



# EMPOWERING THE WORLD COMPASSIONATELY



# B.GRIMM POWER EMPOWERING THE WORLD COMPASSIONATELY

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# **Message from the Chairman**





Instilled with pioneering spirit, B.Grimm has been at the forefront of Thailand's health, infrastructure and industrial development for over 140 years. The first producer of modern medicine in 1878 B.Grimm soon developed with the Snidwongse family Southeast Asia's largest irrigation system, 1,500 kilometers of wide canals, to make central Thailand the rice chamber of the region. Later this was followed by telegraph concessions, pioneering telecommunication systems, power plants and B.Grimm branded imports of a great variety of goods and more recently building the airport rail link.

B.Grimm's Philosophy has always been to do business with compassion for the development of civilization in harmony with nature. Community work, educational and environmental engagement as well as support for culture, sport and all religions has always been an integral part of B.Grimm's activities since 1878.

Over 20 years ago when the electricity sector opened for private investments B.Grimm partnered with Amata Corporation in their industrial estates to establish industrial power plants helping to bring them into Thailand massive private foreign industrial investments looking for stable, reliable electricity and steam.

B.Grimm Power's initial vision was to become a world class energy company. We built all our industrial and solar power plants in time, below budget, with higher output and higher efficiencies than contracted for. We are also operating them with the same availability and efficiencies as the best in the world and even just celebrated a world record in overhaul time of the Siemens turbine.

So having had achieved our first vision with our core values of positivity, professionalism, partnership and pioneering spirit we are now following our B.Grimm Power's new vision "Empowering the World Compassionately".

Following this vision we have established strong partnerships in Thailand, Laos, Cambodia, Vietnam, South Korea, Malaysia and the Philippines. Our capacity from plants under operation and development has reached 3,245 megawatts.

Renewable power by the end of 2019 in line with our climate and sustainable development goals will reach 30% of that, based on committed pipeline.

Outside of Thailand we will then have 25% of our installed capacity, based on committed pipeline.

One financial first achieved in 2018 was to issue Thailand's first real sector green bond wholly bought by the Asian Development Bank.

On behalf of our board of directors, management and entire staff we wish to extend our heartfelt gratitude to all our stakeholders and on the occasion of our annual general meeting especially to all our shareholders.

Mr. Harald Link

# Message from the President

The year 2018 may be regarded as another one of remarkable operating success with a well-maintained business growth rate. To elaborate, our business and investment at both domestic and international were achieved with leapfrogging growth, evident in commercial distribution of power as planned together with planning and business execution to grow our potential as well as business competency to accommodate growth. Our various moves were taken in the midst of volatile and challenging economic, social, or environmental elements - as well as changing tides in technology and impacts of climate change. As a result, we adjusted our pursuit of business opportunities for local and ASEAN levels; in the meantime, we managed our risks and applied operating strategies to align and keep pace with emerging changes. These moves have made our overall performance so highly satisfactory and met our goals that we are now poised to grow our business. Equally important, we have garnered continual confidence of our stakeholders.

Our commitment to corporate governance is sturdy, marked by risk management, compliance with laws and regulations, and anti-corruption practices. These elements are integrated into our business practices, resulting in effective and quality management under good governance, leading to growth and strengthening of sustainable organizational management. Particularly, the United Nations' Sustainable Development Goals (SDGs) now guide our sustainability development in parallel with the above elements to bring benefit and create value jointly with direct and indirect stakeholders.

Relentlessly we have evolved our sustainability moves in economic, social, and environmental aspects for the benefit of continuity and linkage to corporate strategies. This year our power and steam production and distribution systems were optimized; our production systems were aimed at security and stability of delivering quality power and steam; new energy technologies and innovations were applied to management practices and sharpen our competitiveness; business

continuity were planned and developed; renewable energy business opportunities, as well as other downstream opportunities, were pursued, including two solar power generation projects in Vietnam for a total capacity of 677 megawatts (one of which is the ASEAN's largest solar project); we were chosen as the project operator of the U-Tapao International Airport for power plants and a cooling water project, where a hybrid power generation project (combined-cycle power plant, solar farm, and energy storage system) is to be launched. This investment development not only represented a perfect blend of modern power generation technologies, but also accommodates the growth of EEC, a public-policy project.

With our outstanding, robust performance marked by economic, social, and environmental responsibility, we have issued green bonds worth Baht 5 billion (USD 155 million), having the Asian Development Bank as a sold investor. With certification by the Climate Bonds Initiative, ours was the very first issuance of green bonds in Thailand.

We remain committed to managing and developing conscientious natural resource consumption, stewardship and conservation of the surroundings, together with safe operation. To this end, we have selected and improved machinery and modern power-generation technology so that our efficiency may remain high, clean, and green. Our operating procedures and control comply at all times with laws as well as environmental and safety standards. Our policy is to enlarge investment profiles and engage in the renewable power business, namely solar, hydropower, wind power, and waste to energy, for we are convinced that these moves would lead to efficient natural resource consumption, energy conservation, greenhouse gas emission reduction, and significant reduction of various pollutants. Finally, we have advocated such knowledge among our employees so that they may take part in the stewardship of natural resources, the environment, and safety through our continual activities.

Since we first launched our business, we have valued responsibility for communities, societies, and the environment, nurturing the quality of life, together with society and surrounding environment such that all may grow together with us in the long run.

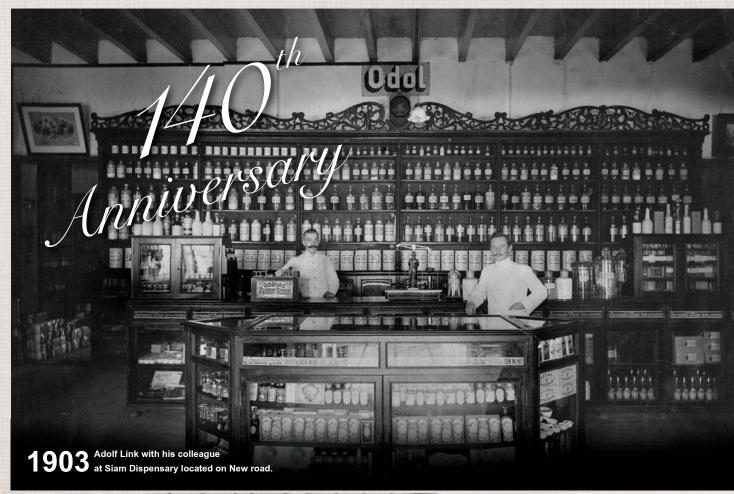
Indeed, human capital development is vital to B.Grimm Power. We have cultivated a corporate culture with competencies development among all employees for their potential and professionalism for long-term career advancement.

This year we are proud of acclaim in several areas. First, an ESG100 award presented to listed companies with outstanding performance in environmental, social, and governance aspects. Second, SET's 2018 Thailand Sustainability Investment. Next, the First Time Sustainability Report and the Recognition award under the 2018 Sustainability Reports award. And finally, CAC membership certification.

On behalf of the management team and employees, may I express our gratitude to all stakeholders for their support to and confidence in the sustainable growth of B.Grimm Power. May I also reassure you that we will remain committed to running our business under corporate governance and developing our economic, social, and environmental aspects of business in fulfillment of stakeholders' expectations and creating value with them. Our success today will inspire us all to form synergy for even more resounding success, so that soon we may become a leading power-business corporation that is filled with security, healthy, and sustainability.

Mrs. Preeyanart Soontornwata

President

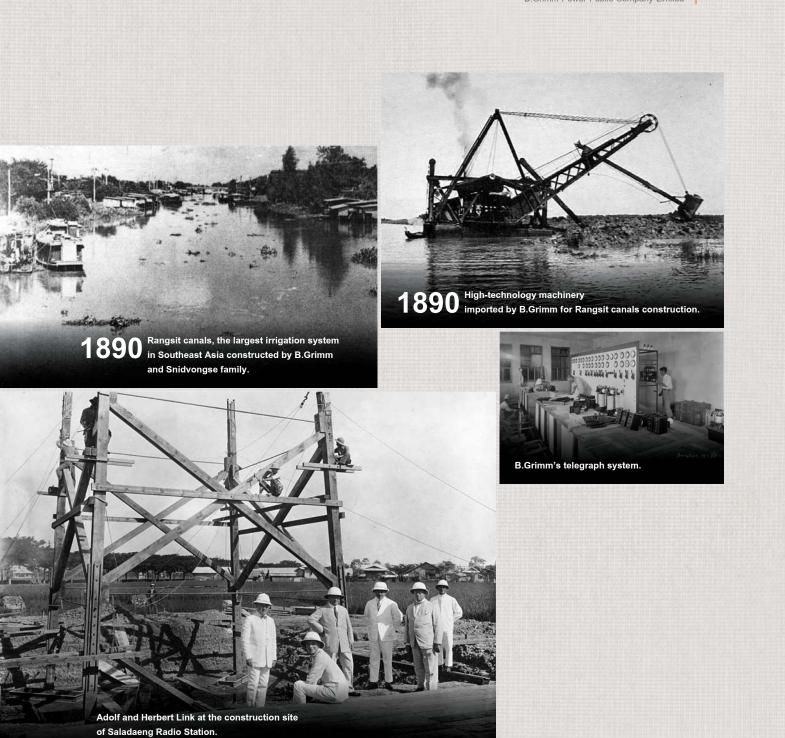






**140** Years of Doing Business with Compassion

B.Grimm was founded by Erwin Müller and Bernhard Grimm in 1878. With an ambition to improve the well being of the Siam, we opened the first modern-style pharmacy named Siam Dispensary, which well-know for our superior in products and services. During this time, Prince Sai Snidvongse had often brought our medicines to heal number of Thai royal members, which made B.Grimm's medicine became trustworthy among the royal court, then received an honor of becoming court pharmacy. We opened B.Grimm & Co. department store, which was the first store that provided German goods in Siam. With the good reputation of quality of products and our loyal service, B.Grimm once again received an honor of becoming court distributor.



In 1890, King Chulalongkorn (Rama V) wanted to improve the infrastructure in irrigation for the country, which was an agriculture state. B.Grimm joined with the Snidvongse family to build the 1,500 km. Rangsit canals, which is the largest irrigation system in Southeast Asia at that time. We firstly used high-technology machinery instead of using workers in this canals construction.









In 1903, Adolf Link, the German chemist from Lübeck dispensary's family was invited to join operating and becoming a partner with B.Grimm. His attempt to develop the business with sincere service mind helped promote our name. B.Grimm provided and installed the first telegraph system for the Thai government. We imported luxury automobile from Germany, Mercedes Benz. He thereupon bought all shares from former founders who going back to Europe and wanted to pass B.Grimm to someone who shared the same way of business conduct with trustworthy.







B.Grimm was seized during both World War I and World War II as enemy possessions. With love to this kingdom, Adolf Link brought his two sons Herbert and Dr. Gerhard Link to resumed business once again after the war. Both of them changed business strategy over the time to strengthen the company, for instance, imported high-technology machinery that helped support the infrastructure development of the nation. We remained pharmaceuticals and medical equipment business that are well growing and also as the origin of B.Grimm.

Today, B.Grimm under the management of Dr. Harald Link is a conglomerate company active in the field of Energy, Building and Industrial Systems, Healthcare, Lifestyle, Real Estate, and Emerging Digital Technologies. He plays an important role in B.Grimm's business expansion and turns Energy into flagship business. Moreover, B.Grimm Power has been now listed in the Stock Exchange of Thailand since July 2017.



Our philosophy "Doing Business with Compassion for the Development of Civilisation in Harmony with Nature" reflects the way B.Grimm conducts businesses, which responsible for Environmental, Social and Governance. We endeavour to contribute in social works since the establishment; for instance, to support science learning for kindergartener with the Little Scientists' House Project, to promote dual-vocational education at our factories, to support annual nurse scholarships for Princess Mother's Charity Fund, to save tigers with WWF, to promote classical arts and music with the Royal Bangkok Symphony Orchestra foundation, to promote equestrian sport, and even to built the place of worship "Moon Chindaram Temple" near Rangsit Canals construction area, etc.



In 2018, B.Grimm received an honor from H.R.H. Princess Maha Chakri Sirindhorn to present at the opening ceremony of the exhibition "In the Kingdom 140<sup>th</sup> Anniversary of B.Grimm" held at Bangkok Art and Culture Centre. This exhibition was telling the story of B.Grimm through the Postal History Exhibition of the relationship between Thailand and Germany, and Contemporary Arts Exhibition, which consisted of works from 15 artists that inspired by B.Grimm's business philosophy.

We are proud to be part of the history for a foreign corporation, who has been operating businesses that help support the development of Thai society for over 140 years. B.Grimm will firmly remain stable and keep growing while developing living standards, economies and societies for the country, and convey our identity in doing business with compassion.



# Vision, Mission, Corporate Culture & Values

#### **Vision**

# "Empowering the World Compassionately"

#### Mission, Goals and Strategic Objectives

B.Grimm Power believes that worldclass professionalism, expertise and experience are instrumental in building our strong foundation. The Company has been a major producer of reliable and secure power supplies with quality service which lives up to stakeholders' expectations. B.Grimm Power's vision in "Empowering the World Compassionately" encompasses six missions as follows:

#### **Empowering** the World Compassionately **Product** Operation Growth Workplace Community **Environment** & Service Creating Constantly Growing in Working as Empowering Operating improving a sustainable a happy team of our business value for people, society through our business way with strong compassionate communities in harmony high quality operations to partnerships professionals and society to with nature be a world class domestically and with ethics and and the better serve energy & internationally services for energy company integrity their needs environment our customers, with our pioneering spirit and by being people centric

#### **Corporate Culture & Values**

B.Grimm Power is one of the core businesses of B.Grimm whose proud history in Thailand dates back 140 years ago. Corporate culture is a key driver of the Company's prosperity and growth. The Company's corporate values have been re-aligned from time to time match business practices and dynamism prevalent in operating environment. The Board of Directors and management have placed great importance in serving as a good role model within the Company in strengthening the corporate culture.

Employees are constantly communicated about the corporate culture and values through activities and media to make sure that they appreciate and practice the 4Ps core values and contributing to good working atmosphere as well as fostering team spirit in the Company.





# Core Values (4Ps)



Positivity

Positive Mindset
Adaptability
Open-mindedness



Partnership

Teamwork
Supportiveness
Ownership



Professionalism

Expertise
Accountability
Integrity



Pioneering spirit

Creativity
Proactiveness
Knowledge Sharing

0	Co-Generation	2,022 MW¹	800 MW <sup>2</sup>
0	Hydro	20 MW	113 MW
•	Solar	145 MW	677 MW
4	Wind		16 MW
0	Diesel	13 MW	
•	Waste to Energy		5 MW
	Total Capacity	2,200 MW <sup>3</sup>	3,245 MW <sup>4</sup>
		(In Operation)	(Within 2025)

- In Operation
- In Development

# O Lao PDR

**O** Thailand

**O Vietnam** 

O Cambodia

- <sup>1</sup> Including 565 MW from 5 SPP projects expired by 2022.
- <sup>2</sup> Including 5 SPP replacement projects.
- <sup>3</sup> As of March 15, 2019
- Including projects under construction and development as of March 15, 2019 which no. of MW may subject to change depending on project suitability during development.

## South Korea O

#### Thailand

- B.Grimm BIP Power 1 Limited
- **&** B.Grimm BIP Power 2 Limited
- B.Grimm Power (Laem Chabang) 1 Limited
- B.Grimm Power (Laem Chabang) 2 Limited
- Amata B.Grimm Power 1 Limited
- Amata B.Grimm Power 2 Limited
- Amata B.Grimm Power 3 Limited
- Amata B.Grimm Power 4 Limited
- Amata B.Grimm Power 5 Limited
- Amata B.Grimm Power (Rayong) 1 Limited
- Amata B.Grimm Power (Rayong) 2 Limited
- Amata B.Grimm Power (Rayong) 3 Limited
- Amata B.Grimm Power (Rayong) 4 Limited
- Amata B.Grimm Power (Rayong) 5 Limited
- B.Grimm Power (WHA) 1 Limited
- O Glow SPP 1 Company Limited
- O B.Grimm Power (Ratchaburi) 1 Limited
- B.Grimm Power (Ratchaburi) 2 Limited
- B.Grimm Solar Power (Sakaeo) 1 Limited
- B.Grimm Yanhee Solar Power Limited
- B.Grimm Sena Solar Power Limited
- Solar Power Project with WVO and CO-OP
- Progress Interchem (Thailand) Limited
- Bo Thong Wind Farm Limited

#### Lao PDR

- O Xenamnoy and Xekatam Hydro Power Co., Ltd.
- O Nam Che Hydro Power Co., Ltd.
- O Nam Khao Hydro Power Co., Ltd.

#### Vietnam

- O Amata Power (Bien Hoa) Limited
- Dau Tieng Tay Ninh Energy Joint Stock Company
- Phu Yen TTP Joint Stock Company

#### Cambodia

B.Grimm Power (Poipet) Co., Ltd.

#### South Korea

B.Grimm Power (Korea) Limited

# **About B.Grimm Power**

#### **B.GRIMM POWER PUBLIC COMPANY LIMITED**

Symbol

**BGRIM** 

First Trade Date

19 July 2017

Establish Date 26 July 1993

Authorized Capital **5,400,000,000 Baht** 

Paid-up Capital 5,213,800,000 Baht

Industry Resources

Sector

**Energy & Utilities** 

Number of Employees 869 employees

The person taking the highest responsibility in the Company

Mrs. Preeyanart Soontornwata, President

Head Office

5 Krungthepkreetha Road, Huamark, Bangkapi, Bangkok 10240, Thailand

Telephone 0 2710 3400 Fax. 0 2379 4245

Website www.bgrimmpower.com

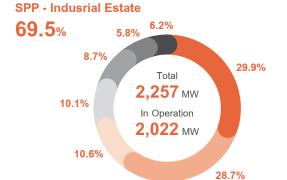
A holding company holding shares in companies of which core business is the generation and sale of electricity and steam, including other relevant commercial activities, in Thailand and other countries

#### General Information

B.Grimm Power Public Company Limited is one the core businesses of B.Grimm which has been operating in Thailand for over 140 years under the philosophy of "Doing Business with Compassion for the Development of Civilization in Harmony with Nature."

B.Grimm Power came into existence originally in the name of Borneo (1993) Company Limited on July 26, 1993. The Company achieved the stature as Thailand's first private power producer with the commercial inauguration of ABP1 co-generation facility in 1998. Investment in power plants has subsequently grown both domestic and international. In 2011, the Company was renamed as B.Grimm Power Company Limited. On September 9, 2016, its entity was transformed into a listed company on the Stock Exchange of Thailand and officially known as B.Grimm Power Public Company Limited.

The Company's initial public offering was launched on July 19, 2017 with a registered capital of 5.4 billion baht.



Amata City (Chonburi) Bangkadi 675 MW

Amata City (Rayong) **647** MW

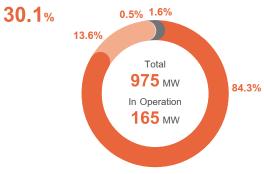
BGPR1&2 240 MW (under development) 229 MW

Laem Chabang 196 MW

WHA Chonburi 1 130 MW

WHA (Map Ta Phut) 140 MW

## Renewable Group



Solar Group 822 MW (677 MW under development)

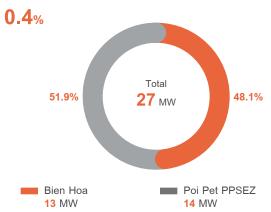
Hydro Group 133 MW (113 MW under development)

Waste to Energy (IWTE) 5 MW

(under development) Wind Group 16 MW

(under development)

## **Transmission & Distribution**



Remark: Including project under construction and development as of March 15, 2019 which no. of MW may subject to change depending on project suitability during development.

#### **Milestones**

## 1993

· Borneo (1993) Company Limited is established.

## 1998

· The Company's first co-generation power plant commences commercial operation.

### 2011

· The Company is renamed as B.Grimm Power Company Limited.

#### 2016

- · The Company becomes a public company under B.Grimm Power Public Company Limited.
- · Amata B.Grimm Power 1 Company Limited wins the EIA Monitoring Awards 2016 given by the Office of Natural Resources and Environmental Policy, Ministry of Natural Resources and Environment.
- · Amata B.Grimm Power 2 Company Limited receives the consolation prize in the EIA Monitoring Awards 2016 organized by Office of Natural Resources and Environmental Policy, Ministry of Natural Resources and Environment.

## 2017

- · The Company is listed on the Stock Exchange of Thailand and the initial public offering (IPO) is launched.
- · The Company is awarded "Deal of the Year" by the Thai Bond Market Association.
- · The Company wins the Best IPO Award in Thailand 2017 by the Asset Magazine.
- · The Company is granted the Best Energy Solutions Provider by the International Finance magazine.
- · The Company is named the Best IPO Deal in Southeast Asia 2017 by Alpha Southeast Asia magazine.
- · The Company obtains the IEEE PES Thailand Chapter Woman in Power Plant (WIP 2017) Award.



