BCP Sustainable Development Goals

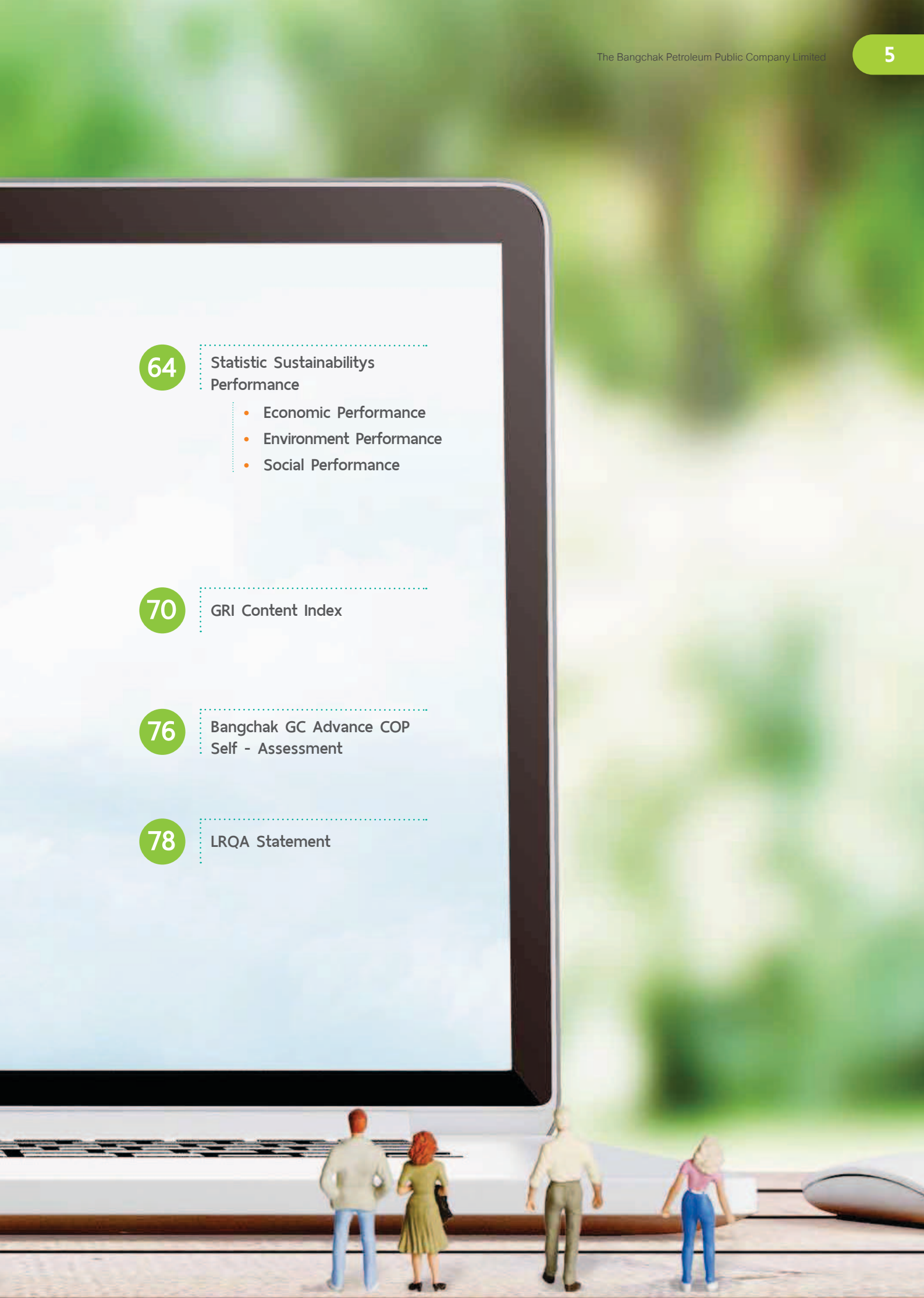
Sustainability Report 2015

The Bangchak Petroleum Public Company Limited

BCP Sustainable Development Goals

Bangchak is apporoaching our 31st anniversary
with the Thai people and creating an energy business
that is environmentally friendly
for Sustainable Development.

Contents



Message from the President

The world has entered, what economists have termed, the “New Normal”, characterized by a volatile global economy, low commodity prices, oil included, and a sluggish financial market despite the abundance of cash in the system; where equilibrium is difficult to determine. This “New Normal” along with extreme climate change, such as severe drought, which have culminated in the Paris Agreement of the COP21, are challenges Bangchak must manage. To make Bangchak a modern, sustainable company with secure growth, efficient and sustainable competition at both the national level and in ASEAN, we have devised a 3Ss strategy (Security, Stability, Sustainability) for our business operations, aligned with our business growth strategy, global sustainability development, and the needs and expectations of all stakeholders, as follows:

Security: Bangchak enhances national energy security by expanding its investments to an upstream businesses, referring to the exploration and production of crude oil or other sources of important minerals such as lithium, to adequately supply energy for the demands of private and public sectors creating a fully integrated petroleum business.

Stability: To increase our energy and financial stability as well as mitigate the volatility of commodities and generate constant revenue in accordance with the Paris Agreement, Bangchak increases its investment in renewable energy both domestic and overseas. This includes solar PV, geothermal energy, biomass, and biogas.

Sustainability: Bangchak bolsters sustainability for itself by balancing in three dimensions Environment, Social, and Governance (ESG), which has been its tenet from day one. And to match business strategies and growth, Bangchak has restructured itself by business group so that a responsible party may be in charge of proactive planning. This year, Bangchak founded the Office for Corporate Sustainability to drive the sustainability agenda while adhering to the universal approaches of sustainable management, namely 17 Sustainable Development Goals, United Nations Global Compact, and Dow Jones Sustainability Index. These are applied within Bangchak itself and expanded to affiliates, business partners, and other allies, which includes the development of Social Enterprises in related businesses such as the retail market.

Thanks to the execution of the 3Ss, Bangchak's performance in economic, social, and environmental aspects has paid off despite the major change to the shareholding structure in the wake of the government's decision to move away from oil business monopoly (G4-23), which has little impact on Bangchak's corporate management. Bangchak must constantly create a balance from its four main businesses, in order to ensure its strong growth, prosperity, and sustainability, in line with the "New Normal" of the global and Thai economy.

(Singed) *Chaiwat Kovavisarach*
(Mr. Chaiwat Kovavisarach)
President

Open Bangchak House

Company name : The Bangchak Petroleum Public Co.,Ltd.

Communication name : BCP

Established date : 19 June 1983

BCPHeadquaters address :
Energy Complex 10th fl., Building A,
555/1 Viphavadhi-Rangsit Rd.,Chatuchak,Chatuchak,
Bangkok 10900

President : Mr. Chaiwat Kovavisarach
Registered Capital and paid up
: Baht 1,376 million
Employees : 1,129
Business category : Petroleum and Renewable Energy

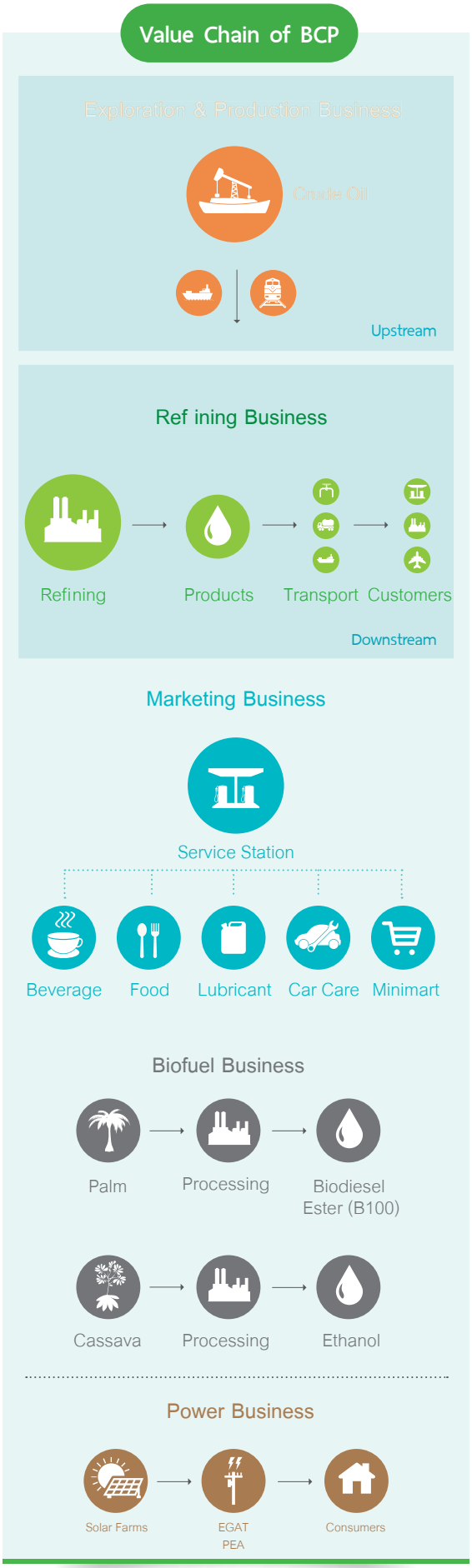
Vision : **"Greenergy Excellence"**
Creating an energy business that is environmentally friendly for sustainable development

Business Culture
: Develop sustainable business in harmony with environment and society

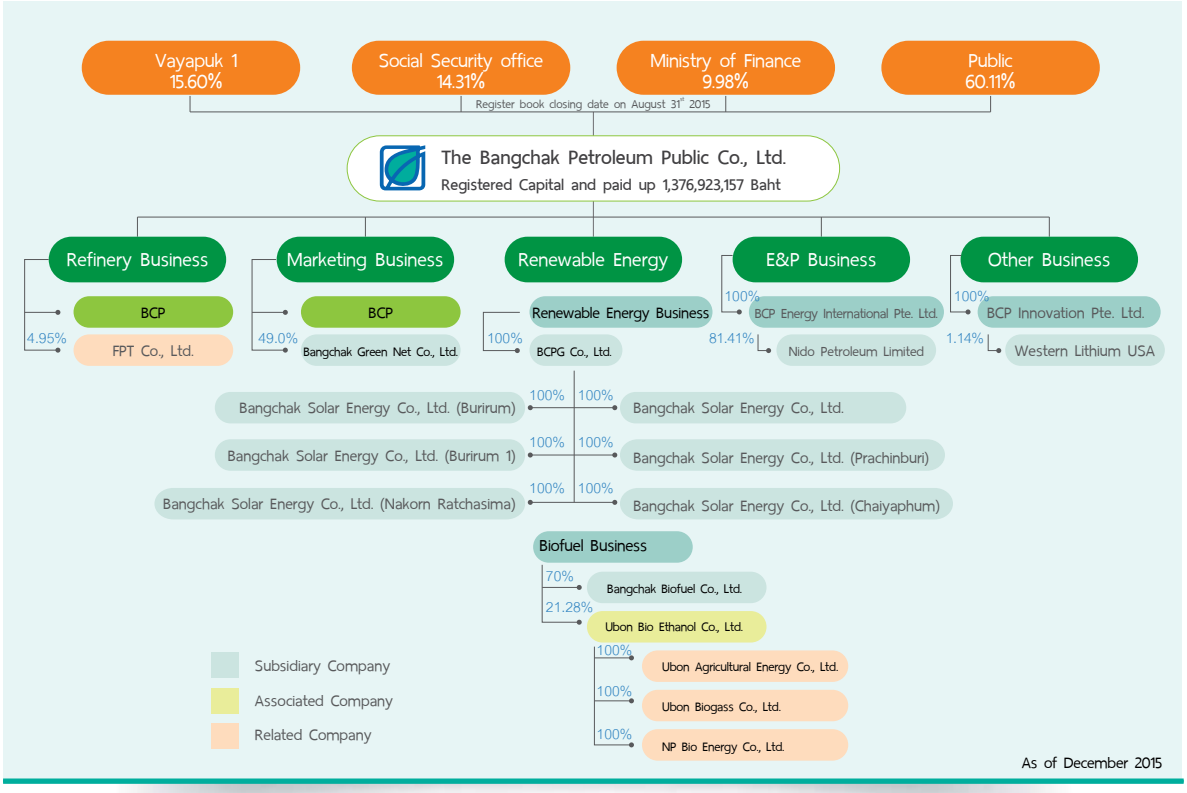
Employee Culture
: To be virtous, knowledgeable, and contributive to others

Value Statement
- B – Beyond Expectation
- C – Continuing Development
- P – Pursuing Sustainability

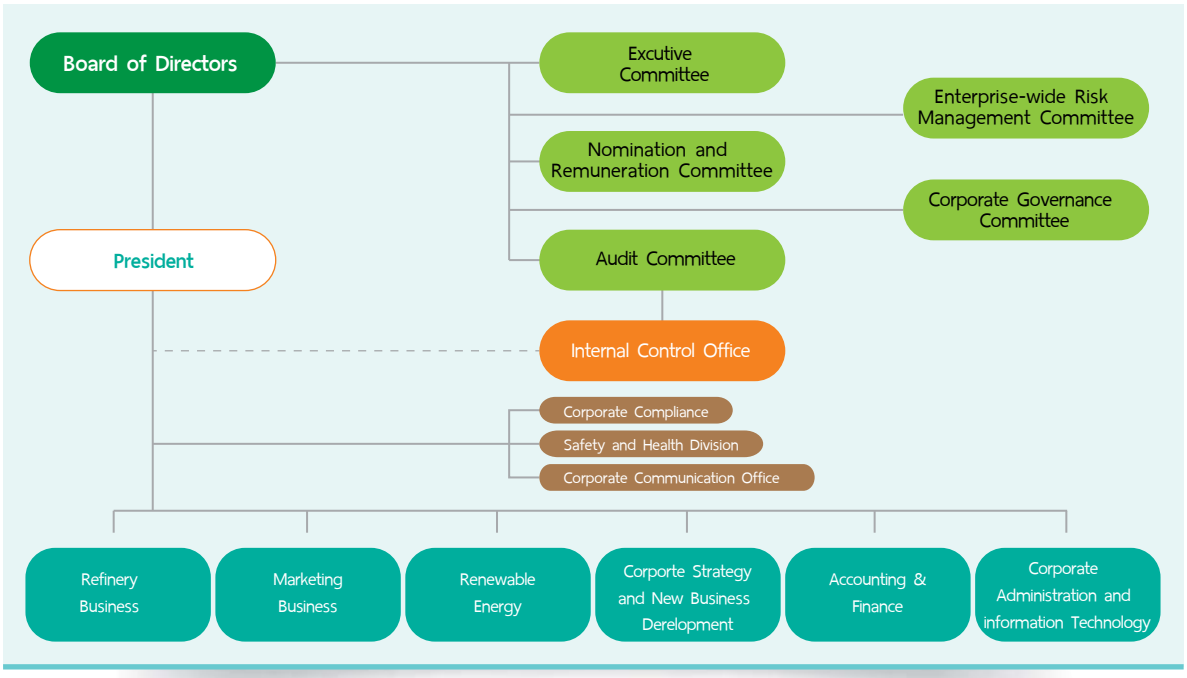
Mission
Shareholders / business partners / customers / creditors
:Conduct business to steadily grow its returns in a fair manner
Society / Community / Environment
: Promote a business culture that is responsible to the environment and society
Employees
: Grow employees into professionals



Equity Chart of BCP



Organization Structure



End of 2015

Permanent Employees (G4-10)

1,129

Persons

End of 2015

Total revenues

151,140

Million Baht

Sustainability Management Principles

The Sustainability Committees were setup to define sustainability related direction, policies, and plans as well as to oversee the implementation of sustainability management at Bangchak. Bangchak's sustainability management principles includes:

Management Structure (G4-45)

Policy level :

Chaired by the President, with the relevant Senior Executive Vice Presidents and Vice Presidents, the Sustainability Policy Committee (SPC) defines sustainability policies and goals involving balanced economic, social, and environmental aspects, and reviews these to meet the needs and expectations of all stakeholders every quarter.

Management level :

Chaired by a Senior Executive Vice President and vice-chaired by another, with all Vice Presidents serving as members, the Sustainability Management Committee (SMC) translates the policy set by SPC into action and monitors progress. The Corporate Sustainability Development Division serves as secretary to both these committees.

Sustainability Principles

Bangchak remains committed to its missions of enhancing energy security and contributing to a better quality of lives in Thai society-these two elements were conveyed to Bangchak's Greenergy Excellence culture and vision-together with observation of HM the King's Economic Sufficiency philosophy throughout its 31 years of business existence. These guiding principles and values have shaped Bangchak's strategies as well as corporate sustainability KPIs, which include environment, society, and governance (ESG) aspects.

Furthermore, to keep up with prevailing global circumstances, Bangchak has applied universal guidelines on sustainability to itself and all affiliates, namely ISO 26000 for social responsibility, United Nations' Sustainability Development Goals (SDGs), and the UN Global Compact.

ISO 26000

THE GLOBAL GOALS For Sustainable Development

THE GLOBAL COMPACT WE SUPPORT

Mr. Wattana Opanon-amata
First Senior Executive Vice President, Refinery Business Unit

Since the United Nations declared 17 Sustainable Development Goals (SDGs) to steer development over the next 15 years, as a private sector whose culture is to develop business in a sustainable way in parallel with the environment and society, Bangchak has to date undertaken business management processes, by and large making our business processes align with goals. However, In the nearfuture, we are be paying more attention to issues catering to the resolution of social problems needing urgent solution and improvement. Bangchak has come up with eight issues, particularly the management of process water and the reduction of carbon volumes to mitigate climate change in line with the goals over the next five years, which will be lower.

Sustainability Strategies

Since its beginning in 1984, Bangchak has remained a oil company for Thais by providing energy security for the country and contributing to improve the livelihoods of the Thai society. The company's culture for "sustainble business development in harmony with the environment and society" and employee culture "to be virtous, knowledgable, and contibutive to others" have guided Bangchak for the past 31 years. These commitments have lead to a business that balances economics, environment, and social considerations and the implementations of the Sufficiency Economy Principles, good corporate governance, and corporate sustainbility to achieve business goals.

Bangchak realizes that focusing solely on the Growth Strategy is insufficient to achieve business success; therefore, Bangchak has developed the **Sustainability Strategy** to be implemented concurrently in the company's governance and management. The Sustainbility Strategy enables Bangchak to be agile to the constant changes and to robustly grow and expand businesses and investments. The Sustainability Strategy is part of business management which balances five aspects:

Economic Performance

Create financial strength and expand business through responsible and sustainable investment by focusing on investing for the long term in businesses where Bangchak has expertise and where returns are reasonable and consistent to create value for Bangchak, shareholders, and all its stakeholders. Bangchak practices sound risk management and implements Business Continuity Plan and applies the practices consistently throughout the organization.

Safety and Health

Raise the standards for health and safety management by adopting OSAS 18001 and developing Process Safety Management (PSM) on par with the international best practices from leading global company. In addition, Bangchak expands safety, health, and environmental support to the communities surrounding the refinery as well as all Bangchak's affiliates.

