | 426,633   | 490,584                    | 434,836 | 524,967 | 394,929 | 0                    | 0    | 0    | 0    |
| - Non- Renewable Material | 6,109,564         | 5,358,267 | 6,731,065 | 6,093,537 | 6,098                      | 5,681   | 27,029  | 26,625  | 4                    | 3    | 4    | 2    |
| Product<br>(million L)    | 10,329            | 8,618     | 11,070    | 11,856    | N.A.                       | 268,751 | 393,249 | 322,386 |                      |      |      |      |

| Details  | Refinery Business |          |          |          | Marketing Business |      |      |      | Bio-based Product Business |         |         |         | Green Power Business |       |       |       |
|--|-------------------|----------|----------|----------|--------------------|------|------|------|----------------------------|---------|---------|---------|----------------------|-------|-------|-------|
|  | 2015              | 2016     | 2017     | 2018     | 2015               | 2016 | 2017 | 2018 | 2015                       | 2016    | 2017    | 2018    | 2015                 | 2016  | 2017  | 2018  |
| <b>Energy</b> <sup>1</sup> (Terajoule: TJ)<br>(Disclosure 302-1)   | 14,501.5          | 13,561.3 | 13,903.0 | 13,116.8 | 72.4               | 63.8 | 60.6 | 94.1 | 1,149.1                    | 1,686.6 | 1,683.7 | 1,166.6 | 4.5                  | 8.9   | 10.4  | 10.0  |
| <b>Non- Renewable Energy Consumption</b>   | 14,501.4          | 13,561.3 | 13,903.0 | 13,116.8 | 72.4               | 63.8 | 60.6 | 94.1 | 323.5                      | 386.1   | 613.0   | 551.4   | 4.5                  | 8.9   | 10.4  | 10.0  |
| - Energy used in process :   |                   |          |          |          |                    |      |      |      |                            |         |         |         |                      |       |       |       |
| • Fuel gas and LPG   | 6,924.4           | 6,589.8  | 6,776.3  | 5,450.5  | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| • Natural gas (NG)   | 3,937.4           | 3,227.1  | 3,457.0  | 3,770.8  | -                  | -    | -    | -    | 179.8                      | 208.5   | 386.2   | 419.8   | -                    | -     | -     | -     |
| • Natural gas for cogeneration   | 1,620.3           | 2,719.6  | 2,814.5  | 3,783.6  | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| • Fuel oil   | 1,040.0           | 913.4    | 744.0    | -        | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| - Electricity and steam used in process :  |                   |          |          |          |                    |      |      |      |                            |         |         |         |                      |       |       |       |
| • Electricity  | 327.8             | 102.8    | 103.1    | 101.7    | 72.4               | 63.8 | 60.6 | 94.1 | 143.7                      | 162.7   | 195.3   | 117.6   | 3.6                  | 8.0   | 9.5   | 8.8   |
| • Steam  | 646.9             | -        | -        | -        | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| - Other :  |                   |          |          |          |                    |      |      |      |                            |         |         |         |                      |       |       |       |
| • Fuel oil   | 4.6               | 8.4      | 8.0      | 10.1     | -                  | -    | -    | -    | -                          | 14.9    | 31.6    | 14.1    | 0.9                  | 0.9   | 0.9   | 1.2   |
| <b>Renewable Energy</b>  | 0.1               | 0.1      | 0.0      | 0.0      | -                  | -    | -    | -    | 825.6                      | 1,300.5 | 1,070.7 | 615.2   | -                    | -     | -     | -     |
| • Wind and Solar   | 0.1               | 0.1      | 0.0      | 0.0      | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| • Biomass <sup>2</sup> and Biogas  | -                 | -        | -        | -        | -                  | -    | -    | -    | 825.6                      | 1,300.5 | 1,070.7 | 615.2   | -                    | -     | -     | -     |
| <b>Sold Energy</b>   | 251.0             | -        | -        | -        | -                  | -    | -    | -    | -                          | -       | -       | -       | 699.1                | 914.4 | 949.0 | 969.8 |
| - Non- Renewable Energy Sale   | -                 | -        | -        | -        | -                  | -    | -    | -    | -                          | -       | -       | -       | -                    | -     | -     | -     |
| - Renewable Energy :   | 251.0             | -        | -        | -        | -                  | -    | -    | -    | -                          | -       | -       | -       | 699.1                | 914.4 | 949.0 | 969.8 |
| • Electricity generated by PV cells  |                   |          |          |          |                    |      |      |      |                            |         |         |         |                      |       |       |       |
| <b>Energy Intensity Index (EII)</b><br>(Disclosure 302-3)  | 105.8             | 103.1    | 103.1    | 100.5    |                    |      |      |      |                            |         |         |         |                      |       |       |       |
| <b>Total Energy Consumption within the Organization</b> <sup>3</sup><br>(Terajoule: TJ) (Disclosure 302-1) | 14,777.4          | 14,406.2 | 14,708.7 | 13,417.7 |                    |      |      |      |                            |         |         |         |                      |       |       |       |

<sup>1</sup> Calculated by multiplying fuel volumes with the conversion factor provided by the Department of Alternative Energy Development and Efficiency

<sup>2</sup> Calculated energy consumption of biomass (rice husk and wood chip) by using wet weight multiply by Net Calorific Value (NCV) since percentages of moisture content of biomass are not available

<sup>3</sup> Calculated from the difference of total energy consumption from every business and sold electricity and steam.

| Details   | Refinery Business |                  |                |                | Marketing Business |              |              |               | Bio-based Product Business |                |                |               | Green Power Business |              |              |              |
|---|-------------------|------------------|----------------|----------------|--------------------|--------------|--------------|---------------|----------------------------|----------------|----------------|---------------|----------------------|--------------|--------------|--------------|
|   | 2015              | 2016             | 2017           | 2018           | 2015               | 2016         | 2017         | 2018          | 2015                       | 2016           | 2017           | 2018          | 2015                 | 2016         | 2017         | 2018         |
| <b>Greenhouse gas (GHG)</b><br>emissions (tCO <sub>2</sub> e)<br>(Disclosure 305-1), (Disclosure 305-2) |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| <b>Operational Control Approach</b>   |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| - Direct GHG emission from production processes (SCOPE 1)   | 999,297           | 989,258          | 972,926        | 900,683        |                    |              |              |               | 84,393                     | 101,943        | 121,638        | 58,504        | 63                   | 66           | 61           | 86           |
| • CO <sub>2</sub>   | 997,689           | 987,722          | 972,012        | 899,955        |                    |              |              |               | 84,368                     | 101,913        | 121,579        | 58,456        | 62                   | 65           | 60           | 84           |
| • Biogenic CO <sub>2</sub>  | -                 | 25               | 40             | 52             |                    |              |              |               | 90,667                     | 94,623         | 77,181         | 55,054        | -                    | 2            | 2            | 4            |
| • CH <sub>4</sub>   | 1,044             | 990              | 385            | 329            |                    |              |              |               | 6                          | 7              | 13             | 12            | 0                    | 0            | 0            | 0            |
| • N <sub>2</sub> O  | 564               | 546              | 530            | 399            |                    |              |              |               | 19                         | 23             | 47             | 36            | 1                    | 1            | 1            | 2            |
| - Indirect GHG emission from power and biogas purchased (SCOPE 2)                                       | 84,793            | 15,540           | 23,554         | 14,129         | 10,424             | 9,649        | 8,716        | 13,071        | 20,663                     | 24,589         | 28,099         | 16,328        | 2,585                | 1,219        | 1,370        | 1,220        |
| • CO <sub>2</sub>   | 84,793            | 15,540           | 23,554         | 14,129         | 10,424             | 9,649        | 8,716        | 13,071        | 20,663                     | 24,589         | 28,099         | 16,328        | 2,585                | 1,219        | 1,370        | 1,220        |
| • Biogenic CO <sub>2</sub>  |                   |                  |                |                |                    |              |              |               |                            | 10,933         | 8,135          |               |                      |              |              |              |
| • CH <sub>4</sub>   |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| • N <sub>2</sub> O  |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| <b>Total</b>  | <b>1,084,090</b>  | <b>1,004,798</b> | <b>996,480</b> | <b>914,812</b> | <b>10,424</b>      | <b>9,649</b> | <b>8,716</b> | <b>13,071</b> | <b>105,056</b>             | <b>126,532</b> | <b>149,737</b> | <b>74,833</b> | <b>2,648</b>         | <b>1,285</b> | <b>1,431</b> | <b>1,305</b> |
| <b>Equity Share Approach</b>  |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| - Direct GHG emission from production processes (SCOPE 1)   | 999,297           | 989,258          | 972,926        | 900,683        |                    |              |              |               | 22,876                     | 27,421         | 21,927         | 27,696        | 63                   | 47           | 43           | 60           |
| • CO <sub>2</sub>   | 997,689           | 987,722          | 972,012        | 899,955        |                    |              |              |               | 22,866                     | 27,409         | 21,912         | 27,674        | 62                   | 46           | 42           | 59           |
| • Biogenic CO <sub>2</sub>  | -                 | 25               | 40             | 52             |                    |              |              |               | 19,294                     | 20,137         | 9,856          | 28,077        | -                    | 2            | 2            | 2            |
| • CH <sub>4</sub>   | 1,044             | 990              | 385            | 329            |                    |              |              |               | 3                          | 4              | 5              | 5             | 0                    | 0            | 0            | 0            |
| • N <sub>2</sub> O  | 564               | 546              | 530            | 399            |                    |              |              |               | 7                          | 8              | 10             | 17            | 1                    | 1            | 1            | 1            |
| - Indirect GHG emission from power and biogas purchased (SCOPE 2)                                       | 84,793            | 15,540           | 23,554         | 14,129         | 5,108              | 4,728        | 4,271        | 8,803         | 5,624                      | 7,676          | 6,082          | 7,585         | 2,585                | 853          | 964          | 857          |
| • CO <sub>2</sub>   | 84,793            | 15,540           | 23,554         | 14,129         | 5,108              | 4,728        | 4,271        | 8,803         | 5,624                      | 7,676          | 6,082          | 7,585         | 2,585                | 853          | 964          | 857          |
| • Biogenic CO <sub>2</sub>  |                   |                  |                |                |                    |              |              |               |                            | 2,327          | 1,039          |               |                      |              |              |              |
| • CH <sub>4</sub>   |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| • N <sub>2</sub> O  |                   |                  |                |                |                    |              |              |               |                            |                |                |               |                      |              |              |              |
| <b>Total</b>  | <b>1,084,090</b>  | <b>1,004,798</b> | <b>996,480</b> | <b>914,812</b> | <b>5,108</b>       | <b>4,728</b> | <b>4,271</b> | <b>8,803</b>  | <b>28,500</b>              | <b>35,097</b>  | <b>28,008</b>  | <b>35,282</b> | <b>2,648</b>         | <b>899</b>   | <b>1,007</b> | <b>917</b>   |
| <b>GHGs Intensity</b><br>(tCO <sub>2</sub> e per ton raw material)                                      | 0.17              | 0.21             | 0.14           | 0.14           |                    |              |              |               |                            |                |                |               |                      |              |              |              |

