

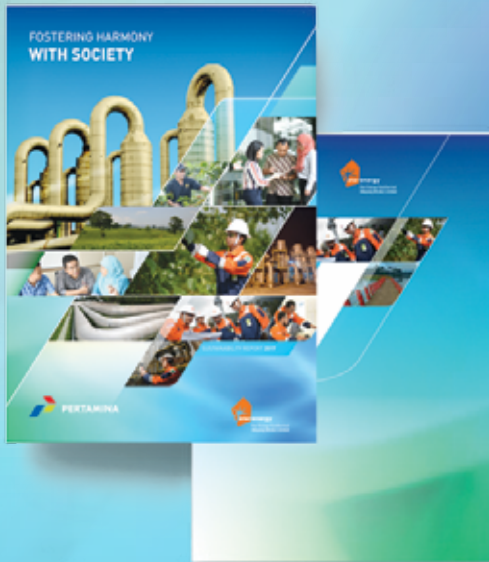
# FOSTERING HARMONY WITH SOCIETY



SUSTAINABILITY REPORT 2017







# FOSTERING HARMONY WITH SOCIETY

Star Energy Wayang Windu Ltd (SEGWWL) consistently strives for growth and we demonstrate the very same ideal in promoting community development and fostering harmony with the public. We firmly believe that a well-developed society is highly desirable for the company.

In line with this goal, we continue harmonious relationships with the public through fostering sustainable business development. In other

words, we seek to improve our profitability with due care to environmental conservation, public welfare, and SEGWWL employees. We believe that this three-pronged focus on profit, planet, and people is enabling SEGWWL to become a leading company that plays a significant role in energizing Indonesia in the present, strengthening the generations to come.



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**”** As a company that cares about the environment, SEGWWL sets strategic policies to maintain environmental sustainability and to reduce GHG emission



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Through optimal and adequate electricity supply fulfillment according to capacity, we also contribute to national economic growth.



We have a commitment in the implementation of high quality safety, occupational health, and environmental protection (K3LL).



SEGWLL views CSR programs conducted regularly as investment instead of cost.



# AWARDS AND CERTIFICATIONS

## AWARDS



1

**JULY, 14 2017**

### ZERO ACCIDENT

Zero Accident Award with 7,348,393 working hours without lost time injury from Labor Ministry.



2

**SEPTEMBER, 27 2017**

### SUBROTO AWARD

Subroto Award - ADITAMA award in Occupational Health and Safety Management under the category of Geothermal Safety.



3

**SEPTEMBER, 27 2017**

### SUBROTO AWARD

Subroto Award - ADITAMA award in Occupational Health and Safety Management under the category of Geothermal Safety.



SEPTEMBER, 27 2017

**SUBROTO AWARD**

Subroto Award - National energy efficiency for energy management in building and industry, under the category of special innovation on overall industry.

4



2017

**ECONOMICS CHALLENGE AWARD**

Economics Challenge Award - from Metro TV, under Energy category.

5



DECEMBER 2017

**PROPER AWARD**

PROPER Award (Corporate Performance Appraisal Program) Gold PROPER Award in December 2007 from Ministry of Environment and Forestry.

6



7

**DECEMBER 2017**

**SABILULUNGAN AWARD**

Sabilulungan Award for The Best Community Development Program in Bandung Regency from Bandung regent.



8

**DECEMBER 2017**

**THE ASSET TRIPLE A COUNTRY AWARD 2017**

The Asset Triple A Country Award 2017 - The Best Acquisition/Merger Financing and Acquisition.





# CERTIFICATION



1

**1 DECEMBER 2017**  
**ISO 9001:2008**  
Sertifikasi Quality  
Management  
System (QMS) ISO  
9001:2008.



2

**1 DECEMBER 2017**  
**ISO 9001:2015**  
Sertifikasi Quality  
Management  
System (QMS) ISO  
9001:2015.



# IMPORTANT EVENTS



**JANUARY**

Management Visit: SHE Observed Pipe Insulation Work in WW-S area; Inspected MB-I wells and Observed WW-A7 well testing activities.



**APRIL**

Organized Contractor SHE Management System workshop aimed at further enabling contractors in preventing work accidents during service contract activities.



**FEBRUARY**

Implementation of K3 Month, starting with Environment Talk and Awareness survey about HIV AIDS

Organized PROPER Evaluation workshop for the SEGWL PROPER team to evaluate the environmental management performance of the previous year and to design an action plan for the coming year.



**MARCH**

Fruit planting with the local inhabitants Pangalengan and Margamukti and in the surroundings of WW-S.



**MAY**

Dissemination of electronic manifests for the B3 waste management, which anticipates the application of the E-manifest for the B3 waste by the Environment Ministry.

Sampling of P2HIV assessment by Manpower Ministry in relation to the P2HIV program.



**JUNE**

Dissemination of the ADITAMA assessment (SHE Award) which was conducted by Directorate-General of New Renewable Energy and Energy Conservation (Dirjen EBTKE)



**SEPTEMBER**

Receiving Subroto Award for SHE and efficient energy from the Ministry of Energy and Mineral Resources.



**JULY**

Receiving "PLATINUM" Award of P2HIV and "GOLD-FLAG" OHSMS award from the Ministry of Manpower.



**OKTOBER**

Certificate Renewal ISO 9001:2008 and upgrading to ISO 9001:2015.



**AUGUST**

Receiving Bandung Regent's award from the "Best Environmental Performance" category.



**NOVEMBER**

Presentation of gold candidate in the PROPER program held by the Environment and Forestry Ministry of the Republic of Indonesia.



**DESEMBER**

Receiving Gold rating PROPER from the Environment and Forestry Ministry of the Republic of Indonesia.



**RUDY SUPARMAN**

President & CEO



# REMARKS FROM THE CEO

[GRI 102-14]

OUR COMMITMENT IS TO CREATE COMPETITIVE ADVANTAGE FOR THE NATION AND OTHER STAKEHOLDERS THROUGH RENEWABLE ENERGY DEVELOPMENT ALIGNED WITH THE PHILOSOPHY OF SUSTAINABILITY.

## Esteemed Stakeholders,

Geothermal power in Indonesia is an important source of renewable energy that supports the nation's growth. It is estimated that 40% of the world's geothermal energy potential, at 28,000 megawatt (MW), is in Indonesia. Currently, Indonesia is the third largest producer of geothermal power behind the United States and the Philippines. Our vision is to help enable Indonesia to become the world's largest producer of geothermal power by 2021. Star Energy Geothermal Wayang Windu Ltd. (SEGWWL) is rightly proud to supply electricity generated from geothermal energy to parts of Java, Madura, and Bali.

## IN HARMONY WITH SUSTAINABLE DEVELOPMENT

Since SEGWWL's inception, we have demonstrated the commitment to grow sustainably: balancing profit, people, and planet in harmony. We understand the importance

of today's profit without unbalancing tomorrow's generation. As such, every level in SEGWWL has prepared strategic plans to align the company's process with sustainable development goals.

## IN HARMONY WITH NATIONAL DEVELOPMENT

As a company, SEGWWL continues to focus its goals and resources to create a competitive edge for the nation and for our stakeholders. Producing 1,912,594 MWh in 2017, SEGWWL transmitted approximately 1,912 GWh to the Java-Madura-Bali grid – Indonesia's largest. In addition, our tax payment contributed Rp714,336,153,757 to state revenue. We strive to support the local economy by recruiting local residents and appointing local partners when procuring goods and services.



## IN HARMONY WITH THE ENVIRONMENT

Unlike other industries, geothermal energy is a renewable and environmentally friendly source of energy precisely because its generation does not burn fossil fuels, minimizing greenhouse gas (GHG) emissions. We are always looking to reduce environmental impacts from our operations. In 2017, we cut GHG emissions by 5.64% and saved 136.43 GWh.

Accordingly, our efforts in environmental conservation are demonstrated by the PROPER Gold rating awarded by the Government of Indonesia. The rating is proof of our commitment towards environmental conservation.

## IN HARMONY WITH SOCIETY

It is our belief that the public is our partner in building a lasting company. As such, we see Corporate Social Responsibility (CSR) programs as an investment to grow the community and the company together. Our CSR programs are focused on four categories: education, economic development, public health, and infrastructure development. Ultimately, our CSR programs are aimed to improve the Human Development Index of Pengalengan, our area of operation.

In 2017, we are eradicating illiteracy in six villages thanks to innovative literacy programs, such as community radios, and literacy programs for mother and child. Additional support for the literacy programs are the Pabukon Saba Desa (public reading garden), Village Public Library - winner of the national library competition, and Kejar Paket A and B (Peer Group A and B), both of which are part of the Rumah Pintar. We also award scholarships from primary school all the way to university. As of 2017, we have awarded scholarships to 1,509 recipients.

SEGWWL's economic development programs focus on building grassroots economy, among others by providing business assistance, entrepreneurship training, job creation through the Koperasi Nurkayana, Economic Cooperatives Group (KUBE, Kelompok Usaha Bersama Ekonomi), tourism development, and upstream and downstream coffee cultivation. This latter initiative resulted in the establishment of Ambeu Coffee Preanger, a coffee farming association, whose goals include raising coffee farmers' standard of living, effective environmental management, and expanding coffee products.

In terms of health, we have ensured that healthcare is accessible to remote areas by building maternal centers (posyandu) and public toilets. As well, we are helping to strengthen communities in part by improving communal sports facilities and clean water facilities, and establishing a Disaster Resilient Community (MTB, Masyarakat Tangguh Bencana) in Pangalengan. We invite the involvement of the whole local community, e.g. regional government, village administration, Karang Taruna (Youth Association), when preparing such projects so that our CSR programs are on-point and on-target.

We also place great concern in infrastructure development as it buttresses local economic growth. In partnership with local governments and the public, we have repaired roads, bridges, village halls, and built houses for victims of the Cibitung landslide.