Society

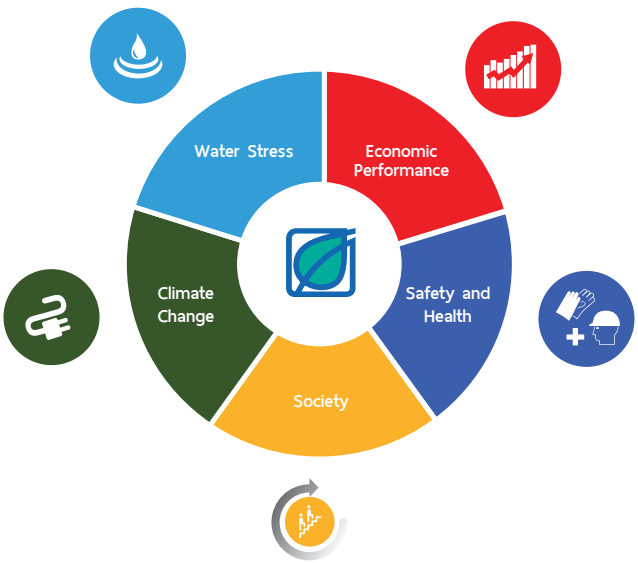
develop a business model that consistently contributes positively to the society and the environment both at the local and national levels. The community service station and agriculture cooperative business models create jobs and incomes and improve the local economies through the service station itself as well as through the local purchasing program that allow people in the communities to sell local agriculture products in Bangchak's service stations. The program creates a marketing channel for local products especially when prices for agriculture products are depressed and supplies are in excess. In addition, Bangchak develops activities and operates businesses that benefits the society and the environment through Social Enterprise which is leveraged from the CSR/CSV model. Bangchak's Social Enterprise is developed to create jobs, raise income, and support people within the communities to protect their environment. An example of Bangchak Social Enterprise is the program to purchase organic coffee beans from community in the north of Thailand.

Climate Change

As a company in the energy consuming industry, Bangchak sets corporate goal to minimize greenhouse gas emission to reduce impacts on the climate and set goals to continually reduce energy consumption. Bangchak invests in producing and selling cleaner fuel that have less impacts on the environment than fossil fuels. Bangchak uses natural gas as the main fuel to generate the steam and electricity used in the refinery to increase the energy efficiency and reduce impacts on the environment. In addition, Bangchak invests in renewable energy businesses including solar power, wind power, and biomass.

Water Stress

Water is one of the main sources of Bangchak's operations as well as for maintaining livelihoods and the economy. Based on the increasing risks of water scarcity locally and globally, Bangchak has responded by setting corporate goal to reduce water consumption and increase water reuse. Investments are made on waste water technologies and management system and in expanding water risks management into other businesses in which Bangchak operates.



Sustainability Policy

Sustainable Business Development in Harmony with the Environment and Society

Bangchak's executives serve as role models for employees who understand and perform work in accordance with stakeholder's needs and expectation both in the short-term and in the long-term in order to achieve 7 defined goals:

Good Corporate Governance

Conduct all businesses and investment in accordance to the relevant rules, regulations, and laws including tax codes both domestic and overseas. Bangchak stands against corruption and bribery of any forms and supports good corporate governance, transparency, and accountability. It follows the Sufficiency Economy Philosophy and takes into account the benefits of all stakeholders including shareholders, employees, community and society, business partners, the press, customers, competitors, creditors, and the government.

Fair Business Conduct

Promote free and fair competition, avoid activities of potential conflicts of interest and may violate intellectual properties, and promote to social responsibility throughout the business chain.

Human Rights and Treatment of Employees

Promotes, respect, and protect human rights; ensure fair and equal treatment of all employees without discrimination base on ethnicity, gender, age, educational level, or beliefs. Promote local employment. Provide welfare and benefits and safe and hygienic work environment. Encourage learning and development of employees to promote professionalism and innovation as well as support societal engagement and contributions.

Accountability to Consumers

Develop products and services that are harmless to consumers and the environment, meet specifications and exceed customers' expectations, under fair conditions and provide accurate, sufficient, and factual information of products and services. Protect customers' private information to prevent any improper usage of by any parties.

Environment and Safety

Conduct all business processes full regards to the environment including air, water, soil, forestry, ecology, and biodiversity to ensure that impacts from all operations and investments are assessed, monitored, and managed. Promote responsible and conservation of resources and energy consumption according to international practices.

Community and Society Development

Conduct business to create positive impacts to enhance quality of lives, improve the economic conditions of local communities, Thailand, and other countries where Bangchak operates.

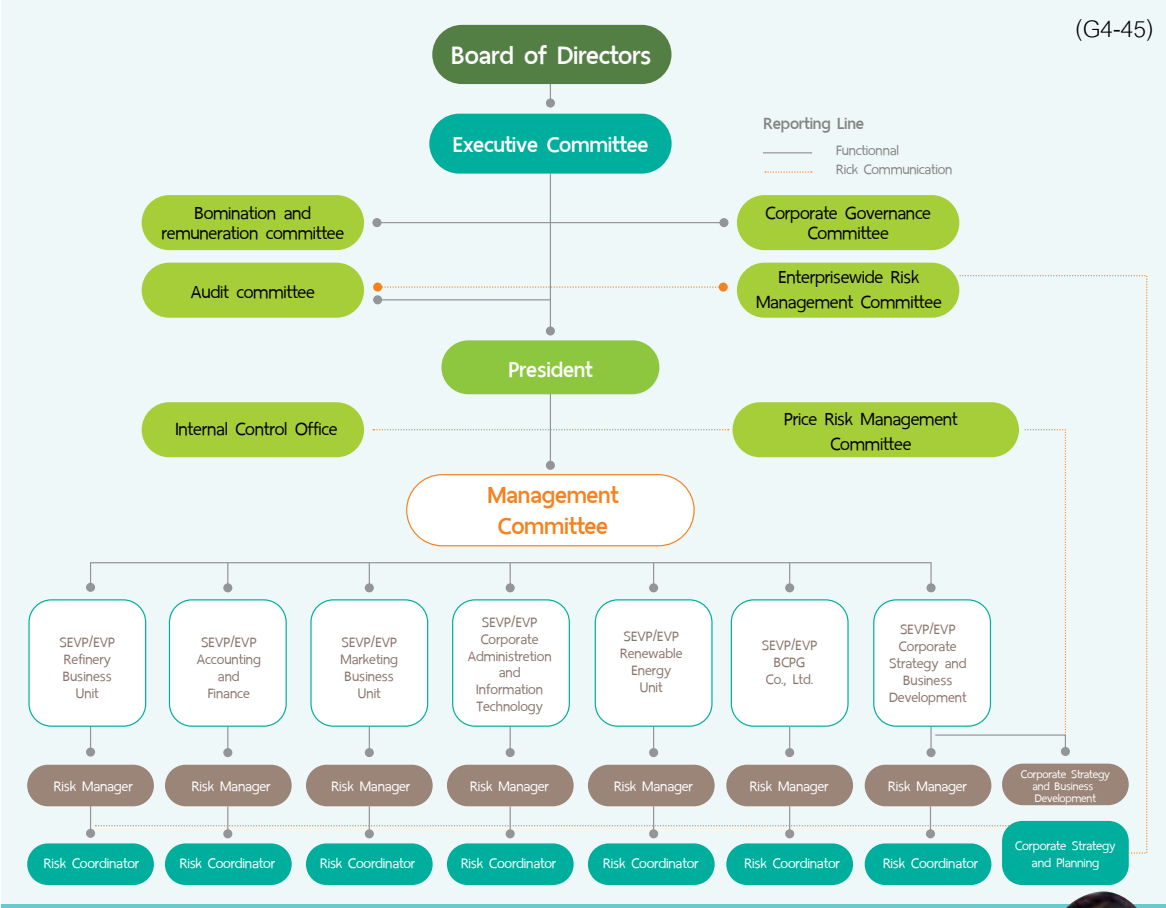
Promotion of CSR Culture and Innovation

Support and promote stakeholders' participation to create innovations that create value for the environment, community and society while supporting sustainable business growth.

Corporate Risk Management

To ensure that Bangchak operates a sustainable business while continuing to achieve its goals and remaining agile and prepared for constant changes facing the company, it has implemented risk management measures inline with international standards; COSO, ERM, and ISO 31000 at every level of the organization. In addition, clear risk management structure, reporting channels, and systematic monitoring of risk mitigations are in place throughout Bangchak and its affiliates.

(G4-45)



Bangchak's Risk Management Framework consists of our components

- Operation Risk Management
- Strategic Risk Management
- New Business Investment Risk Management
- Business Continuity Management

"Besides applying international-standard risk management processes, we keep our eyes on other megatrends. Part of the megatrends was obtained from the approach of The Global Risks Report 2016, 11th Edition (World Economic Forum), in which risks are viewed from economic, environmental, geopolitical, social, and technological perspectives, their probability, and potentially severe impacts on the organization ... issues like failure of climate-change mitigation and adaptation, water crisis, extreme weather events. All these issues are reviewed for risk analysis and strategic planning, leading to implementation plans by each group."

Ms. Nintira Apising
Senior Vice President, Corporate Strategies and Planning

Risk Management Measures

The slow down in the economy in both the manufacturing sector as well as household consumption, coupled with the continue decline in world oil price which began in 2014, have direct impacts on Bangchak's petroleum business and thus, its main source of revenue. Bangchak has implemented risk management measures as per below:

Risk	Impact	Risk Mitigation Measures
1. Economic Risk		
High oil price volatility 	High degree of uncertainty in oil refining revenue	Increase the proportion of new businesses that generate steady income. Expand investment to 118-MW solar PV power generation and bio-fuel business. Power Generation Business • Established a subsidiary, BCPG Co., Ltd., to expand investment in the power generation and renewable-energy businesses both domestic and international. Bio-fuel Business • Increased the capacity of the biodiesel plant 450,000 liters/day resulting in a 810,000 liters/day production from 360,000 liter/day. Commercial operation is expected in 2016. • Planned to acquire shares of a 150,000 liter/day cassava-based ethanol plant. With the current 400,000 liters/day, Bangchak will command a capacity of 550,000 liters/day, lowering the risk of B100 and ethanol shortage for its production of alternative-energy products, while supporting the increasing needs of alternative energy in Thailand.
2. Social Risk		
Emergencies resulting from operations 	Erosion of communities' and society's confidence and reduction in refining capacity	Elevate safety standards to improve operation by: • Constructing a natural gas cogeneration power plant, which is cleaner than the current fuel oil plant. The project will also strengthen the refinery power stability, once coming online in 2017. • Managing operational risks through SIL (Safety Integrity Level), RCM (Reliability-Centered Maintenance), and RBI (Risk-Based Inspection) for both hardware and processes. • Improving safety standard under TIS/OHSAS 18001; revising HAZOP (Hazard and Operability Study) covering all refining units; and implementing PSM (Process Safety Management system).

Risk	Impact	Risk Mitigation Measures
		• Adopting an emergency preparedness system and firefighting systems at all sites to contain internal incidents and support surrounding communities, including upgrading firetrucks, adopting digital CC cameras at the Fourth Refining Unit for quick and precise review, and improvement to the firefighting piping system. • Staging regular activities for school, temples, and condos within the surrounding communities to educate and cultivate their safety awareness through training on evacuation and firefighting; installing communication and warning systems in all communities; and inviting community representatives to observe in Level 3 emergency drills.

3. Environmental Risks

Emerging Risk

Water Stress	Insufficient water for production processes / change in raw-water quality / rising costs for raw-water reconditioning	• Carry out a project to reduce water consumption and water discharge by applying RO (reverse osmosis) to raw-water processes and wastewater treatment in addition to existing systems so improve water quality to that point that it can be reused. This year, Bangchak successfully cut its discharge and water consumption by 28%. • Appointed a Refinery Water Management Taskforce to study long-term raw-water saving and discharge
Oil spills into the river 	Impacts on environment / society and corporate image	• Require double-hull vessels for crude oil and refined-product transport. • Stage additional oil spill removal equipment is set aside at the oil tankfarm of Thai Public Port Co., Ltd., in addition to the refinery wharf • Improve spills and fire preparedness from transport vessels through joint drills at Si Racha Depot and in transit.
Flaring 		• Completing the enclosed-ground flare project to ease the impacts of flaring on communities by 2016. Improve hardware for work readiness, environmental friendliness, and greater safety.
Climate change 		• Implementing energy and green house gas reduction projects through 3Es Project (Efficrency, Energy and Environment Improrement Project) • Natural gas cogeneration plant project to replace fuel oil with natural gas including a plan to construct a second cogeneration power plant to increase energy efficiency and lower carbon dioxide emissions.

Risk	Impact	Risk Mitigation Measures
		• Energy efficiency projects in refinery (details in energy efficiency chapter) • Energy saving project in office buildings which received ASEAN energy award.

4. Business Continuity Management

To ensure stakeholders that Bangchak can deliver products and operate during crisises, emergencies and incidents, it organized BCM drills by simulating the handling of a 6-Richter earthquake which result in crude tank fires and leaks of crude-oil dispensing pipes.

Risk	Impact	Risk Mitigation Measures
Business interruption 	Business and corporate image	• Conform to ISO 22301:2012 by preparing 10 crisis management plans and 6 BCM plans together with emergency response plans for safety units to prepare Bangchak's resources and crisis response strategies. • Put in place the continuous monitoring and review of work processes to ensure conformity to the system. • Stage annual BCM drills. This year, Bangchak simulated the handling of a 6-Richter earthquake that resulted in crude tank fires and leaks of crude-oil dispensing pipes, causing Bangchak to suspend refining processes and direct oil distribution to a safe and intact oil depot. The resulting outcomes then found their way into an operating procedure

Stakeholder Engagement

Stakeholder (G4-24)	Employees	The society and communities	Suppliers
Engagement Methods (G4-26)	• Employee Engagment Survey • President and employee engagement session • Employees' committee • Company's Intranet	• Assessment of community relations activities / focus group • Community relations staff • Community committee seminars • Community relations activities	• Procurement staff • Bangchak staff (users of Suppliers' products) • Emails, websites • Annual seminar with transport operators and business partners • Joint meetings with business partners
Expectations (end of 2014) (G4-27)	1. On the job safety 2. Career path and growth 3. Employee benefits suitable for economic conditions	1. Operational safety 2. Environmental preservation 3. Prompt communication in case of emergencies 4. Participation in community relations activities, especially in educational and youth development programs	1. Precise demand for tasks, products and services procurement 2. Transparent procurement process that is open for scrutiny 3. Encouraging business partners to observe corporate governance and move forward with Bangchak with sustainability
Responses 2015	1. Upgrading safety standards 3Es 2. Implementing organization-wide Career Advancement Project 3. Providing training on coaching for managers to enhance their skills in coaching and to giving feedback on staff performance 4 Implementing Talent Management Project for staff with high potential to develop their competency to support business growth 5. Conducting activities to enhance staff's relationships, while boosting staff morale to become "The Best Employer"	1. Upgrading safety standards (3Es) 2. Information disclosure and ensuring green production processes 3. Providing real-time 24-hour air quality reports on elecronic board for the communities and the public 4. Advance communication of non-routine work plan and emergency communication system such as the communities public broadcasting system 5. Improving and providing regular maintenance for the refinery-communities public broadcasting system 6. Increasing community relations activities that help ensure confidence in the company's safety and engaging in more with youths development and educational programs	1. Improving procurement protocol to keep up with economic conditions and developing the e-procurement system that runs on SAP SRM 2. Providing training for suppliers on submitting quotations and attaching technical information documents on SAP SRM 3. Conducting supplier seminar on the topic of anti-corruption with Corporate Compliance department 4. Conducting workshops with business partners to improve work process 5. Developing Suppliers' Code of Conduct and expanding its implementation to increase sustainability in line with Green Industry Level 5

(G4-24) (G4-26) (G4-27)

Customers

- Annual surveys on customer satisfaction and brand preference
- Call Center

1. Quick and quality services
2. Convenient locations
3. Availability of restauratns, convenience stores, and clean restrooms
4. High quality and green products
5. Discounts and promotions

1. Setting up a team to develop the Most Admired Service Station Project to improve services
2. Installing Point of Sale Automation at 99% of company-owned, company-operatedstations to ensure faster service
3. Engaging with a consultant to develop customer segmentation to better understand each customer group's demand
4. Developing Hi Diesel S and E20S products by collaborating with a world-leading additive developer and an educational institution to improve product quality
5. Upgrading the CRM system with new essential features to improve the analysis and response to customers
6. Expanding service station network and improving station appearance, while developing non-oil businesses at strategic locations, which resulted in the opening of 38 additional retail stations, 74 Inthanin coffee shops, and 63 Big-C stores in 2015
7. Responding to four cases of customer's complaints within one hour

Service stations

- Dealer
- Cooperatives
- BGN

- Marketing representatives / managers
- Annual customer seminar
- Monthly/Quarterly group meetings
- Call Center

1. Better financial performance
2. Providing support and keeping standards of service stations to ensure competitiveness
3. Sales promotional programs and advertisement
4. Premium-grade products development
5. Financial and equipment support to improve business competitiveness
6. On time/no-loss fuel deliveries

1. Promoting E85 and providing support to non-oil businesses such as restaurants, coffee shop, and Mini Big-C store to increase revenue
2. Installing POS Automation System to enhance forecourt service speed and to prevent product losses and frauds
3. Improving product transportation to enhance truck safety by installing GPS system and CCTVs in all trucks to monitor both drivers and vehicles

Industrial customers

- Marketing representatives / managers
- Call Center

1. Price
2. After-sales service
3. Marketing representatives' service quality
4. Relationship building activities

1. Implementing campaigns to improve sales and after-sales services in each region
2. Providing training on product information and emergency response and improving after-sales services, providing equipment support, regular check-ups, such as emergency drills as well as providing machinery maintenance service
3. Conducting additional relationship building activities

The color of the text indicates the frequency of stakeholders engagement

Purple : Annually Orange : Quarterly Blue : Monthly Black : Regulraly

Stakeholder Engagement

Stakeholder (G4-24)	Government agencies	Shareholders
Engagement Methods (G4-26)	• Site visits • Meeting, clarification, discussions, and participation in government programs	• Site visits • Analysts' / shareholders' meetings • Domestic and overseas roadshows • Annual general meetings • Events for minor shareholders
Expectations (end of 2014) (G4-27)	1. Ensuring compliance with the law and regulations or exceeding legal expectations 2. Corporate responsibilities for society and the environment and sustainable co-existance with communities 3. Good safety and environmental management systems for plants 4. Providing timely information and support for government programs	1. Increase return on investment (capital gain) 2. Regular and reasonable dividend payments 3. Steady and robust revenue growth 4. Prioritizing excellence in the petroleum business - the core business 5. Setting clear goals and directions for business expansion
Responses 2015	1. Complying with laws and regulations concerning business operations and transparency 2. Keeping superior control of environment quality to what is required by law 3. Providing prompt and accurate information to regulators 4. Cooperating with various government agencies to promote green projects 5. Cooperating with various government agencies to develop and improve industry standards such as environmental standards to ensure effectiveness of implementation	1. Investing for growth 2. Conducting business with good governance 3. Systematically managing operational and business risks 4. Focusing on conducting socially and environmentally responsible business 5. Paying regular dividend and at an amount that is comparable to companies within the same industry 6. Increasing communication channels for investors 7. Increasing the number of meetings between executives and minor shareholders 8. Conducting meetings with institutional investors 9. Increasing the frequency of shareholders engagement 10. Developing quarterly factsheets for shareholders and investors to increase understanding of business operations and quarterly financial performance

(G4-24)

Media

- Engagement with the press by public relation staff
- Press conferences / press releases
- Site visits
- Press Tour

(G4-26)

1. Demand for accurate and timely information concerning progress of existing business and new business as well as issues related to the global trend
2. Other information related to the business

(G4-27)

1. Releasing information and holding press conferences to keep the media informed about business progress as well as quarterly and yearly performances
2. Giving interviews on issues of media interest
3. Arranging relationship building activities with the media

Creditors

- Analysts / shareholders' meeting
- Domestic and overseas roadshows

1. Meeting the conditions and agreements on loan and debenture contracts

1. Strictly meeting conditions of loan and debenture agreements
2. Being transparent and responsive to questions from loan officers
3. Conducting engagement activities to improve relations with financial institutions
4. Arranging site visits to instill confidence in business performance and to enhance good relations with financial institutions and shareholders

Competitors

- News
- Networks and marketing campaigns

1. Free competition and fair marketing campaigns

1. Conducting business with transparency under fair competition

The color of the text indicates the frequency of stakeholders engagement

Purple : Annually Orange : Quarterly Blue : Monthly Black : Regulraly

About this Report

Background

Bangchak Petroleum Pcl's Sustainability Report has been prepared annually for the past ten years. This report marks the 11th consecutive sustainability report for the company. The report contains Bangchak's achievements from January 1 to December 31, 2015 and is developed based on an approach compatible with GRI G4 (Global Reporting Initiatives Guidelines version 4.0) 'In Accordance' with the Core option and OGSS (Oil & Gas Sector Supplement) indicators. Bangchak fulfilled the Communication on Progress (COP) requirements of the United Nations Global Compact (UNGC) Advanced Level, covering universal principles on human rights, labor, the environment, and anti-corruption. This past year, Bangchak also analyzed and linked its operations to support the 17 Sustainable Development Goals (SDGs) and to reaffirm its commitment to the UN Global Compact and to response to the expectations of stakeholders and key goals in global sustainability development:

Materiality

Material Aspects and Boundaries were determined using the GRI G4 Guideline (G4-18)

1. Identification of Material Issues

   Bangchak reviews internal needs (corporate goals) and the expectations of external outside the company (G4-25) that are likely have impacts on Bangchak's sustainability in economic, environmental, and social aspects as follows:

   - Internal (Corporate Goals) are identified based on executives' brainstorming sessions, corporate strategy, issues on corporate sustainability, and key short-term and long-term risks.
   - External (Stakeholders' Expectations) are identified based on opinion and expectation surveys, both formal and informal, including consultations, conversations, meetings, seminars, or unstructured interviews, with each stakeholder group in addition to the meetings with responsible sections for the nine stakeholder groups to determine factors affecting the decisions of corporate stakeholders.