\*The report of direct and indirect GHG emissions data are calculated by using the BCP GHGs calculation tool in accordance with IPCC 2006



| Air emissions (Disclosure 305-7), (OG 6)                   | Units  | 2015              | 2016    | 2017   | 2018    | Targets |
|--|--|-------------------|---------|--------|---------|---------|
| NO <sub>x</sub> (Combustion) <sup>1</sup>                  | Ton  | 399               | 349     | 426    | 644     | 1,559   |
| Intensity NO <sub>x</sub>                                  | ton per thousand tons crude                        | 0.07              | 0.07    | 0.08   | 0.12    |         |
| SO <sub>2</sub> (Combustion & SRU/TGTU Stack) <sup>2</sup> | Ton  | 51 <sup>1</sup>   | 35      | 75     | 24      | 2,582   |
| Intensity SO <sub>2</sub>                                  | ton per thousand tons crude                        | 0.01              | 0.01    | 0.01   | 0.00    |         |
| TSP PM10 (Combustion) <sup>3</sup>                         | Ton  | 8                 | 17      | 48     | 5       | 397     |
| Intensity TSP  | ton per thousand tons crude                        | 0.00              | 0.00    | 0.01   | 0.00    |         |
| H <sub>2</sub> S (SRU/TGTU Stack) <sup>3</sup>             | Ton  | 0.47              | 0.36    | 0.50   | 14.3    | N.A.    |
| Intensity H <sub>2</sub> S                                 | ton per thousand tons crude                        | 0.00              | 0.00    | 0.00   | 0.00    |         |
| VOCs Inventory <sup>4, 5</sup>                             | Ton  |                   |         |        | 520.84  | N.A.    |
| Fugitive VOCs <sup>6</sup>                                 | Ton  | 4.91 <sup>2</sup> | 2.99    | 2.60   | 2.50    | 126     |
| Intensity VOCs   | Ton/Barrel   | 0                 | 0       | 0      | 0       |         |
| Flared hydrocarbon <sup>7</sup>                            | KL   | 1,934.87          | 1,892.1 | 2809.1 | 1,777.0 | N.A.    |
| Flared hydrocarbon <sup>7</sup>                            | Ton CU.M. (Gas)                                    | 0.67              | 0.20    | 0.43   | 0.25    |         |
| Flared hydrocarbon per total product produced              | Ton CU.M. (Gas) /<br>million barrel oil equivalent | 0.0157            | 0.0053  | 0.0104 | 0.0063  |         |
| Vented hydrocarbon   | Ton CU.M. (Gas)                                    | N.A.              | N.A.    | N.A.   | N.A.    |         |
| Vented hydrocarbon per total product produced              | Ton CU.M. (Gas) /<br>million barrel oil equivalent | N.A.              | N.A.    | N.A.   | N.A.    |         |

<sup>1</sup>Excluding SO2 from Acid Flare, <sup>2</sup> Including additional cogeneration plant acquires from PTT Plc. but exclude Inventory VOCs <sup>3</sup> Calculated from production capacity using a third-party entity <sup>4</sup> Include VOC Inventory from combustion, flare, tank, marketing and terminal, and wastewater <sup>5</sup> Use emission factors from AP 42-US EPA, for VOC inventory calculation from combustion, flare, and marketing and terminal. Tank 4 program and Water 9 program are used as tools for VOC inventory calculation from tank and wastewater respectively. <sup>6</sup> Calibrated measurement tools <sup>7</sup> Including Flared hydrocarbon from Plant 2, 3, 4

| Water (Million m <sup>3</sup> )   | Refinery Business |          |          |        |
|---|-------------------|----------|----------|--------|
|   | 2015              | 2016     | 2017     | 2018   |
| Tap Water used in production <sup>1</sup> (Disclosure 303-1)                                      | 2.81              | 2.36     | 2.43     | 2.27   |
| River water used (Disclosure 303-1)   | 0.08              | 0.05     | 0.11     | 0.10   |
| Ground water used (Disclosure 303-1)  | 0.01              | -        | 0.00     | 0.01   |
| Reused and Recycled water <sup>2, 5</sup> (Disclosure 303-3)                                      | 1.06              | 1.10     | 1.15     | 1.10   |
| Percentage of water recycled and reused to total water withdrawal (percentage) (Disclosure 303-3) | 36.53             | 45.65    | 45.30    | 46.21  |
| Water discharged in Bang Ao Canel (Disclosure 306-1)  | 0.87              | 0.84     | 0.90     | 0.90   |
| Ratio of water used per barrel of oil produced (cu.m/BOE) <sup>3</sup>                            | 0.066             | 0.061    | 0.061    | 0.062  |
| COD (Ton) <sup>4</sup>  | 48.28             | 42.00    | 39.23    | 39.02  |
| BOD (Ton) <sup>4</sup>  | 7.40              | 5.96     | 4.43     | 4.76   |
| Oil and Grease (Ton) <sup>4</sup>   | 3.08              | 1.68     | 1.36     | 4.52   |
| TSS (Ton) <sup>4</sup>  | 10.53             | 10.92    | 9.04     | 11.15  |
| TDS (Ton) <sup>4</sup>  | 1,121.80          | 1,321.23 | 1,105.00 | 791.03 |
| Sulfide (Ton) <sup>4</sup>  | 0.47              | 0.29     | 0.18     | 0.90   |
| Mercury (Ton) <sup>4</sup>  | 0.00              | 0.00     | 0.00     | 0.00   |

<sup>1</sup>Volume from water usage invoices <sup>2</sup>Volume from water meters <sup>3</sup> Volume from water balance and measuring values by laboratory that is licensed by department of Industry work <sup>4</sup> Calibrated measurement tools <sup>5</sup> 2016 Total volume of recycled water combines condensate water, which is of high quality collected from the boiler and plant 4, and water from wastewater treating unit which is further treated with reverse osmosis.

| Waste (Disclosure 306-2)  | 2015               | 2016               | 2017               | 2018                |
|---|--------------------|--------------------|--------------------|---------------------|
| <b>Routine wastes (ton : percentage)</b>  |                    |                    |                    |                     |
| Hazardous waste/ <sup>1</sup>   | 1,268 (88.5)       | 1,573 (20.2)       | 1,571 (80.69)      | 2,808 (18)          |
| Non-hazardous waste/ <sup>1</sup>   | 62 (4.3)           | 179 (2.3)          | 332 (17.07)        | 220 (1)             |
| <b>Non-routine wastes (ton : percentage)</b>  |                    |                    |                    |                     |
| Hazardous waste from oil and chemical spill clean-up/ <sup>2</sup> (Disclosure 306-3) | 3 (0.2)            | 0 (0)              | 1.1 (0.05)         | 0 (0)               |
| Construction waste/ <sup>2</sup>  | 99 (6.9)           | 1,204 (15.5)       | 42.6 (2.19)        | 10,583 (68)         |
| Hazardous waste for Turnaround Maintenance  |                    | 4,745 (61)         | 0                  | 1,916 (12)          |
| Non-Hazardous waste for Turnaround Maintenance/ <sup>2</sup>                          |                    | 84 (1)             | 0                  | 82 (1)              |
| <b>Total</b>  | <b>1,432 (100)</b> | <b>7,785 (100)</b> | <b>1,947 (100)</b> | <b>15,609 (100)</b> |

<sup>1</sup> Weight from waste manifest

<sup>2</sup> Estimate from volum of waste sent to disposal based on calculation of number of bags per container and average weight per bag /container

| Waste Management Method/ <sup>1</sup> (Ton)<br>(Disclosure 306-2) | 2015            |                     | 2016            |                     | 2017            |                     | 2018            |                     |
|---|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|
|   | Hazardous Waste | Non-Hazardous Waste | Hazardous Waste | Non-Hazardous Waste | Hazardous Waste | Non-Hazardous Waste | Hazardous Waste | Non-Hazardous Waste |
| - Reuse   | -               | -                   | -               | -                   | -               | -                   | -               | -                   |
| - Recycle   | 396             | -                   | 1,137           | 16                  | 564             | 28                  | 4,321           | 302                 |
| - Recovery, including consumption as fuel                         | 581             | 21                  | 4,281           | 235                 | 1,006           | 233                 | 360             | 0                   |
| - Incineration  | 109             | -                   | 901             | -                   | -               | 28                  | 44              | 0                   |
| - Sent to secure landfill   | -               | 41                  | -               | 11                  | -               | -                   | -               | -                   |
| - On site storage   | 185             | 161                 | 318             | -                   | -               | -                   | -               | -                   |
| - Other (Land Reclamation))                                       | -               | 99                  | -               | 1,204               | -               | 43                  | -               | 10,583              |
| <b>Total</b>  | <b>1,271</b>    | <b>322</b>          | <b>6,637</b>    | <b>1,466</b>        | <b>1,571</b>    | <b>332</b>          | <b>4,725</b>    | <b>10,884</b>       |

<sup>1</sup> Disposal methods and quantity from DIW waste disposal permit documents and manifests

| Oil and chemical spills (Case) (Disclosure 306-3)                            | 2015 | 2016 | 2017 | 2018 |
|--|------|------|------|------|
| - Number of significant oil and chemical spills (more than 100 Barrels each) | 0    | 0    | 0    | 0    |

| Supply Chain Management (Percentage)                            | 2015              | 2016             | 2017 | 2018 |
|---|-------------------|------------------|------|------|
| New suppliers/key suppliers were self-assessed on SCOC criteria | N.A. <sup>1</sup> | 62. <sup>2</sup> | 31   | 29   |

<sup>1</sup> 2015 Preparation for screening process of potential Suppliers in accordance with sustainable business practices in three dimension : ESG/

<sup>2</sup> 2016 Number of Key suppliers were self assessed on Bangchak's Supplier Code of Conduct

| Environment Compliance (Disclosure 307-1)   | 2015 | 2016 | 2017 | 2018 |
|---|------|------|------|------|
| Number/Monetary Value of significant fines associated with environmental law violation (Disclosure 307-1) | 0    | 0    | 0    | 0    |

## Social Performance

### 1. Employment

Employee\* (Person)

\* The Company has an exclusive full-time employment policy.