#### 2018

- The Company enters the SET50, SET100, SETCLMV, SETTHSI.
- The Company receives an "A" credit rating with "Stable" Outlook from TRIS Rating Company Limited.
- The Company invests in the 420 MW Solar Plant in Vietnam which will be the largest solar power project in ASEAN, plan to start commercial operation by the year 2019.
- The Company issues 5 billion baht (USD 155 million) green bond, Thailand's first private company that certified by Climate Bonds Initiative.
- The Company is included in the 2018 Sustainable Stocks (THSI) of the Stock Exchange of Thailand.
- The Company is chosen as one of 100 Thai listed securities companies with outstanding environmental, social and corporate governance (ESG100) by Thaipat Institute.

- The Company receives two awards, "Recognition" and "First Time Sustainability Report" from 2018 Sustainability Reporting Awards by the Thai Listed Companies Association, the Securities and Exchange Commission, and Thaipat Institute.
- The Company is certified as a member of the Thai Private Sector Collective Action Coalition against Corruption (CAC).
- The Company receives the Top CEO of the Year Awards 2018 by the Influential Brands Institute.
- The Company obtains a "Very Good" scoring for Corporate Governance Reports (CGR) survey from the Thai Institute of Directors Association (IOD).

# **Sustainability Highlights 2018**

Certified member of CAC (Thailand's Private Sector Collective Action Coalition Against Corruption)

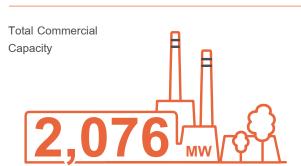


Revenue 36,585 Million Baht
Net Profit 2,976 Million Baht
EBITDA 9,199 Million Baht



Zero fraud and corruption-related complaint





420
MW
The largest solar power project in ASEAN

The average availability factor of power plants in commercial operation



Electrical loss in transmission and distribution systems





Water reuse cycles



303,379 cubic meters

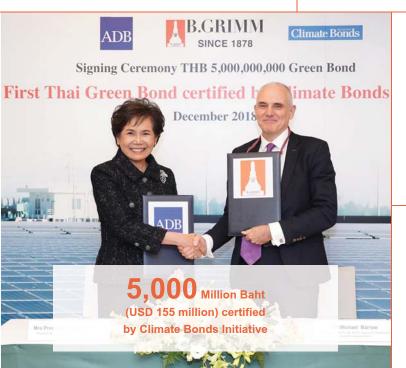
Average greenhouse gas emission



tCO<sub>2</sub>e/MWh

Water, air, noise and waste quality management passed the standard and legal requirements





Little Scientist's House Project under support by B.Grimm Power's Local Network

135
Schools



**Employee Training Budget** 



Consolidated Reforestation Area



Customer Call Center



# **Awards and Recognitions**

## 1

BGRIM is being among 100 listed companies who outperformed in terms of environment, society and good governance efforts for Sustainable Development in 2018 or ESG100 Company by Thaipat Institute.

## 2

BGRIM makes an entry to Thailand Sustainability Investment (THSI) 2018 or Sustainable Stocks from the Stock Exchange of Thailand.

## 3

BGRIM's President,
Preeyanart Soontornwata
receives "Top CEO of the
Year Award" for the year
2018 by the Influential
Brands at the "2018 Asia
CEO Summit". The awards
recognize business
leaders with outstanding
management and who
make significant contributions
to the industrial sector.







# 4

B.Grimm Power PCL.
is granted two awards,
"Recognition" and
"First Time Sustainability
Report" from the CSR
Club which is supported
by the Securities and
Exchange Commission,
Thai Listed Companies
Association and Thaipat
Institute.

# 5

BGRIM's is credited as the "Most Innovative Deal", an outstanding debt issuer and a creative way in raising funds which opens a new dimension in offering debt instruments which are successfully fostered the development of the green bond market from Thai Bond Market Association.

# 6

The Company is certified as a member of Thailand's Private Sector Collective Action Coalition Against Corruption (CAC).



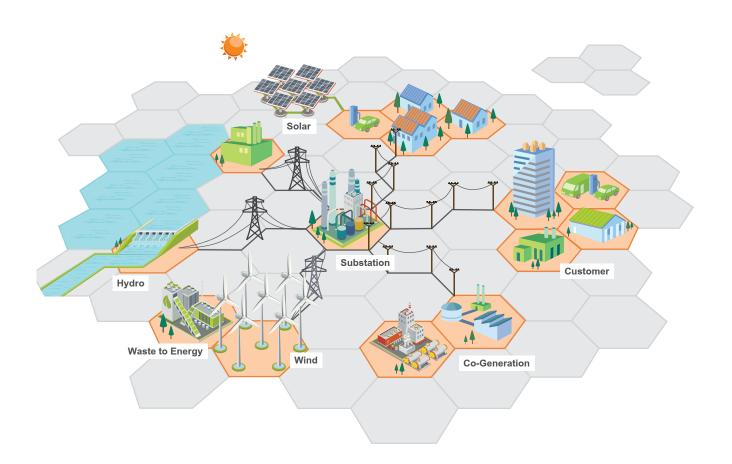
ม เพาเวอร์ จำกัด (มหาชน)





d's Private Sector Collective Action Coalition Against Corruption (CAC)

# **Value Chain**



## Value Chain Management

Business partners are one of the most important stakeholders to the Company's operations for their deliveries of quality raw materials and is involved in the management process of electricity caused the maximum effectiveness and efficiency of power generation which is considered the heart of the business.

The Company places great importance on supply chain management by defining guidelines for dealing with business partners that contribute to the sustainable relationship management. The Company believes that such action can result in the development of potential, creating competitive advantage as well as enabling the management of operational risks of both the Company and business partners in the long run.

#### **Code of Conduct for Business Partners**

Negotiate and
execute contracts fairly
without taking advantage
of contractual parties
by compromising
the Company's reputation

Do not use any information available from the procurement process for personal interest or for the benefit of others Strictly comply with conditions, agreements or contracts; any possible noncompliance of such must be discussed/negotiated with contractual parties for fair remedy and redress



Take into account
the quality and safety of
goods and services to be
procured, which may affect
health and hygiene of users,
staff, communities, society
and the environment

Conduct the procurement process transparently; set out strict selection procedures, regulations and process; and treat all stakeholders on the basis of equality, legitimacy, certainty, completeness, fairness, and auditability

Engage in
procurement with suppliers
which comply with the laws;
do not get involved in or
penefit from business operations,
or use of labor or production
processes contrary to law
and social morality

# Sustainable Supply Chain Management Guidelines

The Company categorizes important partners based on high-value procurement; and/or those which may affect the production process; and/or those who are oligopoly product and service providers. The Company undertakes assessment of business partners' performance annually for registering them in the database of the following year. Risk assessment and management of business partners also cover communication and site visit in appropriate occasions. These action helps to define guidelines and monitoring on the quality development and cooperation in various fields with business partners.

In 2018, the Company has established a Procurement Code of Conduct to allow employees and related stakeholders who involve in the purchasing goods and services, to acknowledge and comply with these Procurement Code of Conduct as a guideline. In addition, the Company are under the development of Supplier Code of Conduct and the annual supplier assessment which cover the subjects on economic, social, environmental, occupational health and safety, human rights and other related elements for use as a guideline in the supply chain management process.

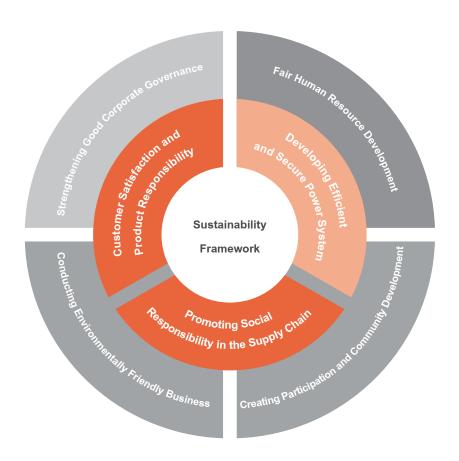
Zero business partners-related complaint



Percentage of acknowledged employees towards the Procurement Code of Conduct



# **Sustainability Framework**



The Company has established the Sustainability Framework to serve as guidelines for the implementation and management of corporate sustainability covering economic, social, environmental and good governance aspects. Its framework has been considered on the organizational context to move towards excellence and professionalism at international standard including enhancing benefits and values in response to the stakeholder expectations which leads to drive the Company operations to achieve the sustainability goal.

The "Outer circle" refers to the expression of responsibility for the impacts arising from operations in various areas which cover the key stakeholders in a way leading to acceptance and sustainable relationship.

#### **Strengthening Good Corporate Governance**

Creating effective governance system in accordance with the good corporate governance principles which place importance to the improvement of the good corporate governance structure that fosters the development of social responsibility across the Company; preventing or reducing corruption risks in all forms; communicating the anti-corruption policies; and embedding knowledge on anti-corruption to employees at all levels that leads to creating economic value for the business in the long run.

#### **Fair Human Resource Development**

Human resource management and developing the life quality of employees in general cover issues of raising the level of employee satisfaction; safety and occupational health care; and upgrading work skills and related knowledge. In addition, the Company needs to set up a mechanism for negotiations between the Company and employees; creating awareness of human rights; establishing risk assessment; and improving conditions and working environment that is conducive to respecting human rights which result in the continuous improvement of the quality of life of employees.

# Creating Participation and Community Development

Participation in dialogues and strengthening relationships serve to create understanding and acceptance between the Company and societies through the "Compassion" approach by means of mitigating the effects that have or may occur in the future; supporting community development will lead to sustainable relationship.

# Conducting Environmentally Friendly Business

All aspects of operations are supervised with due consideration on the environmental impacts with mitigation measures dealing with greenhouse gases, air pollution, noise pollution, waste and others are put in place; raising awareness among employees on efficient use of resources.

The "Inner circle" refers to the excellent management of the power plant projects and being committed to social responsibility from the upstream to downstream of operations.

# Promoting Social Responsibility in the Supply Chain

Promoting awareness of fair treatment to business partners; enhancing ties with partners to learn about relevant sustainability issues; and helping partners to develop business models which show responsibility towards the economy, society and environment.

# **Developing Efficient and Secure Power System**

Strengthening power generation capacity for maximum efficiency and stability; focusing on management of electricity generation; i mproving of machinery and equipment; and adopting of modern technology to ensure that power plants can perform without interruption.

# Customer Satisfaction and Product Responsibility

Committed to maintaining highest customer satisfaction through easy and comprehensive access to service that is reliable, secure and safe, as well as keeping customer confidential information.

# **Risk Management**

The Board of Directors and executives recognize and place importance to risk management to enable the Company to achieve the Company's goals.

The Company has a risk management department in place to coordinate with all departments within the Organization to determine risk issues; preparing risk management plan; managing risks in accordance with the Company's strategy; holding meetings for the Risk Management Working Team with representatives from all departments attending; driving the risk management operations to be in accordance with the plan; and summarizing risk management results for submission to the Risk Management Committee (RMC). These works are meant to ensure that the Company

has carried out the risk management to cover all processes in consistent with the business strategy.

The Risk Management Committee consists of the Management Committee and Power Plant Managing Directors, and is in charge of presenting and reviewing the risk management policy as well as supervising risk management to ensure effective results continuously. The Risk Management Committee is to report the results of the risk management supervision to the Management Committee, the Audit Committee, and the Board of Directors, respectively.

The risk factors and risk management of the Company are disclosed in the Company's Annual Report. (For more information, see the Annual Report 2018, Topic: Risk Factors)



#### **Risk Management**

The Company performs its risk management across the organization under the COSO Enterprise Risk Management framework. Such framework is adopted to manage risks which may affect the Company's goals.

The assessment and management of risk encompass Corporate Risk, Business Unit Risk and Functional Risk caused by external and internal factors that may change according to business, environmental, social and economic

dimensions. as well as corporate governance (ESG Risk) implications, corruption risk assessment and Emerging Risk involving strategy, operations, financing, laws and regulations, company image and reputation, climate change, technology transformation and cyber security, etc. These risk factors pose a challenge for the Company, calling for an alignment with risks which need to be closely managed to create opportunities and strengthening competitive advantage to fulfill business goals.





#### **Risk Culture Promotion**

The key to effective and successful risk management is to foster a risk culture and participation of employees at all levels to driven risk management purposes and aims in the same direction. The senior management places importance on managing risks across the organization, communicating

and encouraging employees to be aware of risk management that will lead to improvement of work procedures and processes for effective prevention and reduction of potential risks. This can be achieved by: 1) Risk Culture; 2) Risk Management policy and appetite; 3) Risk Monitoring; 4) Risk Education; 5) Risk Management Process in daily Operations; and 6) Risk reporting.

	Management Committee	President	Risk Management Committee	Risk Management Department	Risk Coordinator	Management	Employee
Risk Culture	Establish tone at the top	Endorse and encourage risk aware culture		Build risk     aware culture		Foster risk aware culture	
Risk Policy & Appetite	Approve risk management policy     Approve risk appetite		Formulate and review risk management policy     Set risk appetit for MC approve				
Risk Monitoring	performance measures	Report risk management performance     Propose action plan to improve risk management	ıt				
Risk Education				Provide education, guidelines, tools & techniques	• Facilitate, provide education and advice to management and staff in their business units	Support risk management training and development of staff	
Risk Management Process in Daily Operations	Ensure     effectiveness     and efficiency     of internal     control,     internal audit     and risk     management	Manage daily operations to ensure success of risk management and achievemen of risk appetite		effectiveness o risk mitigation plans • Report on risk management	f	Manage daily operations to ensure that business strategies & business plans are in line with risk management policy     Implement risk mitigation plans	Apply risk managemen policy, framework, processes in daily operations
Risk Reporting			Report risks that impact the company's business plan and strategies to MC			Report risk management performance to the President	Report risks or ERM problems to supervisors

The Company has focused on Business Continuity Management (BCM) by setting up a relevant policy requiring power plants to prepare a business continuity management plan in line with ISO 22301 standards and being ready to deal with all emergency and crisis situations. Emergency drills and constant review of management plans are also needed to allow the Company to execute the business continuity exercises effectively.

> **Disaster Recovery** Plan - DRP

Crisis Management Plan - CMP

**Business Continuity** Plan - BCP

**Emergency** Response Plan -**ERP** 



#### Environmental, Social, Economic and Governance Risks (ESG Risks)

## **Risk and Impact Risk Management** · Prepare people development plans to support business expansion. **Business Expansion/Growth** · Prepare key employee succession plans. Impact: People development to keep pace · Utilize financial instruments from the Stock Exchange of Thailand, with business expansion; source of funds for business expansion. local and international capital markets to support business expansion. · Seek business alliance with expertise and potential in growing business domestically and internationally. **Technology Transformation and Innovation** · Find business partners who are leaders and have expertise in technology and innovation in energy and related businesses both Impact: Slowdown in revenue growth; knowledge development to keep pace with domestic and international. · Create and develop knowledge base within the organization technology transformation. (Knowledge Management), and promote the development of executives and employees to keep pace with current and future technology transformation. Explore opportunities and establish channels for developing technological cooperation and innovation with external organizations such as business partners and educational institutions. Social Acceptance, Protests from NGOs Prepare operational risk management plans that may affect parties Impact: Damage caused by impacts; impacts involved. · Foster and build a corporate culture in safety, occupational health, on image and reputation; trustworthiness and acceptance from surrounding communities. environment and society. · Adopt the OHSAS 18001 Occupational Safety and Health Standards System, ISO 14001 Environmental Management System and ISO 22301 Business Continuity Management System. · Organize activities to provide knowledge and understanding of the Company's operations to the community and related parties on a regular basis. · Foster corporate culture on the awareness of safety, occupational **Environmental Management** health, environment and society. Impact: Illegal acts of environmental · Invest in clean technology and regularly improving machinery and concerned; image and reputation; equipment to improve production efficiency and reduce trustworthiness of surrounding communities environmental impacts. · Supervise environmental management including waste treatment strictly in line with relevant laws and regulations. · Monitoring and careful observation including regular environmental quality measurements. · Organize activities to provide knowledge and understanding of

a regular basis.

the Company's operations to the community and related parties on

#### **Emerging Risks**

#### **Risk and Impact**

# Climate Change

Impact: Climate change affects the efficiency of renewable energy; natural disasters causing operation disruptions.

#### **Risk Management**

- Set the target to raise the project investment proportion from renewable energy both domestic and international from 10% to 30% of the combined capacities.
- Monitor the environmental conditions that affect the operation;
   prepare and implement climate change management plan.
- Foster risk culture and raising awareness about conservation and resource utilization in efficient and cost-effective manner.
- Invest in clean technology and regularly improving machinery and equipment to continuously improve production efficiency and reduce environmental impacts as well as reducing greenhouse gas emissions.

#### **Cyber Security**

**Impact:** Leak of important information; damage to information technology systems.

- Set up policy and important measures to prevent leakage of important information.
- Establish the system and cyber security and certifying information security systems according to international standards ISO/IEC 27001.
- Organize specialized trainings for employees who in charge of information management systems and information technology.
- Set up cyber attack prevention and monitoring plans, managing effects arising from cyber threats.
- Create awareness and understanding of employees in preventing and caring for information leakage in the communication process, public relations, training, testing and evaluation.

# Stakeholder Engagement

B.Grimm Power Public Company Limited recognizes the importance of treating and respecting for all stakeholders who are connected to the Company's business operations. These stakeholders can be categorized into eight groups as follows.



## Channels of Engagement and Approaches to Responding to Stakeholder Expectations

Stakeholders	Channels of Engagement	Expectations	Approaches to Responding to Expectations
Government Agencies	<ul> <li>Hold regular meetings with government agencies.</li> <li>Organize seminars and study trips to exchange knowledge.</li> <li>Hold activities regularly to maintain good relations.</li> <li>Organize meetings and visits in various occasions.</li> </ul>	<ul> <li>Conduct business operations based on good governance and legal requirements.</li> <li>Cooperate and support government projects.</li> </ul>	<ul> <li>Comply with laws, rules and regulations applicable on business conducts in a correct, honest and transparent manner.</li> <li>Clarify information and cooperate with supervising government agencies in a correct, complete and timely manner.</li> </ul>
Community and society	<ul> <li>Conduct annual socio-economic survey and public opinions.</li> <li>Organize community visits and activities to meet with villagers or community leaders.</li> <li>Participate in meetings with communities and government agencies.</li> <li>Disseminate information</li> </ul>	Implementing projects with social and environmental impact in mind.	<ul> <li>Meet with community leaders to clarify project details in person.</li> <li>Organize workshops in an effort to develop plans and enhance employees' knowledge in order to allow employees stationed in different areas to exchange ideas to come up with action plans in a joint effort to bring about more effective cooperation with communities.</li> <li>Analyze and prepare action plans for each location where construction of the project begins.</li> <li>Report the monitoring of the compliance with environmental impacts and mitigation measures.</li> </ul>
Creditors	<ul> <li>Set up meetings and visits on special occasions.</li> <li>Hold fiscal meetings, conference calls to clarify the operating results of the Company.</li> <li>Organize Company's site visits</li> </ul>	<ul> <li>Strictly comply with contractual terms and conditions.</li> <li>Treat all creditors equally and fairly.</li> <li>Have the ability to settle debts completely and correctly, within the stipulated timeframe.</li> <li>Refrain from concealing the Company's true financial status.</li> <li>Refrain from soliciting or allotting benefits in a dishonest manner.</li> </ul>	<ul> <li>Comply with all obligations to creditors in strict compliance with contractual terms and refrain from conceal the Company's true financial status.</li> <li>Conduct meetings and visits to continuously exchange ideas and answer questions posed by executives and creditors' teams; continuously invite creditors for site visits to enable them to see the construction progress of various projects.</li> </ul>

#### Stakeholders Channels of **Expectations Approaches to Responding** to Expectations **Engagement** Organize shareholders' · Provide results of Set up management plans that boost efficiency meetings. corporate performance of the power plant and bring about stability of Announce the Company's and business growth. the sustainable revenues. quarterly operating results. • Pay dividends and worthy • Seek for business growth opportunities. **Shareholders** and investors · Hold analyst meetings. returns to investors. Have a good corporate governance practice · Meet investors on the · Ensure good corporate with transparency and accountability in place. "Opportunity Day." governance. · Pay dividends appropriately. Organize company visits. • Organize a shareholder meeting to answer · Disclose complete, · Establish contact through accurate and timely questions posed by shareholders and allow the Investor Relations information. them to express opinions. section. · Have a stable and · Disclose information in the annual report Publicize information on growing operation. and sustainability report. the Company's website. Procurement of goods Adopt transparent and Establish a standardized procurement policy and services standard procurement which is non-discriminatory and anti-corruption. Evaluation of product • Prepare the Term of Reference (TOR) as the process that promotes or service quality fair competition. project specification and hold the joint meeting **Business** Organize meetings and Comply with terms and and invite the business partners to understand **Partners** visits in various occasions. conditions of payment the scope of works and terms before bidding. · Complaints channels or that are timely and fair. Notify business partners on evaluation results for the purpose of product and service Whistleblowing channels Provide knowledge in developing quality improvement. products and services Create a whistleblowing policy for misconduct that meet the needs of and complaint reporting with clear and the Company transparent guidelines for protecting Offer opportunity for quality whistleblowers and those who are accused, business partners to work while putting in place a process in supervising and follow-up and development of complaint with the Company. handling process · Meeting with customers. Delivering stable, secure · Improving of machinery, equipment and Activities with customers. and uninterrupted power technology to ensure maximum efficiency. Opportunity for customers Adopt production standards and quality control supply. Customers to visit the Company. · Appropriate pricing. systems such as ISO 14001, OHSAS 18001 Customer satisfaction Comply with contractual and Business Continuity Management (BCM). survey. terms fairly. Provide 24-hour assistance and maintenance · Call Center System. Keep customer services. · SMS messaging system. confidential information. · Conduct customer satisfaction survey. Providing speedy · Complaints channels or · Offer company visit to customers. Whistleblowing channels services and assistance. · Apply code of conduct in maintaining customer confidential information. Set up a whistleblowing policy for misconduct and complaint reporting with clear and transparent guidelines to protect the whistleblowers and those who are accused; creating a process in supervising and follow-up and development of complaint handling process.

