

Sustainability Report
2015

RATCH



RATCHABURI
ELECTRICITY GENERATING
HOLDING PCL.



BALANCING GROWTH

with **SUSTAINABILITY**

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Vision To be a leading value-oriented integrated energy company in Asia-Pacific

- Mission**
- To ensure shareholders' value creation by continuously generating superior financial returns
 - To achieve world-class operational excellence and project development
 - To be socially and environmentally responsible, conducting businesses in a fair manner
 - To provide an enjoyable, secure, and motivating work environment
 - To support long-term national energy security and comply to laws and local regulations

Corporate values

R

Reliability

Efficiently and effectively do one's best to strike a balance in meeting stakeholders' needs and boost all sectors' confidence together with trust in RATCH as a business or activity partner.

A

Accountability

Leverage professionalism in growing the company and be accountable for business outcomes.

T

Trust

Stay true to good governance, ethics, and code of conduct while showing social responsibility to enhance all sectors' confidence and trust.

C

Challenge

Steadfastly tackle challenges while focusing on supplementing corporate value to retain domestic power generation leadership and become an Asia-Pacific energy business leader.

H

Happiness

"Employer of Choice": our aspiration. RATCH is where employee engagement prevails and where people happily work as they forge teamwork and inspiration amid an ambience that induces efficiency.



About this Report

Reporting approach (G4-18, G4-28, G4-30)

This 2015 edition of the Sustainability Report of Ratchaburi Electricity Generating Holding PCL. publicizes the policies, strategies, operating approach, and its economic, social, and environmental performance considered material for the company and its stakeholders. Spanning business performance from January 1 to December 31, 2015, this is the third report prepared under the guidelines of Global Reporting Initiative (GRI) and is the second report under GRI version 4 (G4) in accordance with Core option and GRI's Electric Utilities Sector.

Quality assurance and reliability

In making this report, RATCH follows the GRI guidelines. Topics and contents were made certain to cover all groups of stakeholders, sustainability context, as well as significance to the company and its stakeholders. Regarding the reporting process, RATCH arranged for reviews by information holders and the company's central unit to ensure completeness and relevance. All information disclosed in this report already received endorsement from the company's top management.

Scope of the report (G4-17, G4-23)

This report contains information of the company, subsidiaries, and joint-venture companies, as well as affiliates in which RATCH holds at least 25% stake, as listed below. Nava Nakorn Electricity Generation Company Limited was additionally reported in this year. A comprehensive list of subsidiaries and joint-venture companies can be found in 2015 Annual Report, which can be downloaded from www.ratch.co.th.

List	% share	Type of business
1. Ratchaburi Electricity Generating Co., Ltd. - established in Thailand	99.99	operating 3,645-MW Ratchaburi Power Plant and 700-MW Tri Energy Power Plant
2. Ratchaburi Energy Co., Ltd. - established in Thailand	99.99	investing in domestic renewable-energy power plants, and operating associated gas-fired Pratu Tao and Sao Thian Power Plants

Subsidiary, joint-venture company	% share	Type of business
3. RATCH-Lao Services Co., Ltd. - established in Lao PDR	99.99	providing operation and maintenance services for Nam Ngum 2 Power Plant
4. RATCH-Australia Corporation Ltd., the shares of which are held by RH International (Singapore) Corporation Pte. Ltd., a subsidiary - established in Australia	80	operating three natural gas-fired power plants and three wind farms, with a combined equity capacity of 509.52 MW
5. Ratchaburi World Cogeneration Co., Ltd., the shares of which are held by Ratchaburi Electricity Generating Co., Ltd., a subsidiary - established in Thailand	40	operating cogeneration power plant, with an installation capacity of 234 MW
6. Nava Nakorn Electricity Generation Co., Ltd., the shares of which are held by Ratchaburi Electricity Generating Co., Ltd., a subsidiary - established in Thailand	40	operating a cogeneration power plant with an installation capacity of 132 MW
7. Ratchaburi Power Co., Ltd. - established in Thailand	25	operating gas-fired Ratchaburi - Power Plant with an installation capacity of 1,400 MW
8. Nam Ngum 2 Power Co., Ltd. - established in Lao PDR	25	operating 615-MW hydroelectric Nam Ngum 2 Power Plant

Determination of Contents ^(G4-18)

This report aligns with the approach taken by GRI G4 'in accordance' Core. Indicators of key issues are shown in the GRI Content Index, page 120. Below is the procedure for determination of contents:

Step 1: Issue Identification ^(G4-24, G4-25, G4-26, G4-27)

Key sustainability aspects significant to the company and stakeholders are considered and collected from two major sources:

- 1) Documents – Taken into account are long-term strategies and risk factors of the organization as well as sustainable aspects of the power generation industry. Such information can be obtained from various documents and news from external sources.
- 2) Opinions – This includes suggestions and recommendations expressed in questionnaires and interviews with top and middle managers as well as views from stakeholders who are significant for the company.

The company divides stakeholders into nine groups taking into consideration their relevance to both positive and negative impacts on the business. The company has its own process for forging engagement and echoing each group's expectations, as detailed below:

Stakeholder	Expectation	Participation Channel	Example of how expectation is addressed
1) Shareholders and investors	<ul style="list-style-type: none"> Satisfactory dividends and profitable return on investment Fair and transparent business conduct with adequate and timely disclosure of information Business alignment with the directions and strategies of EGAT, the major shareholder, and cooperation to raise competitiveness Business growth and higher enterprise value 	<p>Major shareholder: EGAT</p> <ul style="list-style-type: none"> Meetings on various occasions, such as EGAT's business committee meeting, board meeting, and joint business management meetings Formal and informal activities Site visits <p>Shareholders and investors</p> <ul style="list-style-type: none"> Shareholders' and analysts' meetings Site visits Meeting with investors through various activities Company website Company Secretary Office and Investor Relations Department 	<ul style="list-style-type: none"> Setting strategies and business targets in line with major shareholder's expectation, and establishing cooperation to enhance information-sharing Increasing power plant operation efficiency to consolidate national power security, the major shareholder's mandate Arranging shareholders' meetings to provide arenas for queries and comments Participating in Collective Action Coalition (CAC), Thailand's private sector assembly to fight corruption, and upgrading internal anti-corruption system to obtain CAC's certification Disclosing information in annual report and sustainability report Providing extra channels for information disclosure and communication, including website and the media
2) Creditors	<ul style="list-style-type: none"> Financial discipline and debt coverage Compliance with laws Fair and transparent business conduct Profitability from assets 	<ul style="list-style-type: none"> Information-sharing meetings and get-togethers to forge close ties Site visits Communication through Finance Division 	<ul style="list-style-type: none"> The company strictly honors debt repayment schedule to gain creditors' trust Credit rating by domestic and international institutions, namely TRIS Ratings, S&P Ratings & Moody's Making income analyses and projection, with financial risk management Upgrading internal anti-corruption system to win CAC recognition
3) Business allies	<ul style="list-style-type: none"> Capable personnel possessing business insight and synergy of strengths among business allies Fair and transparent business conduct Company's reputation and trustworthiness Robust financial standing 	<ul style="list-style-type: none"> Formal and informal meetings Site visits Business deals for mutual benefits Sharing of information, experience, and expertise Activities and occasional visits to strengthen ties 	<ul style="list-style-type: none"> Searching for business allies, considered a prime strategy defined by long-term strategic plan Introducing some basic measures for assessing confidence in business allies Valuing risk management Assigning determined and professional personnel to deal with business allies Introducing a clear method for disclosing information concerning business allies Upgrading internal anti-corruption system to win CAC recognition

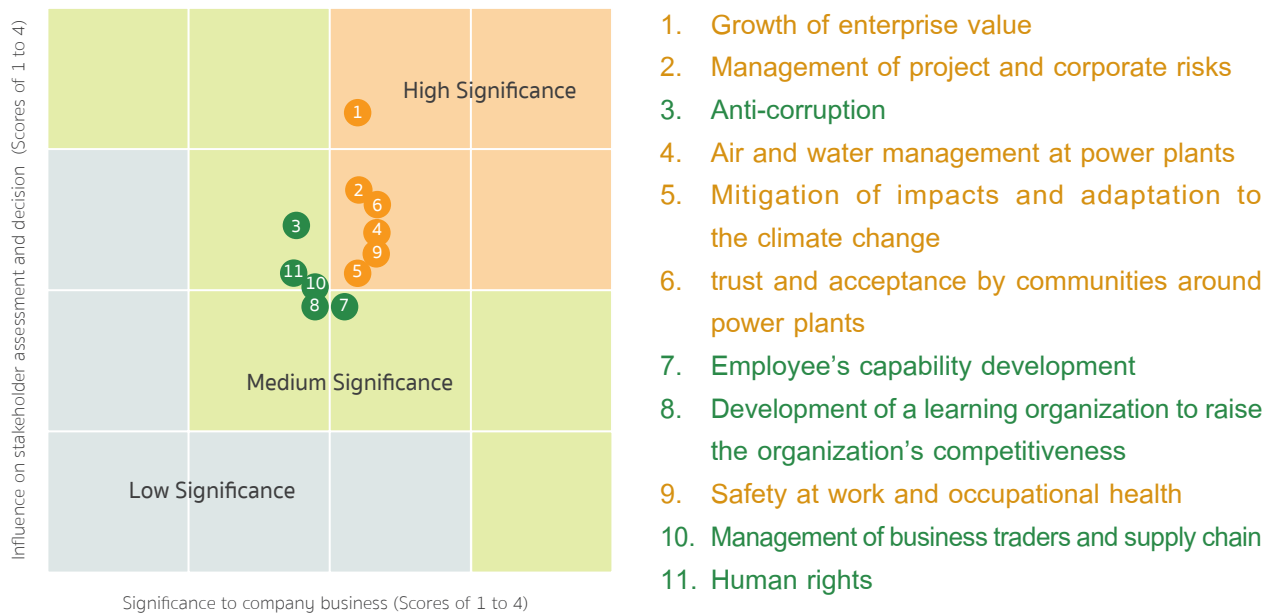
Stakeholder	Expectation	Participation Channel	Example of how expectation is addressed
4) Regulators	<ul style="list-style-type: none"> • Compliance with relevant laws, regulations, and requirements • Quality and environmental management with community stewardship • Fair and transparent business conduct • Complete and timely disclosure of information 	<ul style="list-style-type: none"> • Formal and informal meetings • Site visits • Participation in training and seminars organized by regulators, and coordination through responsible agencies 	<ul style="list-style-type: none"> • Monitoring changes in legislations, regulations, and requirements, and reviewing actions to ensure complete compliance • Reviewing emergency response plans and running an annual exercise • Providing complete information as required • Upgrading internal anti-corruption system to win CAC recognition
5) Business traders & contractors	<ul style="list-style-type: none"> • Good business partnership and long-term relationship • Fair, transparent, and professional business conduct • Robust financial standing with on-time payment • Reputation and trustworthiness 	<ul style="list-style-type: none"> • Meetings, regular follow-ups of work progress, and joint efforts in problem solving • Regular communication with business traders and contractors 	<ul style="list-style-type: none"> • Establishing a transparent and internationally accepted procurement system to prevent conflicts of interest • Assessing business traders/ vendors both before and after procurement, and setting aside preferred vendors • Implementing strict measures on occupational health and safety to ensure business traders' and contractors' safety • Designing a work plan with a precise completion date, follow-up process, and budget control • Upgrading internal anti-corruption system to win CAC recognition
6) Employees	<ul style="list-style-type: none"> • Pays and welfare that are attractive, fair, on a par with business peers • Staff capability development • Career growth and participation in career path planning based on staff's position and responsibilities • Decent work environment and work safety 	<ul style="list-style-type: none"> • Staff meetings and department meetings • Channels for expressing opinions and filing complaints • Welfare Committee; Safety, Occupational health, and Working Environment Committee; and 5S Committee • Volunteer activities • HR activities to promote staff relations 	<ul style="list-style-type: none"> • Conducting regular reviews of remuneration structure and benchmarking it against the industry • Developing succession plans to ensure staff's career growth • Developing clear career growth plans to allow staff to see their opportunities and retain those with high competency • Devising a training plan to raise staff potential and boost staff morale • Devising a yearly plan on volunteer activities and opening for staff participation • Setting measures for safety, occupational health, and working environment management to ensure standards

Stakeholder	Expectation	Participation Channel	Example of how expectation is addressed
7) Customers & consumers	<ul style="list-style-type: none"> Meeting power production contract in both volume and quality Ability to deliver contractual power Environment- friendly power production process without impacts on communities Reasonable power pricing 	<ul style="list-style-type: none"> Meetings to share information and opinions 	<ul style="list-style-type: none"> Strictly following the maintenance schedule to ensure power distribution efficiency Having correct and complete environmental management as required by law, and paying continuous attention to communities' well-being Revising emergency response plans and running annual drills, with management of the use of parts and fuels to reduce costs while increasing production efficiency
8) Society and communities	<ul style="list-style-type: none"> Responsible operation without negative impacts on communities and the environment Community stewardship and promotion of quality of life Community engagement and open-mindedness Socially and environmentally friendly operations, and participation in tackling climate change 	<ul style="list-style-type: none"> Visits to power plants Community development activities Community hearings and community visits Social engagement activities and campaigns Corporate Relations Division serves as the communication channel 	<ul style="list-style-type: none"> Having diverse forms of communication, including newsletters, news alerts, and occasional visits, as well as community development activities Taking part in Power Development Fund Committee, designed to optimize community benefits Establishing an environmental inspection team of members from all sectors to surveillance environmental management at power plants; also providing knowledge and training for team members Campaigning for energy-saving and promoting less power consumption in communities Arranging activities to promote community forest conservation countrywide as a source of carbon dioxide sequestration to reduce global warming Upgrading internal anti-corruption system to win CAC recognition
9) Mass media	<ul style="list-style-type: none"> Accurate, adequate, timely, thorough, and equal disclosure of information Two-way communication with senior executives 	<ul style="list-style-type: none"> Press conferences Interviews Company website Site visits Occasional meetings Relations activities Corporate Relations Division serves as a communication channel 	<ul style="list-style-type: none"> Drawing up plans for continuous and regular communication, both one-way and two-way Establishing clear procedures for information disclosure and communication with the media Giving sufficient and timely information as required by the media in a fair manner

Step 2: Prioritization

Significant issues acquired from Step 1 are assessed to determine their priorities, considering their impacts on the business in economic, social, and environmental aspects, as well as influence on stakeholders' assessment and decision. The Materiality Matrix is used as the tool for prioritization.

Assessment Outcomes of Key Aspects of Sustainability (G4-19)



Step 3: Validation

A central unit responsible for preparing the report reviews the issues and proposes significant ones to the top management for consideration and endorsement. This step ensures that issues identification is complete, and that details disclosed in the report are in line with the principle on report quality measurement.

Step 4: Review

A suggestion form is attached to the report and posted on the website. Interviews with stakeholders are to be conducted after the issuance of the report to grasp suggestions and recommendations for improvement of the contents and the reporting approach to make next year's report more responsive to stakeholders' expectations and interest.

Assurance of this report

This report is reviewed and assured by a third party, an expertise in certification. The completeness, accuracy, and reliability received endorsement according to the guidelines of GRI G4. The assurance statement is presented in website www.ratch.co.th.

Access to information

Should further information be required or should there be suggestions and recommendations, please contact Corporate Relations Division, Ratchaburi Electricity Generating Holding Public Company Limited, Tel: 66 2 794 9940, 9951, email: charusudab@ratch.co.th, and pornpent@ratch.co.th.

Materiality aspects in this report (G4-19)

Materiality Aspect	GRI Aspect	Topic in the report	page	Boundary				
				Internal				External
				Based-load power plants in Thailand	Renewable power plants in Thailand	Power plants oversea	Energy related business	community/ supplier/ partner/ EGAT/ Regulator
2 Management of project and corporate risks	Strategy and analysis	Management of corporate and project risks	22	x	x	x	x	supplier, community
Economic 1 Growth of enterprise value	Economic performance	Economic performance	96	x	x	x	x	EGAT, partner, supplier
10 Management of business traders and supply chain	Procurement practice	- Customer satisfaction management - Management of supplier relationship and supply chain	100 104	x	x	x	x	EGAT, supplier
Environment 4 Air and water management at power plants	Water, emission, effluents and waste	Environmental management for sustainable development	41	x	x	x		community, regulators
5 Mitigation of impacts and adaptation to the climate change	Energy, emission	Greenhouse gas management to cope with climate change	51	x	x	x		community, supplier, regulators
Social 7 Employee's capability development	Training and education	Employee management and development	62	x	x	x	x	-
9 Safety at work and occupational health	Occupational health and safety	Safety and occupational health at workplace	71	x				regulators, supplier
11 Human rights	Human right	Respect for human rights	93	x	x	x	x	supplier, community
8 Development of a learning organization to raise the organization's competitiveness	Training and education	Employee management and development	62	x	x	x	x	-
3 Anti-corruption	Anti-corruption	Anti-corruption	37	x	x	x	x	regulators, supplier
6 Trust and acceptance by communities around power plants	Local communities	Trust and acceptance from the communities and society	79	x	x	x		community

- represents high significant materiality aspects
- represent moderate significant materiality aspects

Message from Chief Executive Officer

To all shareholders and stakeholders,

Faced by numerous challenges here and abroad-economic slowdown stunting power demand, intense business competition, or rising demand for alternative energy due to global climate change-Ratchaburi Electricity Generating Holding Public Company Limited (RATCH) this year found itself revising short-term and long-term strategies while fine-tuning its work processes to enable steady growth under corporate governance together with responsibility for the economy, society, and the environment. Our ultimate aim is suitable returns for shareholders and stakeholders, hand in hand with our support for Thailand's power supply security for economic and social development as a whole.

Short-term goal: optimize asset management efficiency

Our short-term business goal is simply to add enterprise value. RATCH therefore focuses on efficiency management of operating power plants and managing the construction of new ones. This year, on the whole, Equivalent Availability Factors (EAF) were high, whereas planned outage factors and unplanned outage factors were modest, particularly Ratchaburi Power Plant, our major facility. Thermal power plants commanded 87.3% in EAF, whereas combined cycle power plants' EAF averaged 84.3%.

New power plants successfully constructed and proceeded with commercial operation as scheduled this year. These include the second unit of the Ratchaburi World Cogeneration (RW Cogen.) Plant, both units of Hongsa Plant, and Songkhla Biomass Plant, for a combined equity capacity of 551.56 megawatts. The efficiency of these new plants is crucial, requiring close inspection and fine-tuning of plan development. Availability Factors must conform to the terms of reference of power purchase agreements (PPAs), while unplanned outage factors need to be minimized so that these assets may generate planned income. RATCH also stresses close monitoring of environmental impact management and regular coordination with communities to ensure mutual understanding and trust.

Challenging to our future growth is the management of power plant assets, for power plants in our portfolio command different characteristics, including plant life,



plant technology, and properties of major equipment under each manufacturer. This is why RATCH has put a greater emphasis on plant maintenance. As a rule, plant maintenance must take into account management of risks or unforeseen events due to these characteristics to ensure continued efficiency of power generation while minimizing production costs and risks.

Reinvest for long-term growth

In supplementing value in pursuit of long-term goals, RATCH focuses on reinvestment by way of investment with a wider boundary, especially abroad, and identifying opportunities in other businesses. Nevertheless, RATCH keeps searching for investment opportunities in the power business based on fossil fuels and renewable energy, for these are our core strengths, but investment acquisition is required times. This is simply because the power business value is massive, calling for many steps and strict compliance with assorted laws, generally taking 3-7 years (depending on scale and types of plant) for risk investigation, risk assessment, examination of investment pros and cons (financial, environmental, and social) for each step, while managing project construction to completion before the actual monetizing stage. Only through mergers and acquisitions (M&A) can income be realized at once. This year, RATCH successfully negotiated a joint venture with China General Nuclear Power Corporation (CGN) and Guangxi Investment Group

Company Limited (GIG) for the development of phase 2 of the Fangchengang Nuclear Power Plant with 2 x 1,180 megawatts, located in the Guangxi Autonomous Region, People Republic of China. This undertaking provides environment benefits in addition to financial benefits, for less carbon dioxide is emitted.

Focus on risk management and integrate BSC throughout operations

Armed with a strategy to supplement enterprise value, RATCH has devised risk management guidelines and watertight risk assessment criteria. To this end, in-depth risk assessment analyses apply to individual projects under construction and under development, as well as assets with significant impacts on corporate goals and strategies on business value and the interests of shareholders and stakeholders alike. Project risk management issues find their way to the process of review and decision-making of the Investment Committee and the Audit Committee. This year, our focus of attention is on the Hongsa coal-fired project, Songkhla Biomass project, and RATCH-Australia Corporation Limited.

Besides, we have put in place the monitoring and assessment of undesirable circumstances, risk and impact analyses, and development of risk mitigation plans to ease, avert, share, and transfer risks to ease impacts on income, expenses, and corporate credibility to manageable levels. RATCH also focuses on proactive risk management, having mastered project problems and obstacles so as to formulate prevention, avoidance, and alleviation of potential impacts on emerging projects. It also seeks lessons learned by external entities to maximize the effectiveness of its own risk management.

To raise competitiveness in pursuit of its growth goals, RATCH has integrated the Balanced Scorecard (BSC) strategic management system in all its business processes, linking them in financial, customer, business process, learning and development, and management & leadership aspects. All units must strive to respond to these five strategic goals to help RATCH achieve its goal on returns concerning sustainable society and environment.

Balancing growth with sustainability

Recognizing that business success and sustainability call for commitment to good governance, responsibility to stakeholders, stewardship of communities, and due regard for the environment, RATCH has highly valued anti-corruption, job safety, greenhouse gas (GHG) management to ease global warming, and improvement of lives and society.

RATCH has also been developing and amending its corporate anti-corruption protocol on a par with international standards in the hope of passing certification assessment by CAC (Thai Private Sector Collective Action Coalition against Corruption) in 2016. As for job safety, RATCH's goal is to have all power plants and workplaces achieve zero accident. To this end, all of them have improved their safety standards with more application of internationally accepted tools and standards, in particular OHSAS 18001, Lock Out Tag Out, Stop Work Authority, and Safe Card, assuring that accident at work is effectively prevented.

As for GHG management, to ease the impacts of global climate change, RATCH has tirelessly improved power-generating efficiency to cut fuel consumption and strive to cut energy and resources in power plants and buildings. In 2015 Ratchaburi and Tri Energy Plants enabled to save 7,797 MWh of electricity, reducing carbon dioxide emission by 4,533 tCO₂e. Electricity generated from renewable power plants in Thailand and Australia has also lowered carbon dioxide emission by 193,931 tCO₂e. Indirectly, RATCH has supported efforts to add forest acreage and those to promote communities' reduction of energy consumption.

Finally, improvement of lives and society represents our essential, continual mission. This year, we spent 101 million baht on improving communities and society in Thailand, Lao PDR and Australia. Add to this sum our taxes paid to the government for developing the national economy and society as a whole, amounting to 1.83 billion baht.

On behalf of Ratchaburi Electricity Generating Holding PCL, I would therefore take this opportunity to thank all shareholders and stakeholders for their excellent cooperation, moral support, and confidence in us. In particular, we appreciate their views and recommendations made on the improvement of this report so that it may address stakeholders' needs better. I am convinced that RATCH's current approach will enable to confidently overcome the challenges we are facing on our stride to sustainable growth.



Rum Herabat
Chief Executive Officer



Our Business

Name Ratchaburi Electricity Generating Holding Public Company Limited

Emblem

RATCH



The emblem consists of company name, stock name, and a turbine symbol, echoing its core business and skills

Founding date

March 7, 2000

Registered and paid-up capital

Baht 14.5 billion

Status

Public company limited whose stocks are listed on the Stock Exchange of Thailand (SET)

Ticker symbol

RATCH

Head Office

8/8 Moo 2, Ngam Wong Wan Road, Bangkhen Subdistrict, Muang District, Nonthaburi 11000

Nature of business

Mainly business investment through a holding company engaged in power generation and related businesses, together with the energy business (domestic and international)

Major shareholder

EGAT: 45%

Shares held: 625.5 million (as of September 2, 2015)

Employee headcount

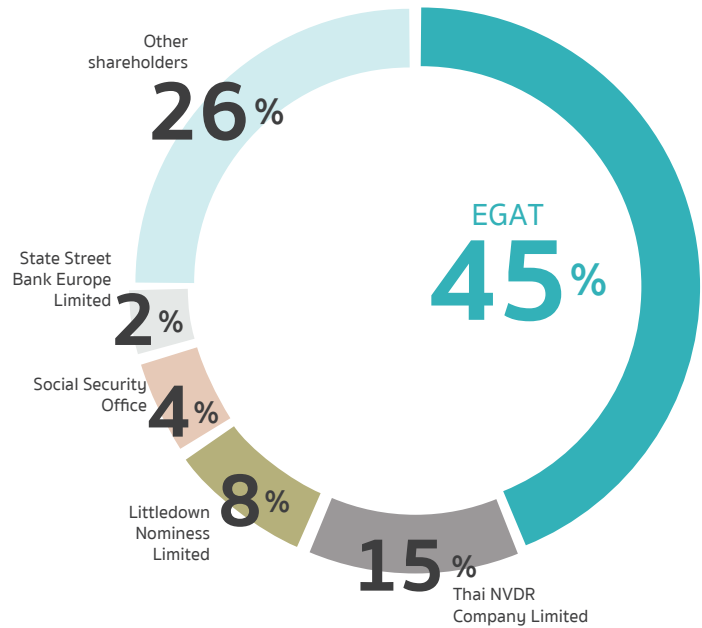
Total: 479 persons

- Thailand: 269 persons
- Laos: 193 persons
- Australia: 17 persons

Subsidiaries (50% RATCH-owned upward)	Total: 11 companies <ul style="list-style-type: none"> • Thailand: 6 companies • Laos: 1 companies • Australia: 1 company • Hong Kong: 1 company • Mauritius: 1 company • Singapore: 1 company
Jointly controlled companies	Total: 21 companies <ul style="list-style-type: none"> • Thailand: 14 companies • Laos: 5 companies • Cambodia: 1 company • Singapore: 1 company
Associates	<ul style="list-style-type: none"> • Thailand: 2 companies
Other investment	<ul style="list-style-type: none"> • Laos: 1 company
Total assets	92,605 million baht
Total liabilities	32,185 million baht
Shareholder's Equity	60,420 million baht
Profits	3,187.87 million baht
Retained earnings	45,951 million baht
Total equity capacity	6,813.55 megawatts
Power plants in operation	Total equity capacity: 6,116.74 megawatts
Power plants under construction	Total equity capacity: 661.81 megawatts
Power plants under development	Total equity capacity: 35 megawatts
Equity capacity in Thailand	4,951.99 megawatts
Equity capacity in Laos PDR	1,095.93 megawatts
Equity capacity in Australia	509.52 megawatts
Equity capacity in Japan	20.11 megawatts
Equity capacity in China	236 megawatts

Shareholding structure

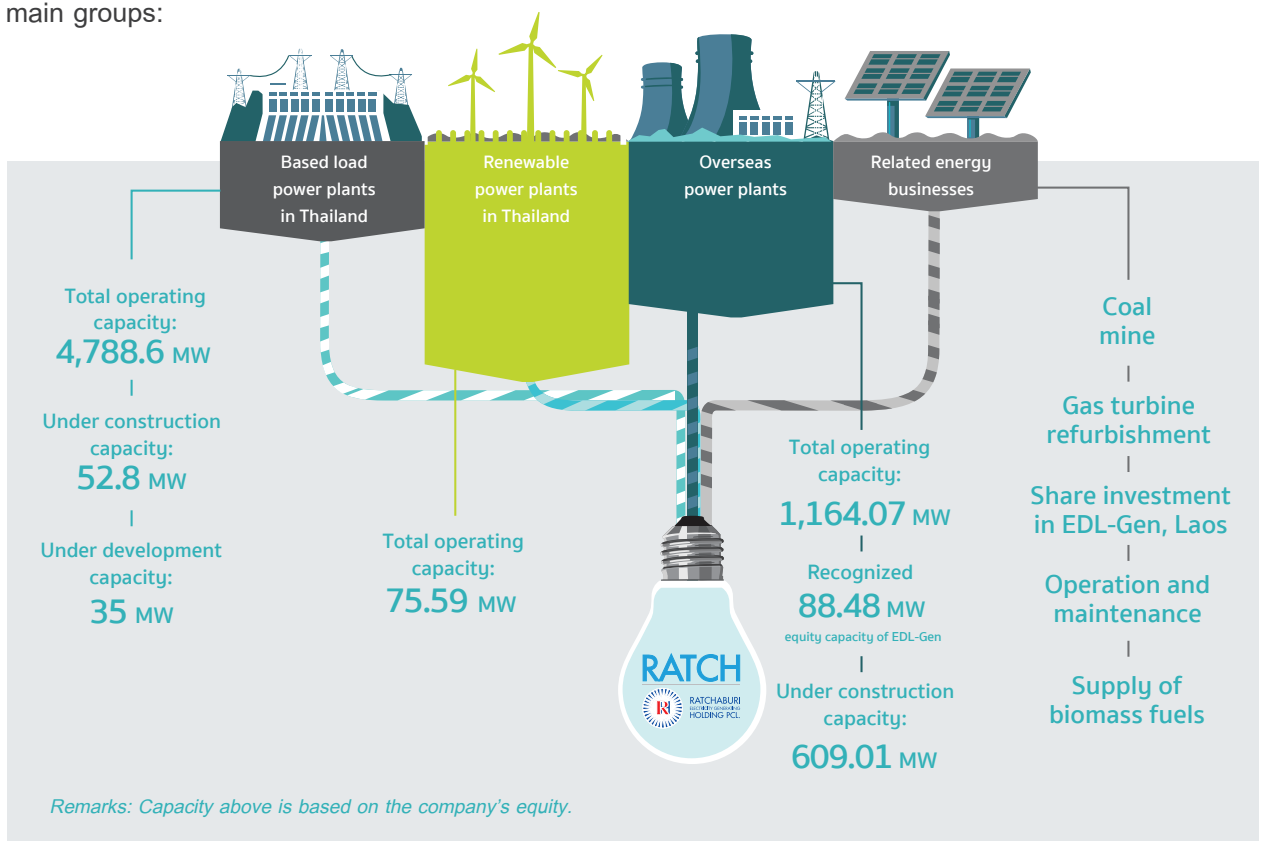
RATCH has a total of 1.45 billion shares, all listed on SET in October 2000. Thai-nationality shareholders as of September 2, 2015 accounted for 83.17%; foreigners, 16.83%. Each share commands one vote. RATCH's current top five major shareholders are as follows.



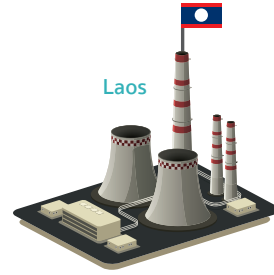
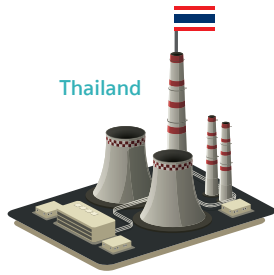
Business nature

RATCH's business is conducted through a holding company engaged mainly in the power generation business because of the long-accrued skills of the corporation and personnel, which also explains why the bulk of its assets are power plants. As an operating platform, Thailand has contributed the largest share of revenue and commands the major role in RATCH's growth, followed by Laos and Australia. Japan and China represent new business platforms, the projects there being under construction.

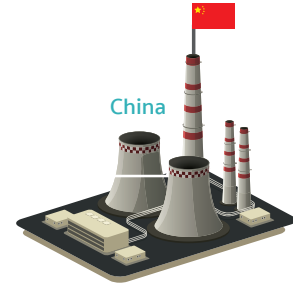
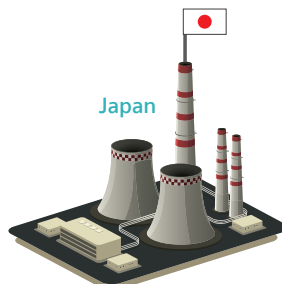
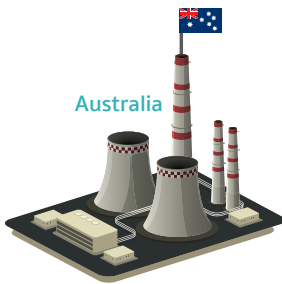
In 2015, RATCH's business structure remains tied to its long-term strategic plan, broken down into four main groups:



Overview of RATCH's investment



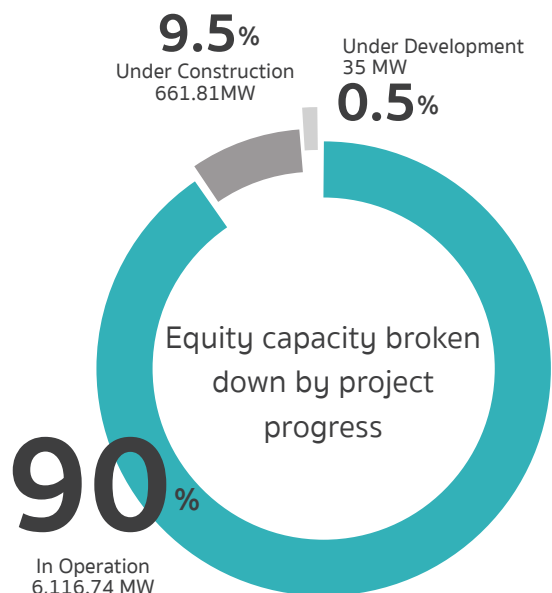
- Three major gas-fired power plants, total equity capacity: 4,695 MW
- Three cogeneration power plants, total equity capacity: 181.4 MW
- 11 solar farms, total equity capacity: 23.98 MW
- Two windfarms, total equity capacity: 41.4 MW
- One biomass power plant, total equity capacity: 3.96 MW
- Operation and maintenance business for Ratchaburi Power Plant
- Gas turbine refurbishment business
- Supply of biomass fuels
- Two hydropower plants, total equity capacity: 256.25 MW
- One coal-fired power plant, total equity capacity: 751.2 MW
- Coal mining business
- Securities investment in EDL-Gen (9.8%), which operates hydropower plants with equity capacity of 88.48 MW
- Operation and maintenance business of Nam Ngum 2 Power Plant



- Three gas-fired power plants, total equity capacity: 455.52 MW
- Three wind farms, total equity capacity: 54 MW
- Two solar farms, total equity capacity: 20.11 MW
- One nuclear power plant, total equity capacity: 236 MW

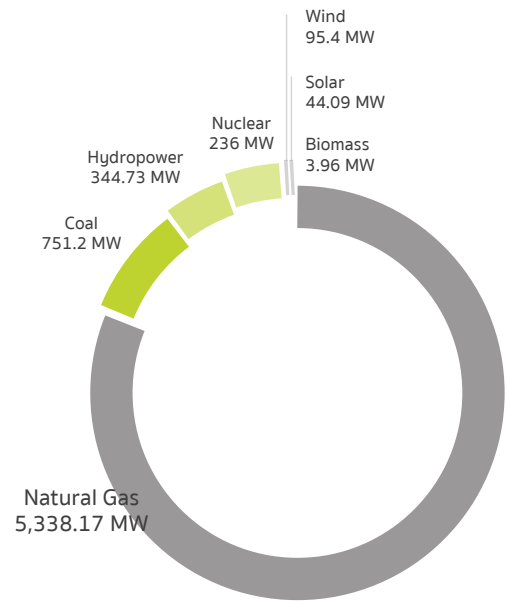
Equity capacity in 2015

This year, RATCH realized a total equity capacity of 6,813.55 MW, of which 90% (6,116.74 MW) represented the capacity of commercially operating plants in Thailand, Laos, and Australia. Then, there is 661.81 MW (9.5%) still under construction, represented by power plants located in Thailand, Laos, Japan, and China. The remaining 35 MW is a power plant located in Thailand, still under development before construction.

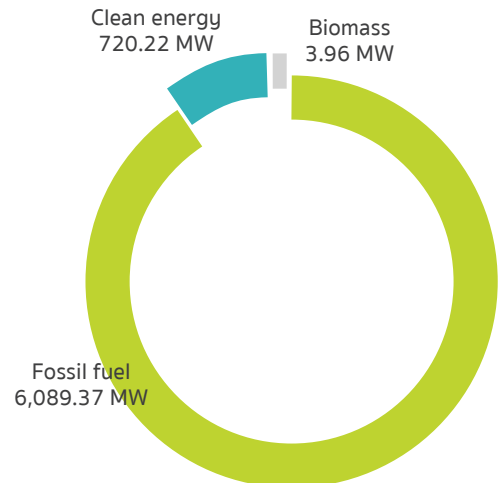


Equity capacity by fuel type

The bulk of RATCH's power generation fuels (78%) are natural gas, accounting for 5,338.17 MW out of a total capacity of 6,813.55 MW. Of this, 5,250.37 MW represents commercially operating power plants in Thailand and Australia, followed by coal at 751.2 MW (11%) at the Hongsa Power Plant in Laos, with commercially operated capacity of 500.8 MW. This is followed by hydropower capacity at 5% from a project in Laos, whose commercial capacity is currently 242.23 MW included equity capacity of EDL-Gen. Finally, one nuclear power plant under construction in China accounts for 4%.

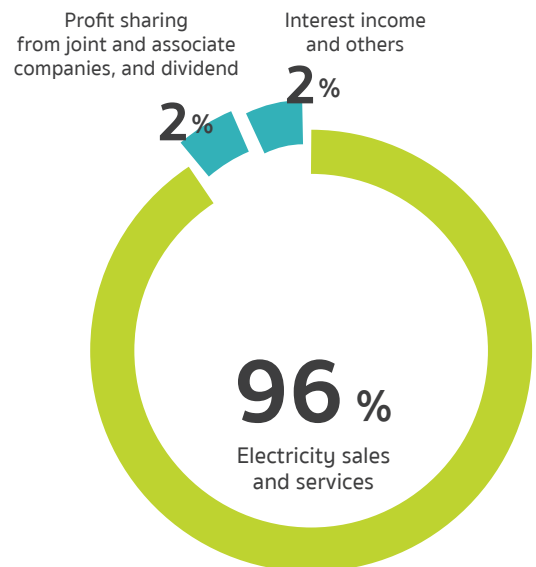


Natural gas and coal represent fossil fuels, which accounted for a combined 89% of RATCH's capacity, whereas clean fuel, including hydropower, solar power, wind energy, and nuclear power together commands 720.22 MW (10.7% of RATCH's capacity).