There are no temporary, part-time, or self-employment and no seasonal difference in manpower



| Employee<br>(Disclosure 102-8), (Disclosure 401-1) | 2015         |            | 2016          |             | 2017          |             | 2018          |             |
|--|--------------|------------|---------------|-------------|---------------|-------------|---------------|-------------|
|  | Persons      | %          | Persons       | %           | Persons       | %           | Persons       | %           |
| <b>By gender</b>                                   |              |            |               |             |               |             |               |             |
| • Male   | 822          | 72.81      | 847           | 70.82       | 866           | 69.84       | 881           | 70.26       |
| • Female   | 307          | 27.19      | 349           | 29.18       | 374           | 30.16       | 373           | 29.74       |
| <b>Total</b>                                       | <b>1,129</b> | <b>100</b> | <b>1,196</b>  | <b>100</b>  | <b>1,240</b>  | <b>100</b>  | <b>1,254</b>  | <b>100</b>  |
| <b>By Level</b>                                    |              |            |               |             |               |             |               |             |
| - Level 10-14: Manager up                          | 116          | 10.27      | 135           | 11.29       | 134           | 11.20       | 151           | 12.04       |
| • Male   |              |            | 91            | 67.41       | 89            | 66.42       | 103           | 68.21       |
| • Female   |              |            | 44            | 32.59       | 45            | 33.58       | 48            | 31.79       |
| - Level 5-9: Officer up                            | 557          | 49.34      | 616           | 51.51       | 669           | 55.94       | 685           | 54.63       |
| • Male   |              |            | 373           | 60.55       | 401           | 59.94       | 416           | 60.73       |
| • Female   |              |            | 243           | 39.45       | 268           | 40.06       | 269           | 39.27       |
| - Level 1-4 : Operators                            | 456          | 40.39      | 445           | 37.21       | 437           | 36.54       | 418           | 33.33       |
| • Male   |              |            | 382           | 85.84       | 376           | 86.04       | 362           | 86.60       |
| • Female   |              |            | 63            | 14.16       | 61            | 13.96       | 56            | 13.40       |
| <b>By Age</b>                                      |              |            |               |             |               |             |               |             |
| • Less than 30                                     | 305          | 27.02      | 303           | 25.33       | 308           | 25.75       | 328           | 26.16       |
| • Between 30-50                                    | 739          | 65.46      | 791           | 66.14       | 811           | 67.81       | 810           | 64.59       |
| • More than 50                                     | 85           | 7.53       | 102           | 8.53        | 121           | 10.12       | 116           | 9.25        |
| <b>By Area</b>                                     |              |            |               |             |               |             |               |             |
| • Head office                                      | 131          | 11.60      | 159           | 13.29       | 530           | 44.31       | 544           | 43.38       |
| • Refinery   | 934          | 82.73      | 972           | 81.27       | 642           | 53.68       | 634           | 50.56       |
| • North District                                   | 8            | 0.71       | 39            | 3.26        | 10            | 0.84        | 9             | 0.72        |
| • Central District                                 | 37           | 3.28       | 9             | 0.75        | 41            | 3.43        | 49            | 3.91        |
| • North-East District                              | 11           | 0.97       | 10            | 0.84        | 10            | 0.84        | 10            | 0.80        |
| • South District                                   | 8            | 0.71       | 7             | 0.59        | 7             | 0.59        | 8             | 0.64        |
| <b>Ratio of Salary by gender ( Female : Male)</b>  |              |            | <b>Female</b> | <b>Male</b> | <b>Female</b> | <b>Male</b> | <b>Female</b> | <b>Male</b> |
| - By Level   |              |            |               |             |               |             |               |             |
| • Level 10-14: Manager up                          |              |            | 0.88          | 1.00        | 1.00          | 1.00        | 0.98          | 1.00        |
| • Level 5-9: Officer up                            |              |            | 0.92          | 1.00        | 0.93          | 1.00        | 0.95          | 1.00        |
| • Level 1-4 : Operators                            |              |            | 1.00          | 0.78        | 1.00          | 0.77        | 1.00          | 0.84        |

| Employees Turnover<br>(Disclosure 401-1) | 2015    |       | 2016    |       | 2017    |       | 2018    |       |
|--|---------|-------|---------|-------|---------|-------|---------|-------|
|  | Persons | %     | Persons | %     | Persons | %     | Persons | %     |
| <b>Turnover rate</b>                     |         | 2.67  |         | 3.20  |         | 4.00  |         | 3.55  |
| <b>By Gender</b>                         |         |       |         |       |         |       |         |       |
| • Male                                   | 13      | 59.09 | 35      | 67.31 | 31      | 63.27 | 27      | 58.70 |
| • Female                                 | 9       | 40.91 | 17      | 32.69 | 18      | 36.73 | 19      | 41.30 |
| <b>By Age</b>                            |         |       |         |       |         |       |         |       |
| • Less than 30                           | 7       | 31.82 | 32      | 61.54 | 28      | 57.14 | 20      | 43.48 |
| • Between 30-50                          | 13      | 59.09 | 18      | 34.62 | 21      | 42.86 | 25      | 54.35 |
| • More than 50                           | 2       | 9.09  | 2       | 3.85  | 0       | 0.00  | 1       | 2.17  |



| New Employees<br>(Disclosure 401-1) | 2015    |       | 2016    |       | 2017    |       | 2018    |       |
|-------------------------------------|---------|-------|---------|-------|---------|-------|---------|-------|
|                                     | Persons | %     | Persons | %     | Persons | %     | Persons | %     |
| <b>By Gender</b>                    |         |       |         |       |         |       |         |       |
| • Male                              | 84      | 74.34 | 64      | 52.89 | 61      | 59.80 | 46      | 68.66 |
| • Female                            | 29      | 25.66 | 57      | 47.11 | 43      | 42.16 | 21      | 31.34 |
| <b>By Age</b>                       |         |       |         |       |         |       |         |       |
| • Less than 30                      | 88      | 77.88 | 99      | 81.82 | 86      | 84.31 | 37      | 55.22 |
| • Between 30-50                     | 23      | 20.35 | 21      | 17.36 | 18      | 17.65 | 27      | 40.30 |
| • More than 50                      | 2       | 1.77  | 1       | 0.83  | 0       | 0.00  | 3       | 4.48  |

| Parental leave                             | 2015    |      | 2016    |      | 2017    |      | 2018    |      |
|--|---------|------|---------|------|---------|------|---------|------|
|  | Persons | %    | Persons | %    | Persons | %    | Persons | %    |
| Parental leave                             | 6       | 0.53 | 5       | 0.42 | 4       | 0.32 | 5       | 0.40 |
| Employee back to work after parental leave | 6       | 0.53 | 5       | 0.42 | 4       | 0.32 | 5       | 0.40 |

| Average Training hours (Disclosure 404-1)<br>(hours / person / year)     | 2015   | 2016   | 2017   | 2018   |
|--|--------|--------|--------|--------|
| <b>Total training hour</b>   | 43,304 | 53,741 | 55,926 | 57,487 |
| <b>Total average training hour</b>                                       | 44.86  | 44.92  | 45.10  | 45.88  |
| <b>By gender</b>   |        |        |        |        |
| • Male   | 36.42  | 41.10  | 42.66  | 43.07  |
| • Female   | 43.53  | 53.90  | 50.76  | 52.65  |
| <b>By Level</b>  |        |        |        |        |
| • Level 10-14: Manager up  | 58.07  | 62.00  | 63.91  | 56.66  |
| • Level 5-9: Officer up  | 47.44  | 59.20  | 56.31  | 58.09  |
| • Level 1-4 : Operators  | 22.23  | 20.10  | 22.39  | 22.34  |
| <b>By Business Category</b>  |        |        |        |        |
| • President & Chief Executive Officer (PS)                               | 53.34  | 52.90  | 56.00  | 104.29 |
| • Corporate Strategic Planning and Sustainability Development Group (CG) | -      | -      | -      | 73.56  |
| • Corporate Management and Organization Development Group (MD)           | 44.58  | 58.20  | 53.45  | 73.22  |
| • Accounting and Finance Group (AF)                                      | 37.25  | 53.90  | 64.28  | 71.06  |
| • Marketing Business Group (MKBG)  | 20.21  | 43.67  | 43.53  | 43.83  |
| • Refinery Business Group (RFBG)   | 44.98  | 39.80  | 39.23  | 30.47  |
| • Natural Resource and Business Development (BD)                         | 51.56  | 62.20  | 63.00  | -      |
| • Bio Based Product Business Unit (BBPU)                                 | 52.18  | 47.30  | -      | -      |
| • Natural Resource (NT)  | -      | -      | -      | 86.00  |
| <b>Best Employer (Percentage)</b>  | 70.00  | 68.00  | 61.00  | 67.00  |
| <b>Employee Engagement (Percentage)</b>                                  | 69.00  | 69.00  | 61.00  | 69.00  |
| <b>Labour and Human Rights Complaint (Case)</b>                          | 0      | 0      | 0      | 0      |