Stakeholders	Channels of Engagement	Expectations	Approaches to Responding to Expectations
Employees	<ul> <li>Communicate policies and news via meetings, activities and electronic media.</li> <li>Set up internal communication.</li> <li>Hold meetings between executives and employees.</li> <li>Employee performance appraisal.</li> <li>Assess employee engagement.</li> <li>Whistleblowing and grievance channels</li> </ul>	<ul> <li>Offer fair remuneration, fringe benefits and appropriate welfare.</li> <li>Provide quality of life and well-being.</li> <li>Make available safe and good working environment.</li> <li>Provide opportunities for potential development in skills and knowledge for career advancement and job security.</li> <li>Provide work-life balance.</li> <li>Maintain professionalism and integrity, being open-minded about new ideas.</li> </ul>	<ul> <li>Provide fair employment with appropriate remuneration.</li> <li>Care for safety and occupational health.</li> <li>Provide health and life insurance, provident fund.</li> <li>Employee potential development plan for career advancement</li> <li>Communicate and organize activities to enhance corporate culture.</li> <li>Set up a whistleblowing policy for misconduct and complaint reporting with clear and transparent guidelines to protect the whistleblowers and those who are accused; creating a process in supervising and follow-up and development of complaint handling process.</li> </ul>
Media	<ul> <li>Organizing activities to connect with the media through various activities e.g. media thanks parties, media field trips, to create understanding of the Company's business operations.</li> <li>Meet and visit the media on various occasions e.g. media anniversary events.</li> <li>Hold media conferences.</li> <li>Respond to email inquiries.</li> </ul>	<ul> <li>Disclose complete, accurate and timely information.</li> <li>Have communication channels with easy, convenient, fast access.</li> <li>Build a good relationship between the Company and the media.</li> </ul>	<ul> <li>Set up a communication unit to provide accurate, complete and timely information to the media.</li> <li>Disseminate PR information to media regularly.</li> <li>Develop diverse communication channels.</li> <li>Gauge the Company's communication to respond in the media's need.</li> <li>Invite the media to visit the Company's business operations.</li> </ul>

## **Materiality**

## **Materiality Assessment**

In the process of defining the report content, the Company has adopted Materiality Assessment from the Global Reporting Initiative (GRI) principles to assess the most important sustainability issues of B.Grimm Power which might affecting the Company and stakeholders with involvement from directors, executives, employees and stakeholders in defining issues as follows,



Nach

1

## Step 1: Identification

Identify relevant issues that might impact to B.Grimm Power's sustainability in the aspects of economic, social and environmental dimensions by arranging workshops to discuss with executives and representatives from each department to select relevant issues in the context of sustainability and stakeholders inclusiveness. The workshops also define the scope of sustainable development in the dimensions of economy, society, environment and good governance based on the impact of Company's operations throughout the value chain that occurs both inside and outside the Company.

2

## **Step 2: Prioritization**

Prioritizing material issues related to sustainability is carried out by a workshop participated by executives and representatives concerned through the materiality test to consider the importance of sustainability issues from two aspects which are the significant impacts to B.Grimm Power and stakeholders.

3

## Step 3: Validation

Validating the completeness of significant issues and present sustainability issues that have been verified to the Sustainability Management Committee for consideration and approval based on internal and external impact parameters on economy, society and environment.

4

#### Step 4: Review

The Company is committed to continuously developing sustainability reports to take into account stakeholders' opinions and suggestions as well as developing stakeholder engagement process for better sustainability performance reporting and disclosure in the following years.



## **Material Issues**

## **Economy**

- 1. Economic Performance
- 2. Indirect Economic Impacts
- 3. Reliability and Readiness of Electric Power
- 4. Effectiveness of Electric Power Generation

## **Environment**

- 5. Energy
- 6. Water
- 7. Air Pollution
- 8. Product and Service
- 9. Supplier Environment Assessment

#### Society

- 10. Grievance Mechanisms for Impacts on Environment
- 11. Employment
- 12. Occupational Health and Safety
- 13. Training and Education
- 14. Diversity and Equal Opportunity
- 15. Supplier Assessment for Labor Practices
- 16. Non-discrimination
- 17. Freedom of Association and Collective Bargaining
- 18. Child Labor

- 19. Human Rights Impacts Assessment
- 20. Local Communities
- 21. Anti-Corruption
- 22. Compliance
- 23. Cybercrime
- 24. Emergency Response and Natural Disasters Management
- 25. Customer Health and Safety
- 26. Customer Satisfaction
- 27. Customer Privacy
- 28. Marketing Communication

The current version of the Materiality Matrix is still based on the previous validated issues in 2017 from the Sustainability Management Committee. However, the Company has revisited and prioritized in order to cope with the Company's business and expansion.

## **Summary of Materiality Assessment and Report Boundaries**

Material Issues	Internal External							
	Power	Govern- ment Agencies	nity and	Business Partners		Share- holders and Investors	Customer	Media
Economy								
Economic Performance	•							
Indirect Economic Impacts	•							
Reliability and Readiness of Electric Power	•						•	
Effectiveness of Electric Power Generation	•						•	
Environment								
Energy	•							
Water	•		•					
Air Pollution	•		•					
Product and Service	•		•					
Supplier Environment Assessment	•			•				
Social								
Grievance Mechanisms for Impacts on Environment	•	•	•	•	•	•	•	•
Employment	•							
Occupational Health and Safety	•		•				•	
Training and Education	•							
Diversity and Equal Opportunity	•							
Supplier Assessment for Labor Practices	•							
Non-discrimination	•							
Freedom of Association and Collective Bargaining	•							
Child Labor	•			•				
Human Rights Impacts Assessment	•			•				
Local Communities	•		•					
Anti-Corruption	•	•					•	
Compliance	•	•						
Cybercrime	•							
Emergency Response and Natural Disasters Management	•							
Customer Health and Safety	•						•	
Customer Satisfaction	•							
Customer Privacy	•						•	
Marketing Communication	•						•	



## **Good Corporate Governance**



## **Corporate Governance Structure**

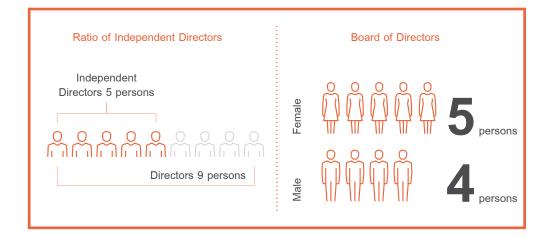
The corporate governance structure of B.Grimm Power consists of the Board of Directors and sub-committees. The Board of Directors is appointed by the shareholders' meeting through accurate, transparent and auditable nomination process in conformity with the law. At least one-third of the Board of Directors' composition must be independent directors with the number of independent directors shall not be less than three years. These independent directors are required to fully meet qualifications as stipulated by the Capital Market Supervisory Board (CMSB) to carry out checks and balances as well as giving independent opinions on the performance of the Board of Directors and the Management.

In 2018, Board of Directors consists of nine members; two executive directors, two non-executive directors, and five independent directors. Five of these directors are female.

The Board of Directors has appointed three sub-committees which are chaired by independent directors.

These sub-committees are Audit Committee; Nomination and Compensation Committee; and Corporate Governance Committee. They are tasked to supervise and monitor the management of the Company effectively. In addition, the Board of Directors has set up the Risk Management Committee and the Sustainability Management Committee with the Company's senior executives being members.

(Learn more about the roles, duties and responsibilities of the Board of Directors and the sub-committees in the Annual Report 2018, Topic: Management Structure)

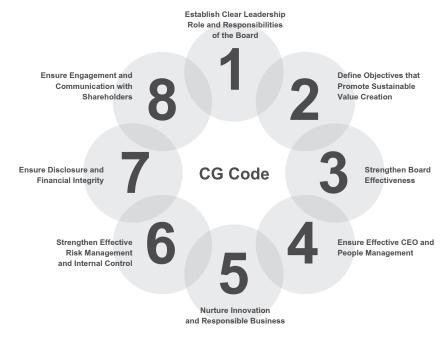


## **Good Corporate Governance**

B.Grimm Power Public Company Limited operates business by strictly adhering to the principles of good corporate governance, complying with the company's code of conduct, risk management, internal control, laws and regulations. This adherence brings about the management that is professional, effective, transparent, fair, accountable, yet being responsible for the economy, society and environment without involving in all forms of corruption. Therefore, the Board of Directors, executives and employees have the roles, duties and responsibilities to comply with the good corporate governance policy and code of conduct in order to increase competitiveness and create confidence among shareholders and stakeholders in the long run as well as creating value for the Organization and sustainable business growth.

To this end, the Board of Directors has set up the Corporate Governance Committee to oversee good corporate governance practices, business ethics, code of conduct, anti-corruption, misconduct and complaint reporting, social and environmental responsibility performance, as well as the corporate sustainability management.

The Company places great importance on good corporate governance in line with domestic and international standards such as, the Stock Exchange of Thailand, the Securities and Exchange Commission (SEC), the ASEAN Corporate Governance Scorecard, and the United Nations' Sustainable Development Goals.





#### Charters, Policies and Regulations of the Company

- · Charter of the Board of Directors
- · Charter of Audit Committee
- · Charter of Corporate Governance Committee
- · Charter of Nomination and Compensation Committee
- Charter of Management Committee
- · Duties and Responsibilities of President
- Corporate Governance Policy
- Anti-corruption Policy
- · Code of Conduct
- · Whistleblowing and Grievance Policy
- · Donation and Sponsorship Policy
- · Gifts and Entertainment Policy
- · Corporate Social Responsibility Policy
- · Occupational Health, Safety and Environment Policy
- Business Continuity Management Policy (ISO 22301: 2012)
- Accounting Policy
- Accounting Policy on Connected Transaction
- · Related Party Transactions Policy
- · Procurement Code of Conduct

- Preventive Measurement for Conflicts of Interest
- Investment Policy in Subsidiaries, Affiliates and Related Companies
- Supervision and Management Policy for Subsidiaries and Associated Companies
- Insider Information Policy
- Dividend Policy for the Company and Subsidiaries
- Human Resource Management Policy and Procedures
- · Operation Manual in the Power Plant Area
- Regulations to prevent and resolve sexual harassment problems
- · Policy to control mobile device usage and off-site works
- Computers and Related Equipment Purchasing Policy
- Information Security Management Policy (ISO 27001:2013 standard compliance)
- · Company's Data Classification Policy

#### **Board Skill Matrix**

The Board of Directors attaches importance of enriching knowledge and skill of directors in specialized disciplines and experience in various fields to align with the Company's direction and strategy.

Such emphasis will be instrumental to achieving the Company's goals with good corporate governance and

long-term efficiency. The Nomination and Compensation Committee has set up the Board Skill Matrix's criteria of knowledge and skill required in the directors selection. There policy encourages directors and senior executives to take part in trainings and activities to broaden their knowledge on a regular basis. Training on good corporate governance and study trips both at domestic and international are corrective action undertaken to pursue this policy.

#### **Performance Assessment of the Board of Directors**

The Board of Directors requires the performance assessment of the Board of Directors and sub-committees by self-assessment methods on a collective and individual basis. The performance of the President is evaluated at least once a year based on the self-assessment form of the Stock Exchange of Thailand. The performance assessment covers the evaluation of the structure and qualifications of directors and sub-committees; their roles, duties and responsibilities; the Directors' meetings; their duties; relationship with the management; self-improvement of directors; and other matters. The Board of Directors will use assessment results for improving performance.

The evaluation results of Board of Directors and the sub-committees for 2018 comes an average score of "Excellent."

#### **Code of Conduct**

The Company's employees of all levels are instilled with the consciousness of treating themselves, colleagues, companies, stakeholders, economy, society and environment well. They are required to do their works professionally, honestly, responsibly, ethically, with creativity and harmony. These factors are fundamental to ensure sustainable future growth. The compliance of good corporate governance and code of conduct also creates confidence among shareholders, investors and stakeholders who see the transparency of business operations, opportunities and competitive advantages of the Company.

# Performance Evaluation Board of Directors Excellent Audit Committee Excellent Nomination and Remuneration Committee Excellent Corporate Governance Committee Excellent Note: The evaluation is calculated as a percentage from the full score in each topic. Evaluation criteria: score greater than 85% = Excellent; 75-85% = good; 65-75% = quite good; 50-65% =

fair; and less than 50% = should improve. The Nomination and Remuneration Committee and the Corporate Governance Committee were only set up by the Board of Directors in 2018 and therefore there are no evaluation results of those bodies in 2017.





## **Code of Conduct Policy**

- 1. Respect human rights and fair labor practice
- 2. Compliances with the laws, rules and regulations
- Use and care of property, data, information technology and intellectual property of the Company
- 4. Trade of Company's shares and use of Company's insider trading
- 5. Community, Society, Environment, Occupational Health and Safety
- 6. Acceptance or offering of property or any other benefits that may influence any decision
- 7. Conflict of interest in the Company's transaction
- 8. Customer services, quality of products and marketing communications
- Treatment for the Contractual Parties (Business Partners and Creditors)
- 10. Treatment of Trade Competitors



 "Very Good" (4 stars) CG scoring from the survey on corporate governance of Thai listed companies in 2018 by the Thai Institute of Directors Association (IOD).



 "Excellent" (4 coins) AGM Checklist 2018 scoring from the Thai Investors Association.

## **Anti-Corruption**





The Company is determined to conduct business in accordance with the principles of good corporate governance and code of conduct with responsibility to the economy, society and the environment. The Company is convinced that the implementation of such guidelines will be an essential tool to the continued success of the Organization and create sustainable value to all stakeholders.

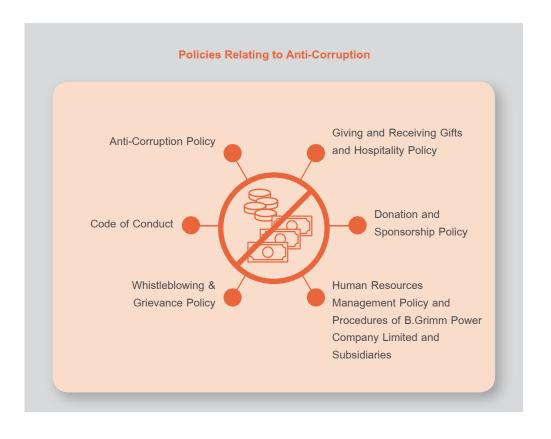
Therefore, the Company has recognized and giving importance to anti-corruption by cultivating and advocacy for employees of the Company and subsidiaries to be conscientious about the values in working with honesty, transparency, clarity and verifiability without any actions constitute to corruption directly and indirectly.

B.Grimm Power has declared the intention to join the Thailand Private Sector Collective Action Coalition against Corruption (CAC). The Company has established anti-corruption policies and related policies, risk assessment and corruption risk management, review of internal control systems. Furthermore, communication in the fight against corruption is put in place, trainings and awareness are conducted among executives and employees at all levels are raised. These practices regularly monitored and reported.



In 2018, the Company has already been certified member of the Thai Private Sector Collective Action Coalition Against Corruption - a proud testimony to underscores a commitment to be another engine to drive out corruption and spurring the value of transparency in the Thai society.





## **Anti-Corruption Performance in 2018**

- Set up a working team with a role in continuously advancing anti-corruption activities within the Organization.
- Participate in corruption risk assessment and formulate guidelines for managing corruption risks with related department concerned.
- Prepare relevant policies and guidelines to fall in line with anti-corruption measures and roadmaps along with whistleblowing and grievances.
- Communicate and create knowledge and understanding of anti-corruption policy, Whistleblowing and Grievance Policy, and other policies among employees.
- Prepare a self-evaluation form on anti-corruption for submission to CAC's certification.
- Communicate the anti-corruption policies with business partners; revising commercial and procurement contracts with key suppliers to reflect the Company's commitment and best practices.

## **Whistleblowing and Grievances**

The Company has established the Whistleblowing and Grievance Policy together with measures to protect the rights of whistleblowers. The Company encourages employees and stakeholders to participate in monitoring the operations in accordance with relevant laws and regulations. In compliance with Company's code of conduct, should a stakeholder see any illegitimate action or any cases contravening with the code of conduct, one can directly notify the Whistleblowing unit in charge.

## **Whistleblowing and Grievance Procedures**



Provide the report of any wrongdoing or fraud



**Channels for** reporting of of any wrongdoing or fraud





Report to the relevant committee

## **Whistleblowing Department**

B.Grimm Power Public Company Limited 5 Krungthepkreetha Road, Huamark, Bangkapi, Bangkok 10240

E-mail: Whistle-blowing@bgrimmpower.com

# Protection for Whistleblowers and Persons Involved.

Whistleblowers or concerned witnesses will be concealed according to the Company's regulations regarding confidentiality classification and document security.

Forbid intimidation, demotion of positions, punishment or bringing out any negative effects to whistleblowers and concerned witnesses.

If the complaint for the wrongdoing is made in good faith but is unable to be substantiated by investigators, the Company shall not impose any sanctions on the whistleblowers. However, should the whistleblowers who raise the grievance with intent of defamation by deliberately giving false information, the Company will consider imposing sanctions in accordance with the Work Rules and Regulations.

The Company may provide special protection as appropriate, depending on the severity, sensitivity and importance of the complaints.

In 2018, there was no fraud and grievance reporting, neither was any complaint from inside and outside the Organization.



## **Corporate Sustainability Management**

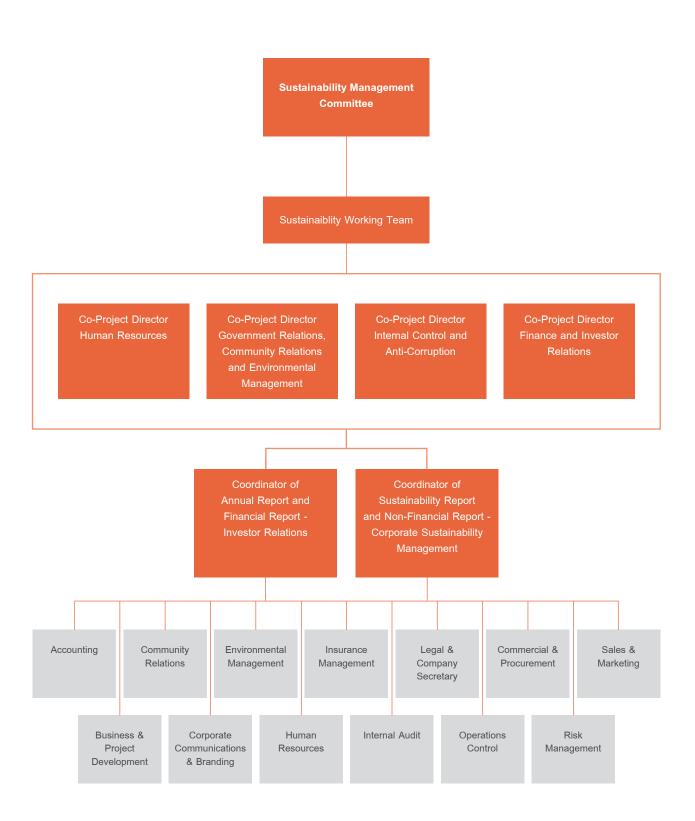
B.Grimm Power is committed to conducting business with sustainable growth. The Sustainability Management Committee has been formed to see the sustainable development through with tangible results. The Committee consists of senior executives and Sustainability Working Team whose members are representatives from all departments to relentlessly drive sustainable development from the environmental, social, economic and corporate governance dimensions.