Revenue structure

RATCH's core income is derived from 3 main sources consisting of electricity sale and services of subsidiaries accounted for 96%, 2% from profit sharing of joint and associate companies, and dividend from EDL-Gen, which tends to substantially increase along with future joint venture success. The remaining of 2% revenue derives from interest incomes and others. RATCH's businesses in Thailand, particularly Ratchaburi and Tri Energy power facilities, remain its staple source of income significant to its growth.
















Power plant locations



Projects	Shareholding	Capacity	Equity Capacity	Location	Fuel	Operator
Fangchenggang II	10%	2,360	236	Guangxi Zhuang Autonomous Region	 Nuclear	Guangxi Fangchenggang Nuclear Power (II) Co.,Ltd.










Thailand

Projects	Shareholding	Capacity	Equity Capacity	Location	Fuel	Operator
Ratchaburi	99.99%	3,645	3,645	Ratchaburi	 Gas	Ratchaburi Electricity Generating Company Limited
Tri Energy	99.99%	700	700	Ratchaburi	 Gas	Ratchaburi Electricity Generating Company Limited
Ratchaburi Power	25%	1,400	350	Ratchaburi	 Gas	Ratchaburi Power Company Limited
RW Cogen	40%	234	93.6	Ratchaburi	 Gas	Ratchaburi World Cogeneration Company Limited
NNEG	40%	132	52.8	Pathum Thani	 Gas	Nava Nakorn Electricity Generating Company Limited
Berkprai Cogeneration	35%	100	35	Ratchaburi	 Gas	Berkprai Cogeneration Company Limited
Huay Bong 2	20%	103.5	20.7	Nakorn Ratchasima	 Wind	K.R. Two Company Limited
Huay Bong 3	20%	103.5	20.7	Nakorn Ratchasima	 Wind	First Korat Company Limited
Solarta	49%	34.25	16.78	Suphan Buri, Phra Nakorn Si Ayutthaya, Nakorn Pathom	 Solar	Solarta Company Limited
Korat 3,4,7	40%	18	7.2	Nakorn Ratchasima	 Solar	Solar Power (Korat 3) Company Limited Solar Power (Korat 4) Company Limited Solar Power (Korat 7) Company Limited
Songkhla Biomass	40%	9.9	3.96	Songkhla	 Biomass	Songkhla Biomass Company Limited
Sao Thain	99.99%	3.6	3.6	Sukhothai	 Associated Gas	Ratchaburi Energy Company Limited
Pratu-Tao	99.99%	2.65	2.65	Sukhothai	 Associated Gas	Ratchaburi Energy Company Limited

Japan

Projects	Shareholding	Capacity	Equity Capacity	Location	Fuel	Operator
Iwaki	60%	22.68	13.61	Fukushima	 Solar	RICI International Investment Pte. Ltd.
Ueda	60%	10.83	6.5	Nagano	 Solar	RICI International Investment Pte. Ltd.

Australia

Projects	Shareholding	Capacity	Equity Capacity	Location	Fuel	Operator
Kemerton	80%	300	240	Western Australia	 Gas	RATCH-Australia Corporation Limited
Townsville	80%	234	187.2	Queensland	 Gas	RATCH-Australia Corporation Limited
BP Kwinana	24%	118	28.32	Western Australia	 Gas	RATCH-Australia Corporation Limited
Starfish Hill	80%	34.5	27.6	Victoria	 Wind	RATCH-Australia Corporation Limited
Toora	80%	21	16.8	Victoria	 Wind	RATCH-Australia Corporation Limited
Windy Hill	80%	12	9.6	Queensland	 Wind	RATCH-Australia Corporation Limited
Collinsville	80%	Decommissioning		Queensland	 Coal	RATCH-Australia Corporation Limited



Sustainable Development Strategy

Aiming for robust and sustainable growth, RATCH conducts its business with economic, social and environmental responsibilities. Since its inception, the concept of sustainable development has always been a hallmark of the Group, as reflected by its strict adherence to good governance (the foundation of sustainable development) and the organization of its structure which incorporates a specific unit directly responsible for environmental work, social engagement and community relations.

Development of business conduct in line with international practices for sustainable development in a gradual and distinctive manner has become RATCH's key strategy. Besides aiming for profit, RATCH values community and social development, minimizing environmental impacts, providing fair treatment to stakeholders and balanced corporate governance practices that are based on integrity, transparency and accountability. Currently, RATCH has identified the directions and goals for its environmental, social and economic implementation in connection with stakeholders' needs and expectations, which are crucial for its sustainability. Please see details of RATCH's stakeholders on page 6.

Sustainability Development Goals and Directions

Besides achieving robust growth through environmentally friendly practices, RATCH has earned social recognition and trust by maintaining a balance of directions and goals under the three key pillars in its business operations.

Sustainable Growth



Application of Sustainable Development Practices in Business Operation

Environmental Responsibility

- **Thailand Voluntary Emission Trading Scheme (Thailand V-ETS)**, developed by Thailand Greenhouse Gas Management Organization (Public Organization: TGO) to promote greenhouse gas (GHG) reduction activities under Thailand's voluntary carbon market with the development of MRV (Measurement, Reporting, and Verification) system since 2009, based on ISO 14064-1, 14064-3 and 14065 standards. Ratchaburi Power Plant, RATCH's main plant, has joined TGO's pilot project to test the MRV system.

- **Green Office** is an environmental management program developed by the Department of Environmental Quality Promotion and the Faculty of Environment and Resources Studies of Mahidol University. Aiming for the optimization of energy efficiency and good environmental management, the program encourages offices to reduce GHG emissions, apply green procurement practices and improve their energy resource and environmental management. RATCH has implemented this program in the management of its Head Office buildings.

- **Carbon Footprint for Organization (CFO) or Corporate Carbon Footprint (CCF)** is a method developed by TGO to assess the levels of GHGs emitted from operation for the determination of management approaches to efficiently reduce GHG emissions at the factory, industrial and national levels. Ratchaburi Power Plant and Tri Energy Power Plant have joined the CFO Promotion Extension Project in cooperation with the Federation of Thai Industries and TGO.

Social Responsibility

- **Corporate Social Responsibility, Department of Industrial Works (CSR-DIW)** Applied to the operations of Ratchaburi Power Plant, the CSR-DIW standard and guidelines encourage industrial plants to operate with social responsibility awareness, with consideration for the quality of life among employees, people in communities and resources, enabling them to grow and develop in tandem with the businesses and capabilities of these plants.

Economic Responsibility

- **Thailand's Private Sector Collective Action Coalition against Corruption (CAC)** is a collaboration among eight organizations, namely the Thai Institute of Directors, Thai Chamber of Commerce, Joint Foreign Chambers of Commerce in Thailand, Thai Listed Companies Association, Thai Bankers' Association, Federation of Thai Capital Market Organization, Federation of Thai Industries and Tourism Council of Thailand. Supported by the Center for International Private Enterprise (CIPE), CAC promotes anti-corruption practices in the private sector. RATCH has applied CAC's principles in developing its anti-corruption system.

- **Corporate Governance Principles** of the Stock Exchange of Thailand, the Securities and Exchange Commission, which correspond with OECD (the Organization for Economic Cooperation and Development) Principles of Corporate Governance. The five principles are 1) Shareholders' Rights 2) Shareholders' Equitable Treatment 3) Stakeholders' Roles 4) Disclosure and Transparency 5) Board Responsibilities.



Management of Corporate and Project Risks

Risk management has been applied by RATCH as an essential tool to support business conduct to spur its progress and growth as strategically targeted. Aspiring for stakeholders' acceptance and satisfaction, RATCH pays attention to analysis of risk factors taking into account various internal elements, including organizational strategies, work processes, project management, operations of each power plant, as well as corporate governance, business continuity, environmental and community issues, safety, regulations, financial matters, and organizational sustainability.

Elements of risk management

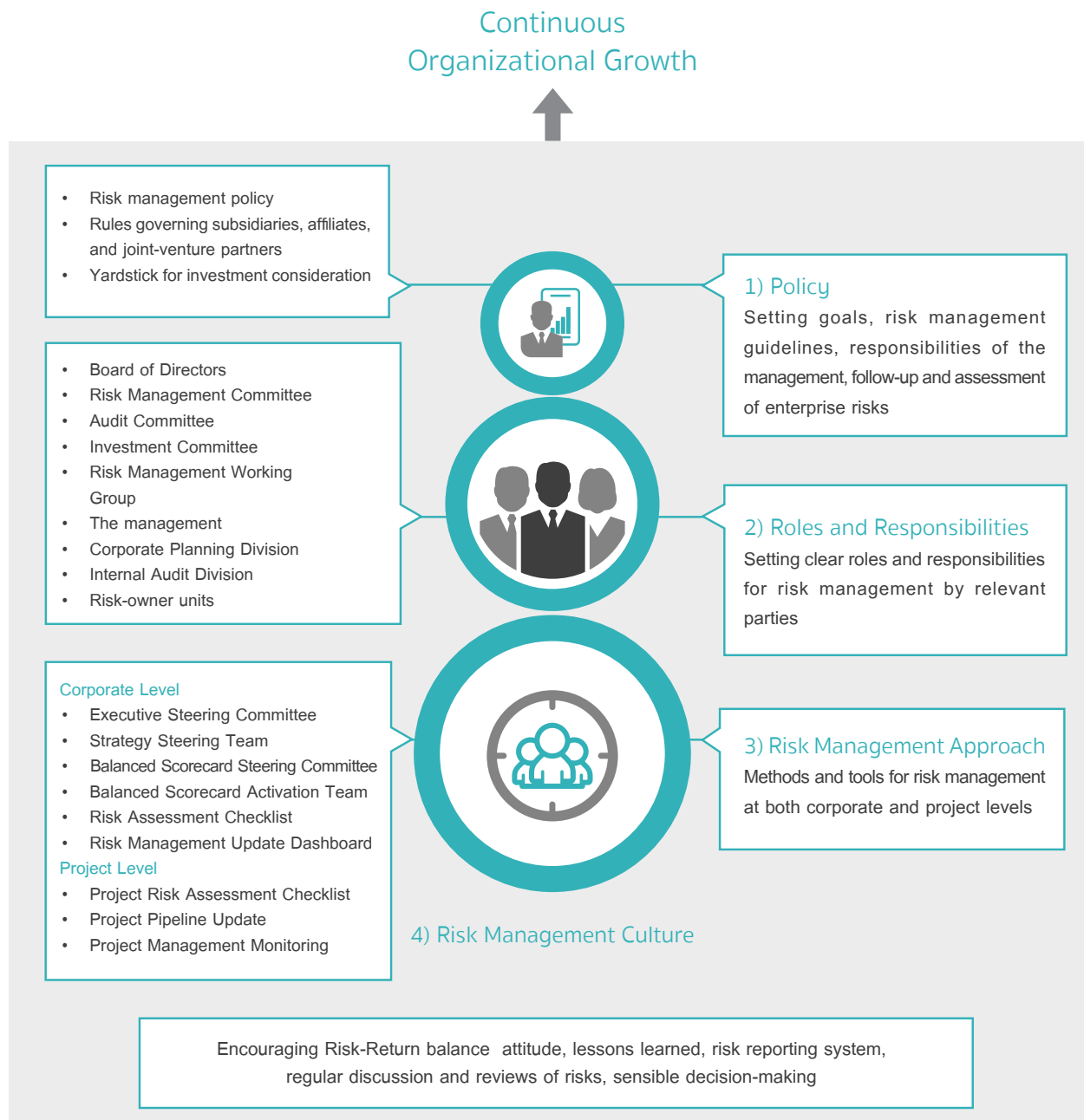
To achieve continuous and sustainable growth, RATCH leverages the four following elements for laying the groundwork of enterprise risk management.

1. **Policy** – RATCH announced its risk management policy enforcement, outlining the precise framework of enterprise risk management, while a set of regulations was designed for subsidiaries, affiliates, and joint-venture companies. Also in place are investment criteria. These have been established to significantly reinforce risk management.
2. **Roles and responsibilities** – The parties vital to enterprise risk management have well-defined roles and responsibilities. These parties are the Board of Directors, Risk Management Committee, Audit Committee, Investment Committee, Risk Management Working Group, the management, Corporate Planning Division, Internal Audit Division, and all risk-owner units.
3. **Risk management method** – This is a tool that RATCH leverages to prevent risks, taking into consideration significance of risk factors. To prevent possible impacts on business growth or on operations, RATCH set up a Executive Steering Committee and the Strategy Steering Team to jointly act as the mechanism to continuously follow up and assess the progress of strategic plan implementation. Meanwhile, the Balanced Scorecard Steering Committee and the Balanced Scorecard Activation Team were also set up to monitor the progress of implementation of the balanced scorecard system to ensure integration of company-wide operations and goal attainment. Other tools have also been developed to support assessment and follow-up of risk management.

At the project level, tools were developed to help Business Development assess risks and follow up management of impacts, including the project risk assessment form, project status reporting form, and project progress update and assessment form.

4. **Risk Culture** – This year, RATCH greatly valued raising awareness and nurturing the corporate risk culture, facing fiercer business competition together with its own business direction of venturing into the international arena. It is therefore necessary for staff to be better aware of risks.

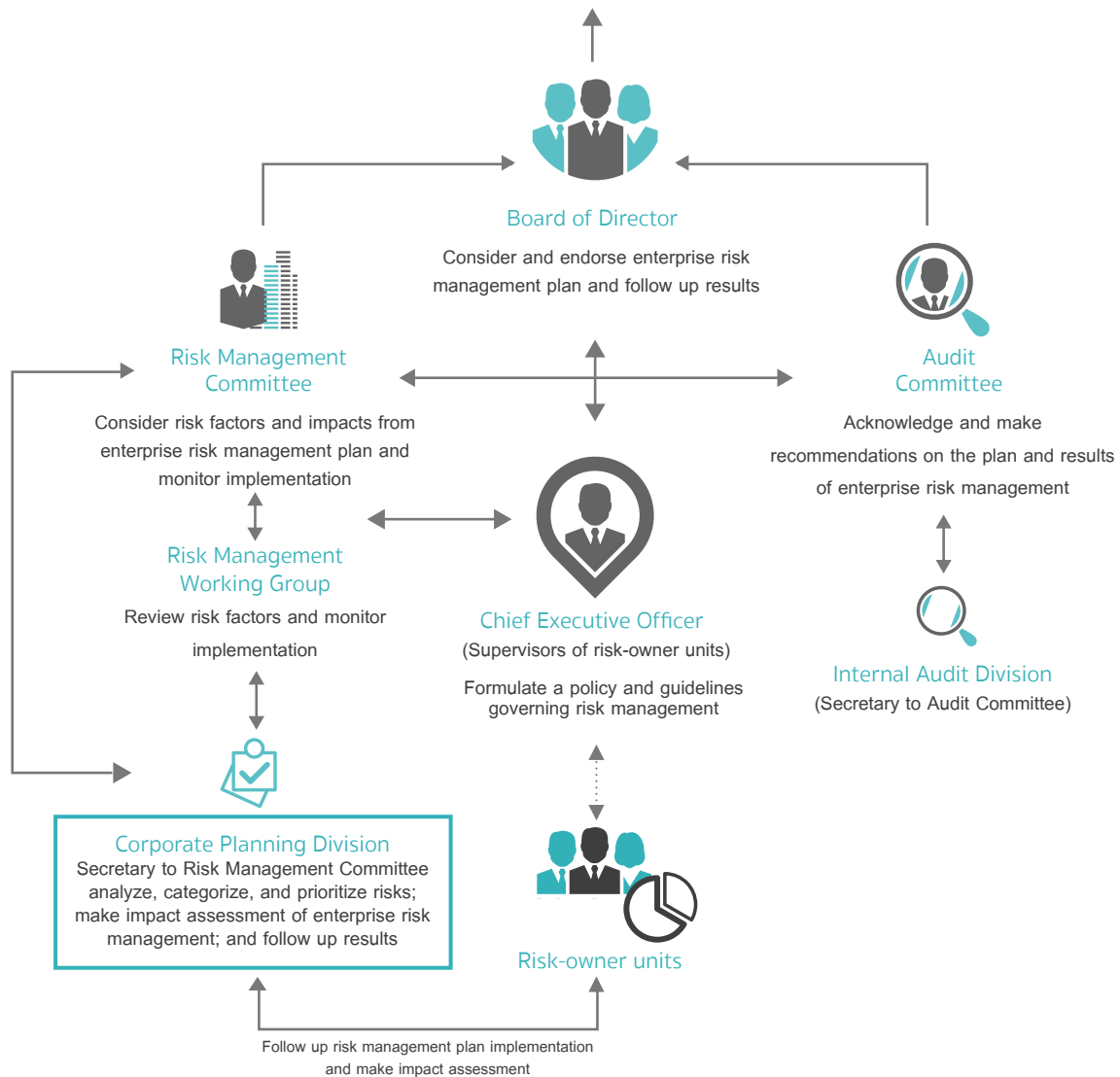
What have been done in this area included encouragement of the risk-return balance attitude among staff so that they may realize risk in developing project and investment returns as well as developing knowledge management from lessons learned to educate staff about how to prevent risks. At the Board level, more proactive risk prevention was stressed with more discussion and reviews of external event risk factors to assess impacts on the company, while decisions must always be sensibly made.



Corporate risk management process

Regarding corporate risk management, Corporate Planning Division serves as the core unit responsible for designing enterprise risk management plans. Risk factors and potential impacts are to be compiled, analyzed, and assessed for significance on the organization before drawing up the plans, which will then be presented to the Risk Management Working Group, whose members comes from the management team, for consideration and review. Next, they will be presented to the Risk Management Committee and the Board for consideration and endorsement. The process, with a linkage to the Audit Committee, complements risk prevention. A risk management checklist will be used to follow up risk management plan implementation and assessment.

Enterprise Risk Management Plan



This year, risk factors were found in 1) risks from competition, both domestic and international; 2) financial risks; 3) operational risks; 4) personnel risks; 5) corporate image risk; and 6) compliance risk.

Performances of risk management, 2015

Risk factor and managing method	Execution / outcome
<p>Risk from competition in Thailand and abroad</p> <ul style="list-style-type: none"> Analyzed and assessed risks (economic, social, political, legal, regulation, industrial, competition, investment circumstance and atmosphere) before deciding to invest in every step, ranging from project development, during development, to commercial operation Examined, monitored, and coordinated with various public and private units to obtain complete and correct data for analysis, assessment, and management of risks very closely, prudently, and concisely so as to plan and put in place measures to lower the probability of risks and ease potential impacts on RATCH's businesses 	<ul style="list-style-type: none"> ✓ Examined and monitored regulations and rules for power purchase under the 2015-2036 Power Development Plan (PDP 2015) ✓ Assessed domestic competition circumstances by analyzing and assessing probabilities and impacts from business expansion for domestic growth

Risk factor and managing method	Execution / outcome
<ul style="list-style-type: none"> Revised and modified strategic plans with a focus on expanding investment abroad more with a focus on the energy business and downstream businesses Sought strong business allies with a view to developing joint ventures Prepared and added capability of RATCH and employees to accommodate investment expansion abroad Preserved reputation and enhanced an image of friendliness to the public and the environment, adherence to corporate governance, and prevention and resistance to corruption, toward international standards Managed assets for efficiency and effectiveness by generating maximum revenue and lowering operating costs 	<ul style="list-style-type: none"> Analyzed and summarized various problems, obstacles, and factors faced in past project development to learn and identify preventive methods for existing and future projects Studied overseas markets with investment potentiality Probabilities and impacts from this risk factor are still manageable.
Financial risk	
<ul style="list-style-type: none"> Defined plans for fund mobilization and financial tools for suitable, adequate mobilization to keep costs and debt: capital ratios suitable for maintaining business liquidity Carefully applied financial policies under the given budget for suitable returns in line with dynamic circumstances Efficiently managed debts, interest rates, and currency exchange rates by engaging in natural-hedge deals for exchange rates and applying various derivatives to prevent financial risks, including swap agreements for interest rates and exchange rates Efficiently managed taxes 	<ul style="list-style-type: none"> Revised and added long-term measures for the management of risks from currency exchange rates and interest rates in addition to short-term measures, with analysis of exchange rate trend 3-5 years in advance. Sought financial tools to prevent risks, including suitable exchange rates and interest rates Probabilities and impacts from this risk factor are still manageable.
Operational risk	
<ul style="list-style-type: none"> Managed overall assets for RATCH by monitoring, analyzing, and assessing probabilities and potential impacts on commercially operating projects and those under construction and development Defined short-term, medium-term, and long-term operating plans for growth and enhanced enterprise value in a sustainable manner under RATCH's goals and in line with its strategic plans Assigned the Asset Management Unit to track the performances of affiliates and joint-venture companies, together with analysis and comparison of returns with goals every month, and to define KPIs for each project for quarterly assessment Stayed vigilant for hazard risks (including drought, floods, and devastation) by focusing on proactive preventive management to lower the probabilities and impacts on RATCH's and affiliates' projects 	<ul style="list-style-type: none"> Appointed senior executives with business appreciation and experience, as well as local cultures, to serve in given countries to manage, analyze, and closely track assorted circumstances so as to be truly aware of situations and set management guidelines that are suitable and up to speed Appointed a strategic management taskforce, consisting of senior executives from all functions, to screen, monitor performances, and revise policies and strategies of the RATCH Group so as to respond to goals and align with current situations The Risk Management Committee held an urgent meeting to review and revise the adequacy of emergency plans and drills, preventive measures, and preparedness for undesirable incidents facing projects; to monitor data and intelligence, while closely coordinating with public agencies, security agencies, and all community leaders in the wake of the bomb incident at Rajprasong Intersection in August 2015.

Risk factor and managing method	Execution / outcome
	<ul style="list-style-type: none"> ✓ Probabilities and impacts from this risk factor are still manageable.
Personnel risk	
<ul style="list-style-type: none"> • Recruited capable personnel to serve abroad to accommodate the international business expansion plan • Set fair, suitable compensation and welfare that are competitive with the same business • Developed on-the-job training plans, job rotation, and skill development in languages so that RATCH's personnel may be more capable and knowledgeable, be more qualified, and meet RATCH's needs 	<ul style="list-style-type: none"> ✓ Hire skilled advisers with experience in personnel planning, ranging from recruitment and selection processes, succession, career path and growth, retention of capable personnel, to morale-building ✓ Probabilities and impacts from this risk factor are still manageable
Risk of corporate reputation and image	
<ul style="list-style-type: none"> • Set measures to forge good relations with all stakeholders from the pre-development stage, during development and construction, commercial operation, to project conclusion • Set measures for relations management with stakeholders after contractual project termination • Adhered to corporate governance; responsibility to society, communities, and the environment; compliance with agreements, laws, and regulations; and environmental impact mitigation measures stated in EIA reports • Instituted adequate communication and complaint channels for stakeholders and promptly resolved complaints • Developed crisis communication plans by assessing risks compatible with corporate strategies, while linking such plans to subsidiaries so that all problems might be efficiently and systematically resolved 	<ul style="list-style-type: none"> ✓ Joined the declaration of desire and passed CAC's assessment ✓ Visited, shared opinions, and took part in national and local customs, together with assorted activities of society and communities in a continued and regular fashion to bolster relations between RATCH and communities, as well as acceptance, confidence, and mutual trust ✓ Probabilities and impacts from this risk factor are still manageable.
Risk of compliance with relevant laws and regulations	
<ul style="list-style-type: none"> • Stayed vigilant for changes in legislation, rules, and regulations • Monitored the completeness of compliance to relevant laws, rules, and regulations • Assessed and analyzed probabilities and impacts of changes in legislation, rules, regulations, and taxation of investment target countries 	<ul style="list-style-type: none"> ✓ Hired legal advisers to jointly analyze data and provide perspectives for compliance with relevant regulations in investment ✓ Probabilities and impacts from this risk factor are still manageable.

Project risk management process in 2015

Management of project risks indeed intensified this year. The Risk Management Committee agreed to develop tools to prevent and minimize investment risks. Such tools were designed to suit each type of investment project. In this regard, RATCH drew up a risk assessment form, in which the risks are divided into two levels:

1. **Macro-level assessment**– Consideration is to be made of various risk factors, including the credit rating of the target country in question, laws and tax structure, licensing processes, as well as business partners or joint-venture partners.

2. **Project-level assessment**– Emphasis is to be put on investment in power plants because RATCH's prime investment strategies lie in power production. Levels of risk in each project depend on such factors as whether a power purchase agreement has already been signed, water supply or water sources, technology, fuels, power transmission systems, and social and environmental concerns.

To consider an investment, the Investment Committee and the Board look into the results of both types of investment assessment. Projects that received approval will be monitored by the Risk Management Committee, which will closely follow up the construction using the S-Curve model as a tool to ensure that construction can progress with standards upheld. It will also monitor budget expenditure, efficiency of tools and machinery, and management of engineering contractors, as well as procurement and engineering procurement construction (EPC).



Risk management approach for 2016

- RATCH will still value the management of risks from currency exchange rates and interest rates in 2016.
- Project risk management will receive continuous attention in order to raise enterprise value as targeted. Reviews will be made to improve the assessment form and control other essential risks to prevent and minimize risks.
- RATCH will strongly advocate the risk culture in the organization, with particular attention to creating awareness of lessons learned as well as creating risk and return balance attitude.



Good Corporate Governance

The Board of Directors is RATCH's ultimate leadership to supervise its business, based on integrity, transparency, accountability, without conflicts of interest, and represents the interests of the organization, shareholders, and all stakeholders, based on equality and fairness. The Board's duties and responsibilities are clearly stipulated in RATCH's regulations as agreed and approved by the Board. In 2015, the Board reviewed and made additional amendments to the regulations in line with prevailing conditions and current internal and external situations. The Board's regulations appear on <http://www.ratch.co.th/en/cg/charters> (available in Thai only).

Roles and Duties of the Board



Board of Directors

Formulation of Strategies, Business Plans, and Budgets

- Consider main issues affecting RATCH's directions and policies
- Approve business plans, budgets, and annual goals

Follow-up

- Progress and success of strategic implementation
- Outcomes against short-term and long-term goals
- Operating efficiency

Human Resource Management

- Endorse human resource management strategies, executive development plans, compensation structure, and the organization's compensation plans
- Supervise criteria, procedures, nomination procedures, removals, termination of employment of directors and top management
- Assess job performances of the management against goals

Supervise accuracy and completeness of key issues

- Ensure a suitable proportion of independent directors to balance the power of the management or major shareholders, or both
- Review the vision, strategies, missions, code of conduct for business operation, for directors and for executives, and personnel, as well as communicating them to employees
- Check and approve annual financial reports and other important data and documents
- Follow up on RATCH's operations, internal control system, and compliance with laws and other regulations
- Monitor internal control and internal audit processes. Follow up on the external auditor's work and assessment
- Conduct analysis and assess risk management and follow up
- Ensure transparency in dealing with connected transactions and prevent conflicts of interest, especially corruption
- Protect the company's reputation

Appropriate and efficient communication with stakeholders

Establishment and definition of duties of committees

Definition of criteria for annual assessment of performance outcomes of directors and committees

Determination of meetings and voting by directors

Additional Roles and Duties of the Board of Directors appear in the Annual Report 2015.

Structure and Good Corporate Governance

The Board' regulations stipulate that the Board can determine and appoint committees to closely monitor important issues in depth to ensure efficiency and effectiveness of operations to meet the goals and maximum expectations of shareholders and stakeholders, as well as to ensure the Board's more concise and comprehensive decision-making.

In 2015, the Board consisted of 14 members and there were five committees that reported directly to the Board.



Board of Directors

14 members

- They represent shareholders and are the organization's ultimate leadership. There are no less than 7 and not exceed 15 members.
- The Chairman must not be a management director or Chief Executive Officer.
- There are eight independent directors. (there must be no less than one-third or 3 members of the total directors.)
- There is one management director (there must be no more than one-third of the total directors.)
- There are five directors representing major shareholders including management director.
- One director has one vote but must abstain from voting if involved in conflicts of interest.
- There are three female directors and 11 male directors.



Audit Committee

3 members

- They consist of at least three independent directors, with directorship tenure of three years.
- They review sufficiency, efficiency, and effectiveness of the internal control system and RATCH's financial reports.
- They examine connected transactions, possible conflicts of interest, abnormal issues, fraud, mistakes.
- They monitor compliance and appoint the external auditor.
- They consider Internal Audit Division's independence and auditing criteria.



Risk Management Committee

4 members

- They hold directorship tenure for three years.
- They screen major risk management policy and strategies, spanning economic, social and environmental issues.
- They determine measurement criteria of risks, acceptable risk ceilings, risk management measures, efficiency of the risk management system/tools.
- They follow up on implementation, report outcomes, risk status, and rectifications to the Board.



Investment Committee

3 members

- They hold directorship tenure for three years.
- They are directly responsible for the Board.
- They determine strategies, goals, investment plans, investment budget, investment returns, contributing to organization's growth.
- They screen investment projects to ensure compliance with RATCH's policies and goals, taking into account the best returns and risks in every aspect.
- They follow up and assess investment projects and report to the Board.



Human Resources and Remuneration Committee

3 members

- They hold directorship tenure for three years.
- They define human resource development strategies, Group's executive development plans, and provide succession plans for major positions with regular reviews.
- They determine the size and composition of the Board that suit the organization and regularly review them to suit the circumstances.
- They determine criteria, methods, nomination procedure, removal, termination of employment of directors and top management with fairness and transparency.
- They recruit and nominate qualified persons to be the Group's directors and top management, with experts in particular fields in the nomination process as necessary.
- They determine the compensation policy, strategies and other incentives, as well as compensation and other incentives for the Group's directors and top management.
- They lay down criteria, method, effective procedures in the performance assessment of the Group's directors and top management, compared against the annual goals that are connected to the business plan that is jointly defined.



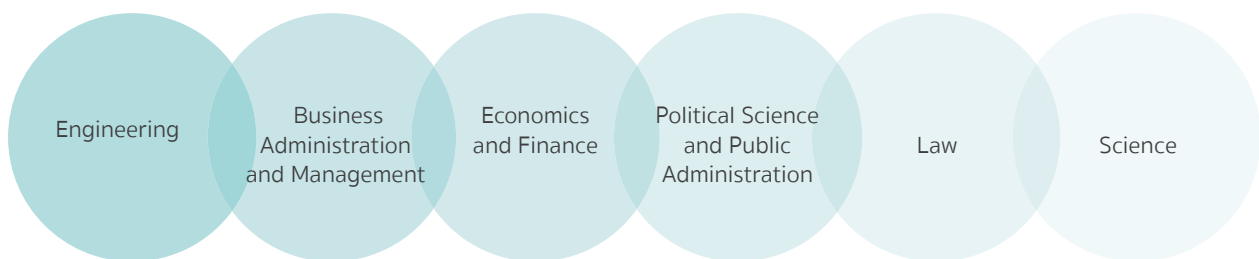
Corporate Governance and Social Responsibility Committee

3 members

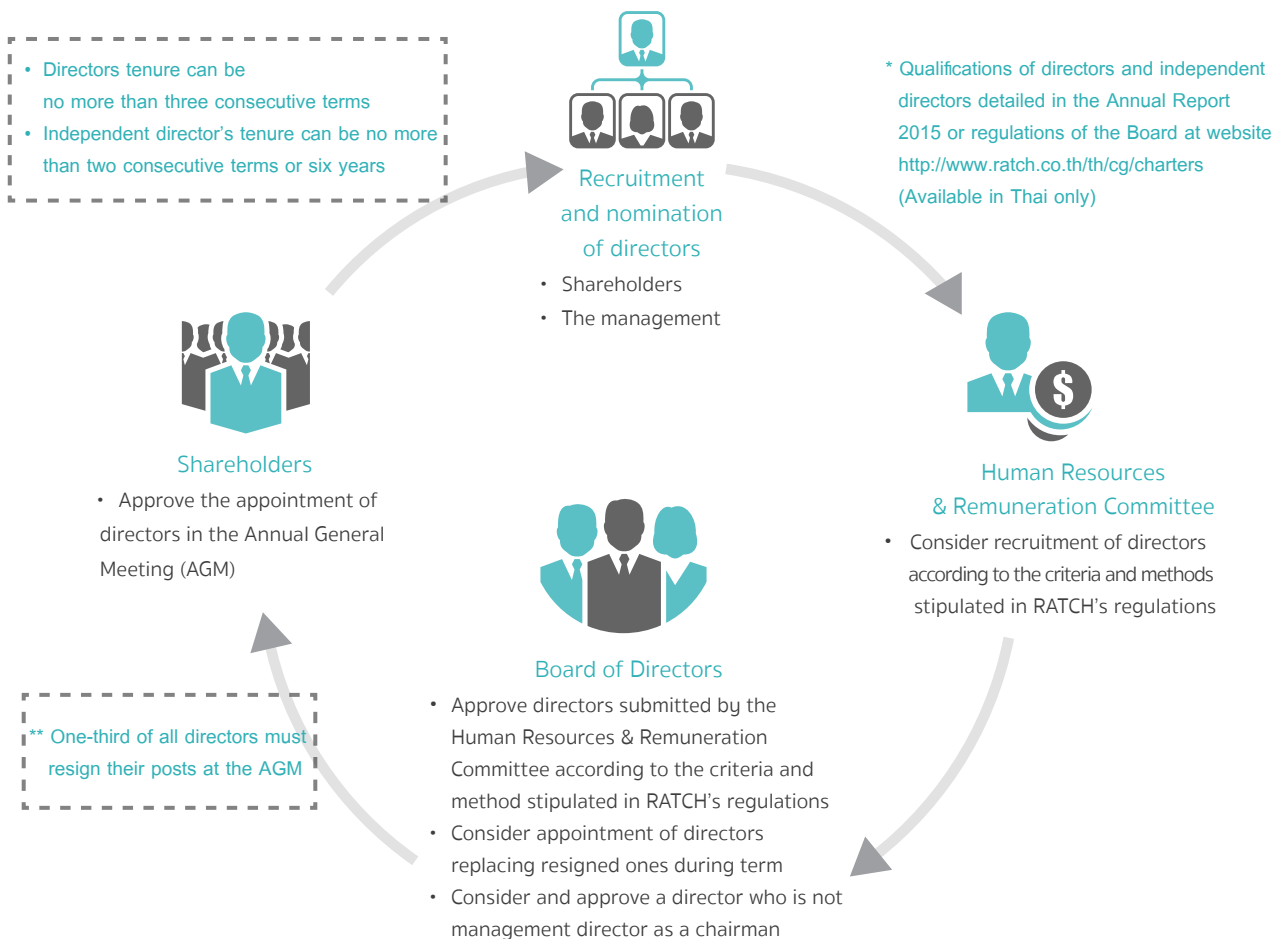
- They hold directorship tenure for three years.
- They approve the policy, strategies, implementing guidelines, goals, and action plans on good corporate governance and the company's CSR.
- They ensure implementation and review for improvement in accordance with circumstances.
- They report implementation outcome and make recommendations to the Board.

The five committees and the Board supervise RATCH's operation covering all aspects. The economic dimension focuses on its growth in parallel with the support of energy security for the country's economic and social development as Thailand's Independent Power Producer. At the same time, it focuses on the treatment of stakeholders in various social sectors with environmentally friendly operations. These are the policy and guidelines cascaded down to the management to prepare for the implementation plan, taking into account both positive and negative impacts on RATCH's growth, society, communities, and environment, as well as implementing it to meet success as planned, by presenting and reporting progress, performance outcomes, problems, and obstacles in various aspects to the Board every month. The main materiality in this sustainability report as defined by the management reflect intention and matters that the Board highly values.

The 14 directors possess knowledge and expertise in various professional disciplines that are integrated with the company's corporate governance that is concise and covers all dimensions.



📍 Directors' Nomination Process





Performance of the Board in 2015

List	Board of Directors	Audit Committee	Risk Management Committee	Investment Committee	Human Resources & Remuneration Committee	Corporate Governance & Social Responsibility Committee
Total meetings (meetings)	12	5	5	6	7	2
Meetings of non-management directors (meetings)	1	1	-	-	-	-
Visits to RATCH's operation (visits)	3	-	1	-	-	-

Visits to the operations by the Board not only follow up on the progress of other projects, but also serve as a channel for the directors to discuss and listen to comments from other stakeholders who are not shareholders. In 2015, the directors followed up on the progress of Hongsa Power Plant and Songkhla Biomass Power Plant.

Performance Outcomes of the Board and the committees in 2015

List	2015 Performance Outcome	
	The whole	Individual
Board of Directors	Excellence	Very Good
Audit Committee	Very Good	Excellence
Risk Management Committee	Excellence	Excellence
Investment Committee	Excellence	Excellence
Human Resources & Remuneration Committee	Excellence	Excellence
Corporate Governance & Social Responsibility Committee	Excellence	Excellence

Compensation of Directors

The company has formulated a policy and criteria for compensation of the Group's directors and top management to serve as clear, transparent, fair, and suitable framework, aligned with present circumstances. The compensation is linked to RATCH's operating performance outcomes and the levels of assigned responsibilities. The compensation of directors and the top management must have the approval of the AGM. The management will present details to the Human Resources & Remuneration Committee, which will in turn seek approval from the Board to set an agenda at the AGM.

The compensation of directors is disclosed in the Annual Report 2015. However, the percentage or proportion of compensation is considered confidential, as stipulated by RATCH's regulations, and cannot be revealed.