## 2. Safety and Occupational Health

| Injuries*, Illness, Fatality, and Safety in Production Processes<br>(Disclosure 403-2) | 2015  | 2016         |              | 2017         |              | 2018         |              |
|--|-------|--------------|--------------|--------------|--------------|--------------|--------------|
|  |       | Male         | Female       | Male         | Female       | Male         | Female       |
| <b>Total work hour (hr)</b>  |       |              |              |              |              |              |              |
| • Employees  | N.A.  | 1,630,207.80 | 443,448.30   | 1,352,215.40 | 210,360.90   | 1,806,814.30 | 662,860.50   |
| • Contractors  | N.A.  | 4,490,917.00 | 1,012,761.50 | 4,253,591.00 | 1,255,606.90 | 4,250,297.90 | 1,209,490.90 |
| <b>Near miss report (case)</b>   |       |              |              |              |              |              |              |
| • Employees  | N.A.  | 6            |              | 25           |              | 15           |              |
| • Contractors  | N.A.  | 7            |              | 3            |              | 2            |              |
| <b>TRIC</b>  |       |              |              |              |              |              |              |
| • Employees  | N.A.  | 3            | 2            | 1            | 0            | 3            | 0            |
| • Contractors  | N.A.  | 3            | 1            | 0            | 0            | 6            | 0            |
| <b>LWC</b>   |       |              |              |              |              |              |              |
| • Employees  | N.A.  | 0            | 0            | 0            | 0            | 1            | 0            |
| • Contractors  | N.A.  | 1            | 0            | 0            | 0            | 3            | 0            |
| <b>Fatalities</b>  |       |              |              |              |              |              |              |
| • Employees  | 0     | 0            | 0            | 0            | 0            | 0            | 0            |
| • Contractors  | 0     | 0            | 0            | 0            | 0            | 0            | 0            |
| <b>TRIR (Person per 1 million working hours)</b>                                       |       |              |              |              |              |              |              |
| • Employees  | 5.38  | 1.80         | 0            | 0.74         | 0            | 1.66         | 0            |
| • Contractors  | 6.18  | 0.67         | 2.96         | 0            | 0            | 1.41         | 0            |
| <b>IFR (Person per 1 million working hours)</b>  |       |              |              |              |              |              |              |
| • Employees  | 0.54  | 0            | 0            | 0            | 0            | 0.55         | 0            |
| • Contractors  | 3.09  | 0.22         | 0            | 0            | 0            | 0.71         | 0            |
| <b>ISR (Day per 1 million working hours)</b>   |       |              |              |              |              |              |              |
| • Employees  | 2.69  | 0            | 0            | 0            | 0            | 7.75         | 0            |
| • Contractors  | 21.65 | 10.24        | 0            | 0            | 0            | 9.18         | 0            |
| <b>Rate of work-related illness</b>  |       |              |              |              |              |              |              |
| • Employees  | 0     | N/A          | N/A          | N/A          | N/A          | N/A          | N/A          |
| • Contractors  | 0     | N/A          | N/A          | N/A          | N/A          | N/A          | N/A          |
| <b>Absentee rate (Percentage)</b>  |       |              |              |              |              |              |              |
| • Employees  | 0.90  | 0.83         |              | 0.89         |              | 0.85         | 0.97         |
| <b>Tier 1 Process Safety Event</b>   | 0     | 0            |              | 0            |              | 0            | 0            |
| <b>Tier 2 Process Safety Event</b>   |       | 0            |              | 0            |              | 0            | 0            |

\* Injuries are excluded first aid in the injury rate (IR) and lost days count begins the scheduled work day after the accident.

## 3. Customer Responsibility

|   | Unit    | 2015                    | 2016                    | 2017                    | 2018                            |
|---|---------|-------------------------|-------------------------|-------------------------|---------------------------------|
| Customer Satisfaction survey : Customer (Disclosure 102-43), (Disclosure 102-44)      | Percent | 81.2                    | 79.4                    | 80.5                    | 85.8                            |
| Customer Satisfaction survey : Industrial customer                                    | Percent | N.A.                    | 90.3                    | 88.9                    | 70.0                            |
| Net Promoter Score (NPS)  | Ranking | 3 <sup>rd</sup> ranking | 2 <sup>nd</sup> ranking | 2 <sup>nd</sup> ranking | 1 <sup>st</sup> ranking (Joint) |
| Total number of substantiated complaints regarding breaches of customer privacy       | Case    | 0                       | 0                       | 0                       | 0                               |
| Significant Case of Non compliance in marketing communication laws (Disclosure 417-3) | Case    | N.A.                    | 0                       | 0                       | 0                               |

## 4. Socio-Economic Compliance

|  | 2015 | 2016 | 2017 | 2018 |
|--|------|------|------|------|
| Number/Monetary Value of significant fines associated with economic and social law violation<br>(Disclosure 419-1) | 0    | 0    | 0    | 0    |

| GRI Standard                    | Disclosure   | Page number (s) and/or URL (s) | SDGs  | External Assurance |
|---------------------------------|--|--------------------------------|---|--------------------|
| <b>GRI 101: Foundation 2016</b> |  |                                |   |                    |
| <b>General Disclosures</b>      |  |                                |   |                    |
| General Disclosure 2016         | <b>ORGANIZATIONAL PROFILE</b>  |                                |   |                    |
|                                 | 102-1 Name of the organization   | 8                              |   |                    |
|                                 | 102-2 Activities, brands, products, and services                                     | 8-9                            |   |                    |
|                                 | 102-3 Location of headquarters   | 8                              |   |                    |
|                                 | 102-4 Location of operations   | 8-9                            |   |                    |
|                                 | 102-5 Ownership and legal form   | 10                             |   |                    |
|                                 | 102-6 Markets served   | 8                              |   |                    |
|                                 | 102-7 Scale of the organization  | 8                              |   |                    |
|                                 | 102-8 Information on employees and other workers                                     | 126                            | SDG 8 - Employment  |                    |
|                                 | 102-9 Supply chain   | 11                             |   |                    |
|                                 | 102-10 Significant changes to the organization and its supply chain                  | 136                            |   |                    |
|                                 | 102-11 Precautionary Principle or approach   | 51                             |   |                    |
|                                 | 102-12 External initiatives  | 72                             |   |                    |
|                                 | 102-13 Membership of associations  | 8                              |   |                    |
|                                 | <b>STRATEGY</b>  |                                |   |                    |
|                                 | 102-14 Statement from senior decision-maker  | 4-7                            |   |                    |
|                                 | 102-15 Key impacts, risks, and opportunities   | 51-55                          |   |                    |
|                                 | <b>ETHICS AND INTEGRITY</b>  |                                |   |                    |
|                                 | 102-16 Values, principles, standards, and norms of behavior                          | 15, 48-49                      | SDG 16 - Ethical and lawful behavior                              |                    |
|                                 | <b>GOVERNANCE</b>  |                                |   |                    |
|                                 | 102-18 Governance structure  | 10                             |   |                    |
|                                 | 102-19 Delegating authority  | 14                             |   |                    |
|                                 | 102-20 Executive-level responsibility for economic, environmental, and social topics | 10, 14                         |   |                    |
|                                 | 102-22 Composition of the highest governance body and its committees                 | 10, 14                         | SDG 5 - Women in leadership<br>SDG 16 - Inclusive decision making |                    |
|                                 | 102-24 Nominating and selecting the highest governance body                          | Annual Report<br>49            | SDG 5 - Women in leadership<br>SDG 16 - Inclusive decision making |                    |
|                                 | 102-25 Conflicts of interest   | 49                             | SDG 16 - Effective, accountable and transparent governance        |                    |
|                                 | 102-26 Role of highest governance body in setting purpose, values, and strategy      | 14                             |   |                    |
|                                 | 102-28 Evaluating the highest governance body's performance                          | 37, 47                         |   |                    |
|                                 | 102-29 Identifying and managing economic, environmental, and social impacts          | 52-54                          | SDG 16 - Inclusive decision making                                |                    |
|                                 | 102-32 Highest governance body's role in sustainability reporting                    | 36, 136                        |   |                    |
|                                 | 102-33 Communicating critical concerns   | 36                             |   |                    |
|                                 | <b>STAKEHOLDER ENGAGEMENT</b>  |                                |   |                    |
|                                 | 102-40 List of stakeholder groups  | 18-19                          |   | Yes                |
|                                 | 102-41 Collective bargaining agreements  | 106                            | SDG 8 - Freedom of association and collective bargaining          |                    |
|                                 | 102-42 Identifying and selecting stakeholders  | 18                             |   | Yes                |
|                                 | 102-43 Approach to stakeholder engagement  | 18-32, 128                     |   | Yes                |
|                                 | 102-44 Key topics and concerns raised  | 20-32, 128                     |   | Yes                |
|                                 | <b>REPORTING PRACTICE</b>  |                                |   |                    |
|                                 | 102-45 Entities included in the consolidated financial statements                    | 136-137                        |   |                    |
|                                 | 102-46 Defining report content and topic boundaries                                  | 136                            |   | Yes                |
|                                 | 102-47 List of material topics   | 35-39                          |   | Yes                |
|                                 | 102-48 Restatements of information   | 136                            |   |                    |
|                                 | 102-49 Changes in reporting  | 136                            |   |                    |
|                                 | 102-50 Reporting period  | 136                            |   |                    |
|                                 | 102-51 Date of most recent report  | 136                            |   |                    |
|                                 | 102-52 Reporting cycle   | 136                            |   |                    |
|                                 | 102-53 Contact point for questions regarding the report                              | 136                            |   |                    |
|                                 | 102-54 Claims of reporting in accordance with the GRI Standards                      | 136                            |   |                    |
|                                 | 102-55 GRI content index   | 129-133                        |   |                    |
|                                 | 102-56 External assurance  | 138-139                        |   |                    |



| GRI Standard                        | Disclosure           |  | Page number (s) and/or URL (s) | Omission     |        |             | SDGs  | External Assurance |
|-------------------------------------|----------------------|--|--------------------------------|--------------|--------|-------------|---|--------------------|
|                                     |                      |  |                                | Part Omitted | Reason | Explanation |   |                    |
| Material Topics                     |                      |  |                                |              |        |             |   |                    |
| GRI 200 Economic Standard Series    |                      |  |                                |              |        |             |   |                    |
| GRI 103 Management Approach 2016    | ECONOMIC PERFORMANCE |  |                                |              |        |             |   |                    |
|                                     | 103-1                | Explanation of the material topic and its Boundary                       | 58                             |              |        |             |   |                    |
|                                     | 103-2                | The management approach and its components                               |                                |              |        |             |   |                    |
|                                     | 103-3                | Evaluation of the management approach                                    |                                |              |        |             |   |                    |
| GRI 201: Economic Performance 2016  | 201-1                | Direct economic value generated and distributed                          | 58, 122                        |              |        |             | SDG 2 / SDG 5/ SDG 7 - Infrastructure investments<br>SDG 8 - Economic performance<br>SDG 9 - Infrastructure investments, Research and development |                    |
| GRI 103 Management Approach 2016    | PROCUREMENT PRACTICE |  |                                |              |        |             |   |                    |
|                                     | 103-1                | Explanation of the material topic and its Boundary                       | 62-64                          |              |        |             |   |                    |
|                                     | 103-2                | The management approach and its components                               |                                |              |        |             |   |                    |
|                                     | 103-3                | Evaluation of the management approach                                    |                                |              |        |             |   |                    |
| GRI 204: Procurement Practices 2016 | 204-1                | Proportion of spending on local suppliers                                | 122                            |              |        |             | SDG 12 - Procurement practices  |                    |
| Sustainable Supplier Development    | BCP Indicator        | Effective time and cost management of packaging procurement              | 64                             |              |        |             |   |                    |
|                                     | BCP Indicator        | Percentage of efficiency in supplier contract management                 | 90                             |              |        |             |   |                    |
| GRI 103 Management Approach 2016    | ANTI-CORRUPTION      |  |                                |              |        |             |   |                    |
|                                     | 103-1                | Explanation of the material topic and its Boundary                       | 49-50                          |              |        |             |   |                    |
|                                     | 103-2                | The management approach and its components                               |                                |              |        |             |   |                    |
|                                     | 103-3                | Evaluation of the management approach                                    |                                |              |        |             |   |                    |
| GRI 205: Anti-Corruption 2016       | 205-2                | Communication and training about anti-corruption policies and procedures | 49                             |              |        |             | SDG 16 - Anti-corruption  |                    |
|                                     | 205-3                | Confirmed incidents of corruption and actions taken                      | 49                             |              |        |             | SDG 16 - Anti-corruption  |                    |