# Role of the Sustainability Management Committee

- Establish policies, directions and sustainable development goals of the Company, and regularly review and update them in tune with situations.
- Consider sustainability issues to define measures and guidelines for caring for stakeholders with responsibility, while creating value for them.
- Review the sustainability framework and the importance of the value chain to foster cooperation and engagement with stakeholders.
- 4) Assign sustainability operations to the Sustainability Working Team and related parties to move forward works on sustainable development in accordance with plans and goals.
- Support and implement strategies and policies for sustainable development, and performance reporting regularly.



## **Corporate Sustainability Management Structure**



# Economy



## **Power Plant Management**











The Company is determined to achieve the operation excellence and supply of electricity and steam with the highest quality, stability to meet the customer's needs. The Company aims to attain this objective with effective management in worldclass standards, continuously improving the technology and production processes that are clean and environmentally friendly. Such pursuit will create customer confidence and enhance long-term competitiveness of the Company.

# Development of Efficiency and Stability of Power Transmission Network System

Most of the Company's co-generation power plants are located in the same industrial estates, the Company has been able to develop efficient distribution network system and a network management system capable of maintaining generation reserves that allow uninterrupted power supply to customers within the same industrial estates. The significance of developing efficient and stable transmission network for electricity and steam is as follows,

- Reliability in power transmission to clients
- Planning for the maintenance of the power plant project effectively.
- Flexibility in the management, maintenance, repairing machinery and equipment.
- Economies of Scales resulting from the shared resources utilization.
- Manage the availability of power distribution to appropriately serve the customers' needs during on-peak and off-peak hours.

## **Prevention of Power Outages**

The uninterrupted power supply is one of the key success factors that affect the Company and customer satisfaction. The Company is committed to reduce the risk of power outages by adopting essential preventive measures as follows:

- Constantly improve competencies of employees in operating and controlling the operation systems so that they are constantly equipped with work skills.
- Prepare manual for provide standard guidelines for works and safety.
- Plan the inspection and improvement of machinery and equipment, and the management of electricity supply with no interruption, efficiency and maximum safety, as well as the readiness of the 24-hour emergency transmission system maintenance unit.
- Assess and manage risks with high impacts on the operation by monitoring and following on resolving issues according to the plan, such as,



- Prepare and supervise tools and equipment including controlling critical spare parts inventory to ensure that the power supply will not be interrupted in case of an emergency in a prompt and safe manner.
- Boost the inspection frequency of power lines during the rainy season.
- Survey risk areas close to transmission lines, such as construction sites and areas where crane trucks are employed, avoid placing objects on transmission lines
- Install preventive crash barriers and warning signs of transmission system for convenience case of maintenance or emergency
- Install snake guards as a measure to prevent snakes and other reptiles.
- Cut trees in areas of unsafe distance and inform the customers to attend to the surroundings and trees located inside the premises to mitigate any possible impacts that might occur.
- Installing various devices to mitigate the impact and accidents that may occur e.g. installing a Pressure Switch or Flow Switch to cut off the operation of the transformer in order to prevent damage from short circuit while the fire extinguisher is activated.
- Take care of the Company's communication which may impact customers; adopt correct practices ensure safety according to engineering principles and electrical safety.

- Directly communicate with customers through SMS, phones and letters both before and after the operation, and informing the completion of the operation period to the customer in advance.
- The Company has entered into a power purchase agreement with the Provincial Electricity Authority (PEA) to plan the power reserves for the industrial customers in case of the Company's power plant shutdown.

The Company has guidelines to manage the distribution of electricity to industrial customers in the cases occurring beyond control to the power plant as follows,

- (1) Alternate operation of gas turbines and/or steam turbines to produce electricity for sales to customers.
- (2) Gear other power plants in the Group located in the same industrial estate to produce to substitute shortfall from power plants facing emergency shutdown, or seek to buy back-up supply from PEA in order to meet contractual delivery to industrial customers.

## **Transmission and Distribution System Management**

The Company has set up a Transmission and Distribution System Management Team to plan the production and distribution of electricity to meet customers' expectation for secure, stable and safe electricity supplies both in normal and emergency situations. As well, guidelines are established in an operating manual to ensure that power plants can run with highest efficiency and availability factor so that electricity that can be delivered to customers thoroughly and appropriately.

#### The Duties and Responsibilities of the Management Team of the Transmission and Distribution Systems

# Plan and manage the power supply system for power plant in various situations

- Plan the operation of power plants to achieve maximum production efficiency and quality in strict compliance with the Power Purchase Agreement with the Electricity Generating Authority of Thailand.
- Plan the power plant operation in case of a maintenance shutdown without breaking contracts or disrupting power and steam transmission to customers.
- Deal with emergency situations arising from internal and external factors with least impact and maximum safety and security.

# Ensure supply availability to customers thoroughly and appropriately

- Coordinate on advance notifications about the status of the power plant availability
- Manage alternative electricity distribution systems from other power plants situated close to the customers' points of requirement in case of shutdown or maintenance of power plants primarily assigned for delivery.



## **Power Generation System Maintenance**

The Company's operations involve complicated machineries and production processes. Production capacity and efficiency of the power plant depends on the operation planning and maintenance of machinery and equipment of power plants. Good maintenance is translated into efficient production, reducing the risk of damage to machines that undermine the stability of electricity supply to customers.

However, with more than 20 years of expertise in operating and maintaining power plant equipment, the company has formalized the following strategies for maintenance procedures,

1

Assign operation and maintenance teams of each power plant to position themselves at facilities' 6-12 months before the openings to learn technology from manufacturers in terms of design, installation and operation of machines for familiarization and gaining expertise in running power plant operations ahead of plant transfer from the contractors.

2

Plan to have multiple power plants in the same industrial estate in order to achieve maximum efficiency in operation and reduce power outage with the flexibility of switching sources of supply in case of a power failure at any facility.

3

Rely on skilled maintenance technicians based on the long-term maintenance service contract with the manufacturers under supervision of the Company's maintenance team.

4

Rely on the Asset
Management department
to coordinate and manage
the maintenance schedules
of each power plant to
meet manufacturers'
conditions and minimum
number of maintenance
days spent.

In addition, there are risk assessments and guidelines for managing the risks arising from power transmission systems, such as changing transmission lines which are older than 10 years, improving transmission lines, and replacing electrical protection equipment. Other tasks include preparation for predictive maintenance and preventive maintenance plans; long-term (1-5 years) maintenance programs for main machines; and informing customers via SMS about the power outage.

Types of Maintenance	Description	Time Required
Annual Minor Overhaul	Check the operation and perfection of the equipment within the gas turbine.  If malfunctions are detected, the Company will proceed to repair or restore them to their original conditions and get them ready for use.	1 - 3 days
Major Overhaul Every 3 Years	Check and replace parts of the equipment that has reached the lifetime of the gas turbine; check for perfection, functionality and calibrate equipment of the main machines such as gas turbines, steam turbines, steam boilers, generators, power transmission and distribution systems, etc. If malfunctions are detected, the Company will proceed to repair or restore them as required.	9 - 17 days
Major Overhaul Every 6 Years	Check and replace parts of the gas turbine which have completed its lifetime of the gas turbine; check the condition inside the steam turbine; check the perfection, functionality, and calibrating all equipment in the power plant. If malfunctions are detected, the Company will proceed to repair or restore them as required.	15 - 21 days

The process enables the Company to produce power in a secure and stable manner, managing operating costs efficiently and regulating maintenance period as stipulated in the contract.

The evaluation of the efficiency of the power generation depends on various factors as follows,

Efficiency in Power Generation	Description	Definition
Fuel Efficiency	Calculated from the heat rate based the volume of fuel required to produce 1 kWh of electricity by converting the heating value of natural gas into the British Thermal Unit (BTU).	Low heat rate means good efficiency
Availability Factor or AF	The percentage of power plants' readiness for production regardless of whether the power plants are generating.	High availability factor indicates good level of hours capable of generating power
Planned Outage Factor or POF	The percentage of plant shutdown for annual maintenance that is planned well in advance for inspection and is carried out only once or twice a year.	Low index of planned outage factor indicates good maintenance and stability of the working of engines
Unplanned Maintenance Index	The Maintenance Outage Factor (MOF) represents the number of hours that the power plant project suspends operation for additional maintenance beyond the annual requirement and is undertaken only when abnormal condition is found but still allows the plant to operate and such maintenance can be deferred until the weekend.  Forced Outage Factor (FOF) is the percentage of the number of hours that the power plant project must suspend operation for emergency repair if (1) the repair cannot be deferred to the weekend, or (2) the backup generators are unable to start operation as timed.	High net capacity factor indicates that the power plant runs at its full capacity - a crucial factor allowing the Group to get a return on investment sooner and higher profitability.
Net Capacity Factor	The net production in electrical power equivalent (converting from steam power) bases on 365 days divided by the installed capacity and multiplied by the number of hours in 365 days.	The proportion of actual electricity produced is high, meaning the company can operate well.

## Performance Indicators of the Company's Power Plants in Commercial Operation

Project	Statistics in Fiscal Year 2018								
	Amount of Equivalent Power Generation <sup>1</sup>	Amount of Natural Gas Consumption	Heat Rate	Availability Factor	Net Capacity Factor				
	MWh	MMBtu	BTU/kWh	%	%				
ABP1	1,033,233	8,389,702	8,120	92.35%	70.88%				
ABP2	1,097,116	9,344,018	8,517	91.67%	73.16%				
ABP3	959,953	7,222,118	7,523	95.63%	82.70%				
ABP4	751,182	5,704,343	7,594	95.73%	65.41%				
ABP5	791,291	5,978,244	7,555	98.97%	68.93%				
ABPR1	814,886	6,137,180	7,531	98.18%	75.44%				
ABPR2	824,488	6,218,701	7,542	98.04%	75.66%				
BPLC1	827,454	7,044,937	8,514	96.90%	91.71%				
BPLC2	350,055	2,939,475	8,397	100.00%	71.23%				
BIP1	693,444	5,367,648	7,741	95.30%	69.08%				
BIP2	711,727	5,478,086	7,697	96.65%	70.90%				
BPWHA	889,951	6,745,003	7,579	98.02%	78.06%				
BGPSK	11,820	-	-	-	16.87%				
BGYSP	93,914	-	-	-	17.76%				
TPS	11,293	-	-	-	16.11%				
SLW	57,093	-	-	-	16.93%				
BGSP1	358.00	-	-	-	14.92%				
BGSCB	111.00	-	-	-	18.50%				
BGSCD	238.65	-	-	-	15.24%				
BGP	387.21	-	-	-	14.90%				

 $Note: The \ table \ excludes \ the \ solar \ power \ plants \ (BGPSK, BGYSP, TPS, SLW, BGSP1, BGSCB, BGSCD \ and \ BGP)$ 

The average availability factor of power plants in commercial operation



Electrical loss in transmission and distribution systems<sup>2</sup>



<sup>&</sup>lt;sup>2</sup> The loss of electricity in the transmission and distribution systems in this calculation confine to co-generation plants located in the industrial estates of Amata Nakorn, Amata City, Bangkadi and Hemaraj. This calculation is based on production and sales of electricity to customers in industrial estates and the Electricity Generating Authority of Thailand.

<sup>&</sup>lt;sup>1</sup> equivalent electrical energy value

## **Innovation and Technology Development**

The Company believes that adaptation to changes with creativity is the heart of the organizational success. The Board of Directors and the management, therefore, attach great importance to research and development in various aspects continuously with the tandem in developing of the potential employee to ensure quality and efficiency of the Company's manpower and also providing knowledge on modern technology for better effective working system. Employees are given opportunities to express opinions and learn together in a process leading to development and value creations to future business. Together with the concept of doing business that takes into account the interests of stakeholders to create mutual value and sustainability in the long run, these factors help to lay a strong foundation for continuous research and development at B.Grimm Power. The success of continuous development has been reflected by the Company's growth and business expansion all along.

As the producer and supplier of electrical power to buyers likes the Electricity Generating

Authority of Thailand, the Provincial Electricity Authority, and industrial customers located in industrial estates, the most crucial aspect of the Company's operation lies on effective management in delivering high standard power supplies in the most secure and stable manner at the volumes required by customers. The Company has come up with the "Load Management System," which considered as one of the Company's innovation and technology development that have developed continuously.

The Load Management System has assisted the power distribution in the industrial estates. It works by processing complex statistical data of electricity production and distribution in each period into forecasts of power demand at various periods for the benefit of planning of electricity production of each power plant located in the industrial estate. The system enables power plants to achieve maximum efficiency and ensuring uninterrupted power supply to each customer. The benefits and values created by the system can be summarized as follows:



The Company is still committed and focused on the development of innovation and modern technology. The Company has emphasized on promoting corporate culture in the creation and development of innovations for employees with responsibility to the economy, society, environment and stakeholders to lead to the development of work processes for maximum efficiency and effectiveness, creating competitive advantages, business opportunities and long-term corporate success.

Benefits		Values Creation	
Efficient management and use of electricity production resources	Environment:	Conservation and resource management	
Most efficient use of machinery	Company:	Management of electricity production costs	Ty Ty
Effective production process planning and efficient power network management	Company:	Developing a modern and professional work system	
Delivering electrical power in the secure and stable manner in line with customers' needs	Customers:	Responding to the needs and creating the highest customer satisfaction	
Participation in driving economic growth in the industrial sector	Economy:	Supporting economic growth	
and made national	Society:	Reputation, image, confidence, acceptance and trust	

# Clean Energy Investment for a Sustainable Future





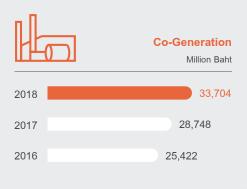


Energy is an important infrastructure for the World's economic and social development. Rising in tandem with the population growth is the basic needs of living, and the rapid advancement of various technologies is likely resulted in increased energy consumption. While the energy derived from natural resources tends

to drop and may run out, the climate change issue has occurred to affect the occurrence of natural disasters and impact energy production. Therefore, future energy supply must provide adequate under the proper resources allocation as well.



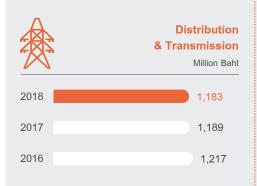
Type of Power	201	16	201	7	2018		
Generation	Million Baht	Ratio	Million Baht	Ratio	Million Baht	Ratio	
Co-Generation	25,422	91.6	28,748	91.3	33,704	92.1	
Renewable	44	0.2	172	0.5	407	1.1	
Distribution & Transmission	1,217	4.4	1,189	3.8	1,183	3.2	
Steam	539	1.9	529	1.7	554	1.5	
Others	524	1.9	843	2.7	737	2.0	
Total Income	27,747	100	31,482	100	36,585	100	

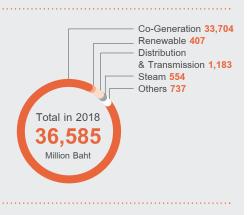












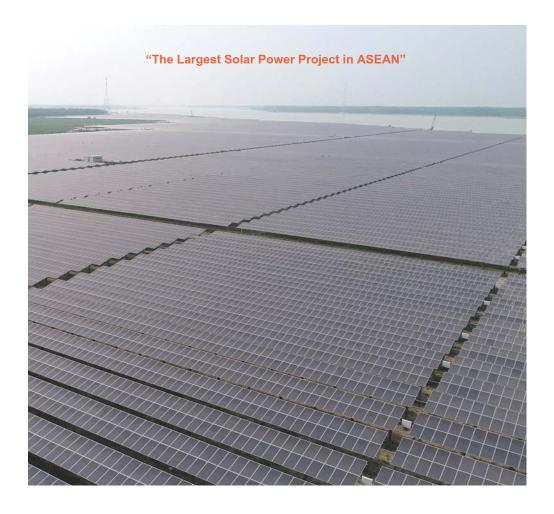
## **Renewable Energy Investment**

B.Grimm Power with the vision of "Empowering the world compassionately" to conduct businesses with great responsibility to the economy, society and the environment to provide energy sustainability for all stakeholders.

The Company is ramping up its power generation business with a target to achieve the installed capacity of 5,000 megawatts both from domestic and international in 2022. While the determining proportion of energy investment of B.Grimm Power will be at least 30% of renewable energy of B.Grimm Power's total planned capacity in the forms of solar, hydropower, wind and waste-to-energy. The Company targets Southeast Asia and the

ASEAN region for renewal energy investment. The use of natural gas and clean technology at the Company's co-generation plants has ensured high production efficiency and minimum environment impacts, reflecting our environmental responsibility commitments.

In 2018, the Company invested in solar power projects in Vietnam, with 2 separate power capacity of 420 MW and 257 MW or equivalent to total of 677 MW. The 420 MW solar power project is largest solar farm in ASEAN region. Both projects is scheduled to start commercial operation in 2019. In addition, the company has also invested in a solar rooftop project in Thailand with an installed capacity of 70 MW within 2019 as well.



## **Green Bonds**



## "

The green bond issuance has to go through many standard processes and be thoroughly examined by organizations that have earned world-class trust. It is a testimony of B.Grimm Power's track record of best practice; strengthen the confidence of investors who are interested in investing in businesses that focus on the environment; and opening up new business opportunities for B.Grimm Power.





B.Grimm Power recognizes the contribution to the global community in caring for the world's climate by paying great attention to environment and the choice of resources which constitute to pollution reduction or being clean energy. The issuance of green debenture worth 5 billion baht (USD155 million), is a reflection of the Company's green journey. B.Grimm Power's Green Bonds are Thailand's first certified climate bonds which comply with the International Capital Markets Association's Green Bond Principles and Climate Bond Initiative standards as well as ASEAN Green Bond Standards.

The issuance of these debentures serves as catalyst to the development of the green bond market in the Kingdom. The proceeds from this issuance go towards B.Grimm Power's renewable energy development projects in Thailand as part of the Company's contribution to establish a low-carbon pathway for sustainable economic growth. This green bond will help Thailand achieve its target of reducing greenhouse gas emissions by an unconditional 20% by 2030.

This green bond issuance is part of B.Grimm's endeavor to raise the share of renewable energy generation in its overall portfolio from 10% to 30% by 2022. The green bond proceeds are earmarked for BGRIM's nine operational solar power plants and seven other facilities of the kind under construction.

Green Bond is a tool in driving sustainable development in the future, offering an option for sustainable investment to drive the green economy that aims at improving the quality of life and well-being of people in society and, at the same time, solve social and environmental problems to bring about a balanced and sustainable economic, social and environmental development.



## **Environment-Friendly Business Operation**



Conducting business with environmental responsibility pursuant strictly to environmental legislation and disclosure lies at the heart of B.Grimm Power's commitments. Being kind to environment constitutes part of the Company's philosophy of "Doing Business with Compassion for the Development of Civilisation in Harmony with Nature." Every work and process must incorporate an environmental management of international standards while offering sustainable values for the environment. The Company is making every effort to minimize environmental impacts arising from the operation throughout all stages of project implementation and operation.

The environmental management is included in the feasibility study, environmental impact assessment, compliance to environmental

legislations, design of production system which emphasizes on modern and clean technology, project management, repair and maintenance of machinery, monitoring and development of environmental management, raising employee consciousness and conducting social activities on environmental conservation.

It is a prerequisite for all B.Grimm Power facilities to have an environmental management standard system ISO 14001 in place to demonstrate the process of producing and delivering electricity and steam follows best practice and in full compliance with laws as well as the World Bank Group Environmental, Health and Safety Guideline for Thermal Power Plant projects.



# Achievement of environmental management system standards ISO 14001:2015

Twelve out of 15 B.Grimm power plants have been certified for ISO 14001:2015 with the rest are being prepared for certification in line with the plan requiring power plants to complete the certification within 18 months after their commercial start-up.