## LOOKING FORWARD

Looking forward, we plan to continue growing the company by increasing production output and acquiring geothermal power companies. Indonesia's geothermal power potential is approximately 29,215 GWe. By tapping into this massive potential, we can bring out our commitment to provide more power to drive the nation's economic growth.

We are striving towards our vision of becoming a geothermal power company that provides environmentally friendly electricity by playing an active role in sustainable development in Indonesia. I invite you,

dear readers, to get to know SEGWWL more and learn of our work in sustainable development from the pages of this Sustainability Report.

It should go without saying that none of our achievements would have been realized without full support from our stakeholders and the hard work and dedication of SEGWWL's management and employees. For that, I would like to express my utmost gratitude and present the highest appreciation to all of SEGWWL's individuals. Concluding this remark, I invite everyone to continue lending their support to sustainable development, raising profits, protecting the planet, and building up the people.

**Jakarta, June 2018**

**RUDY SUPARMAN**

President & CEO



# ABOUT STAR ENERGY GEOTHERMAL WAYANG WINDU LTD.



“SEGGWL is proud to get the opportunity to provide geothermal energy to fulfill electricity needs for some parts of Java, Madura, and Bali”.







SUSTAINABILITY GOVERNANCE



OCCUPATIONAL HEALTH AND SAFETY



IN HARMONY WITH COMMUNITIES



DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE



GRI STANDARDS INDEX



Geothermal in Indonesia is one of the greatest one in the world. Star Energy Geothermal Wayang Windu Ltd (SEGWWL) develops potential of geothermal energy to fulfill the increasing need of energy. We optimize geothermal field management with total capacity

of 227 MW in Pengalengan region, while searching potential geothermal in other areas to achieve our goal to become a 1,200 MW geothermal power plant operator by 2018.

**COMPANY NAME** [GRI 102-1]

Star Energy Geothermal (Wayang Windu) Ltd

**PRODUCT & SERVICE** [GRI 102-2]

Power from Geothermal Resources

**MARKETING** [GRI 102-6]

PT PLN (Persero) for Java-Bali-Madura network

**HEAD OFFICE ADDRESS** [GRI 102-3]

Wisma Barito Pacific, Star Energy Tower A, 3<sup>rd</sup> Floor, 8-11 [GRI 102-3]  
Jalan Let. Jen. S. Parman Kav. 62-63 West Jakarta 11410, Indonesia [GRI 102-3]  
Jakarta Barat 11410, Indonesia  
Tel : +62 21 532-5828  
Fax : +62 21 5307 928  
www.starenergy.co.id

**OPERATIONAL AREA** [GRI 102-4]

Desa Margamukti, Pangalengan, Jawa Barat

**SHAREHOLDING** [GRI 102-5]

Star Energy Geothermal Pte Ltd  
(previously Star Energy Holdings Pte Ltd) 100%

**LEGAL STATUS/BASIS** [GRI 102-5]

Permanent Establishment

**MEMBERSHIP IN ASSOCIATIONS** [GRI 102-13]

API (Asosiasi Panas Bumi Indonesia) MKI  
(Masyarakat Ketenagalistrikan Indonesia)  
Masyarakat Energi Terbarukan Indonesia (METI)

**BUSINESS GROUP**

SEGWWL does not have any subsidiary [GRI 102-45]



## VISION, MISSION AND COMPANY'S VALUES

### VISION

TO PROVIDE POWER FROM ENVIRONMENTALLY FRIENDLY SOURCES

### MISSION

TO BECOME A 1,200-MW GEOTHERMAL POWER PLANT OPERATOR BY 2028



## THE COMPANY'S VALUES [GRI 102-16]

We have formulated and strived to instil strong cultural values in carrying out our business and maintaining sustainable relationship with stakeholders, through the definition of the Company's values, BRIGHT STAR, whose meaning is described below:

**B**alance Value for Stakeholder

**R**espect people

**I**nnovative and Entrepreneurial

**G**o the extra mile

**H**onesty and Integrity

**T**each Yourself Daily

**S**afety Health & Environment

**T**eam Work

**A**wareness of Costs

**R**elationship are Important

### BALANCE VALUE FOR STAKEHOLDER

- Strive for a balanced outcome for all stakeholders when we think, act dan make decisions.

### RESPECT PEOPLE

- Value and respect each other
- Value for differences
- Find value in all ideas

### INNOVATIVE AND ENTREPRENEURIAL

- Be creative
- Look for opportunities
- Make the best decision
- Have a sense of business
- Create value
- Challenge the status quo
- Willing to take risk
- Think critically

### GO THE EXTRA MILE

- Strive for excellence
- Work smarter
- Beat your deadline
- Be proactive
- Seek out the best process

### HONESTY AND INTEGRITY

- Act professionally & ethically
- Be honest and trustworthy
- Be committed
- Walk the talk
- Adhere to high bussiness ethical standards

### TEACH YOURSELF DAILY

- Create learning opportunities
- Be an active learner
- Seek feedback
- Be Proactive



**SAFETY HEALTH & ENVIRONMENT**

- Comply with or exceed safety, health & environmental policy, laws and regulations
- Maintain a high level of SHE working competence and awareness.

**AWARENESS OF COSTS**

- Work effectively and efficiency
- Sense of urgency
- Sense of ownership
- Make continuous improvements

**TEAM WORK**

- Value contribution of others
- Value the differences
- Think and act as a team
- Shares information
- Communicate often

**RELATIONSHIP ARE IMPORTANT**

- Work in harmony
- Seek balance between results and relationships
- Build win-win partnership



## SOCIALIZATION AND EFFORTS TO ACHIEVE THE COMPANY'S VISION AND MISSION

If every employee understands and gets inspired by corporate vision, mission, and values, our employees' spirit and productivity increase. Therefore, we internalize corporate vision, mission, and values to every employee in every level periodically. Internalization of this vision is conducted through various means, such as new employee orientation, employee performance evaluation, in-house training, and various information media. In the process of promotion and employee rotation, we also specifically remind every employee about corporate vision, mission, and values.

## IMPLEMENTATION OF VALUES IN SOCIETY

One of the values we hold is to respect other people and to create "win-win" partnership where every stakeholder receives the benefit. The values that we internalize not only inside corporation, but also society surrounding our operational site. Strategically, we show our awareness through the following efforts: GHG (greenhouse gas) reduction, responsible environment management, community development, and to force improvement in the society surrounding SEGWWL operational site.

## CORPORATE OVERVIEW

Star Energy Geothermal (Wayang Windu) Ltd, or SEGWWL, is a National Private Company established in 1994. The Company is engaged in the exploration and exploitation of geothermal energy sources. The Company operates in the form of Joint Operation Contract with PT Pertamina Geothermal Energy in its management area, Margamukti Village, Pangalengan District, Bandung Regency, West Java. The Company runs its business under the laws and regulations of the British Virgin Islands and is registered as a permanent business establishment in Indonesia.

Our product is 227 MW of electricity, from the Wayang Windu geothermal power plant Units 1 and Unit 2. This power is then sold to PT PLN (Persero) to supply part of the power network's needs in Java-Bali-Madura. The total capacity represents 19% of Indonesia's geothermal power market share by the end of 2017, amounting to 227 MW electricity. [GRI 102-4, GRI 102-6]

Electricity production activities began in 2000 with the operation of Unit 1 generator, with a capacity of 110 MW. The capacity was then increased with the operation of Unit 2 generator, with a capacity of 117 MW. Both generators are supported by a number of steam production wells, which until 2017 reached 29 production wells, and 3 re-injection wells. We strive to develop the power generation capacity of Wayang Windu geothermal field by striving to obtain steam for Unit 3 development.





SUSTAINABILITY GOVERNANCE



OCCUPATIONAL HEALTH AND SAFETY



IN HARMONY WITH COMMUNITIES



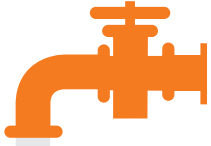
DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE



GRI STANDARDS INDEX



## SEGWWL HISTORY



**1985**

Geological and Geophysical Surveys

**1991**

First Well spud, WW-A1 drilling by Pertamina, discovered a commercial geothermal source

**1994**

The establishment of Mandala Nusantara Ltd as the first company to manage Wayang Windu Geothermal Field

**December 1994**

JOC and ESC signing

**1996**

Proven energy reserves for 220 MW

**1997**

Proven energy reserves for 440 MW

**June 1997**

EPC contract signing with Sumitomo Corporation

**August 1999**

Completion of Unit 1 construction 1

**2000**

**May 2000**

Commissioning of Unit 1

**June 2000**

Commercial Operation of Unit 1

**2001**

**January 2001**

Operation Takeover by Management Unocal

**2004**

**November 2004**

Star Energy Acquired 100% saham

**2006**

Completion of ESC and JOC amendment

**2007**

EPC contract signing with Sumitomo Corporation for Unit 2 Development

**2008**

**February 2008**

The Company's name changed from MNL to Star Energy Geothermal (Wayang Windu) Ltd

**December 2008**

Commissioning of Unit 2





### 2009

#### March 2009

Commercial Operation of Unit 2

### 2012

#### December 2012

Settlement of Well Intervention Program

### 2013

#### March 2013

Roll Out of Wayang Windu Integrated Management System (WIMS) with the support of Document Management System

### 2014

Intervention work of 9 wells, succeeded to increase steam production by 59 kg/s and one injection well managed to add injection capacity of more than 100 l/s

### 2015

Settlement of post-erosion reinstatement work

### 2016

Implementation of drilling activities for "make up" well and upgrading of environmental management system from ISO 14001: 2004 to ISO 14001: 2015. SMK3 Certification— Golden Flag