|                                       |           |  |           |  |                         |                                    |   |     |
|---------------------------------------|-----------|--|-----------|--|-------------------------|------------------------------------|---|-----|
| Material Topics                       |           |  |           |  |                         |                                    |   |     |
| GRI 300 Environmental Standard Series |           |  |           |  |                         |                                    |   |     |
| GRI 103 Management Approach 2016      | ENERGY    |  |           |  |                         |                                    |   |     |
|                                       | 103-1     | Explanation of the material topic and its Boundary | 73-74     |  |                         |                                    |   |     |
|                                       | 103-2     | The management approach and its components         |           |  |                         |                                    |   |     |
|                                       | 103-3     | Evaluation of the management approach              |           |  |                         |                                    |   |     |
| GRI 302: Energy 2016                  | 302-1     | Energy consumption within the organization         | 123       | Fuel Combustion from mobile source of Bang Pa-In Terminal, Northern Region Business Office, Northeast Region Business Office, Southern Region Business Office, BGN and BCR | Information unavailable | The data will be available in 2019 | SDG 7 - Energy efficiency, Renewable energy<br>SDG 8 - Energy efficiency<br>SDG 12 - Energy efficiency, Transport<br>SDG 13 - Energy efficiency | Yes |
|                                       | 302-3     | Energy intensity                                   | 74, 123   |  |                         |                                    | SDG 7 / SDG 8 / SDG 12<br>SDG 13 - Energy efficiency  |     |
| GRI 103 Management Approach 2016      | WATER     |  |           |  |                         |                                    |   |     |
|                                       | 103-1     | Explanation of the material topic and its Boundary | 76-78     |  |                         |                                    |   |     |
|                                       | 103-2     | The management approach and its components         |           |  |                         |                                    |   |     |
|                                       | 103-3     | Evaluation of the management approach              |           |  |                         |                                    |   |     |
| GRI 303: Water 2016                   | 303-1     | Water withdrawal by source                         | 76, 124   |  |                         |                                    | SDG 6 - Sustainable water withdrawals   | Yes |
|                                       | 303-3     | Water recycled and reused                          | 77, 124   |  |                         |                                    | SDG 6 - Water efficiency, Water recycling & reuse<br>SDG 8 / SDG 12 - Water efficiency  | Yes |
| GRI 103 Management Approach 2016      | EMISSIONS |  |           |  |                         |                                    |   |     |
|                                       | 103-1     | Explanation of the material topic and its Boundary | 75, 81-82 |  |                         |                                    |   |     |
|                                       | 103-2     | The management approach and its components         |           |  |                         |                                    |   |     |
|                                       | 103-3     | Evaluation of the management approach              |           |  |                         |                                    |   |     |

| GRI Standard                           | Disclosure                                      |   | Page number (s) and/or URL (s)                                       | Part Omitted   | Omission Reason         | Explanation  | SDGs  | External Assurance |
|--|---|---|--|--|-------------------------|--|---|--------------------|
| Material Topics                        |   |   |  |  |                         |  |   |                    |
| GRI 300 Environmental Standard Series  |   |   |  |  |                         |  |   |                    |
| GRI 305: Emissions 2016                | EMISSIONS                                       |   |  |  |                         |  |   |                    |
|  | 305-1   | Direct (Scope 1) GHG emissions  | 123  | GHG emission from Fuel Combustion from mobile source of Bang Pa-In Terminal, Northern Region Business Office, Northeast Region Business Office, Southern Region Business Office, BGN and BCR | Information unavailable | The data will be available in 2019   | SDG 3 - Air quality<br>SDG 12 - Air quality, Transport<br>SDG 13 - GHG emissions<br>SDG 14 - Ocean acidification<br>SDG 15 - Forest degradation | Yes                |
|  | 305-2   | Energy indirect (Scope 2) GHG emissions   | 123  | Marketing Base Scope 2 GHG Emission  | Not applicable          | BCP account and report energy indirect (Scope 2) GHG Emission based on the location based method (Electricity grid) only | SDG 3 - Air quality<br>SDG 12 - Air quality, Transport<br>SDG 13 - GHG emissions<br>SDG 14 - Ocean acidification<br>SDG 15 - Forest degradation | Yes                |
|  | 305-7   | Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions                                 | 124  |  |                         |  | SDG 3 / SDG 12 - Air quality<br>SDG 13 - GHG emissions<br>SDG 14 - Ocean acidification<br>SDG 15 - Forest degradation                           | Yes                |
|  | OG6   | Volume of flared and vented hydrocarbon   | 124  | Volume of vented hydrocarbon and vented for oil and gas production in relation to volume produced  | Not applicable          | BCP is planning to install instrument for capture gas flared at plant 4, 2 and 3 in 2018 and 2020 respectively           | SDG 3/ SDG 12 - Air quality<br>SDG 7/ SDG 8/ SDG 12<br>SDG 13 - Energy efficiency<br>SDG 12 - Waste<br>SDG 14 - Ocean acidification             |                    |
| GRI 103 Management Approach 2016       | EFFLUENTS AND WASTE                             |   |  |  |                         |  |   |                    |
|  | 103-1<br>103-2<br>103-3                         | Explanation of the material topic and its Boundary<br>The management approach and its components<br>Evaluation of the management approach | 78-80, 83  |  |                         |  |   |                    |
|  | 306-1   | Water discharge by quality and destination  | 124  |  |                         |  | SDG 3/ SDG 6/ SDG 12 - Water quality<br>SDG 6 - Water-related ecosystem and biodiversity<br>SDG 14 - Water discharge to oceans                  |                    |
|  | 306-2   | Waste by type and disposal method   | 125  |  |                         |  | SDG 3 - Spills<br>SDG 6 /SDG 12 - Waste, SDG 6 - Water-related ecosystems and biodiversity  | Yes                |
|  | 306-3   | Significant spills  | 125  |  |                         |  | SDG 3/ SDG 6/ SDG 12<br>SDG 14/ SDG 15 - Spills   | Yes                |
|  | ENVIRONMENTAL COMPLIANCE                        |   |  |  |                         |  |   |                    |
| GRI 103 Management Approach 2016       | 103-1<br>103-2<br>103-3                         | Explanation of the material topic and its Boundary<br>The management approach and its components<br>Evaluation of the management approach | 71-95  |  |                         |  |   |                    |
| GRI 307: Environmental Compliance 2016 | 307-1   | Non-compliance with environmental laws and regulations  | 125  |  |                         |  | SDG 16 - Compliance with law and regulations  |                    |
| GRI 103 Management Approach 2016       | SUPPLIER ENVIRONMENTAL ASSESSMENT               |   |  |  |                         |  |   |                    |
|  | 103-1<br>103-2<br>103-3                         | Explanation of the material topic and its Boundary<br>The management approach and its components<br>Evaluation of the management approach | 62-64  |  |                         |  |   |                    |
|  | GRI 308: Supplier Environmental Assessment 2016 | 308-2   | Negative environmental impacts in the supply chain and actions taken | 62   |                         |  |   |                    |

| GRI Standard | Disclosure | Page number (s) and/or URL (s) | Omission     |        |             | SDGs | External Assurance |
|--------------|------------|--------------------------------|--------------|--------|-------------|------|--------------------|
|              |            |                                | Part Omitted | Reason | Explanation |      |                    |

## Material Topics

### GRI 300 Environmental Standard Series

|   |  |   |       |  |  |  |  |
|---|--|---|-------|--|--|--|--|
| GRI 103 Management Approach 2016                          | ENVIRONMENTAL PROTECTION EXPENDITURES AND INVESTMENT |   |       |  |  |  |  |
|   | 103-1  | Explanation of the material topic and its Boundary              | 94    |  |  |  |  |
|   | 103-2  | The management approach and its components                      |       |  |  |  |  |
|   | 103-3  | Evaluation of the management approach                           |       |  |  |  |  |
| Environmental protection expenditures and investment type | BCP Indicator  | Total environmental protection expenditures and investment type | 95    |  |  |  |  |
| GRI 103 Management Approach 2016                          | PRODUCTS TRANSPORTATION                              |   |       |  |  |  |  |
|   | 103-1  | Explanation of the material topic and its Boundary              | 90-92 |  |  |  |  |
|   | 103-2  | The management approach and its components                      |       |  |  |  |  |
|   | 103-3  | Evaluation of the management approach                           |       |  |  |  |  |
| Transportation  | BCP Indicator  | Percentage of Efficiency in Transportation Contract management  | 91    |  |  |  |  |