Corporate Governance Performance 2015

Activity/ Project	Objective
<p data-bbox="153 994 537 1070">Corporate Governance Report of Thai Listed Companies (CGR)</p> <ul data-bbox="153 1128 491 1205" style="list-style-type: none"> <li data-bbox="153 1128 491 1205">• Thai Institute of Directors Association (IOD) 	<p data-bbox="555 994 1394 1294">To present the results of corporate governance performance and encourage the development and improvement of good corporate governance paradigm of Thai listed companies. The assessment criteria were based on the principles of good governance by the Organisation for Economic Cooperation and Development (OECD Principles of Corporate Governance) and by the Stock Exchange of Thailand.</p> <p data-bbox="555 1312 847 1339">There are 235 criteria in</p> <ol data-bbox="555 1357 1007 1570" style="list-style-type: none"> <li data-bbox="555 1357 839 1384">1. Shareholders' Rights <li data-bbox="555 1402 1007 1429">2. Shareholders' Equitable Treatment <li data-bbox="555 1447 828 1473">3. Stakeholders' Roles <li data-bbox="555 1491 943 1518">4. Disclosure and Transparency <li data-bbox="555 1536 855 1563">5. Board Responsibilities <p data-bbox="555 1659 887 1686">Outcome (Award/Ranking)</p> <p data-bbox="555 1704 959 1731">CG scoring 91% - Excellent level</p>

Activity/ Project	Objective
<p>AGM Quality Assessment Project</p> <ul style="list-style-type: none"> • Thai Investors Association 	<p>To enhance the quality of AGMs of Thai listed companies to match international standards on participation, shareholders' rights and good governance in business conduct, and to raise awareness of shareholders of the benefit of attending the AGM and forge collaboration and good relations among related agencies in the capital market.</p> <p><u>Outcome (Award/Ranking)</u> The highest AGM Level : 5</p>
<p>ASEAN CG Scorecard</p> <ul style="list-style-type: none"> • ASEAN Capital Market Forum (ACMF), which consists of capital market regulators from each ASEAN country 	<p>It is to assess and rank corporate governance performances of listed companies of participating ASEAN member countries to provide investors with corporate governance information for their investment decision-making processes, and to encourage listed companies to recognize the significance of complying with CG principles. ASEAN CG Scorecard is considered the mean criteria in raising the standards of corporate governance among listed companies and in promoting quality investment in the ASEAN region, and to select the TOP 100 listed companies with the highest market capitalization as of April 30 each year.</p> <p><u>Outcome (Award/Ranking)</u> Results of the assessment 2013-2014: RATCH's scored in the 80-90 percent range</p>
<p>Sustainability Awards & Social Enterprise Investment Awards</p> <ul style="list-style-type: none"> • The Stock Exchange of Thailand (SET) 	<p>To reflect performances of Thai listed companies in their business conduct toward sustainable growth. The event was divided into</p> <ol style="list-style-type: none"> 1) Announcement of the Thailand Sustainability Investment Awards: All listed companies in the announcement had met the environmental, social and governance (ESG) assessment criteria.

Activity/ Project	Objective
	<p>2) Sustainability Awards, which clearly reflect performances in line with sustainable development principles.</p> <p><u>Outcome (Award/Ranking)</u> RATCH was ranked in the Thailand Sustainability Investment (THSI)</p>
<p>Board of the Year Awards 2015</p> <ul style="list-style-type: none"> • Thai Institute of Directors • The Stock Exchange of Thailand • Thai Chamber of Commerce • The Federation of Thai Industries • The Thai Bankers' Association (TBA) • The Thai Listed Companies Association • The Federation of Thai Capital Market Organization (FETCO) 	<p>To recognize and promote quality and efficient Boards. The assessment covered</p> <ol style="list-style-type: none"> 1. Board Policy 2. Board Performance 3. Board Structure 4. Board Style 5. Board Meeting 6. Board Members <p><u>Outcome (Award/Ranking)</u> 1) Board of the Year – Excellent level 2) Audit Committee of the Year</p>
<p>Sustainability Report Award</p> <ul style="list-style-type: none"> • The Securities and Exchange Commission • CSR Club, Thai Listed Companies Association • Thaipat Institute 	<p>To promote and improve sustainability reports of listed and non-listed companies. The assessment criteria covered</p> <ul style="list-style-type: none"> • Completeness • Credibility • Communication <p><u>Outcome (Award/Ranking)</u> RATCH won the Sustainability Report Award - Outstanding</p>

Activity/ Project	Objective
<p data-bbox="178 300 542 376">Anti-corruption Progress Indicator Assessment Project</p> <ul data-bbox="178 392 497 510" style="list-style-type: none"> <li data-bbox="178 392 497 465">• The Securities and Exchange Commission <li data-bbox="178 481 411 510">• Thaipat Institute 	<p data-bbox="574 300 1423 465">This is an initiative under the Sustainability Development Roadmap for Listed Companies emphasizing management of business operations with firm commitment against corruption and becoming role models for others.</p> <p data-bbox="574 526 1031 560">The progress indicator is divided into</p> <ul data-bbox="574 571 826 784" style="list-style-type: none"> <li data-bbox="574 571 817 600">Level 1: Committed <li data-bbox="574 616 798 645">Level 2: Declared <li data-bbox="574 660 826 689">Level 3: Established <li data-bbox="574 705 785 734">Level 4: Certified <li data-bbox="574 750 807 779">Level 5: Extended. <p data-bbox="574 840 1423 1052">The companies can use the assessment results in forming business strategies against corruption, and the investors are able to learn of listed companies' commitment and policies against corruption and refrain from investing in these with a tendency to engage in corruption practices.</p> <div data-bbox="574 1288 1430 1644" style="background-color: #e0f2f1; padding: 10px;"> <p data-bbox="574 1310 912 1344"><u>Outcome (Award/Ranking)</u></p> <p data-bbox="574 1355 1423 1568">RATCH attained the level of 3A, reflecting its policy on refusal to pay bribes, no involvement in corrupt attempts and communication and staff training on the anti-corruption policy and practice together with a declaration of intent to join the Collective Action Coalition against Corruption (CAC).</p> </div>



Ethics and Integrity






RATCH regards ethics and integrity as its business and work tenets, evident in the corporate values and code of conduct, code of conduct for directors, executives, and employees, and company regulations. This year, RATCH took anti-corruption seriously, adding more weight to its audit toward off risks potentially hurting its credibility. All directors, executives, and employees are to master and be aware of the guidelines stated in our code of conduct.

Employees can alert, report, or complain about violations, behavior bordering on ethical wrongdoing, or questionable judgment to their superiors or Human Resources. In its regulations, RATCH has defined clear procedures and processes for reviewing, investigating, and punishing wrongdoers, in addition to the reporting of investigation outcomes. This year, however, no case related to ethics and integrity was filed. For details about the code of conduct, please log on to <http://www.ratch.co.th/en/cg/conduct/the-code-of-conduct>.

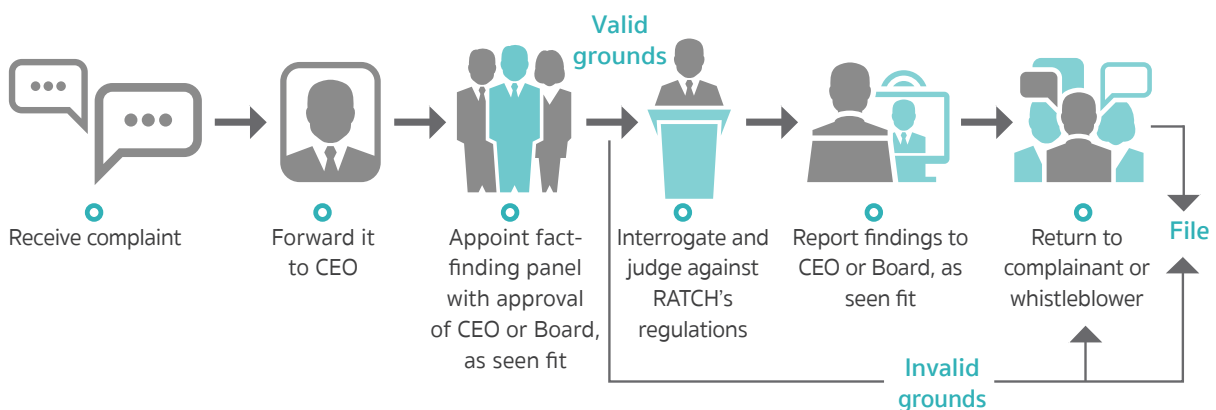
Reporting and complaint channels

RATCH has in place channels for employees and external stakeholders to report or complain about irregularities or improper behavior in its business conduct. These channels are the mechanisms for consultation and provision of data to stakeholders should questions arise about RATCH's business or business processes. To this end, RATCH has assigned the Company Secretary Office and Internal Audit Division as reception points for these reports and complaints.

RATCH plans to integrate these current channels with the fraud whistleblowing system, which is to be installed and part of the development and improvement of RATCH's anti-corruption system to meet the international standards, due for completion in 2016.

- 
Phone
 02 794 9510 (Company Secretary Office)
 02 794 9520 (Internal Audit Division)
- 
Fax
 02 794 9888 ext. 9510 / 9520
- 
E-mail
 CS@ratch.co.th (Company Secretary Office)
 internalaudit@ratch.th (Internal Audit Division)
- 
Website
<http://ratch.co.th/th/en/secretary>
<http://ratch.co.th/th/en/internal-audit-division>
- 
Mail
 Ratchaburi Electricity Generating Holding PCL.
 8/8 Moo 2, Ngam Wong Wan Road, Bangkhen,
 Muang, Nonthaburi 11000 Thailand

Complaint-handling process



This year, no complaint or report was filed through the above channels.



Anti-corruption

RATCH is determined to run its businesses transparently and fairly, while resisting corruption of all forms. This year it improved internal anti-corruption practices after signing Thailand's Private Sector Collective Action Coalition Against Corruption's Declaration of Intent at the end of 2014. Highly valuing this matter and aiming to jointly resolve the internal and external corruption problems, the Board assigns the management to upgrade and tighten the internal anti-corruption system in pursuit of international standards.



Outcomes of anti-corruption actions in 2015

1) Formulation of anti-corruption development plans

RATCH has assigned a third-party company with international expertise on this matter as an adviser to jointly prepare and implement plans, and mentor RATCH. Seven steps are involved:

Step 1 : Analyze weak points and examine current operations

- Assess RATCH's corruption risk management processes and develop a register of corruption risks of various units
- Compare RATCH's risk management with universal practices to define an improvement approach that is more watertight
- Apply the adviser's recommendations to obtain a corporate corruption risk management plan
- Table this plan for the management to deliberate

Step 2 : Upgrade corruption risk management

- Develop suitable corruption risk management
- Develop comprehensive policies, guidelines, and manuals for executives and employees (including prohibition of bribery-giving, donation of money, and acceptance of gifts and tokens) and other policies and regulations (including anti-corruption policy and exceptions to the policy)

Step 3 : Develop corruption risk assessment

- Design and develop assessment tools
- State possibilities for corruption and risk level on the basis of probabilities and severity of impacts of frauds and malfeasance
- Stage workshops for key relevant units and all employees
- Systematize reports on corruption risk assessment to continually monitor them

Step 4 : Evolve corruption whistleblowing system

- Revise RATCH's current corruption complaint-handling system to identify gaps and weaknesses to be improved
- Set a policy for whistleblower protection
- Forge recognition of corruption
- Stage workshops for senior executives

Step 5 : Establish a culture and organize training on ethics; forge recognition of anti-corruption

- Organize employee training to forge recognition of corruption risks and establish a corporate culture
- Forge recognition of corruption through assorted communication formats for employees
- Institute e-Learning to forge recognition of corruption risks

Step 6 : Assess the anti-corruption system against CAC's self-assessment form

- Verify relevant issues to get RATCH ready for CAC certification
- Complete CAC's self-assessment forms referenced to the original self-assessment form of Transparency International, and arrange relevant documents for CAC certification
- Report the self-assessment outcomes against CAC to the Audit Committee for giving approval before requesting the Board's endorsement.

Step 7 : Implement

- Start enforcement of policies, regulations, criteria, and practices within RATCH Group
- Monitor and assess policy implementation outcomes.

Step 1 and Step 2 have been done this year, and Step 3 is ongoing.



Goal:

- CAC certification by 2016

2) Education and cultivation of awareness of anti-corruption among employees

Activity	Unit	Goal
<p>Anti-corruption dialogue for employees presented by</p> <ul style="list-style-type: none"> • Chairman, Risk Management Committee • CEO • CFO • Experts from KPMG Phoomchai, advisers • Vice President and Head of Internal Audit Division 	RATCH	<ul style="list-style-type: none"> • Employees acknowledge RATCH's commitment and desire for anti-corruption • Forge recognition of the value of corruption risk prevention and impacts of corrupt practices
EGAT Transparent Organization activities	EGAT	Demonstrate EGAT's stance on and desire for anti-corruption in response to the major shareholder's policy
Training on Anti-Corruption : The Practical Guide (ACPG)	Thai Institute of Directors	Executives and employees of key relevant units appreciate this issue and effectively lead the drive to success
<p>Assessment of the level of sustainability development on anti-corruption</p> <p>RATCH was ranked "3A level" due to the progress on its anti-corruption prevention and signing of Collective Action Coalition Against Corruption's Declaration of Intent.</p>	<ul style="list-style-type: none"> • The Securities and Exchange Commission • Thaipat Institute 	Represent the mechanism echoing the progress on development of RATCH's anti-corruption for further improvement
Outstanding Corporate Governance Award – Central Region, 2015	<ul style="list-style-type: none"> • Office of the National Anti-Corruption Commission (NACC) • Thai Chamber of Commerce • University of the Thai Chamber of Commerce 	



Commitment of the Board and the management



Mr. Siridech Julpema

Risk Management Committee Chairman

“The committee issues the policy, whereas the management team practices it. It’s imperative that we have a clear scope and conscience, including whose responsibility is a given risk. Since corrupt practices are delicate to judge, it must be explicitly stated who has the authority over which aspects. What the committee wishes to stress is that the corporate culture is a key driver against corruption, so all of us needs to improve and change our culture. All of us must be willing and cooperate against corruption of all forms.

Let’s start with ourselves. We must be ashamed of sins and exercise our conscience. It’s a matter of ethics for each of us, who must strive to forge the awareness of anti-corruption. We must help each other improve and put a stop to corrupt practices in our company by the so-called “2Ps”: Prevention and Preparation (which is what we’re doing). In short, be moral, develop noble awareness and high responsibility, and practice integrity among ourselves, our company, and our country.”

“Each of us must regard it as a duty and lend a hand to compliance with the upcoming protocol. I believe that if our system is sound and people comply, we’ll succeed in helping RATCH prevent corrupt practices in a sustainable way. As a major company, RATCH is constantly watched by the public and the social sector, so successful anti-corruption represents a firm foundation for our sustainability, which will keep us growing in a sustainable way.”



Mr. Rum Herabat

CEO



Environmental Performance



Environmental Management for Sustainable Development

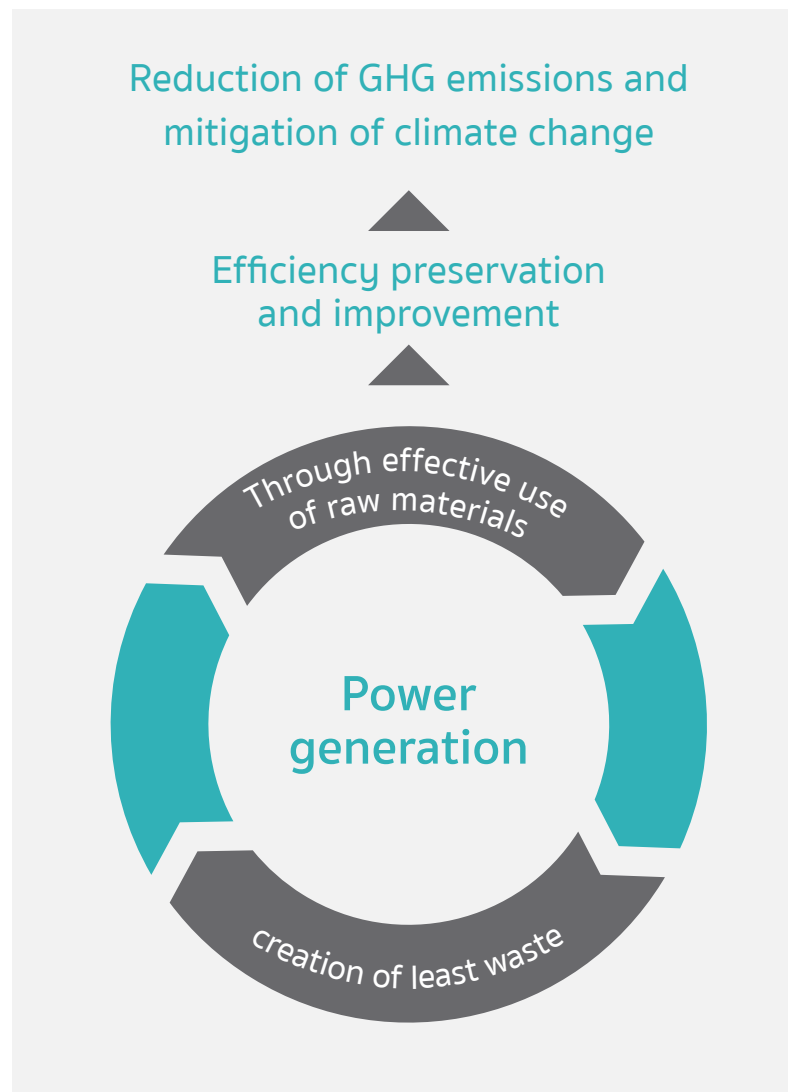


Greenhouse Gas Management to cope with Climate Change

While power generation from our main plants has continued for over 15 years, we have diligently kept up our maintenance and efficiency improvement so as to cut resource consumption and eliminate waste discharge to the surroundings. On the other hand, this success also implies power generation efficiency improvement through the most effective use of raw materials per unit output, which means reduction of natural resource consumption and waste discharge. Above all, it cuts greenhouse gas (GHG) emissions, a cause of global climate change.

Environmental Management for Sustainable Development

RATCH Group is still determined to engage in power generation along with minimization of environmental, community, and social impacts. Over the past 15 years, one can say with conviction that the Group has successfully run its businesses seamlessly without creating significant environmental impacts, evident in the trust of communities in the continued operation of power plants to preserve national power security.



Environmental management

- **Environmental management policy**

The Group recognizes the responsibility to workers, communities, society, and the environment.

All executives and staff are therefore committed to policy compliance in the following ways:

1) Strictly comply with laws and relevant regulations

2) Recognize the value of communication with workers, contractors, and related stakeholders to promote knowledge, understanding, and awareness of their roles in environmental and safety management, directly and indirectly

3) Control and prevent pollution resulting from the consumption of raw materials and production processes through impact assessment before starting operation. This is achieved by focusing on effective use of resources and energy together with identifying ways to improve production efficiency, cut energy consumption, and minimize waste discharge to the surroundings.

4) Support all resources adequately and suitably to promote participation of workers in constantly forging innovation dealing with energy and resource consumption.

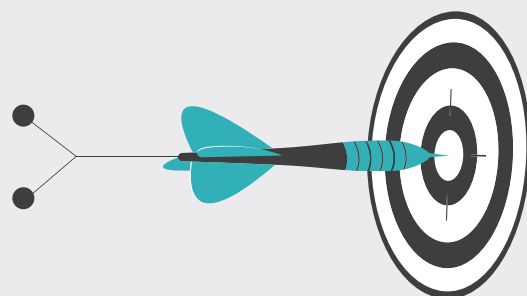
- **Environmental management goals**

All RATCH power plants' goals are to manage the environment through controlling performances such that they are superior to or meet the environmental requirements of the laws and regulations in all countries where it does businesses, and to comply strictly with the preventive and remedial measures for impacts as well as regulator-endorsed monitoring measures of environmental quality. Reporting to relevant agencies is to be constantly done.

All relevant workers must be aware of their roles and duties in efficient power generation, implying care exercised from the selection of raw materials, control of production processes, and the volumes of all pollutants discharged to the surroundings to ensure that every step of the operation is diligently taken care of and monitored. As a result, this year the Group incurred no issues of non-compliance, violation, or fines.

Full compliance with the law

Awareness and attention to production with responsibility



Operation standard

With a mission focusing on international-standard operational excellence and socio-environmental responsibility, RATCH has developed its operation by participating in various projects, as well as applying international standards to raise its efficiency of environmental quality management to worldwide credibility and acceptance by all sectors.

Standard	Head Office	Ratchaburi	Tri Energy	Ratchaburi -Power	RW Cogen
ISO 14001	-	✓	✓	✓	
OHSAS 18001 / TIS 18000	-	✓	✓ Certification won as planned in 2015	✓	Certification expected by November 1, 2016
CSR-DIW	-	✓	-	-	-
Energy conservation	✓	✓	✓	✓	✓
Green Office	✓	-	-	-	-
Thailand V-ETS	-	✓	-	-	-
CFO	-	✓	-	-	-
T-VERS	Planned for 2016	-	-	-	-
Carbon Disclosure Project (CDP)	-	✓	-	-	-
3R & 5S	✓	✓	✓	✓	✓

Outcomes

The Group's environmental management performance in its business ranges from project development, construction, commissioning, to maintenance such that it operates in an environmentally friendly way until the end of each plant's contract. Two elements are discussed below.

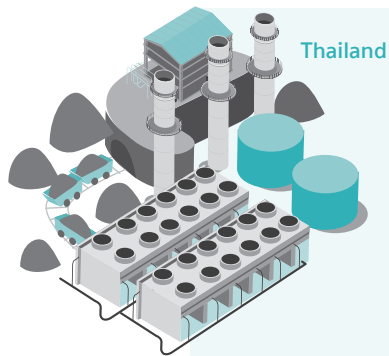
1) Projects under development and construction

This year the Group's projects under development consisted of the 100-MW Berkprai Cogeneration Plant Project, which is under EIA preparation. The first public participation was conducted with satisfactory outcomes. The issues of community interest was the effective control of the plant's water consumption to avoid impacts on community utilization. On this, in its EIA report preparation, RATCH would strictly observe the announcement of the Ministry of Natural Resources and Environment.

As for the projects under construction this year, including the 132-MW Nava Nakorn Electricity Project, RATCH has defined measures to control contractors working on the site to comply strictly with the EIA measures for the prevention and mitigation of environmental impacts, with systematic tracking and assessment of performance every week.

2) Projects in operation

The core operating plants under the Group that are fuelled by fossil fuels are broken down into:

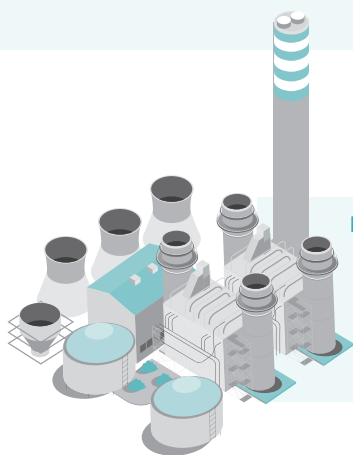
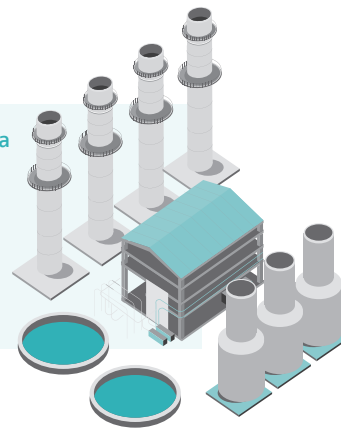


Thailand

- Ratchaburi Power Plant, Tri Energy, Ratchaburi Power, and Ratchaburi World Cogeneration have a combined installed capacity of 5,979 MW
- Gas from the Yadana, Yetagun, and Zawtika fields in Myanmar serves as the main fuel, with bunker oil and diesel as backup fuels for thermal and combined-cycle plants respectively. The choice of fuels is dictated by the National Control Center (NCC), EGAT

- This is a combined-cycle plant, with three units for a total installed capacity of 652 MW
- All units are powered by natural gas, with diesel as a backup fuel

Australia



Lao PDR

- Hongsa Plant consists of three thermal units, each with 626 MW, for a total of 1,878 MW, of which two have started up
- Coal is the fuel

All operating power plants feature environmental control and management practices under respective standards and requirements under the supervision and monitoring of each plant's executive committee and environmental taskforce to ensure that all steps of operation conform to the conditions and criteria of the law, requirements, policies, and regulations of RATCH. The ultimate goal is power generation that is friendly to the environment with optimum resource consumption, while impacts of power generation must be averted and minimized, whether it is air-borne, water-borne, or waste.



Air quality :

Control of combustion efficiency and resulting pollutants



Water quality :

Control of raw-water consumption and effluent quality



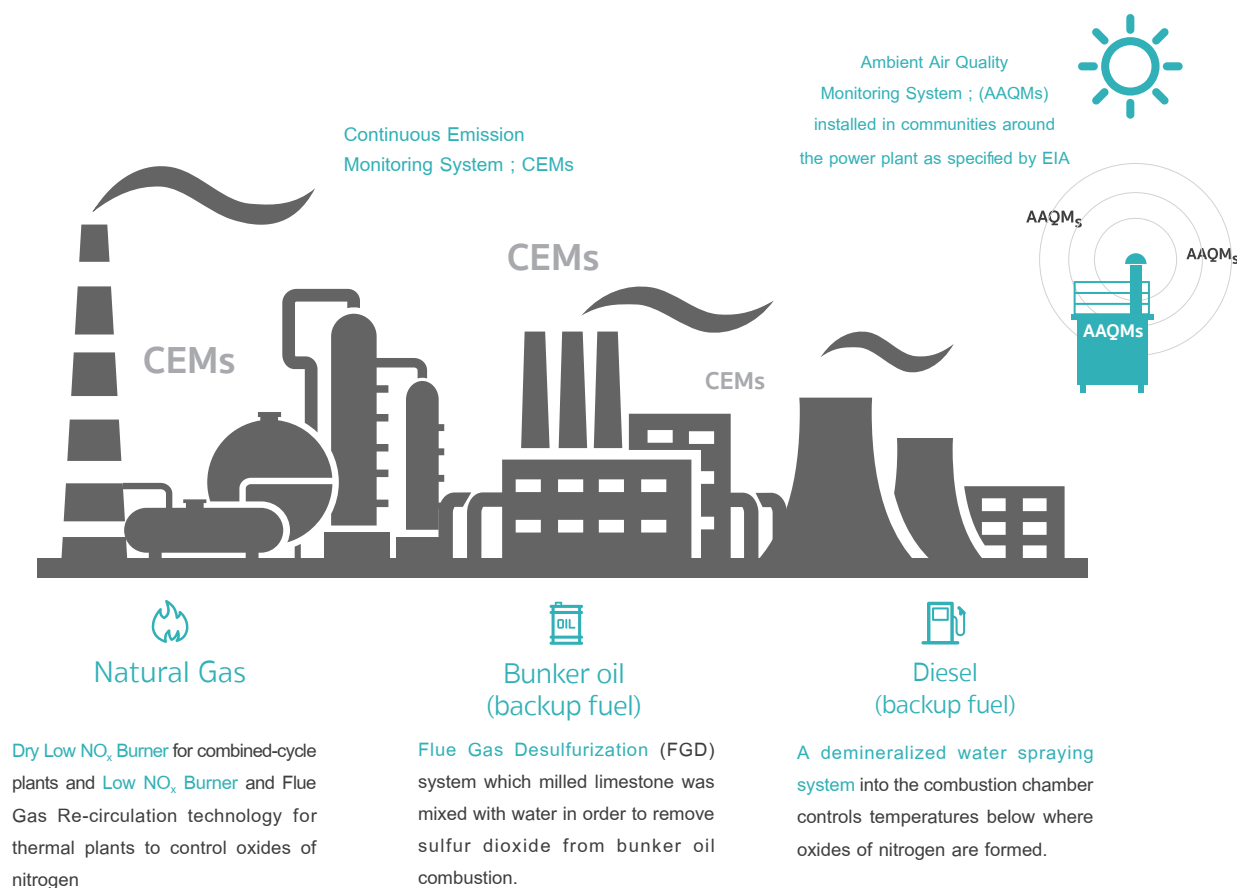
Waste management :

Reduction of consumption of raw materials, reuse, and recycling. Also, the company commits to lowering hazardous waste, which must be used for landfill, to achieve zero impact.

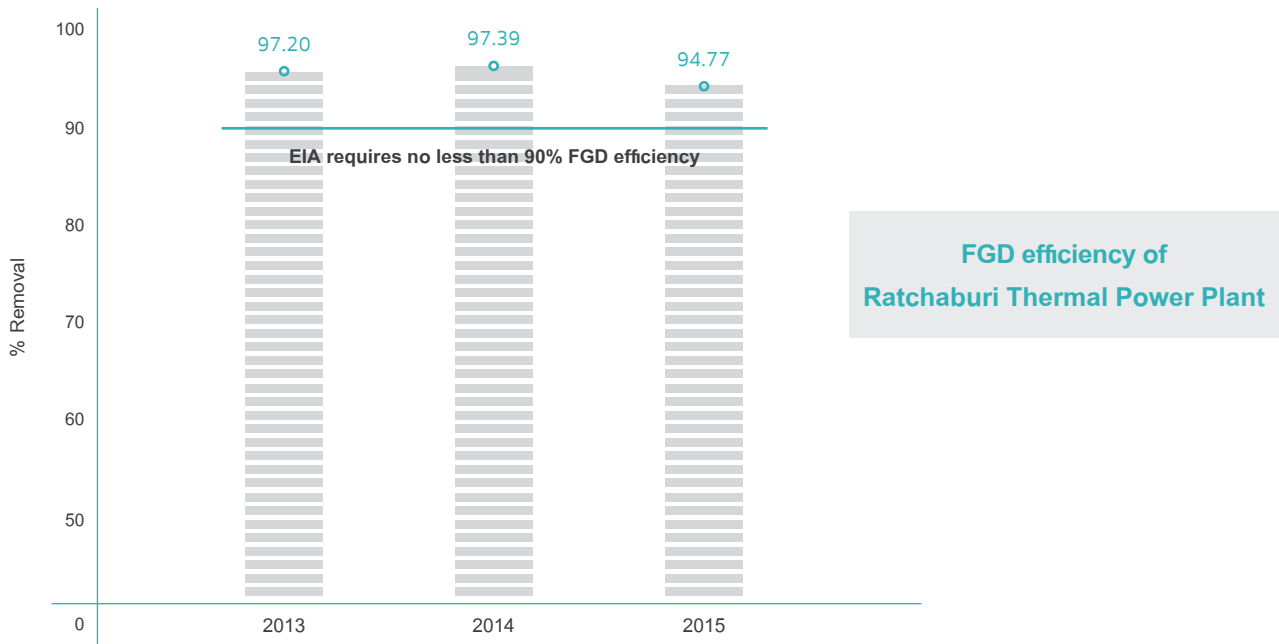
This year, we present preventive and remedial measures for environmental impacts along with the monitoring of environmental quality for Thailand's major power plants, namely Ratchaburi Power Plant, Tri Energy, Ratchaburi-Power, and RW Cogen Power Plants, with a total installed capacity of 5,979 MW (4,788.6 MW in equity capacity). Environmentally, these are regarded as RATCH's significant operations, accounting for 83% of the total capacity of the entire Group that is fossil fuel-powered.

Air quality management

A system of control, prevention, and quality measurement of combusted-air quality is installed at the time of each plant construction to guarantee that its power generation can control its pollutants, namely oxides of nitrogen, sulfur dioxide, and particulates resulting from process combustion to well within the control standards.



The stack emission measurements this year showed that the pollutants released from the plants are regarded as good by the standard of the Ministry of Industry (MOI) when fuelled by natural gas or liquid fuels. Ratchaburi Thermal Plant's FGD when 91.4 million liters of bunker oil was used this year still maintained its desulfurization efficiency, averaging 94.8% (the EIA requires no less than 90% efficiency).



Pollutant	Average concentration of pollutant from power plant				
	NO _x (ppm)		SO ₂ (ppm)		Backup fuel
Type of fuel	Gas	Oil	Gas	Oil	
Ratchaburi Thermal Plant	12.29	52.17	0.38	17.19	Bunker oil
Ratchaburi Combined Cycle Plant	20.18	94.16	1.63	3.37	Diesel
Tri Energy	33.7	101.2	0.45	33.6	Diesel
Ratchaburi-Power	46.14	Not used	1.23	Not used	Diesel
RW Cogen	31.3	None	1.3	None	None
MOI Standard	120	180	20	320	-

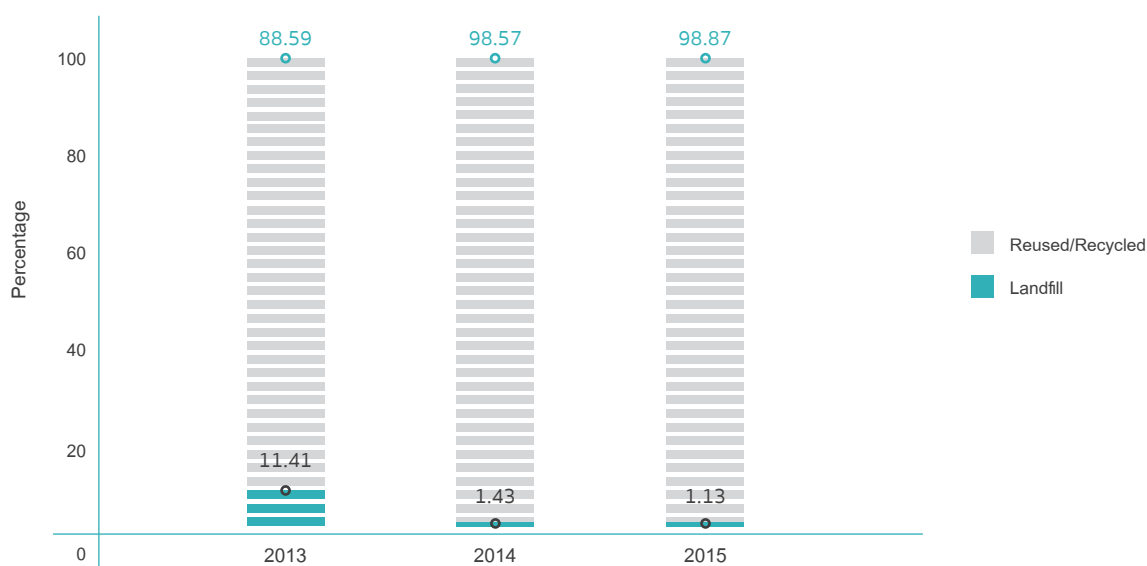
Waste management

To minimize the amount of surplus materials or waste from production processes and maintenance work that need to be treated, the power plants pay attention to the efficient control of raw materials and maintenance supplies, with the choice of scrap disposal that would minimize environmental impacts. All plants take seriously the selection of disposal contractors and their disposal methods, which must be watertight and comply with the law. In addition, The plants monitor their disposal to ensure that surplus materials and scrap undergo proper, suitable treatment in compliance with MOI standards.

Surplus / scrap	Property	Management method
General scrap	Non-hazardous	Hire local disposal agencies conforming to sanitary principles
Process waste	Non-hazardous	Hire disposal contractors licensed by MOI to dispose of individual waste with non-hazardous waste manifest
	Hazardous	Hire disposal contractors licensed by MOI to dispose of individual waste with hazardous waste manifest
Gypsum (from FGD System when fuel oil is used)	Non-hazardous	Put in a gypsum pit lined with high-density polyethylene (HDPE), with six-monthly inspection of groundwater quality and sale to cement or gypsum-board producers as raw material
Soil sediment from water quality improvement system (waterworks)	Non-hazardous	Use for planting on the compounds of power plants

This year, RATCH's main power plants accumulated 10,737 tons of waste caused by operation and maintenance, made up of 330 tons of hazardous waste and 10,407 tons of non-hazardous waste, which yielded 10,615 tons (98.87%) of reusable waste, along with 122 tons of landfill waste. Note that this year's process waste outnumbered last year's because the main power plants like Ratchaburi Power Plant needed a planned major overhaul every six years, which implies more substantial replacement than normal operation and maintenance. Still, the plants continued to choose disposal methods to maximize waste disposal and reuse.

Waste Disposal Ratio, 2013-2015



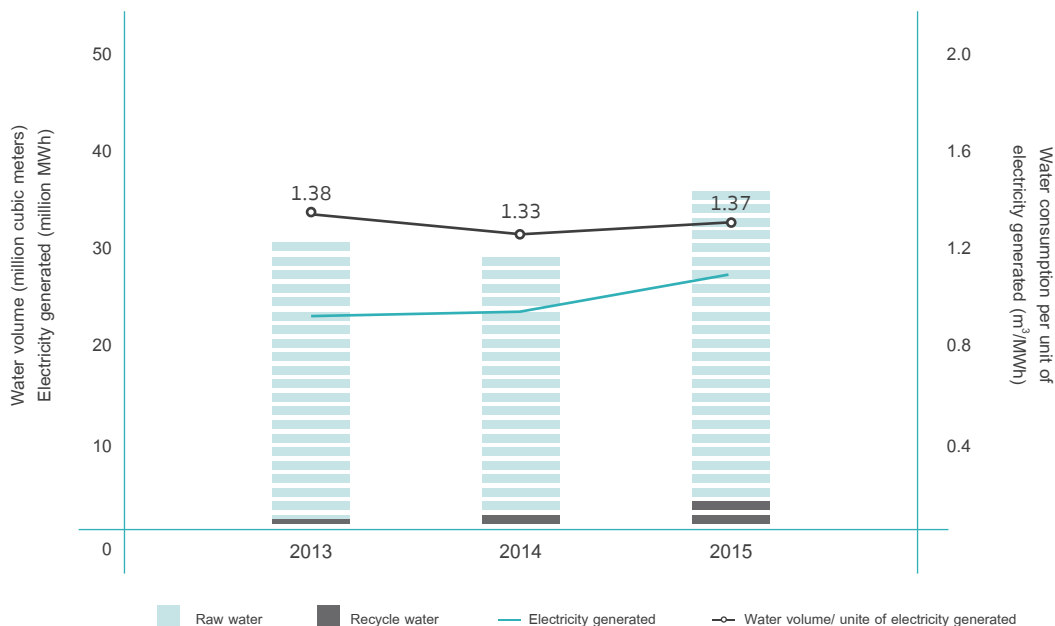
Water management

While power generation processes require massive volumes of water, the Group commands measures for the optimal control of water consumption by reusing and recycling to keep essential discharge to the surroundings. In addition, it installed wastewater treatment systems that fit each type of wastewater for treatment efficiency and quality treated water to prevent impacts on public bodies of water and community utilization.