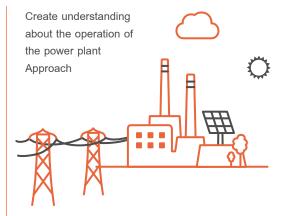
## **Environmental Management Approaches**



Project's site selection, design and layout Approach

management Approach

Project's Water



Occupational health, safety and health Approach

Public hearing of all stakeholders Approach



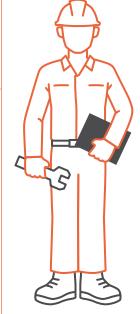
Approach to study various environmental impacts such

- Environmental Impact Assessment (EIA)
- Initial Environmental Examination (IEE)
- Code of Practice (CoP)



Garbage and waste management Approach







Transportation Approach



Aesthetics and Site restoration Approach





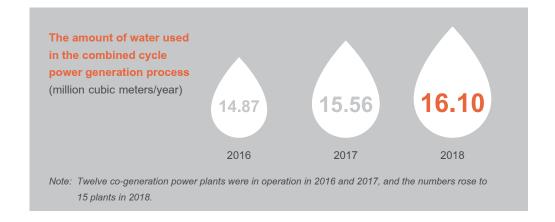
## **Environmental Management**

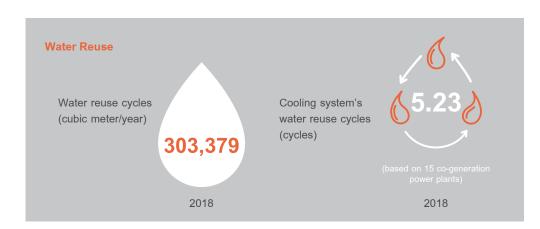


## **Water Resource Management**

Water is considered a main raw material that the Company uses in the process of generating electricity and steam as well as for cooling production facilities. The Company always emphasizes on efficient use of water by observing the 3Rs principle - reduce, reuse and recycle - and improving water treatment system and applying modern technology in the production process.

In 2018, the Company used 16.10 million cubic meters of water in the electricity and stream production. The volumes of water consumption in 2018 were higher than those in the previous two years because three additional thermal power plants came on stream. However, a total of 303,379 cubic meters of water has been re-used in the production process for an average of 5.23 water reuse cycles.





## **Wastewater Management**

The Company strives to ensure that wastewater quality control strictly follow effluent standards and regulations. The co-generation facilities located in the industrial estates are equipped with wastewater treatment systems which comply with effluent specifications set by the industrial estates. The effluent from the plants is directed to the industrial estate operators for further treatment. For power plants located outside the industrial estates, such as solar power, are

mostly designed to prevent wastewater mixing with natural water. However, the Company has put in place water treatment systems at those sites with no any drainage to the outside is permitted. The water quality management in power plant area is carried out by experts who examine in great details the effluent quality using standard measuring equipment. In addition, external agencies are commissioned to check the effluent quality results on a monthly and 6-month basis. Specialists are on stand-by at power plants at all times ready to tackle emergency problems promptly.

		Wastewater Quality Index (Annual average of all power plants)							
	Temp (°C)	рН	BOD	COD	TSS	TDS	Oil and Grease	Chlorine (Free)	
Standard	40 °C	5.5 – 9.0 pH	<20 mg/l	<120 mg/l	<50 mg/l	<3,000 mg/l	<5 mg/l	<1 mg/l	
Wastewater Quality Measurement Results	29.30 °C	6.96	4.48	52.08	9.71	1,820.58	0.43	0.12	

The results of the wastewater quality measurement are in accordance with the standard and legal requirements. Zero wastewater quality-related complaint.



## Management of Chemicals Used for Water Generation

The Company has implemented policies, protocols, and mechanisms to control and mitigate risks of any chemical leak or chemical exposure to employees. The Company also conducted safety training on health and environment, in order to raise awareness on these issues, to prevent chemical leaks and to instruct employees on protocols in the case of emergency. Additionally, the Company has organized contingency plans and drills in cases of chemical leaks.

## **Air Pollution Prevention**

The prevention of air pollution is of great importance in the Company's effort to mitigate impacts on communities and environment. The Company's co-generation power plants are fueled by natural gas with low composition of sulphur and particles which result in low emission of sulphur dioxide (SOS) and Total Suspended Particles (TSP) when combusted. The well-designed systems also allow a complete combustion that keeps carbon monoxide (CO) and unburned hydrocarbons

(UHC) and TSP emission to minimum CO and UHC are therefore not the main pollutants arising from the power plants either. The key pollutant from the generation process is more on plant is nitrogen oxide (NO $_{\rm X}$ ) which is regulated by the NO $_{\rm X}$  gas control system with the installing of the Dry Low NO $_{\rm X}$  Burner combustion system which achieves its task of limiting NO $_{\rm X}$  emission by means of reducing combustion temperature.

The Company has routinely measured pollutants that occur from all thermal power plants. Top priority is given to air quality control around power plants' neighborhood with a thorough examination in both the power plant areas and surrounding communities. In the power plant area, Continuous Emission Monitoring System (CEMS) is employed to obtain samplings at stacks and at Heat Recovery Steam Generators (HRSG) to gauge NO<sub>X</sub>, SO<sub>2</sub>, TSP, O<sub>2</sub>, chimney temperature and gas flow rate. Moreover, the Company has verified the accuracy of CEMS system operation based on examination guidelines from the United States Environmental Protection Agency (U.S. EPA) or the methods of government agencies. This work comes in two folds.

1. System Audit

is a validation of CEMS performance by qualitative evaluation in the form of a review and checking CEMS function status.

### 2. Performance Audit

is validation of CEMS work by quantitative evaluation of work; check the accuracy of  $NO_X$  and  $O_2$  measurements by using Relative Test Audit (RATA) which uses the principle of reading  $NO_X$  and  $O_2$  from CEMS and records obtained from stack samplings applying standard reference method to calculate the Relative Accuracy.

Then compare the results with the criteria and random measurements by collecting air samples from air pollution vent and conduct an analysis according to the announcement of the Ministry of Industry which requires atmospheric air quality is measured every six months to find  $NO_X$ ,  $SO_2$ , TSP levels

The results of air quality measurements are in accordance with the standard and legal requirements.

Zero air pollution-related complaint.



#### **Noise Management**

The Company is aware of the need to restrict noise arising from operation. The Company has evaluated the sound effects especially from major sources such as gas turbine generator (GTG), heat recover steam generator (HRSG), steam turbine power generator (STG), condenser, cooling tower, etc. The Company has required manufacturers to supply machines which do not exceed an average noise level of not more than 85 decibels (a) over a distance of 1 meter, and at the fence area of the power plant does not exceed 70 decibels (a) as required by law.

At the same time, the company has come up with measures to suppress noise from the source, conductor and transmitter to protect audio receivers as follows,

#### **Noise Control at Source**

- All machinery and equipment are placed in compliance with safety engineering principles.
- Building plans and machinery installation system are designed to reduce vibration, which causes noises.
- Maintenance and repairs are carried out regularly to prevent any source of noise pollution.
- Install noise reduction equipment at conductors or transmitters such as insulation for steam pipes and the silencer for the stream drum.

#### **Noise Control Along the Sound Transmission Path**

 Enclosures are constructed over heavy machinery like the GTG and STG, which helps to reduce the level of noise and block it from going outside to a certain extent.

#### **Prevention at the Noise Recipients**

- Compile Noise Contour Maps to designate high-noise areas where operators or visitors are required to wear noise protection devices, such as ear plugs and earmuffs, in order to prevent any personal hazards.
- Check readiness and irregularities as well as documents the findings to the log sheet.
- Install sign boards showing areas with loud noise levels exceeding 85 decibels (A).

The sound intensity
measurement results are
in accordance with the standard
and legal requirements.
Zero noise-related complaint.



#### **Waste Management**

Management of waste forms an important part of the Company's environment protection. The Company abides by the laws when it comes to the management of waste arising from the production process. The Company is finding ways to prevent or reduce the amount of waste from the power generation process including reuse of waste in order to cut the waste treatment and reduce environmental impacts. Key guidelines for waste management are:

- Provide sufficient waste bins at project sites with forwarding system for proper and legal treatment.
- Reuse waste collected and sorted from project sites for own uses or sell to scavengers.
- Waste from the production process is collected and sorted separately before turning over to the authorized treatment entities.
- Provide appropriate containers with covers within enclosed buildings to store industrial wastes such as used lubricants, chemical and oil wastes, and sludge from water quality improvement system, etc.
- Record the type and amount of waste produced and transported out of the project areas with destinations of disposal and treatment are specified.

In 2018, the Company managed wastes by waste types and disposal means as follows,

General Waste (Solid Waste)								
Total (kg.)	Reuse (kg.)	Landfill (kg.)	Disposal (kg.)	Sell/Recycle (kg.)				
191,134.5	7,354	11,034	152,440	20,306.5				

Non-hazardous Waste								
Total (kg.)	Reuse (kg.)	Landfill (kg.)	Disposal (kg.)	Sell/Recycle (kg.)				
53,115	0	8,271	43,585	1,259				

Hazardous Waste							
Total (kg.)	Reuse (kg.)	Landfill (kg.)	Disposal (kg.)	Sell/Recycle (kg.)			
178,415	0	5,623	141,575	31,277			

		Sludge		
Total (kg.)	Reuse (kg.)	Landfill (kg.)	Disposal (kg.)	Sell/Recycle (kg.)
1,697,112	0	12,205	506,019	1,178,888

The company has sorted and managed waste according to the standards and legal requirements.

Zero waste management-related complaint.



### **Climate Change Adaptation**











Reduce impacts from using natural gas in all control process of power plant operations. Climate change or global warming has led to greater intensity and frequencies of natural disasters such as drought, floods, storms, rising sea levels, etc. These impacts are inevitably affecting humans and life on Earth. Businesses are also impacted, for instance, climate change may affect the efficiency of renewable energy, and the severe and prolonged natural disasters may result in operation stoppage. The Company has hence placed great importance to climate change adaptation and prepared to cope with such potential impacts.

In 2016, Thailand signed the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate povertystarting in 2020. The objective of the Convention is:

- (a) Holding the increase in the glabal average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate changes;.
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a matter that does not threaten food production; and.
- (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.



It has been B.Grimm Power's determination to be part of the driving force of Thai Government and the global community in reducing greenhouse gas emissions in a journey to a low-carbon society with the following management approaches:

- Reduce the impact from fossil fuel consumption to cover the entire electricity generation process with a target of carbon dioxide emission reduction is set and monitored.
- Prioritize investment in clean technology and improve the performance of the electricity generation system to help reducing greenhouse gas emissions from the Company's business operations, such as replacing equipment by focusing on supervision and control of all processes throughout the life cycle or (Life Cycle Assessment: LCA), from the raw material procurement process to production, and maintenance of power plants and power transmission system.
- Work in accordance with the ISO 14001 Environmental Management Standard System.
- Raise proportion of renewable energy investment from the original 10% to 30%.
- Monitor the environmental conditions that affect the operation; assessing risks arising from natural disasters to cover climate change; set up plans to manage risks and the potential impacts on the Company's businesses.
- Advocate awareness of energy and environmental conservation among employees to conform the Company's philosophy and corporate culture.

### **Indicators**

 The Company's greenhouse gas emission is <u>below</u> the Thailand Grid Emission Factor, at 0.5821 kg. of carbon dioxide equivalent per unit.

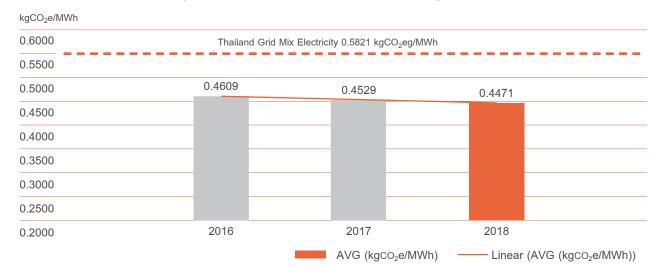
#### **Performance**

The average greenhouse gas emission rate of year 2018 is 0.4471 kg. of carbon dioxide equivalent per unit, down from 0.0138 in 2016 and 0.0058 in 2017 as new co-generation power plants with modern, clean and efficient technology come on stream. Furthermore, efficiency improvement of electrical production system has been accomplished as planned. The works completed along this line include efficient energy management through energy conservation projects e.g. installing a sensor detecting human movements in turning light on and off; checking the leakage of cooling in air conditioners; machine inspection and maintenance; changing the turbine of cooling tower to allow it to operate at the highest efficiency, etc. The Company has put more investment in renewable energy businesses like solar energy facilities in in Thailand and abroad. These factors result in a continued drop of greenhouse gas emissions, and the Company has advocated consciousness in environmental and natural resource conservation through various social responsibility activities as well.

### Greenhouse Gas Emissions by Power Plants during 2016 - 2018



### Comparison of Greenhouse Gas Emission during 2016 - 2018



Note: Calculated by using the Direct Emission Assessment Method (Scope 1)

### Society



### **B.Grimm Power Family**





At B.Grimm we all work full heartedly with positivity, professionalism and pioneering spirit. Most of us are also shareholders and we achieve our high goals together as teams.

B.Grimm treats all at B.Grimm fairly with substantial welfare and provides a good work life balance in a safe environment.

Doing business with compassion we create great value for society, the economy and B.Grimm while safeguarding the environment and wildlife.

### **Human Resource Management Strategy**



### **Attracting Tomorrow's Talent:**

B.Grimm Power makes itself known to the public of being an organization that is progressing, growing and an ideal workplace for through a corporate culture that expresses professionalism, compassion, pioneering spirit and global standards.



### Develop for an Unknown Future:

B.Grimm Power is driven by the development of employee potential to enhance capacity to deliver sustainable value amid changes in the modern world as well as a combination of lifelong learning skills both for work and personal life with value and happiness.



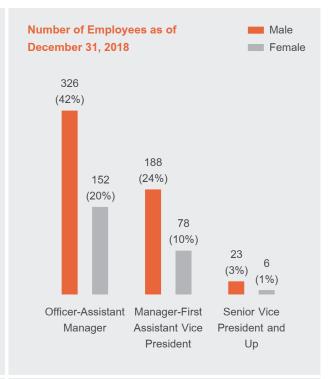
### Retain a Thriving Workforce:

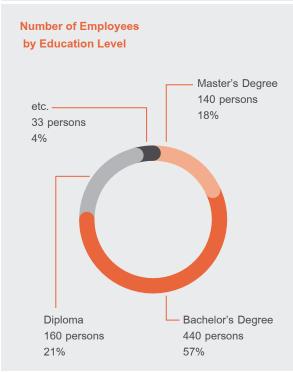
B.Grimm Power builds an environment and culture to help our people grow and contribute; working as a team; inspire a sense of belonging; trying the best to perform better and staying motivated with the Organization.

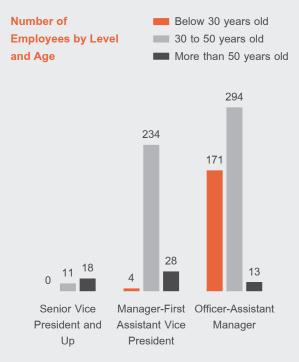
### **Employment**

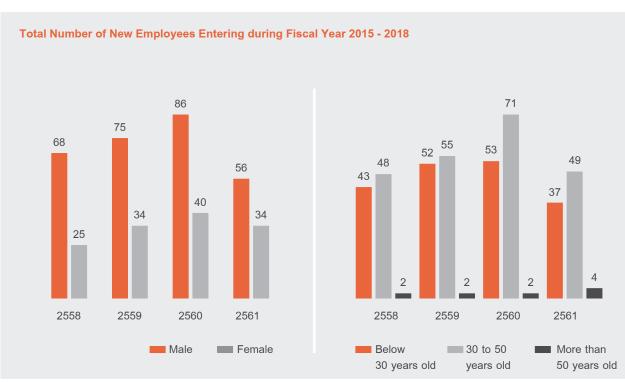
B.Grimm Power is committed to conduct business based on the principles of good corporate governance and offering fair and indiscriminate remunerations. In 2018, B.Grimm Power has a total of 773 employees, an increase of 57 persons or 8% from 2017, to support the business expansion. The total turnover of employees (Turnover rate) is 30 persons or equivalent to 4.09%.

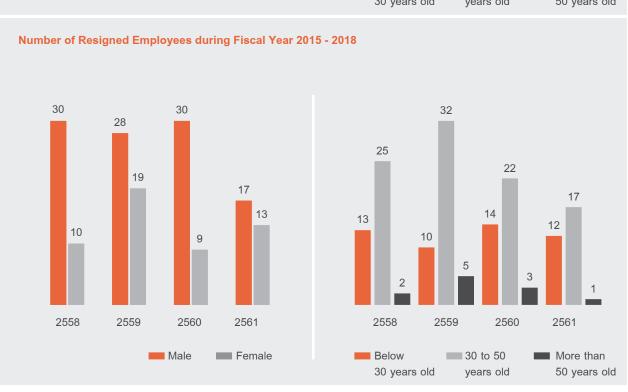












### **Corporate Culture and Values**

Under the rapid and continuous growth of business including the diversity in nationalities, religions, genders, ages and work assignments among our people, the corporate culture "B.GRIMM DNA" comes in as a vehicle to drive concept, decision and behavior of employees towards the same direction.B.Grimm Power promotes the corporate culture (B.GRIMM DNA) and core values (4Ps) by aligning various operations to create experiences, inspiration and motivation for employees to adopt in their work and personal life to firmly and sustainably grow with the organization.

### Core Values (4Ps)



In 2018, B.Grimm Power supported and propelled the corporate culture through various projects and programs, such as:

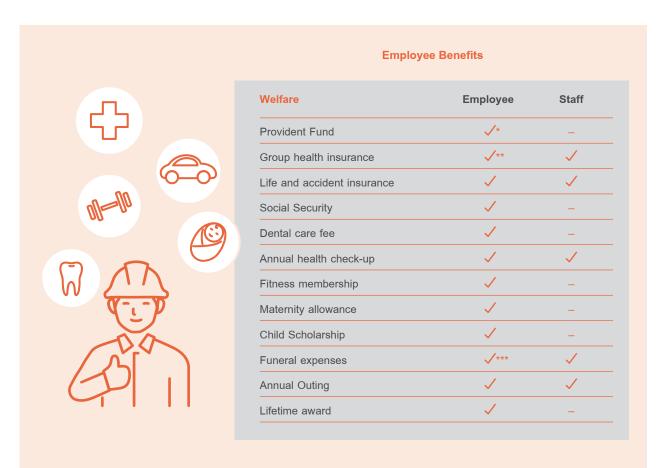
- 1. Effective communication through various channels to emphasize B.GRIMM DNA from the senior management e.g. B.Grimm Power Town Hall to allow employees to listen to strategic plans and operational guidelines of the Company in the meeting room and conducting live broadcasts to all operational areas; President Site Visit to allow employees to talk to the President in a friendly manner and to emphasize B.GRIMM DNA to promote professionalism and teamwork.
- 2. Communication and emphasizing B.GRIMM DNA through B.GRIMM Culture Agents imbedded in each department to create a positive work environment conducive to realizing B.GRIMM with the support from executives, supervisors and the B.GRIMM DNA teams from the Company's headquarters. In 2018, there were more than 40 B.GRIMM Culture Agents from 11 locations who embarked on activities like B.GRIMM DNA Roadshow, 4Ps Role Model, 4Ps on Tour, Passport for Goodness etc.
- Communication B.GRIMM DNA through Employee Engagement activities and Social Engagement activities such as,

- "The 140-year heritage and Songkran celebration" event accents B.Grimm's proud contribution for the Thai economy and society with compassion with working principles that embrace positivity, partnership, professionalism and pioneering spirit.
- The Annual Sports Day 2018 under the fun-filled Thai theme is meant to strengthen relationships and unity among employees through traditional Thai-style games by applying the 4Ps values as a basis for judging.
- Company New Year's Party under the theme of "Partnership for Civilization" to underline B.GRIMM DNA philosophy and corporate values.
- "B.Grimm: Connect to Self, Others and Nature" are
  activities to promote "Connect to Self" throughemployees'
  health care by consuming 400 grams of fruit and vegetable;
  "Connect to Others" through landscape improvement at
  Rangsit Canal, Moon Chindaram Temple and surrounding
  communities; Connect to Nature through Reduce the use of
  plastic and sorting for recycling project.

Besides, there are also activities to promote knowledge and understanding of B.GRIMM DNA through formal learning and development such as B.GRIMM DNA in On-Boarding Camp, B.GRIMM DNA Workshop for Line Manager, B.GRIMM DNA Workshop for Individual Contributor, B.Grimm Power Top Management Workshop: Dialogue with Compassion, among others.

#### **Employee Welfare and Benefits**

The Company requires the election of Welfare Committee to discuss with the employer on proper welfare arrangements for employees, proposing ideas and guidelines for welfare benefits to the Labor Welfare Committee. Employees are entitled to the following fringe benefits.



- \* refers to welfare for full-time employee and are entitled to; employee have the right to join the Provident Fund scheme 119 days after completing probation; the Company and employee each contributes 5% of the employee salary to the Fund; upon resigning from the Fund's membership, staff will have the right to obtain 100% of the amount of the Company's after three years of working for the Company in accordance with the Fund's stipulated rules and conditions.
- \*\* means the welfare extend to the employees, their spouses and children.
- \*\*\* means welfare which employees, their parents, spouses and children are entitled to.

### **Employee Care**

The Company pays attention to a proper work-life balance of employees through the promotion of Health and Well-being projects which are organized every year. The projects are aimed at preparing employees for starting work with the B.Grimm Power family and their retirement. The preparations encompass health, savings and home arrangement with safety features for the happy retirement.