## Material Topics

### GRI 400 Social Standard Series

|  |                                |   |                  |                       |                         |   |   |
|--|--------------------------------|---|------------------|-----------------------|-------------------------|---|---|
| GRI 103 Management Approach 2016             | EMPLOYMENT                     |   |                  |                       |                         |   |   |
|  | 103-1                          | Explanation of the material topic and its Boundary  | 104-106, 109-110 |                       |                         |   |   |
|  | 103-2                          | The management approach and its components  |                  |                       |                         |   |   |
|  | 103-3                          | Evaluation of the management approach   |                  |                       |                         |   |   |
| GRI 401: Employment 2016                     | 401-1                          | New employee hires and employee turnover  | 106, 126, 127    |                       |                         | SDG 5 - Gender equity<br>SDG 8 - Employment, Youth employment |   |
|  | BCP Indicator                  | Best Employer Score by AON Hewitt   | 105              |                       |                         |   |   |
| GRI 103 Management Approach 2016             | LABOR/MANAGEMENT RELATION      |   |                  |                       |                         |   |   |
|  | 103-1                          | Explanation of the material topic and its Boundary  | 104-105          |                       |                         |   |   |
|  | 103-2                          | The management approach and its components  |                  |                       |                         |   |   |
|  | 103-3                          | Evaluation of the management approach   |                  |                       |                         |   |   |
| Labor/ Management Relation                   | BCP Indicator                  | Best Employer Score by AON Hewitt   | 105              |                       |                         |   |   |
| GRI 103 Management Approach 2016             | OCCUPATIONAL HEALTH AND SAFETY |   |                  |                       |                         |   |   |
|  | 103-1                          | Explanation of the material topic and its Boundary  | 98-101           |                       |                         |   |   |
|  | 103-2                          | The management approach and its components  |                  |                       |                         |   |   |
|  | 103-3                          | Evaluation of the management approach   |                  |                       |                         |   |   |
| GRI 403: Occupational Health and Safety 2016 | 403-2                          | Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities | 101, 128         | Occupational diseases | Information unavailable | The data will be available in 2019                            | SDG 3/ SDG 8 - Occupational health and safety                         |
|  | OGSS                           | Emergency Preparedness  | 99               |                       |                         |   |   |
| GRI 103 Management Approach 2016             | TRAINING AND EDUCATION         |   |                  |                       |                         |   |   |
|  | 103-1                          | Explanation of the material topic and its Boundary  | 107-108          |                       |                         |   |   |
|  | 103-2                          | The management approach and its components  |                  |                       |                         |   |   |
|  | 103-3                          | Evaluation of the management approach   |                  |                       |                         |   |   |
| GRI 404: Training and Education 2016         | 404-1                          | Average hours of training per year per employee   | 108              |                       |                         |   | SDG 4/ SDG 8 - Employee training & education<br>SDG 5 - Gender equity |
|  | 404-3                          | Percentage of employees receiving regular performance and career development reviews.   | 108              |                       |                         |   | SDG 4/ SDG 8 - Employee training & education<br>SDG 5 - Gender equity |
| GRI 103 Management Approach 2016             | LOCAL COMMUNITIES              |   |                  |                       |                         |   |   |
|  | 103-1                          | Explanation of the material topic and its Boundary  | 112-116          |                       |                         |   |   |
|  | 103-2                          | The management approach and its components  |                  |                       |                         |   |   |
|  | 103-3                          | Evaluation of the management approach   |                  |                       |                         |   |   |
| GRI 413: Local Communities 2016              | 413-1                          | Operations with local community engagement, impact assessments, and development programs                                      | 112              |                       |                         |   |   |



| GRI<br>Standard                                | Disclosure                 |  | Page number (s)<br>and/or URL (s) | Omission     |        |             | SDGs  | External<br>Assurance |
|--|----------------------------|--|-----------------------------------|--------------|--------|-------------|---|-----------------------|
|  |                            |  |                                   | Part Omitted | Reason | Explanation |   |                       |
| Material Topics                                |                            |  |                                   |              |        |             |   |                       |
| GRI 400 Social Standard Series                 |                            |  |                                   |              |        |             |   |                       |
| GRI 103<br>Management<br>Approach 2016         | SUPPLIER SOCIAL ASSESSMENT |  |                                   |              |        |             |   |                       |
|  | 103-1                      | Explanation of the material topic and its Boundary   | 62-64                             |              |        |             |   |                       |
|  | 103-2                      | The management approach and its components   |                                   |              |        |             |   |                       |
|  | 103-3                      | Evaluation of the management approach  |                                   |              |        |             |   |                       |
| GRI 414:<br>Supplier Social<br>Assessment 2016 | 414-2                      | Negative social impacts in the supply chain and actions taken                                    | 62                                |              |        |             | SDG 5 - Workplace violence<br>and harassment<br>SDG 8 - Labor practices<br>in the supply chain<br>SDG 16 - Workplace<br>violence and harassment |                       |
| Sustainable<br>Supplier<br>Development         | BCP<br>Indicator           | Number of suppliers that were self-assessed using SCOC<br>criteria                               | 62                                |              |        |             |   |                       |
| GRI 103<br>Management<br>Approach 2016         | MARKETING AND LABELING     |  |                                   |              |        |             |   |                       |
|  | 103-1                      | Explanation of the material topic and its Boundary   | 84-89                             |              |        |             |   |                       |
|  | 103-2                      | The management approach and its components   |                                   |              |        |             |   |                       |
|  | 103-3                      | Evaluation of the management approach  |                                   |              |        |             |   |                       |
| GRI 417:<br>Marketing and<br>Labeling 2016     | 417-3                      | Incidents of non-compliance concerning marketing<br>communications                               | 103                               |              |        |             |   |                       |
|  | BCP<br>Indicator           | Net Promoter Score (NPS) / Customer satisfaction   | 89                                |              |        |             |   |                       |
|  | BCP<br>Indicator           | Number of new service stations   | 84, 89                            |              |        |             |   |                       |
| Product and<br>Service<br>Development          | BCP<br>Indicator           | Number of renovated service stations   | 86                                |              |        |             |   |                       |
|  | BCP<br>Indicator           | Expansion of convenient stores, coffee shops, and restaurants                                    | 87                                |              |        |             |   |                       |
|  | BCP<br>Indicator           | Share of products transported by larger vehicles   | 90                                |              |        |             |   |                       |
|  | BCP<br>Indicator           | Number of transportation service complaint   | 90                                |              |        |             |   |                       |
|  | BCP<br>Indicator           | Number of projects/ service stations participating in CO-OP<br>Turn Pro/ CO-OP Coaching programs | 86                                |              |        |             |   |                       |
| GRI 103<br>Management<br>Approach 2016         | SOCIOECONOMIC COMPLIANCE   |  |                                   |              |        |             |   |                       |
|  | 103-1                      | Explanation of the material topic and its Boundary   | 48-50                             |              |        |             |   |                       |
|  | 103-2                      | The management approach and its components   |                                   |              |        |             |   |                       |
|  | 103-3                      | Evaluation of the management approach  |                                   |              |        |             |   |                       |
| GRI 419:<br>Socioeconomic<br>Compliance 2016   | 419-1                      | Non-compliance with laws and regulations<br>in the social and economic area                      | 128                               |              |        |             | SDG 16 - Compliance<br>with law and regulations   |                       |



# Bangchak GC Advanced COP

## Self Assessment

| GC Scope or Principle  | Criteria of GC Advanced Level  | Bangchak Approach  | Disclose             |
|--|--|--|----------------------|
| <b>Scope :</b><br>Implementing the Ten Principles into Strategies & Operations   | <b>Strategy, Governance and Engagement</b><br>1. The COP describes mainstreaming into corporate functions and business units   | <ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> <li>Sustainability Strategy</li> </ul>   | 14-17<br>40-47       |
|  | 2. The COP describes value chain implementation  | <ul style="list-style-type: none"> <li>About Bangchak</li> <li>Supply Chain Management</li> </ul>  | 8-9<br>62-64         |
| <b>Principle 1 :</b><br>Businesses should support and respect the protection of internationally proclaimed human rights<br><br><b>Principle 2 :</b><br>Businesses should make sure that they are not complicit in human rights abuses  | <b>Human rights</b><br>3. The COP describes robust commitments, strategies or policies in the area of human rights             | <ul style="list-style-type: none"> <li>Human Rights</li> </ul>   | 111                  |
|  | 4. The COP describes effective management systems to integrate the human rights principles                                     |  |                      |
|  | 5. The COP describes effective monitoring and evaluation mechanisms of human rights integration                                |  |                      |
| <b>Principle 3 :</b><br>Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining<br><br><b>Principle 4 :</b><br>The elimination of all forms of forced and compulsory labour.<br><br><b>Principle 5 :</b><br>The effective abolition of child labour<br><br><b>Principle 6 :</b><br>The elimination of discrimination in respect of employment and occupation | <b>Labour</b><br>6. The COP describes robust commitments, strategies or policies in the area of labour                         | <ul style="list-style-type: none"> <li>Bangchak and Sustainability / Sustainability Policy</li> <li>Stakeholder Engagement (Employee)</li> <li>Safety &amp; Occupational Health</li> <li>Employee Stewardship</li> </ul>                       | 14-15                |
|  | 7. The COP describes effective management systems to integrate the labour principles   |  | 19-21                |
|  | 8. The COP describes effective monitoring and evaluation mechanisms of labour principles integration                           |  | 98-101               |
|  |  |  | 104-110              |
| <b>Principle 7 :</b><br>Businesses should support a precautionary approach to environmental challenges<br><br><b>Principle 8 :</b><br>Businesses should undertake initiatives to promote greater environmental responsibility<br><br><b>Principle 9 :</b><br>Businesses should encourage the development and diffusion of environmentally friendly technologies  | <b>Environment</b><br>9. The COP describes robust commitments, strategies or policies in the area of environmental stewardship | <ul style="list-style-type: none"> <li>Bangchak and Sustainability / Sustainability Policy</li> <li>Environment Performance</li> <li>Sustainable Product and Service</li> <li>Eco Efficiency</li> <li>Environmental Cost Accounting</li> </ul> | 14-17                |
|  | 10. The COP describes effective management systems to integrate the environmental principles                                   |  | 72-73                |
|  | 11. The COP describes effective monitoring and evaluation mechanisms for environmental stewardship                             |  | 84-89<br>93<br>94-95 |

| GC Scope or Principle   | Criteria of GC Advanced Level  | Bangchak Approach   | Disclose             |
|---|--|---|----------------------|
| <b>Principle 10 :</b><br>Businesses should work against corruption in all its forms, including extortion and briber | <b>Anticorruption</b><br>12.The COP describes robust commitments, strategies or policies in the area of anticorruption | <ul style="list-style-type: none"> <li>• Bangchak and Sustainability / Sustainability Policy</li> <li>• Corporate Governance</li> <li>• Anti-Corruption</li> <li>• Supply Chain Management</li> </ul>   | 14-17                |
|   | 13.The COP describes effective management systems to integrate the anti-corruption principle                           |   | 48                   |
|   | 14.The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption             |   | 49                   |
|   |  |   | 62-64                |
| <b>Scope :</b><br>Taking Action in Support of Broader UN Goals and Issues   | <b>UN Goals and Issues</b><br>15.The COP describes core business contributions to UN goals and issues                  | <ul style="list-style-type: none"> <li>• Bangchak and Sustainability / Principle and conceptual framework of sustainability</li> <li>• Community &amp; Social Engagement</li> <li>• Bangchak and Sustainability / Sustainability Policy</li> <li>• Principle and conceptual framework of sustainability</li> </ul>                    | 14-17                |
|   | 16.The COP describes strategic social investments and philanthropy   |   | 112-121              |
|   | 17.The COP describes advocacy and public policy engagement   |   | 14-17                |
|   | 18.The COP describes partnerships and collective action  |   | 15-17                |
| <b>Scope :</b><br>Corporate Sustainability Governance and Leadership  | <b>Governance</b><br>19.The COP describes CEO commitment and leadership)   | <ul style="list-style-type: none"> <li>• Letter from President and CEO</li> <li>• Principle and conceptual framework of sustainability</li> <li>• Sustainability Strategy</li> <li>• Bangchak and Sustainability / Sustainability Corporate Structure</li> <li>• Corporate Governance</li> <li>• Bangchak and stakeholders</li> </ul> | 4-7                  |
|   | 20.The COP describes Board adoption and oversight  |   | 15-17<br>40-47       |
|   | 21.The COP describes stakeholder engagement  |   | 14-17<br>48<br>18-39 |





# About this Report

## Report Contents

Bangchak Corporation Public Company Limited has prepared the 14<sup>th</sup> Sustainability Report to communicate economic, environment and social performance (Disclosure 102-52). The report discloses the performance covering 1 January to 31 December 2018 (Disclosure 102-50). The report complies to GRI Sustainability Reporting Standards (GRI Standards) (Disclosure 102-54) and Oil & Gas Sector Supplement (OGSS) in accordance with Core Option and adheres with United Nations Global Compact at Advance Level. In addition, we integrate Sustainable Development Goals (SDGs) into our strategy and business operation to communicate our effort to achieve the goals and response to stakeholders' expectations.