Reduction of water consumption

This year, Ratchaburi, Ratchaburi-Power, and Tri Energy Power Plants consumed 36.22 million cubic meters of water from the Mae Klong River (about 1.72% of the river's volume), which was 0.48% more than last year's because of the 5 million MWh more power generated (about 22% more than last year) and the main power plants' major overhauls (happening every six years), which raised the consumed volume over the year from 1.33 to 1.37 cubic meter per MWh. Since 2001, the Group has monitored water consumption from the Mae Klong valley every month and found that the river can accommodate our power plants' demand and that no effect on utilization or water conflicts have arisen with communities.

Water volume versus electricity generated (Net), 2013-2015



In 2016, Ratchaburi Power Plant will be modifying its water quality control system in the cooling tower from “basic” to “acidic” after it had studied and collected data to assess the possibility of such system change in 2014-2015 in a bid to raise the cycles of water consumption. Since water in the cooling system accounts for 75-80% of the total volume for power generation, the Group pays due attention to optimal water management in the cooling system.

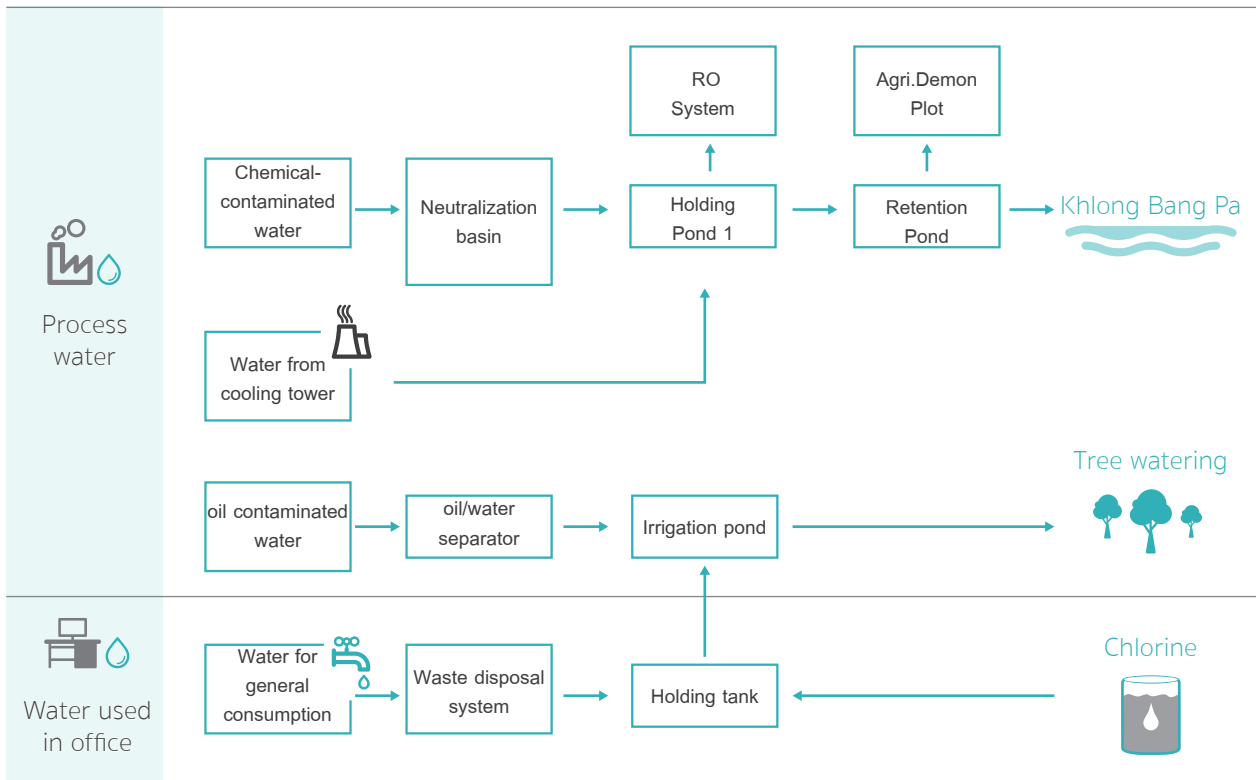
Average cycles of water consumption in the power plant cooling system, 2013-2015

Plant	2013	2014	2015	Cooling system	Goal
Ratchaburi	3.16	3.12	3.22	Basic	3-4
Tri Energy	4.46	4.50	4.86	Acidic	4-6
Ratchaburi Power	4.44	4.29	4.62	Acidic	4-6
Ratchaburi World Cogeneration	Construction Period	5.80	6.21	Basic	8

Water quality management

Water pumping from raw-water sources for consumption in power generation is made up of two portions: process water and water used in offices. The bulk of discharge from power generation processes is water from the cooling system, from which used water goes to the wastewater treatment system by allowing it to precipitate and cool down to ambient temperature, while checking its quality online before discharging it from the plant to ensure that the effluent quality discharged to environment is acceptable, including by the Royal Irrigation Department (RID) standard and the MOI standard, to prevent impacts on the biodiversity of such water bodies. As for the water consumed in offices, once it has undergone treatment to standards, it is used for plant watering, agricultural demonstration plots, and wetlands.

Plant	Water source for consumption	Public in water resource	Discharged volume (million cubic meters)
Ratchaburi	Mae Klong River	Klong Bang Pa (irrigation canal) and into Mae Klong River	3.04
Ratchaburi Power	Mae Klong River		1.90
Tri Energy	Mae Klong River	Mae Klong River	0.77
RW Cogen	Tap water from Ratchaburi Industrial Estate	Common wastewater system of Ratchaburi Industrial Estate	0.19



The Group's major power plants like Ratchaburi Power Plant and Ratchaburi-Power still command consistently superior discharge quality control to MOI's and RID's standards of discharge to prevent potential impacts on receiving bodies of water from power plants and ensure community utilization.

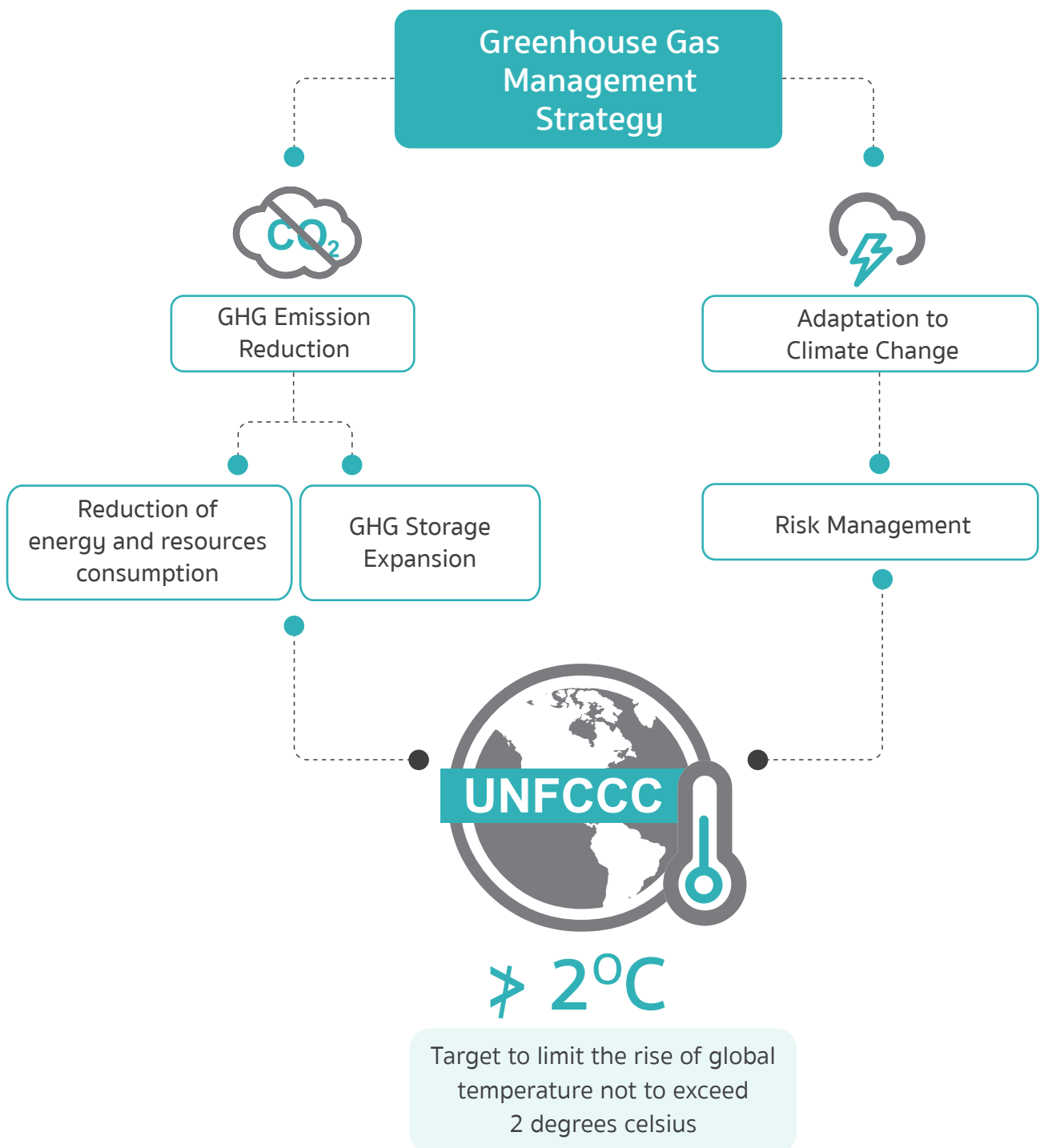
Average quality of effluent from Ratchaburi and Ratchaburi-Power Power Plants, 2015

Indicator	Temperature	BOD	COD	TDS	Conductivity
Measured value	31.5	3.81	35.09	584	923
RID standard	33	20	100	1,300	2,000
	(Specified for Ratchaburi Power Plant)				
MOI standard	40	20	120	Up to 3,000 from the original source	Not defined
Unit	degree celsius	mg/l	mg/l	mg/l	micro-siemens / cm

Remarks : BOD = Biochemical Oxygen Demand
 COD = Chemical Oxygen Demand
 TDS = Total Dissolved Solids

Greenhouse Gas Management to Cope with Climate Change

In response to the international cooperation on the United Nations Framework Convention on Climate Change (UNFCCC) to reduce the greenhouse gas (GHG) emissions in Thailand by 7-20% by 2020 and by 20-25% by 2030 (compared to the base year of 2005) to limit the global temperature rise below 2 degrees Celsius from the pre-industry period. Therefore, RATCH Group has consequently established a policy to prevent, remedy and mitigate impacts from climate change together with operating practices to reduce emissions while adding more GHG sink. These practices are part of the preparedness to cope with and respond to possible impacts from climate change on our businesses.

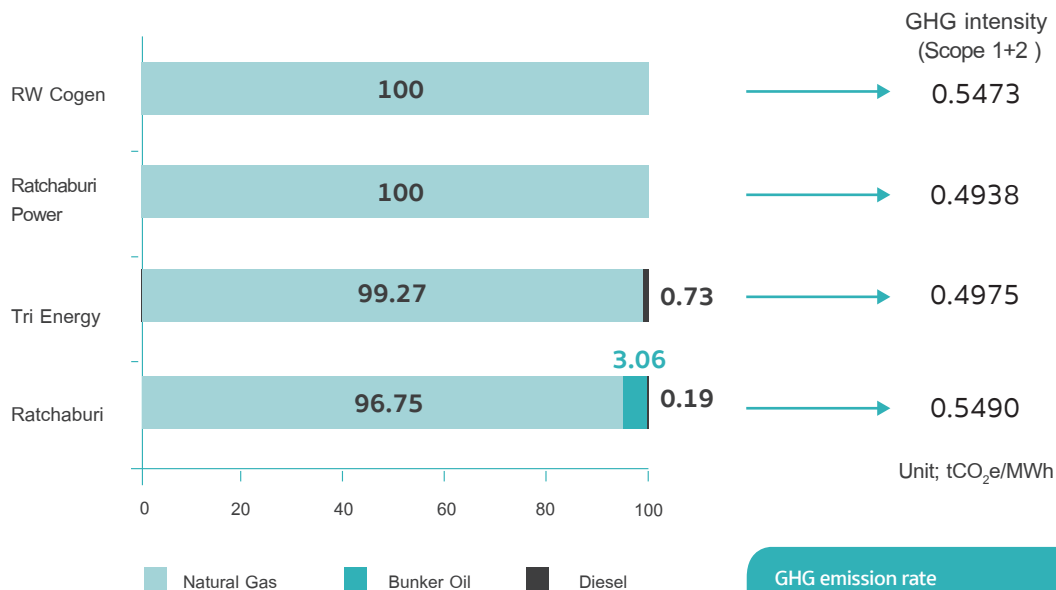


Greenhouse Gas from Power Generation

In the power generation business, available fuel sources and the national electricity demand under the supervision of the National Control Center (NCC), Electricity Generating Authority of Thailand (EGAT), dictate the selection of fuel source independently from RATCH Group's decision in order to minimize the cost of electricity. Nevertheless, the Group is fully obliged to optimize power generation efficiency regardless of the fuel sources while minimizing electricity and environmental costs, as well as reducing the GHG emissions only to the necessary level.

In 2015, gross power generation from four major power plants in Thailand, namely the Ratchaburi, Tri Energy, Ratchaburi-Power and Ratchaburi World Cogeneration (RW Cogen) power plants stood at 29.5 million MWh from 256,595 million cubic feet of natural gas, 91.4 million liters of bunker oil and 13.4 million liters of diesel. Calculated from this generated amount included net power generation of 28.5 million MWh and 15 million tons of carbon dioxide equivalent (tCO₂e), convertible into the greenhouse gas intensity of 0.5267 tCO₂e per MWh (net).

Percentage of fuel source for power generation in 2015 divided by plant



GHG emission rate	
• THAILAND 0.5813 tCO ₂ e <small>(Thailand Grid Mix Electricity LCI 2009)</small>	• RATCH GROUP 0.5267 tCO ₂ e

Greenhouse Gas Reduction Target

In 2015, RATCH set a GHG emission target from Ratchaburi and Tri Energy plants (a wholly-owned by RATCH and regarded as a core asset) as a pilot project for GHG management in the future. Intensive studies on GHG emission data collected from all power generating units using natural gas, bunker oil and diesel at both power plants were conducted during 2011-2014. The results were used to define the GHG emission target per unit of net power generation for 2015-2020, described below.

Power Plant	Generation Type	GHG Emission Rate per Net Power Generation (tCO ₂ e/MWh)	
		Target (2015-2020)	Result in 2015
Ratchaburi	Thermal	0.7191	0.7010
	Combined Cycle	0.4911	0.4983
Tri Energy	Combined Cycle	0.4992	0.4971

Greenhouse Gas Management

RATCH has continuously searched for and implemented measures, directly and indirectly, to reduce the emission of GHG's from power generation. The efforts include;

- Retaining its highest operational efficiency in order to minimize the use of energy from power generation processes and in office areas
- Promotion of energy conservation in communities
- Creation of GHG storage facilities, including cultivation of green areas in the power plants, reforestation, and promotion of activities on community forests throughout the country
- Supports and cooperates activities initiated by the government and other institutions in relation to the strategic move of GHG emission reduction toward the national target set for 2020.

Outcome of GHG management in 2015

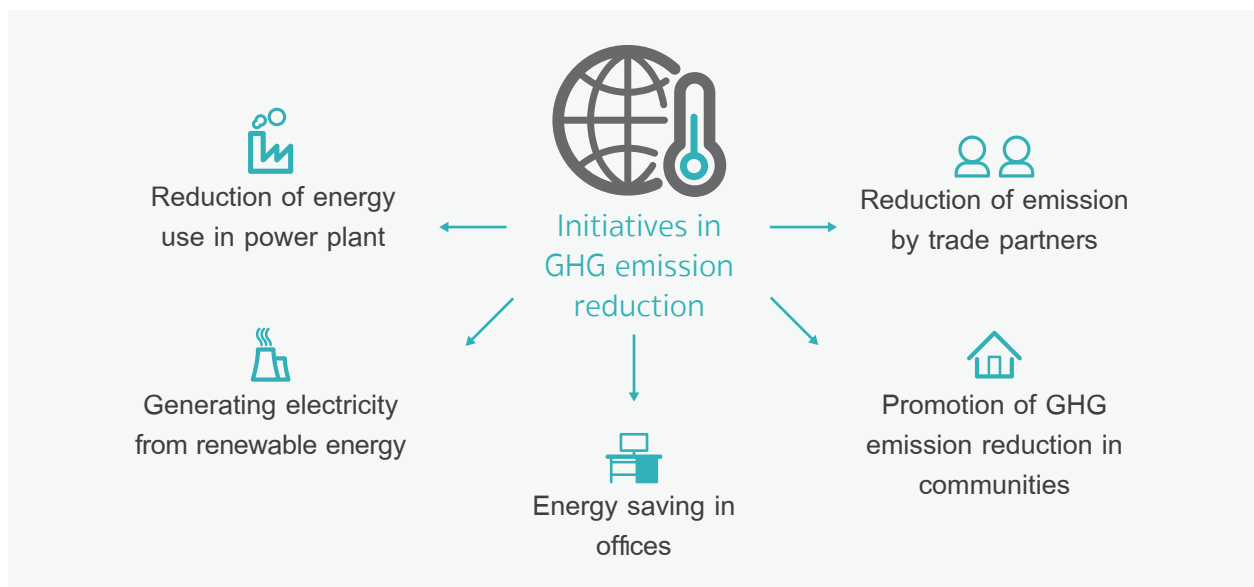
Activity	GHG Emission	GHG Reduction	GHG Storage
	Tons of carbon dioxide equivalent (tCO ₂ e)		
Power generated from fossil fuels	15,075,412		
Electricity procured from distributor	37,739		
Power generated from renewables		193,931	

Activity	GHG Emission	GHG Reduction	GHG Reduction
Tons of carbon dioxide equivalent (tCO ₂ e)			
Reduction of energy consumption in power plants		8,657	
Reduction of energy consumption in office areas		38	
Promotion of community energy technology		123	
Green area cultivation			175
Promotion of activities for community forests			191,864 (incorporation with other external organizations)
Total	15,113,151	202,749	192,039

Note: Data from power plants in Thailand and Australia

Greenhouse Gas Emission Reduction

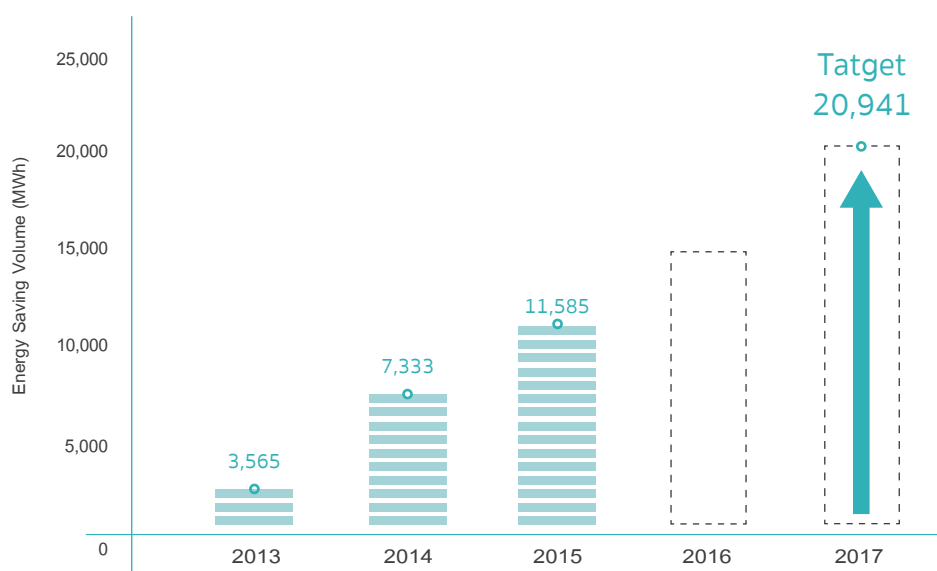
To achieve the GHG emission reduction targets for the nation and the organization, every employee is accountable for jointly studying and developing ways or measures to continuously increase power generation efficiency and reduce energy consumption in processes. Nevertheless, investment for efficiency improvement may not be worthwhile due to limitations on technology and years of service of each power plant. All power plants therefore focus heavily on energy saving and proper energy efficiency system improvement to suit its operations, selected technology, good operations practice and standards of choice. RATCH has also extended these practices including activities on the reduction of GHG emissions to all their offices, business partners and communities surrounding their facilities.



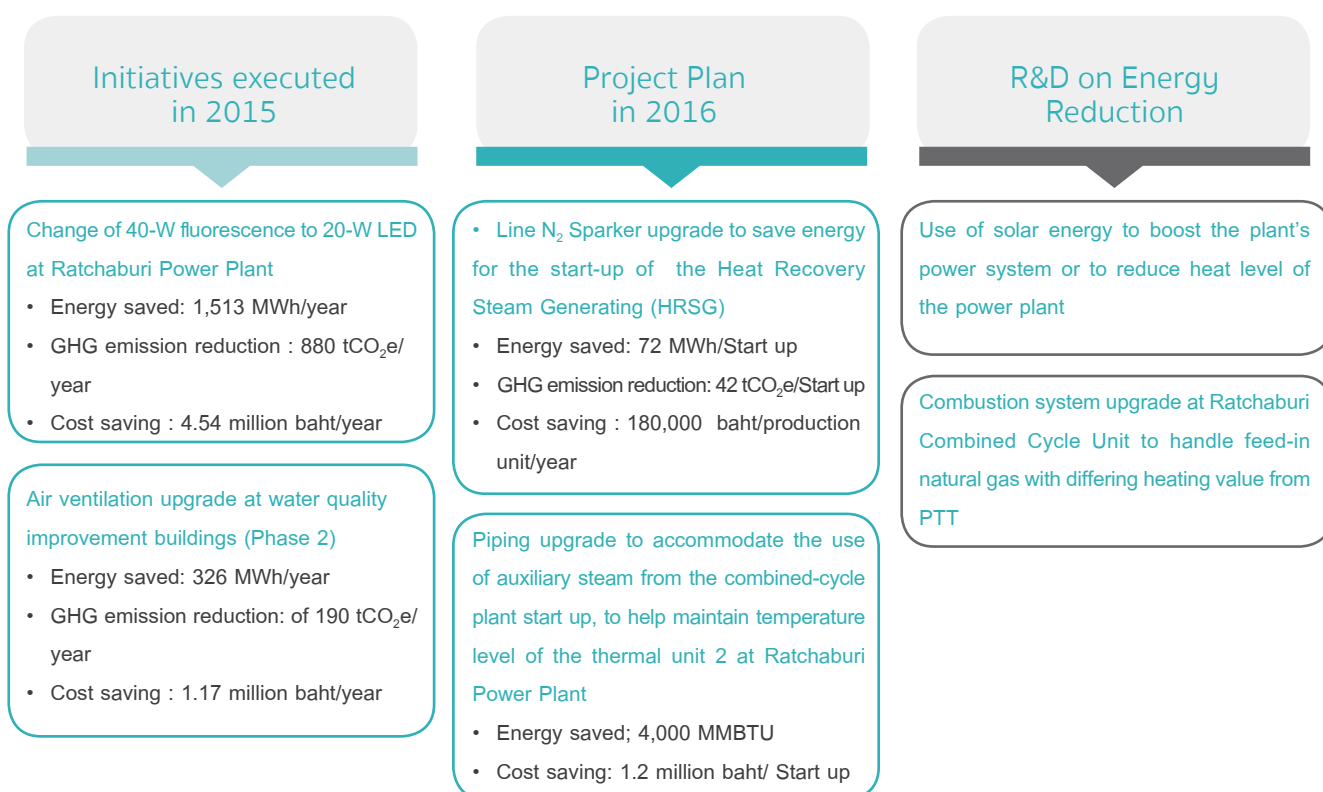
Reduction of energy consumption in power plant

Ratchaburi Power Plant according to its Energy Conservation Plan, defines five-year (2013-2017) target of cumulative energy saving of no less than 20,941 million units or kWh (equivalent to 20,941 MWh or 75.39 million megajoules). Consequently, the plant should find way to reduce energy consumption approximately 228.4 MWh annually.

Performance of Energy Conservation Initiatives at Ratchaburi Power Plant (5-year Plan: 2013-2017)



The performance on energy saving in 2015 was 4,252 MWh, equivalent to carbon dioxide reduction of 2,471 tCO₂e. It appeared that cumulative energy cut during 2013-2015 has already achieved 55% of 20,941 tCO₂e targeted in 2017.



Performance of energy-saving implementation at Ratchaburi and Tri Energy Power Plant

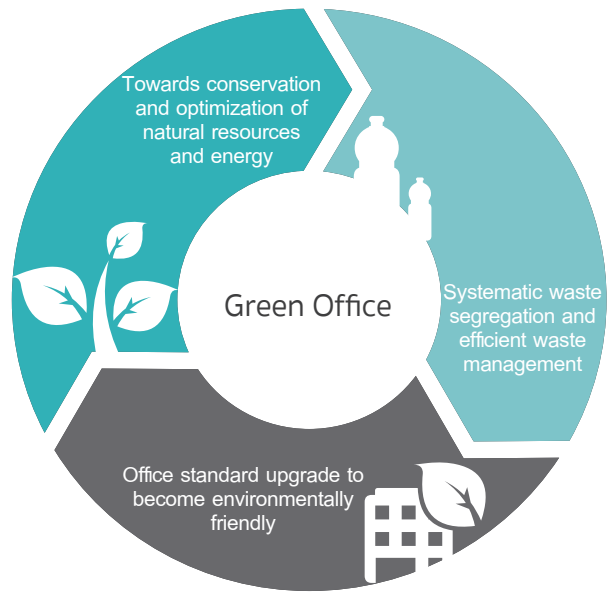
Power plant	Energy-saving project	Energy saving (MWh/year)	CO ₂ emission reduction (tons/year)
Ratchaburi	Change of 40-W fluorescence to 20-W LED	1,513.24	880
	Air ventilation upgrade at water quality improvement buildings (Phase 2)	325.81	189
	Total	1,839.05	1,069
Tri Energy	Lighting energy-saving	319.19	186
	Air conditioner energy-saving	56.88	33
	Block outage energy-saving during maintenance	954.72	555
	VSD energy-saving (installation of instrument to control motor speed)	491.95	286
	Total	5,958.44	3,464

Reduction of energy consumption at Head Office Building

During 2015, RATCH's head office reduced the use of electricity by 65,000 units equivalent of 65 MWh (by 3%) and tap water by 381 cubic meters (2%) from 2014. These saving could be converted to the GHG emission cut of 38 tons of carbon dioxide equivalent, leading to office expense saving of 594,185 baht. It was less than the target of 5% substantially resulted from excessive achievement 21% and 19% for electricity and water saving respectively in 2014. Nevertheless, every employee continued with efforts to search for ways and measures to conserve and optimize the use of resources.



The Company's Green Office Project was evaluated as excellent and granted a Gold Award from the Department of Environmental Quality Promotion and the Faculty of Environment and Resource Studies, Mahidol University.



In addition, RATCH constantly encourages all employees to learn about the environment and participate in various activities to appreciate its value and gradually change their behavior toward environmental protection. The energy-saving house project was an example of activities in 2015. The project was expanded from brainstorming of employees participating in an environmental workshop. Meanwhile, the Best Suggestion Award welcomed employees' innovative ideas and concepts which could be developed in supporting of the Green Office Project. There were 19 suggestions proposed by employees in 2015 which RATCH would have to review and turn them into reality in 2016.

Power Generation from Renewables

Continuously increasing power generation from renewable is one of company's efforts for GHG management. In 2015, RATCH's total power generation from Thailand and Australia's renewable energy sources, such as solar and wind was 241,108 MWh. This could be converted to the GHG emission cut of 193,931 tons of carbon dioxide equivalent.

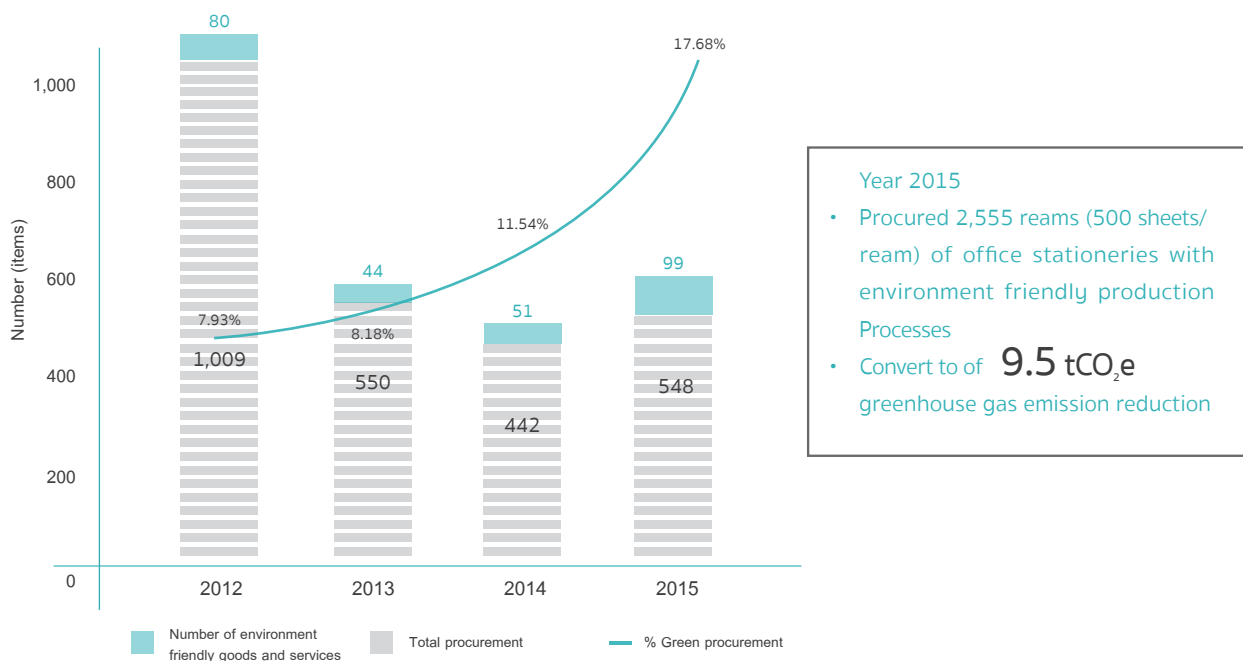
Country	Power generation from renewable energy in 2015 (MWh)	GHG emission reduction (tCO ₂ e)
Thailand	110,076	63,987
Australia	131,032	129,944

Greenhouse Gas Emission Reduction by Trade Partners

Since 2013, RATCH has only selected and operated with business partners whose policies and practices are truly environmentally friendly. This way of work cooperation has been adopted with full awareness that procurement of environmentally friendly goods and services significantly helps reduce impacts on the environment and climate change from the use of goods and services by the Group.

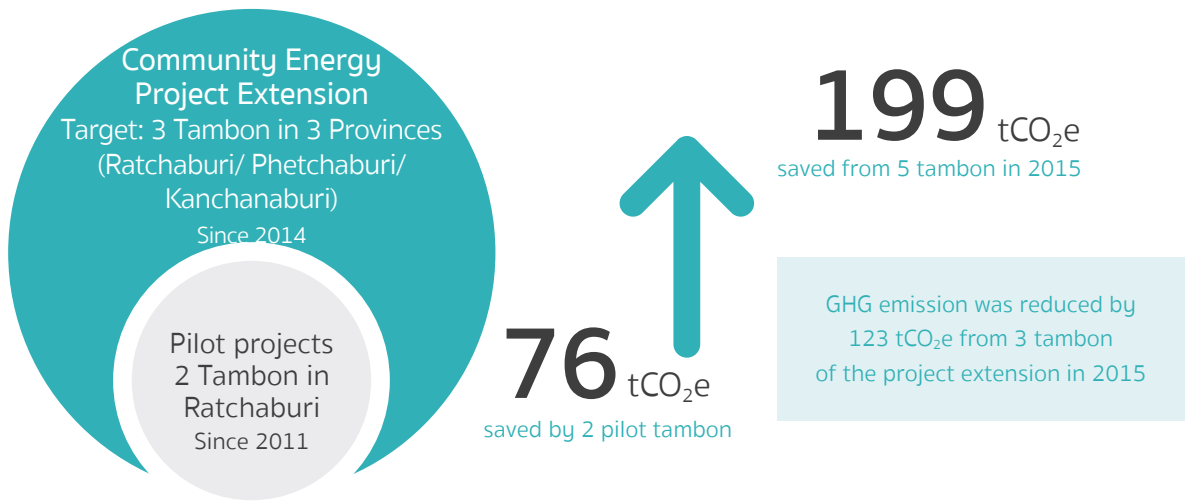
Apart from the parts and spares of each power plant, which are imported from manufacturers certified with international power-generating standards including indirectly supporting RATCH toward reduction of impact on the environment, procurement of domestic goods and services is executed only with vendors and organizations whose products are certified for environment friendliness, or environmental management system certified with an international standard. This is another indirect approach to help reduce GHG emission. RATCH's achievement in procuring only environmentally friendly goods amounted to 17.7%, closer to the target of 25% by 2017.

Environmentally Friendly Procurement



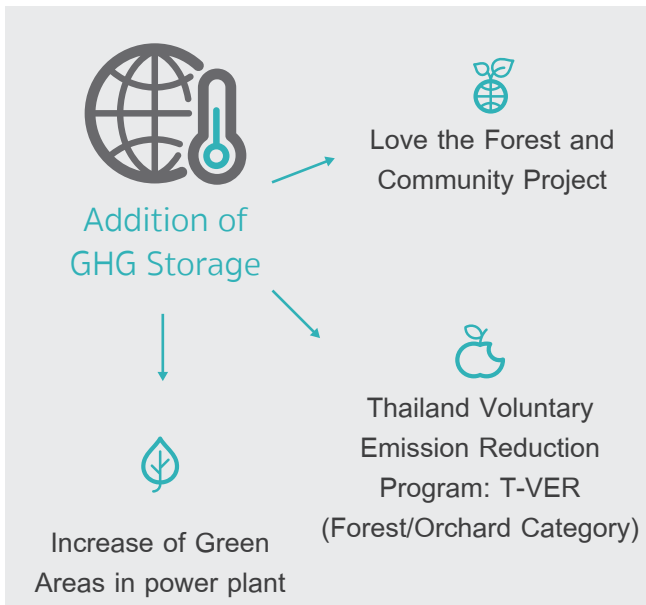
Promotion on Greenhouse Gas Emission Reduction in the Communities

A community energy project extension was initiated through providing energy efficient appliances for communities, enabling them to be more self-reliant. The target was 5% decrease on external energy dependency. RATCH jointly executed the project with the Provincial Energy Office in three Tambon areas including Tambon Nam Phu, Amphoe Mueang, Ratchaburi; Tambon Tha Mai Ruag, Amphoe Tha Yang, Phetchaburi; and Tambon Nong Rong, Amphoe Phanom Thuan, Kanchanaburi. RATCH provided 81 pieces of technological equipment to these communities, leading to a GHG emission cut of 123 kilograms of carbon dioxide equivalent and energy cost-saving of 4,914,218 baht per year.



Addition of Greenhouse Gas Storage

In addition to several measures initiated to cut down the GHG emission volume, RATCH has made other efforts to promote the addition of GHG storage, either by itself or through support communities to proceed.