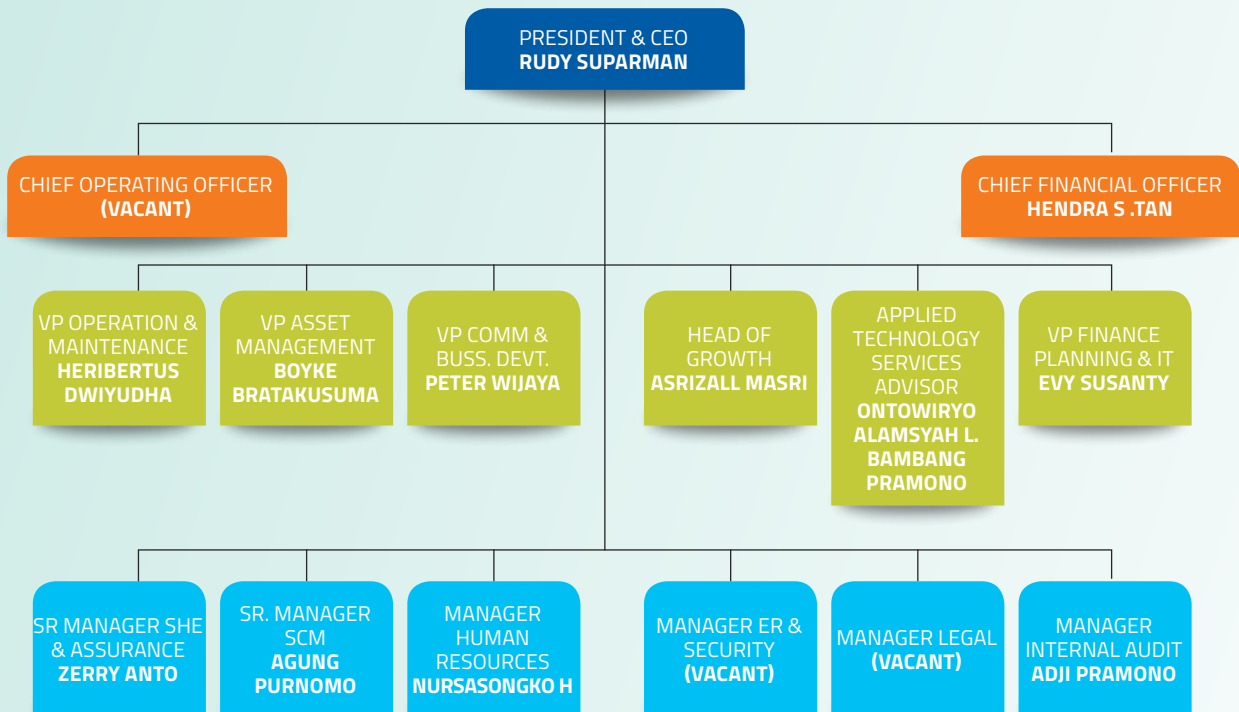
### 2017

WW-A7 well work over implementation and well intervention program (WIP) activities. WIP activities are carried out to maximize production capacity from existing wells.

## COMPANY SCALE [GRI 102-7]

Description		Period			
		2014	2015	2016	2017
Total Employees	224	219	223	228	180
Total Capitalization (US\$ thousand)					
▪ Payable	497,429	497,992	500,237	541,134	768,675
▪ Equity	32,522	50,834	44,887	94,35	85,456
Quantity of Products Sold (GWH)	1,88	1,817	1,11	1,921	1,910
Total asset (US\$ thousand)	530,051	548,826	554,124	635,484	854,131
The number of field operated	1	1	1	1	1
Sales (in thousand US\$)	120,285	117,158	68,882	165,595	181,689

## ORGANIZATIONAL STRUCTURE





## OPERATIONAL MAP OF THE COMPANY [GRI 102-6]

Our operational activities take place in the mountain area of Pangalengan Subdistrict, Bandung Regency, West Java, namely in Margamukti Village, which is also known as Wayang Windu geothermal block. The area is located approximately 40 km from Bandung to the south. Power generation activities are carried out through the generation of Unit 1 and Unit 2, with a total capacity of 227 MW, supported by 29 production wells, and 3 re-injection wells geothermal steam wells. Our customer is PLN.

## SUPPLY CHAIN [GRI 102-9]

Our production activities are supported by various goods and services which are classified into some big groups such as:

- Goods and services for operational activities and maintenance, such as petroleum, lubricant, chemical substances, etc.
- Goods and services supporting operation and maintenance.
- Stationery and other daily needs.

Due to the importance of goods and services supply for operational process and maintenance, SEGWLL applies strict monitoring and evaluation procedures for the suppliers. These procedures include monitoring of goods quality, special expertise of the employees being supplied, suppliers' credibility, etc. Especially for stationery and other daily needs, suppliers usually come from our surrounding operational site.

Various indicators of evaluation and requirement as well as regulation are implemented to suppliers, according to the types of goods and services. Several requirements being concerned are human rights compliance, governmental regulation on labor, environmental regulation compliance, etc.

By the end of May 2017, it is recorded that there are 2,808 Wayang Windu suppliers of goods and services. However, only 688 vendors are recorded as active for the period of January 2010-December 2017. The following diagram describes the flow of SEGWWL supply chain:





# ABOUT THIS REPORT



“Welcome to Sustainability Report Star Energy Geothermal Wayang Windu Ltd 2017, the ninth report since the first publication in 2009. Through this report, we hope that the stakeholders could evaluate and support the commitment of SEGWWL in ensuring the achievement of sustainable development goals, i.e. development in economic, social, and environmental sectors which are balanced and in line with Sustainable Development Goals (SDGs) by optimizing available resources use”.





SUSTAINABILITY  
GOVERNANCE



OCCUPATIONAL  
HEALTH AND  
SAFETY



IN HARMONY WITH  
COMMUNITIES



DEVELOPING WAYANG  
WINDU'S RESILIENT AND  
COMPETENT PEOPLE



GRI STANDARDS INDEX





## REPORTING STANDARDS AND ASSURANCE

[GRI102-54, GRI 102-55, GRI 102-56]

This report has been prepared in accordance with GRI Standards: Core option. To facilitate readers in finding the GRI Standards that we have applied, we have formatted the GRI Standards disclosure numbers with a specific color on all pages where these disclosures can be found. The GRI Standard Core Content Index applied on this Report is presented on page 110.

In this Report there were no restatements of previous years' data, nor were there any significant changes to the reporting Scope and boundary in the reporting period. As well as no significant changes in the company and its supply chain. Validation of all financial data took the form of audit conducted by a public accounting firm, while validation of other data was conducted by the internal team that prepared this Report. [GRI 102-10, GRI 102-48, GRI 102-49].

No assurance process by an independent assurer has been performed on this 2016 Report. However, we have conducted the accordance check to ensure that the Report's preparation has been in accordance with the GRI Standards. The in accordance check statement can be found on page 109.

## REPORTING PERIOD AND CYCLE

This Sustainability Report is annually published and covers the period of 1 January to 31 December 2017. It contains sustainability-related information and data across three topics, namely economic, social, and environmental aspects. The previous year's report was published in October 2016. [GRI 102-50, GRI 102-51, GRI 102-52]

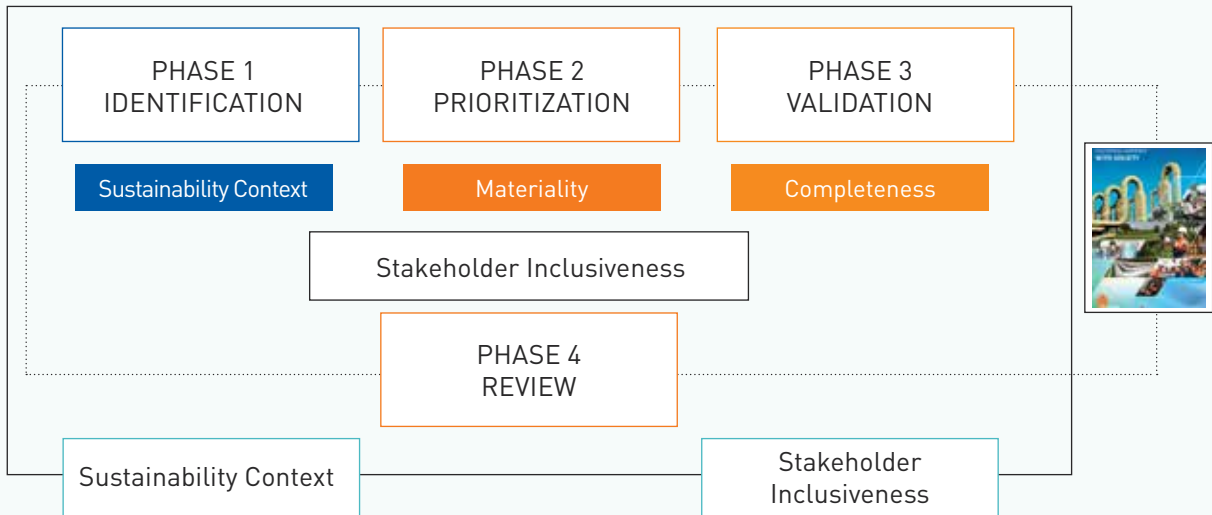
## DETERMINING REPORT CONTENT

[GRI 102-46]

Essentially the determination of this Report's contents was based on the GRI Standards protocol, namely, arrived at by conducting four stages. First, identifying material aspects and their boundaries (Identification). Second, prioritizing the material aspects or issues as identified in the first stage (Prioritization). Third, validating the material aspects (Validation). Fourth, reviewing the Report upon its publication in order to improve the next year's Report (Review). The implementation of these processes was intended to apply the four principles as required by GRI-Standards G4, namely stakeholder inclusiveness, materiality, sustainability context, and completeness. See Flowchart for Determining Report Content, as follows.