## Report Boundary (Disclosure 102-45, 102-46, 103-1)

The report discloses 2018 performances under Bangchak Corporation Public Company Limited (BCP) in Thailand. The scope excludes subsidiaries and joint venture companies, except energy and GHG emission performance data. These data cover our subsidiaries that company have over 49% ownership *(exclude new companies/ merger and acquisition companies that operate within countries less than 2 years. The company will report performance after they have operated for 2 years)*. Therefore, energy and GHG performance data have been changed from previous year. The subsidiaries within report boundaries are as follows: (Disclosure 102-49)

- Bangchak Green Net Co., Ltd.
- Bangchak Retail Co., Ltd. (BCR)
- BCPG Public Company Limited (BCPG) and Bangchak Solar Energy Co., Ltd.
- Bangchak Biofuel Co., Ltd. (BBF)
- Bangchak Bioethanol (Chachoengsao) Co., Ltd. (BBE)

Waste management, water consumption, water recycle, air pollution, and oil and chemical spills data were performances from significant areas, office and refinery at Sukhumvit Soi 64. However, calculation method for water consumption data has been changed since the company expanded scope to cover Refinery and Head Office (M Tower), resulting in insignificant percentage change in water consumption reduction. (Disclosure 102-48)

Safety data included safety performance at office, refinery at Sukhumvit Soi 64, and M Tower. In addition, the company reports water consumption from river including water consumption for fire equipment testing and hydro test of emergency response preparation. Scope for air pollution data has been expanded from Fugitive VOCs to VOC Inventory from Flare, combustion, wastewater treatment, storage tank, and marketing & terminal. Absentee rate data was reported by gender of permanent employee (office and refinery at Sukhumvit Soi 64). (Disclosure 102-49). In 2018, there were no significant changes to organization and its supply chain (Disclosure 102-10)

## Report Assurance

This report is reviewed by executives from each business unit and functions (Disclosure 102-32) to ensure the completeness, accuracy and cover stakeholders' expectations. In addition, the report is subjected to an independence third party, who has a professional experience and provides confidence to our business performances in oil and gas industry, leading to gain credibility and transparency align with GRI Standards. Details are shown in the Auditor's Report in page 138-139

## Contact Information (Disclosure 102-53)

For questions or suggestions, please contact Corporate Sustainability Development Bangchak Corporation Public Company Limited E-mail: [chongprode@bangchak.co.th](mailto:chongprode@bangchak.co.th) Tel. +66 2335 4609

## Companies within report boundary (Disclosure 102-45, 103-1)

| No.   | Company  | % Equity | Production | Energy | GHG | Water use | Waste water | Air Emissions | Waste | Safety |
|---|--|----------|------------|--------|-----|-----------|-------------|---------------|-------|--------|
| 1   | Bangchak Corporation Plc.                          | 100      | /          | /      | /   | /         | /           | /             | /     | /      |
| <b>Refining Business</b>                                  |  |          |            |        |     |           |             |               |       |        |
| 1   | BCP Trading Pte. Ltd.                              | 100      |            |        |     |           |             |               |       |        |
| 2   | Bongkot Marine Service Co., Ltd.                   | 30       | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| 3   | Fuel Pipeline Transportation Co., Ltd.             | 4.95     | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| <b>Marketing Business</b>                                 |  |          |            |        |     |           |             |               |       |        |
| 1   | Bangchak Retail Co., Ltd.                          | 100      | NR         | /      | /   | NR        | NR          | NR            | NR    | NR     |
| 2   | Bangchak Green Net Co., Ltd.                       | 49       | NR         | /      | /   | NR        | NR          | NR            | NR    | NR     |
| 3   | Oam Suk Social Enterprise Co., Ltd.                | 40       | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| <b>Green-Power Business</b>                               |  |          |            |        |     |           |             |               |       |        |
| 1   | BCPG Plc.  | 70.11    |            |        |     |           |             |               |       |        |
| 2   | Bangchak Solar Energy Co., Ltd.                    | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 3   | Bangchak Solar Energy (Chaiyaphum 1) Co., Ltd.     | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 4   | Bangchak Solar Energy (Nakhonratchasima) Co., Ltd. | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 5   | Bangchak Solar Energy (Buriram 1) Co., Ltd.        | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 6   | Bangchak Solar Energy (Buriram) Co., Ltd.          | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 7   | • Huang Ming Japan Co., Ltd.                       | 100      |            |        |     |           |             |               |       |        |
| 8   | Bangchak Solar Energy (Prachinburi) Co., Ltd.      | 100      | /          | /      | /   | x         | x           | NR            | NR    | NR     |
| 9   | • BSE Energy Holdings Pte Ltd.                     | 100      |            |        |     |           |             |               |       |        |
| 10  | • BCPG Japan Corporation Ltd.                      | 100      |            |        |     |           |             |               |       |        |
| 11  | • BCPG Engineering Co., Ltd.                       | 100      |            |        |     |           |             |               |       |        |
| 12  | BCPG Investment Holding Pte Ltd.                   | 100      |            |        |     |           |             |               |       |        |
| 13  | • Greenergy Holdings Pte Ltd.                      | 100      |            |        |     |           |             |               |       |        |
| 14  | • Greenergy Power Pte Ltd.                         | 100      |            |        |     |           |             |               |       |        |
| 15  | • BCPG Wind Cooperatief U.A.                       | 100      |            |        |     |           |             |               |       |        |
| 16  | • Petro Wind Energy Inc.                           | 40       |            |        |     |           |             |               |       |        |
| 17  | BCPG Biopower 1 Company Limited                    | 100      |            |        |     |           |             |               |       |        |
| 18  | BCPG Biopower 2 Company Limited                    | 100      |            |        |     |           |             |               |       |        |
| 19  | Lom Ligor Co., Ltd.                                | 100      |            |        |     |           |             |               |       |        |
| 20  | Star Energy Group Holdings Pte Ltd.                | 33.33    |            |        |     |           |             |               |       |        |
| <b>Bio-Based Product Business</b>                         |  |          |            |        |     |           |             |               |       |        |
| 1   | BBGI Plc.  | 60       |            |        |     |           |             |               |       |        |
| 2   | KSL Green Innovation Plc.                          | 100      |            |        |     |           |             |               |       |        |
| 3   | Bangchak Bioethanol (Chachoengsao) Co., Ltd.       | 85       | /          | /      | /   | x         | x           | x             | x     | x      |
| 4   | Bangchak Biofuel Co., Ltd.                         | 70       | /          | /      | /   | x         | x           | x             | x     | x      |
| 5   | Ubon Bio Ethanol Plc.                              | 21.28    |            |        |     |           |             |               |       |        |
| 6   | • Ubon Agricultural Energy Co., Ltd.               | 100      |            |        |     |           |             |               |       |        |
| 7   | • Ubon Biogas Co., Ltd.                            | 100      |            |        |     |           |             |               |       |        |
| 8   | • NP Bio Energy Co., Ltd.                          | 100      |            |        |     |           |             |               |       |        |
| <b>Natural Resource Business and Business Development</b> |  |          |            |        |     |           |             |               |       |        |
| <b>Exploration and Product Business</b>                   |  |          |            |        |     |           |             |               |       |        |
| 1   | BCP Energy International Pte. Ltd.                 | 100      | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| 2   | Nido Petroleum Pty Ltd.                            | 100      |            |        |     |           |             |               |       |        |
| 3   | • Nido Petroleum (China) Pty Ltd.                  | 100      |            |        |     |           |             |               |       |        |
| 4   | • Nido Management Pty Ltd.                         | 100      |            |        |     |           |             |               |       |        |
| 5   | • Nido Petroleum Indonesia (Holding) Pty Ltd.      | 100      |            |        |     |           |             |               |       |        |
| 6   | • Nido Petroleum Indonesia (Gurita) Pty Ltd.       | 100      |            |        |     |           |             |               |       |        |
| 7   | • Nido Petroleum Indonesia (Cakalang) Pty Ltd.     | 100      |            |        |     |           |             |               |       |        |
| 8   | • Nido Petroleum Indonesia (Baronang) Pty Ltd.     | 100      |            |        |     |           |             |               |       |        |
| 9   | Nido Petroleum Philippines Pty Ltd.                | 100      |            |        |     |           |             |               |       |        |
| 10  | • Nido Production (Holding) Pty Ltd.               | 100      |            |        |     |           |             |               |       |        |
| 11  | BCPR Co., Ltd.                                     | 100      | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| 12  | • BCPR Pte. Ltd.                                   | 100      |            |        |     |           |             |               |       |        |
| 13  | • OKEA AS  | 49       |            |        |     |           |             |               |       |        |
| <b>Innovation Business</b>                                |  |          |            |        |     |           |             |               |       |        |
| 14  | BCP Innovation Pte. Ltd.                           | 100      | NR         | NR     | NR  | NR        | NR          | NR            | NR    | NR     |
| 15  | Lithium Americas Corp.                             | 15.86    |            |        |     |           |             |               |       |        |
| 16  | • Minera Exar S.A.                                 | 50       |            |        |     |           |             |               |       |        |
| 17  | • Lithium Nevada Corp.                             | 100      |            |        |     |           |             |               |       |        |
| 18  | • Rheo Minerals Inc.                               | 100      |            |        |     |           |             |               |       |        |
| 19  | Bonumose LLC.                                      | 5.17     |            |        |     |           |             |               |       |        |
| 20  | Eneate Corporation                                 | 1.15     |            |        |     |           |             |               |       |        |
| 21  | BCV Bio Based Co., Ltd.                            | 100      |            |        |     |           |             |               |       |        |
| 22  | BCV Energy Co., Ltd.                               | 100      |            |        |     |           |             |               |       |        |
| 23  | BCV Innovation Co., Ltd.                           | 100      |            |        |     |           |             |               |       |        |
| 24  | BCV Partnership Co., Ltd.                          | 100      |            |        |     |           |             |               |       |        |

New companies/ Merger and Acquisition Companies that operate within countries less than 2 years, New companies/ Merger and Acquisition Companies that operate outside countries less than 3 years. The companies that operate within the countries will report KPIs after they are operated for 2 years. The companies that operate outside countries will report KPIs after they are operated for 3 years. (Disclosure 103-1)

Office building, did not collect environmental and safety data Non Relevance (NR) Data was not significant to business and did not provide impact to Bangchak's overall performance. / Data was disclosed in the report. X Data was not collected. Color represents company status

Blue : Subsidiaries means the company holds stock ≥ 49%

Green : Joint venture means the company holds stock 20-49

Orange: Other companies

## LRQA Assurance Statement

### Relating to the Bangchak Corporation Public Company Limited's Sustainability Report for the calendar year 2018

This Assurance Statement has been prepared for the Bangchak Corporation Public Company Limited in accordance with our contract but is intended for the readers of this Report.