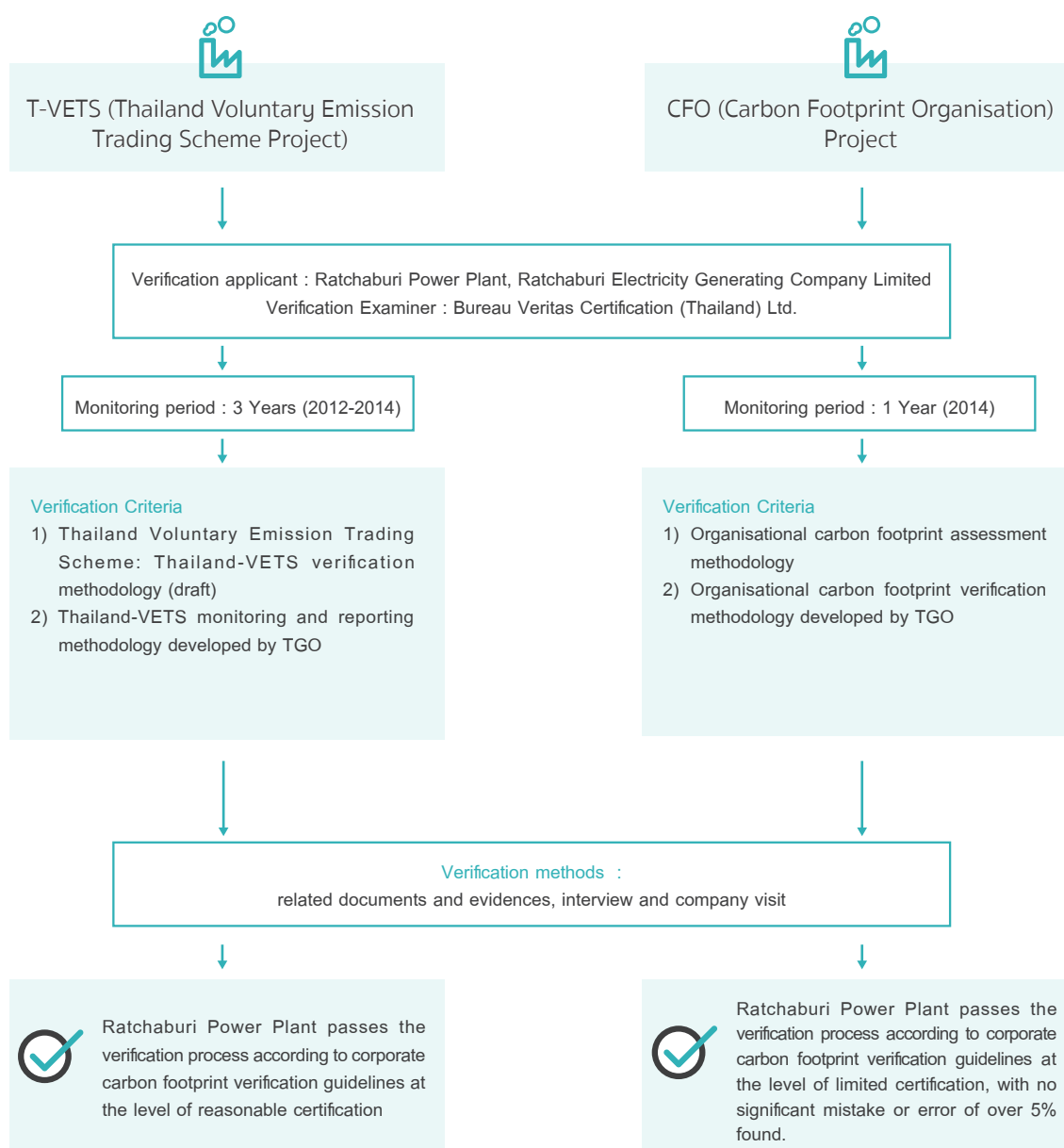


RATCH continued to support and promote activities enhancing the storage of GHG or aiding carbon offsetting throughout 2015. An example self-managed project was the Green Area Creation Project on the power plant's compound which could absorb up to 175 tCO₂e. The "Love the Forest and Community" project the jointly operated activities with external organizations. The project could increase the GHG storage area of 95,932 rai and the total capture capacity of 119,864 tCO₂e.

In 2015, RATCH put more efforts into the initiated project of 2012, namely community forest strengthening and promotion, by expanding promotional activity areas into 27 additional villages to create more GHG storage and launching an educational program on Thailand Voluntary Emission Reduction Program (T-VER) initiated by Thailand Greenhouse Gas Management Organization (Public Organization) (TGO). Communities with potential and readiness to participate volunteered in various programs, including newly planted forestry and infill forestry areas, as well as orchards. More evaluation of the potential of these areas for future development will be executed in 2016.

Adaptation to Climate Change

Ratchaburi Power Plant entered the Thailand Voluntary Emission Trading Scheme (Thailand V-ETS) pilot project, managed by TGO and the Chula Unisearch of Chulalongkorn University. Under the program, the MRV (Measurement, Reporting and Verification) system and the Thailand V-ETS operating system were introduced to the plant to help verify its GHG management and carbon footprint organization project systems. The outcome was used to help define the long-term GHG management. This participation clearly demonstrates the responsibility of the Group, as a power producer, to play an important role in supporting the national GHG emission reduction ratified under the United Nations Framework Convention on Climate Change, under which Thailand must achieve the emission reduction target from 2020.








Under the 2016 business plan, Ratchaburi and Tri Energy power plants (under the operation of Ratchaburi Electricity Generating Co., Ltd.) will participate in the follow-up monitoring phase of the industrial-sector carbon footprint organization (phase 5) jointly managed by the Federation of Thai Industries and the TGO, with aims to be part of the organizational and national GHG management plan formulators.

Opportunities and Challenges from Climate Change

The impacts of climate change activated by artificial activities and GHG emission have become more severe, especially evident in natural disasters such as floods and drought, leading to damage to the quality of life and the environment. These climate-change impacts have been included in RATCH's risk management process for evaluation, assessment and monitoring for any disruption they may cause to the operations. Subsequent activities, such as designing of physical structures, were executed to ensure stability and capability of surviving natural disasters, including floods, drought and earthquakes in order to ensure no disruption to effective power distribution.

A proper risk management guideline and subsequent work have been implemented and installed to prevent impacts from climate change which could affect RATCH's business growth and sustainability.

Risk factor	Risk Management/ Mitigation
 <p>Drought</p>	<p>Domestic power plants</p> <ul style="list-style-type: none"> Monitoring water levels and water consumption of the Mae Klong River in conjunction with water supply for power generation and water conflict with communities.
 <p>Drought</p>	<p>Power plants in Lao PDR</p> <p>Nam Ngum 2 Dam</p> <ol style="list-style-type: none"> Managing the reservoir water supply with the Rule Curve to cope with risks from floods and drought, and to support short and long-term power generation, as well as to abide by conditions set forth in the PPA. Defining upstream water management plans with the Ministry of Energy and Mine, Lao PDR, including organization of regular meetings, allocation of budget, and monitoring of annual progress as part of the risk management measure to prevent long-term water shortage.
 <p>Floods</p>	<p>Hongsa Power Plant</p> <ul style="list-style-type: none"> Managing risk of water shortage by locating 19 additional million cubic meters of water from Nam Kaen Reservoir and installing water pumps for use during an emergency beside 16.4 million cubic meters of water from Nam Leuk Reservoir. These measures were to prevent any impacts on the water supply to the communities and ensure no disruption to power generation.
 <p>Floods</p>	<p>Domestic power plants</p> <ul style="list-style-type: none"> Developing a handbook and mitigation plans in case of emergency floods Organizing annual drills to ensure effective response to the national demand for power with no disruption of power generation.
 <p>Temperature Change</p>	<p>Domestic power plants</p> <ul style="list-style-type: none"> Conducting a climate-change impact assessment study Preliminary findings indicated lower power-generation efficiency during higher ambient temperatures and higher power-generation efficiency during lower ambient temperatures Further studies were conducted and results were incorporated with the power-generation plan, including a seasonal power-generation plan and continuously monitoring climate change and change in ambient temperatures which could impact the power-generation processes.

RATCH is fully committed to being part of the national efforts to reduce impacts from climate change, with aims to develop the country in a sustainable way while adhering to the principles of fairness and joint responsibility. RATCH consistently promotes research and development activities, transfers of technology, and creation of awareness to people on environmentally friendly living, as these are Thailand's firm determination to take part in the efforts to concretely mitigate impacts from climate change in a sustainable way.



Social Performance

Employee Management and Development

Personnel are key resources that drive RATCH toward its growth goals of supplementing value under its long-term strategic plans. Therefore, human resource administration is RATCH's crucial driver that helps it grow constantly and sustainably.

HR administration has proceeded continually under the scope of labor laws, code of conduct, employee policies, and RATCH's personnel administration rules, which define international-standard criteria with a focus on fairness, ranging from recruitment of competent people (specialized professional and multidisciplinary); compensation and welfare that enhances the quality of living competitive with that of peer companies; retention of virtuous and capable people; development of their knowledge and skills; to ensuring workplaces that are safe and hygienic so that employees may be inspired to devote themselves to work in a more efficient and more effective way.



Employee Management and Development



Safety & Occupational Health at Workplace





Trust and Acceptance from the Communities and Society



Respect for Human Rights

Entry salary compared with minimum wages

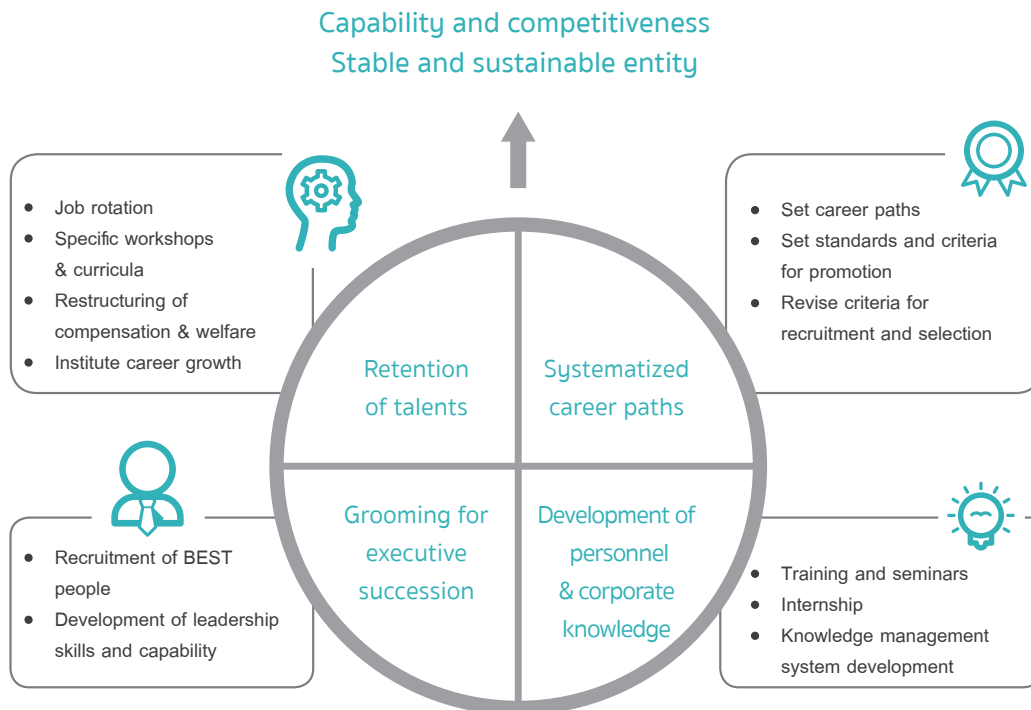
	2014	2015
 Under bachelor's degree	1.5 times	1.6 times
 Bachelor's degree	1.3 times	1.4 times

HR administration in 2015

This year, RATCH's headcount was 197, made up of 195 full-time employees and 2 temporary staff. HR administration this year followed RATCH's strategy for strengthening from the inside to enhance employees' capability and competencies so that they may be groomed to address the corporate directions and goals, which focus on growing investment to other businesses apart from energy and power generation in Asia-Pacific because of limited opportunities in these businesses and heated competition, with more and more newcomers to this business.

Key missions and goals for 2015

This year's highlights of tasks to strengthen the organization for greater competitiveness for secure, sustainable long-term growth consist of the following.



1. Retention of talents

Talents are RATCH's key drivers toward progress and planned success. RATCH values the development of skills and essential proficiency to jobs for these high flyers. Job rotation is regarded as another way to promote their career growth, which involves appointment of internal personnel in place of the incumbent.

In addition, every three years RATCH revises the compensation and welfare structure to ensure that its wages and welfare fully match the requirements of labor laws, fit the standard of living, and on a par with the standards of the energy industry and leading companies in Thailand. Such action has addressed the strategy to enhance corporate strengths, for RATCH will be more and more able to attract and retain high flyers, thus raising its competitiveness.

As for those posted overseas, RATCH defines compensation that suits the standard of living of the country in question and institutes welfare supporting employees' sense of security and safety, including home leave, life assurance, health insurance, emergency assistance (SOS), and safe accommodation.

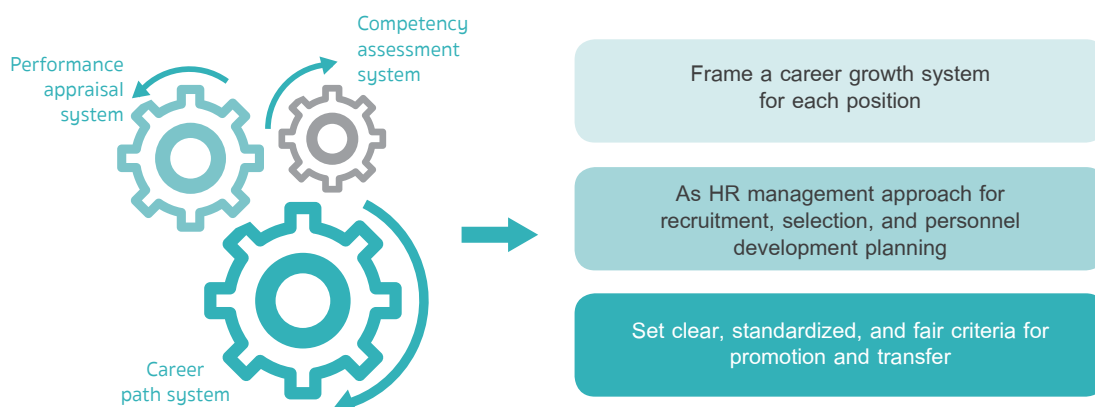
Performance in 2015

- Appointed 3 positions from the inside to replace junior executives and above, made up of 3 female employees
- Organize 14 training courses on specialized skills and competency (only in conjunction with EGAT) for 22 employees, totalling 834 hours
- Job rotation involving 3 employees. RATCH's transfer guideline is that there must be an agreement between employees and RATCH, which informs the employees and listens to their views. With the agreement concurred, a formal announcement is made. For overseas posting, the employee in question must have at least 30 days' notice
- Adjust medical welfare; dental care, eye care and vaccination, for employees, workers on probation, and temporary staff

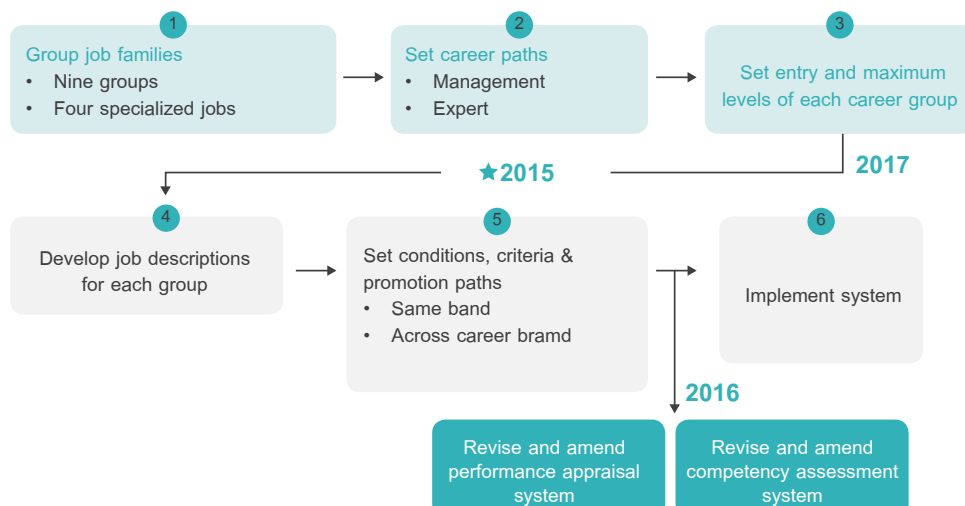
2. Development and amendment of the career path system

This year, RATCH revised and amended the career path system for employees of the entire RATCH Group to respond to the vision and growth strategies that focus more on investment abroad and to raise system efficiency to induce attraction and retain high flyers to help RATCH drive its strategic plans toward planned goals. Above all, this system enables RATCH to efficiently administer personnel for future executive succession of those due to retire in 3-10 years.

This year, RATCH joined hands with a leading worldwide HR administration consultant in identifying gaps and amend career path of the Group, which is linked to the system of performance appraisal and competency assessment, also under RATCH's plan to revise and amend.



The process for career path development is made up of six steps:



Performance outcomes in 2015

Completed was the five-stage development of career growth systems, as captured below.

1. Job family under RATCH's structure into nine groups
 - Planning & business development
 - Project management
 - Technical and operational management
 - Subsidiary management
 - Finance & accounting
 - Human resources
 - Corporate affairs
 - Corporate services
 - Safety & environment

The four specialized jobs are legal, internal audit, secretarial, and compliance jobs.

2. Set career path into management and experts
3. Set the entry and maximum level for each career group
4. Set each career group's characteristics and roles description: overall role, line of command, technical knowledge, experience, planning role, general responsibility, and technical competency
5. Set conditions, criteria, and promotion paths of three types: promotion in same band, across band and across career groups. Three factors are taken into account: competency, career group characteristics, and structure of company administration.

Future plans

2016

- Revise and amend performance appraisal system and competency assessment system to match career path logically and in an interconnected fashion
- Test the amended systems mentioned above

2017

- Approach Step 6 (implement career path system in parallel with the amended systems mentioned above)

3. Grooming for executive succession

Recognizing that the number of executives due to retire in 5-10 years from this year onward is on the rise, which is a crucial issue for RATCH, so it has engaged in succession planning since 2014. This year, RATCH focused on recruiting capable people for such succession from the inside and outside alike, so that the mission and goals may proceed uninterrupted and seamlessly.



In addition, RATCH focuses on adding management expertise and skills for middle and lower executives to groom them to replace more senior positions.

Performance outcomes in 2015

- Recruitment to fill 3 senior executive positions came from 1 insiders and 2 outsiders
- Six senior executives underwent six external short-term training courses, totaling 1,320 hours
- RATCH organized five management training courses for 77 middle management and junior management officers, totaling 60 hours

2016 plan

- Recruit personnel to fill retiring officers, totaling 1 positions
- Plan expertise and leadership skills development for junior management talents

4. Development of personnel & corporate knowledge

RATCH arranges for all employees to accumulate essential expertise, skills, and experience for greater task efficiency and organizes activities for physical and mental health development together with relations enhancement among the workforce. This year, 93.4% of all personnel underwent training in assorted internal and external curricula.

Staff development performance outcomes in 2015

Position level	Total headcount	Total trainees	% of trainees	Goal (hours/person /year)	Result (hours/person /year)
Management	13	13	100	18	61.69
Vice President	33	29	88	18	67.61
Manager	56	53	95	18	47.39
Officer & temporary staff	95	89	94	18	41.12

Staff expertise and capability development in 2015

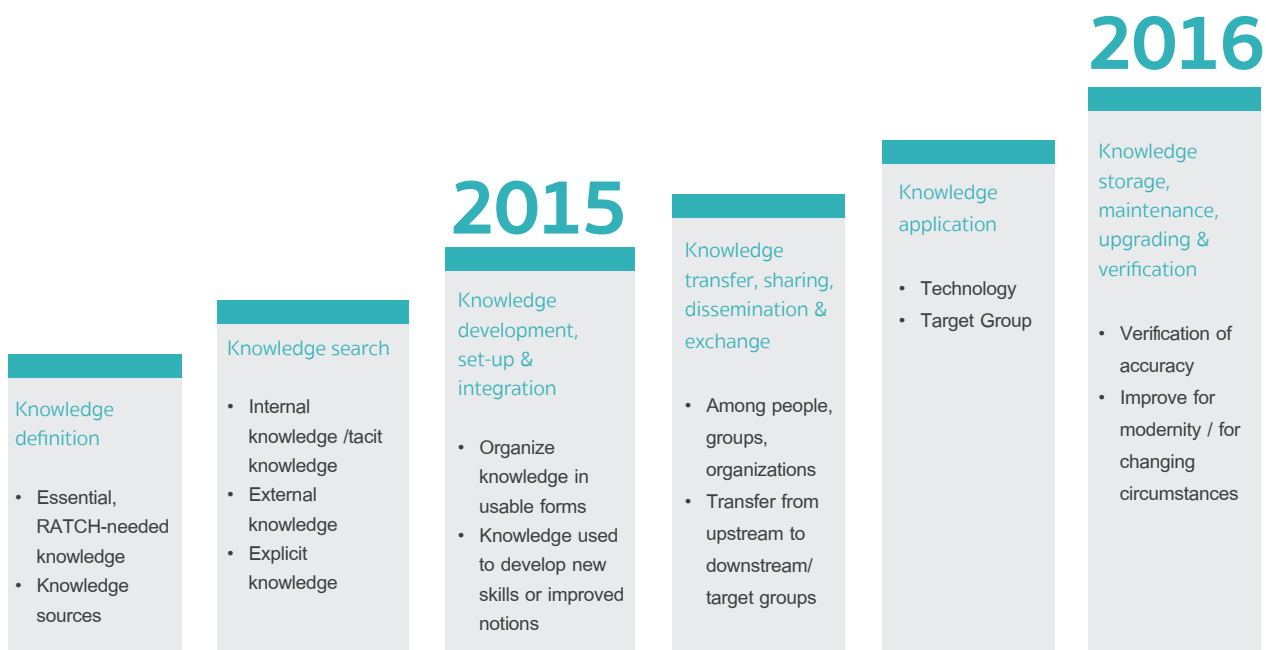
Course	Outcome
1. English skill development	32 employees <ul style="list-style-type: none"> • 12 Manager level • 20 Staff level
2. Technical and management (EGAT, 14 courses)	22 employees <ul style="list-style-type: none"> • 2 Vice President level • 6 manager level • 14 staff level
3. Management (7 courses)	<ul style="list-style-type: none"> • 28 Vice President level • 49 manager level • 86 staff level
4. Specialized courses	<ul style="list-style-type: none"> • 5 employees (SAP Advanced) • 31 employees (Low Carbon Footprint) • 99 employees (Anti-corruption)
5. Senior Management	<ul style="list-style-type: none"> • King Prajadhipok's Institute (2 courses, 3 trainees) • Ministry of Energy (2 courses, 2 trainees) • Energy for Industry Institute • Federation of Thai Industries (1 course, 1 trainee)
6. Job-specific capacity building (external) <ul style="list-style-type: none"> • Accounting Standards & Proper Account Preparation • Financial Management & Tax Planning • Assessment of Environmental and Health Impacts • Strategic Human Resource Development • Business Communication • Risk-Based Audit • Business Plan Development & Financial Estimate for Investment Projects 	114 trainees
Total of 125 courses	
7. Relations activities <ul style="list-style-type: none"> • Labor relations • Savings • Good health for workers: office syndrome, prevention of prostate cancer and cervical cancer • Songkran tradition • RATCH Family Day • RATCH anniversary event • Retirement celebration 	All employees

Knowledge management in the organization

Knowledge management in the organization represents an essential task earnestly begun by RATCH this year, since it recognized that many executives are to reach retirement age in 5-10 years from now, and more so each year. These people have accumulated invaluable experience and skills. RATCH's long-term strategic plans have also singled out this issue as part of the strengthening of the organization, which is being developed into a learning organization to maintain and enhance business competitiveness in a continued, sustainable way.

This year marked the first phase of tasks, focusing on compiling knowledge derived from specific skills on development and management of power plants (tacit knowledge) from executives retiring in five years from this year onward. The resulting knowledge will be developed into the knowledge for sharing with others in the organization.

Steps of knowledge management in the organization



The knowledge management process consists of two phases:

Phase 1 (2015-2016) is the pilot project period focusing on development, experimentation, and improvement of knowledge and technological systems to meet target groups' needs. The top priority is definition of specific target groups. What the compiled knowledge in this phase focuses on is the issues that the groups needed to know together with issues critical to RATCH's businesses.

Phase 2 will see target groups expanded throughout the corporation.

Performance in 2015

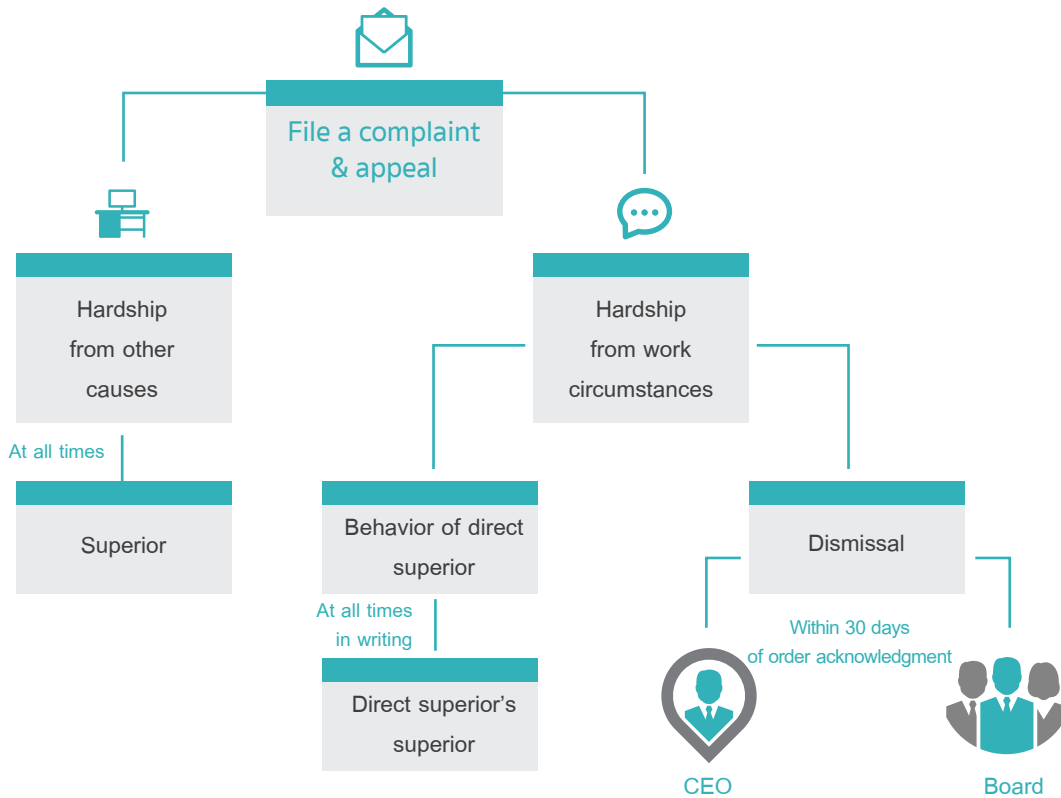
- Record and compile experience and skills provided by executives who retired, advisers, and experts of RATCH
- Compile, extract, and develop knowledge, into formal knowledge in the forms of documents, video and audio-recording, a total of three sets of knowledge, and research data from additional external sources
- Select technologies to accommodate RATCH's Knowledge Management (KM) and develop experimental programs before developing a full-fledged system in 2016.

2016 plan

Test-apply the organizational KM system with pilot target groups first to ensure that the developed knowledge and KM system can truly satisfy the needs and prove useful to target groups' knowledge development and potential.

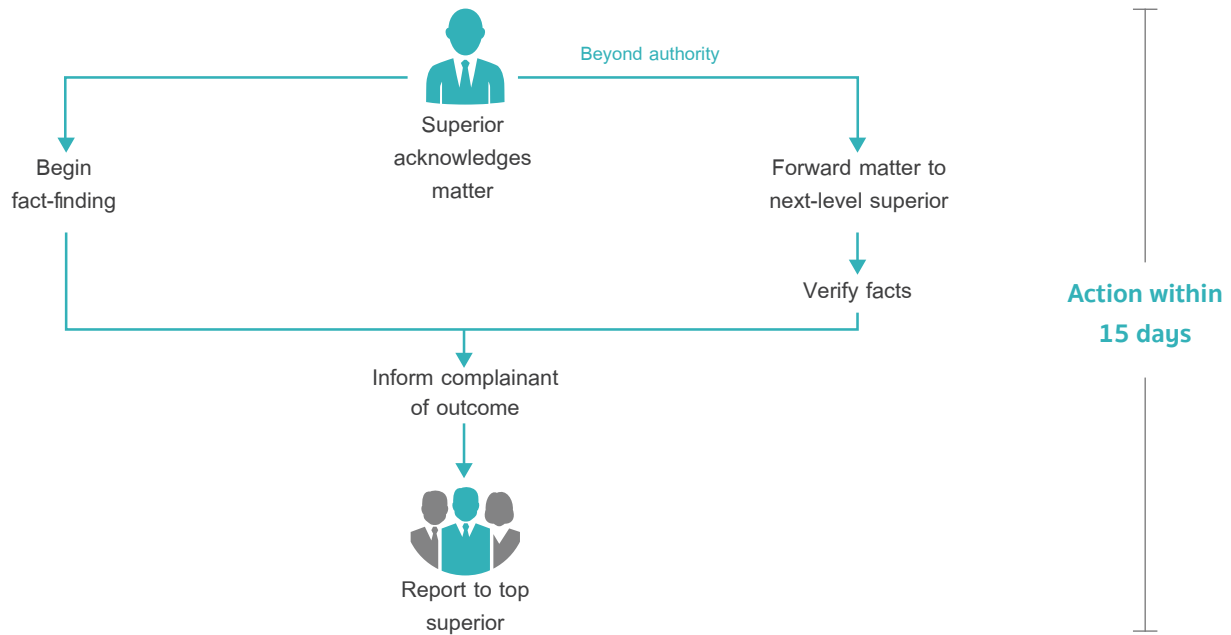
Employees' complaint-making and appeal

Respecting employees' rights and the right for equitable treatment, RATCH has put in place the following processes and channels for complaint-making and appeal:



As for hardship arising from work circumstances, which includes work conditions, employment conditions, governance, directive or assignment of work, compensation for work or other benefits, or superior's abuse.

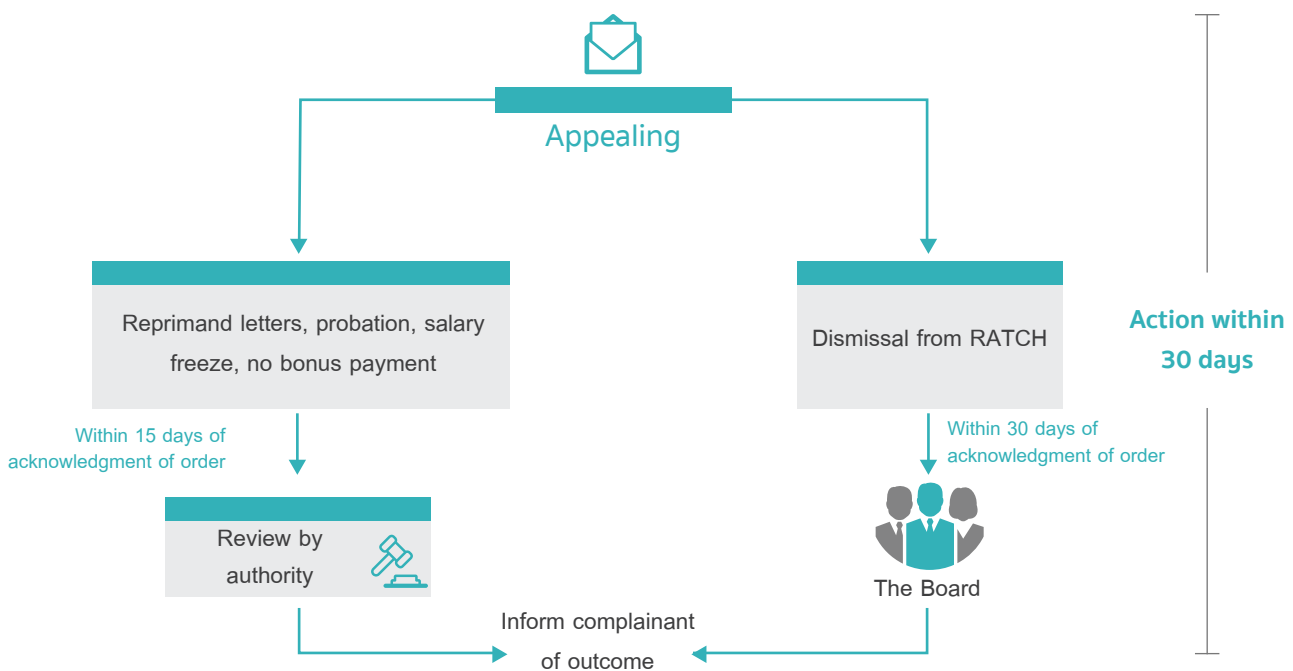
Fact-finding process



RATCH protects complainants and related parties that provide supporting facts or serve as witness or those that review petitions in good faith even though such facts may harm RATCH’s interests. These people must be protected by RATCH, which will not dismiss, punish, or take any harmful action against them.

Appealing

Employees may appeal RATCH’s order if they receive reprimand letters, face probation or salary freezes, or deprived of the annual bonus. To appeal, they are to submit a signed letter to those authorized to review the appeal within 15 days from their acknowledgment of the order. As for dismissal from employment, an appeal must be filed with the Board within 30 days of the acknowledgment of the order. Finally, the appeal process must be wrapped up by 30 days from the filing of the appeal.



This year, RATCH received no complaint or appeal from the workforce.

Safety and Occupational Health at Workplace

Recognizing that the value of employees' life and health cannot be assessed and that they are indeed crucial to their families and many other stakeholders, RATCH has set an ultimate goal of safeguarding lives of employees. This is why RATCH relentlessly stresses safety, health, and work environment as critical issues, striving to make itself accident-free, a workplace that is safe to work in, one that offers a good environment to their health.

Since power plants represent RATCH's key revenue-generating assets, those working in them must safeguard the plants so as to maximize their availability factors. The service lives of power plants naturally differ from one plant to another, the type and degree of maintenance varying with their conditions, particularly those already with 10 years or more, to keep accidents from happening to the lives and properties of employees, RATCH, and the neighborhood around them.

This year's emphasis was on "Safety First" for Ratchaburi Power Plant (3,645 MW, RATCH's flagship), since it has operated over 15 years with outstanding safety records. It is therefore possible that workers could get complacent and take things for granted.



*RATCH Group : Ratchaburi Power plant,
Tri Energy
Ratchaburi - Power
RW Cogen
Head Office



Safety principles and practical approach

All sites feature strict compliance with safety laws, and each has a safety, health, and work environment committee that consists of representatives of employees and employers, each with the same number, to jointly look after the work environment and power plants, communicate relevant data to workers, define preparedness measures for unexpected events, and identify improvement together. Introduced to the power plants are specific standards, including OHSAS 18001, an internationally accepted system.

Components of safety management



Safety measures at Ratchaburi Power Plant

Besides being RATCH's key asset, Ratchaburi Power Plant is also Thailand's crucial power generator, with around 9.4% of the total domestic capacity and application of management experience, technology, and knowledge of safety derived from various power plants.

This year, the plant has introduced the safety measures of the 700-MW Tri Energy Power Plant, acquired in 2014 to Ratchaburi Power Plant. Tri Energy plant was serviced by General Electric International Operation Company Inc. in commissioning and maintenance. The key systems consist of:

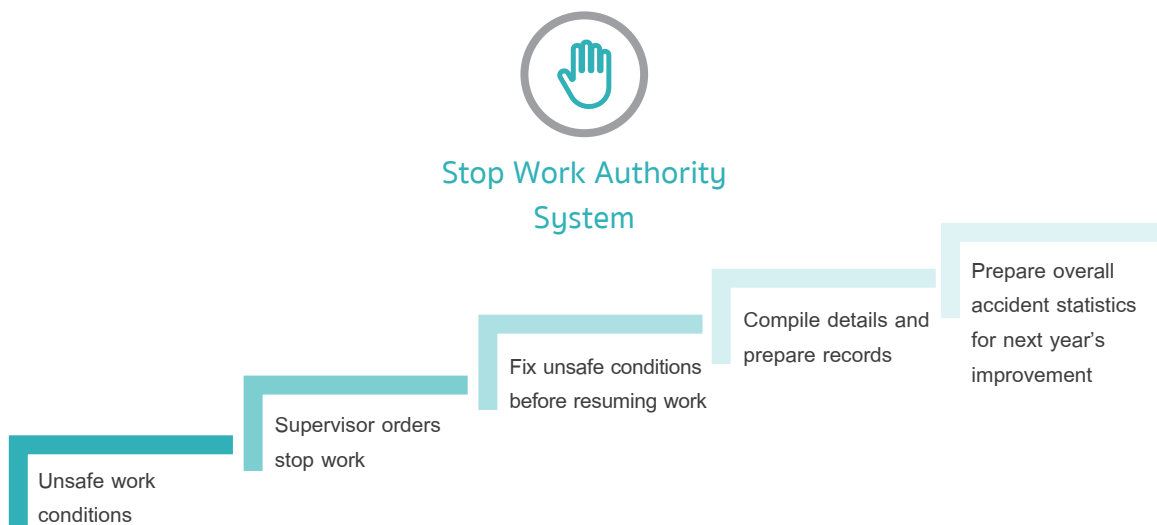
- Stop Work Authority
- Lock Out Tag Out
- Safe Card



Contractor safety training arranged for all contractors working on sites.
100%

1. Stop Work Authority:

At Ratchaburi Power Plant, this seeks to cut losses faced by workers, properties, or processes. The system represents empowerment for supervisors to order work stoppage if they come across events, practices, or conditions that are unsafe, posing accident risks.

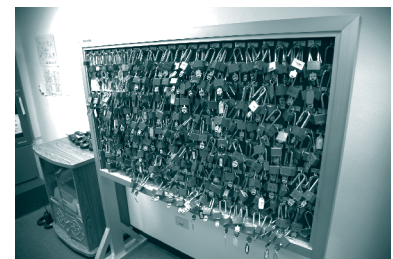


This year, the power plant developed additional **“Inspect Tools”** since it found that most **“stop work”** cases last year had stemmed from tools’ poor conditions. This system inspects such tools to ensure safe and standard functions. Thanks to the implementation of this system, no more **“stop work”** directives stemmed from poor tool conditions.

Outcomes: There was no order to stop operation anymore

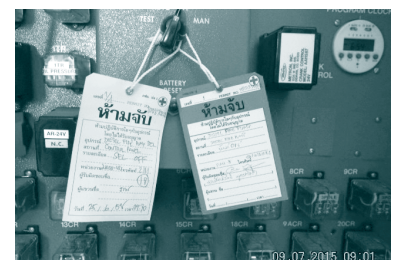


2. Lock Out Tag Out (LOTO): Applied by Tri Energy Power Plant in its maintenance work, LOTO can prevent accidents and maintain 100% safety records. Ratchaburi Power Plant introduced this system on top of its practices this year, with the addition of a tagging system specified the names of those involved in a given piece of work to announce the maintenance work. The intention is to forbid the turning on or connection of electricity into the tool in question.