Bagan Alir Proses Penetapan Konten Laporan



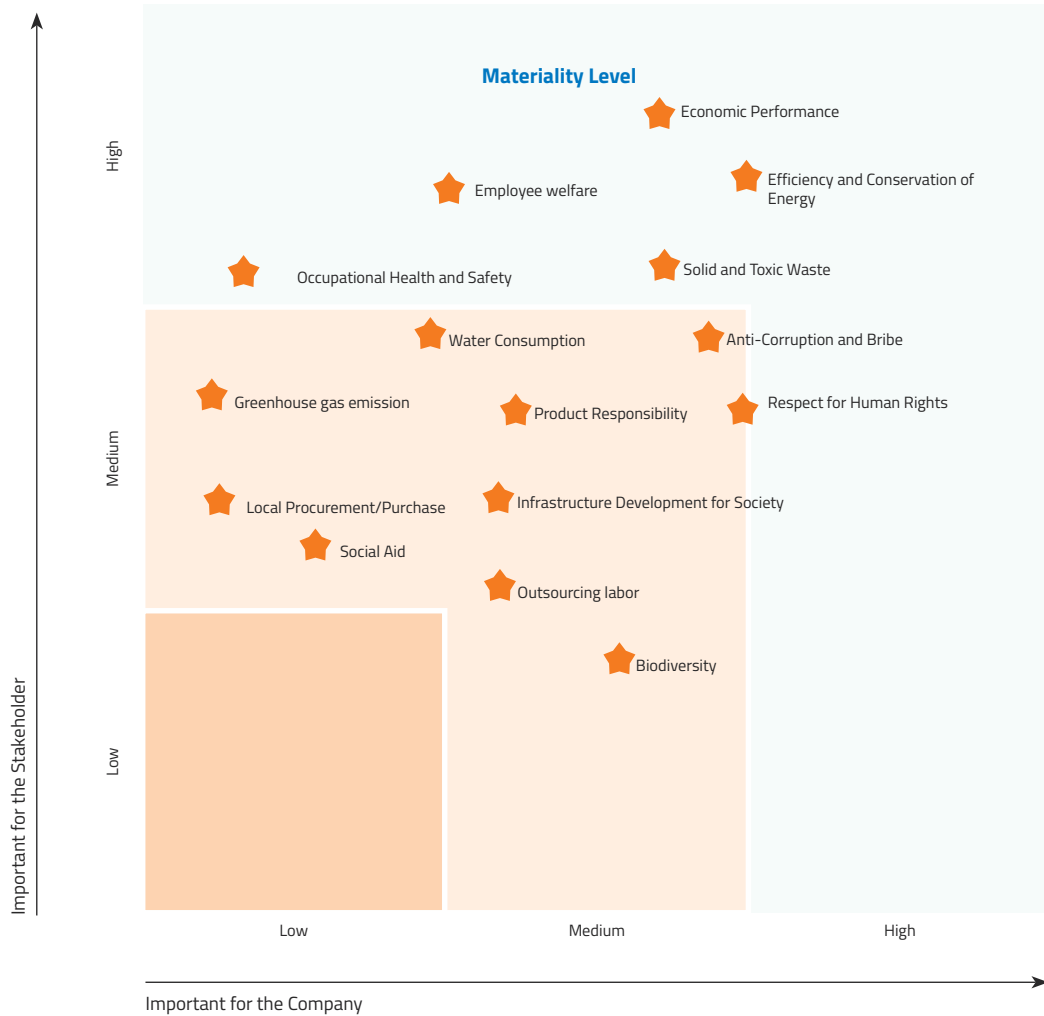
### DETERMINATION OF MATERIALITY

We implemented the principle of Materiality on this Report by choosing material aspects or contents as obtained from the focus group discussions with our stakeholders.

We request the input and opinion from our stakeholders to determine the materiality of the issues contained in this Report by sending out questionnaires, as a form of implementation of the principles of stakeholder inclusiveness. The stakeholders included: workers'

unions, shareholders, communities, non-governmental organizations, suppliers, industrial associations, and the government. Through an internal focus group discussion, we also presented a similar questionnaire to obtain a perspective from within the Company.

From these forums and the responses from the stakeholders, we obtained a picture of the materiality of the issues reported, as illustrated by the following materiality graph.



## MATERIAL ASPECTS AND THEIR BOUNDARIES

Identification of material aspects as part of the content of this Report is determined by taking into account the impact of the Company's operations on the environment and the surrounding communities, in addition to the

principles of accountability and transparency. These aspects have been determined via a process explained earlier. In the identification phase, we conducted focus group discussion by taking into account the materiality level of the issues to be presented in the Report. The material aspects and their boundaries are stated in the table below.





## Material Aspects and Their Boundaries

MATERIAL TOPIC [GRI 102-47]	WHY THIS TOPIC IS MATERIAL [GRI 103-1]	DISCLOSURE	BOUNDARY	
			INTERNAL TO WAYANG WINDU	EXTERNAL TO WAYANG WINDU
<b>Economic</b>				
Economic Performance	Significant impact on stakeholders	201-2, 201-3	√	
Market Presence	Significant impact on stakeholders	202-1	√	
Indirect Economic Impact	Significant impact on stakeholders	203-1, 203-2	√	
Anti-Corruption	Significant impact on development	205-3	√	
<b>Environmental</b>				
Material	Significant impact on sustainability	301-1, 301-2	√	
Energy	Significant impact on sustainability	302-1, 302-3, 302-4	√	
Water	Significant impact on sustainability	303-1, 303-3	√	
Biodiversity	Significant impact on sustainability	304-3, 304-4	√	
Emissions	Significant impact on sustainability	305-1, 305-2, 305-3, 305-4, 305-5, 305-6	√	
Effluents	Significant impact on sustainability	306-2	√	
Environmental Compliance	Significant impact on sustainability	307-1	√	
Suppliers Environmental Assessment	Significant impact on reputation of the organization	308-1		√
<b>Social</b>				
Employment	Compliance with applicable regulations	401-1, 401-2	√	
Occupational Health & Safety	Significant impact on employees	403-1, 403-2, 403-4	√	
Training & Education	Significant impact on employees	404-3	√	
Diversity & Equal Opportunity	Significant impact on employees and communities	405-1	√	
Non-Discrimination	Significant impact on employees	406-1	√	
Freedom of Association and Collective Bargaining	Significant impact on employees	407-1	√	
Local Communities	Significant impact on stakeholders	413-1	√	
Suppliers Social Assessment	Significant impact on reputation of the organization	414-1	√	
Customer Health & Safety	Significant impact on customers	416-2	√	
Marketing & Labeling	Significant impact on customers	417-3	√	
Socioeconomic Compliance	Significant impact on economic growth	419-1		√

## VALIDATION AND REVIEW

We have conducted the validation and review processes to ensure that the report has a balanced content, i.e. aside from showcasing positive performance in certain aspects, this Report also includes negative performance in other aspects, in addition to taking into account the input, advice, and recommendations of all our stakeholders.

## CONTACT PERSON [GRI 102-53]

Should you require further information or have questions regarding this Report, please contact:

### MANAGER HUMAN RESOURCES & DEVELOPMENT

Star Energy Geothermal (Wayang Windu) Ltd  
Wisma Barito Pacific, Star Energy Tower  
Floor 3<sup>rd</sup>, 8-11  
Jalan Let. Jen. S. Parman Kav. 62-63  
Jakarta Barat 11410, Indonesia  
Tel : +62 21 532-5828  
Fax : +62 21 532-5307928  
www.starenergy.co.id



# MANAGING ENVIRONMENTAL IMPACTS



“Preserving the environment is an obligation if we aspire to live together, from one generation to the next generation. The interests of the current generation shall not hinder the needs of the following generations’ to make a living”.





SUSTAINABILITY GOVERNANCE



OCCUPATIONAL HEALTH AND SAFETY



IN HARMONY WITH COMMUNITIES



DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE



GRI STANDARDS INDEX



One of the dangers that threaten the continuity of the earth is global warming, which is caused by CO<sub>2</sub> emission that is mainly derived from industrial and transportation activities. Thus, through the conference on climate in Paris, as many as 197 countries declared their commitment to maintaining global warming below 20C until 2030 by reducing emission globally. As part of the Indonesian and global communities, Star Energy Geothermal Wayang Windu Limited (SEGWWL) expressed its commitment to the participation in the efforts of reducing CO<sub>2</sub> emission in all its operational activities.

Geothermal energy is one form of renewable energy, of which the sources are continuously renewed by nature. According to scientists, geothermal energy reserves can even last for billions of years. On the other hand, fossil energy sources (e.g. crude oil and coal) can be depleted and are not durable. In addition, geothermal energy is more environmentally friendly, having a minimum carbon print. The Greenhouse Gas (GHG) level at a geothermal power plant is the lowest compared to GHG levels at power plants fueled by other energy forms, as illustrated in the following table.

TYPES OF POWER PLANT	TYPES OF ENERGY SOURCE	TYPES OF EMISSION UNIT EMISSION	JUMLAH EQUIVALENT EMISI CO <sub>2</sub>
PLTP	Geothermal	Lbs/MW-hr	250
PLTGU	Gas	Lbs/MW-hr	1,000
PLTU	Crude oil	Lbs/MW-hr	1,500
PLTU	Coal	Lbs/MW-hr	2,000

Being a company that cares about the environment, SEGWWL sets strategic policies to preserve the environment and reduce GHG emission. The policies have two main objectives:

- Maintain and restore environmental sustainability in order to support long term geothermal PLTP power plant operational activities.

- Demonstrate participation in energy and water conservation, greenhouse gas emission reduction, decrease and utilize B3 and non-B3 wastes and protect biodiversity.