2. Prioritization

   Identified material issues that are critical to Bangchak and stakeholders are compared with GRI G4 aspects and indicators. The material issues are then ranked, based on two criteria as shown in the Materiality Matrix below:

   2.1 Horizontal axis represents the significance to Bangchak

   2.2 Vertical axis represents the significance to stakeholders

Materiality Matrix

3. Validation

It was found that this year's material issues by Sustainability Management Committee (SPC) (G4-45), seen in the Materiality Matrix, are almost identical to those of last year, since the key expectations of Bangchak's stakeholders remain relatively unchanged, and some of which need response time. Note that, based on the review of their needs and expectations of this year; transport issues have assumed greater importance. (G4-23)

4. Report scope (G4-17)

This report presents 2015 operating data of Bangchak (BCP), covering the activities of all business groups excluding subsidiaries and related companies, except for environmental indicators, energy consumption and greenhouse gas emissions, which include subsidiaries, namely

- Bangchak Green Net Co., Ltd.
- Bangchak Biofuel Co., Ltd.
- Bangchak Solar Energy Co., Ltd. with data from
- Ubon Bio Ethanol Co., Ltd. (an associated company) included.

As for data on injury rates, the numbers presented include only the offices and the refinery on Sukhumvit Soi 64, Bangchak's key operating sites (G4-21)

5. Report Assurance

This report and selected indicators have been reviewed by an independent third party with experience in reviewing performance related to the oil and gas business. The report under GRI G4 can be treated as complete, accurate, and credible, as detailed in the Assurance Statement on page 78-79

6. Inquiry

For questions or recommendations, please contact

Sustainability Development Office

Bangchak Petroleum Pcl

- E-mail: chongprode@bangchak.co.th
- Phone: 0-2335-4608-9.

Key Sustainability Issues

Key sustainability (G4-19)	Issue defined under GRI G4 (G4-20)	Report Scope (G4-21)				
Economic		**BCP**	**BBF**	**BSE**	**BGN**	**UBE**
1. Good corporate governance and strong financial performance	1. Economic Performance	●				
2. Transparent and effective procurement process	2. Procurement Practice	●				
Environment						
1. Water consumption and water reuse	1. Water	RF+Enco				
2. Water discharge and waste	2. Effluents and Waste	RF				
3. Greenhouse gases (GHG)	3. Emissions	●	●	●	●	●
4. Air pollution and flaring	4. Energy	RF				
5. Energy	5. Transport	●	●	●	●	●
6. Transportation	6. Compliance	●				
7. Compliance	7. Sustainable supplier Development	●				
8. Buidling business partners' capacity on sustainable development		●				
Social						
1. Workplace safety and emergency & crisis management	1. Occupational Health and Safety	RF				
2. Anti-corruption	2. Anti-Corruption	●				
3. Green products and services	3. Product & Service Labeling	●				
4. Responsibilities to customers	4. Marketing & Communications	●				
5. Employee career path and development	5. Training & Education	●				
6. Employee engagement	6. Employment	●				
7. Community development	7. Local Communities	●				

Notes to abbreviations: (G4-20, G4-21)

BCP= Bangchak Petroleum PCL / RF = data from Sukhumvit 64 refinery & office only / Enco = data from Head Office only

BFF= Bangchak Biofuel Co., Ltd.

BSE= Bangchak Solar Energy Co., Ltd.

BGN = Bangchak Green Net Co., Ltd. (data from service stations under the management of Bangchak Green Net Co., Ltd. only)

UBE = Ubon Bio Ethanol Co., Ltd.

Aspect Boundary (G4-20, G4-21)

◐ *Within&Outside organization* ● *Within organization* ● *Outside organization*

There are no changes to previous performance reports (G4-22)

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Corporate Governance

Good corporate governance has always been the cornerstone of the business. Since the founding of the company, the "Corporate Governance Policy", is a guideline for all of Bangchak's directors, executives, and employees. The Corporate Governance Committee is responsible for ensuring good governance route and annually reviewing the policy to ensure alignment with international standards. The committee, which consist of four directors, met three times in 2015. The outcomes of the meetings are as follows.

Policy amendment	Unwavering in spirit	Sharing ideas
• Amended policy on Board's composition during voting - Section 3 (The Board) of the Corporate Governance Policy (revision 12) • Added a policy item on executive compensation - Section 5 (Executives) • Added policy concerning employee compensation to be compatible with Bangchak's performance (short-term and long-term) - Section 9 (Guidelines for directors, executives, and employees),	• Required all employees' to acknowledge and complete questionnaires on Corporate Governance Policy • Required employees to file their annual Conflict of Interest form (G4-41) • Joined a show-of-force parade for countering corruption on Anti-Corruption Day 2015 ("Active Citizen Against Corruption), hosted by Collective Action Coalition Against Corruption Thailand (CAC) at the CentralWorld Plaza • Staged the annual CG Day to improve executives' and employees' understanding of the Policy • Consistently stressed anti-corruption practices and the No-Gift policy	• Bangchak is a role model for external agencies as evident in visitors' request for Bangchak to share experience on corporate governance, including trainees of Senior Executives Course from the Ministry of Labor and Thai Public Broadcasting Service (TPBS) • Bangchak staged the annual 2015 Business Partner Seminar at its refinery and handed out a manual to educate partners on the anti-corruption policy and measures. Bangchak also encourage its business partners to promote them to join the Thailand Private Sector Collective Action Coalition against Corruption

In 2015, to increase the effectiveness of good corporate governance, the committee required annual performance assessment in three formats[/1]:

1. Individual (self-assessment)	2. Individual	3. Committee
Outstanding	anonymous cross-assessment by groups of 3-4 directors for each director	assessment
96.73%	96.50%	97.64%

[/1] Outstanding evalutions indicate the capability and capacity of the Board of Directors, no amendments or changes were deemed necessary

In addition, sub-committees are collectively assessed. Details on the results of policy implementation as well as channel to report potential breaches appear in the annual report under Management Structure page 43 and Corporate Governance page 103.

Anti Corruption

Bangchak is among the first 22 companies to be officially accepted as an ally of the Private Sector Collective Action Coalition against Corruption Council (CAC).
This year, its explicit actions to support anti-corruption commitment included:

- Communicating and sharing knowledge:
  Through KM-We Share online, Bangchak employees learned and completed a test on the Corporate Governance Policy to ensure correct understanding of the policy. The online learning was found to be effective. This year, the policy won executives' and staff's buy-in, and 100% of them passed the test (G4-SO4). In addition, all (100%) executives and employees, used the e-hr (HR administrative channel) to report their conflicts of interest. (G4-41)

- Improving anti-corruption measures:
  Bangchak informed employees, business parners, and those who have business connections with the company, as well as subsidiaries, about the "No-Gift Policy" during festive seasons and all other occasions. The message, sent out for the second consecutive year, reached 100% of the target groups. This is part of the effort to create a norm to treat all stakeholders fairly.

- Sharing ideas with business partners:
  Bangchak held its 2015 Business Partner Seminar as a channel to announce its policy and measures on anti-corruption for the second consecutive years and to persuade business partners to join the CAC. As a result,22 out of 56 business partners, or 39%, have signed the statement of intent to become an ally of the Private Sector Collective Action Coalition against Corruption Council (CAC).

No Gift Policy: Enforced since 2014, this policy solicits cooperation from all stakeholders to refrain from giving gifts to Bangchak's executives and employees on any occasion.

One thing we have observed as a result of Bangchak's No-Gift Policy implementation in 2014 is that it has created both value and worth to Bangchak and its employees. For it not only saved time for the management of many corporate gifts, but it also promoted our employees' participation in good deeds. You see, gifts that somehow cannot be returned are put together for employees to auction, the sum of money from which goes into a lunch project for needy children in schools around the refinery. Above all, the policy eliminates bias and fosters an awareness of doing the best in one's job without expecting any undue reward. I'd like to see this policy spread to all organizations in future.

Ms. Pakawadee Junrayapes
Senior Vice President, Corporate Compliance

The Company would like your coopearation to refain from giving gifts to our executives, employeess and agents working on behalf of the Company and its subsidiaries in any occasions

Sustainability Performance

Local Purchasing
2014 91%
2014 93%

Energy Intensity
Index (Refinery)
105.8

38 hrs.
Employee Training
hour/year
2014 44 hrs.
2015 38 hrs.

Total Revenue
151,683 MB.

SAVE WATER

Low Carbon
COMPANY

Best Employer Score
2014 : 66
2015 : 77

Discharged Water
2014 3,905 thousand cu.m
2015 1,432 thousand cu.m

Total Waste
2014 3,905 tons
2015 1,432 tons

Injury
Severity Rate
2014 1.4
2015 1.3
(Employee)

Economic Performance

Revenue

Revenue
151,140 MB.

This year Bangchak and its subsidiaries derived Baht 151,140 million in sales and service revenue and Baht 4,097 in net profit, with net profit of Baht 5,126 million. The revenue include revenue from the refinery business, the renewable energy businesses including solar power and biofuel as well as from the petroleum exploration and production business.

The sales and service revenue fell by 15.23% due to the over 50% drop in the crude oil price since OPEC had decided to implement a new policy of hiking crude oil outputs to stunt the growth of outputs from outside the cartel. At the same time, major refineries in Saudi Arabia and the UAE started operations this year, thereby lowering imports of petroleum products, which lead to the decline in price of refined fuel. However, due to the incentives to fully utilize the refining capacity, the refining industry steadily raised its average output to 112.9 thousand barrels per day, an all-time high.

Bangchak still focuses on, by and large, fuel sale through service stations. New service stations were launched with an emphasis on high quality and positive image, while existing ones were upgraded to meet consumers' expectations through initiatives such as the solar rooftop project and model service station. As a result, Bangchak again maintained its No. 2 market share. Finally, Bangchak continues to support retail operators, this year the number of community service stations increased to a total of 620 stations.

In addition, Bangchak earned revenue from the sale and administration of the renewable-energy business group-solar farm with sales and distribution capacity of 118 MW and biodiesel business averaging 365 thousand liters per day-and the petroleum exploration and production business, which posted Baht 2,344 million in sales revenue.

Expenditure

Dividend
2,039 MB.

Bangchak's operating expenses decreased Baht 36,698 million compared to last, most of which was due to the decline in crude oil price, the main input cost. At the same time, depreciation grew from the end of last year, with the purchase and installation of more refining equipment to lower pollutants, including a project to lower the volume of water discharge and consumption and a debottlenecking project of the sulfur unit. Other expenses such as social investments including schools, communities, and donations (cash and in-kind) rose by Baht 46 million. Part of the increase in social related spending included construction of a meditation facility and temple. Taxes paid to the government and local agencies rose by Baht 595 million since this year Bangchak derived taxable profit; as a result, it was required to pay juristic income tax along with dividends of Baht 2,039 million, an increase from last year.

Note : Consolidated Financial Statement 2015

Supply Chain Management

Suppliers Capacity Building in ESG

Since suppliers represent a key stakeholder group that contributes to value and growth, Bangchak not only has in place improvement of work processes in line with business partners' expectations, but it also intends to promote its business partners to conduct their businesses in a sustainable manner, in line with Bangchak's business value.

Suppliers

Needs&Expectations:

1. Clarity of work, goods, and services procurement
2. Good, transparent, and accountable hiring and purchasing systems
3. Development of suppliers to adopt good practices and grow together in a sustainable way.

1. **Improved its procurement rules and systems** compatibly with present business competition. Developed SAP SRM to shorten the procedure and time for procurement by 35% compared to procurement made in 2014. Successfully managed procurement time to an average of 48 days (against a target of 60 days).
2. **Supported anti-corruption efforts of business partners** on the Approved Vendor List, since transparency, sincerity, and candor are regarded as key issues for Bangchak's business partners. Bangchak staged a seminar for business partners, with a focus on anti-corruption to communicate the company's policy and commitment as well as practical responses to prevent corruption such as through Bangchank's website ico.bangchak.co.th. In the past year, there were no substantiated cases regarding corruption. Bangchak also encourages such partners to enlist in CAC (Collective Action against Corruption). Out of 56 seminar participants, 22% showed their interest in enlisting.
3. **Developed a Supplier Code of Conduct for Sustainable Business Development,** which consists of Environment, Social and Governance (ESG) criteria, which are a universal approach to sustainable business. The supplier Code of Conduct will be implemented and communicated to business partners for acknowledgment and adoption in their business dealings with Bangchak in 2016. Also, to achieve common sustainable businesses, Bangchak prepared a continuing development plan for business partners, through 2020.

In this fierce world of business competition, business partners play an indispensable role in sustainable business. That's why Bangchak has developed a Suppliers' Code of Conduct for sustainable business development to extend good practices to all business partners so that they may grow and become sustainable together with Bangchak.

Mr. Yodphot Wongrukmit
Senior Executive Vice President
Corporate Administration and Information Technology

Procurement time down
35%

Average procurement days
48 Days

Partners encouraged to join CAC
22 Business

Download : www.bangchak.co.th

Environment Performance

Environment Performance

Raw Materials (G4-EN1)

Maximum Capacity

In 2015, the refinery, Bangchak's core business, was able to successfully increase its maximum capacity to 126,000 barrels per day and maintained, the highest average refining output at 109,000 barrels per day for seven consecutive months. The improvement in refining output was achieved by improving the refinery's reliability both through monitoring, maintenance, and inspection process such as spare part management and employee development as well as operational process improvements. The process improvements lead to continued growth in the volumes of refined products, and, in turn, those of raw materials, that is, crude oil and other blending agents such as ethanol and B100.

Crude oil sources include both indigenous and overseas. When possible, Bangchak maximizes the use of indigenous crude oil accounted for 30% of its crude throughput in order to reduce costs associated with transportation, minimize environmental impacts such as greenhouse gas emission as well as reducing the risks of accidents both on the road and at sea. In addition, the use of indigenous crude supports employments in the local economy as well as help to reduce trade deficits of the country. Crude from indigenous sources also contain lower amount of sulfur than crude from the Middle East, this also helps to reduce Bangchak's environmental impacts. In 2015, The percentage of indigenous crude is lower than last year due to the increase in production, although the absolute volume of indigenous crude procured remained the same.

To further Bangchak uses renewable sources of raw material namely ethanol and bio-diesel which accounted for 6% of total raw material consumption. Reduce crude oil import and support the Ministry of Energy's alternative energy policy,

Crude Oil Sources (%)

Indigenous crude

2013 **48**
2014 **53**
2015 **36**

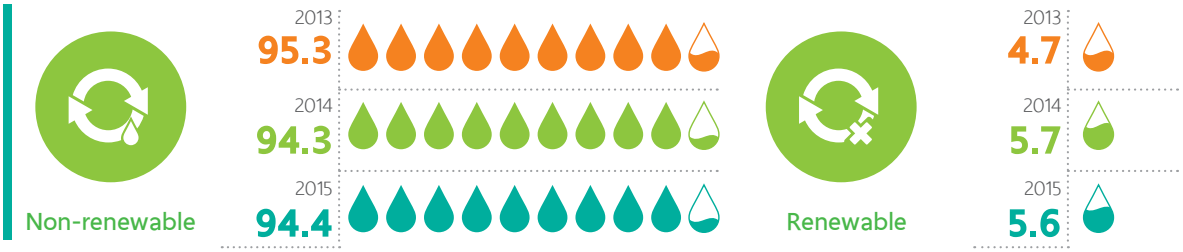
Imported crude

2013 **52**
2014 **47**
2015 **64**

Packaging Development

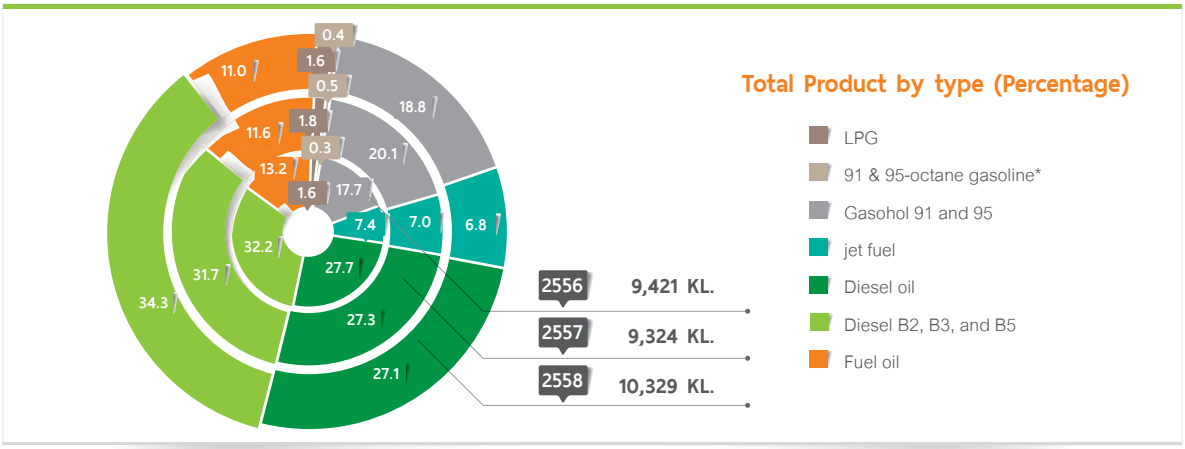
Packaging Development The new lubricant package was redesigned with new shape of gallon container. The new design reduces plastics usage by 2 – 3% while maintaining strength and increasing load capacity. Bangchak has also developed packaging that uses recycled paper and 100% water soluble ink which is chemical free and is biodegradable, leaving less impacts on the environment

Type of Raw Materials Used (%) (G4-EN1)



Products

In 2015, Bangchak's core products including LPG, 91-octane gasoline, 91-octane gasohol, 95-octane gasohol, jet fuel, Power D diesel B2, B3, and B5, and fuel oil rose 11% in volume.



* Since 2013, no 91-octane and 95-octane gasoline were produced from Bangchak refiney, Bangchak procures 91 benzene as base for blending only.

Energy consumption

Use Clean Energy

Bangchak considers energy management to be an important issue. It has in place an energy management policy, energy consumption target, energy management assessment and review plan as well as the ISO 15001 certification.