Tri Energy

Under this system, workers involved, namely the unit commissioning leader, supervisors, and contractors, hold the respective lock keys for the electrical system and work mechanisms that pose maintenance risks. This ensures that a given tool under maintenance cannot be switched on until the completion of the maintenance, thereby effectively lowering accidents due to human errors.



Ratchaburi

3. Safe Card: This system allows all workers to play a part in looking after work safety when coming across risky practices or conditions. Under the system, workers report a given practice or condition and provide the solution tip about safety, energy saving and environmental care before forwarding it to the relevant safety unit to review such recommendation and make improvement of the reported condition. Evaluation of effectiveness needs to be done after improvement and then extend such practice to other units.

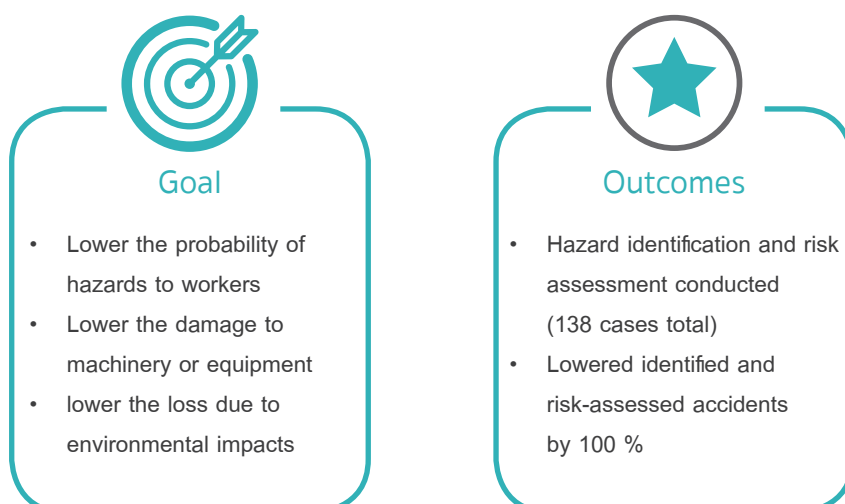
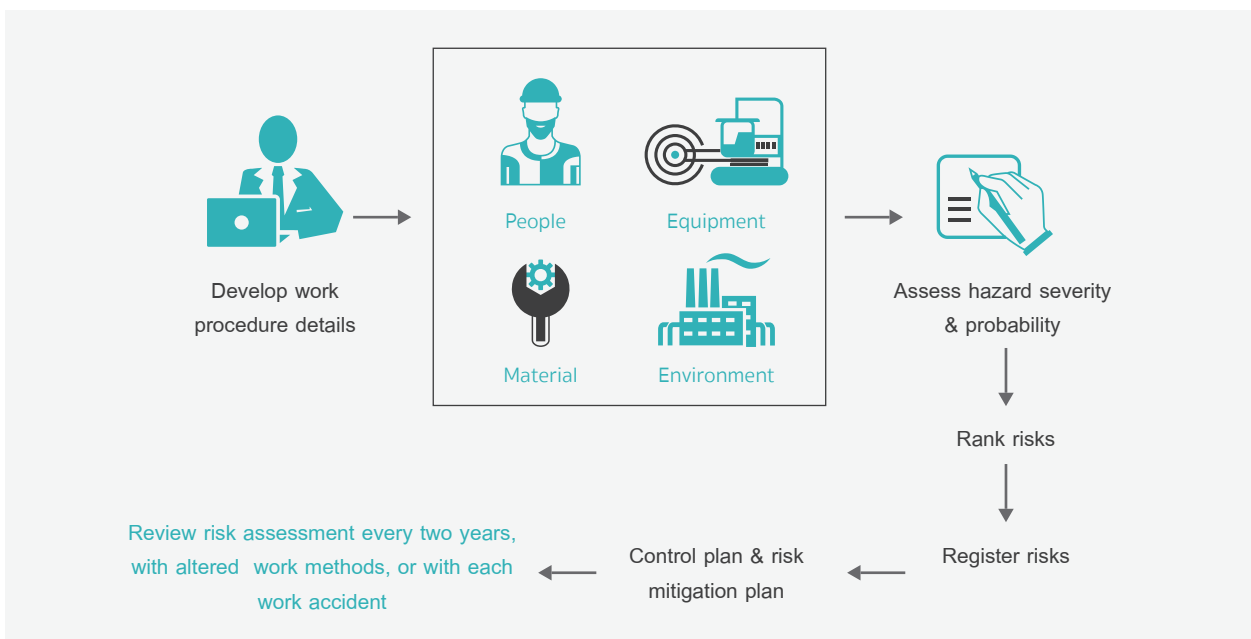
👤 Safety risk management

While Ratchaburi Power Plant commands an outstanding safety system and safety management, unforeseen events could happen. RATCH therefore takes seriously the control of risk probability and approach to efficient dealing with incidents so as to lower possible damage and enable to recover business as usual as soon as possible. The plant has defined two stages of safety risk assessment:

1. Pre-operation: work risk assessment and preparation of emergency response plan
2. During operation: assessment of safety measure compliance, drill of emergency response plans and evaluation of the drill

Risk assessment

Identification and assessment of risks concerning accidents to seek preventive measures is the heart of safety risk assessment. Ratchaburi Power Plant has introduced the Job Safety Analysis (JSA), for assessing work risks in 4 aspects including People, Equipment, Material, Environment (PEMEn). The PEMEn assessment is a process to identify operation risks and work environment risks, followed by risk hazard assessment. Risks are assessed on workers, equipment, material, and the environment. From then, control measures are defined to lower such risks. Risk assessment is repeated every two years or with altered work methods or with each work accident occurred either in Ratchaburi Power Plant or relevant industry.



Emergency response plans and emergency drills

Besides risk assessment and safe work control, all power plants develop emergency response plans in various scenarios to manage fires, oil spills, flooding and earthquakes because they are aware that unforeseen incidents tend to happen, especially those due to human errors, damaged equipment and natural catastrophes.

In addition, the safety, health, and work environment committee annually reviews manuals and procedures to minimize overall safety risks.

Emergency response drills were staged in 2015

Power plant / scenario	Ratchaburi		Tri Energy		Ratchaburi-Power		RW Cogen		Head Office	
	Plan	Drilled	Plan	Drilled	Plan	Drilled	Plan	Drilled	Plan	Drilled
Fire & explosion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gas leaks	✓	✓	✓	-	✓	-	✓	✓	-	-
Oil & chemical spills	✓	✓	✓	✓	✓	✓	✓	✓	-	-
Bomb threats	✓	-	✓	-	✓	-	-	-	✓	-
Natural catastrophes (earthquake, flood, storm)	✓	✓	✓	-	✓	✓	✓	-	-	-
Epidemics	✓	-	✓	-	✓	✓	-	-	-	-
Garbage movement	-	-	✓	-	✓	-	-	-	-	-
Snake bite	-	-	✓	✓	-	-	-	-	-	-
Demonstration of community surrounding plants	✓	-	-	✓	✓	-	✓	-	-	-

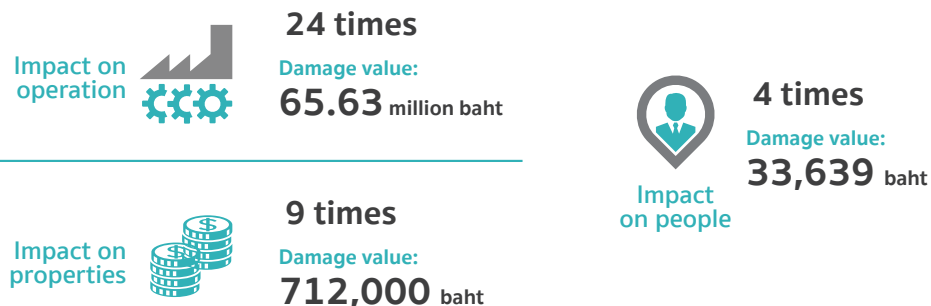
The drill conducted according to protocol specified in the emergency response plan every year ensuring that relevant parties understand and do their job efficiently. In 2015 Ratchaburi Power Plant practised two fire drills at emergency level 2, of which required assistance from external agencies nearby.

- First drill was took place on 20 April 2015. A scenario was about fire accident occurred at the Emergency Diesel Generator Block 1, while three blocks of Combined Cycle power plants running by natural gas.
- The second was conducted on 30 June 2015 under fire scenario at Fuel Oil Tank 1B in Tank Farm area of Thermal power plant. The incident was occurred during maintenance work.

After each drill, relevant parties meet to review problems and obstacles so as to improve each plant's response for better effectiveness.

Statistics on accidents at Ratchaburi Power Plant in 2015

After each incident, relevant parties analyze root causes and fix them so as to faster recovery of the power plant's normal operation. Long-term preventive solution will also be sought out and put it in the plant's maintenance plan, while comprehensive monitoring for all causes added in the annual planned outage.



Forging of employee awareness and inspiration

Recognizing that “employees” represent the first step of RATCH’s drive and motivation toward organizational safety, RATCH has promoted their awareness of the significance of work safety by staging Safety Day activities and promoting employee training every year.

Tri Energy Safety & Quality Stand Down Day and 1.8 million man-hours no LTI celebration	Safety Day – Ratchaburi Power Plant	Safety Talk – Ratchaburi and Tri Energy Power Plants
<ul style="list-style-type: none"> • Stressed causal analysis of work accidents. • Fictitious unsafe work incidents & solutions. • Fictitious collapse scaffolding, with no injured person • 53 people took part. • Winning team successfully identified and described accident causes. 	<ul style="list-style-type: none"> • Stimulated employees’ awareness of the significance of safety, health & work environment. • Activities included Safety Talk and the contest entitled Safe Travel, with “0” Accident as well as talk show, articles and photo contests on the topic of Safety & Happy Energy • 351 persons took part 	<ul style="list-style-type: none"> • Forged safety awareness among employees • Required consultation on safety matters before each meeting • Stimulated meeting attendants to express views about safety

Workers' safety recommendations

As a result of the Safe Card activity campaign this year at Ratchaburi Power Plant, workers submitted their views on Safe Cards, totalling 41 matters, of which 25 matters have been resolved. For Example, a windsock was installed at relatively low point. Thus, it was difficult to observe wind direction. The windsock should be raised for facilitate the observation in case of emergency. Meanwhile, five matters are under improvement and 11 matters are waiting for consideration by responsible persons. Since 2011 when the project began, a total of 1,080 matters were submitted, and all have been improved for safety, thereby reducing unsafe conditions.



Promotion of employees' hygiene

Besides work safety, employees' hygienic conditions at sites affect RATCH's operating efficiency. This is why RATCH has focused on all workers' sound physical health and sound mind, which leads to full work efficiency. Below are the measures taken:

- Occupational health risk assessment
- Design of workplace that protects workers from hazards
- Monitoring of work environment that incorporate issues on light intensity, noise levels, heat, and chemicals every six months in compliance with Ministry of Labour's Ministerial Regulation on the prescribing of standard for administration and management of occupational safety, health and environment in relation to heat, light and noise, B.E. 2549
- Prompt fixing of defects or risky locations for a safe environment, suitable for work.

This year, Ratchaburi Power Plant featured no report of work-related illness.

As for health promotional activities at the Ratchaburi Plant this year, below is the report:

**Hearing
Conservation
Project**

Goal

- Vigilance and healthcare of works exposed to loud noise

Outcomes

Workers with hearing loss of less than 15 decibels (A) accounted for 21.93 %.

Additional mitigation measures:

- Develop a diagram for noise levels in each area
- Reminder signboards for personal protective equipment (PPE) before entering each job site

**Waistline
Reduction
Project**

Goals

- Workers understand how to eat and exercise properly.
- Workers have a normal waistline, less than 90 cm. for male and less than 80 cm. for female.

Outcomes

Out of 317 participants, there are 240 representing 75.7% having normal waistline, an increase of 6.4% from 2014.

**Legionella
germ
detection**

Goal

- Control the contamination of the Legionella germs to standard.

Outcomes

Based on the water analysis of samples obtained from the cooling tower, the amount of germs was below the standard and will therefore not affect workers' health.

Continuing activities on safety and hygiene in 2015

The activities continually staged by RATCH Group, extended for greater efficiency and effectiveness, are as follows:

Project	Ratchaburi	Tri Energy	Ratchaburi-Power	RW Cogen	Head Office
Safety					
Work risk assessment	✓	✓	✓	✓	-
Lock Out Tag Out	✓	✓	✓	✓	-
Stop Work Authority	✓	✓	-	✓	-
BAR-AAR	-	✓	✓	-	-
Safety Day activities	✓	✓	✓	-	✓
Expression by all of views on safety (Best Suggestion Award / Safe Card)	✓	✓	✓	✓	✓
Hygiene					
Hearing Conservation Project	✓	✓	✓	-	-
Waistline Reduction Project	✓	-	✓	-	✓
White Workplace Project	✓	✓	✓	✓	✓
5S activities	✓	✓	✓	✓	✓
Inspection of Legionella germs	✓	✓	✓	✓	✓
Measurement of environmental quality parameters in the workplace	✓	✓	✓	✓	✓

Thanks to its operation on safety and hygiene, RATCH is confident that it will lessen the number of accidents and severity of impacts. These activities will continue to be held and developed for greater safety together with efforts to promote all power plants in RATCH Group to upgrade their safety and occupational health system to meet uniform standards.

Trust and Acceptance from the Communities and Society

Based on RATCH's vision, mission, goals and strategies, the key factor that contributes to steady and sustainable business growth is trust, acceptance and support from stakeholders in the communities surrounding its operating areas and society at large. In the activities implemented with stakeholders, RATCH is determined to serve the needs and expectations of communities as much as the potential and capacity allow. RATCH therefore adheres to the following key principles: 1) **Compliance with the law**, 2) **Respect for stakeholders' rights and equitability**, 3) **Community participation** 4) **Communication and information-sharing** 5) **Society and community development**, and 6) **Employee engagement**. Thanks to the integrated execution of these principles, RATCH has gained the trust, acceptance and confidence from communities and society.

To serve the needs and expectations of the communities around the Group's power plants, RATCH screened the communities' comments in the public participation process, which is part of the environmental impact assessment (EIA), to develop itself. As a result, RATCH's community relations activities not only ease communities' concerns, with the communication and information-sharing being implemented to serve this issue, but also improve communities' well-being.

Implementation Principle to Gain Acceptance and Trust from Communities and Society



Community and social development

This year, RATCH's operation for the communities and society put more focus on communication and information-sharing. Two-way communication has been conducted, such as community visits and community and social development activities, so that the communities may have proper understanding of electricity-generating processes and environmental impact management, including more confidence in the operation of power plants. Moreover, the supporting activities of five more principles have been implemented to emphasize RATCH's determination to take care of communities and its social and environmental responsibility. Below are RATCH's performance highlights this year:

 Performance highlight in 2015

Compliance with law

- Law on business, tax, labor, environment, safety and Power Development Fund
- Preventive and mitigation measures in EIA

Respect for stakeholders' rights and equity

- Monitoring health issue in communities around the power plants
- Health promotion in community

Community participation

- Community Forest Contest
- Project to expand community energy plans in Ratchaburi, Phetchaburi, and Kanchanaburi province
- Supported religious and cultural activities in the communities

Communication and information sharing

- “Welcome to Our Home” (Chuan Phuen Yuen Ban) project of Ratchaburi Power Plant
- Enhanced the knowledge of environmental inspectors of Ratchaburi Power Plant
- Kla Yim Youth Camp
- Listening to comments and complaints
- Seminar of community forest leaders
- “CSR IN SCHOOL” project
- Communities perception survey towards power plants

Social and community development

- Community economic development
- Scholarship program
- “Education for Career Empowerment in Lao PDR” Project
- Educational support in Australia

Employee engagement

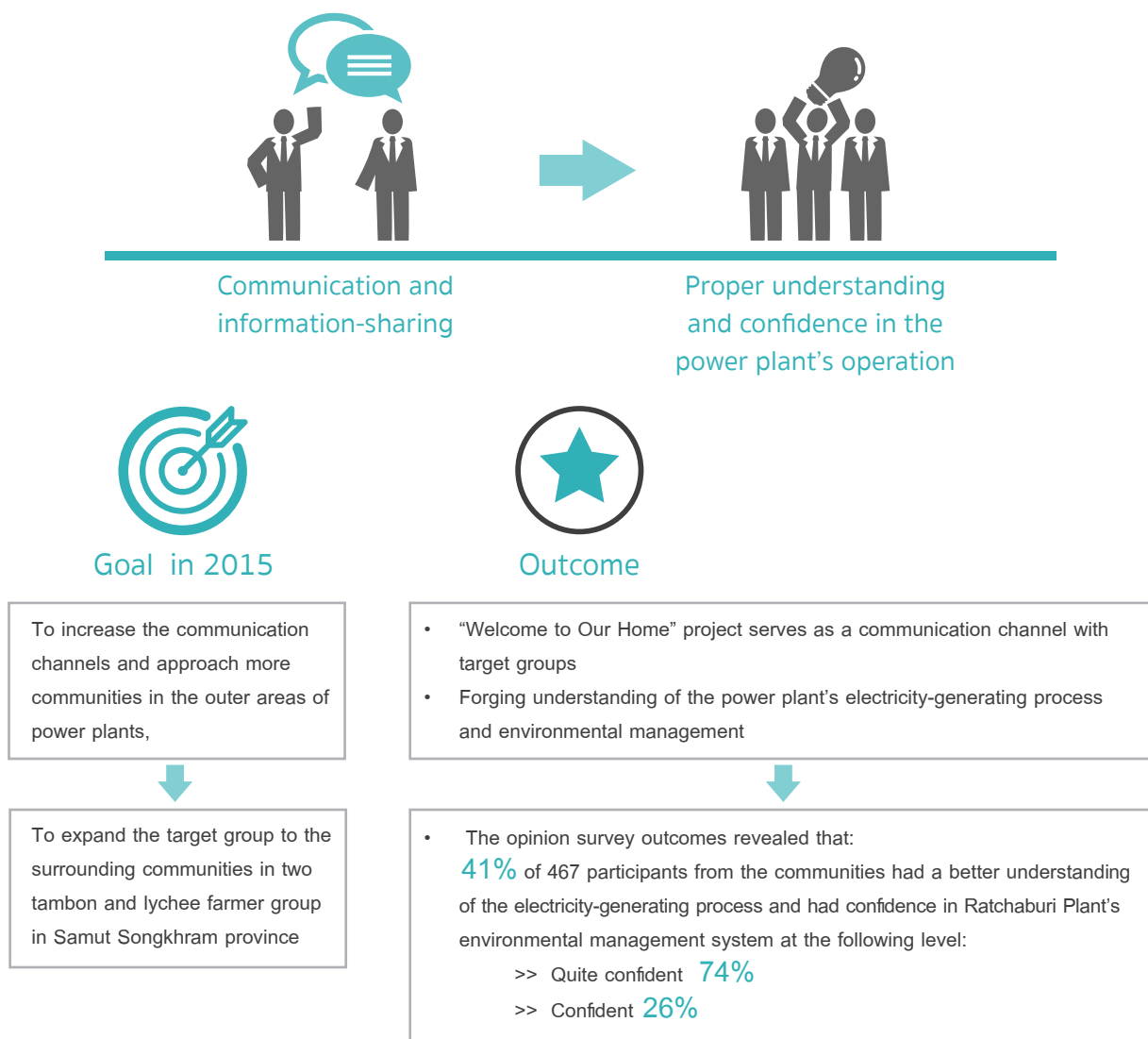
- Volunteer-minded employees



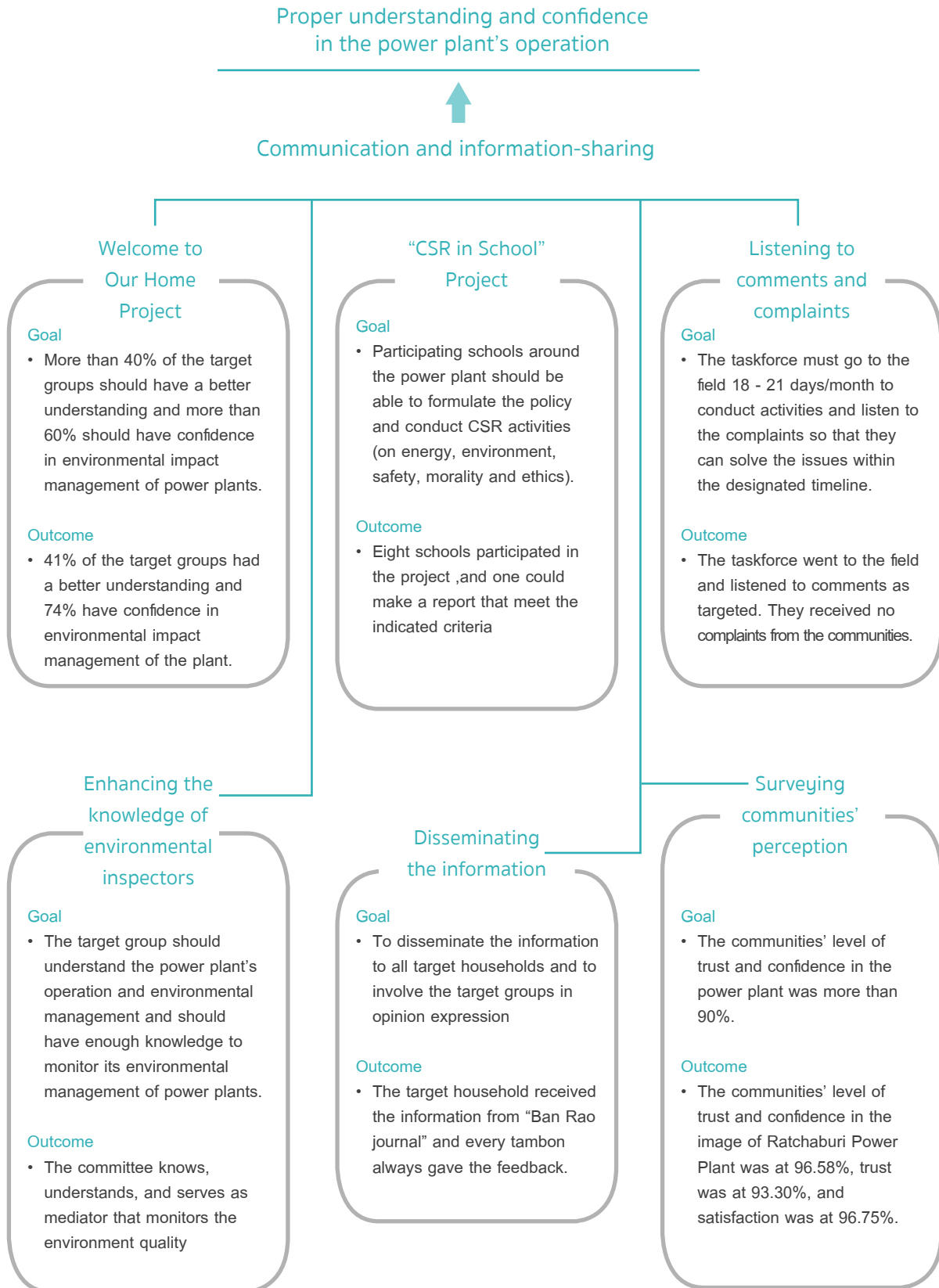
RATCH is well aware that the communication and information-sharing based on transparency, sufficiency, comprehensiveness and consistency through several channels and patterns will foster consultative, creative, open and understanding relationship between power plants, communities, and society. This leads to the cooperation which eventually benefits communities and society.

The power plants have been providing RATCH with the security and sustainability for over 20 years, the same period as their age. Therefore, the key mission of all power plants is to educate surrounding communities so that they may accurately understand operation. Moreover, the plants are strongly determined and committed to continuously looking after the communities and building their confidence and trust to ensure seamless operation of the power plants.

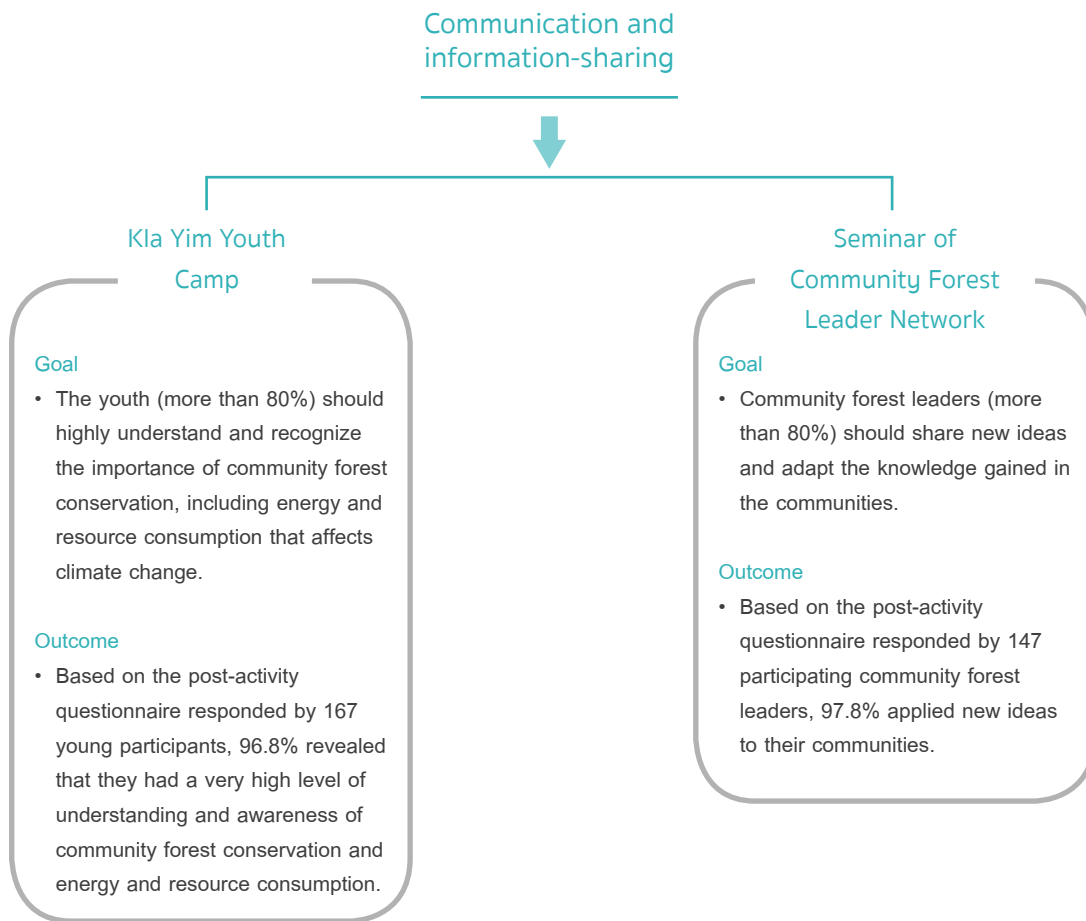
Ratchaburi Power Plant is considered the asset that contributes substantially to RATCH's and the country's economic security because this large power plant has 3,645-MW production capacity. As a result, its communities and society eye it with concerns about impacts. However, the communities' sensitivity will increase when power plants are rejected in other areas. That is why the power plant always pays attention to communication and information-sharing with communities. In 2015, Ratchaburi Power Plant set the goal and operation guidelines, as below:



Ratchaburi Power Plant



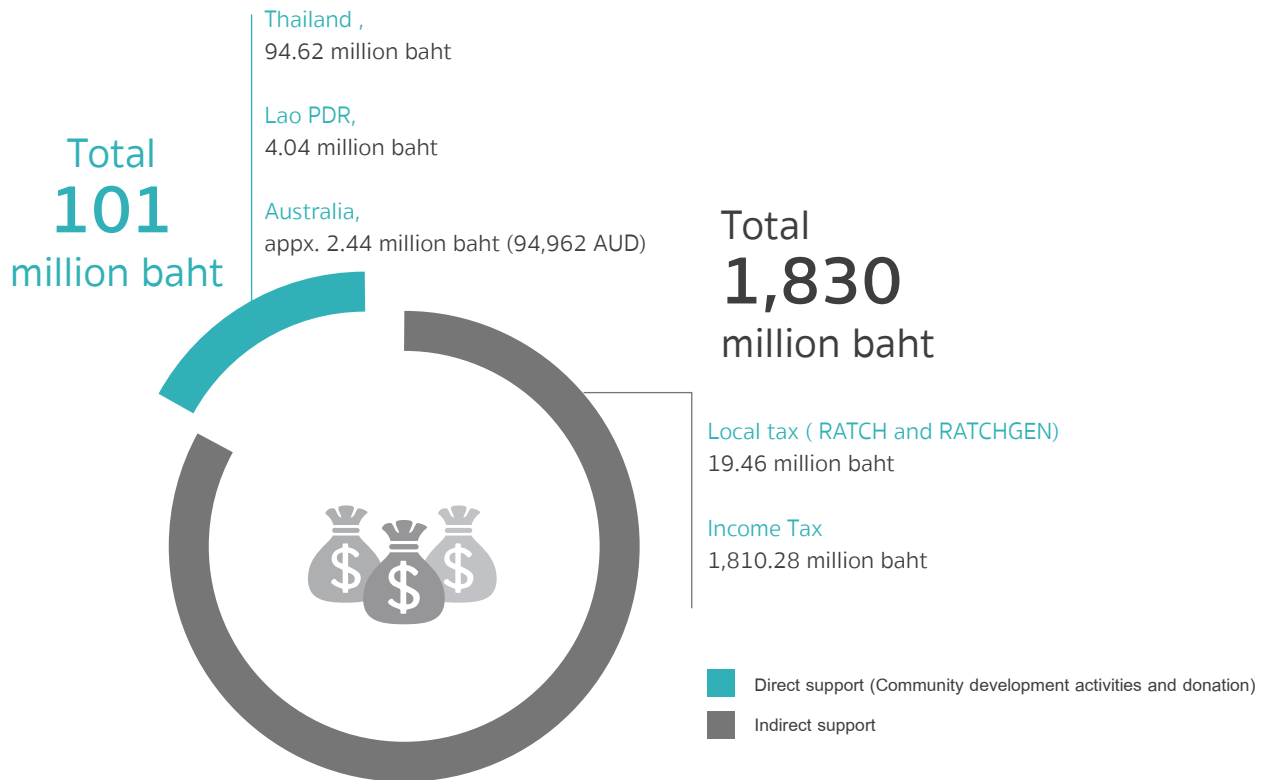
Project	Objective	Target Group	Operation	Evaluation Method
Welcome to Our Home Project	To forge understanding of the electricity-generating process and environmental management process	<ul style="list-style-type: none"> Communities in nine tambon around the power plant Two neighboring communities of the communities around the power plant Lychee farmer group in Samut Songkhram province 	<ul style="list-style-type: none"> RATCH brought the communities to learn how the power plant operates. The communities saw the actual work conditions in the power plant. Totally, 10 sessions were organized. 500 participants 	Questionnaire disseminated to 500 participants to evaluate their level of understanding and confidence before and after the activity
Enhancing the knowledge of the environmental inspectors	To forge understanding of the power plants' operation so that the inspectors can serve as the mediator who may inspect the power plant' operation	<ul style="list-style-type: none"> Community leaders and civil society sector Representatives of government agencies Representatives of the power plants 	<ul style="list-style-type: none"> Held a field trip to Ratchaburi Power Plant/Incinerator Power Plant in Phuket province Served as a representative to monitor and inspect the environmental quality of the power plant 	Questionnaire to evaluate how well the target groups understand the power plants' operation
"CSR in School" Project	To promote understanding of CSR in the schools by participating in the implementation	One school in each amphoe around the power plant	<ul style="list-style-type: none"> Held group training and coaching sessions for the teachers so that they learned the operating guidelines of CSR in School Project Reviewed the performance of CSR in School Project Certificate presenting ceremony and field trip 	Questionnaire disseminated to the students who received the scholarship to learn their opinion on the Project and the plant's operation
Disseminating information	To forge understanding of the power plant' operation	<ul style="list-style-type: none"> Communities around the power plant and their neighboring communities Government agencies Mass media 	<ul style="list-style-type: none"> Disseminated information on the power plants' operation in Ban Rao journal every three months The journals were distributed to the households in nine tambon around the power plants and other target groups 	<ul style="list-style-type: none"> Summary report on the journals distributed to the target groups Number of comments on Ban Rao journal
Listening to comments and complaints	To listen to comments and complaints on the power plants' operation	<ul style="list-style-type: none"> Communities around the power plants Government agencies 	Regularly visited the communities to check their well-being.	Report on employees' field trip outcomes, including the complaints received



Project	Objective	Target Group	Operation	Evaluation Method
Kla Yim Youth Camp	<ul style="list-style-type: none"> To promote understanding and awareness among children in community forests so that they can save the local forests, energy and natural resources To lay out the environment-saving concept among the youth and get them involved 	<ul style="list-style-type: none"> Young representatives from community forests in the target areas nationwide 	<ul style="list-style-type: none"> Held Kla Yim Youth Camp in the Northern, Central and Eastern Region twice, with 167 participants 	<ul style="list-style-type: none"> Questionnaire to evaluate their level of understanding after participating in the camp and their knowledge application
Seminar of Community Forest Leader Network	<ul style="list-style-type: none"> To enhance community forest leaders' knowledge and experience in forest management and energy conservation To share the concepts, methods and solution guideline on community forest management 	<ul style="list-style-type: none"> Community forest leaders from all regions 	<ul style="list-style-type: none"> Held two seminars of community forest leader network for the leaders in the southern and northeastern regions, with 147 participants 	<ul style="list-style-type: none"> Questionnaire to evaluate their level of understanding after participating in the activity and their knowledge application

Community development activities in 2015

Improving and strengthening communities' and society's quality of life has always been the goal of social responsibility that RATCH adheres to and implements. In 2015, its business supported the community and social development can be divided into the direct support of 101 million baht in total for Thailand, Lao PDR and Australia and indirect support in forms of local tax, and income tax of 1,830 million baht.



Community and social development activities under long-term investment

Company	Activities
Ratchaburi Power Plant	<ul style="list-style-type: none"> • Mobile medical unit • Training of public health personnel • Scholarship • Career development and community empowerment
RATCH	<ul style="list-style-type: none"> • Community Forest Contest • "Education For Career Empowerment in Lao PDR" Project
Ratchaburi World Cogeneration	<ul style="list-style-type: none"> • Community's Force, Sustainable Energy Project
RATCH-Australia Corporation	<ul style="list-style-type: none"> • Educational support

Performance in 2015

Project	Objective	Target Group	Operation	Evaluation Method
Ratchaburi Power Plant				
Mobile medical unit	To ensure that the surrounding communities take care of their health and have better access to the healthcare service	Communities around the power plant	Provided the rotating mobile medical units in 11 tambon around the power plant, totalling 16 times. The service included cervical cancer screening, Thai massage, applied Thai traditional medical checkup, and haircut	Summary report on the hospital's cervical cancer screening result and the communities' morbidity rate
Training of public health personnel	To educate the target groups on the meditation therapy technique for the holistic health and healing purpose. This brings new knowledge to serve the people.	Public health personnel and the interest public	Held training sessions for public health personnel around the power plant	Survey of the participants' level of satisfaction after joining the activity and knowledge application
Scholarship	To provide the learning opportunities for disadvantaged students with a sound educational background and good behavior, from elementary level to senior high school	Students around the power plant	Offered the scholarships once a year, totalling 1,533 scholarships worth 1,955,400 baht	Questionnaire to survey the opinions of scholars, such as their family's financial condition, financial burden alleviated and the spending of scholarships
Career development and community empowerment	To empower the occupational group for their better income and well-being	14 people from occupational and social group	Held a field trip with 56 participants	Outcome of satisfaction survey after the target group joined the activity and their knowledge application
RATCH				
Community Forest Contest	To promote and commend the communities that systematically manage forests and harmoniously live with the forest	The nationwide community forests registered with Royal Forest Department (RFD)	Held a Community Forest Contest, with prizes offered, at provincial, regional and national level (The national winner received the trophy from HRH Princess Maha Chakri Sirindhom.)	Report evaluating the success of Love the Forest and the Community Project, displaying the comparison between the award-winning and non-award-winning forests.

Project	Objective	Target Group	Operation	Evaluation Method
“Education For Career Empowerment in Lao PDR” Project	To serve the Laotian government’s policy to develop vocational education and increase and improve skilled labor in different fields	Teachers and students from six vocational colleges	<ul style="list-style-type: none"> • Provided training for welders, maintenance technicians and electricians. This year, 206 students graduated from six schools. • Offered 10 scholarships to the students and teachers to pursue their education at higher levels 	Report on the project’s progress, such as developing the curriculum, selecting target groups, and following up to see if the target groups were employed.
Ratchaburi World Cogeneration				
Community’s Force, Sustainable Energy Project	To enhance the knowledge and capacity of the vocational and social groups	Three vocational and social groups	<ul style="list-style-type: none"> • Provided a training session to enhance the committee’s capacity, with 30 participants • Held a short-term career development training session, with 100 participants • Donated rice-milling machines and vacuum sealers to the farmer group of Tambon Ban Khong 	<p>Performance report, such as knowledge applied to product development and cost reduction.</p> <p>The participants could:</p> <ul style="list-style-type: none"> • Reduce the rice berry-milling cost of over 100 households by at least 50% • Add value to the products with high-quality packaging
RATCH-Australia Corporation				
Educational support	To provide the students with educational support	Students around the power plant, from pre-school to the university level	<ul style="list-style-type: none"> • Offered scholarships • Taught the students about energy and environment • Held an activity to develop mental health • Held a field trip on science and environment 	Performance report after project implementation

Project	Objective	Target Group	Operation	Evaluation Method
Ratchaburi-Power				
Perception survey	To evaluate the communities' level of satisfaction and confidence in Ratchaburi - Power	Communities around the plant	<ul style="list-style-type: none"> Surveyed the opinions of community leaders and people around the plant on the image, reliability and satisfaction towards the plant's operation. The outcome revealed that overall image was at 96.58%, reliability was at 93.30% and the overall satisfaction was 96.75% 	Survey result reflects the plants gain community's trust and acceptance.