## COMPANY POLICIES

SEGWWL applies the policies that concern the environmental management and sustenance to set forth the "SHE Corporate Policy" that outlines the standards of Occupational Health, Safety and Environmental. Each operational area is environmentally friendly constructed and managed as a safe and secure workplace for both the workforce and the surrounding communities. In practice, the policy is demonstrated in numerous activities such as:

- Proactively preventing injuries and occupational diseases.
- Creating a workplace that is safe for all workers, contractors and the surrounding communities.
- Preserving the environment for business sustainability.
- Executing energy efficiency through engineering and energy use policy.
- Reducing GHG.
- Saving water by executing water use policies.
- Managing toxic and hazardous waste (B3) and non-toxic waste (non-B3) both independently and through cooperation with third parties.
- Protecting biodiversity.

## IMPACT, RESPONSES AND WAYANG WINDU MITIGATION TO IMPROVE ENVIRONMENT QUALITY

We take efforts for improving environmental conditions, and we substantiate this in the mitigation programs that are based on the analysis on the impact of our operational activities on the environment.



IMPACTS	CAUSES OF IMPACT	ENVIRONMENTAL PROGRAMS
Noise	Well tests, power plant operation and cooling towers	<ul style="list-style-type: none"> <li>- Rock muffler installation, noise monitoring</li> <li>- Revegetation around PS, SS-1 and well pads</li> </ul>
Water and Soil Pollution	Drilling activities, domestic activities, B3 and non-B3 waste, oil and diesel storage	<ul style="list-style-type: none"> <li>- Domestic wastewater treatment by installing wastewater treatment plants (IPLC)</li> <li>- Secondary containment installation at fuel and oil storage location</li> <li>- Non hazardous waste disposal to approved TPA (Tempat Pembuangan Akhir)</li> <li>- Drilling and cutting waste utilization, referring to Energy and Mineral Resources Minister Regulation No. 21 of 2017</li> </ul>
Air Pollution	Well tests, air conditioners, vehicle emissions and land clearing	<ul style="list-style-type: none"> <li>- Usage of R-417a Material as a more environmentally friendly refrigerant cooling system</li> <li>- Online well testing system implementation</li> <li>- Usage of caustic soda to abate H25 emission in well testing</li> </ul>
Water Wastage	Support, maintenance and drilling activities	<ul style="list-style-type: none"> <li>- Filling up water basins of cooling tower from the adjacent unit at Unit 2 start-up</li> <li>- Eliminating make up water inside cooling towers with direct contact condenser</li> <li>- Using a condenser to replace surface water during drilling process and fire pump testing</li> </ul>
Biodiversity loss	Land clearing	<ul style="list-style-type: none"> <li>- Revegetation program in PLTP power plant and critical environmental areas beside the operational areas (Perhutani or PTPN areas)</li> <li>- Implementation of plant nursery and floriculture</li> </ul>
Traffic Congestion	Moving tools and materials	<ul style="list-style-type: none"> <li>- Scheduling transportation and movement of tools and materials</li> <li>- Traffic control procedures, securing equipment/material transportation and cooperation with the police</li> <li>- Infrastructure maintenance and repair of ring-road operation areas</li> </ul>

To ensure our compliance with K3 standard work procedures and to meet all environmental requirements, we also carry out periodic performance screenings of potential partners and new contractors by enacting the Contractor Safety and Health Management System (CSMS). From the monitoring results in 2017, the CSMS did not find any non-compliance cases and therefore no monetary sanctions for non-compliance. [GRI 307-1]

## IMPACT OF CLIMATE CHANGE ON OUR BUSINESS ACTIVITIES [GRI 201-2]

The increase of CO<sub>2</sub> emissions and other gases known as Greenhouse Gas (GHG) causes the heat of the earth to be trapped in the atmosphere, leading to global warming

and eventually global climate change. This condition also triggers extreme weather conditions in certain areas, such as prolonged summers and highly intensive rainy seasons.

One of the impacts of climate change that we undergo in our operational areas is high rainfall, which causes landslides and erosions around the business activity areas. Apart from high intensity of the rain, the conversion of forest areas into plantation areas is also the cause of erosion, landslides and floods in certain areas.

Through regular revegetation of critical areas, either on owned land or those of Perkebunan and Perhutani, SEGWWL strives to manage and protect the environment to mitigate the impacts due to climate change and land clearing.

## BIODIVERSITY

The operational area of SEGWWL is located at an altitude of about 1,700-2,000 m above sea level. The area is close to protected forests and production forests. We are aware that the exploration and exploitation activities of geothermal benefit the nation in general. On the other hand, the activities also potentially alter the biodiversity. This is due to the development of production facility and infrastructure in the protected forest areas. Therefore, to preserve the environment and biodiversity, we apply protective, proactive and environmentally friendly strategies, including:

- Listing the flora and fauna species
- Construction of disposal areas to prepare for the reclamation phase
- Implementing rules to limit the interaction of project staff with the habitats and species in the protected forest areas and revegetate our operational areas and the surroundings
- Cultivating seeds in the Company's Nursery located at the project site.

## BIODIVERSITY PROGRAM - REALISATION OF REVEGETATION AND REHABILITATION PROGRAM [GRI 304-3]

We have executed numerous programs aimed to preserve the environment and mitigate the negative impact potentials.

### A. REVEGETATION EFFORTS AT RECHARGE AREA

Through revegetation, we restored and improved the habitat in our operational area and the vicinities. In 2017, we enriched the vegetation in our internal area for the "Bird Oase" program by planting trees of, rasamala, puspa, manglid, suren, kidadak, among others, and fruit trees such as avocado, guava and starfruit. As many as 321 trees were planted in the area, covering 17.26 ha. In total, there were 614,797 trees planted from 2002 to the end of 2017. The re-vegetation area is obtained from the estimated area of land planted with trees from the existing map. In accordance with the land allotment, the re-vegetation program works with related agencies such as PTPN VIII and Perhutani Plantations.

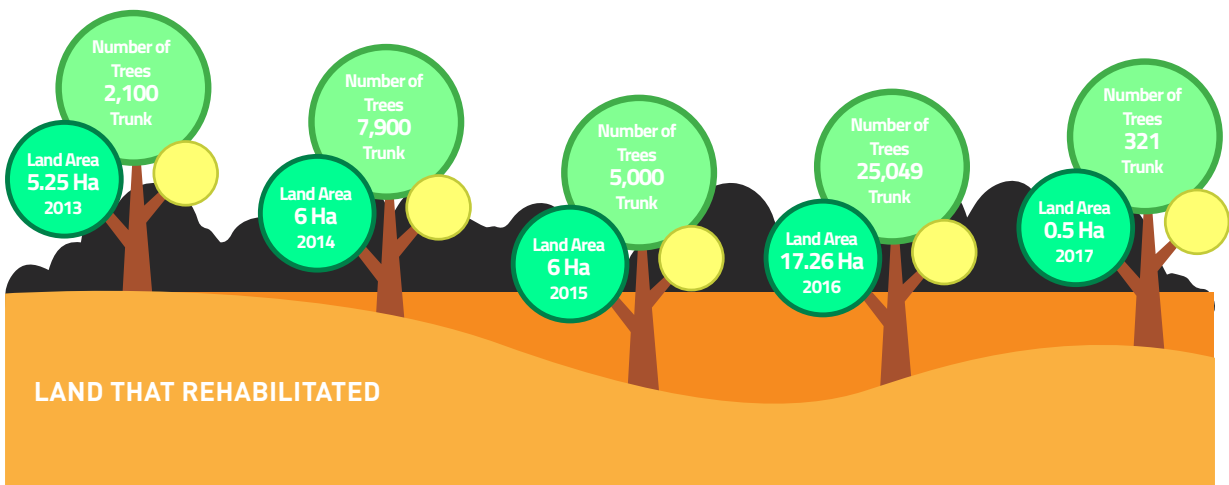
The tree planting activities are expected to mitigate the negative impact of greenhouse gases, by absorbing an equivalent of 9,486.65 tons of CO<sub>2</sub>e per year (with the assumption that the CO<sub>2</sub> absorption factor is 15.43 kg kg/tree/year). The revegetation program contributes greatly to the environmental sustainability, especially in mitigating the impacts of GHG emission, landslides and floods.

### Accumulated Number of Trees in Wayang Windu Field, 2002-2017

YEAR	LOCATION	NUMBER AND TYPE OF TREES
2002	Soil Disposal Unit 1	13,000 pine trees
2003	46 ha of forest around Wellpad WW-A	45,980 Eucalyptus sp; 7,360 Persea Americana
2004	Forest around Wellpad WW-A	80,000 Mulberry trees
	Power Plant Area and Tea Plantation	7,500 Suren, 2,700 Eucalyptus Sp
2005	Power Plant Area and Tea Plantation	1,000 Silver Oak trees
2006	Power Plant Area	3,000 Silver Oak trees