In the past year Bangchak (BCP) and its affiliates-Bangchak Biofuel (BBF), Bangchak Solar Energy (BSE), Bangchak Green Net (BGN), and Ubon Bio Ethanol (UBE)-consume both non-renewable energy and renewable energy. (G4-EN3)

Energy consumption is not only an important cost in the production process, it also has significant impact to the environment. To reduce energy consumption and make positive impacts to the economy and the environment, Bangchak has implemented three types of projects to both reduce consumption and increase efficiency: 1) loss reduction such as flare reduction; 2) consumption reduction such as switching to high efficiency burner, switching to LED lighting in offices; 3) increasing the share of low carbon energy such as switching from fuel oil to natural gas.

Energy Consumption by Type:

Type / Company	Operation
Fuel gas (BCP)	Fuel gas consumption increase by 12% due to increase in refinery throughput Installed the Recovery off Gas RSU system to reuse fuel gas from RSU; thus reducing loses
Natural gas (BCP & BBF)	BCP: Natural gas consumption increased 51% due to rising refining capacity and due to • Replacement to fuel oil • Replacement for a portion of purchased electricity and steam • the purchase of natural gas cogeneration plant from PTT Plc, to raise efficiency and energy stability of the refinery. BBF: Natural gas consumption increased due to the replacement of natural gas to fuel oil for biodiesel production. In 2015, BBF no longer used fuel oil in its production process, thus lowering GHG emissions.
Fuel oil (BCP)	Consumption reduced by 3%. Fuel oil is currently being used at steam boilers at the power unit only. Bangchak plans to retire the steam boiler unit and replace it by a natural gas-based cogeneration plant, which is due for completion in 2020.
Power and steam (BCP)	Consumption decreased by 50% as a result of the acquisition of the Bangchak Utility Plant (Cogeneration Plant) from PTT Plc
Chaff & wood chips (UBE)	Used as renewable sources of energy in the ethanol business
Power from PV cells & wind / (BCP)	Solar energy and wind energy are consumed in the parking lot on the refinery's compound. BCP generated 0.10 terajoule (95,015.7 megajoules), or about 2.2% of total electricity consumed by offices (equivalent to 12.2 tons of carbon dioxide equivalent).

Stop use fueloil in production process

In 2015, measures to cut energy consumption and campaign to promote energy-saving in the refinery and offices in order to reduce GHG emissions were:

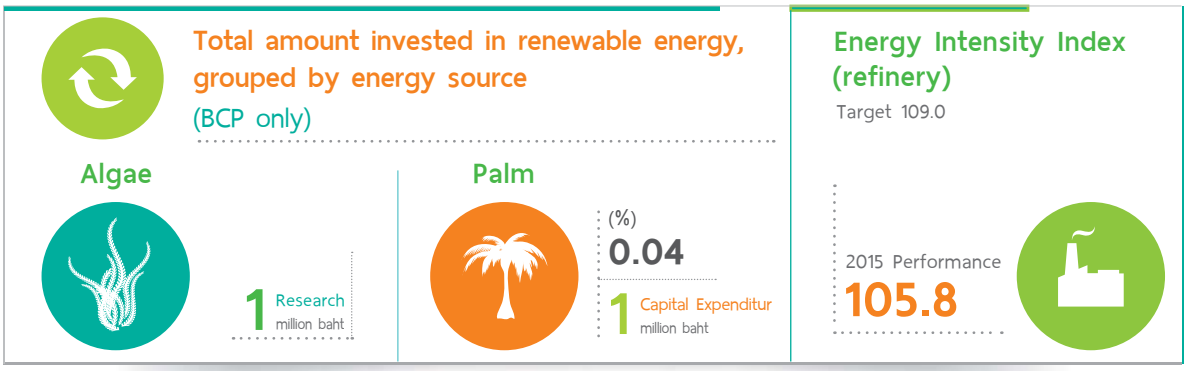
Energy efficiency improvement project (Refinery Business Unit) (G4-EN3)	Reduction in energy consumption (Tera Joules)	Reduction in GHG consumption (TOCE) (G4-EN19)
Fuel reduction projects		
1. Installation of heat exchangers at Topping Unit 3 to raise the efficiency of heat transfer and cut fuel consumption	11.6	648.5
2. Installation of a system to reuse fuel gas discharge from the flare stack, thus reducing natural gas consumption	8.2	462.1
3. Reduction of excess oxygen in the furnaces of the hydrogenation unit, thus reducing natural gas consumption	8.1	455.9
4. Control of the overflash volume of Topping Unit Three, thus reducing natural gas consumption at the furnaces	48.5	2,722.5
Electricity reduction projects		
1. Replacement of the heat ventilation unit's propellers to plastics re-enforced by carbon fiber	1.5	660.5
Total	77.9	4,949.5[/1]

[/1] include CO_2=4,945.4 CH_4 =1.9 and N_2O = 2.2

In addition to energy reduction and energy efficiency projects, Bangchak educated and cultivated awareness of energy-saving and energy reduction through the following channels:

- Campaigns through the smart-display screen inside Bangchak Refinery's compound
- Educational campaigns to employees about energy conservation approaches through the Outlook system as well as activities related to eergy conservation and the environment
- Communication of monitoring outcomes against goals every month through the Outlook system.

In 2015, Bangchak's efforts resulted a reduction of 77.9 terajoules of energy consumption or an equivalent of 4,949.5 tons of GHG emissions. As a result of its efforts, Bangchak won the Thailand Energy Award 2015 for energy conservation, based on building management using technology to maximize appliance efficiency, with a focus on becoming a Green Building controlled by Green Management.



/1 Most investment capital in renewable energy are embedded subsidiary companies: BBF, BSE, BCPG

Carbon footprint

Low Carbon Company

The unpredictable climate resulting from climate change has affected the ecology and all lives on earth. Bangchak understands that it must play a role in responding to climate change; therefore, it has put efforts to reduce GHG emissions from the refinery business group, which is the major emitter for its operations, with the following performance outcomes:

- Projects to reduce fuel and electricity consumption in the production processes resulted in 4,949 tons of carbon dioxide equivalent (TOCE) emission reduction (G4-EN19)
- Bangchak's acquisition of the cogeneration plant from PTT Plc in May. The plant enables more efficient electricity and steam generation to support the refinery by replacing a less efficient steam boiler, resulting in 4,428 TOCE of GHG reduction.

In 2015, Bangchak and its affiliates' GHG emissions were (G4-EN15, G4-EN16) :

- Operational Control Approach - 1,165,888 TOCE
- Equity Share Approach - 1,112,615 TOCE

Bangchak's GHG emission in 2015 was 9% higher compared to the 2013 base year due to the increase in refinery throughput. However, the GHG emission intensity was 4% lower when compared to the base year and the average refinery output increased 13% from base year to 112.9 barrel/day.

Water consumption and reuse

Recognizing that water scarcity risks and problems, Bangchak has set a target for reducing water consumption which is revised down annually based on the environmental management system. To address water scarcity risks, Bangchak has appointed Refinery Water Management Task force to identify long-term reduction in water consumption in addition to the ongoing water-saving measures and to continually reuse water in place of tap water in both offices and refinery processes to reduce consumption as well as reduce the volume of water discharged. In 2015, Bangchak was able to reduce its water use 1,123,179 cu.m. (G4-EN10), equivalent to 28.49% of all water consumption. This year, Bangchak has started a test run of its 3rd waste water treatment unit to be able to handle higher volume of waste water and more variation in quality in order to improve the quality of water discharged.

Save water 28%
of all water consumption

Water consumption rate
(cu.m./barrel output equivalent)

2014 2.19
2015 2.00

This year, Bangchak consumed 2,727,322 cu.m. of raw water from the Metropolitan Waterworks Authority, 14,811 cu.m. of ground water (on a special-case petition basis), and 67,642 cu. m. from the Chao Phraya River for as a back-up natural water reserve for oil tank repair work. In 2015 Bangchak consumed a total of 2,818,775 cu.m. (G4-EN8), or roughly 2.00 cu.m. per barrel of oil output, which is significantly down from last year.

Item	2015 Plan	Outcome
	Reduction in water consumption	
1	Applied the micro-filtration and Reverse Osmosis (RO) systems in water treatment in conjunction with the RO system for tap water and the electro de-ionization to pre-treat raw water prior to entering it into the demineralization system at the Power Plant.	58,885 cu.m./year reduction (1.48% of total water consumption or 42,029 cu.m./million barrels equivalent of oil output)
	Reuse of water	
2	Used high quality condensate water for boilers operations.	534,897 cu.m./year reduction (13.48% of total water consumption or 348,530 cu.m./million barrels equivalent of oil output)
3	Used water from the Sour Water Stripping Unit and water discharged from the stripping stream of Plant 3 instead of tap water in the Desalter Unit.	41,089 cu.m./year reduction (1.04% of total water consumption or 29,328 cu.m./million barrels equivalent of oil output)
4	Treated slightly contaminated condensate water from Plant 4 for reuse in the boiler feed water system	Reduction of 488,308 cu.m./year (12.31% of total water consumption or 348,530 cu.m./million barrels equivalent of oil output)

Air Emission

Disclosure Transparent Confidence

As Bangchak's operation is located in an urban area where surrounding communities include standalone housing, schools, and condominiums, it ensures the highest emission standards, which is superior to relevant legal standards in order to bolster confidence among communities. Bangchak manages its emissions through the choice of using cleaner fuels and a focusing on a process to reduce the number of complaints by proactively communicating environmental data with the community where measurement in air quality is displayed online and transmitted to communities through the intercommunication system to bolster stakeholders' confidence in Bangchak's environmental stewardship.

Bangchak measures air pollutant emissions from production processes, most of which from fuel combustion in the refinery's furnaces, using a third party. Key parameters measured consist of particulates, sulfur dioxide, oxides of nitrogen, and hydrogen sulfide. This year, due to the acquisition of the cogeneration plant formerly operated by PTT Plc in May, Bangchak's air emission grew from 9 stacks to 12 stacks. In addition, production capacity was also increased resulting in higher emissions.

During this year's rainy season, heavy storms caused frequent blackouts of Metropolitan Electricity Authority's power supply, in turn causing suspension in the refinery's operation and necessitating flaring, which was why the stack air quality emitted during such periods was abnormally inferior. To prevent this problem in the long term, Bangchak began constructing a new gas-based cogeneration unit. Once completed in 2017, this project will enhance power supply stability for the refining business, thus, reducing the risks of interrupted operation due to power blackouts; however, Bangchak's overall nitrogen oxides emissions may increase.

To ensure that public agencies and the communities have confidence in a timely, accurate, and continuous reporting of data, Bangchak has designated a unit responsible for monitoring the equipment's performance and supported by a back-up program and additional data transmission channels to the Department of Industrial Works. It has also set aside an additional budget in 2016 for the installation of an Air Quality Monitoring System (AQM) from one location to three locations and for the installation of two additional parameter display screens around the refinery for greater confidence and transparency as well as accountability in air quality monitoring.

Currently, Bangchak has installed CEMs (continuous emission monitoring systems) at five of its stacks

namely the combined stack of Unit 2, stack of the hydrogen unit, and three stacks of the power supply unit. Air quality data at these stacks are reported on a real-time basis to the Department of Industrial Works and at the display screen in front of the refinery.

Bangchak has also appointed a team responsible for the continued measurement and monitoring of equipment repair work in order to minimize fugitive VOCs, which could affect employees and communities. Fugitive VOCs level at Bangchak is set at a stricter control values than required by law.

Equipment that cannot be stopped for maintenance during normal operation, be maintained during the major turn around. In addition, Bangchak continued to invest in the installation of VOC monitoring systems at five sites, which are due for completion in 2016. To assess equipment risks, a risk-based inspection program has been implemented, leading to more efficient equipment inspection and repair planning. However, the total VOC volume emitted to the atmosphere this year exceeded that of last year due to changes in site conditions and production increase. Bangchak installed additional 17,337 monitoring equipment to monitor additional equipment in the production process as well as the co-generation plan, which was acquired from PTT Plc as mentioned above).

Besides the production unit, the **flare stack** is a safety feature for petroleum and petrochemical plants, designed to vent pressure or flare gas from processes particularly during incidents to control pressure within the system. While the flare stack is necessary for safe operations, Bangchak understands that it would lower neighbors' concerns if Bangchak could reduce the frequencies and emissions through the flare stack. Therefore, Bangchak has drawn up a plan to lessen the use of the flare stack and improve its efficiency, easing environmental impacts directly and indirectly as follows:

1. Reuse gas derived from Reformate Splitter Unit (RSU) which was previously sent to the flare stack in production processes, beginning in July 2015
2. Reuse gas derived from hydrocracking and product fractionators previously sent to the flare stack in production processes, beginning in June 2015
3. Control the pressure at the LPG distillation tower
4. Install a ground flare stack, due for completion in 2017, to eliminate emissions from the stack to the surroundings
5. Put in place community participatory communication measures, specifically the notification about Bangchak's annual major turnaround, which typically sees gas emissions from the flare stack to communities. To achieve this, officers personally notify them at least one month ahead of time and communicate with communities via intercom directly and periodically during the turnaround.

Water pollution

Water pollution is a critical issue to the surroundings and communities alike, Bangchak has ensure that water its discharged is treated it to a superior quality to the public sector's standards through physicochemical treatment and biological treatment (Activated sludge).

Reduce Wastewater

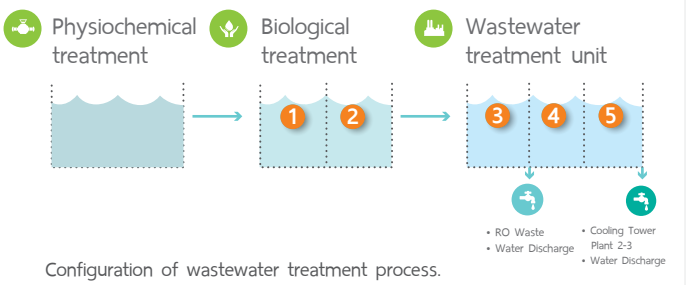
In 2015, Bangchak installed additional wastewater treatment system and a sludge management system to further improve the treatment efficiency as well as decreasing the volumes discharged to public canals by reusing the water, detailed as follows:

1. Biological treatment with an aeration tank: The hyper-classic air injected enables the system to accommodate more discharge, while raising the efficiency of wastewater treatment.
2. The decanter system promotes continuous sludge removal from the biological treatment system, easing the smell problem.
3. A sand filtration tank and an activated-carbon filtration tank increased the efficiency in suspension removal from the discharge through the auto-backwash system which enables continuous operation.
4. A zeolite filtration tank to improve the quality of the discharge before entering the Reverse Osmosis Waste System.
5. The Reverse Osmosis Waste System to increase the volume to recycled water in production processes.

In addition, the discharge quality is inspected by Bangchak's analytical laboratory dedicated to environmental quality, and has been certified by the Department of Industrial Works for private analytical laboratories and the ISO/IEC 17025. Continuous online measurement apparatus ensures discharge quality being superior to standards before discharging, of which this year, a total of 877,825 cubic meters was discharged. (G4-EN22)

Water Discharge

877,825
CU.m



Configuration of wastewater treatment process.

Dr.Chongprode Kochaphum
Vice President,
Sustainability Development Office

Biodiversity refers to organisms, all the various kinds of plants and animals in ecosystems which they live. Although Bangchak is located in the urban area of Bangkok. We try to maintain green spaces, plant trees, and preserve the environment. We succeded in creating habitat for over seventy species of birds. In addtion, Banchak works with the local community in Bang Kra Chao district across the Chao Praya river to increase biodiversity in the areas by planting trees and survey the semi aquatic fireflies (Pteroptyx Malaccae and Pteroptyx Valida) in 6 areas of Bang Kra Chao which we believe will be an indicator that reflects the health of the ecosystem in this area.

Waste and Surplus Materials

Zero waste to Landfill

Waste management is Bangchak's legal duty and responsibility. Waste is categorized as hazardous waste and non-hazardous waste. All waste whether routine or non-routine is managed using the 3Rs (Reduce, Reuse, Recycle) principle in order to minimize waste volume. Waste management process is designed to extract the most value from waste. First, by reusing by-products such as waste from the desalter emulsion process-the main hazardous waste from production processes which has a high heating value and suitable as fuel.

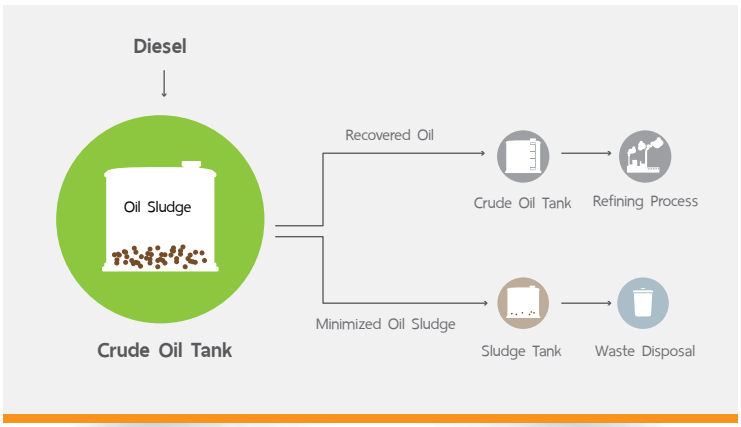
The by-product from desalter emulsion process is used as fuel in cement kilns and burned up at 1,450 Celsius, the resulting ash are combined with raw material and made into cement. Waste that cannot yet be recycled, such as heat insulators-continue to be sent to landfill that fully meet the sanitary requirements for transportation and hold domestic waste treatment licensees from the Department of Industrial Works. As a result, the volume of waste treated with the 3Rs this year amounted to 77% of the total waste.

Zero waster to Laudfill

Bangchak's waste management program has earned.

- 3Rs Awards for plant waste management under the 3Rs
- Zero Waste to Landfill Achievement Awards
- An award for attractive economic returns (3Rs+ Awards)
- A silver medal for its tank-bottom sludge project (in which diesel was used to clean petroleum tanks)
- A special-mention award for its project to reduce sulfur-containing waste by changing the method of taking sulfur out of the pool.

Tank Bottom Sludge Project



3Rs

Transportation

Increase Large Truck For, GHG Emission Reduce

Bangchak arranges product delivery through various means of transport including pipeline, truck, and ship for 42%, 40%, and 18% of the total volume, respectively. In order to become the number one choice in service station for customers while maintaining environmental stewardship, Bangchak has developed a product transport plans to ensure the efficiency, safety, and punctuality of product delivery to meet customers' expectations, while reducing complaints about transport operators' product delivery. Bangchak aims to attain the Service Stations of Choice status among customers in parallel with its environmental stewardship. This year the following plans were driven:

1. Environment

Bangchak employed large trucks (semi-trailer trucks) for clear-fuel delivery to reduce the number of trips. This also lessens the chance for accidents and reduces fuel consumption, thus, carbon dioxide emission. reduces environmental effects, including the possiblity of oil leakage and carbon emissions reduction, whereby the Company has verious measure to continuously control and mitigate associated risks

2. Safety

Bangchak installed CCTVS at four points to assure safety and quality of fuels in all oil trucks belonging to transport contractors. Use of CCTVs can also help monitor travel conditions as well as drivers' readiness and driving behavior in order to reduce chances for road accidents.

3. Quality

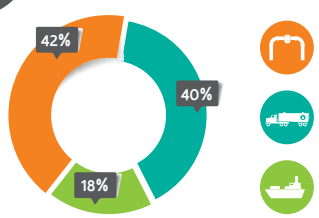
Bangchak's stringent policy is to ensure the quality of oil delivery and customer service. Based on the quality assessment criterion, it will not tolerate more than 3.5 complaints per 1,000 delivery trips. This year the figure fell to 2.4 complaints per 1,000 trips, which represents a 31% reduction from last year.