### Respect for Human Rights to Employees

One of B.Grimm Power's key code of conduct is respecting human rights, treating people equally regardless of their similarities or differences in race, religion, gender, age, education, marital status, as well as respect for human rights and freedom. All employees are given the opportunity to show their talents and expertise in the workplace with their performance being assessed fairly. Those things helped inspire a new perspective and add value to the Company. The Company is attentive to employee's opinion and has established channels for expression of opinions and filing complaints. The Welfare Committee is formed according to the labor law as a channel for employees to present their views about welfare, as a mechanism for implementing whistle blowing and grievance policy as well as issues related to the employment conditions and working environment.

In addition, the Company has also established a policy to protect those who make complaints, witnesses or those who may be affected by the complaints. That is the demonstration of respect and responsibility in handling personal information with confidentiality by restricting the disclosure and usage as necessary, while the access to information is given to authorized persons. This practice is aimed at preventing impact, performance appraisal and promotion, etc.

### **Whistleblowing Department**

B.Grimm Power Public Company Limited 5 Hua Mark, Bang Kapi Bangkok 10240

E-mail: Whistle-blowing@bgrimmpower.com

### Zero discrimination-related complaint.



#### **Child Labor Practices**

Child labor is a very critical issue on the national and international levels. The Company is conscious about child labor abuse which is morally wrong and illegal. The Company has therefore come up with assessment and measures against such misconduct to encompass business partners.

B.Grimm Power's Human Resources Policy forbids employment of person under the age of 18 years while hiring people at the age of 18 but not more than 20 must strictly comply with the provisions of the Labor Protection Act given that such employment may pose physical and mental health risks and bearing consequence on education opportunity, etc.



### **Building Employee Engagement and Participation**

Employee are considered an important stakeholder group which B.Grimm Power actively seeks to engage. In 2018, an external consultant was commissioned to conduct the Employee Engagement survey. The survey was conducted independently with a view of obtaining unbiased information, protecting the privacy of respondents, analyzing the engagement and satisfaction of employee in all dimensions by using standard evaluation process, indicators and fundamental factors. Included in the analysis are the Company's Core Values and the Gross National Happiness (GNH) index. The survey shows "satisfactory" result, reflecting B.Grimm Power's effort to better employee engagement, creating a good experience and ensuring a work-life balance for them.



### **Employee Performance Appraisal**

B.Grimm Power advocates dialogues of employees at supervisory and operation levels to set goals and development (Dialogue for Development) with an aim to support knowledge and skill development among themselves, in line with the Company's "Compassion to Our People" objective.

The dialogues are conducted at least twice a year and B.Grimm Power employees are also given the opportunity for informal sessions in Spot Coaching and On Site Dialogue patterns. These dialogues encourage the exchange of working ideas in a straightforward and timely manner. The performance appraisal comes in two parts:

- Job duties or KPIs with mutual agreement among supervisor and staff.
- Expected behaviors related to the Company's Core Values.

The evaluation derived from these two parts mentioned above is used to produce the Individual Development Plan (IDP) and Career Development for Career Growth.

### **Career Development**

The Company has prioritized career development and enhancement of work skills and others outside the work process as a means to create motivation and appreciation of work's values. Employees are encouraged to apply knowledge gained from trainings to develop themselves both in work and daily life. The Company avails opportunities for continued learning among employees as a way to solidify the Company's knowledge base. This will lead towards sustainable development of individuals, coupled with the development of quality of life in regard of career advancement and a happy work and daily life.

### "Attract, Develop, and Retain B.Grimm Power Group Employees by Maintaining Positive Work Environment."

B.Grimm Power believes that good corporate culture leads to the ability to attract and retain talents. Guided by B.Grimm's philosophy of "Doing Business with Compassion", we strive to maintain a positive work environment where employees can freely share their valuable opinions and constructive feedback, receive the respect and recognition they deserve, and have opportunities to grow within the organization for the goals of developing our organization and retaining talents. Growing employees' potential is a continuous process at the Company with trainings, leadership development scheme for staff who have potential to become future leaders, and operational know-how development and business relationships.

The Company concentrates on developing professionalism among employees with kindness in mind, excellent work skills, passion for pioneering new business possibilities and the determination to advance to global standards. The Company plays its part by ensure a work environment that is conducive to the development and growth of employees across all echelons.

"B.Grimm Power is committed to developing the physical and mental readiness of its employee in a balanced manner, so that they can grow in tandem with its business expansion. Key factors for development include positiviy, partnership, professionalism, and pioneering spirit."

#### **People Development Roadmap**

Level	Band	Organizational DNA						I	Leadership and People	Business Acumen
5 INSPIRATION LEADERS	Top Management						LEADING ORGANIZATION	International/Global Energy     Business Knowledge and Trends     Risk Management     Sustainability Management     Finance for Executive		
STRATEGIC LEADERS	Senior Management		Requirement	and Happiness Skill	Advance Skill  Presentation Communication Strategic & Creative	& non engineering	LEADING FUNCTION	<ul> <li>Vision &amp; Strategy Development</li> <li>Crisis Communication</li> <li>Media/External Communication</li> <li>Government and Community Collaboration</li> </ul>		
OPERATIONAL LEADERS	Middle Management	egy – KPIs	Compliance & Standers R	DNA - 4Ps	Thinking     Decision     Making	Frainings (engineering	LEADING MANAGER	<ul> <li>Power &amp; Energy Trends</li> <li>Business Process Management</li> <li>Planning, Costing and Budgeting</li> <li>Finance for Non-Finance</li> <li>External Communication</li> </ul>		
TASK & TEAM LEADERS	First-Line Management	- Mission – Strategy	Comp	B.Grimm	Prefessional Skills Communication Systematic	Technical Trair	LEADING OTHER	Power/Energy Knowledge		
1 INDIVIDUAL CONTRIBUTOR	Officer	Vision			Thinking • Problem Solving		LEADING SELF	Introduction to Power Plant		

### **People Development Strategy**



# Technical Expert:

Creating knowledge standards, international technical skills and expertise in the electricity/energy business; developing capabilities and expertise of the operating and maintenance team of B.Grimm Power Group; and strengthening business performance and operation efficiency of B.Grimm Power Group's power plants.



# People Competencies:

Raising the potential, knowledge, management skills and leadership by developing a mindset and skillset for employees and executives.



### Organization DNA:

Cultivating and promoting
the Core Values (4Ps) both
from external environment
and company employees'
behavior; creating a good
work environment and
sustainable happiness
starting from oneself to other
people and surrounding
society.



# Learning Organization & Knowledge Management:

Incubating an environment of learning within the Organization to improve and organize knowledge base to drive innovations for corporate sustainability based on the "Team Learning and Work-Life Balance" culture.

The Company's people development is geared towards enabling employees to perform their work effectively with the help of following trainings:

### **Technical**

(Operation & Maintenance)



- Total of 10 technical trainning programs; altogether 14 sessions in 2018
- Annual training calendar with specific dates to increase opportunities for employee to join
- Select only experts in the field from trusted institutions and agencies
- Learning & Development working in sync with Learning Organization, Knowledge Management and Knowledge sharing & transfer continuum

# People and Working Skills

(Soft Skill)



- · Leadership Series Program
- Line Manager capabilities enhancement
- People skill and Working skills that focuses on systemic and critical thinking skill, communication skill and English language learning support

## New Programs in 2018

(Learning Mix)



- Individual Learning Plan (ILP)
- On-Boarding Program and Camp
- · Retirement camp
- Internal Seminar:
   Employee Welfare Financial health theme
- English Club
- E-learning platform on compliance contents
   e.g. Code of Conduct and Anti-Corruption and IT
   Security Awareness



Employee training budget in 2018 is

31.96

Million Bah



Average Training

73

hours/person/annum

### **Occupational Health and Safety**



Occupational health and safety of employees, business partners, contractors and stakeholders are of the priority for the Company. The Company has put in place policy and guidelines to ensure that occupational health and safety in workplace strictly comply with relevant safety laws and advocating a safety consciousness among all employees and individuals involved in the operations to develop into a safety culture.

B.Grimm Power established a policy on occupational health, safety and environmental managementin compliance with the Occupational Health and Safety Management System (OHSAS 18001) and Environmental Management System (ISO 14001). The company has appointed the Corporate SHE (safety, health, and environment) Committee, consisting of senior-level executives and Managing Director of all power plants of B.Grimm Power Group. The committee is assigned various roles, such as:



Formulate strategies and policies on occupational health, safety and environment at the Corporate level.



Review and update policies and strategies to meet the criteria.



Monitor the work performance of occupational health, safety and environment.



Review reports of unusual events or accidents.

To achieve safety, occupational health, and environmental objectives and develop relevant work systems, B.Grimm Power has also established the SHE working team, consisting of executive representatives and safety officials from each power plant. Its main role is to directly support the SHE committee.

In addition, each power plant has appointed its own Safety, Occupational Health and Environment Committee. Such committee aims at creating participation in the undertaking between the management and the employees at a 50:50 representation to realize the occupational health, safety and environment policy and ensuring that employees and stakeholders adopt the practice as guided. The Committee's main tasks are as follows:

Consider policies and work the workplace and outside the and reduce accidents, dan nuisance resulting from work for reporting to	Company in order to prevent nger exposures, illness or ork and unsafe workplace	Report preparation and recommendations or guidelines for
Support safety activities in the workplace.	Consider regulations and work safety manuals as well as workplace safety standards and propose	correcting to comply with the law and standard on work safety to employers.
Explore work safety practices and checking up	them to employers.	
the occupational injury or accident statistics at least once a month.	safety including roles, res supervisors, executives, em	or workshops related to work sponsibilities of employees, aployers and executives at all edback to employers.
Establish a system for reporting unsafe working	iorole to provide io.	Subucit to compleyers.
conditions to be a duty of all employees at all levels to comply. Follow up on the progress of the proposed matters to employers.	Evaluate the work safety performance of the Company.	Perform other work safety matters as assigned by the employers.
Consolidate annual performs identifying problems, obstate to employers at the y	cles and recommendations	Executive work safety-related initiatives that assigned be employers.

The Company has set a safety operation goal with

### **ZERO** ACCIDENT

### **Safety Performance**

The SHE working team has monitored the performance in accordance with relevant laws and regulations; supervising operation at risk in the power plant areas; promoting knowledge on safety and occupational health at work; giving opinions and suggestions for improving various operational procedures, etc. Those exercises are meant to ensure that occupational health, safety and environment at power plants follow the same standards at the international level. Guidelines have therefore been tailored for each power plant to prepare operation manuals and procedures best suit to the type and

nature of work in each particular area such as safety training requirement, safety regulations and wearing personal protective gears, etc.

Furthermore, B.Grimm Power's power plants have prepared emergency response plans with clear procedures with different types of situations such as fire drills, leaks, boiler explosion, bombs, etc. and to be conducted as an annual training for all employees The results of these trainings are evaluated and recommended for further improving the emergency response. The Company has provided additional trainings to employees responsible for responding to emergencies such as advanced fire-fighting course, containing chemical leaks and first aid.



The Company's occupational health and safety management system

OHSAS 18001



Twelve from 15 power plants are certified by the OHSAS 18001 standard while three are being prepared for certification. The Company's power plant which begin commercial operation must complete the certification within 18 months after the start to operate..

### Z E R O

The Lost-Time Injury
Frequency Rate (LTIFR),
Absentee Rate (AR)
and accident of
employees is zero.

### ACCIDENT



From the Company performance results and driving safety culture for all employees, resulting in 2018, the company achieved a record number of safety hours in the work collection without a lost time accident for 11,634,361 hours.

Note: The zero lost time accident record is based on 9,173,436 hours of works by employees together with 2,460,925 hours of contractors and other parties.

Annual health check-up results of employees in the Company find no risk of work-related diseases.



## Promoting Knowledge on Occupational Health and Safety

The Company has advocated knowledge in occupational health and safety across the Organization. The Company requires B.Grimm Power Group's power plants to organize safety week activities every year to promote consciousness and awareness about occupational health, safety and environment among employees. Community leaders, villagers and schools around the power plant are invited to the events which allow them to learn more about electricity generation process and safety standards adopted by power plants in operation.



# Trainings on Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED)

The Company has organized trainings on Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) usage - first aid to help those who stop breathing and hearts cease beating. The Company has made sets of AED available at the exit on the first floor of Bangkok office, all B.Grimm Power's power plants in Thailand and some power plants in Laos.



### **Safety Training**

- Employees of power plants and employees of contractors need to undergo trainings conducted by safety officers on basic safety, environmental requirements and work-related risks before getting down to work.
- Visitors must be informed of basic safety regulations by safety officers before visiting power plant areas.
- Contractors' employees who have undergone trainings will receive "contractor" badges for working in the power plants.
- Contractors must provide personnel with expertise suitable for the job and must through trainings as required by law and regulations of the power plants.
- Contractors' employees who perform tasks with specific risks must undergo safety associated with those specific risks such as working in confined spaces, dealing with dangerous chemicals and radiation, etc.
- Contractors must provide safety officers for works related to maintenance, equipment installation related to the production process and additional construction works. The contractors' safety officers must control the works of the contractor employees throughout the working period.



Numbers of training hours in occupational health, safety, health and environment

12,207 hours

# **Customer Relationship Management** and Customer Responsibility





The customer satisfaction survey is conducted annually and whose results are used for improving operations, quality and services with an aim of maintaining excellence and growing with customers.

B.Grimm Power is committed to the production and delivery of electric and steam power with an emphasis on quality, stability and maximum safety for customers for more than 25 years. The Company appreciates customers' expectation for quality electricity supply which allows them to achieve maximum quality and efficiency in their production of goods and services as well. The Company hence attaches importance in creating values, raising electricity and steam production efficiency and constantly striving to fulfill customer satisfaction. Such is reflected by the continued improvement of machineries, equipment and production technologies; the uninterrupted production and delivery of electrical energy; knowledge and skill development of employees in charge of production and service; safety system management; and the continuous development of systems that ensure efficient, stable and safe deliveries of electrical and steam energy. Along that line, due consideration is made on possible impacts arising from the Company's electricity and steam production on the environment, community and society.

The Company aims to create utmost customer satisfaction to maintain and expand the customer base. Beyond the technological improvement, the Company has established various channels in providing customer services around the clock. The Customer Service Unit and sales representatives stationed at power plants are on hand to provide assistance and troubleshooting in no time, in addition to taking complaints and suggestions from customers.

The customer satisfaction survey is conducted annually and whose results are used for improving operations, quality and services with an aim of maintaining excellence and growing with customers. The customer relationship management encompasses customer visits, meetings and participation in relationship activities on various occasions.

The dedication towards the development of quality electric and steam power with international standards and customer responsibility in mind see the rising confidence and acceptance in the services which the Company takes pride for its contributing to the development of economic and manufacturing sectors now and beyond.



### Code of Conduct for Customer Services, Quality of Products and Marketing Communication



Maintain standards and quality of goods and services to assure customers' confidence and satisfaction.



Do not undertake any actions towards customers with discriminating manners, and keep customers' information confidentially and do not use such information for personal interest or for the benefit of others.



Be opened sincerely to customers' complaints without prejudice and resolve them in a timely manner, and in case of any restraints or time constraints, promptly provide feedback and status to customers in due course and keep them updated from time to time.



Ensure that the delivery of goods and services meets customers' requirements.



Do not demand any money, things or benefits from the customers which may represent a form of fraud.

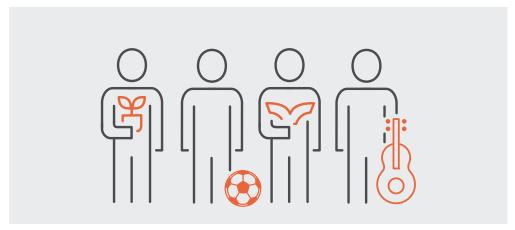


Publicize the Company's goods and services based on genuine facts which are not misleading, or contrary to morality and customary traditions, without giving rise to controversy in society.



### **Community and Social Engagement**





B.Grimm Power commit to conduct business with responsibility for economy, society, environment to all stakeholders through B.Grimm's compassionate business approach. As the Company consider the surrounding communities nearby power plants as the most important stakeholders, the Company take an active part in improving the quality of life for them in parallelly with creating shared value to people, society and planet. The Company has a guideline for working with communities and society in fostering relationship and better understanding of their opinions and expectations. Their responses are incorporated into an action plan which allows the Company to address issues straightforwardly and effectively. This is a process to ensure confidence and acceptance from the community and society in conducting sustainable business.

# Partnering in Community and Social Engagement nearby Power Plants

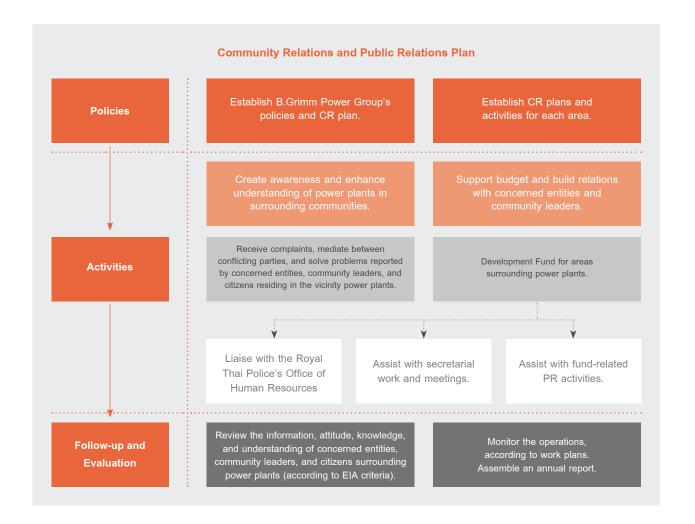
The Company has carried out Environmental Impact Assessment (EIA), Environmental Health Impact Assessment (EHIA) and public hearings in compliance with the laws. This compliance is regularly monitored and reported to follow guidelines and requirements.

In organizing public hearings, the Company has made available information concerning power plant project implementation, generation and distribution processes of electrical power involved as well as information on community relations activities which are geared towards promotion and improving the quality of life of people in the surrounding communities. Such activities see an exchange of opinions, creating a mutual understanding and taking on board suggestions for further development of power plant projects to be consistent with the context of the community and society.

Type of Power	Type of Assessment	Percentage of Power
Co-generation	Environmental Impact Assessment: EIA	100
Wind	Initial Environmental Examination: IEE	100
Solar	Code of Practice: CoP	100

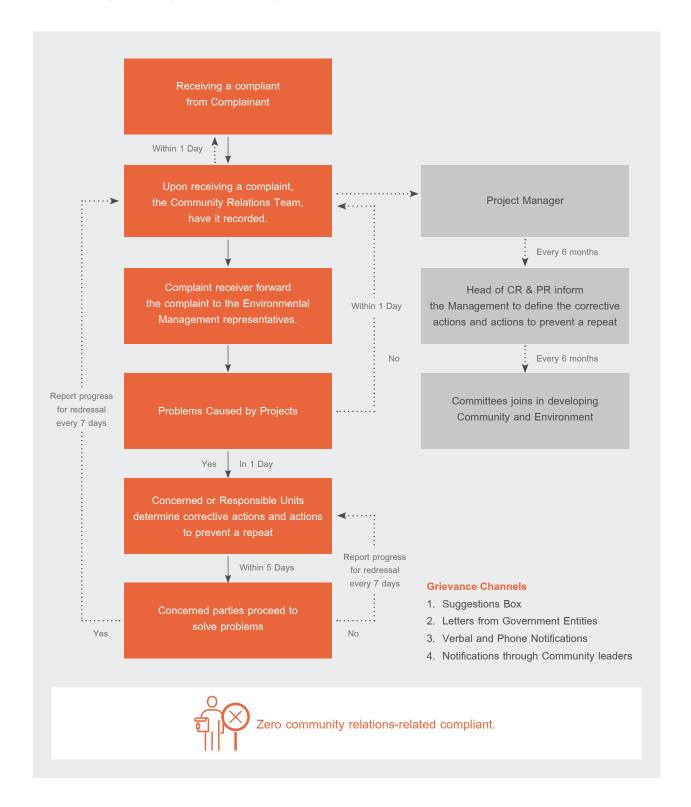
In addition, the Company's natural gas-fired power plants have made financial contribution to the community development fund to improve the quality of life and environment in the neighborhood. Such contribution is used for the purposes of career development, education, arts and culture, promotion of music and sports, public health and environment and mitigating impacts may cause by B.Grimm Power's operation, etc.

The Company has mandated the department responsible for the community relations activities and public relations to coordinate and create a good relationship between the power plants and the surrounding community right from the projects' beginning to construction and in the post-commercial startup to ensure that the community can maximize their potential in the sustainable way.