YEAR	LOCATION	NUMBER AND TYPE OF TREES
	300 Ha of Perhutani Land Area	300,000 Arabica coffee seedlings
2007	Power Plant Area	12,100 Suren, Silver Oak & Cyprus
2008	Critical Area around WWS, MB-D, MB-A, MB-D Wellpad ± 20 Ha	5,803 Altingia excels; 4,096 Toona sureni; 3,818 Eucalyptus Sp; 9,214 Eucalyptus Flatifolia; 4,800 Cyprus; 1,022 Accacia Decuren; 4,802 Persea Americana. Total number of trees: 33,555
	Critical Area around WW-Q and MB-D Bridge ± 15 Ha	38,825 Eucalyptus Sp
2009	20 Ha of Critical Area around Lake Aul	6,500 Suren, 4,400 Damar; 2,200 Silver Oak; 8,800 Eucalyptus Sp. Total 22,000
2011	MB-C Wellpad area	Various wooded trees: 4,894 Eucalyptus Sp; 4,894 Silver Oak, 4,894 Cyprus. Total 14,682 trees Total 14,682
2012	Internal Power Plant: PS, SCC area, Well Pad Ares, MB-D Bridge, WW Village, Low Point Sukaratu, Low Point Cibolang, Warehouse-1, Warehouse-2 and SS-1 area	Total 2,785 trees
2013	Open Area along the pipelines of warehouse WW-A, WW-S and MB-D	1,114 Suren; 426 Sengon; 239 Sobsi, and other types, such as Huru, Kihujan, Bungur, Eucalyptus, totaling 2,100 trees
2014	Re-charge area near the production wells of MB-A, MB-B, WW-S and WW-A	7,900 trees consisting of Puspa, Rasamala, Manglid Baros, Eucalyptus, Sengon and Suren trees
2015	Re-charge area near WW-Q	5000 trees consisting of Eucalyptus, Suren, Rasamala, Avocado, Baros, Sengon, Pine, and Puspa trees
2016	7 Ha of PTPN VIII Kertamanah Land Area (MBD Corridor & WWQ)	8,432 trees (Coffee, Eucalyptus)
	9.7 Ha of Perhutani Land (Cibitung and WWA)	16,267 trees (Eucalyptus, Rasamala, Pine, Kibadak, Gemina, Avocado, Jackfruit, Kaliandra)
	0.5 Ha of Perhutani Land (Earth Day - SCC)	350 trees (Eucalyptus, Rasamala, Pine)
2017	Bird Oase Location (SS1, MBD, WWQ)	321 trees (Rasamala, Puspa, Manglid, Suren, Kibadak, Saninten as well as fruit trees such as avocado, guava and starfruit)



## B. FLORA MONITORING [GRI 304-4]

SEGWWL is aware of the importance of preserving the areas that have high conservation values. That is the reason why we are taking specific measures, i.e. biodiversity monitoring over plants that grow in land adjacent to our operational area. The monitoring over nine observation sites – covering WWS, WWA, MBE, MBA, MBB, MBC, SS-1, MBD, and WWQ – found a number of plants listed below.

- Acacia Leucophloea (Dekres)
- Castanopsis Argentea (Saninten)
- Cassuarina Junghuhniana (Cemara)
- Castanopsis Javanica (Ki Hiur)
- Engelhardia Spicata (Ki Hujan)
- Eucalyptus Deglupta (Kalites/Kayu Putih)
- Ficus Fistulosa (Beunying)
- Grevillea Robusta (Salamander)
- Lavanga Sarmentosa (Ki Jeruk)
- Lithocarpus Korthalsii (Pasang Taritih)
- Litsea Sp (Huru)
- Macropanax Dispermus (Cerem)
- Magnolia Macklottii (Baros)
- Melaleuca Leucadendra (Kayu Putih)
- Pinus Merkusii (Pine)
- Schima Wallichii (Puspa)
- Syzygium Lineatum (Ki Salam)
- Toona Sureni (Suren)

Among the plants listed above, only one is listed in IUCN Red List under the “vulnerable” category, i.e. *Pinus merkusii*; this plant is situated in Location SS-1. Surrounding the observed site are tea plantations and vegetation areas of SEGWWL, where we planted *Pinus merkusii*. The Location SS-1 is dominated by local plants; this indicates that SEGWWL’s activities do not result in negative impacts on the local vegetation.

## C. FAUNA MONITORING [GRI 304-4]

SEGWWL also conducted fauna monitoring in the same nine locations, namely around Mount Bedil, Mount Wayang, Mount Malabar, Situ Aul and other developed areas. In the monitoring, 39 bird species from 30 families have been recorded, including:

- *Rhipidura phoenicura* (kipasan ekor-merah)
- *Dicaeum sanguinolentum* (cabe gunung)
- *Cinnyris jugularis* (burung-madu sriganti)
- *Zosterops montanus* (kacamata gunung)
- *Lonchura leucogastroides* (bondol jawa)
- *Passer montanus* (burung gereja erasia)

In all monitoring areas, eight bird species that were found were categorized as “protected” under Law No. 4/1999 on Forestry and Government Regulation No. 7/1999 on Preservation of Wild Plants and Animals, i.e.

- Elang ular bido (*Spilornis cheela*)
- Elang hitam (*Ictinaetus Malaiensis*)
- Alap alap sapi (*Falco moluccensis*)
- Cekakak jawa (*Halycon cyanoventris*)
- Cekakak sungai (*Halcyon Chloris*)
- Takur tohtor (*Megalaima armillaris*)
- Kipasan ekor merah (*Rhipidura phoenicura*)
- Burung madu sriganti (*Cinnyrus jugularis*)

The eight bird species belonged to the lower risk category, “least concern”, based on the IUCN Red List. The bird species that were recorded and under the “vulnerable” category of IUCN Red List is kerak kerbau *Acridotheres javanicus* and is under the “near threatened” category, cingcoang cokelat (*Brachypteryx leucophrys*).

In addition to bird monitoring, we also observed and recorded nine species of mammals, as listed in the table below:



**Mammals Encountered in The Monitoring Areas**

NO	LOCAL NAME	SCIENTIFIC NAME	LOCATION OF FINDING						NOTES
			A	B	C	D	E	F	
1	Tupaia kekes	Tupaia javanica	-	-	-	-	+	-	Direct encounter
2	Babi hutan	Sus scrofa	+	-	+	+	-	-	Finding of nesting place
3	Macan tutul Jawa	Panthera pardus melas	-	-	+	-	-	-	Scratches on barks and faeces
4	Bajing kerdil dataran rendah	Exilisciurus exilis	-	-	+	-	-	-	Direct encounter
5	Bajing Kelapa	Callosciurus notatus	+	-	-	+	+	-	Direct encounter
6	Monyet ekor panjang	Macaca fascicularis	-	-	+	-	-	-	Direct encounter
7	Surili	Presbytis comata	+	-	-	-	-	-	Information from local inhabitants
8	Tikus	Rattus sp	-	+	-	-	-	-	Direct encounter
9	Garangan Jawa	Herpestes javanicus	-	-	-	-	-	+	Voice

- Source: Field Monitoring in April and November 2017. Location of Findings: A = WWS ; B = WWA ; C = MBA ; D = MBB ; E = MBE ; + = Present ; - = Not Found

The types of mammals that are frequently encountered are bajing kerdil dataran rendah, tupai kekes and garangan Jawa. Other primates that were found were the macan tutul Jawas, which are protected under the Government Regulation Number 7/1999 (on Preservation of Wild Plants and Animals) and are under the "vulnerable" category on the IUCN Red List. The "Vulnerable" category is a conservation status for species that are prone to extinction in the near future. Whereas according to CITES, this primate species belongs to Appendix I, which means that it is not allowed to be traded at all.

We also encountered surili, which is also protected under Government Regulation No. 7/1999 on the Preservation of Wild Plants and Animals.

**Conservation Status of Mammals Encountered in The Monitoring Areas**

No	SPECIES NAME	CONSERVATION STATUS			ENDEMIC
		PP 7/1999	IUCN	CITES	
1	Tupaia javanica	-	LC	II	-
2	Sus scrofa	-	LC	-	-
3	Panthera pardus melas	D	CR	I	E
4	Herpestes javanicus	-	LC	-	-
5	Macaca fascicularis	-	LC	II	-
6	Callosciurus notatus	-	LC	-	-
7	Ratus sp	-	LC	-	-
8	Prebytis comate	D	EN	-	E
9	Exilisciurus exilis	-	-	-	-

- Legend: D = protected by Government Regulation No. 7/1999, TD = not protected by Government Regulation No. 7/1999, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, I = CITES Appendix I, II = CITES Appendix II, E = Endemic in Java

## D. AQUATIC BIOTA (PLANKTON AND BENTHOS) MONITORING

Plankton and benthos are important water organisms in aquatic life. While plankton float in accordance with a water stream, benthos crawl on the sediment under water bodies. Plankton is a source of food for most of aquatic organisms; while benthos consume the corpses of animals on the sea/river beds. The excrement would dissolve and turn into nutrition that goes back to the surface and be consumed by other organisms.

Based on the result of diversity indices in marine phytoplankton analysis from four monitoring locations, the water or river ecosystem quality around SEGWWL area was not contaminated, with a value of  $H' \geq 2$  in each sample. There were no specific types of phytoplankton which dominated

the ecosystem, indicating that the ecosystem quality is in a balanced condition. Hence, it demonstrates that SEGWWL activities did not adversely affect or interfere the proportion of phytoplankton population in its surrounding waters.

### PLANT NURSERY

Plant nursery is our primary concern, bearing in mind that revegetation efforts for enhancing environmental condition and critical lands require a large number of transplantable seeds. Plant nursery takes place in WWS, or the inactive well area. By December 2017, a number of 37 species of 1,041 trees had been cultivated through plant nursery. The seeds produced by the nursery were then used for revegetation surrounding the Company's operational area and under the framework of cooperation with Perum Perhutani and Perkebunan.