#### Terms of Engagement

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by the Bangchak Corporation Public Company Limited (BCP) to provide independent assurance on its Sustainability Report 2018 ("the Report") against the assurance criteria below to a limited level of assurance at the materiality of the professional judgement of the verifier, using LRQA's verification approach. LRQA's verification approach is based on current best practise and uses the principles of AA1000AS (2008) - inclusivity, materiality, responsiveness and reliability of performance data and processes defined in ISAE3000.

Our assurance engagement covered BCP's Sustainability Report 2018 and its business groups in Thailand under its operational control <sup>(1)</sup> and specifically the following requirements:

- Confirming that the Report is in accordance with:
  - GRI Sustainability Reporting Standards and core option
  - GRI Oil & Gas Sector Disclosure
- Evaluating the reliability of data and information for the selected topic specific standards below:
  - Environmental:
    - GRI 302-1: Energy consumption within the organization <sup>(2)</sup>
    - GRI 303-1: Water withdrawal by source <sup>(3)</sup>
    - GRI 303-3: Water recycled and reused <sup>(4)</sup>
    - GRI 305-1: Direct (Scope 1) GHG emissions <sup>(2)</sup>
    - GRI 305-2: Energy indirect (Scope 2) GHG emissions <sup>(2)</sup>
    - GRI 305-7: Nitrogen Oxides (NO<sub>x</sub>), Sulphur Oxides (SO<sub>x</sub>) and other significant air emissions (VOC and H<sub>2</sub>S) <sup>(4)</sup>
    - GRI 306-2: Waste by type and disposal method <sup>(4)</sup>
    - GRI 306-3: Significant spills <sup>(4)</sup>
  - Social:
    - GRI 403-2: Type of injury and rate of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities <sup>(3)</sup>

#### Notes:

- (1) Excludes subsidiaries and related companies in Thailand and overseas unless stated otherwise.  
 (2) Also includes BCP subsidiaries and related companies in Thailand, where BCP holds over 49% in equity, except mergers and acquisitions (M&As) that have been in operation for less than two years.  
 (3) Includes BCP Refinery, refinery office at Sukhumvit Soi 64 and BCP Head office at M Tower  
 (4) Limited to a BCP refinery and refinery office at Sukhumvit Soi 64 only.

LRQA's responsibility is only to BCP. LRQA disclaims any liability or responsibility to others as explained in the end footnote. BCP's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of BCP.

#### LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that BCP has not:

- Met the requirements above
- Disclosed reliable performance data and information as no errors or omissions were detected within the selected topic specific standards
- Covered all the issues that are important to the stakeholders and readers of this Report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites.

#### LRQA's Approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing BCP's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this by interviewing BCP employees who engage directly with stakeholder groups as well as reviewing documents and associated records.



- Reviewing BCP's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by BCP and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether BCP makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing BCP's data management systems to confirm that there were no significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures and systems. We also spoke with those key people responsible for compiling the data and drafting the Report.
- Sampling of evidence presented at BCP's refinery, refinery office located at Sukhumvit 64 and at their Head-office located at M Tower to confirm the reliability of the selected topic specific standards.

### Observations

Further observations and findings, made during the assurance engagement, are:

- **Stakeholder inclusivity:**  
We are not aware of any key stakeholder groups that have been excluded from BCP's stakeholder engagement process. BCP has maintained open dialogue with all its stakeholders. The Report content, as well as BCP's visions for addressing sustainability development, has then been informed by the views and expectations of these stakeholders.
- **Materiality:**  
We are not aware of any material issues concerning BCP's sustainability performance that have been excluded from the Report. BCP has established criteria for determining which issue/aspect is material. These material issues have then been prioritised and influenced BCP's performance disclosures.
- **Responsiveness:**  
BCP has processes for responding to concerns from various stakeholder groups. We believe that these communication processes are effective in explaining BCP's aim in contributing towards sustainable development. However, we believe that future reports should include BCP's subsidiaries' performance data in all their selected topic specific standards as this will further demonstrate BCP's responsiveness at a broader level. Currently, BCP only provides complete disclosure for energy consumption and GHG emissions.
- **Reliability:**  
We are of the opinion that the management systems are properly defined for collecting and calculating the data and information associated with the selected topic specific standards. However, we believe that more:
  - periodic internal verification will further improve the reliability of data and information from the subsidiaries.
  - frequent analysis of the organic compounds contents of wastewater will improve the accuracy of VOCs emission data from wastewater treatment systems.

### LRQA's competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification assessment is the only work undertaken by LRQA for BCP and as such does not compromise our independence or impartiality.

Signed

Dated: 1 March 2019



Paveena Hengsitawat  
LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Ltd.  
Lloyd's Register International (Thailand) Limited  
22nd Floor, Sirinrat Building, 3388/78 Rama IV Road  
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LRQA reference: BGK405219

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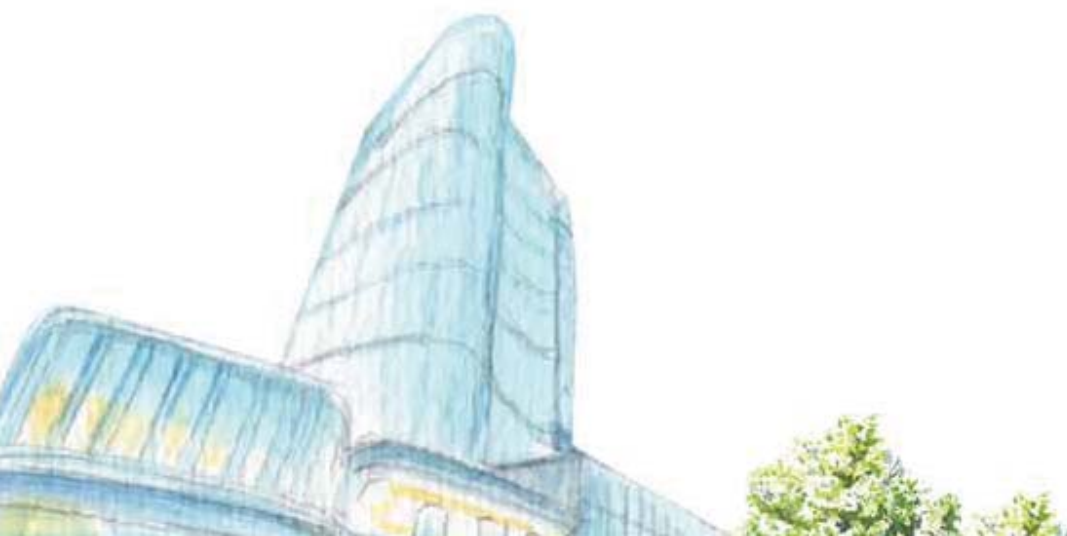
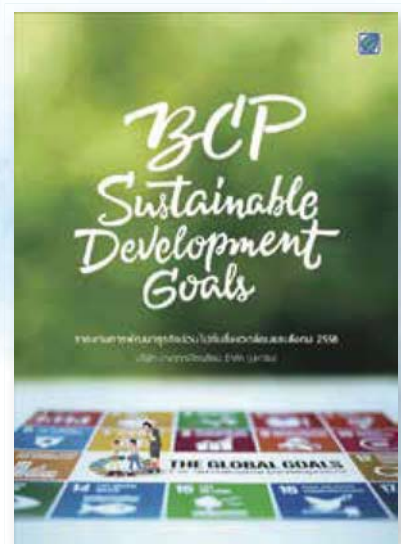
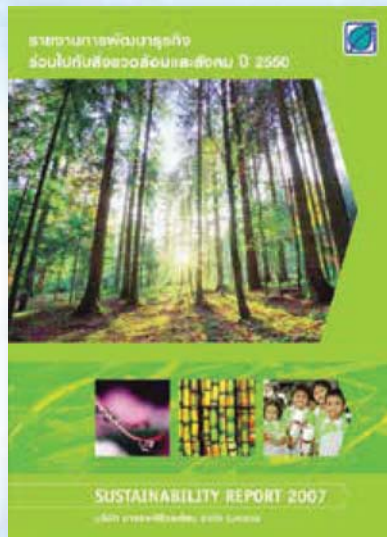


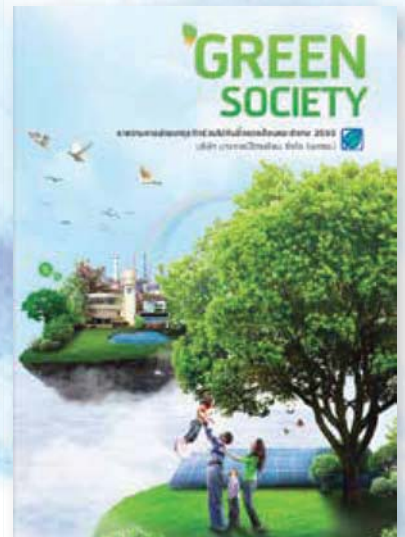
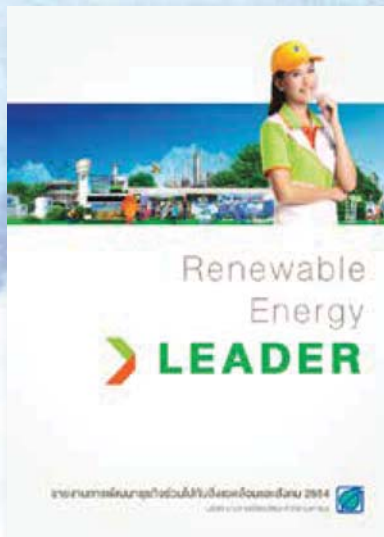












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