### **Complaint Receiving and Handling Process**

The Company has put in place a system for receiving complaints about community relations at each local community where the power plants are operating. Various channels for receiving complaints are established, including suggestions box, notices from government agencies, verbal and telephone notification, and through community leaders. When a complaint is made, responsible units address the problem and monitor progress and inform the Management unit for the corrective actions and actions to prevent a repeat and inform complainants of the results for their endorsement.

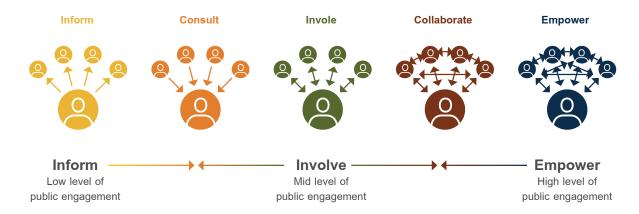


### **Community Relations Activities**

The Company conducts its business with responsibility to the community and society. There is a policy in place to support and care for the community surrounding the power plants through various activities. The Company's Community Relations framework is aligning with the Company's strategic direction and goals creating shared value with communities, promoting the quality of life of communities and society as well as fostering a good relationship between the Company and communities to ensure a happy sustainable community.

Community Relations Activities	Involved Parties
Organize the Open House of Company's Power Plant Operation	Communities, schools, educational institutions, investors, media, government and private sectors
Advocate the energy and environment conservation	Communities and schools
Provide training courses on electrical systems maintenance	Communities, schools and temples
Reforestation, restoration and conservation of natural resources	Communities, schools, educational institutions, public, government and private sectors
Electrical Learning Center	Communities, schools and educational institutions
Supporting community activities in various occasions	Communities, schools, temples and government
Support and promotion of community health	Communities, schools and educational institutions
Support and develop social enterprises for community  Community products  Community ecotourism	Communities and government
Advocate and support the H.M. King Bhumibol Adulyadej's Philosophy of Sufficiency Economy learning to communities	Communities and temples
Little Scientist's House Project and Dual Vocational Program	Schools, educational institutions, government and private sector
Support teaching and learning materials	Schools and educational institutions
Public exposure participation in science, energy, technology, environment and safety	Schools, educational institutions, communities and public
Scholarships support	Schools, educational institutions and foundations
Religions support in various occasions	Temples, Mosque and Church
Charity support	Charity agencies and foundations

The Company has divided the levels of public engagement in community relations activities to align with the United Nations' Sustainable Development Goals. The adoption of such approach will clearly show the level of public engagement and support towards sustainable development goals of various clear activities, and whether there is a need to raise the level of public engagement in certain community relations activities in the future.



### **Social Engagement Programs**

#### **Education**

Little Scientist's House Project under support by B.Grimm Power's Local Network



### The Little Scientists' House of Thailand

The initiative "Little Scientists' House" by Her Royal Highness Princess Maha Chakri Sirindhorn to follow "Haus der kleinen Forscher" model visiting in Germany during 2009. This initiative has been supported by the Thai public and private sectors with its operation scope being broadened.

The Company aims at the project's role in raising the education standard of Thai students at all levels by inspiring the self-development and learning passion for the future. The Company is one of the main supporters of the project which has covered over 22,000 sites which aim at scientific learning for children at the ages of 3 - 6 years old. Aside from funding, the Company became a main force behind the creation of Local Network which encourages the company's employees to become "scientist or engineering mentor" of teachers at schools located in the power plants' neighborhood in Chon Buri, Rayong and Pathum Thani. The Company's engagement of the Little Scientists' House project over the past eight years has resulted in improved science teaching at the school's network.





As of 2018, a total of 135 schools of the Local Network have benefitted from the support extended by the Company. The 2007 academic year saw 34 schools in B.Grimm's network passing an evaluation and received royal recognition. Pupils from the network were chosen as a role model in learning through logical thinking and questionings through the "Little Scientist's House" TV program aired on the Thai PBS channel

### • Dual Vocational Education Program

The Company has focused on promoting dual vocational education systems since 2011 and continued to strive to expand such cooperation in promoting education together with Chitlada School (Vocational), German-Thai Dual Excellence Education (GTDEE), Electrical Engineering Technician Development Project (V-EsEPC) in collaboration with Map Ta Phut Technical College, Private Power Producer Association and colleges located in the areas around the power plants, namely Ban Khai Technical College in Rayong, and Chon Buri Technical College in Chon Buri.

In 2018, the Company, through Amata B.Grimm Power, Rayong, has joined with the Private Power Producer Association to produce three students at the Diploma of Higher Education (Diploma) in the field of electrical control under the Vocational Electrical System Engineering (V-EsEPC) project at the Map Ta Phut Technical College which has been a prototype of lifelong learning. This prototype project focuses on creativity and learning with wisdom, or constructionism, on the basis of desirable characteristics in three dimensions - knowledge, work skills, and good attitudes/behaviors. This theoretical study is alternated with apprenticeship at the Company in three phases. Phase 1 course starts with "Getting to know the power plant" with one-month duration; Phase 2 calls for "putting theory into practice" with 2-month duration;

and Phase 3 is related to "finding solution", a 5-month learning to develop thinking skills and learning through projects and design a learning plan between teachers of colleges and power plant trainers. Covered in this undertaking are elements like corporate culture, occupational health and environmental management, various safety standards, machinery/equipment and power plant operating systems, and knowledge and technical skills in maintenance.

The Company has concluded a formal cooperation with Chitlada School (Vocational) in developing dual vocational students in the Advanced Vocational Certificate (Diploma) Program in Electrical Power for six students. The German-Thai Dual Excellence Education (GTDEE) is collaborating with this development with those students learn a trade. B.Grimm Power WHA Power Plant, B.Grimm Power Laem Chabang Power Plant in Chon Buri and B.Grimm Power BIP Power Plant in Pathum Thani. This apprenticeship is on top of scholarships, learning promotion equipment and school buildings for students of Chitlada Institute of Technology which B.Grimm Power Group has extended to enhance studies in vocational certificate level and expand industrial studies.

## What have you learned from B.Grimm's dual vocational education program?

"I saw the actual work, gaining more experience than studying in the classroom. Those brothers taught me to think further by asking questions. If there is something in doubt, go to study first and then come to exchange thoughts. I have got training in operation and maintenance. At the actual work site, they explain duties, working principle of the Shutdown cycle. There is a chance for me to see the internal structure of each machine in the working atmosphere that is very warm. Those brothers are very warm and very friendly to me, even though they are in the executive positions. I feel very good."

Withan Jampa-on

Student, Map Ta Phut Technical College, Vocational Electrical System Engineering (V-EsEPC) Project

### Why choose the vocational training at B.Grimm Power?

"I am interested in the process and method of production. I want to know how the combined thermal power plants that use steam to generate electricity work. It looks like a specialized system... interesting. I choose to study the dual vocational project because I want to do practice than just learning theory. I am more of a practical person. Besides, I have consulted with my mother who said the Company is good, stable and trustworthy. She would like to see me getting practical learning here."

Sira Noi-ngam Student, Chitlada School (Vocational)



The Company's Project students who passed the German-Thai Chamber of Commerce's Final Examination are

13<sub>persons</sub>

A total of

persons
dual vocational students
enrolled in the Project
during 2011 - 2018
academic years



### **Environment and Biodiversity Conservation**

### • Environmental Conservation Project

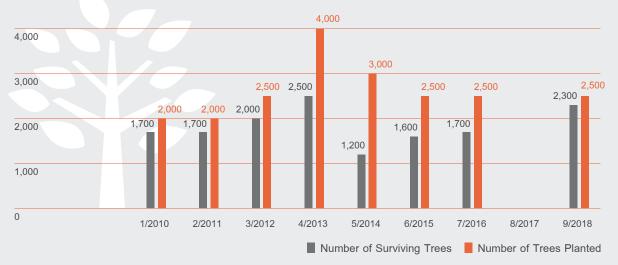
The Group places great importance on environmental conservation to follow in the footsteps of His Majesty Late King Bhumibol Adulyadej and Queen Sirikit in preserving forest areas which have rapidly dwindled by massive destruction. Since 2010, the Company has cooperated with community members and local students in our annual reforestation project in honor of the late King with the aim of restoring forests and raising environmental awareness among all participating members.

### A Sample of Forest Planting Led by Power Plants in Chon Buri

#### **Measurement of Tree Growth**

Average/Year	1/2010	2/2011	3/2012	4/2013	5/2014	6/2015	7/2016	8/2017	9/2018
Ground level	182	138	117	90	90	51	23	-	13.5
measurement (mm.)									
Truck circumference	160	83	78	66	66	42	19	-	10
measurement (mm.)									
Average height (mm.)	2,700	2,250	1,700	970	900	750	590	-	490
Number of surviving	1,700	1,700	2,000	2,500	1,200	1,600	1,700	-	2,300
trees (approximately)	85%	85%	80%	62.5%	40%	64%	68%	-	92%
Number of Trees planted	2,000	2,000	2,500	4,000	3,000	2,500	2,500	-	2,500
Total planting area (rai)	4	4	3	5	3	3	3	-	5

### Number of Trees Planted / Number of Surviving Trees



Note: In 2017, due to a drought, the Company maintain only trees fertilization

Note: About five out 30 rai targeted for tree planting have seen 21,000 trees being planted with about 14,700 trees being classified as surviving trees, representing 70% of all trees already planted. A fire that occurred in the tree planting area in 2015 has lowered the tree growth rate than other plots where plant replacement was not carried out due to drought and continuous water shortage.

In 2018, the Company has promoted the tree planting campaign to all power plants in order to add green space for the country not only in the power plants' vicinity but participation in tree planting activities with various organization.

B.Grimm Power has so far planted trees over a total area of

467,672.21 sq.m.

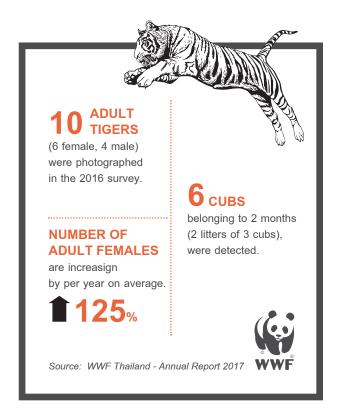
or equivalent

292.28 Rai

Note: The tree planting areas covered by power plant projects are 229,167.29 sq.m. (143.22 rai). The tree planting areas responsible by external organizations with the participation of the Group's employees spanned over 238,504.92 sq.m. (149.06 rai).



### • Tiger Conservation Project



The world's tiger population in the past century has plunged by over 97% due mainly to hunting, the decline of tiger's food chains, and the deforestation, etc. The issue affects the lack of balance and integrity of the forest. Thailand is one of the 13 countries in the world that still have Indochina tigers living in the forests. The current total number of tigers in Thailand is estimated at not more than 200. The Mae Wong-Khlong Lan forest area is a forest in Thailand that is important to the conservation of the world's tigers. The area is dubbed "Forest of Hope" because it is one of best breeding ground of tigers in Thailand.

B.Grimm is an active supporter of tiger conservation as part of overall natural resources and environment preservation. The Company's support in this course is made through the Tiger Rehabilitation Project spearheaded by the WWF-Thailand. For five consecutive years, the Company has helped driving the campaign to raise tiger population in the western forest of Thailand to 300 by the year 2022, in line with Thailand's pledge given at the Tiger Conservation Summit in Russia in 2010 in protecting tiger's habitat from poaching and encroachment.

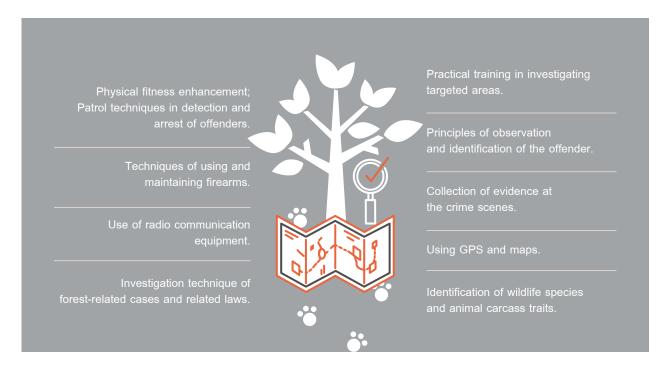


Having tigers in the forest is an indicator on how abundant is the forest of Thailand, due to the fact that tiger is the highest living wildlife in the food chain which maintains the balance of the forest, controlling the population of herbivores such as barking deer, deer, wild boar and gaur whose growing numbers may lead to depletion of forest's resources. Any forests with tiger's presence mean that there is a variety of wild animals and has abundant forests that help to purify the air.

B.Grimm Power's supports in the tiger conservation campaign include:

1) Study, research and survey of tiger and other wildlife populations such as "patch" occupancy of tigers, monitoring tiger population using camera trap technique, survey of prey density by distance sampling method.

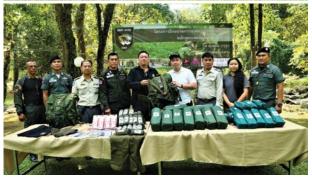




2) Enhancing the efficiency of patrol with the Smart Patrol application to improve the efficiency of protection areas. The campaign has advocated Mae Wong National Park and Khlong Lan National Park to adopt the Smart Patrol system to take advantage of modern technology in systematically gathering information derived from each patrol like as wildlife sightings, discovery of threat factors and misconduct which can be analyzed by a specialized program to see how effective the patrolling work is. However, the effectiveness of patrols lies on patrol officers who needed to be trained for skills in data collection and equipment usage, along with expertise in other fields as follows:

In addition to enhancing the efficiency of patrol officers, the Tiger Population Rehabilitation Project also supports food supplies and equipment needed to perform the tasks including camouflage suits, field backpacks, mosquito nets, rainwear, flashlights, batteries, shoes, water purifiers, medicines, development of laboratory and patrol operation center, radio communication system, construction of a checkpoint at Mae Wong National Park area which has an abundance of ecosystems and wildlife, scholarships for children of officers, health insurance coverage for all staff.







3) Creating awareness and network for tiger and wildlife conservation. This mission focuses on students and communities nearby the conservation areas through learning process, conservation curriculums and activities with communities and schools. These are meant to create the right conservation knowledge and having a strong network to help monitor the threats that occur to natural resources in areas.

The Company has joined force WWF-Thailand in the public relation campaign under the theme of "Save tigers, save so much more" or "Tiger conservation is for more than what you think" on the World Wildlife Day. At the discussion held in conjunction of the event, Khunying Thipawadee Meksawan, Advisor to B.Grimm, spoke about the Company's roles and values in supporting the campaign. Sharing experience by tiger-loving people at the dialogue were Dr. Saksin Simcharoen, tiger researcher from the National Park Department. This event has attracted a lot of attention from public at large.



### **Additional Social Engagement Project**

### Assistance to Victims of the Xe-Pian Xe-Namnoy Dam Collapse in Laos

The earth-filled Saddle Dam D, part of a larger Xe-Pian Xe-Namnoy hydroelectric power project in Laos' Attapeu Province, collapsed in July 2018 as continued heavy rain cracked the dam. The collapse caused massive flash flooding that inundated the nearby areas, rendering people homeless and leaving behind extensive destruction.

As a player in Laos' power industry, B.Grimm was gravely concerned about the disaster and moved to help the victims by donating 1,058,000 baht in cash, supplying seven boats with engines and life jackets worth over 2 million baht to support the rescue operation. B.Grimm Power executives and employees also physically took part in the assistant mission.







### **About This Report**

B.Grimm Power Public Company Limited publishes its Sustainability Report for the second year to disclose the management approaches and achievement in 2018.

The report covers the economic, social, environmental and good corporate governance spectrums of our sustainability activities between January 1 and December 31, 2018. This report has been written in "the Core", disclosure guidelines and the disclosure framework aligned with the Electric Utilities Supplement Sector from the Global Reporting Initiative Standards (GRI Standards).

The report aligned with the United Nations' Sustainable Development Goals in presenting the sustainability performance to stakeholders.

### **Reporting Boundaries**

The disclosure of information in this report covers only the Company's domestic power plant business units and headquarters in Thailand due to the constraints in data collection. However, to achieve completeness and clarity of content, the Company is preparing to improve the data collection system to make the reporting more complete with greater clarity to match the Global Reporting Initiative Standards.

### **Report Quality Control**

The content of this report has been reviewed for completeness and covers important issues involving the Company and stakeholders. The data contained in this report has been checked for accuracy by the Sustainability Working Team and the data owner. The top management has considered and approved the information disclosed in this report.

For further information or inquiries, please contact:
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Tel.:+66 (0) 2710 3126, E-mail: sustainability@bgrimmpower.com

## **Sustainability Statistics**

### **Economic Aspects**

Economic Preference	Fiscal Year 2017	Fiscal Year 2018
	Amount (Baht)	Amount (Baht)
Direct Economic Value Generated		
Revenues	29,537,520,346	35,020,914,918
Direct Economic Value Distributed		
Operating costs	22,839,002,896	27,717,049,588
Employee wages and benefits	962,628,476	1,177,122,399
Payments to providers of capital	2,130,453,990	3,985,731,890
Payments to government	262,539,804	242,681,127
Community investments	217,388,029	227,046,372
Economic value retained	3,125,507,151	1,671,283,542

### **Social Aspects**

### Table Showing the Number of Employees as of December 31, 2018

Details of Staffs and Employees	2	.017	2	018
	Number	Percentage	Number	Percentage
Total number of staff and employees				
Employees	716	100	773	100
Total	716	100	773	100
Total number of staff and employees classified by genders				
Male	505	71	537	69
Female	211	29	236	31
Total	716	100	773	100
Total number of staff and employees classified by age				
Below 30 years old	200	28	175	23
30 to 50 years old	471	66	539	70
More than 50 years old	45	6	59	7
Total	716	100	733	100

### Total Number of New Staff and Employees (Fiscal Year 2015 to 2018)

Details of Staffs and Employees	2	015	2	016	2	017	2	018
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Total number of <u>new</u> staffs and em	ployees							
Employees	93	100	109	100	126	100	90	100
Total	93	100	109	100	126	100	90	100
Total number of <u>new</u> staffs and em	ployees, c	lassified by g	ender					
Male	68	73	75	69	86	68	56	62
Female	25	27	34	31	40	32	34	38
Total	93	100	109	100	126	100	90	100
Total number of <u>new</u> staffs and em	ployees, c	lassified by a	ge					
Below 30 years old	43	46	52	48	53	42	37	41
30 to 50 years old	48	52	55	50	71	56	49	55
More than 50 years old	2	2	2	2	2	2	4	4
Total	93	100	109	100	126	100	90	100

### Total Number of Resigned Staffs and Employees (Fiscal Year 2015 to 2018)

Details of Staffs and Employees	2	015	2	016	2	017	2	018
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Total number of <u>resigned</u> staffs and	d employee	es						
Employees	40	100	47	100	39	100	30	100
Total	40	100	47	100	39	100	30	100
Total number of <u>resigned</u> staffs and	d employee	es, classified	by gender					
Male	30	75	28	60	30	77	17	57
Female	10	25	19	40	9	23	13	43
Total	40	100	47	100	39	100	30	100
Total number of resigned staffs and	d employee	es, classified	by age					
Below 30 years old	13	33	10	21	14	36	12	40
30 to 50 years old	25	63	32	68	22	56	17	57
More than 50 years old	2	4	5	11	3	8	1	3
Total	40	100	47	100	39	100	30	100

Employee Diversity	Com	nmittee		or Vice dent up	Assist	er – First ant Vice sident		Assistant nager
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Gender								
Male	5	56	23	80	188	71	326	68
Female	4	44	6	20	78	29	152	32
Age								
Below 30 years old	-	-	-	-	4	1	171	36
30 to 50 years old	1	11	11	38	234	88	294	62
More than 50 years old	8	89	18	72	28	11	13	2
Education								
Master's degree	7	78	22	76	79	30	39	8
Bachelor's degree	2	22	6	21	160	60	274	58
Diploma	-	-	-	-	24	9	136	28
Other	-	-	1	3	3	1	29	6

# Number of Employees that Used Maternity Leave and the Number of Employees that Returned to Work after Using Maternity Leave

Details of Staffs and Employees	2015	2016	2017	2018
	Number	Number	Number	Number
Number of staffs and employees with maternity leave				
Male	35	40	41	376
Female	134	170	204	233
Total	169	210	245	609
Number of staffs and employees that used maternity leave				
Male	1	3	2	-
Female	7	6	1	4
Total	8	9	3	4
Number of staffs and employees that returned to work after using maternity	leave			
Male	1	3	2	-
Female	7	6	1	2
Total	8	9	3	2
Number of staffs and employees that returned to work after using maternity	leave for 12 mor	nths		
Male	1	3	2	-
Female	7	5	1	-
Total	8	8	3	-