#### List of Plants in Nursery (2017)

NO	PLANT NAME	LATIN NAME	TOTAL
1	Saninten	Castanopsis argentea Blume.	32
2	Puspa	Schima wallichii Choisy	326
3	Rasamala	Altingia excelsa Noronha	65
4	Suren	Toona sureni Blume	39
5	Manglid Baros	Manglietia glauca Blume.	170
6	Sengon	Albizia falcataria L.	8
7	Lengkeng	Nephelium longana Cambess.	5
8	Bungur	Lagerstroemia speciosa L.	8
9	Asem Thailand	Tamarindus indica L.	2
10	Kaliki (jarak)	Ricinus communis L.	3
11	Ki Sireum	Syzigium rostratum	6
12	Huru	Macaranga rhizinoides Blume.	38
13	Alpukat	Persea americana Mill.	19
14	Kayu Putih	Eucalyptus urophylla	22
15	Manglid (biasa)	Magnolia acuminata L.	32
16	Loquat	Eriobotrya japonica	35



NO	PLANT NAME	LATIN NAME	TOTAL
17	Serai	<i>Cymbopogon citratus</i>	17
18	Kunyit Putih	<i>Kaempferia rotunda</i> L.	3
19	Terung	<i>Solanum melongena</i> L.	1
21	Lidah Buaya	<i>Aloe vera</i> Linn.	22
22	Bangle	<i>Zingiber montanum</i>	9
23	Pandan	<i>Pandanus amaryllifolius</i> Roxb.	4
24	Kencur	<i>Kaempferia galanga</i> L.	3
25	Jahe	<i>Zingiber officinale</i> Roscoe	5
26	Jeruk Purut	<i>Citrus hystrix</i> DC.	1
27	Seledri	<i>Apium graveolens</i> L.	39
28	Kunyit	<i>Curcuma longa</i> Linn.	13
30	Cabai Rawit	<i>Capsicum frutescens</i> L.	94
31	Kumis Kucing	<i>Orthosiphon aristatus</i>	4
33	Belimbing	<i>Averrhoa carambola</i> L.	2
34	Mint	<i>Mentha piperita</i> L.	2
35	Bawang Putih Tunggul	<i>Allium sativum</i> L.	12
36	Sirih Merah	<i>Piper crocatum</i> Ruiz & Pav.	1
37	Kacang Koro	<i>Phaseolus</i> sp.	4
38	Kuca	<i>Allium tuberosum</i> Rottler ex Spreng.	3
<b>Total</b>			<b>1,041</b>

## ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

Referring to the approved environmental documents, Star Energy Geothermal (Wayang Windu) Ltd has carried out environmental management and monitoring from exploration stage (1997-1999) to exploitation stage (2000-present).

The environmental management covers environmental aspects that potentially have significant impacts on the environment quality. This includes a pre-construction stage, a construction stage (also drilling activities) and operational activities of steam fields and power plants. From an environmental quality perspective, the

environmental conditions representing the stages above have also been monitored, namely:

- Social, economic and cultural aspects of the local inhabitants
- Quality of air emission, ambient and noise
- Physiography and geology conditions
- Flora and fauna
- Water and water organism quality
- Traffic volume
- Land utilization

The environmental monitoring is performed regularly with reference to the environmental management matrix in the approved environmental documents. The reports are submitted periodically to the respective institutions.

In addition to management, the Company also executes programs categorized as ‘beyond compliance’, such as material use efficiency, energy efficiency, emission and waste reduction, water use efficiency, and biodiversity management.

## MATERIAL USE [GRI 301-10]

Indonesia has chains of volcanoes, and as a consequence, steam, from geothermal energy sources, is abundant. To indirectly utilize this geothermal-originating energy, locations that have geothermal potentials would need drilling. This is aimed so that the hot steams from inside

the earth that come out can be used to motor the turbines that are connected to generators. This process requires materials, both renewable and non-renewable energy, including caustic soda and biosoda (biocide). Caustic soda is used to neutralize the pH or acidity level of cooling water, while biosoda is used to control algae growth. The total requirement for caustic soda in 2017 was 250,000 kg (an increase of 19% compared to the previous year) while the biosoda was 16,136 kg (decreased 2.6% compared to 2016). The decrease was due to the non-operating injection pump as the injection strategy was altered. Both materials are consumable and non-renewable.

Table of Materials Used in The Generators’ Operation Processes

DESCRIPTION	UNIT	NOTE	PERIOD				
			2013	2014	2015	2016	2017
Steam Generator Unit-1	Tonne	Renewable Raw Material	6,609,734	6,464,802	4,035,364	6,823,827	6,800,755
Steam Generator Unit-2	Tonne	Renewable Raw Material	6,804,868	6,725,747	3,969,529	7,037,910	6,900,326
Caustic Soda	Kg	Used Auxiliary Materials	550,740	319,884	252,530	210,000	250,000
Biosoda, Sulphur 3DT Trasar, and Dispersant	Liter	Used Auxiliary Materials	16,796	16,452	13,751	16,576	16,136

## ENERGY

### ENERGY EFFICIENCY [GRI 302-4]

We carry out various programs to minimize the amount of energy used in our entire operational system. We also implement the energy efficiency program as a form of participation in the GHG emission mitigation efforts. We continue to apply engineering at the cooling tower by suppressing sulphur deposits in the cooling tower so that it can generate energy efficiency amounting to 3.94 GWh, and also conducts a well-washing program aimed at reviving and increasing the capacity of wells which previously were production or less well-producing or non-productive wells. In this program, wells were cleaned using condensate water, and this effort was able to increase the well capacity by 13.9 kg/s or energy efficiency gained by

9.72 GWh in 2017. In addition, we also declared energy saving in the supporting activities including:

- Replacing fluorescence lamp to energy-saving LED/
- Replacement of coolant in the refrigeration system, from Freon R22 to R417A, to reduce Ozone Depleting Substances (ODS) emissions while reducing power consumption
- Implementation of operational vehicle usage management
- Optimization of operational vehicle fuels.

In 2017 we have set a total of 21 operational optimization programs of energy saving that totaled 136.43 GWh. This is illustrated in the table below. All numbers that listed in the table are a combination of the calculation result and recording using a specific measuring instrument.

**Table of Energy Efficiency**

ENERGY EFFICIENCY PROGRAM	UNIT	YEAR				
		2013	2014	2015	2016	2017
<b>Production Process</b>						
Implementation of planned routine maintenance and predictive maintenance for optimum steam rate use	GWh	17.52	17.52	17.52	17.52	17.52
Reducing use of electricity by conducting gravity strategy on brine and condensate injection system	GWh	5.25	5.25	3.94	5.25	5.25
Modification of Condenser Nozzle Unit 1	GWh	13.14	13.14	9.86	13.14	13.14
Water Pipe Cleaning at Cooling Tower Unit-1	GWh	17.52	17.52	13.14	17.52	17.52
Change of Duration of Steam Free Test Unit-2	GWh	0.39	0.49	0.30	0.39	0.39
Implementation of cooling tower funnel Unit-1 design from the result of cooling tower Unit-2 review	GWh	12.6	12.6	9.50	12.61	12.61
Use of monitoring technology for the engine lubrication conditions of Unit-1 and Unit-2	GWh	1.22	1.22	1.22	1.22	1.22
Control of sulphur deposit in the cooling water system	GWh	3.94	3.94	2.96	3.94	3.94
Modification of Unit 1 cooling tower blade chimney	GWh	12.61	12.61	9.46	12.61	12.61
Simultaneous well operations post-test and drilling (SIMOPs)	GWh	17.76	26.76	10.08	17.22	23.16
The replacement program of several diesel-fueled gensets or pumps to environmentally-friendly power	GWh	1.72	0.43	0.43	0.43	0.43
Blade Cooling Tower Inspection	GWh	17.52	8.76	6.57	17.52	17.52
Well Intervention	GWh	8.64	127.44	28.8	40.42	9.72
Monitoring of steam trap condition	GWh	-	-	-	0.11	0.11
Use of FRP for pipe heat protector	GWh	-	-	-	0.005	0.009
<b>Supporting Processes</b>						
Replacement of Freon R22 with R417A	GWh	0.12	0.12	0.09	0.12	0.12
Replacing fluorescence lamps to energy-saving LED ones	GWh	0.05	0.02	0.02	0.02	0.02
Optimization of operational vehicle fuels.	GWh	0.70	0.29	0.29	0.29	0.29
Replacement of LPG fuel with environmentally-friendly electricity on dryer and stove operations	GWh	2.03	0.83	0.83	0.83	0.83
Power savings through installation of solar energy panels	GWh	0.0009	0.0009	0.0007	0.0009	0.0009
<b>Community Development-related activities</b>						
Public road lighting	GWh	3.30	3.30	3.30	3.30	3.30
<b>Total</b>	<b>GWh</b>	<b>132.75</b>	<b>248.87</b>	<b>110.27</b>	<b>161.18</b>	<b>136.43</b>

**ENERGY INTENSITY [GRI 302-3]**

The implementation of various energy efficiency programs has generated a total gross electricity production in 2017 of 1,974,648MWh (7,108,736 GJ) while total usage of electricity (house load) of SEGWWL was 64,896 MWh (233,626 GJ). Electricity requirements for the operational activities include: electricity supply for power equipment and auxiliary and ancillary devices, such as for lighting of Administration Building, employee housing in the

field, and utility lighting. Therefore, the total electricity net power that could be transferred to the PLN network as the buyer was 1,909,750 MWh (6,875,110 GJ). The intensity of energy used compared to the amount of electricity production (gross) being generated is 3.49%. Based on Energy Efficiency Benchmark Report conducted by PT ITS Kemitraan in 2017, the Company's energy intensity compared with similar industries globally, resulted in the Company being ranked the 4th among 7 similar companies in the world.

### Power Production and Use

DESCRIPTION	UNIT	YEAR				
		2013	2014	2015	2016	2017
Gross Production	MWh	1,944,312	1,848,434	1,152,607	1,991,211	1,974,650
	GJ	7,000,311	6,703,483	4,149,386	7,168,359	7,108,736
Internal Use	MWh	68,083	67,660	42,072	66,570	64,896
	GJ	245,099	245,374	151,459	239,651	233,626
Net Production	MWh	1,879,580	1,780,774	1,111,244	1,923,953	1,909,750
	GJ	6,755,212	6,458,109	4,000,478	6,926,230	6,875,110

The energy usage reduction policies that we implemented have been successful; thus, according to the results of the calculation of the Energy Consumption Intensity (ECI) standard for air-conditioned rooms, SEGWWL's rates are very low (efficient). ECI's standards of this category are between 4.17 and 7.92 kWh/m<sup>2</sup>/month, while SEGWWL's rate is 3.91 kWh/m<sup>2</sup>/month for administration buildings and 1.12 kWh/m<sup>2</sup>/month for housing. Referring to the following table, the use of power energy in offices and housing areas were categorized as very efficient.