Number of complaints

2.4 / 1,000 delivery trips

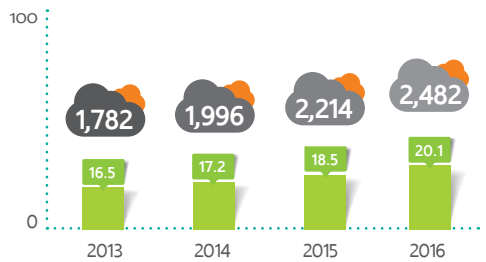
2.4

Ratio of Fuel Transportation Method



Percentage of Clear-Fuel Delivery by Large Truck

Volume of GHG emission reduction (TOCE) (G4-EN30)



As a fuel transporter, I'm particularly proud of working with Bangchak, which is known for environmental stewardship, good governance, and transparency. We are comfortable working with Bangchak to improve transport services whether fleet maintenance, drivers training, procedures for safe offloading, emergency drills, and installation of CCTV cameras and GPS to enhance customers' satisfaction as well as reducing risks and improving safety. We are proud to have earned Best Fuel Transporter Award from Bangchak for two years running. After all, the essence of transport services lies in drivers. On my part, I've implemented several incentive schemes through assorted prizes. I want them to feel proud of their own profession, with a high sense of responsibility for properties, safety to the public, and environmental impact alleviation. All these are critical to the profession. I hope that an ally like Bangchak will actively improve transport services together in the future.

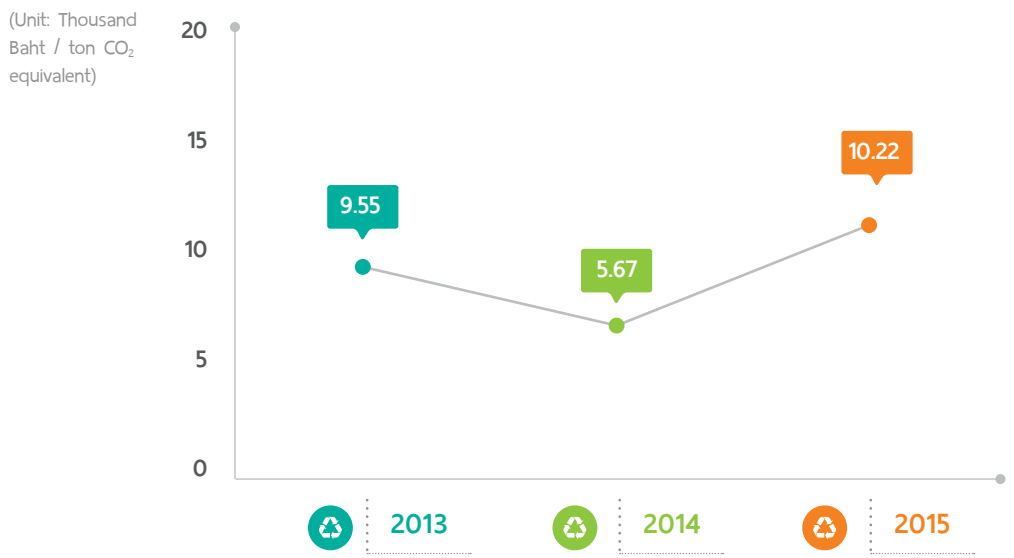
Mr. Rien Thienchaiphong
Managing Director
PSP Transport Co., Ltd.

Eco-Efficiency

Financial Performance : Environment

Eco-efficiency is a management tool for sustainability, linking economic performance to environmental performance. The more effective the operations, the more Bangchak benefits whether from higher revenue and profits or from lower environmental impacts or both. Bangchak uses EBITDAto reflect the economic performance and the emission of carbon dioxide equivalent, which is the most important issue in the petroleum industry, as environmental performance measure. In 2015, Bangchak's throughput was higher than in 2014, resulting in higher energy consumption and greenhouse gas emission while the large drop in oil price lead to lower revenue even though production increased.

Eco-efficiency table



Environmental cost accounting

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

This year's environmental expenses dropped by Baht 28,686 million (23%) from last year's. Almost 99% of the decrease was due to **material costs of product outputs**, which fell by Baht 28,655 million with the 43% plunge in the world oil price despite Bangchak's average capacity rising from 86.48 thousand barrels per day last year to 112.9 thousand barrels per day this year. **The material costs of non-product outputs** also fell this year by Baht 109.30 million (72%). Crude oil that does not make the grade was down by Baht 110 million because there was no major turnaround in 2015. The excess chemicals from the stabilization pool has continued to drop since early 2015 when Bangchak started up the electrical demineralized water system, which eases the burden on the section through ion exchange, which required the use of chemicals. **The expenses for pollution control equipment and environmental protection** expenses rose 23.79%, largely due to the increase 113.06 million Baht in number of environmental systems such as water treatment system to reduce water discharge and air pollution treatment system at the sulfur unit.

The environmental benefit of by products and reuse of scrap decreased by Baht 2 million (10.55%) because iron scrap and surplus aluminum sold for Baht 6.84 million less since there was no major turnaround in 2015 Liquid sulfur and glycerine rose by Baht 4.81 million with the rise in capacity.

(Unit Baht million)

Environmental cost accounting (G4-EN31)	2013	2014	2015
Material costs of product outputs			
Crude Feed	127,407.41	106,781.94	79,314.43
Ethanol	5,551.98	7,043.31	6,872.01
B100 biodiesel	2,971.28	3,993.63	4,407.44
Used vegetable oil	35.76	18.70	19.92
Chemicals	39.88	41.28	106.08
Process water	40.03	29.48	33.02
Process energy	3,964.21	3,779.22	2,278.92
Material costs of non-product outputs			
Slop oil	107.51	142.98	32.49
Oil sediments from crude/fuel oil tanks	2.19	0.25	0.00
Effluent	6.65	8.14	9.64
Excess chemicals from stabilization pool	1.71	0.34	0.26
Low-quality sulfur	0.00	0.04	0.05
Waste and emission control costs			
Environmental equipment maintenance	34.74	53.38	30.34
Pollution control equipment depreciation	128.70	240.94	354.00
Effluent treatment	4.54	6.71	7.38
Waste disposal	6.93	12.72	6.11
Environmental fees and taxes	N.A.	N.A.	N.A.
Fines	-	-	-
Prevention and other environmental management costs			
Monitoring and measurement	5.39	16.73	11.10
Waste storage area depreciation	0.25	0.21	0.13
System operation	0.07	0.23	0.30
Environmental equipment maintenance	0.47	0.00	0.30
Benefits of byproducts and recycling			
Liquid sulfur	(4.26)	(8.64)	(13.30)
Glycerine	(0.66)	(0.38)	(0.52)
Iron and aluminum scrap	(10.89)	(10.27)	(3.42)
Paper	(0.05)	0.00	0.00

Developing Sustainable Products and Services

To become the
Service Station of Choice

Customers'

Needs&Expectations:

1. Good and efficient service
2. Convenient location
3. Complete with restaurants, convenience stores, and clean restrooms
4. Quality and environmentally friendly products
5. Discounts

Bangchak has developed plans and long-term goals for products and services quality as well as target for sale volume, which serves as an indicator for selecting products and services offering in order to become the "service stations of choice" among consumers by 2020. In 2015, Bangchak set itself up for market expansion through increasing effort in expanding non-oil business, innovating new environmentally friendly products, and adding value to customer.

Products tailored to consumers

From the beginning, Bangchak has been committed to developing renewable energy sources, innovating environmentally products and promoting the use of alternative energy in the country in line with the government policy to increase energy security and reduce reliance on foreign fuels. This year, Bangchak invented and developed E20 S a new, higher-quality grade of gasohol based on three main factors:

1) Produced using Green S technology derived from sophisticated refining processes which leads to higher quality fuel which contains less than 10 ppm sulfur to meet the Euro 5 standard, exceeding regulatory requirements.

2) Contains the exclusive S Purifier to strengthen engine performance. The purifier cleans the engine and prevents clogging of the injector, leading to more complete combustion and less pollutant emissions.

3) Contains S Modifier which helps to reduce friction and lubricates cylinder walls, adding engine power and saving more fuel. In short, this new formula both provides power and clean combustion.

The new product was well received by the customer since its launch, leading to an increase in revenue of 8%.

With the latest technology, Bangchak also developed the **D3 Long Life** API CI-4 Plus SAE 15W-40 lubricant with outstanding quality that can extend the cycle to 60,000 km. The lubricant is designed for high-torque and heavy-duty engines, containing extra-strong lubricating film and a special additive that prevents engine wear and has high viscosity index, provides more efficient engine-cleaning and dissipation of soot and sludge.

Bangchak serves not only as a supplier of goods, but also as a benefactor of all cooperative processes and society by enabling cooperatives to hold Bangchak shares and acknowledge all steps of management in a transparent way. It supports marketing work and jointly develops service station standards for serving customers, together with landscape improvement and sales systems. Bangchak is today regarded as an integral part of cooperative processes and Thais in a secure, prosperous, and sustainable fashion. Indeed, the emblem of cooperatives lies in the green leaf, representing true friendship of Thailand's cooperative processes.

Ms. Suranee Suthiwatthananiti

Manager, Kantharalak Agricultural Cooperative, Ltd.
Kantharalak Agricultural Cooperative Bangchak service station, Si Sa Ket province

Bangchak's continued commitment to renewable energy and new product innovation has enable it to retain market share and the number two psition in the retail market for refined fuel for the second consecutive year. In 2015, Bangchak posted 8.7% increase in revenue compared to last year.

Bangchak has developed a "More Renewable Energy, More Value" Card for its **Gasohol Club and Diesel Club** as a way to build customer loyalty for

Under "Greenergy Excellence", our service station's policy and approach agree with the policy, whether environmental conservation, water-saving campaigns, or garbage sorting to reduce garbage volumes and promote proper disposal, not to mention installation of wastewater treatment as required by law. In addition, we've focused on standardized forecourt services.

Mr. Pairat Phitakphongphana
Partnership Manager
P.Charoenrat (2535) Limited Partnership, Amphoe Phon, Khon Kaen province

customer who buy renewable fuel. In order to increase revenue from renewable fuel, Bangchak offers free membership to customers that can be picked up at their convenient at Bangchak service station or at Inthanin Coffee shops. Customers receive benefits such as points based on fuel and non-oil purchases.Currently, there are over 1.1 million Gasohol Club cardholders and over 350,000 Diesel Club cardholders.

This year, Bangchak introduced a special campaigns to promote renewable energy which offered 3x discount, from 0.20 to 0.60 baht/liter, which ran from September 1 to October 31 for users of E20 and E85

Consumers who use renewable fuel are also contributing to carbon dioxide emission reduction.
Greenhouse gas emission reduction based on customer' sale slips and Club Cards were:

Developing service-station services that cater to customers' needs

Bangchak service stations are developed to not only cater to customers' explicit needs, but were also developed to anticipate their needs beyond their expectations, while adding value for society and the environment. Bangchak service stations offer fresh food from quality local raw materials, prepared by experienced chefs under the Lemon Kitchen brand as a healthy option for customers instead of processed or frozen food. Cooked on site at its service stations, Lemon Kitchen is now open at Chon Buri Bypass Road (Km. 1), Cha-am Park, and Ratchaphruek branches.

Nowadays, Western lifestyles are creeping up on Thais. Eating out in a hurry becomes a norm, prompting people to increasingly turn to microwaved dishes to the point of overlooking the nutritional value of fresh cooked food. That's why Bangchak has paid more attention to the needs and health of consumers and is advocating the notion of new-look restaurants that are modern and health-conscious, leveraging toxin-free local raw materials and "green" containers to lower risks and long-term health hazards, defined by 4Fs:

- Fresh Food Cooking - quality and hygienic
- Fast & Convenient
- Fine Design - open kitchens
- Fusion - creative novel dishes.

Mr. Sethawut Nipholvechpaiboon
Manager, Food & Beverage Business Development

From the coffee shop business to a business that grows with the environment

In its ninth year, Bangchak's Inthanin coffee business thrives at some 400 locations serving motorists across the country. Today, Inthanin is turning into a coffee shop that pays more attention to the environment and society.

To Bangchak, a good business must live in harmony with nature. It therefore joined the Earth Net Foundation in developing select organic coffee for consumers: all production steps are free of chemicals and preserve forest floors under the Coffee Conserves Forests Project. The coffee tress are planted under the shade of preserved forests which helps farmers to recognize the value of forests as well as to reduce chemical use, since the planted areas are biodiverse, which makes it hard for pests and diseases to thrive. What is more, farmers can sell their coffee beans at a premium.

In an effort to further reduce waste, Bangchak introduced biodegradable cups for its coffee, replacing plastic cups at all Inthanin shops. This year, Bangchak was able to cut some 400,000 plastic cups a month. In addition, it initiated a promotional campaign incentivizing customers to reduce waste; custoers who bring their own cups receive a five-baht discount per cup. The campaign has received a very positive response with some branches experiencing about 10% of their sales from customers who participated. Finally, customers who come into the shop can charge their phones from electricity generated from onsite solar cells.

Ms. Naowarat Lim
Inthanin Coffee Shop owner
Wiset Baw Thong, Samut Prakan,
and Bangchak Service Station,
Phu Thara Petroleum Co., Ltd.,
Phetchaburi province

I began as a diehard fan of the Inthanin brand, hooked on the aroma of coffee at reasonable prices, in addition to Inthanin's valuing of the environment. Once I've become an owner of Inthanin, I've grown even more proud of the brand. For we got to visit a project on 'organic coffee conserves forests' in Chiang Rai, where coffee is indeed planted in forests and local people are hired. So these locals don't have to work away from home. Forests are not destroyed; what's even better is they now grow more forests. So, in other words, the smiles of contented coffee planters are conveyed through quality coffee seeds to consumers at our Inthanin coffee shop!

Sustainable growth in parallel with community service stations and farmers

At the 25th anniversary of community service stations, Bangchak recognizes the value of farmers who own this business. Community service stations are one of the main channels for income distribution to communities. This is why Bangchak has always valued development of such service stations.

Bangchak launched the **Love Cooperatives Project** to ensure awareness among new-generation cooperative members of the importance of supporting the cooperative business so that it grows hand in hand with the overall community economy. To this end, it has develop various tools to grow the capability of service stations, such as the Triple M training, co-organized by Bangchak and Thammasat University to educate cooperative executives on business and administration for the third consecutive year, and development of the member card database system linking to the cooperative business database through POS (Automation Point of Sales) to shorten process time, enhance accuracy, and help cooperatives analyze members' behavior to decide sales promotional items that truly cater to customers' needs.

In addition to the development of community service stations' capability, Bangchak supported marketing activities to help improve sales, this includes **a project to give discounts to farmers' credit cards** to ease their energy expenses during hard economic times, and a project with the Daily News newspaper, in which a discount coupon project was staged with the paper to increase sales of refined fuels and lubricants through community service stations.

Finally, Bangchak added to cooperatives' income by initiating a move to develop a power plant project on community service stations that are capable to enhance energy security and cooperatives' income. Now, Inthe process of obtrin the rights to participate in goverment project.

Mr. Pongchai Chaijirawiwat
Senior Executive Vice President
Marketing Business

Community service stations: Concurrently creating CSV for Bangchak and society. Through the past 25 years of Bangchak's development of agricultural cooperative networks to run the gas service station business, we've witnessed business movement that addressed the needs of farmers and customers. Clearly, Bangchak has created value and together with these community service stations created 620 social enterprises across the country that generate sustainable income for over 1.2 million households. These service stations are a concrete result of the Sufficiency Economy philosophy, for investments are compatible with the available capital. Gradually, they have strengthened communities.

For the second consecutive year, retail market leader **No. 2**

Customer satisfaction

81.2%

Generated income for communities
with two sales promotional items: from Phu Fa Indian gooseberry juice and : from organic brown rice

10 million baht

Service stations with sharing values

Recognizing the value of a sharing society, Bangchak has staged a number of activities to promote the sharing concept:

1. **Refuel & Share activity:** Customers in Nakhon Ratchasima were invited to contribute to drive for a fund to construct the HRH Princess Maha Chakri Sirindhorn Tribute Building at Maharat Hospital, simply by refueling at Bangchak service stations in the province. A contribution of 0.10 baht/liter went to this fund.

2. **Donation through Bangchak Card:** Accrued points on the Gasohol Club and Diesel Club can be donated to charitable organizations or a relieve fund for earthquake victims in Nepal.
3. **100,000 Shares Preserve Forest for Thais activity:** Bangchak donated 10 baht to the Seub Nakhasathien Foundation each time someone shared stories about the activity on Facebook.
4. **Support to community goods or goods produced under royal initiative projects:** To create jobs and divert income to local areas, thus strengthening community economies, Bangchak gave out such goods as sales promotional items for motorists that refueled at Bangchak service stations.

Two sales promotional items:

- "Phu Fa Indian gooseberry juice": a product of the Sustainable Forest Management Project under the royal initiative
- "Organic brown rice": a product of the Choen Tawan Farm community enterprise (Rev. Monk W. Wachiramethi), a chemical-free organic farm product.

Responsibility to customers

2 Innovations From Customers' Suggestions

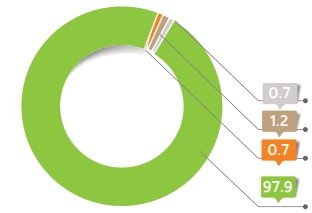
Having developed guidelines to suitably and promptly meet customers' needs, Bangchak has regularly improved its complaint acknowledgment process and pursued opportunities for innovation, based on customers' input. Since 2014, it has implemented proactive plans to receive customers' complaints through various channels and automated programs, including social media and online forums to monitor customers' complaints even though they may not have come directly through the official channel. This way, Bangchak ensures that customers' voices get proper treatment and shows sincere responsibility to customers.

New guidelines developed in 2015 include:

1. Requirement on shorter response time to customers for critical complaints
2. Monitor and assess the satisfaction and refueling return of customer groups that had filed complaint with Bangchak and setting complaint-resolve periods and complaint-makers' satisfaction as KPIs.

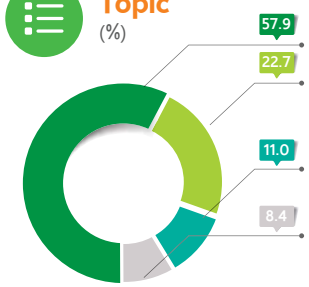
Complaint and comments received

Contact channel (%)



Online forums
Facebook
Website
Phone

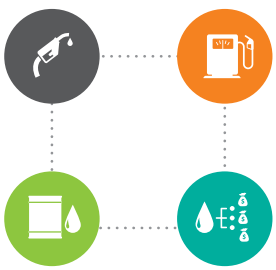
Topic (%)



Card membership
Complaints
Info inquiry
Recommendation on service/others

Action taken on complaint

- Record complaint on SAP CRM system
- Forward it to relevant units to acknowledge, fix, notify customers
- Assess satisfaction to resolve complaint. Unless action is taken within two days. For major cases response to customers must be made within one hour. Major complaints include: tank-overflown, refueling with wrong fuel, water getting into fuel tank, and fraud.



Outcomes (%)

Customers' satisfaction with responses to complaints / recommendations

87
Average satisfaction

Average days for closing a complaint

2.5
Day per case

(Complaints about service station, Inthanin, Mini Big C, Car Care, and dealers' complaints)

Complaints about leak of customers' information (G4-PR8)

0
Complaints

Innovations from customers' suggestions

1. Place fuel type label on pump handle to prevent fueling with wrong fuel type. After implementation, the number of complaints concerning wrong fueling reduced from 14 cases to 1 case.
2. Install a water filter trap in the fuel dispenser to improve fuel quality. After implementation, the complaints reduced from 5 cases to 2 cases.

- The Office of the Consumer Protection Board presented its award for Outstanding Consumer Hotline for 2014 and 2015

Social Performance

Social

Safety and Occupational Health

3Es Principle: for Everyone Goes Home Safely Everyday

Security, safety, and occupational health are vital to the petroleum business, not only to Bangchak but also to stakeholders, namely employees, contractors, and communities. This is why Bangchak has implemented a Security, Safety, and Health Policy that requires employees to perform their duties safely to protect themselves and their colleagues according to the law, regulations, and international safety standards.

(For the Safety, Security, Health, Environment, and Energy (SHEE) management structure, please refer to page 57 of the Sustainability Report 2014.)