Number of people served by the mobile medical unit of Ratchaburi Power Plant in 2015

Type of Service	Number of People Served in 2015
1. Cervical cancer screening	1,588
2. Thai massage	1,180
3. Applied Thai traditional medical checkup	545
4. Haircut	817

Results of Community Forest Contest 2015



Award-winning community forests

137
out of 1,204 forests joining the contest
Totally 1,115 forests within eight years



Financial support for forest conservation

in 2015
2,940,000 baht
Totally 24,555,000 baht within eight years



Mutual environmental benefits

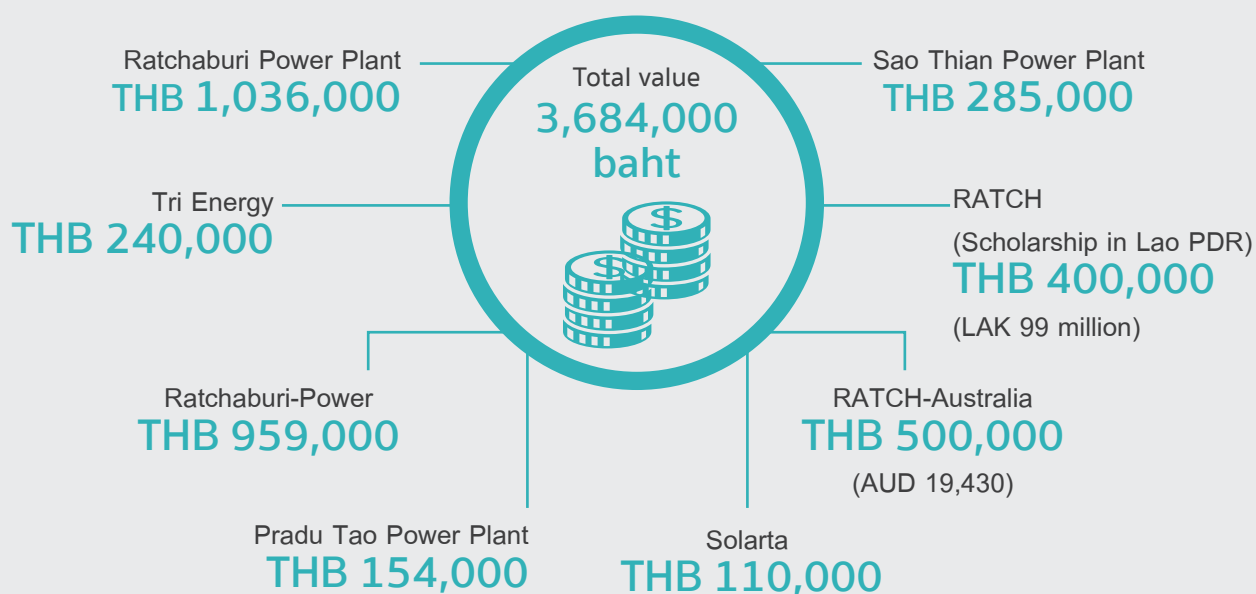
Store **191,926 tCO₂e**,
equivalent to 95,963 rai of forest areas
Totally 2,017,825 tCO₂e within eight years



Forest areas of winning communities

95,963 rai
in 2015
Totally 1,008,912 rai within eight years

Value of Scholarships Offered in 2015



Success case of sustainable community development of Ratchaburi Power Plant

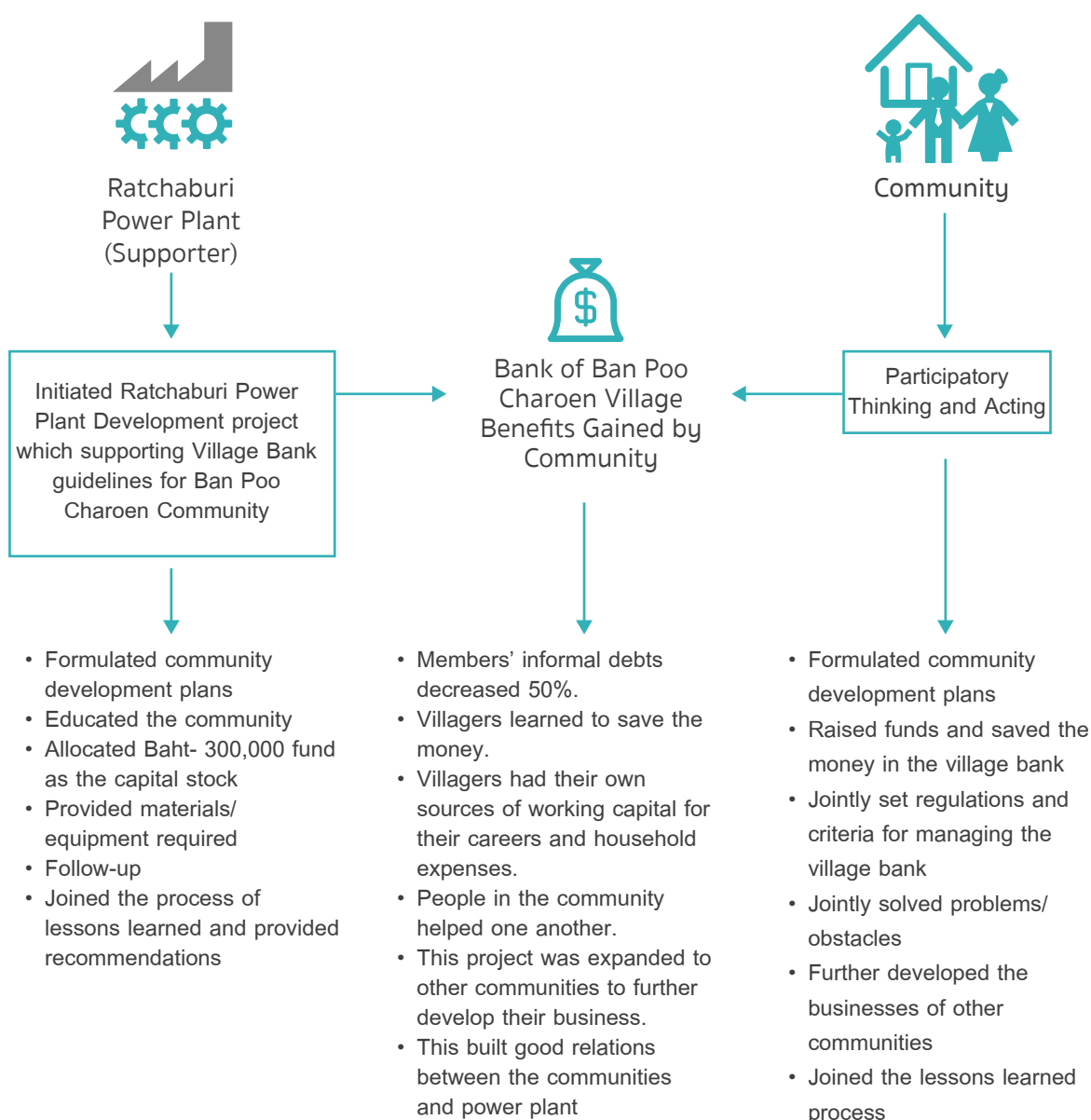
Project	Bank of Ban Poo Charoen Village, Tambon Phaengphuai, Amphoe Damnoen Saduak, Ratchaburi province
Year of establishment and participating community	In 2004, Ban Poo Charoen community, Moo 12, Tambon Phaengphuai, Amphoe Damnoen Saduak, Ratchaburi province
Community's problems	<ul style="list-style-type: none"> • Most villagers are orchard farmers. • Most households had significant formal and informal debts. • Most villagers lacked financial liquidity, which was to be used as the working capital for their careers and daily expenses.
Project concept	To improve the quality of life of the people around the power plant based on sustainable development direction
Implementation method	<ul style="list-style-type: none"> • Formulated a community development plan at the village level, with local people participating, to search for the target group's problems and needs, determine the options and operation guidelines, and make decisions. • In 2004, Ratchaburi Power Plant encouraged Poo Charoen Village to develop itself as planned, with the community implementing the plan and Ratchaburi Power Plant providing support.
Activities required by the community	Established a financial group entitled "Bank of Ban Poo Charoen Village" as the community's financial institution

Support from Ratchaburi Power Plant	<ul style="list-style-type: none"> Enhanced the knowledge required for project implementation, such as communities' accounting Allocated a 300,000-baht fund as the capital stock, twice the members' amount of savings Required materials and equipment, such as passbooks, books of original entry, calculators and stationery Regularly provided recommendations Joined the lessons-learned process
Capital and founding members in 2004	<ul style="list-style-type: none"> 100,000-baht capital stock of the members 50 founding members
Capital and members in 2015	<ul style="list-style-type: none"> The capital of 1,880,000-baht consists of: <ul style="list-style-type: none"> 1,350,000-baht capital stock 300,000-baht financial support from the power plant 230,000-baht retained earnings 156 members in 2015
Members' rate of return and the bank's revenue	<ul style="list-style-type: none"> Average profit: 105,000/year Dividend: 20% of profit Average loan repayment: 10% of profit

Summary of Bank of Ban Poo Charoen Village

Objectives	Chairman	No. of Committees	Opening Hours	Area of Service
<ul style="list-style-type: none"> To promote savings To offer loan to members To serve as members' joint businesses To heighten members' morality 	Mr. Preecha Jetiyawan, Headman of Tambon Phaeng-phuai	21 committees	Every 6 th date of the month 5 - 8 p.m.	Three villages in Tambon Phaengphuai: Moo 2, 5 and 12

Implementation Process



The Project's Success and sustainability

No. of Members	Capital Stock	Members' Loan	Performance	Benefit Allocation	Further Development
Increased 3.12 times from 50 members in the year of establishment	Increased 13.5 times from 100,000-baht in the year of establishment	Increased 4.2 times from 500,000-baht loan in the year of establishment	Increased 2.5 times from 60,000 baht profit in the year of establishment	<ul style="list-style-type: none"> Dividend: 20% of profit Discounted interest on loans: 10% of profit Capital reserve: 10% of profit Supporting the communities' activities: 20% of profit 	<ul style="list-style-type: none"> Expanded the business of community stores Expanded the community's bottled-water manufacturing business Offered scholarships Supported the elderly and social service activities Served as the provincial learning center of village management

Opinion of Mr. Preecha Jetayawan Chairman of Bank of Ban Poo Charoen Village and founding member of the Bank



“In the past, the community was quite concerned about the impacts of Ratchaburi Power Plant. We did not know what benefit we would gain from the construction of the plant in this area. Once the staff of the plant started to visit the community and have been conducting the need-based community development activities, we started to sense the attentiveness and sincerity of the plant, which supported the required knowledge, resources and budget. This improved the environment and the community’s quality of life. So, we recognized the benefit the power plant provided for communities and society at large.

The points of concern included air, water and heat. The power plant regularly sent staff to listen to our comments and provided a taskforce from educational institutes to conduct field studies, collect and analyze the data, and carry out fact-finding with the community. I, as a member of the current environmental inspector team of Ratchaburi Power Plant, had a chance to see its electricity-generating and environmental management processes and inspected its operation and environment quality. I am therefore confident that the power plant has the electricity-generating technology that can control its environmental impacts and gain acceptance from communities”.

Respect for Human Rights

RATCH believes that treating others with respect and honor should be the basis for its corporate culture. Such view underscores all business process and business relations, taking into account the stakeholders' human rights, environmental protection as well as promotion of economic and social development of any country RATCH is working in.

Human Rights Policy and Code of Conduct

RATCH's Code of Conduct includes policies related to basic human rights, comprising

- Business approach, focusing on duty and responsibility to the nation, religion and the King as well as public morale
- Responsibility to the shareholders, respecting their rights and equality
- Responsibility to business partners, competitors and employees, emphasizing equality and non-discrimination
- Social and environmental care, respecting local traditions and culture, as well as protection of common environmental resources.

These basic rights are standards that all personnel are aware of and have accepted as part of normal practice in RATCH to this day.

In laying down basic rights for the employees to create a happy work environment both physically and mentally, RATCH complies with labor law principles, namely, equal opportunity employment; non-employment of children, illegal labor or forced labor; equal opportunity for local workers; health and safety protection; establishment of welfare to promote a good quality of life for workers; a good health and safe work environment; and creation of appropriate channels of communication between RATCH and workers, among others.

Rights and Equality

As part of our corporate culture, respect for the rights and equality of people of all genders, ages and religions is regularly practiced by our workers. RATCH also maintains policies that promote workers' rights and equality as follows:

- Specify the base of wage and welfare for male and female employees at the same rate.
- Promote workers of all genders to have equal opportunities and progress in their career paths
- Promote a good quality of life by allocating equal time for work and for family
- Respect differences without discrimination or exclusion for reasons of gender, race, language, religion or social status
- Prohibit violence, sexual oppression, and obscenity in all forms
- Establish the Employee Welfare Committee, comprising both representatives of the employer and employees. Employees can express their opinion and recommendations to the company via this committee.
- Set up channels for complaint and appeal for employees.

Employee Training on Human Rights

RATCH executives and all employees are aware that RATCH has declared and implemented a code of conduct for RATCH, another for Executives, and another for Employees, and other related policies approved by its Board. The framework provides human rights protection for employees and all stakeholders. The codes of conduct and other policies are kept in RATCH's information repository of Lotus Notes and posted on the company website www.ratch.co.th that can be downloaded or read at all times.

Moreover, RATCH has organized general training for employees, business partners and contractors on human rights. In 2015, a total of 76 hours of training were provided.

Total hours of employee training on human rights at Head Office

Topic	Target Group	Total hours
Environment	All employees	8
Prevention of corruption	All employees	4
Safety and Occupational Health	All employees	8

Total hours of contractor and sub-contractor training on the topic of human rights at Head Office

Topic	Target Group	Total hours
Environment	Contractors	8
Prevention of corruption	Contractors	4
Safety and Occupational Health	Contractors and sub-contractors	44

Human Rights Risk Evaluation

RATCH has undertaken human rights risk evaluation in the following areas:

- 1) General human rights risk evaluation. RATCH checks the completeness of laws regarding welfare and occupational safety as well as the environment in each country in comparison to the major human rights principles stated by the International Labor Organization (ILO). If the legislature covers all issues, then the primary assessment would be that the opportunity for this risk occurring and for causing impacts is very low. Should there be issues that the legislature do not cover, RATCH will establish measures to prevent and control such risks, applying principles of law or other related regulations as well as standards, criteria and practices of businesses applied in each country.

- 2) Analyze risks and assess impacts arising from community rights. Apart from the legal principles listed above, RATCH analyzes risks from community identity; culture, traditions and way of life of the community; faiths and belief in religion; as well as folk intellect. The level of impacts is then assessed. A community or locality with a clear, strong identity poses a high level of risk to the operation, requiring measures to prevent and control such risk.

In the development of power-generation plants, during the environmental impact assessment phase (EIA), an analysis of social appropriateness is included, which covers many issues on human rights, such as the quality of life of the community; new area/land in case community relocation is required; livelihood; accommodation condition; career; education; community history; health and sanitation; the environment; benefits of the people and local communities; social acceptance of the project; and public participation in EIA to share opinions, present information, disputes or recommendations on the project's EIA.

- 3) RATCH ensures control that there is no hiring of child labor, illegal labor or any forced labor. This is clearly stated in its regulations and in the requirements for contractors and sub-contractors. Therefore, there is low risk in these issues occurring. Furthermore, RATCH's main business remains in Thailand, where ILO's human rights principles are fully incorporated into Thai labor laws. Therefore, the risk to human rights violation in Thailand is very low.



Economic Performance

RATCH's business investment in the power generation business has driven national economic growth thanks to its business and social investment, direct and indirect employment including local procurement and the generation of electricity, which is a basic public utility that satisfies the needs of customers and the overall development of the national economy and society.



2015 Economic Data



Business Expansion and Investment



Customer Satisfaction Management



Management of Supplier Relationship and Supply Chain

RATCH also follows its long-term (2013-2023) strategic plan to supplement business value to its goal of Baht 282,000 million by 2023 under a sustainable growth strategy with a focus on balanced risk management and returns, operational excellence through asset management, and financial strength.

Besides operations in Thailand, which is its key business base, RATCH has a mission to support power system security, with the 3,645-MW Ratchaburi Power Plant being the major installation and the main power generation plant of the Central Region, Western Region, and the upper South.

Faced with economic slowdown and oil price volatility this year, RATCH has adjusted its business direction with a current focus on asset management to preserve income security and financial stability. For power plants with income generation, the focus is on maintenance to keep efficiency and the availability factor high. For those completed this year, RATCH accelerated construction and commissioning to ensure they can commercially start up as planned, namely Hongsa Thermal Power Plant (Unit 1 and Unit 2), Ratchaburi World Cogeneration Unit 2, and Songkhla Biomass Power plant.

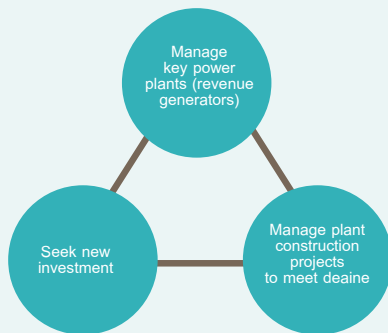
This year's performance echoed RATCH's operating profitability and financial strength. Despite currency exchange volatility, RATCH Group posted Baht 59.33 billion in revenue (a rise of 2.5%) and Baht 4.5 million in profit before foreign exchange loss, together with Baht 3.19 billion in profits of the company. Finally, RATCH's security and strength have continually benefited the distribution of economic value to various sectors in RATCH's business chain.



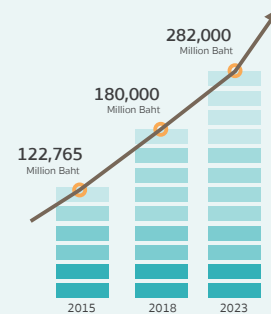
2015 Economic Data

Item	Million baht
Total revenue	59,326.30
Operating expenses	50,616.66
Employee compensation and welfare expenses	624.26
Dividends	3,291.50
Interest paid to creditors (short-term and long-term)	1,386.03
Tax paid to the government	1,829.75
Community Investment	101.10

🇹🇭 Economic strategies 2015



🇹🇭 Enterprise value target



🇹🇭 Management approach for main power plants (sources of income)

1. Maintain availability factors of main power plants by PPAs
2. Maintain plants' generation efficiency and availability
3. Control and lower energy consumption to cut costs and CO₂

🇹🇭 Generated and Distributed Electricity in 2015

• Thailand	29,060,325.51
• Australia	1,197,770.00
• Lao PDR	4,407,468.92

Total = 34,665,564.43
(MWh)

2015 Availability factors and average reliability factors

Power plant (Installed capacity)	Equivalent Availability Factor : EAF		Reliability Factor : RF		Dispatch Factor : DF	
	Goal	Actual	Goal	Actual	Goal	Actual
Ratchaburi (3,645 MW)	84.30	85.51	93.39	94.72	52.00	61.74
Tri Energy (700 MW)	91.78	62.90	98.63	85.96	65.00	69.62
Ratchaburi Power (1,400 MW)	90.95	92.81	98.00	97.36	55.00	72.51
Ratchaburi World Cogeneration (234 MW)	100.00	95.54	100.00	100.00	80.00	80.31

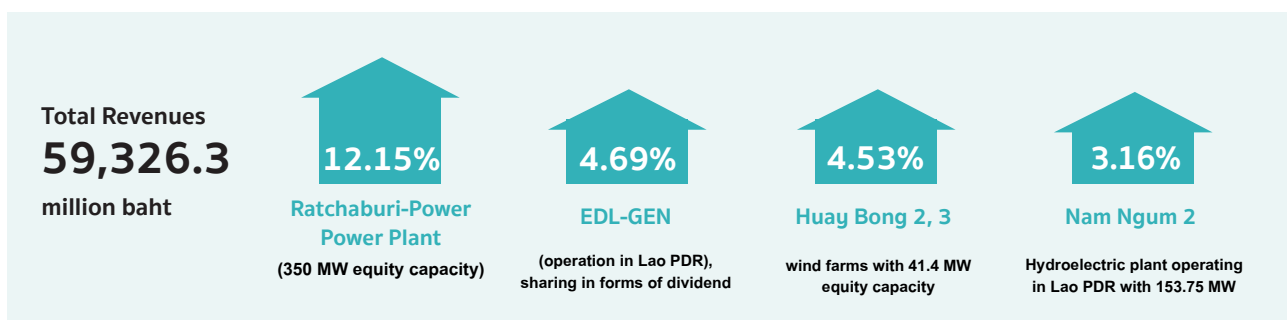
With a combined equity generation capacity of 4,788.6 MW (42% of RATCH's total capacity), the four major power plants still maintained their generation efficiency and availability, considering their service years. Tri Energy and Ratchaburi commands a service life of 15 years; Ratchaburi-Power, 8 years; and Ratchaburi World Cogeneration operated commercially from both units this year.

This year, RATCH's equity capacity totals 6,813.55 MW, of which 6,116.74 MW belonged to commercially operating plants. All of them are still in operation under PPAs and are due to shut down with the completion of PPAs.

Power plants commercially operated in 2015

Power Plants	Equity Holding	Installed Capacity	Equity Capacity	Fuel	Location	Operator
RW Cogen	40%	117.00	46.8	Gas	Thailand	Ratchaburi World Cogeneration Co., Ltd.
Hongsa, Unit 1	40%	626.00	250.4	Coal	Lao PDR	Hongsa Power Co., Ltd.
Hongsa, Unit 2	40%	626.00	250.4	Coal	Lao PDR	Hongsa Power Co., Ltd.
Songkhla Biomass	40%	9.90	3.96	Biomass	Thailand	Songkhla Biomass Co., Ltd.
Total		1,378.90	551.56			

Besides Ratchaburi and Tri Energy Power Plants, there are four power plants generating significant income driving for the company's growth in 2015 including;





Business Expansion and Investment

Amid the economic slowdown, depressed oil prices, and volatile currency exchange rates, investment growth this year has been achieved cautiously, with more time given to risk assessment and various impacts. What is more, most target projects are major, overseas greenfield ones that need time for detailed investigation, data analysis, and risk factor scrutiny.

This year, RATCH jointly invested Baht 7,500 million in the Fangchenggang nuclear power plant project, phase 2, with an installed capacity of 2,360 MW in China and acquired all the right offering (41.32 million shares) of EDL-Gen for Baht 1.093 billion. These two investments resulted in a rise in RATCH's equity capacity to 6,813.55 MW.

Future Prospects



2016 Goal
Enterprise Value
133,000 MB



Strategic plan

- Managing production efficiency of main power plants and newly operated plants
- Monitoring construction progress of Hongsa power plant unit 3 and Nava Nakorn Electricity Project and ensuring commercial operation as planned in 2016
- Seeking new investment and exploring new business opportunity

Indirect economic value

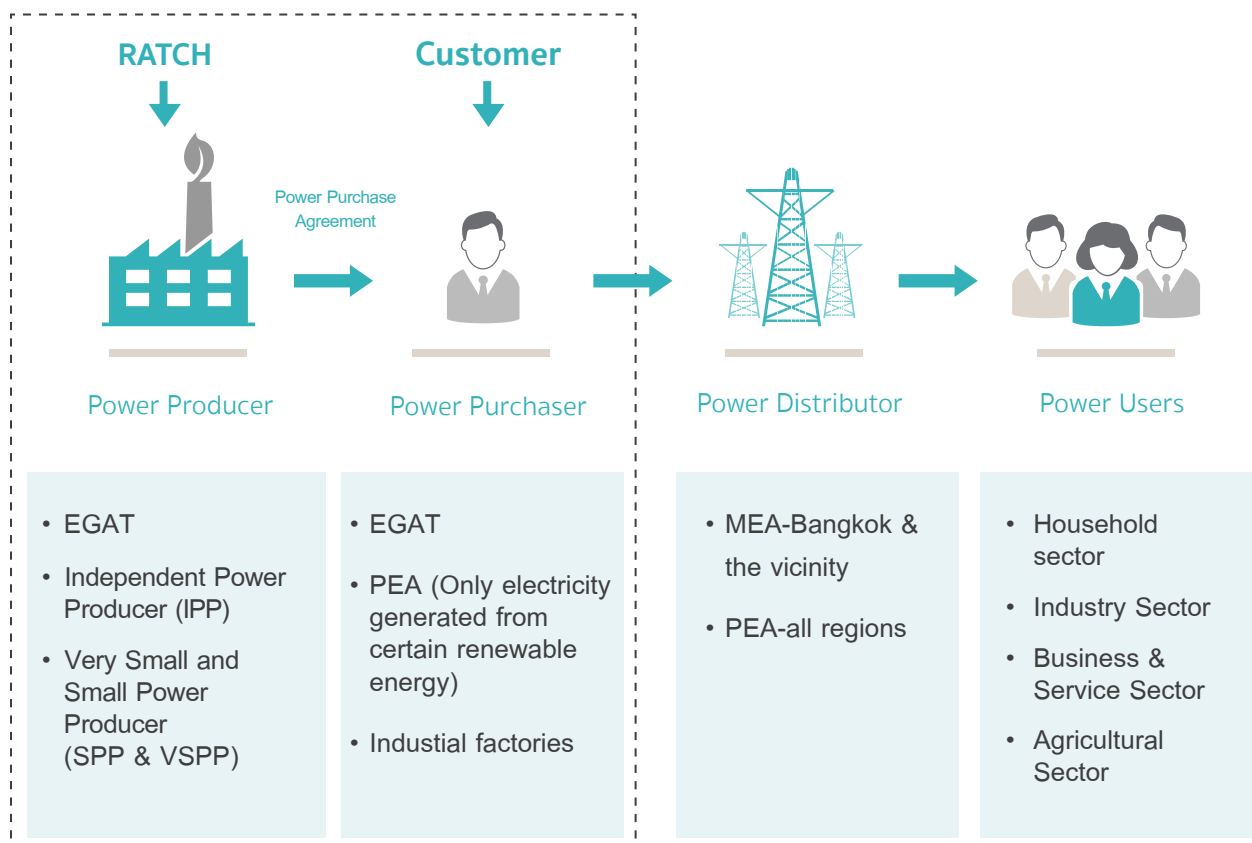
Besides RATCH's direct economic value, which is distributed to stakeholders in its business chain, one sees indirect value in several aspects which resulted from its businesses.

Impact	Action taken
Local economic development	<ul style="list-style-type: none"> • A company is registered locally where each plant is located, with local taxes, duty stamps, and fees paid locally.
Indirect employment	<ul style="list-style-type: none"> • For project construction, the project required that contractor companies hire local workers. • Each power plant requires procurement and hiring from local companies.
Revenue for community	<ul style="list-style-type: none"> • RATCH supports community enterprises and chooses community products for the Group's use or activities.
Development of communities, society, and the environment	<ul style="list-style-type: none"> • RATCH supports activities on the development of communities, society, and the environment of the company or local agencies.
Environmental risks	<ul style="list-style-type: none"> • Accidents or unforeseen incidents will probably happen despite strict control measures.
Growth in national business chain	<ul style="list-style-type: none"> • The purchase values of fuel, machinery, supplies and tools, hiring, and services under the supply chain contribute to national economic growth.



Customer Satisfaction Management

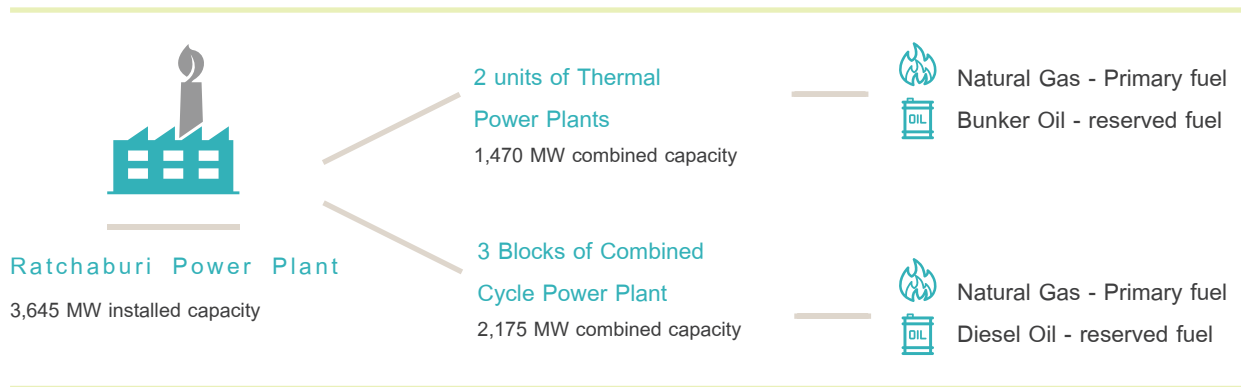
As one of the largest electricity-generating companies based in Thailand, RATCH distributes nearly all generated electricity to the Electricity Generating Authority of Thailand (EGAT) and the remainder, generated from certain renewables, to the Provincial Electricity Authority (PEA), which in turn redistributes electricity to direct consumers in various parts of the country. Like PEA, the Metropolitan Electricity Authority (MEA) redistributes electricity generated by others to users in Bangkok Metropolis and the vicinity.



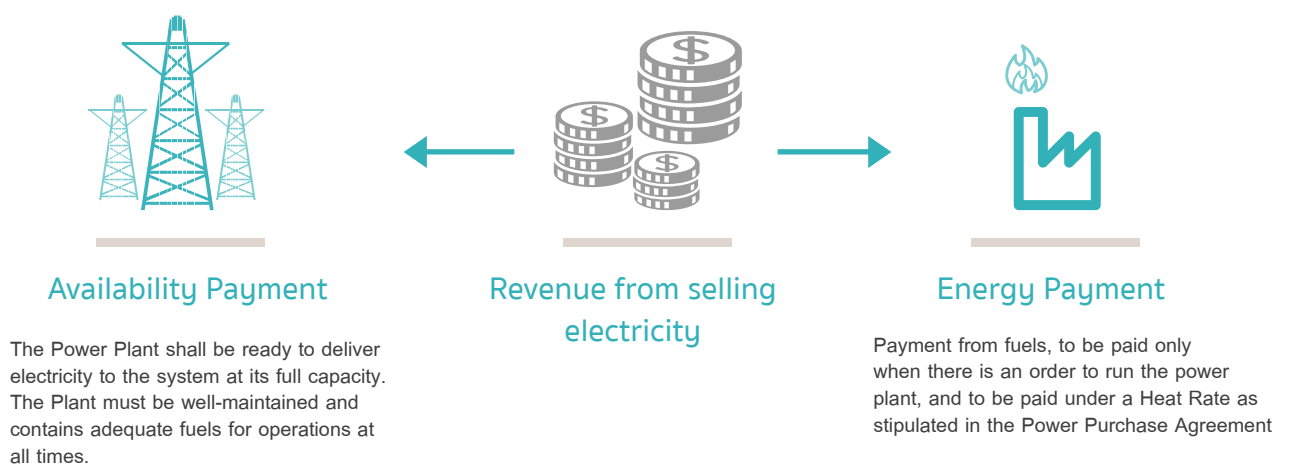
EGAT is the primary customer which mutually entered the Power Purchase Agreement (PPA) with RATCH, with terms determined by the age of the power plant. RATCH is obliged to generate and deliver electricity to the customer as stipulated in the agreement.

♥ Ratchaburi Power Plant's Customer Satisfaction Management Methodology

Ratchaburi Power Plant is RATCH's main power plant generating and delivering all electricity to EGAT, with revenue accounting for more than 80% of the total. The electricity generated by this plant is the strategic power source for EGAT in securing power supply to users in the Central Region, the West and the upper South, so the capability of meeting demand by customers at a satisfactory level is therefore vital, not only to RATCH but also to the socio-economic conditions of the country, since electricity is the basic utility for national socio-economic development.



Ratchaburi Power Plant's revenue from selling electricity under the conditions set forth in the PPA comes from two sources: availability (Availability Payment) and fuels used (Energy Payment).



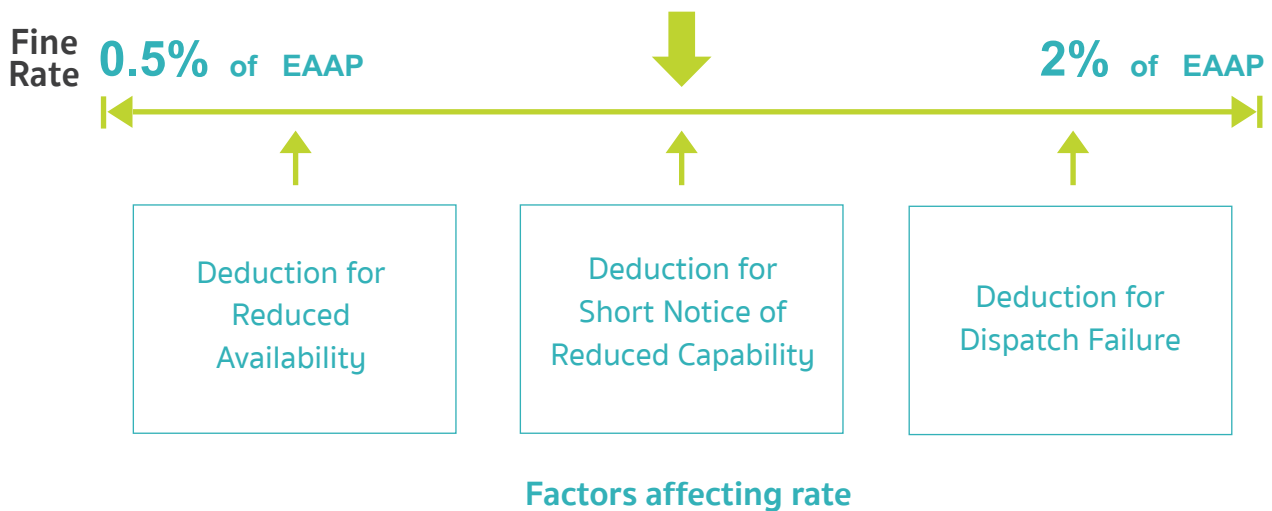
The plant is tasked to deliver its product (electricity) with quality and in its entirety as stipulated in the PPA for customer satisfaction in supplying power to meet the national demand while securing the national power grid. With full responsibility for these tasks, Ratchaburi Power Plant carefully and strictly maintains its facilities at maximum capability and efficiency, ready to operate in response to the customer's demand throughout the PPA terms. The management of the plant is focused on three main areas:

- **Availability:** To meet the customer's demand satisfactorily, a Target Availability is set annually. The annual target availability shall be aligned with the Contracted Availability Hour (CAH). The average CAH in 2015 was set at 85.51%, and the actual achievement was 84.30%.
- **Reliability:** This performance measure is determined by the hours of non-operating repair and maintenance not earlier planned, that is, the unplanned outage. However, since there are many uncontrollable external factors affecting the CAH, emergencies disrupting power generation can take place at all times. Accordingly, the Unplanned Outage Hours was set at 3%-5% annually from the total hours of power supply under the PPA. For 2015, the average reliability was earlier set at 93.39%, while the actual performance was 94.72% which was better than the target.

- **Heat Rate:** The Heat Rate was clearly defined in parallel with power plant operating efficiency in the PPA right from the beginning. The contractual definition of heat rate is the quantity of fuel used in generating a unit of electricity. The agreement also includes the quantity of fuel used for the 'start-up' of the engine or the stand-by engine before delivering electricity to EGAT's system. As a rule, lower heat rates indicate higher plant efficiency. In 2015, the plant's average heat rate for natural gas, bunker oil and diesel was 7,764, 9,719, and 8,914 BTU/kWh respectively.

Since electricity is in the form of energy that must be generated instantly whenever it is needed, availability therefore critically affects the customer's satisfaction, and penalty in terms of fines can be imposed to reflect a degree of dissatisfaction. The fine is set in the 0.5%-2.0% range of the 'expected annual availability payment (EAAP), which varies with the levels of impacts to customers and their acceptable levels.

Impact on Power System Security



🎯 2015 Target vs. Performance

Ratchaburi Power Plant successfully maintained the acceptable level of customer satisfaction, as measured from the imposed fine rate calculated from the expected availability payment (EAAP) of not over 2.0% in 2015. With expertise in operating and maintenance service, Ratchaburi Power Plant's staff conducted efficient planned outage maintenance dictated by the age of facility. Thus, fine rate was lower than expected annual availability payment (EAAP).