Details of Staffs and Employees	2015	2016	2017	2018
	Number	Number	Number	Number
<sup>1</sup> Return to Work Rate (Percentage)				
Male	100	100	100	-
Female	100	100	100	100
<sup>2</sup> Retention Rate (Percentage)				
Male	100	100	100	-
Female	100	83.3	100	-

- Note: 1 Return to Work Rate = (number of employees returning to work after the end of maternity leave / number of employees by gender that has exercised maternity leave) x 100
  - 2 Retention Rate = (number of employees who come back to work after the end of maternity leave and still working after returning from exercising maternity leave for 12 months / Number of employees returning to work after the leave period ended in the previous report) x 100

### **Average Number of Hours in Employees Training**

Program	2017	2018
All Training Courses		
Number of training hours	52,485	56,305
Average number of training hours (hours/person/year)	75	73
Average number of training hours, classified by employee level* (hours/person/year)		
Senior Vice President up	23	21
Manager – First Vice President	34	36
Staff – Assistant Manager	22	56
Average number of training hours, classified by sex* (hours/person/year)		
Male	22	51
Female	46	40

<sup>\*</sup> Calculated from the training hours of employees under B.Grimm Power and all power plants (namely ABP, BGP, BGPS, ABP1-5, ABPR1-5, BGBIP1-2, BPWHA1, BPLC, BGSPS1 and BGYSP)

### Statistics of Accidents from the Works of Staff and Employees in 2015 - 2018

Information on Staff and Employees Who Suffer Work-related Accidents		(Frequer	ncy/year)	
	2015	2016	2017	2018
Total number of staff and employees who suffer from work-related accidents	-	-	1	-
Number of staff and employees who suffer from work-related accidents classified	d by gender			
Male	-	-	1	-
Female	-	-	-	-
Number of employees who suffer from performing duties classified by case				
Injured and treated	-	-	1	-
Dead	-	-	-	-

# **Environment Aspects**

Project   Charles   Project   Project   Charles   Project   Charles   Project   Charles   Project   Proj	No Project	Company	Water Ma	Water Management	Wastewater	Wastewater Management	Water Reuse Cycle	ıse Cycle		Wa	Wastewater Quality (Annual average)	. Quality	(Annua	average	٠	
Amata B.Girimn Amata Water 1,319,526.00 IEAT 303,583.00 4 2,3960.00 31 67 73 67 172 5.5 67 100 100 100 100 100 100 100 100 100 10			Water sources	Consumption	Wastewater	Effluent volume	Cooling system's water reuse cycles	Water reuse cycle (cubic meter/	Temp (°C)	Ħ		(mg/l)	TSS (mg/l)		Oil & Grease ( (mg/l)	Free Chorine (mg/l)
Amata B.Grimm Amata Water 1,852,868.00 IEAT 303,683.00 4 23,960.00 73 72 3.2 -7 16 2,535 ND Power (Rayong) 1.Co., Ltd.  Amata B.Grimm Amata Water 1,1852,808.00 IEAT 203,968.00 1EAT 203,968.0							(Cycle)	year) / watering				Standard	i value			
Amata B.Grimm Amata Water 1,382,886.00 IEAT 303,583.00 4 23,960.00 35 72 32 - 16 2,635 ND Power 1 Co., Ltd.  Amata B.Grimm Amata Water 1,062,191.70 IEAT 203,726.30 5 54,789.00 31.8 7.76 <2 53.1 <5 2,348 S								plants	40 °C	5.5 – 9.0 pH			<50 (mg/l)		<5 (mg/l)	<1 (mg/l)
Amate B.Grimm         Amate Water CoLtd.         Amate Water (LocLtd.)         1.682,868.00   EAT         486,822.00         3         7.23,960.00         36         7.2         3.2         7.2         1.6         2.639.00         ND           Power 1 CoLtd.         Amate B.Grimm         Amate Water (LocLtd.)         Amate Water (LocLtd.)         1.319,525.00         EAT         283,905.00         4         9,596.00         31.89         7.40         8.49         94.56         11.22         2,150         ND           Amate B.Grimm         Ama	1 Head Office	Amata B.Grimm Power (Head Office)														
Amata B.Grimm Am	2 Co-generation	Amata B.Grimm Power 1 Co., Ltd.	Amata Water	1,852,858.00	IEAT	303,583.00	4	23,950.00	35	7.2	3.2	,	16	2,635	Q.	0.3
Amata B.Grimm Am	3 Amata B.Grimm Power , Project (Extension)	2 Amata B.Grimm Power 2 Co., Ltd.	Amata Water	1,698,046.00	IEAT	486,822.00	ო	23,950.00	39	7.4	9	,	35	1,970	Ω	0.3
Amata B.Grimm         Amata Water         1,014,911.50         IEAT         202,982.30         5         54,789.00         7.3         6.7         125         8         2,710         ND           Power 4 Co., Ltd.         Amata B.Grimm         Amata Water         1,018,631.50         IEAT         203,726.30         5         54,789.00         30         7.3         6.2         122         7         2,815         ND           Power 5 Co., Ltd.         Amata B.Grimm         Amata Water         1,062,191.70         IEAT         211,200.00         5         2,348.00         31.16         7.3         62         53.1         65         2,348         63           Power (Rayong) 1 Co., Ltd.         Ltd.         211,200.00         5         2,348.00         31.3         7.76         62         53.1         65         2,348         63         7.8         62         7.6         2,090         7.9         7.0         62         7.0         7.	4 Electricity and steam production project for industry	Amata B.Grimm Power 3 Co., Ltd.	Amata Water	1,319,525.00	IEAT	263,905.00	4	9,598.00	31.89	7.40	8.49		11.22	2,150	3.5	0.17
Amata B.Grimm  Amata Water  Amata Water  Amata Water  Amata B.Grimm  Amata Water  Amata B.Grimm  Amata Water	5 Don Hua Lo 1 Natural Gas-Fired Power Project	Amata B.Grimm Power 4 Co., Ltd.	Amata Water	1,014,911.50	IEAT	202,982.30	ડ	54,789.00	30	7.3	6.7	125	∞	2,710	2	0.1
Amata B.Grimm Amata Water 1,062,191.70 IEAT 211,200.00 5 2,348.00 31.16 7.38 <2 53.1 <5 2,348 <3 Power (Rayong) 1 Co., Ltd.  Amata B.Grimm Amata Water 1,062,191.70 IEAT 211,200.00 5 2,348.00 31.3 7.76 <2 48.5 7.6 2,090 <3 Power (Rayong) 2 Co., Ltd.	6 Don Hua Lo 2 Natural Gas-Fired Power Project	Amata B.Grimm Power 5 Co., Ltd.	Amata Water	1,018,631.50	IEAT	203,726.30	ર	54,789.00	30	7.3	6.2	122	7	2,815	Q Q	0.2
Amata B.Grimm Amata Water 1,062,191.70 IEAT 211,200.00 5 2,348.00 31.3 7.76 <2 48.5 7.6 2,090 <3 Power (Rayong) 2 Co., Ltd.	7 Power Plant Project for Industry (Extension)	Amata B.Grimm Power (Rayong) 1 Co., Ltd.	Amata Water		IEAT	211,200.00	S	2,348.00	31.16	7.38	2	53.1	75	2,348	Ϋ́	0.1
	8 Power Plant Project for Pluak Daeng Industry (Extension)		Amata Water	1,062,191.70	IEAT	211,200.00	ಬ	2,348.00	31.3	7.76	2	48.5	7.6	2,090	ő	0.1

No Project	Company	Water Managem	nagement	Wastewater Management	Management	Water Reuse Cycle	ise Cycle		×	astewate	Wastewater Quality (Annual average)	(Annua	al averag	(e)	
		Water sources	Consumption	Wastewater	Effluent volume	Cooling system's water reuse cycles	Water reuse cycle (cubic meter/	Temp (°C)	Нd	BOD (mg/l)	(mg/l)	TSS (mg/l)	TDS (mg/l)	Oil & Grease ( (mg/l)	Free Chorine (mg/l)
						(Cycle)	year) / watering				Standard value	d value			
							plants	40 °C	5.5 – 9.0 pH	<20 (mg/l)	<120 (mg/l)	<50 (mg/l)	<3,000 (mg/l)	<5 (mg/l)	<1 (mg/l)
9 Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 3 Co., Ltd.	Amata Water	1,673,731.00	IEAT	86,602.40	4	1	31	7.7	24	106	4	1,252	γ	0.1
10 Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 4 Co., Ltd.	Amata Water		IEAT		4	ı	30	7.4	& &	09	O	2,085	<sub>δ</sub>	0.1
11 Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 5 Co., Ltd.	Amata Water	153,071.00	Amata City Industrial Estate	30,614.20	3.55	1	32.6	7.55	1	1	O	1,965	ю	0.21
12 Natural gas-fired power plant project	B.Grimm Power (WHA) 1 Co., Ltd.	WHA	1,195,556.00	IEAT	225,693.95	S	1	27.92	7.28	2.08	26.08	7.25	7.25 794.25	8	0.1
13 Bangkadi Combined Cycle Power Plant Project	B.Grimm BIP Power 1 Co., Ltd.	Purchase from Bangkadi Industrial Estate	1,031,472.05	Delivery to Bangkadi Industrial Estate	109,317.70	۲	2,373.00	29.76	7.88	2.4	47.6	4.71	1,791	<b>^</b> 5	0.055
14 Bangkadi 2 Natural Gas-Fired Power Plant Project	B.Grimm BIP Power 2 Co., Ltd.	Purchase from Bangkadi Industrial Estate	1,051,147.00	Delivery to Bangkadi Industrial Estate	106,685.90	٢	1,825.00	30	7.96	2.	49.5	12.44	1,782	<b>^</b>	0.043
15 Laem Chabang Power Plant Project	B.Grimm Power (Laem Chabang) 1 Limited	IEAT/GUSCO Industrial water	1,201,798.00	IEAT/GUSCO waste water treatment plant	498,274.54	_	127,409.00	30	_	2.35	49	7.5	922	0	227.5
16 The 60-MW power plant construction project	B.Grimm Power (Laem Chabang) 2 Limited	IEAT/GUSCO Industrial water	771,192.00	IEAT/GUSCO waste water treatment plant		10									

2	o Project	Company	Ambient A	ir Quality Mon	Ambient Air Quality Monitoring Results Parameter	Parameter
				(mdd)	(ppm) / STD.	
			NO <sub>x</sub> (mdd)	SO <sub>x</sub> (mdd)	TSP (mg/m³)	CO (mdd)
_	Head Office	Amata B.Grimm Power (Head Office)				
2	2 Co-generation	Amata B.Grimm Power 1 Co., Ltd.	49	× 5.1.3	3.6	3.4
က	3 Amata B.Grimm Power 2 Project (Extension)	Amata B.Grimm Power 2 Co., Ltd.	41	<1.3	9.1	တ
4	Electricity and steam production projects for industry	Amata B.Grimm Power 3 Co., Ltd.	24.43	0.02	1.05	3.33
5	5 Don Hua Lo 1 Natural Gas-Fired Power Project	Amata B.Grimm Power 4 Co., Ltd.	26.1	<1.3	2.6	3.4
9	3 Don Hua Lo 2 Natural Gas-Fired Power Project	Amata B.Grimm Power 5 Co., Ltd.	29.9	<1.3	2.3	3.7
7	Power Plant Project for Industry (Extension)	Amata B.Grimm Power (Rayong) 1 Co., Ltd.	25.9	1.2	1.6	_
∞	3 Power Plant Project for Pluak Daeng Industry (Extension)	Amata B.Grimm Power (Rayong) 2 Co., Ltd.	19.58	-	1.1	_
0	Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 3 Co., Ltd.	14.5	<0.5	<0.5	AN
10	Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 4 Co., Ltd.	34	<0.5	6.0	ΑN
	Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 5 Co., Ltd.	36.75	9.0	<0.5	
12	2 Natural gas-fired power plant project	B.Grimm Power (WHA) 1 Co., Ltd.	28.64	1.19	0.03	12.61
13	3 Bangkadi Combined Cycle Power Plant Project	B.Grimm BIP Power 1 Co., Ltd.	22.47	0.02	1.42	124.52
14	l Bangkadi 2 Natural Gas-Fired Power Plant Project	B.Grimm BIP Power 2 Co., Ltd.	30.32	0.02	8.25	86.2
15	5 Laem Chabang Power Plant Project	B.Grimm Power (Laem Chabang) 1 Limited	56.35	A/N	3.675	7.375
16	3 The 60-MW power plant construction project	B.Grimm Power (Laem Chabang) 2 Limited	23.1	N/A	A/N	N/A

Total Reuse Landfill Dis-Sall/ Total Reuse Landfill Dis-Sall/ (kg.) (k	No Project	Company									Wa	Waste Management	agement									
Amata B.Grimm  Amata				Gen	eral Was	ite		_	Von-haz	ardous V	Vaste			Hazarı	dous Wa	ıste			S	Sludge		
Amata B.Grimm  16,244  Amata B.Grim			Total (kg.)	Reuse I (kg.)					Reuse L (kg.)		Dis- posal R (kg.)			Reuse L (kg.)		Dis- posal R (kg.)	Sell/ T Recycle ( (kg.)	Total R (kg.) (	Reuse Landfill (kg.) (kg.)		Dis- posal F (kg.)	Sell/ Recycle (kg.)
Amata B Grimm 22,066 - 17,490 2,766 2,690 - 2,690 - 17,403 - 2  A mata B Grimm 22,065 - 17,490 4,575 4,120 - 2,631 - 1,259 11,863 - 1,103  A mata B Grimm 7,900 - 7,900 - 3,790 - 2,631 - 1,259 11,863 - 1,103  On Power 3 Co., Ltd.  A mata B Grimm 16,244 - 7,950 427 2,720 - 2,720 - 2,720 - 2,770 6,770 6,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 6,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,720 - 2,720 - 2,770 7,950 427 2,720 - 2,930 - 4,960 7,950 427 2,720 - 2,930 - 4,960 7,950 427 2,720 - 2,930 - 4,960 7,950 427 2,720 - 2,930 - 4,960 7,950 427 2,720 - 2,930 - 4,960 7,950 427 2,930 - 4,960 7,950 427 2,930 - 4,960 7,950 427 2,930 - 4,960 7,950 427 2,930 7,950	1 Head Office	Amata B.Grimm Power (Head Office)																				
n Amata B.Grimm 7,900 - 7,750 1,593 2,150 - 2,153 1 - 1,259 11,853 - 1,103  on Power 3 Co., Ltd.  Amata B.Grimm 9,343 - 7,750 1,593 2,150 - 2,150 - 2,150 - 2,770 - 1,103  Amata B.Grimm 16,244 - 7,150 3,084 2,930 - 2,150 - 2,150 - 2,170 1,103  Power (Rayong) 1  Co., Ltd.  od Amata B.Grimm 15,329 - 13,160 2,169 8,347 - 8,347 - 4,140 1,293 - 4,000 1,103  od Amata B.Grimm 15,324 7,140 - 2,14 293 - 2,93 - 2,93 - 4,03 1,103  od Amata B.Grimm 15,324 7,140 - 2,14 293 - 2,93 - 2,93 - 2,93 - 2,93 - 1,90 1,904  od Amata B.Grimm 14,708 7,354 7,140 - 2,14 293 - 2,93 - 2,93 - 2,93 - 2,93 2,93 2,93 2,93 - 2,93 - 2,93		Amata B.Grimm Power 1 Co., Ltd.	20,256			17,490	2,766	2,690			2,690		17,403			17,403	ı	1				
on Power 3 Co., Ltd.  Amata B.Grimm			22,065		1	17,490	4,575	4,120			4,120		23,449			23,449	1		1		1	
red         Power 4 Co., Ltd.           Amata B.Grimm         8,377         -         7,750         1,593         2,150         -         2,770         -         <	4 Electricity and steam producti projects for ind		7,900			7,900	'	3,790		2,531			11,853		1,103	1,106	9,644 318,705	18,705	1	,	318,705	
red Power 5 Co., Ltd.  Power Rayong) 2 A mata B.Grimm  Go., Ltd.  A mata B.			9,343			7,750	1,593	2,150			2,150		2,710			2,170	600 349,500	19,500	1	1	1	349,500
Power Plant Project         Amata B.Grimm         16,244         -         -         13,160         3,084         2,930         -         2,930         -         4,600         -	6 Don Hua Lo 2 Natural Gas-Fii Power Project		8,377			7,950	427	2,720			2,720		2,770			2,170	600 415,145	15,145	1		1	415,145
Power Plant Project         Amata B.Grimm         15,329         -         -         13,160         2,169         8,347         -         -         4,140         -			16,244		1	13,160	3,084	2,930			2,930		4,600			3,400	1,200		ı	1	ı	
Amata B.Grimm 14,708 7,354 7,140 - 214 293 293 - 403 - ct Power (Rayong) 3			15,329			13,160	2,169	8,347			8,347		4,140			1,740	2,400 227,320	27,320	ı		1	227,320
	9 Natural gas-fire power plant pro	ಕ	14,708				214	293			293		403			403		- 186,923	1			186,923

No Project	Company									>	Waste Management	nagemen	ايا								
			Gel	General Waste	aste			Non-ha	Non-hazardous Waste	Waste			Hazar	Hazardous Waste	ste				Sludge		
		Total (kg.)	Reuse (kg.)	Reuse Landfill (kg.) (kg.)	Dis- posal (kg.)	Sell/ Recycle (kg.)	Total (kg.)	Reuse (kg.)	Reuse Landfill (kg.) (kg.)	Dis- posal   (kg.)	Dis- Sell/ posal Recycle (kg.) (kg.)	Total (kg.)	Reuse Landfill (kg.) (kg.)		Dis- posal R (kg.)	Sell/ Recycle (kg.)	Total F (kg.)	Reuse Landfill (kg.) (kg.)		Dis- posal R (kg.)	Sell/ Recycle (kg.)
10 Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 4 Co., Ltd.	,		,																	
11 Natural gas-fired power plant project	Amata B.Grimm Power (Rayong) 5 Co., Ltd.	980	-		086												11,000			11,000	
12 Natural gas-fired power plant project	B.Grimm Power (WHA) 1 Co., Ltd.	15,040	,		14,560	480	810		810			1,654			1,654	, —	176,314		,	176,314	
13 Bangkadi Combined Cycle Power Plant Project	B.Grimm BIP Power 1 Co., Ltd.	28,500	,	,	26,000	2,500	620		620			40,930		4,370	4,370 31,360	5,200					
14 Bangkadi 2 Natural Gas-Fired Power Plant Project	B.Grimm BIP Power 2 Co., Ltd.	28,500	-		26,000	2,500	4,310		4,310			49,920	,	150	150 46,770	3,000					
15 Laem Chabang Power Plant Project	B.Grimm Power (Laem Chabang) 1 Limited	3,894		3,894			17,220			17,220		9,085		1	9,085		12,205	ı	12,205	1	
16 The 60-MW power plant construction project	B.Grimm Power (Laem Chabang) 2 Limited	1					3,115			3,115	1	9,498			865	8,633		ı		1	

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### Sustainability Report 2018 Survey

### **B.Grimm Power Public Company Limited**

1.	Ple	ase specify your relationship with B.	Grimr	n Powei					
		Customer		Govern	ıment		Emp	loye	ee
		Academic/Student		Media			Com	mui	nity and Society
		Business Partner		Investo	r/Shareholder		Cred	litor	
		Other (please specify)							
_									
2.	Wh	at is your reason for your reading?							
		To understand the B.Grimm Power	's bus	siness					
		To support investment decision							
		For research and education purpos							
		To prepare your own Sustainability	Repo	ort					
3.	In y	our opinion, what are significant top	ics fo	r B.Grim	nm Power?				
		Economy (please specify)							
		Society (please specify)							
		Environment (please specify)							
4.	Ple	ase rate your satisfaction towards o	ur Su:	stainabil	ity Report.				
Completeness High Moderate Low Need Improvement								Need Improvement	
								Need Improvement	
Materiality High Moderate Low Attractive content High Moderate Low							V		Need Improvement
		Report design	Higl	า	Moderate	Lov	V		Need Improvement
		Ease to understand	Higl	า	Moderate	Lov	V		Need Improvement
		Overall satisfaction	Higl	า	Moderate	Lov	V		Need Improvement
5.	In y	our opinion, does the report cover a	ıll ma	terial top	oics?				
		Yes							
		No (If no, please specify topic(s) the	at sho	ould be i	ncluded)				
6	Dlo	ase provide other comments or sugg	nootio	no for fu	urthar improveme	ont			
0.	rie	ase provide other comments or sugg	gesilo	115 101 10	ittier improveme	3111			



### Please submit the survey by yourself or by post at the address below

Corporate Sustainability Management Department, B.Grimm Power Public Company Limited Dr. Gerhard Link Building, 5 Krungthepkreetha Road, Huamark, Bangkapi, Bangkok 10240 Tel.:+66 (0) 2710 3126 E-mail: sustainability@bgrimmpower.com





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