Safety

Bangchak has laid down groundwork for Process Safety Management (PSM), with Dupont as its consultant, and appointed a PSM Governance Committee (PSM GC). Bangchak's "3Es" safety values are:

- Everyone goes home safely every day
- Environment and Asset are protected
- Efficient and Reliable Operation

A safety culture and safety awareness are cultivated in all employees through the Felt Leadership (FL) Project, behavior as a safety leader, Field Risk Assessment (FRA), and raising awareness and understanding of hazards among workers. In addition, job safety standards such as Lock Out Tag Out (LOTO), Line Break (LB), and Hot Work (HW) are adopted to reduce risks.

When one looks at the "P" in BCP values, one ponders Pursuing Sustainability. To this end, Bangchak has introduced the 3Es principle to lead to business sustainability, involving safety, environmental, and properties, apart from stable, efficient processes, and safety culture transformation to internationalize our own safety management system. Also, it leads to employees' and contractors' appreciation and mastery of safety and safety culture at all production stages. All these achieved, we can be sure that everyone goes home safely every day.

Mr. Anek Eknikhom
Senior Vice President,
Safety, Health, and Environment

Health and Occupational Health

Bangchak takes proactive approach to occupational health by instituting Health Risk Assessment for workers and workspace design and controlling hazards from their sources. It regularly inspects and monitors work environment in order to develop effective protective and remedial measures. Finally, it improves work space to allow for a safe work environment as follows:

- Physical examinations from first days on the job, throughout the service years, to seperation
- Annual physical examinations covering general check-up / occupational risk-based examination by Bangchak's occupational medical doctors and occupational health officers, who jointly select risk-based examination items and analyze outcomes from internal and external factors. If an employee is found to have developed abnormal conditions, they must consult doctors and receive regular follow-ups.
- Implementations of work procedures, monitoring and inspection according to international standard, and preparation guidelines for at risk employees and those who have been diagnosed with abnormal examination outcomes at low, medium, and high levels.
- Contractors' occupational health measures, including work space allocation, procedures, protective equipment, and training
- Medical emergency drills are conducted to help Bangchak's rescue team and the rescue teams of contract hospitals to rehearse and ensure clear roles and responsibilities so that they can provide more effective response.

Bangchak monitors the effectiveness of its safety efforts for its employees and contractors through the following indicators: Injury Frequency Rate (IFR), Injury Severity Rate (ISR), and Total Recordable Injury Rate (TRIR).

Injury Frequency Rate (IFR)	Injury Severity Rate (ISR)	Total Recordable Injury Rate (TRIR)	Work-related illnesses and Fatality
1.3	8.6	5.2	0 (Total Workforce) / 0 (Contractor)
Total Workforce	Total Workforce	Total Workforce	Total Workforce / Contractor

Bangchak has added measures for root-cause analysis investigation, implemented lessons learned in work improvement and stricter operation control to prevent recurrences, developed short-term and long-term improvement plans, and instituted monitoring of completed corrections and communication with related parties. In addition, on-going activities to promote personal safety are conducted to cultivate safety culture within Bangchak.

Employee stewardship

Best Employer Score 70

Employees'

Needs & Expectations:

1. Work safety
2. Career path and growth
3. Employee benefits suitable for economic

Bangchak regards its employees as important stakeholders who are vital for creating sustainable value for the company. Bangchak , therefore, put emphasis on manpower design and employee development plans that are designed to promote employees' engagement as well as prepare for business expansion. To tangibly measure the results of such efforts, Bangchak joined the Best Employer program in 2014 with an intention to become the Best Employer by 2021. This year, based on the program survey, employees gave Bangchak a score of 70%, up from 66% from the previous year. The improved score was a result of various projects to response to employees' needs and expectations. Projects implemented in 2015 were:

Manpower design

To ensure that Bangchak has capable and sufficient employees for future business expansion. Bangchak analyzed and designed short-term (one year) and medium-term (three years) manpower plans in conjunction with the business strategy. In addition to manpower design, Bangchak made organizational structure changes to support business strategy and expansion, reassign staffs to best support the business, and seek capable employees within the organization for promotion and give them more opportunities and growth.

Employee retention

Bangchak makes full effort to retain talents so that they stay with the company. Every year, the company reviews its employee compensation and benefits structure by benchmarking it against peers in the petroleum and other related industries. Due to the efforts, the turnover rate reduced from 4.36 in 2014 down to 2.67 in 2015.

Staff recruitment and selection

Bangchak selects employees based on merit and fit. Its recruitment policy does not discriminate against race, religion, or education institution. **It targets only capable and ethical candidates.** In addition to its various staff recruitment channels, Bangchak welcomes candidates from the communities surrounding its refinery, regional offices, and communities with close connection to service stations operated by dealers. The approach helps Bangchak get hold of views from community people and customers in prime areas, thus enabling it to better respond to their needs and expectations.

Staff development

To prepare for business expansion and respond to employees' opinions in the '**Best Employer**' survey regarding career growth and opportunities, Bangchak developed a ***Career Path Project*** for employees at every level. Employees are encouraged to plan and design their own career path by putting the position of their interest into a ***Career Passport*** and engage in a discussion with their respective superiors on how to reach their goals. Employees can select from either the management path or the specialist path. Bangchak also has a ***Successor*** plan in place for key management posts which are position from directors upward. Executives go through a 90-degree assessment (self & boss) of the Assessment Center and the ADEPT personality test, based on Bangchak's Leadership DNA of 'five gives'. The results of the assessment enable the company to fill key positions in time for the business changes. Moreover, Bangchak developed its ***Young Talent Management*** Project intended for employees receiving high performance scores for at least three consecutive years, these employees are considered future leaders. To this end, it initiated the ***BCP High Performance Coaching*** project, which primarily involves learning and communication between the management and staff. The project consists of three modules: Module 1: coaching for development; Module 2: coaching for career; and Module 3: coaching for performance. The program helps executives to become effective coaches who can communicate their knowledge and experiences to their staff. The program focuses on self-development and team work which lead to higher engagement and lower turnover rate.

New recruits

persons

2013	2014	2015
44	64	112

Resignation

(%)

2013	2014	2015
3.31	3.47	2.67

Training

Bangchak develops employee's skills and competency by encouraging continuous learning, in line with Bangchak's value. The **Training Roadmap** based on the Competency-Based Development method was developed for each employee group. The Roadmap covers:

- Managerial Skill Development
- Technical Skill Development - by using a strategy in which experience learning : coaching : training ratio of 70 : 20 : 10
- English Skill Development - to enhance fast-track development of English proficiency among staff to accommodate overseas expansion. Staff can opt for self-studying using the NYC Program and Global English Program provided on an application so that they can access the lessons and learn anywhere at any time. Bangchak tests employees' English skills annually.

A survey on staff loyalty

to measure the properties of "Best Employer" is carried out every year. Findings from the survey will be compared with those of leading companies at the global level to further raise employee satisfaction and become an Employer of Choice.

Mr. Vichian Cherdchai

Telecommunication Network and Service Division
Yoga teacher, spending holidays sharing yoga expertise with neighbors around the refinery and fellow employees under the Bangchak Yoga activity of the One Family Project.

I am so proud to be a Bangchak employee, because I have the opportunities to share my personal interest, yoga, with to members of the communities around the refinery and fellow employees so that they can lead more healthy lifestyles and take better care of their health. Yoga means to unite. The depth of yoga is just the unification of body and soul, but this union also implies being one with the surroundings. So, having such opportunities is like the union of ourselves and a caring society-as a single family.

The Bangchak Petroleum Plc Labor Union (G4-11)

Bangchak Petroleum Plc Labor Union, set up under the law, counts 20% of the workforce as its members, Bangchak Petroleum Plc Labor Union cooperates with the Bangchak in looking after employees' well-being through regular consultations with top management and collecting feedback from employees about their needs to improve labor conditions. Bangchak also established an Employee Committee, consisting of 13 union representatives who were elected by employee. The committee is engaged in consultations with representatives from top management on matters of employees' welfare and benefits. To date, the consultation sessions have gone well, with all concerns or queries properly addressed, thus resulting in high employee satisfaction.

In addition, Bangchak provides basic and necessary trainings on environmental subjects to its employees. Environmental trainings include: Reverse Osmosis, ISO 14001, ground water standards, wastewater management, and environmental management during annual turn-around as well as provides information updates such as EHIA, environmental technologies, water footprints, regulations related to industrial emissions, and wastewater mangement.

Average training hours

38
hours / employee / year

Individual development plan

100%
of employees

Internal promotion rate

increased from 15.02% to
18.25%

**Regarding three minor issues (career path, management of capable and ethical staff, and learning and development), a survey around late 2015 showed that staff are more satisfied with stronger bond with the company in all three aspects following serious implementation of the plan in these areas throughout 2015.

Community and social engagement

For solidarily, prosperity, and safety

Community

Needs & Expectations:

1. Safe operations
2. Environmental preservation
3. Prompt communication in case of emergencies
4. Participation in community relations activities, especially in educational and youth development programs

Development of communities around the refinery

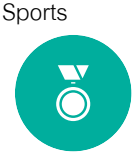
For over 31 years, Bangchak has demonstrated its social responsibility to society and the environment. The commitment starts from Bangchak's policy and analysis of needs and expectations, which are part of the stakeholder analysis process. Results from the analysis are used to develop the best responses and engagement activities. The activities are designed with due regard for different lifestyles of different groups around the refinery. Bangchak categorizes stakeholders around the refinery into four main groups: community, school, single family household, and condominium. The last group is a new group of stakeholders who came into the area later and are growing in number, due to the popularity of condominiums along the BTS train routes. Community relations activities must therefore be diverse to fully address the needs and expectations of each group. The approaches and outcomes of the work done this year for community goodwill, benefits, and safety are shown below.

Target group	Community	Household	School	Condominium
Residential Area	11 communities in Bang Na and Phra Khanong areas and one community in Tambon Bang Nam Phueng, Amphoe Phra Pradaeng	5,301 households subscribing to Khrob Khrua Bai Mai bulletin	15 schools in Bang Na, Phra Khanong, and Tambon Bang Nam Phueng	14 condominiums around the refinery
Communication Channel	• Community relations officers, • Engagement activities • Community alert system • Rob Rua newsletter	• Community relations officers • Khrob Khrua Bai Mai bulletin • engagement activities	• Community relations officers • engagement activities	• Community relations officers • Khrob Khrua Bai Mai bulletin • engagement activities
Needs & Expectations	1. Safe operations 2. Environmental preservation 3. Prompt communication in case of emergencies 4. Participation in community relations activities, especially in educational and youth development programs			
Community Engagement Theme	Develop capability of community leaders and youths. To promote good people with volunteering spirit, community self-reliance, and less debts as well as supporting Sufficiency Economy principles and promote biodiversity	Promote volunteering spirit and improve the quality of life	Develop youths into capable adults with ethics and volunteering spirit, promote literacy.	Foster relationship, establish trust and promote participation in activities

Goodwill	Benefits	Safety
84%	82.2%	82.1%

In addition, Bangchak hires a third party to conduct annual community surveys to gauge target groups' needs and expectations and report these to Sustainability Management Committee (SMC) every year. For 2015-2016, Bangchak initiated a **Community Engagement** survey to assess both the methods and the outcomes of community relations activities in various areas so as to identify potential issues for future development of communities and society.

Local projects

Aspect	Expectation	Ongoing project
Education 	• Youths learn and develop in keeping with their age groups. Cultivate awareness of being ethical and capable.	• Bangchak Exemplary Youths, Yr. 1 • My School (Bangchak Big Brothers & Sisters), Yr. 13 • Wide World of Learning with Bangchak, Yr. 12 • Project Citizen, Yr. 6 • Bangchak Youth Scholarships, Yr. 11 • Read and Write with Ease (Literacy), Yr. 2 • Waen Kaew, Yr. 11
Safety 	• Confidence in the refinery's safety • Swift and effective safety response during emergencies	• Emergency plan training and fire drills for schools, communities, and neighboring condominiums • 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" chapter.)
Sports 	• Strong and healthy youths • Drug free community • Income generation • Increase educational opportunities through sports	• Bangchak Youth Futsal, Yr. 12 • Bangchak Youth Soccer Club, Yr. 9 • Construction of a Sports Center on the compound of the Secretariat Department officers' residences, Office of the Permanent Secretary of Defence, Bang Chak
Quality of life 	• Enhance the quality of life	• One Family, Yr. 22 • Healthy Community, Yr. 6
Environment 	• Recognize environmental problems and use resources conscientiously	• Thot Pha Pa, Raksa Ton Nam, Chaiyaphum province, Yr. 11 • Roving Family: Plant Saplings to Restore the Forest to Phu Long, Yr. 5 • Purchase of Used Vegetable Oil from Communities around the Refinery, Yr. 4 • Firefly Routes, Conservation Ways, Yr. 2
Relations & conservation of culture & customs 	• Forge cordial relations between the refinery and neighbors	• Roving Communities, Yr. 7 • Fill-up with Knowledge with Bangchak Refinery, Yr. 10 • Khrob Krua Bai Mai bulletin (Yr. 11) and Rob Rua newsletter (Yr. 11) • Sanook Kit, Wan Pid Term, Yr. 6 • Bangchak Children's Day, Yr. 31 • Songkran traditional blessing day with seniors • Visits to communities on Father's Day, Mother's Day, New Year's Day, etc. • Condo rallies

Aspect	Expectation	Ongoing project
Economy	• Create jobs and open up opportunities for people in the community to leverage their knowledge and competencies to work on tasks helpful to themselves and families	• Sufficiency Community, Yr. 1 • Purchase of food and snacks from community outlets to generate community income worth over Baht 140,000 • Admission of qualified locals to Bangchak • Allowing community food outlets to serve contractors during turnarounds

Bangchak's help has improved the illiteracy problem of children in schools surrounding the refinery. Children now can read and write! When you are illiterate, it's like living in the dark. What could be worse than losing one's confidence? Literacy leads to so much opportunities. So it's really a charitable deed for the children, and I thank Bangchak for addressing this problem. It's a national problem that all sectors must take seriously, as Bangchak has done.

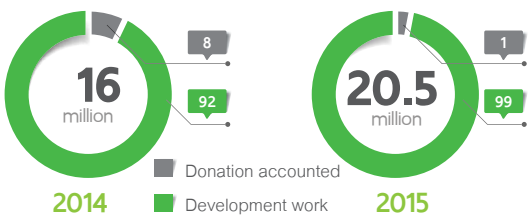
Ms. Somporn Sewiwallop

Director of Wat Bang Na Nok School,
Bang Na District Office, Bangkok Metropolitan

The total hours of Bangchak volunteers' work around the refinery (hours and Baht)

2014 (hours)	2015 (hours)
6,395 hours	6,723 hours
(worth Baht 1.19 million)	(worth Baht 1.59 million)

Percentage of the budget for social investment around the refinery



What impressed me the most about working at Bangchak is that I feel like I am working with siblings and am among family member. When I coach people here, I stress the importance of safety and try to boost their confidence and their colleagues' confidence that they'll be able to perform well.

Mr. Narongrit Chanthes

Vocational Training Project Bilateral System, class 1
Currently an Engineering Service Division Employee

Satisfaction with community relations activities around the refinery (Target 90%)

2012	2013	2014	2015
99.15%	98.0%	97.0%	98.2%

Macro Projects

Bangchak relentlessly extends sustainability practices across the value chain and its stakeholder groups through various projects in order to demonstrate the highest commitment to the society and the environment. Bangchak promotes sustainability not only for business growth, but it also aims to extends good practices to the supply chain and stakeholder groups.

Aspect	Project
Economic	• Community service stations: Expanded the number of community service stations to 620 • Sales of community product: Promoted community products for sales as promotional items at service stations, such as organic brown rice (triple benefits), produced by the Rai Choen Tawan community enterprise group (Rev. Monk W. Wachiramethi), generating Baht 10 million in cashflow to communities
Social	• Green Partnership Award Project built on the notion of responsibility to society and the environment, for service station operators in four stewardship aspects: consumer, environmental, social, and employee. A total of 32 service stations received the award this year. • Bilateral Vocational Educational Project, class 2, supports bilateral education by enlisting low-income first-year students of the higher vocational certificate level with good academic records and good behavior under the one-year project. Bangchak provides sponsorship for allowances, welfare, and travel expenses. Upon the end of vocational training, Bangchak may consider those with potentials to join its workforce under its selection criteria.
Environmental	• Bought used vegetable oil for biodiesel production, one way to lower crude oil imports and ease environmental impacts of disposal of such oil to waterways. This year, Bangchak converted over 44 million tons of used vegetable oil into over 37,400 liters of biodiesel, thus, reducing 30 tons of carbon dioxide emission equivalent releases to the atmosphere. • Thailand Go Green 2015 Project under the "Eat and Live Smart, Consume Renewable Energy, Thai Ways toward Green Society" theme for students from all parts of the country to jointly undertake the project to produce environmentally friendly lifestyles.

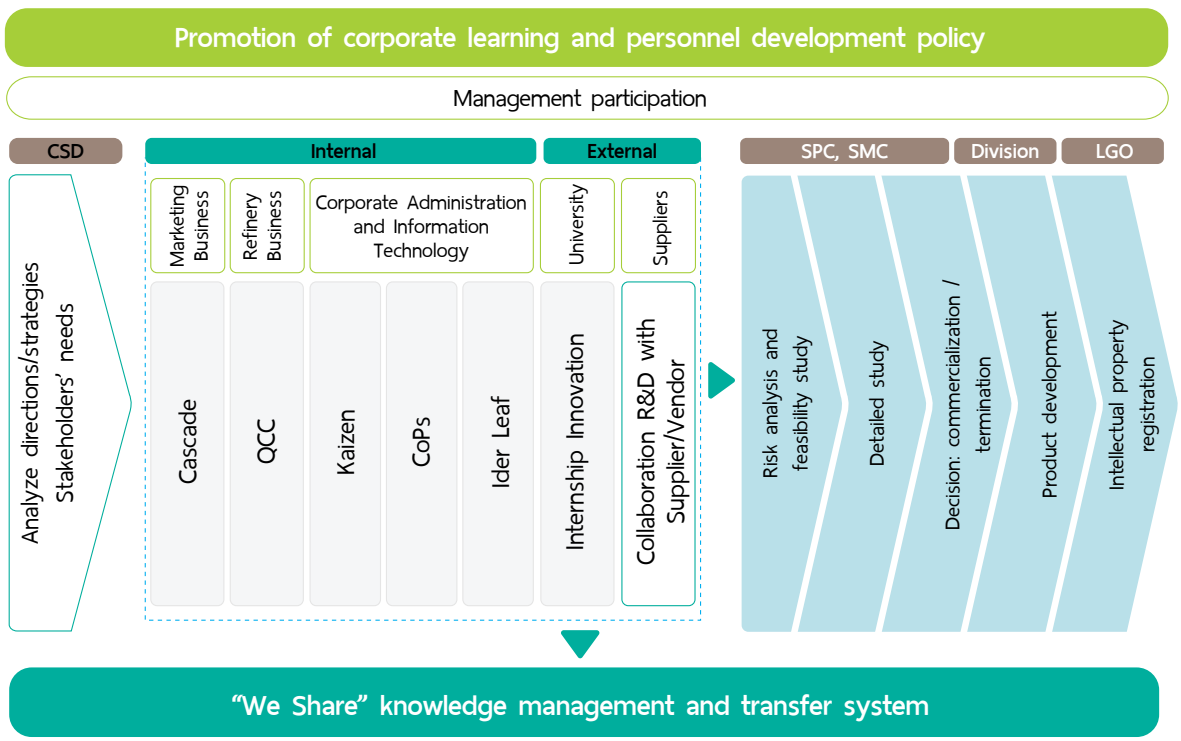
Bangchak brothers and sisters have taken exceptional care of me since my first day at the company's entrance examination day. They've not only coached me with familial warmth, but also taught me about working with lots of people and job safety. These matters are not something that you are taught at school.