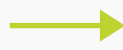
Target



Performance

0.64%

of EAAP

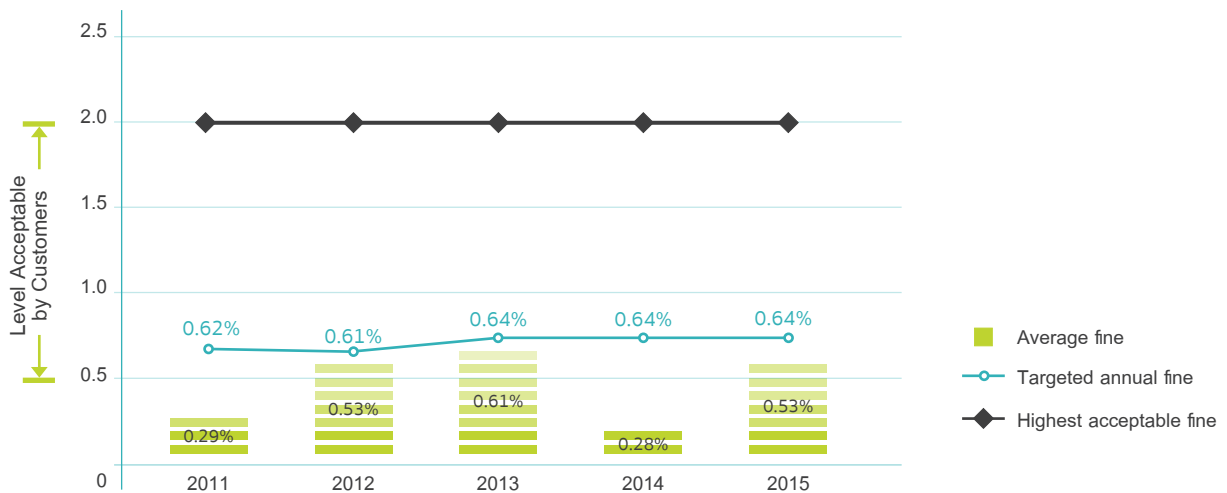


0.53%

of EAAP

Due to a major overhaul at Ratchburi Power Plant with unstable availability immediately after the shutdown.

The efficiency of RATCH's customer satisfaction management can be demonstrated in comparison of the fine rate calculated from the expected availability payment with the maximum fine rate level acceptable to the customer.



Customer confidentiality and data protection

Keeping customer confidentiality and data is the principle that RATCH manages with top priority and consequently defines clear handling procedures. All documents and data with signatures for confidentiality are specially retained and can be disclosed only to the authorized. Documents and data without signatures for confidentiality are normally kept but not disclosed to the public and unrelated personnel. Without exception, disclosure of customer data can be made only with prior customer's consent.

In 2015, retention of customer data was managed without any breach of the confidentiality agreement or malpractices or similar acts.

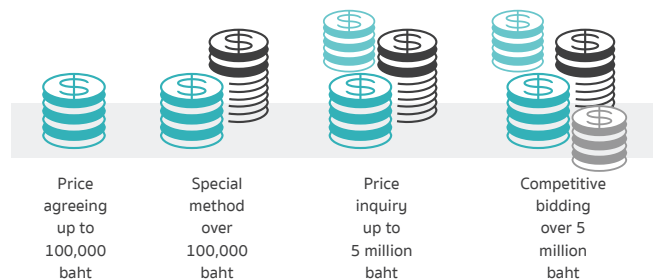


Management of Supplier Relationship and Supply Chain

RATCH recognizes that suppliers and contractors and the supply chain are part of the key mechanism driving business growth. Strategic management of suppliers and the supply chain is therefore vital to it to secure continuous, sufficient, and long-term procurement of the required products and services. In addition to maintaining ties with existing suppliers, RATCH has developed relationships with new partners who can satisfy it with quality, competitiveness, ethics, integrity, human rights, and environmental management standards. The strategy has led RATCH to sources of products and services that support long-term, sustainable business growth. RATCH also set guidelines for treating stakeholders, suppliers included, in its code of conduct, which features regulations for selection of suppliers. In parallel, each power plant has its own manual for dealing with suppliers and contractors.

✓ Supplier selection

The framework and the process regarding supplier selection are presented in the procurement directive of both RATCH and subsidiaries. The directive divides procurement method into four types, depending on the contract value, which is considered part of risk control and management.



Procurement methods

In 2015, suppliers in the supply chain, who provided products and services to RATCH's Head Office and major subsidiary - Ratchaburi Electricity Generating Co., Ltd. (RATCHGEN) - totalled 558 companies. Of these, 121 companies were existing suppliers of RATCH, 43 among which were new suppliers, equivalent to 35.5%. As for RATCHGEN, the subsidiary managing Ratchaburi Power Plant and Tri Energy Power Plant, there were 437 companies in contract, 90% of which were long-term partners.

Moreover, both companies' procurement transactions were mostly made with domestic suppliers, in line with RATCH's policy, which stresses creation of economic value, either direct or indirect, in countries and places where it has operations. In 2015, RATCH, subsidiaries, and joint-venture companies engaged in combined procurement transactions of 105,103 million baht in total.

💰 Procurement value for 2015

Business	Shareholding	Total value (Million Baht)
Ratchaburi Electricity Generating Holding Public Company Limited Head Office	-	224.82
Ratchaburi Electricity Generating Company Limited (Ratchaburi, and Tri Energy Power Plants)	99.99	82,445.62
Ratchaburi Power Co, Ltd. (Ratchaburi Power Plant)	25	19,138.19
Ratchaburi World Cogeneration Co., Ltd. (RW Cogeneration Power Plant)	40	3,294.44
Total	-	105,103.07

⚙️ Management of suppliers' risks

Since suppliers and contractors are considered mechanisms to drive RATCH toward growth, measures were laid down to prevent risks that could impact its operations in economic, social, environmental aspects, as detailed below:

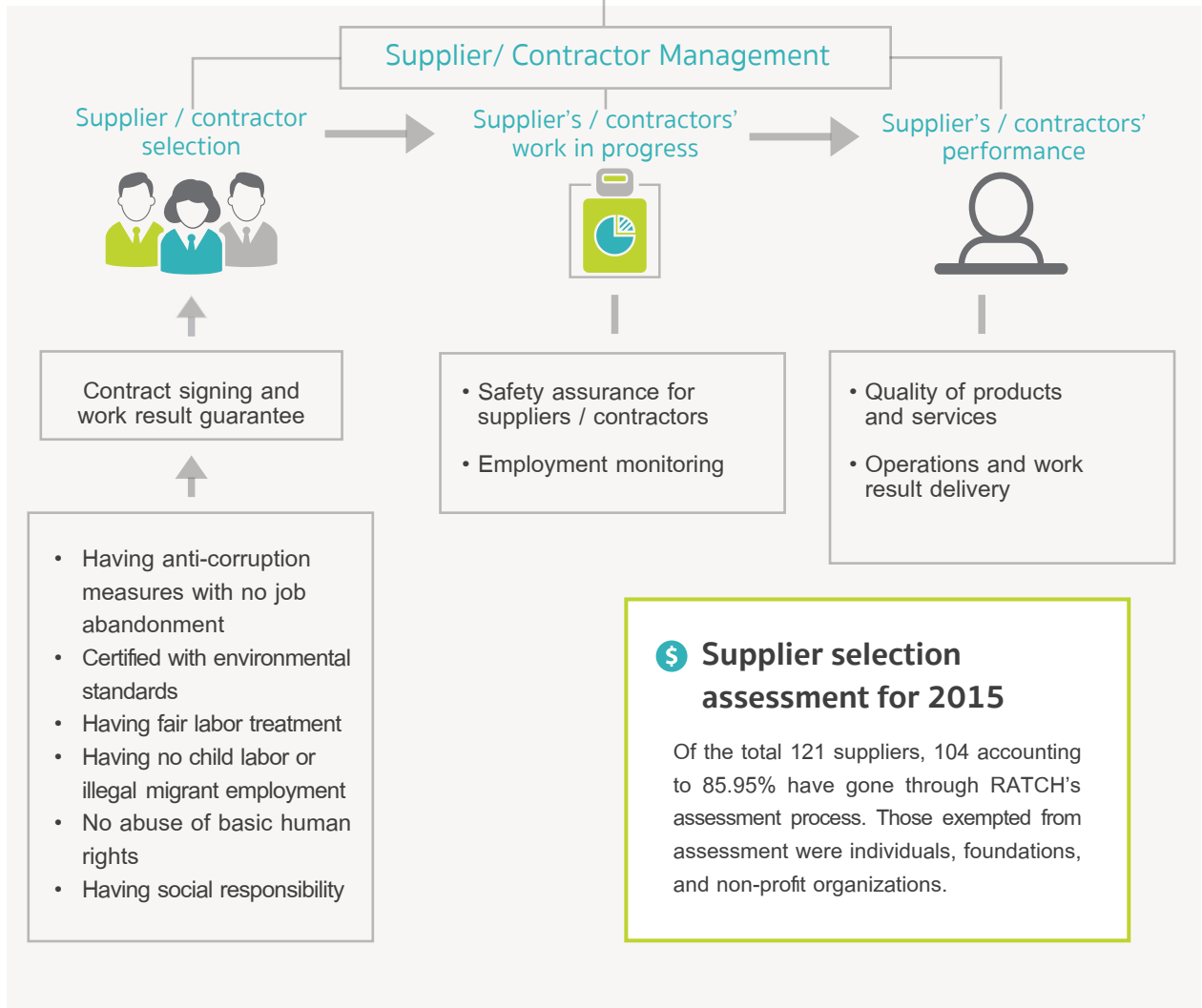
Risk factor	Dimension of impact	Control and management method
Default of product and service delivery	economic	<ul style="list-style-type: none"> A fine of 0.1% per day for delayed delivery but not over a contract value. Suppliers must be responsible for all cost delayed delivery.
Job abandonment	economic	<ul style="list-style-type: none"> Performance bond and retention guarantee for 5% but not over 10% of the contract value required Advanced deposit is limited no more than 25% of the contract value, with advanced payment bond required Blacklisting
Supplier's / contractor's credibility	economic social & environmental	<ul style="list-style-type: none"> For price inquiry and bidding, a bid bond for 5% but no more than 10% of contract value required Official form to assess qualifications of suppliers/ contractors with requirement for disclosure of economic, social, and environmental information Official form of the sponsoring department to assess supplier's/ contractor's performance

Risk factor	Dimension of impact	Control and management method
Price collusion	Economic & corporate governance	<ul style="list-style-type: none"> • Official form to assess supplier's / contractor's qualifications, of which information is to be disclosed as required by RATCH • Ensuring that management members and directors of companies joining the bidding do not have involvement or do not hold similar positions in other companies also joining the bidding • Checking records of past work of suppliers / contractors with their previous customers
Safety and occupational health	Social & economic	<ul style="list-style-type: none"> • Developing a manual and regulations for assessing risk from suppliers / contractors hired for working on the power plant compound • Using OHSAS 18001 as working standards for suppliers / contractors • Making PEMEn assessment while envisaging risk to suppliers / contractors and making reviews every 1 – 2 years

RATCH is now developing tools for assessing suppliers' environmental risks and looking for ways to control and prevent possible environmental impacts which may occur from RATCH's supply chain.

Supplier assessment

This year, RATCH developed the supplier assessment forms in three stages, namely selection assessment, assessment of work in progress, and assessment of performance. Such assessment is key to risk prevention, which aids in screening desirable suppliers/contractors, which does its business with responsibility to stakeholders and the environment in line with RATCH's approach.



✔ Results of supplier/contractor assessment for 2015

Assessment area	Number of suppliers/contractors	%
Having no corruption record	104	100.00
Having no record of job abandonment	104	100.00
New suppliers having environmental standards or complying with ISO 140001/EIA	6	5.76

Assessment area	Number of suppliers/contractors	%
Having fair labor treatment with no labor exploitation of workers	71	68.26
Having no child labor or illegal migrant employment	71	68.26
Having respect for labor's human rights with no abuse of human rights	104	100.00
New suppliers/contractors showing compliance with labor laws in their labor management	71	68.26
Having labor treat in compliance with labor laws	104	100.00
Having social responsibility	104	100.00

Assessment of suppliers' work in progress

Following contract signing, suppliers and contractors go through the assessment on work in progress to ensure that their jobs will be complete and the work result can be delivered on time as agreed in the contract. Areas of work to be assessed are:

Assessment areas	Requirements
Checking personal background of workers hired by contractors and sub-contractors before work starts	<ul style="list-style-type: none"> • Must not be alien workers • Must not be under 18 years of age • Must possess the driving license required if driving in the power plant is part of the job, so as to prevent risk occurring from labor law violation
Safety and occupational health of suppliers and contractors	<ul style="list-style-type: none"> • Studying the manual and regulations on supplier/contractor assessment before starting work in the power plant • Complying with the power plant's OHSAS 18001 • Sending workers to training on safety and occupational health according to the type of work, such as selection of safety equipment that is fit for work, do's and don'ts in the operations, waste management, and emergency response

Assessment of suppliers' performance

For this stage, the sponsoring department or the department that awards the contract will assess the supplier after products or services are delivered. This stage covers assessment of the quality of the products or services, job handing-over, and performance of the supplier. Results of the assessment will be recorded on the vendor list for future procurement.


Of the total suppliers in 2015, 63 were successful in the assessment (equivalent to 52.06%), while one failed the assessment and was recommended for improvement.




Assessment Result 100 %

Contractors and sub-contractors receiving safety training before starting work


Way forward



Review and improve risk management plans and make assessment on suppliers/contractors based more and more on the sustainable development concept



Expand the results of the assessment to other companies in the Group



Make assessment on suppliers' social and environmental responsibilities



Expand anti-corruption results to other suppliers/contractors in the supply chain

Participation and Networking

In its business chain, there are organizations, institutions, and many other agencies with which RATCH has association in various forms of participation and networking to help the business achieve its economic, social, and environmental goals. Below are the organizations with which RATCH engaged this year.

Organization	Status/ Role	Form of association
Thailand Management Association (TMA)	Member	<ul style="list-style-type: none"> Meetings and seminars to enhance business administration knowledge and participation in activities to build a network
Thai Institute of Directors (IOD)	Member	<ul style="list-style-type: none"> Participation in Collective Action Coalition against Corruption Council (CAC) Training and seminars on corporate governance intended for executives and directors
Association of the Electricity Supply Industry of East Asia and Western Pacific (AESIEAP)	Member	<ul style="list-style-type: none"> Sharing knowledge about the regional power industry Meetings, seminars, and study tours on regional power supply technology
<ul style="list-style-type: none"> International Chamber of Commerce (ICC Thailand National Committee) The Thai Chamber of Commerce 	Member	<ul style="list-style-type: none"> Meetings, seminars, trainings, and other activities Giving cooperation to various activities
Electricity Supply Industry Association of Thailand (TESIA)	Board member	<ul style="list-style-type: none"> Promoting technology in the power supply industry; sharing knowledge, experience, research, and technology in all branches of engineering Defending benefits and job security of professional members
Thailand Business Council for Sustainable Development (TBCSD) and Thailand Environment Institute (TEI)	Member	<ul style="list-style-type: none"> Serving as a council member, associate member, and public relations member Participation in a project to promote community solar energy in Ban Hua Ha community, Mae Hong Son province Participation with TEI in Phumaree Project...Power of Women, Power to Conserve the Environment Project
The Federation of Thai Industries (FTI)	Participant	<ul style="list-style-type: none"> Participation in the expansion of a project to promote industrial carbon footprint (phase 5)
Thailand Greenhouse Gas Management (Public Organization)	Participant	<ul style="list-style-type: none"> Participation in Thailand Voluntary Emission Trading Scheme (Thailand V-ETS), a pilot project on emission license trading
Department of Industrial Works	Participant	<ul style="list-style-type: none"> Participation in the Corporate Social Responsibilities Department of Industrial Works (CSR-DIW) project
Royal Forest Department	Participant	<ul style="list-style-type: none"> Participation as an ally in a project involving conservation of community forests titled "Love the Forest and Community" program and a project to study carbon sequestration and biodiversity in community forests



Achievement and Recognition

Social Responsibility

Certificate for Safe Workplace Operation in Honor of HRH Princess Maha Chakri Sirindhorn on her 60th birthday anniversary

RATCH took this certificate in recognition of its operation of a safe workplace. The objective of this award is to enhance workplace collaboration in preventing work accidents by workers. To win a certificate, employers are to lay down a work safety system strictly as required by the law to lower the probability of accidents or work-related diseases, mentor, and solve work-related problems and overcome obstacles.



Bronze plaque in recognition of the Zero Accident campaign

For the second year running, RATCH won a bronze plaque thanks to its Zero Accident campaign for 2015, since RATCH had not faced any work-related accident from 1 million to 2.999999 million man-hours under this year's campaign. The award presenter was the Director-General, Department of Labour Protection and Welfare. The ceremony took place at the Office of Labour Safety at the department.



National Outstanding Workplace Award for Labour Relations and Welfare

Ratchaburi Electricity Generating Co., Ltd., won a special honorary award for its eight consecutive years (2008-2015) of winning the Ministry of Labour Award for Labour Relations and Welfare for a small workplace (50-299 workers) without a labour unions. RATCH passed the criteria for operating a business in compliance with the Labour Protection Act, B.E. 2541 (1998), and the Labour Relations Act, B.E. 2518 (1975), scoring 80 or more on both counts.



Energy and Environmental Conservation

Supporters of the Royal Forest Department (Community Forest Promotion and Development) award

RATCH accepted an award recognizing its support to the work of the Royal Forest Department from the Minister of Natural Resources and Environment at a plaque and certificate presentation ceremony on the department's 119th anniversary. Both ran a project called "60 Community Forests Conserve Plant Genetics under a Royal Initiative in Honor of HRH Princess Maha Chakri Sirindhorn" on her 60th birthday anniversary (April 2, 2015) and another project on the participatory investigation of carbon storage and biodiversity in community forests. Both projects are follow-ups from the "Love the Forest and Community" Project.



CSR-DIW Continuous Award

RATCH won the CSR-DIW Continuous Award 2015 at the CSR-DIW (Corporate Social Responsibility Department of Industrial Works) Awards 2015 event, in recognition of RATCH's achievement in relentlessly operating its business with dedication and commitment along with stewardship of society and communities toward sustainable growth. The award was established in 2008 by the department. To date, 630 plants nationwide have consistently applied CSR – DIW standards in their workplaces.



CG and Disclosure

ESG 100 Company

RATCH accepted an ESG 100 Company Certificate from the Director of Thaipat Institute as a listed company in the energy and utilities business category with outstanding environmental, social, and governance (ESG) performance. The evaluation and rating of the top 100 Thai listed companies with outstanding ESG performance (ESG 100), conducted by Thaipat Institute, was regarded as Thailand's first such ranking of listed companies with sustainability development. A total of 567 SET-listed Thai companies (excluding those undergoing rehabilitation) were evaluated for their sustainability, based on their public reports or information which identifies sources and periods publicized. Such information will prove useful to investors who are keen to invest in socially and environmental responsible companies.



Edison Electric Institute's Asian Utility Award

RATCH earned an Edison Electric Institute's (EEI) Asian Utility Award 2015 in the category of small capitalization, silver performance, security in recognition of its outstanding performance and regular shareholder returns for the past three years, with performance of an international level, excellent services delivered, and support for sustainable economic growth at national and regional levels.





Performance Data

Abbreviation

RATCH = Ratchaburi Electricity Generating Holding PCL. RW COGEN = Ratchaburi World Cogeneration Power Plant
 RATCHGEN = Ratchaburi Power Plant RAC = RATCH-Australia Corporation Limited
 TECO = Tri Energy Power Plant RL = RATCH-Lao Services Company Limited
 RPCL = Ratchaburi Power-Power Plant

Economic

Data	Unit	2013	2014	2015
Sale Revenues	Million THB	43,570.73	49,402.01	52,171.44
Operating costs	Million THB	41,059.81	47,913.68	50,616.66
Employee wages and benefits	Million THB	558.96	628.49	624.26
Dividend to all shareholders	Million THB	3,291.50	3,291.50	3,291.50
Payments to government	Million THB	1,420.65	1,651.27	1,829.75
Community investments	Million THB	114.12	91.37	101.01
Local spending ^[1]				
- Operations in Thailand	Million THB	66,745.85	62,542.26	105,103.07
- Operations in Australian	Million AUD	30.09	45.21	26.23
Overseas spending				
- Operations in Thailand	Million THB	4,029.33	2,082.28	805.23
- Operations in Australian	Million AUD	8.27	3.33	0.32

Health and Safety^[1]

Data	Unit	2013	2014	2015
Total workforce represented in formal joint management-worker health and safety committees				
RATCH	persons	9	11	11
RATCHGEN	persons	15	15	15
TECO	persons	9	9	9
RPCL	persons	11	11	11
RW COGEN	persons	16	5	9
RAC	persons	4	6	6
Fatalities				
Employee (Male : Female)	person	0 : 0	0 : 0	0 : 0
Contractor (Male : Female)	person	0 : 0	0 : 0	0 : 0

Health and Safety^[1]

Data	Unit	2013	2014	2015	
Total number of injuries					
Employee (Male : Female)	person(s)	1 : 0	1 : 0	0 : 0	
Contractor (Male : Female)	person(s)	11 : 0	8 : 1	4 : 0	
Injury rate (IR)					
RATCH	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RATCHGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0.76	0.91	0.40
TECO	Employee	No/200,000 Hours worked	0	0.11	0
	Contractor	No/200,000 Hours worked	0	0	0
RPCL	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0.47	0.46	0
RW COGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RAC	Employee	No/200,000 Hours worked	2.46	0	0
	Contractor	No/200,000 Hours worked	0	0	0
Total number of occupational diseases					
Employee (Male : Female)	person	0 : 0	0 : 0	0 : 0	
Contractor (Male : Female)	person	0 : 0	0 : 0	0 : 0	
Occupational Diseases Rate (ODR)					
RATCH	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RATCHGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
TECO	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RPCL	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RW COGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RAC	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
Total number of lost day					
Employee (Male : Female)	day(s)	2 : 0	0 : 0	0 : 0	
Contractor (Male : Female)	day(s)	0 : 0	0 : 0	42 : 0	

Health and Safety^[1]

Data		Unit	2013	2014	2015
Lost day rate (LDR)					
RATCH	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RATCHGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	4.17
TECO	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RPCL	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RW COGEN	Employee	No/200,000 Hours worked	0	0	0
	Contractor	No/200,000 Hours worked	0	0	0
RAC	Employee	No/200,000 Hours worked	0.10	0	0
	Contractor	No/200,000 Hours worked	0	0	0
Absentee days					
Employee (Male : Female)		day(s)	2 : 0	0 : 0	0 : 0
Contractor (Male : Female)		day(s)	0 : 0	0 : 0	42 : 0
Absentee rate (AR)					
RATCH	Employee	%	0	0	0
	Contractor	%	0	0	0
RATCHGEN	Employee	%	0	0	0
	Contractor	%	0	0	0.06
TECO	Employee	%	0	0	0
	Contractor	%	0	0	0
RPCL	Employee	%	0	0	0
	Contractor	%	0	0	0
RW COGEN	Employee	%	0	0	0
	Contractor	%	0	0	0
RAC	Employee	%	0.03	0	0
	Contractor	%	0	0	0

^[1] For Health and safety data, RWCOGEN was under construction during 2013.

People^[2]

Data	Unit	2013		2014		2015	
		Male	Female	Male	Female	Male	Female
Total Employees	Persons	264		366		479	
	Persons	144	120	229	137	322	157
Employees by employment contract							
Permanent	Persons	135	112	227	137	299	140
Temporary	Persons	9	8	2	0	23	17
Employees by age group							
<30 years	Persons	34	35	84	32	165	33
30-50 years	Persons	75	77	98	94	106	111
>50 years	Persons	35	8	47	11	51	13
Employees by category							
Top Management	Persons	9	2	11	3	15	3
	%	6.25	1.67	4.80	2.19	4.66	1.91
Middle Management	Persons	23	5	27	9	34	9
	%	15.97	4.17	11.79	6.57	10.56	5.73
Junior Management	Persons	33	31	43	35	39	35
	%	22.92	25.83	18.78	25.55	12.11	22.29
Officer	Persons	79	82	148	90	227	102
	%	54.86	68.33	64.63	65.69	70.50	64.97
Worker	Persons	-	-	-	-	7	8
	%	-	-	-	-	2.17	5.10
New Hires by Age Group							
<30 years	Persons	5	6	59	12	94	13
	%	1.9	2.3	16.1	3.3	19.6	2.7
30-50 years	Persons	6	3	15	14	6	7
	%	2.3	1.14	4.1	3.8	1.3	1.5
>50 years	Persons	1	0	5	2	2	0
	%	0.4	0.0	1.4	0.5	0.4	0.0
Total	Persons	12	9	79	28	104	18
	%	4.5	3.4	21.6	7.7	21.7	3.8
Turnover by Age Group							
<30 years	Persons	8	5	8	5	3	3
	%	3.0	1.9	2.2	1.4	0.6	0.6

People^[2]

Data	Unit	2013		2014		2015	
		Male	Female	Male	Female	Male	Female
30-50 years	Persons	6	5	5	7	8	2
	%	2.3	1.9	1.4	1.9	1.7	0.4
>50 years	Persons	2	0	2	0	5	1
	%	0.8	0.0	0.5	0.0	1.0	0.2
Total	Persons	16	10	15	12	16	6
	%	6.1	3.8	4.1	3.3	3.3	1.3
Maternity leave							
Maternity leave	Persons	-	2.0	-	2.0	-	4.0
Returning from Maternity leave	Persons	-	1.0	-	1.0	-	4.0
Training and Development							
Top Management	hours/person/year	135.67	64.00	72.36	324.00	21.87	182.00
Middle Management	hours/person/year	46.21	19.9	40.18	48.44	57.41	65.00
Junior Management	hours/person/year	21.65	31.02	39.37	27.57	32.36	48.51
Officer	hours/person/year	27.69	36.63	45.17	37.00	10.41	29.04
Worker	hours/person/year	-	-	-	-	9.43	10.50
Employees receiving career development review							
Top Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Middle Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Junior Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Officer	%	100.00	100.00	100.00	100.00	100.00	100.00
Worker	%	100.00	100.00	100.00	100.00	100.00	100.00
Employees receiving regular performance review							
Top Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Middle Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Junior Management	%	100.00	100.00	100.00	100.00	100.00	100.00
Officer	%	100.00	100.00	100.00	100.00	100.00	100.00
Worker	%	100.00	100.00	100.00	100.00	100.00	100.00
Grievance							
Total number of grievance about labor practices through formal grievance process	Case	0	0	0	0	0	0
Total number of grievance addressed	Case	0	0	0	0	0	0
Total number of grievance resolved	Case	0	0	0	0	0	0
Total number of grievance about human rights through formal grievance process	Case	0	0	0	0	0	0
Total number of grievance addressed	Case	0	0	0	0	0	0

^[2] Presented information covers employee data during 2013-2015 of RATCH, RATCHGEN, RAC and RL.

Environment^[3]

Data	Unit	2013	2014	2015
Energy^[4]				
Total energy consumption	TJ	125,418	128,487	163,655
Total direct energy consumption	TJ	205,881	210,978	267,342
- Natural Gas	TJ	202,564	207,099	263,196
- Bunker Oil	TJ	1,932	3,203	3,635
- Diesel Oil	TJ	1,385	676	510
Total Indirect Energy Consumption	TJ	242	235	224
- Electricity purchased	TJ	242	235	224
- Heating purchased	TJ	0	0	0
- Steam purchased	TJ	0	0	0
Total energy sold	TJ	80,705	82,726	103,911
- Electricity sold	TJ	80,705	82,725	103,905
- Heating sold	TJ	0	0	0
- Steam sold	TJ	0	2	5
Net Generation	MWh	22,417,963	22,979,032	28,862,629
Total energy intensity (within organization)	GJ/MWh	9.18	9.18	9.26
Total Energy Reduction	GJ	50,801	66,358	53,611
- Fuel saving	GJ	0	0	0
- Electricity saving	GJ	50,801	66,358	53,611
- Steam saving	GJ	0	0	0
GHG emission^[5]				
Direct GHG emissions (Scope 1)	tCO ₂ e	11,594,405	11,896,721	15,075,412
Indirect GHG emissions (Scope 2)	tCO ₂ e	41,295	39,638	37,739
Total GHG emissions (Scope 1 + 2)	tCO ₂ e	11,635,700	11,936,360	15,113,151
GHG emission intensity (Scope 1 + 2)	tCO ₂ e/MWh	0.519	0.519	0.524
Total GHG emissions reductions	tCO ₂ e	8,203	10,715	8,657
Emission^[6]				
NO _x emissions	Ton	32,863	34,015	42,142
SO _x emissions	Ton	6.2	9.2	18.1
Opacity	%	4.3	3.7	2.6
Water discharge^[7]				
Total water discharge to surface water	Million m ³	5.95	4.10	5.90
- COD loading	Ton	228	230	302
- BOD loading	Ton	22	21	29

Environment^[3]

Data	Unit	2013	2014	2015
Waste^[8]				
Total waste disposal	Ton	7,742	10,654	10,737
Total hazardous waste disposal	Ton	438	395	330
- Reuse	Ton	25	60	83
- Recycling	Ton	1	1	24
- Recovery (including energy recovery)	Ton	150	236	136
- Secured Landfill	Ton	261	97	87
- Onsite storage	Ton	0	0	0
Total non-hazardous waste disposal	Ton	7,304	10,259	10,407
- Reuse	Ton	0	0	0
- Recycling	Ton	79	661	808
- Recovery (including energy recovery)	Ton	4	7	0
- Landfill	Ton	622	55	35
- Onsite storage	Ton	6,600	9,536	9,564
Waste from non-routine operation	Ton	0	0	0
Water^[7]				
Total water withdrawal	Million m ³	30.25	29.65	37.12
- Surface water	Million m ³	29.86	29.11	36.22
- Seawater	Million m ³	0	0	0
- Ground water	Million m ³	0	0	0
- Rainwater	Million m ³	0	0	0
- Municipal water	Million m ³	0.37	0.55	0.90
Recycled and reused water	m ³	906,623	1,395,319	3,377,604
	% of total water withdrawal	3.00	4.71	9.10

^[3] Presented information covers environmental data of RATCHGEN, TECO, RPCL, RW COGEN and RAC.

^[4] Energy consumption are calculated based on conversion factors for stationary combustion in the energy industries from Thai Energy Statistics 2010

^[5] Emission are calculated based on CO₂ emission factors from IPCC Volume 2 Energy

- For Natural Gas, CO₂ emission factor = 56,100 kgCO₂/TJ on Net Calorific Basis

- For Fuel Oil, CO₂ emission factor = 77,400 kgCO₂/TJ on Net Calorific Basis

- For Diesel Oil, CO₂ emission factor = 74,100 kgCO₂/TJ on Net Calorific Basis

^[6] Emission are calculated from the Continuous Emission Monitoring System (CEMs)

^[7] The data are measured from metering

^[8] The data are measured from Manifest System and weight scale



GRI Content Index

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Investment					
G4-DMA	Disclosures on Management Approach	93	-	-	-
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	94	-	-	-
Non-discrimination					
G4-DMA	Disclosures on Management Approach	93	-	-	-
G4-HR3	Total number of incidents of discrimination and corrective actions taken	70	-	-	-
Freedom of Association and Collective Bargaining					
G4-DMA	Disclosures on Management Approach	66	-	-	-
Child Labor					
G4-DMA	Disclosures on Management Approach	93, 107	-	-	-
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	108	-	-	-
Forced or Compulsory Labor					
G4-DMA	Disclosures on Management Approach	93, 107	-	-	-
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	108	-	-	-
Indigenous Rights					
G4-DMA	Disclosures on Management Approach	79, 93	-	-	-
Supplier Human Rights Assessment					
G4-DMA	Disclosures on Management Approach	107	-	-	-
Human Rights Grievance Mechanisms					
G4-DMA	Disclosures on Management Approach	69-70, 93	-	-	-
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	Performance Data	-	-	-
Social : Society					
Local Communities					
G4-DMA	Disclosures on Management Approach	79	-	-	-
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	43, 79-92	-	-	-

Indicator	Description	Page		Omission	External Assurance
		Sustainability Report	Annual Report		
G4-SO2	Operations with significant actual and potential negative impacts on local communities	82	-	-	-
EU22	Number of people physically or economically displaced and compensation, broken down by type of project	95	-	-	-
Disaster/ Emergency Planning and Response					
G4-DMA	Disclosures on Management Approach	25, 75	-	-	-
Anti-corruption					
G4-DMA	Disclosures on Management Approach	37	-	-	-
G4-SO4	Communication and training on anti-corruption policies and procedures	37-39	-	-	-
G4-SO5	Confirmed incidents of corruption and actions taken	38	-	-	-
Compliance					
G4-DMA	Disclosures on Management Approach	25	-	-	-
Supplier Assessment for Impacts on Society					
G4-DMA	Disclosures on Management Approach	107	-	-	-
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society	108	-	-	-
Grievance Mechanisms for Impacts on Society					
G4-DMA	Disclosures on Management Approach	79	-	-	-
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	82	-	-	-
Social : Product Responsibility					
Product and Service Labeling					
G4-PR5	Results of surveys measuring customer satisfaction	8, 103	-	-	-
Customer Privacy					
G4-DMA	Disclosures on Management Approach	103	-	-	-
Compliance					
G4-DMA	Disclosures on Management Approach	103	-	-	-
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	103	-	-	-
Access					
EU30	Average plant availability factor by energy source and by regulatory regime	98	-	-	-

LRQA Assurance Statement

Relating to Ratchaburi Electricity Generating Holding Plc's Corporate Sustainability Report for the calendar year 2015

This Assurance Statement has been prepared for Ratchaburi Electricity Generating Holding Plc. 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 Ratchaburi Electricity Generating Holding Plc. (RATCH) to provide independent assurance on its 2015 Sustainability Report ("the report") against the assurance criteria below to a limited level of assurance and at the materiality of the professional judgement of the verifier using LRQA's verification approach. LRQA's verification approach is based on current best practise and uses the principles of AA1000AS (2008) - inclusivity, materiality, responsiveness and reliability of performance data and processes defined in ISAE3000.

Our assurance engagement covered RATCH's subsidiaries in Thailand and Australia under its direct operational control, and specifically the following requirements:

- Confirming that the report is in accordance with:
 - GRI G4's reporting guidelines and core option
 - GRI G4's Electricity & Utilities sector disclosures
- Evaluating the reliability of data and information for only the three selected environmental specific standard disclosures listed:
 - Total water withdrawal by source (G4-EN8)
 - direct and indirect GHG emissions (G4-EN15 & 16)

Our assurance engagement excluded the data and information of RATCH's subsidiaries where it has no operational control and all of its operations and activities outside of Thailand and Australia. Our assurance engagement also excluded the data and information of its suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to RATCH. LRQA disclaims any liability or responsibility to others as explained in the end footnote. RATCH'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 RATCH.

LRQA's opinion

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

- Met the requirements above
- Disclosed reliable data and information as no errors or omissions were detected within the three selected environmental specific standard disclosures
- 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 approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing RATCH's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this by interviewing RATCH employees who engage directly with stakeholder groups as well as reviewing documents and associated records.
- Reviewing RATCH'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 RATCH 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 RATCH makes informed business decisions that may create opportunities which contribute towards sustainable development.

- Auditing RATCH'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 process, and systems, including those for internal verification. We also spoke with key people in various departments responsible for compiling the data and drafting the report.
- Visiting RATCH's major electricity generating unit (Ratchburi Power Plant) to sample performance data and information for the three selected specific environmental standard disclosures to confirm its reliability.

Observations

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

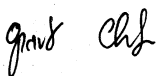
- **Stakeholder inclusivity:**
We are not aware of any key stakeholder groups that have been excluded from RATCH's stakeholder engagement process. RATCH maintains regular, open dialogue with all of its stakeholders to understand their growing expectations.
- **Materiality:**
We are not aware of any material issues concerning RATCH's sustainability performance that have been excluded from the report. We believe that future reports should discuss in detail RATCH's strategy and management approach for GHG voluntary trading programmes.
- **Responsiveness:**
RATCH has addressed the concerns of stakeholders in Thailand and Australia in relation to GHG and water resource consumption. However, we believe that future reports should disclose more information about:
 - RATCH's GHG reduction programmes
 - operations in South East Asia which provides ~10% equity capacity of RATCH's operations and hence the environmental impact will be greater.
- **Reliability:**
Data management systems are defined but the implementation of these systems varies amongst RATCH's operational facilities and subsidiaries. RATCH should consider introducing internal verification mechanisms to 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.

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

Dated: 29 February 2016



Opart Charuratana
LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Ltd.
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LRQA reference: BGK6030208

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RATCH



RATCHABURI
ELECTRICITY GENERATING
HOLDING PCL.

Feedback Form

2015 Sustainability Report

Ratchaburi Electricity Generating Holding PCL.

1. Reader Profile

- Gender Female Male
- Age Below 30 years old 30 – 50 years old More than 50 years old

2. Please identify your stakeholder type

- Shareholder Investor Alliance and Trade Partner
- Community Employee Scholar/ Independent Organization
- Customer Mass Media Other (Please specify.....)

3. Where do you receive this sustainability report?

- AGM Company's website Company's employee
- Other (Please specify.....)

4. Why do you prefer reading this sustainability report?

- For support investment decision on RATCH's securities
- For learning more about RATCH's business
- Research and educational purposes
- Other (Please specify.....)

5. Satisfactory level towards the sustainability report

- | | | | |
|----------------------|----------------------------|------------------------------|---------------------------|
| Information adequacy | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low |
| Attractive topics | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low |
| Readability | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low |
| Design | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low |
| Overall satisfaction | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low |

6. In your opinion, are you confident that RATCH potentially achieves the sustainable growth?

- Yes, because.....
- No, because.....
- No idea because.....

7. In your opinion, which is the most significant aspect toward the company's sustainable growth?

- Economy (Please specify.....)
- Environment (Please specify.....)
- Society (Please specify.....)

8. In your opinion, what should the report be improved?

- Design Readability
- more content Other (Please specify.....)

**Thank you for your information and valuable opinion
which advantages us for improvement of next issue of the report.**

RATCH



RATCHABURI
ELECTRICITY GENERATING
HOLDING PCL.



Sustainability Development Department
Ratchaburi Electricity Generating Holding PCL.
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Bangkhen, Muang, Nonthaburi,
11000 Thailand

Channels to return the feedback form:



1. Email

Send the photo of the completed feedback form to sustainability@ratch.co.th



2. Fax

0 2794 9888 ext. 9951-9955



3. Postal

Send the completed feedback form to the specified address above



4. Mobile

Send the photo of the completed feedback form to 08 1899 6908



5. Website

Download the feedback form at www.ratch.co.th and send back via email at sustainability@ratch.co.th

RATCH



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