Mr. Siwakorn Wiratmongkolchai
Vocational Training Project Bilateral System, Class 1
Currently an Oil Movement Division Employee

Promoting Corporate Innovation

Business Process Development and New Product&Service

Since learning and innovation are crucial drivers of any organization toward sustainability and greater competitiveness, Bangchak has developed the Promotion of Corporate Learning and Personnel Development Policy" to support corporate innovation. The Innovation and Business Development Division (IBD) is responsible for driving for innovation management processes to support continual launch of new innovations to improve products and processes. There are "innovation facilitators" in every division to promote a culture of learning, improve work, and support innovation, and to conduct campaigns in their respective groups in line with the "Learning Organization" goal and the corporate innovation management scope as follows:

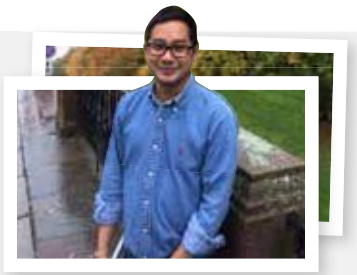


1. **Individual improvement:** Each employee has at least one individual KPI for self-improvement each year.
2. **Work improvement:** This project lets employees make recommendation on expense reduction leading to income generation and raises work efficiency through the QCC, Kaizen Project.
3. **Development of new business formats, products, or services:** The Cascade Project promotes innovation on a larger scale than the first two mentioned above, since it involves collaboration by employees from different division to present ideas on business development or projects under themes designed to align with each year's strategies. Selected or awarded projects are further investigated for commercial development.
4. **Specialist knowledge development:** Bangchak creates opportunities for employees of the same vocational group to exchange knowledge and develop work processes together as Communities of Practice (COPs) such as, Legal CoP, Rotating Machine CoP, Utility CoP, Planner and Strategist CoP, and Presentation CoP.

5. External innovation development: In addition to promoting knowledge and innovation to employees. Bangchak encourages its employees to partner with external agencies such as the Prince of Songkla University and suppliers to participate in new product formula research

Data on Bangchak's innovation projects and essential knowledge, including lessons learned and operational knowledge from retirees' and experts', are compiled and collected in Bangchak's knowledge management system for all to leverage, transfer, develop, and improve their own work.

I am a participant in the Cascade for Innovation Project. This year, the Project's focus is to apply the CSV concept to help create social and business value. We believe that the value received by Bangchak in the CSV context will generate long-term profits in parallel with balanced benefits to society and the environment (ESG). That's why our team proposed the Bangchak farm to school Project to generate income for students in schools around the refinery. The project converts left-over ground coffee to use as agricultural organic raw material, adding value to products, generating income, improving lives as well as educating students and bolstering consumers' health.



Mr. Jakraphan Phongpaitoon
Marketing Business
Development Division employee
One of members, runner-up award,
Cascade for Innovation Project, 2015

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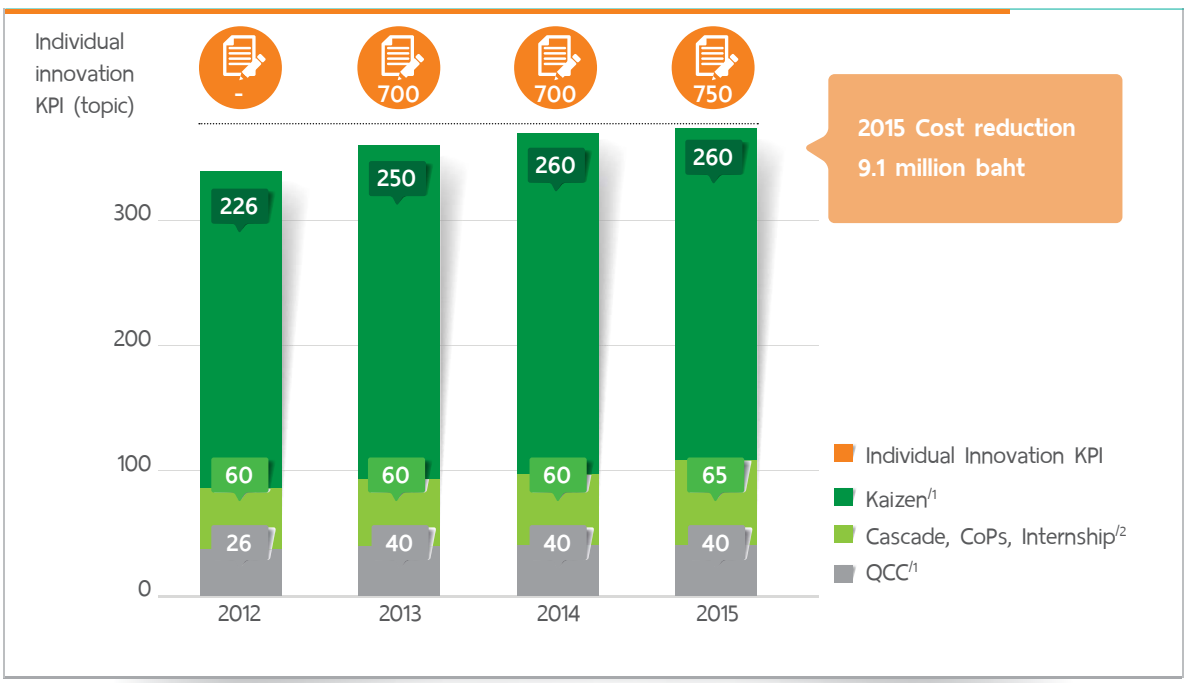
Summary of innovation project operation outcomes from 2012 to 2015



/1 Projects on improvement of work processes, environmental friendly, resource reduction, cost reduction of production processes and office tasks

/2 Projects on New Business Models and Development of Knowledge Area.

Statistic for Sustainability Performance

Economic Performance

Revenue	unit	2012	2013	2014	2015
Sales and services	million baht	162,622.83	183,286.49	178,300.35	151,140.36
Total Revenue	million baht	169,097.64	186,150.64	181,876.03	151,683.24
Net profit	million baht	4,199.89	3,971.58	296.10	4,097.38

Expenditure for income distribution to stakeholders (G4-EC1)	unit	2012	2013	2014	2015
Operating expenses	million baht	156,319.20	175,868.10	176,384.23	139,686.22
Interest expenses paid to financial institution creditors	million baht	910.48	989.22	1,293.81	1,614.56
Tax payment to government and local authorities	million baht	765.22	1,118.50	51.50	647.32
Community and social development	million baht	40.17	35.91	25.52	37.45
Donation to society and schools	million baht	14.14	18.14	22.73	57.62
Dividend payment to shareholders	million baht	1,858.79	2,065.05	1,858.80	2,039.44
Wages and employee benefits	million baht	1,310.04	1,337.33	1,341.58	2,419.60

Supply chain management	Unit	2014	2015
Local purchases of goods and services*	million baht	4,707	5,407
Ratio of local purchases of goods and services*	percent	91	93

** means purchases from suppliers in Thailand and not include crude oil.*

Environment Performance

Detail	BCP			BGN			BBF			BSE			UBE		
	2556[1]	2557[2]	2558	2556	2557[2]	2558	2556[1]	2557[2]	2558	2556[1]	2557[2]	2558	2556	2557[2]	2558
Material (Unit: Tons) (G4-EN1)															
Renewable Material	5,864,844	334,348	360,650	N.A.	N.A.	N.A.	156,799	2,065	165,897	3	0	0	N.A.	N.A.	324,687
Non- Renewable Material		5,492,211	6,109,564	N.A.	N.A.	N.A.		162,967	2,395		3	4		N.A.	3,703

* There was no classification of raw material consumption in 2013

	BCP						BGN			BBF			BSE			UBE		
	Refinery			Head office/Region Business Office/Terminal														
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Energy[1] (Unit: Tera Joules) (G4-EN3)	12,867.8	11,778.8	14,493.2	7.8	7.7	8.3	76.6	59.7	72.4	128.8	199.8	197.3	1.0	4.2	4.5	N.A.	N.A.	951.8
• Non- Renewable Energy	12,867.8	11,778.8	14,493.1	7.8	7.7	8.3	76.6	59.7	72.4	128.8	199.8	197.3	1.0	4.2	4.5	N.A.	N.A.	126.2
Energy used in process																		
• Fuel gas and LPG			6,924.4		-		-	-	-	-	-	-	-	-	-	-	-	
• Natural gas consumed as fuel			3,937.4									179.8				-	-	
• Natural gas for cogeneration			1,620.3													N.A.	N.A.	
• Fuel oil			1,040.0													-	-	
Electricity and steam used in process																		
• Electricity			319.5			8.3			72.4			17.5			3.6	-	-	126.2
• Steam			646.9													N.A.	N.A.	
Other : Fuel oil			4.6												0.9	N.A.	N.A.	
• Renewable Energy	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	N.A.	N.A.	825.6
• Wind and Solar	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• Biomass													-	-	-	-	-	825.6
• Sale of energy	-	-	-	242.4	252.4	251.0	-	-	-	-	-	-	214.2	580.2	699.1	-	-	-
• Non- Renewable Energy	-			-	-	-	-	-	-	-	-	-	-	-	-			-
• Renewable Energy: Electricity generated by PV cells				242.4	252.4	251.0	-	-	-	-	-	-	214.2	580.2	699.1	-	-	-

[1] Calculated multiplying fuel volumes with the conversion factor provided by the Department of Alternative Energy Development and Efficiency

	BCP			BGN			BBF			BSE			UBE		
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Greenhouse gas (GHG) emissions (Unit: Tons of carbon dioxide equivalent)	Operational Control Approach														
• Direct GHG emissions from production processes (Scope 1) (G4-EN15)	819,846	753,078	999,297	-	-	-	8,937	9,760	10,092	24	68	63	-	-	37,971
• CO_2	818,556	751,876	997,689	-	-	-	8,907	9,748	10,082	22	66	62	-	-	800
• Biogenic CO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37,157
• CH_4	807	738	1,044	-	-	-	9	2	5	1	1	-	-	-	1
• N_2O	483	464	564	-	-	-	21	7	5	1	1	1	-	-	13
• SF_6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• HFC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• Indirect GHG emissions from power and steam purchases (Scope 2) (G4-EN16)	171,528	157,173	85,474	11,010	8,591	10,375	1,818	2,479	2,519	147	2,572	2,585	-	-	18,143
• CO_2	171,528	157,173	85,474	11,010	8,591	10,424	1,818	2,479	2,519	147	2,572	2,585	-	-	18,143
• CH_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• N_2O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• SF_6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• HFC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	991,374	910,251	1,084,771	11,010	8,591	10,375	10,755	12,239	12,611	171	2,640	2,648	-	-	56,114
Greenhouse gas (GHG) emissions (Unit: Tons of carbon dioxide equivalent)	Equity Share Approach														
• Direct GHG emissions from production processes (Scope 1) (G4-EN15)	819,846	753,078	999,297	-	-	-	6,255	6,832	7,065	24	68	63	-	-	8,080
• CO_2	818,556	751,876	997,689	-	-	-	6,235	6,824	7,057	22	66	62	-	-	170
• Biogenic CO_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,907
• CH_4	807	738	1,044	-	-	-	6	3	4	1	1	-	-	-	-
• N_2O	483	464	564	-	-	-	14	5	4	1	1	1	-	-	3
• SF_6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• HFC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• Indirect GHG emissions from power and steam purchases (Scope 2) (G4-EN16)	171,528	157,173	85,474	5,395	4,210	5,108	1,272	1,735	1,763	147	2,572	2,585	-	-	3,861
• CO_2	171,528	157,173	85,474	5,395	4,210	5,108	1,272	1,735	1,763	147	2,572	2,585	-	-	3,861
• CH_4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• N_2O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• SF_6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
• HFC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	991,374	910,251	1,084,771	5,395	4,210	5,108	7,527	8,567	8,828	171	2,640	2,648	-	-	11,941

[1] The reportation and direct and indirect carbon emission utilized calculation tools from PTT PCL (IPCC2006)

Emissions (G4-EN21)	Unit	2012	2013	2014	2015
NO_x from combustion[3]	Tons	279	521	451	399
SO_2 from combustion and SRU/TGTU stack[3]	Tons	29	205	25	51[/1]
TSP from combustion[3]	Tons	10	20	8	8
H2S from SRU/TGTU stack[4]	Tons	0.26	0.03	7.08	0.47
Fugitive VOCs	Tons	N.A	N.A	2.53	4.91[/2]
Intensity VOC	Tons/barrel	N.A	N.A	N.A	N.A.
Flared hydrocarbon[5]	Thousand cu.m. (gas)	N.A	N.A	4,548.05	1,934.87
Vented hydrocarbon	Thousand cu.m. (gas)	N.A	N.A	N.A	N.A.

[/1] Excluding SO_2 from acid flare, *[/3] Calculated from production capacity using a third-party entity*

[/2] Including additional cogeneration plant acquired from PTT Plc. but exclude Inventory VOC_s. *[/4] Calibrated measurement tools* *[/5] Including Flared hydrocarbon from Plant 2, 3, 4*

Water (Unit: Thousand cu.m.)	Refinery			
	2012	2013	2014	2015
Water used in production (G4-EN8)	2,146,890	2,378,073	2,388,903	2,727,322
Reused water (G4-EN10)	N.A.	N.A.	N.A.	1,064,246
Water discharged in Bang Ao Canel (G4-EN22)	522,733	1,172,745	975,466	877,825
COD (Ton)[/3]	39.50	66.85	66.33	48.28
BOD (Ton)[/3]	5.27	9.38	10.73	7.40
Oil and Grease (Ton)[/3]	0.42	2.35	2.26	3.08
TSS (Ton)[/3]	7.32	18.76	14.31	10.53
TDS (Ton)[/3]	470.45	2,181.31	1,465.15	1,121.80
Sulfide (Ton)[/3]	0.21	0.47	0.32	0.47
Mercury (Ton)[/3]	0.00	0.00	0.00	0.00

[/1] Volume from water usage invoices [/2] Volume from water meters [/3] Volume from water balance and mesuring values by laboratory that is licensed by Department of Industry work

Waste

Type of Waste (G4-EN23)	Unit	2012	2013	2014	2015
Hazardous waste[/1]	Tons (percentage)	1,739 (71)	1,253 (48)	3,261 (83)	1,268 (88.5)
Non-hazardous waste[/1]	Tons (percentage)	692 (29)	1,363 (52)	644 (16.5)	62 (4.3)
Waste irregularly generated*					
Hazardous waste from oil and chemical spill clean-up[/2]	Tons (percentage)	N.A.	N.A.	1.1	3 (0.2)
Construction waste[/2]	Tons (percentage)	N.A.	N.A.	N.A.	99 (6.9)
Total	Tons (percentage)	2,431 (100)	2,616 (100)	3,905 (100)	1,432 (100)

Note : 1 Weight from waste manifest

2. Estimate from volume of waste sent to disposal based on calculation of number of bags per container and average weight per bag /container

Treatment of Waste	Unit	hazardous waste	Non-hazardous waste
- Reuse	Tons	-	99.00
- Recycle	Tons	396	-
- Recovery, including consumption as fuel	Tons	581	21.00
- Incineration	Tons	109	-
- Sent to secure landfill	Tons	-	41.00
- On site storage	Tons	185.00	0.00
Total	Tons	1,271.00	161.00

Oil and chemical spills (G4-EN24)	Unit	2012	2013	2014	2015
• Number and volume of significant spills. (more than 150 liters/case)	Cases (liters)	0	0	0	0

Environment Complaince	Unit	2012	2013	2014	2015
• Number/Monetary Value of significant fines	Number : Baht	0	0	0	0

Supply chain management	Unit	2013	2014	2015
New Suppliers screened using environmental criteria	Percent	N.A.	2	N.A.[/1]

[/1] 2015 Preparation for screening process of potential Suppliers in accordance with ethical sustainable business practices in three dimensions: ESG

Social Performance

1. Employment

Employees	2012		2013		2014		2015	
	Persons	%	Persons	%	Persons	%	Persons	%
• Total Employees by Gender (G4-10)								
• Male	750	73.03	753	73.18	762	72.43	822	72.81
• Femal	277	26.97	276	26.82	290	27.57	307	27.19
• Total	1,027	100	1,029	100	1,052	100	1,129	100
• Total Employees by Level (G4-10)								
• Manager up (Level 10-14)	95	9.25	98	9.52	101	9.60	116	10.27
• Officer up (Level 5-9)	461	44.89	462	44.9	494	46.96	557	49.34
• Operator (Level 1-4)	471	45.86	469	45.58	457	43.44	456	40.39
• Total Employee by age (G4-10)								
• Younger than 30	309	30.09	296	28.77	287	27.28	305	27.02
• Between 30-50	644	62.71	661	64.24	699	66.44	739	65.46
• Older than 50	74	7.21	72	7.00	66	6.27	85	7.53
• Total Employee by area (G4-10)								
• Head office	136	13.24	135	13.12	112	10.65	131	11.60
• Refinery	806	78.48	809	78.62	855	81.27	934	82.73
• North District	11	1.07	11	1.07	10	0.95	8	0.71
• Central District	53	5.16	54	5.25	57	5.42	37	3.28
• North-East District	13	1.27	12	1.17	10	0.95	11	0.97
• South District	8	0.78	8	0.78	8	0.76	8	0.71
• Total Number of Retired Employees by gender (G4-LA1)								
• Male	43	89.58	31	77.5	32	86.49	13	59.09
• Female	5	10.42	9	22.5	5	13.51	9	40.91
• Total Number of Retired employee by ages (G4-LA1)								
• Less than 30	34	66.67	20	48.78	25	67.57	7	31.82
• Between 30-50	15	29.41	19	46.34	8	21.62	13	59.09
• Older than 50	2	3.92	2	4.88	4	10.81	2	9.09
• Turnover rate (G4-LA1)		4.48		3.31		3.46		2.67
• Total Number of New Employees by gender (G4-LA1)	39	82.98	35	79.55	44	67.69	84	74.34
• Male								
• Female	8	17.02	9	20.45	21	32.31	29	25.66
• Total Number of New employee by ages (G4-LA1)								
• Less than 30	47	100	43	97.73	61	93.85	88	77.88
• Between 30-50	0	0	1	2.27	4	6.15	23	20.35
• Older than 50	0	0	0	0.00	0	0.00	2	1.77
• Maternity leave (G4-LA3)								
• Maternity leave	N.A.	N.A.	5	N.A.	8	N.A.	6	0.53
• Employee back to work after maternity leave	N.A.	N.A.	5	N.A.	8	N.A.	6	0.53

[1] The Company has an exclusive full-time employment policy. There are no temporary, part-time, or self- employment and no seasonal difference in manpower

2. Employee development

Average hours of training per year per employee (hours) (G4-LA9)	2012	2013	2014	2015
Total employees	47.2	39.16	44.86	38.36
• Training Hours per person by gender				
• Male	42	38.94	42.62	36.42
• Female	61.38	39.75	50.87	43.53
• Training Hours per person by level				
• Manager up (Level 10-14)	122.1	79.51	60.2	58.07
• Officer up (Level 5-9)	63.9	39.01	54.3	47.44
• Operator (Level 1-4)	15.06	30.44	29.44	22.23
• Training Hours per person by employee category				
• President (PS)	72.42	46.67	63.18	53.34
• Corporate Administration and Information Technology (CI)	80.88	48	50.06	44.58
• Accounting and Finance (AF)	59.4	42.2	43.25	37.25
• Marketing Business (MK)	31.62	21.68	24.82	20.21
• Refinery Business (RF)	41.1	44.67	52.55	44.98
• Business Development and Strategy (BD)	109.08	69.11	58.87	51.56
• Renewable Energy Business (RE)	84	41.14	54	52.18

3. Employee engagement

Employee engagement	2012	2013	2014	2015
Employee engagement	4.41/ 4.44 (Total score 5)	4.26 (Total score 5)	66 %	70 %

4. Safety

Bangchak began measuring IFR (injury frequency rate), ISR (injury severity rate), and TRIR (total recordable injury rate) among employees and contractors, the calculation includes number of people that were severely injured and had to stop work, the number of lost workdays, and the number of those injured from work-related causes, compared with the number of work hours per year.

Safety (G4-LA6)	Unit	2012	2013	2014	2015
Injury Frequency Rate : IFR/ 1 million man hrs.					
• Total workforce (employee and supervised workers)	persons	0	0.8	1.4	1.3
• Independent contractors	persons	0	0	2.7	39.2
Injury Severity Rate : ISR/ 1 million man hrs.					
• Total workforce (employee and supervised workers)	days	0	13.5	18.1	8.6
• Independent contractors	days	0	0	16.1	300
Total Recordable Incident Rate (TRIR) / 1 million man hrs.					
• Total workforce (employee and supervised workers)	persons	2	4.4	3.2	5.2
• Independent contractors	persons	1	0	9.4	39.2
Rate of work-related illnesses					
• Total workforce (Employee only)	Case/ 1 million man hrs.	0	0	0	0
• Contractor	Case/ 1 million man hrs.	0	0	0	0
Absentee rate					
• Total workforce (Employee only)	Percentage	N.A.	N.A.	0.02	0.03
• Contractor	Percentage	N.A.	N.A.	N.A.	N.A.
• Tier 1 Process Safety Event	Event	N.A.	N.A.	0	0

Customer Responsibility (G4-PR8)	Unit	2012	2013	2014	2015
Customer Satisfaction survey	Percentage	86	84	N.A.*	81.2
Total number of substantiated complaints regarding breaches of customer privacy (G4-PR8)	Cases	0	0	0	0

GRI Content Index

Materiality Disclosures
The Bangchak Petroleum Public Company Limited
Mar 2016 Service

SDG Mapping
The Bangchak Petroleum Public Company Limited
Mar 2016 Service

GENERAL STANDARD DISCLOSURES	Page Number (or Link)	External Assurance	SDG Mapping Linkage to disclosure
STRATEGY AND ANALYSIS			
G4-1	6-7		
G4-2	14-17		
ORGANIZATIONAL PROFILE			
G4-3	8		
G4-4	8-9,32,www.bangchak.co.th/th/about-business-philosophy.aspx		
G4-5	8,www.bangchak.co.th/th/about-head-office-distribution-center.aspx		
G4-6	9		
G4-7	9, www.bangchak.co.th/th/about-business-structure-1.aspx		
G4-8	8		
G4-9	9		
G4-10[/1]	9,68		Goal 8: Decent work and economic growth - Employment
G4-11	57		Goal 8: Decent work and economic growth - Freedom of association and collective bargaining
G4-12	8, www.bangchak.co.th/th/about-complex-refinery.aspx		
G4-13	6-7,9		
G4-14	10		
G4-15	14-17		
G4-16	10,22,26-27,48		
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES			
G4-17	23	Yes,Page 78-79	
G4-18	22	Yes,Page 78-79	
G4-19	24	Yes,Page 78-79	
G4-20	24	Yes,Page 78-79	
G4-21	24	Yes,Page 78-79	
G4-22	24	Yes,Page 78-79	
G4-23	7,23	Yes,Page 78-79	
STAKEHOLDER ENGAGEMENT			
G4-24	18-21	Yes,Page 78-79	
G4-25	22	Yes,Page 78-79	
G4-26	18-21	Yes,Page 78-79	
G4-27	18-21	Yes,Page 78-79	
REPORT PROFILE			
G4-28	22		
G4-29	22		
G4-30	22		
G4-31	23		

● Fully Reported ◐ Partially Reported

[/1] Omission for disclosure of Total number of supervised worker because the information is not available. BCP will inform to the contractor company to provide this data in 2017

GENERAL STANDARD DISCLOSURES	Page Number (or Link)	External Assurance	SDG Mapping Linkage to disclosure
G4-32	22,70-75		
G4-33	23,77-78		
GOVERNANCE			
G4-34	9,10,www.bangchak.co.th/th/about-management-structure.aspx		
G4-36	10		
G4-41	26-27		Goal16: Peace, Justice and strong institutions - Effective, accountable and transparent governance
G4-44	26		
G4-45	10,14,23		Goal16: Peace, Justice and strong institutions - Inclusive decision making
G4-48	23		
G4-49	18-21		
ETHICS AND INTEGRITY			
G4-56	8,www.bangchak.co.th/th/about-vision-missions.aspx		

SPECIFIC STANDARD DISCLOSURES

DMA and Indicators	Page Number (or Link)	Identified Omission(s)	Reason(s) for Omission(s)	Explanation for Omission(s)	External Assurance	SDG Mapping Linkage to disclosure
CATEGORY: ECONOMIC						
MATERIAL ASPECT: ECONOMIC PERFORMANCE						
G4-DMA	29					
G4-EC1 ●	65					Goal 2 : End hunger - Infrastructure investments
MATERIAL ASPECT: PROCUREMENT PRACTICES						
G4-DMA	32					
G4-EC9 ●	65					
CATEGORY: ENVIRONMENTAL						
ASPECT: MATERIALS						
G4-DMA	32					
G4-EN1	32,33,66					Goal 8: Decent work and economic growth - Materials efficiency
MATERIAL ASPECT: ENERGY						
G4-DMA	34-36					
G4-EN3 OGSS	34-35,66	Bio-gas consumption at UBE	The information is currently unavailable	The data will be available in 2016	Yes,Page	Goal 7: Clean Energy Goal 13: Climate Action -Energy efficiency
G4-OG2 OGSS	36					
G4-OG3 OGSS	66					
MATERIAL ASPECT: WATER						
G4-DMA						
G4-EN8 ◐	37,67	Water withdrawal from river in case of fire drills	The information is currently unavailable	The data will be available in 2018	Yes	Goal 6: Water and sanitation - Sustainable water withdrawals

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DMA and Indicators	Page Number (or Link)	Identified Omission(s)	Reason(s) for Omission(s)	Explanation for Omission(s)	External Assurance	SDG Mapping Linkage to disclosure
G4-EN10	37,67	Recycled water	The information is currently unavailable	The data will be available in 2016	Yes	Goal 6: Water and sanitation - Water efficiency - Water recycling& reuse Goal 12: Ensure sustainable consumption &Production - Water efficiency
MATERIAL ASPECT: EMISSIONS						
G4-DMA	36,38-39					
G4-EN15	36,66				Yes	Goal 3 : Good health and well being - Air quality Goal 12: Ensure sustainable consumption &Production - Air quality Goal 13: Climate Action - GHG emissions Goal 14: Life below water Ocean Acidification Goal 15: Life on land Forest degradation
G4-EN16	36,66				Yes	Goal 3 : Good health and well being - Air quality Goal 12: Ensure sustainable consumption &Production - Air quality Goal 13: Climate Action - GHG emissions Goal 14: Life below water - Ocean Acidification Goal 15: Life on land - Forest degradation
G4-EN19	35-36					Goal 13: Climate Action - GHG emissions Goal 14: Life below water - Ocean Acidification Goal 15: Life on land - Forest degradation
G4-EN21 OGSS	67	SO2 from acid flare and other VOC emission apart from FugitiveVOCs emission	The information is currently unavail-able	The data will be available in 2020	Yes, Total of significant air emissionss including NO_x, SO_2 ,TSP,H_2S and fugitive VOCs emission	Goal 3 : Good health and well being - Air quality Goal 12: Ensure sustainable consumption &Production - Air quality Goal 14: Life below water - Ocean Acidification Goal 15: Life on land - Forest degradation
G4-OG6	67	Volume of continuously flared hydrocarbon Volume of Vented hydrocarbon	The information is currently unavailable The information is not applicable	BCP has plan to install instrument to capture gas flared at plant4 and plant 2,3 in 2018,2020 respectively.		
MATERIAL ASPECT: EFFLUENTS AND WASTE						
G4-DMA	40-41					

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DMA and Indicators	Page Number (or Link)	Identified Omission(s)	Reason(s) for Omission(s)	Explanation for Omission(s)	External Assurance	SDG Mapping Linkage to disclosure
G4-EN22	40,67					Goal 3 : Good health and well being - Water quality Goal 6: Water and sanitation - Water quality - Water-related ecosystems and biodiversity Goal 12: Ensure sustainable consumption &Production - Water quality Goal 14: Life below water - Water discharge to oceans
G4-DMA	41					
G4-EN23 OGSS	67				Yes,Total weight of waste by type and disposal method	Goal 3 : Good health and well being Goal 6: Water and sanitation Goal 12: Ensure sustainable consumption &Production-Waste
G4-EN24	67					Goal 3 : Good health and well being -Spills Goal 6: Water and sanitation - Spills - Water-related ecosystems and biodiversity Goal 12: Ensure sustainable consumption &Production - Spills Goal 14: Life below water - Water discharge to oceans
MATERIAL ASPECT: Compliance						
G4-DMA						
G4-EN29	67					
MATERIAL ASPECT: TRANSPORT						
G4-DMA	42					
G4-EN30	42					Goal 11: Sustainable cities and communities - Sustainable transportation Goal 12: Ensure sustainable consumption &Production - Transport Goal 13: Climate Action - GHG emissions
MATERIAL ASPECT: OVERALL						
G4-DMA	44					
G4-EN31	45					Goal 9: Industries, Innovation& Infrastructure - Environmental investments - Reserch&Development Goal 12: Ensure sustainable consumption &Production Goal 13: Climate Action Goal 15: Life on land Goal 17: Partnerships for the goals - Environmental investments
MATERIAL ASPECT: SUPPLIER ENVIRONMENTAL ASSESSMENT						
G4-DMA	30					

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DMA and Indicators	Page Number (or Link)	Identified Omission(s)	Reason(s) for Omission(s)	Explanation for Omission(s)	External Assurance	SDG Mapping Linkage to disclosure
G4-EN32	67	Percentage of New suppliers that were screen using environmental performance	The information is currenty not available	The data will be available 2016 as BCP has just start to apply ESG criteria for screening of New Supplier		
CATEGORY: SOCIAL						
SUB-CATEGORY: LABOR PRACTICES AND DECENT WORK						
MATERIAL ASPECT: EMPLOYMENT						
G4-DMA	55					
G4-LA1	68	The total number and rate of employee turnover by age group gender and region	The information is currenty not available	The data will be available in 2016		Goal 5: Gender equity - Gender equity
G4-LA3	68	Number of parantal leave and returned to work by gender	The information is currenty not available	The data will be available in 2016		Goal 5: Gender equity Goal 8: Decent work and economic growth - Parental leave
MATERIAL ASPECT: Labor/ Management Relations						
G4-DMA	55					
Best employer score by Aeon Hewitt	55,68					
MATERIAL ASPECT: OCCUPATIONAL HEALTH AND SAFETY						
G4-DMA	53-54					
G4-LA6	69	Type of injury, rate of injury, ODS rate, loss day rate and Absentee rate by gender Contractor Absentee rate (AR)	The information is currently unavailable	BCP will officially inform the contract company to provide the data in 2016 The information is not applicable	Total workforce and independent contractors ISR, IFR, TRIR	Goal 3 : Good health and well being Goal 8: Decent work and economic growth - Occupational Health& Safety
G4-OG13	69	Number of tier 2 process safety events	The information is currently unavailable	The data will be available in 2017		
MATERIAL ASPECT: TRAINING AND EDUCATION						
G4-DMA	55-57					
G4-LA9	69				Yes, Average Training hour per employee and Average Training by genders and by employee categories	Goal 4: Quality Education Goal 8: Decent work and economic growth - Employee training& Education Goal 5: Gender equity - Gender equity
SUB-CATEGORY: SOCIETY						
MATERIAL ASPECT: LOCAL COMMUNITIES						
G4-DMA	58-61					
G4-SO1	58-61					

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DMA and Indicators	Page Number (or Link)	Identified Omission(s)	Reason(s) for Omission(s)	Explanation for Omission(s)	External Assurance	SDG Mapping Linkage to disclosure
MATERIAL ASPECT: ANTI-CORRUPTION						
G4-DMA	27					
G4-SO4 ●	27					Goal16: Peace, Justice and strong institutions - Anti-corruption
MATERIAL ASPECT: EMERGENCY PREPAREDNESS						
G4-DMA	15-16,18,59					
SUB-CATEGORY: PRODUCT RESPONSIBILITY						
MATERIAL ASPECT: PRODUCT AND SERVICE LABELING						
G4-DMA	46-50					
G4-PR5 ●	51,69					
MATERIAL ASPECT: CUSTOMER PRIVACY						
G4-DMA	51					
G4-PR8 ●	51,69					Goal16: Peace, Justice and strong institutions - Protection of privacy

● Fully Reported ◐ Partially Reported

Bangchak GC Advanced COP Self - Assessment

GC Scope or Principle	Criteria of GC Advanced Level	BCP Approach	Disclose
Scope: Implementing the Ten Principles into Strategies & Operations	**Strategy, Governance and Engagement**		
	1. The COP describes mainstreaming into corporate functions and business units	• Policy and Overall of business • Message from the president • Sustainability Strategy • Sustainability Management Principle	AR p.7 SR p. 6-7, 10, 11-13,
	2. The COP describes value chain implementation	• Products and services • Open Bangchak House • Supplier Code of conduct	AR p.17-20 SR p. 8 SR p. 30
Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights Principle 2 : Businesses should make sure that they are not complicit inhuman rights abuses	**Human rights**		
	3. The COP describes robust commitments, strategies or policies in the area of human rights	• Sustainability Policy • Emplyee Stewardship • Safety and Occupational Health	AR p.13 SR p. 55-57 SR p. 53-54
	4. The COP describes effective management systems to integrate the human rights principles	• Implement Human Rights to treat employees equally and fair, and develop suppliers on this matter. • Emplyee Stewardship	SR p.13,30 SR p. 55-57
	5. The COP describes effective monitoring and evaluation mechanisms of human rights integration	• A mechanism to receive complaints through multiple channels including supervisors, Commission employees due to the 2 ways communication regularly • Emplyee Stewardship • Safety and Occupational Health	SR p. 55-57 SR p. 53-54
Principle 3 : Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining Principle 4: The elimination of all forms of forced and compulsory labour. Principle 5: The effective abolition of child labour Principle 6: The elimination of discrimination in respect of employment and occupation	**Labour**		
	6. The COP describes robust commitments, strategies or policies in the area of labour	• Safety and Occupational Health • Emplyee Stewardship	SR p. 53-57
	7. The COP describes effective management systems to integrate the labour principles	• Safety and Occupational Health • Emplyee Stewardship	SR p. 53-57
	8. The COP describes effective monitoring and evaluation mechanisms of labour principles integration	• Safety and Occupational Health • Emplyee Stewardship	SR p. 53-57
Principle 7: Businesses should support a precautionary approach to environmental challenges Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility	**Environment**		
	9. The COP describes robust commitments, strategies or policies in the area of environmental stewardship	• Sustainability Strategy • Sustainability Policy	SR p. 10,13
	10. The COP describes effective management systems to integrate the environmental principles	• Environment Performance • Eco-Efficiency • Environmental Cost Accounting • Develop Sustainable Products and Services	SR p.34-41 SR p.43 SR p.44-45 SR p.47

GC Scope or Principle	Criteria of GC Advanced Level	BCP Approach	Disclose
Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies	11. The COP describes effective monitoring and evaluation mechanisms for environmental stewardship	• Environment Performance • Environmental Cost Accounting	SR p. 65-66 SR p. 44-45
Principle 10: Businesses should work against corruption in all its forms,including extortion and briber	**Anti-Corruption**		
	12. The COP describes robust commitments, strategies or policies in the area of anti-corruption	• Corporate Governance • Anti corruption	SR p. 26-27
	13. The COP describes effective management systems to integrate the anti-corruption principle	• Corporate Governance • Anti corruption	AR p. 103 SR p. 26-27
	14. The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption	• Corporate Governance • Anti corruption	AR p. 103 SR p. 26-27
Scope: Taking Action in Support of Broader UN Goals and Issues	**UN Goals and Issues**		
	15. The COP describes core business contributions to UN goals and issues	• Message from the president • Sustainability Strategy • Sustainability Management Principle	SR p. 6-7, 10, 11-13,
	16. The COP describes strategic social investments and philanthropy	• Community and Social Development	SR p. 58-61
	17. The COP describes advocacy and public policy engagement	• Sustainability Policy • Economic Performance • Community and Social Development	SR p. 13 SR p. 29 SR p. 58-61
	18. The COP describes partnerships and collective action	• Sustainability Management Principle • Develop Sustainable Products and Services	SR p. 10 SR p. 46-50
Scope: Corporate Sustainability Governance and Leadership	**Governance**		
	19. The COP describes CEO commitment and leadership	• Message from the president • Sustainability Strategy and Policy • Sustainability Management Principle	SR p. 6-7, 10, 11-13,
	20. The COP describes Board adoption and oversight	• Sustainability Management Principle	SR p. 10
	21. The COP describes stakeholder engagement	• Corporate Governance • Stakeholder Engagement	AR p. 102-103 SR p.18-21

LRQA Assurance Statement

Relating to the Bangchak Petroleum Public Company Limited's Sustainability Report for the calendar year 2015

This Assurance Statement has been prepared for the Bangchak Petroleum 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 Petroleum Public Company Limited (BCP) to provide independent assurance on its Sustainability Report 2015 ("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 procedure 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 operational controls in Thailand[1] and specifically the following requirements:

- Confirming that the report is in accordance with:
  - GRI G4's Reporting Guidelines and core option
  - GRI G4 Oil & Gas Sector Disclosure
- Evaluating the accuracy and reliability of data and information for only the selected indicators below:
  - Environmental: energy consumption[2] within the organization (G4-EN3), total water withdrawn by source (G4-EN8), percentage and total volume of water recycled and reused (G4-EN10), direct GHG emissions[2] (G4-EN15), energy indirect GHG emissions (G4-EN16), NOx, SOx, and other significant air emissions (VOC) (G4-EN21), total weight of waste by type and disposal method (G4-EN23)
  - Social: type and rate of injury[3], occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender (G4-LA6), average hours of training per year by gender, and by employee category (G4-LA9).

Note:

(1) This covered all of BCP's business groups in Thailand but excluded subsidiaries and associated companies.

(2) Energy consumption and greenhouse gas emissions data includes subsidiaries in Thailand - namely Bangchak Green Net, Bangchak Biofuel, Bangchak Solar Energy and Ubon Bio Ethanol (an associated company).

(3) Injury rate data includes only the offices and refinery at Sukhumvit Soi 64.

Our assurance engagement also excluded the data and information of subsidiaries and associated companies where BCP has no operational control in Thailand and all its operations and activities outside of Thailand.

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 accurate and reliable performance data and information as no errors or omissions were detected within the selected indicators
- 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.
- Visiting BCP's refinery and office located at Sukhumvit 64 to sample evidence for the selected indicators to confirm their reliability. LRQA did not verify the data back to its original sources, nor did it assess the accuracy and completeness of the data reported by individual locations.

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 of its stakeholders. The report content, as well as BCP's visions for addressing sustainability development, have 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. It should be noted that BCP has established extensive criteria for determining which issue/aspect is material and that these criteria are not biased to the BCP's management.
- 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 data and information from BCP's subsidiaries and associated companies for all its indicators, not just for energy consumption and greenhouse gas emissions, in-order to be fully accountable.
- Reliability:
  Data management systems are considered to be properly defined for the data and information collection and calculation associated with the selected indicators. However, periodically implementing internal verification within BCP's subsidiaries will further improve the reliability of its data and information.

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.

LRQA has not provided any kind of services except this sustainability report verification to BCP. The verification assessments, is the only work undertaken by LRQA for BCP and as such does not compromise our independence or impartiality.

Signed Dated: 27 February 2016

Paveena Hengsritawat
LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Ltd.
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