CRITERIA	AIR-CONDITIONED ROOM	NON-AIR-CONDITIONED ROOM
Very Efficient	4.17 - 7.92	0.84 - 1.67
Efficient	7.92 - 12.08	1.67 - 2.5
Fairly Efficient	12.08 - 14.58	-
Slightly Wasteful	14.58 - 19.17	-
Wasteful	19.17 - 23.75	2.5 - 3.34
Extremely Wasteful	23.75 - 37.75	3.34 - 4.17

Source: National Education Department of the Republic of Indonesia 2004

### FUEL CONSUMPTION AND CO<sub>2</sub> EMISSION [GRI 302-4, GRI 305-1]

In the framework of SEGWWL's operations, diesel fuel is used for operational vehicles. To implement energy efficiency programs, we regulate the route and mileage of all vehicles. In addition, we apply an operational vehicle age restriction policy and the periodic emission testing to vehicles that we use. The calculation of diesel use in the table below was based on the log of fuel filling for each operational vehicle. In 2017, there was a reduction in solar use amounting to 65.8 L or equivalent to 245.434 joule of reduction in energy consumption, or equivalent to CO<sub>2</sub> emission reduction amounting to 322.15 tons equivalent to CO<sub>2</sub>. The calculation of CO<sub>2</sub> equivalent uses emission conversion standards by using 2016 as a base year.

#### Table of Fuel Consumption and CO<sub>2</sub> Emissions reduction of Operational Vehicles

DESCRIPTION	UNIT	YEAR				
		2013	2014	2015	2016	2017
Used Diesel	(100) Liter	119.84	120.53	1333.2	1269.9	1204.1
Savings	Liter	(0.5)	0.7	12.79	(63.3)	(65.8)
Mileage	(1,000) Km	991.9	1007.8	1090.40	1046.6	949.4
CO <sub>2</sub> Emissions reduction	Ton Equivalent	319.75	322.47	356.69	339.67	322.15



## EMISSIONS

Our commitment to the reduction of emission complies with the emission-related regulations and standards. We also monitor and calculate every emission source. The main sources of emissions are from the power generation system, where the total emission of each cooling tower cell is low. Emission sources from supporting activities include: transportation, refrigeration facilities, and household facilities of office activities. We implemented the emission reduction programs and policies, including intensifying the CDM program, to substantially reduce emissions as part of optimizing CO<sub>2</sub> emission reduction potentials from PLTP.

### PLANT EMISSIONS [GRI 305-1]

PLTP is an eco-friendly power plant as it only emits greenhouse gases (CO<sub>2</sub>) from NCG (Non-Condensable Gas) contained in steam from the generation process. This is the lowest (CO<sub>2</sub>e emission of 250 lbs/MW/day) as compared to power generations fueled by gas, coal and crude oil. To minimize the formation of NCGs, we strive to prevent excess steam supply in the steam distribution pipeline system from production wells. The method is to apply the "Integrated Control" with a zero venting concept during normal operation. SEGWWL is the first geothermal operator in the world that applies this system. As a result, the total emission from power plants in 2017 was 118,399 TCO<sub>2</sub>e, a decrease of 14% from previous year's 138,090 TCO<sub>2</sub>e.

### NON-CONDENSABLE GAS (NGC) EMISSION

We regularly monitor the emissions of cooling towers at Units 1 and 2 power plants to make sure that the levels are below the provisions of the quality standards established by the Government. The monitoring takes place twice a year, involving independent and accredited third parties. The parameters measured include non-condensed gas emission levels such as CO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, in 2017 which have all been measured to be substantially below the quality standards.

## EMISSIONS OF TRANSPORTATION ACTIVITIES

### [GRI 305-1]

Vehicles are one of the CO<sub>2</sub> emission sources, and that is why we mitigate this by applying fuel efficiency for operational vehicles. We calculate the equivalent CO<sub>2</sub> emissions generated based on commonly used standard formulas, which is based on chemical reactions occurring in the combustion process. SEGWWL transportation activities comprise of two types.

- First, direct transportation related to operational activities inside the field or public activities.
- Second, indirect transportation activities related to operational support activities, such as public transportation use for supporting business process.

We apply our efficiency programs in the forms of:

- Setting the age of vehicles used in the field.
- GPS installation in every operational vehicle and implementing the travel route setting procedures.
- Intensification of the use of information technology-based support infrastructure, namely video conference.

In 2017, the emissions from transportation activities were:

- Direct transportation amounting to equivalent 322.15 tons of CO<sub>2</sub>, a decrease of 5.2% from the previous year's 339.67 TCO<sub>2</sub>e.
- Indirect transportation amounting to 11.175 tons of CO<sub>2</sub>, a decrease of 43.8% from the previous year's 19.88 TCO<sub>2</sub>e.
- The use of video conference in relation to the transportation emission reduction has saved fuels and reduced emissions amounting to 18.82 tons of CO<sub>2</sub>.

Referring to the Regulation of the Minister of Environment No. 5/2006, on the Limit of Old Motor Vehicle Exhaust Emissions and EURO-2 standards, we performed emission and feasibility tests on all operational vehicles. The emission and feasibility tests involved the local Transportation Department.



**OTHER GHG EMISSION SOURCES**

Another source of emission is operational supporting activities. We have applied a emission reduction policy by replacement LPG usage to a more environmentally friendly on the electric operation of the dryer and stove. In 2017, the emission, from this measure, reached 23.88 TCO<sub>2</sub> (the same as previous year).

**EMISSION REDUCTION OF OZONE DEPLETING SUBSTANCES (ODS) [GRI 305-6]**

Ozone Depleting Substances (ODS) trigger the thinning of the ozone layer, which protects the earth from the sun’s radiation. Thus, the diminishing ozone layer causes global warming. Several chemical substances deplete the ozone layer, including Freon-which is used in air-conditioners. We strive to reduce the Freon to the more environmentally friendly R417A (HFC). This is in accordance with the President Regulation No. 23 of 1992 concerning the Ratification of Vienna Convention for the Ozone Layer Protection and the Montreal Protocol on substance reduction that potentially diminishes the ozone layer.

This program improved energy efficiency, with savings up to 20% or equivalent with electricity savings of 120 MWh per year, in addition to a CO<sub>2</sub> emissions reduction of 32.92 MT CO<sub>2</sub> per year. This calculation is based on an emission conversion standards.

We also monitor the emissions of the other potentially damaging ozone gases, such as H<sub>2</sub>S and NH<sub>3</sub> coming out of the main equipment in the PLTP power generation system. Periodic monitoring in the form of emission testing is carried out regularly by independent parties. The amount of gas emissions under the Environmental Quality Standards is prescribed by the Local Government.

PARAMETER	STANDARD QUALITY	UNIT	TEST RESULT
CO <sub>2</sub>	Na	%	<1
H <sub>2</sub> S	BM:35 mg/ Nm3	mg/Nm3	<5 s/d 0.43
NH <sub>3</sub>	BM:35 mg/ Nm3	mg/Nm3	<0.1 s/d 0.3
Sangat Boros	23.75 - 37.75	3.34 – 4.17	



**EMISSION AND REDUCTION OF CO<sub>2</sub> GAS** [GRI 305-1, GRI 305-4, GRI 305-5]

There were generally positive results from our efforts to reduce greenhouse gas (GHG) emissions. The emission and reduction of emission are illustrated below. The calculations are based on a calculation standard or emission methodology.

**TABLE OF WAYANG WINDU'S CO<sub>2</sub> EMISSIONS** [GRI 305-1]

NO.	EMISSION SOURCE	UNIT	YEAR				
			2013	2014	2015	2016	2017
1	Emissions from Production Processes						
1.1	Generator Emissions	MTCO <sub>2</sub>	145,564	159,934	93,947	137,466	122,037
2	Emissions from Supporting Facilities						
2.1	Transportation	MTCO <sub>2</sub>	320.62	322.47	356.69	339.67	322.15
2.2	Waste Processors	TCO <sub>2</sub> e	20.25	6.94	0.9972	(47.27)	(19.19)
2.3	Public Transportation	TCO <sub>2</sub> e	6.89	52.36	25.17	19.88	11.18
	<b>Total Emissions from Supporting Facilities</b>	<b>TCO<sub>2</sub>e</b>	<b>348</b>	<b>382</b>	<b>382</b>	<b>312</b>	<b>314.14</b>
	<b>Total Emission from Business Unit</b>	<b>TCO<sub>2</sub>e</b>	<b>145,911</b>	<b>160,315</b>	<b>94,329</b>	<b>137,778</b>	<b>118,399</b>

**Air Pollutants Reduction Program** [GRI 305-4, GRI 305-5]

NO.	AIR POLLUTANTS REDUCTION PROGRAM	2013	2014	2015	2016	2017
1	Wayang Windu CDM Program	764,667	764,667	435,689	781,487	765,390
2	Penggantian penggunaan energi LPG kelistrikan ramah lingkungan pada pengoperasian Dryer dan Kompor	21.19	22.38	25.37	23.88	23.88
3	Replacement of Freon R22 with R417A	32.92	32.92	32.92	32.92	32.92
4	Emission reduction from an environmentally friendly pump or generator program	1.719	2.539	2.539	1.574	925
5	Fuel optimization of operational vehicle	321	322	357	340	322
6	Minimizing the use of fuel with video conference	16.32	15.11	15.11	14.07	18.82
7	Shuttle use optimization	799.13	799.13	799.13	799.13	799.13
8	Optimization of geothermal energy as renewable power with the use of FRP in pipes	-	-	-	0,13	-
	<b>Absolute Total of Emission Reduction</b>	<b>767,575</b>	<b>768,398</b>	<b>439,458</b>	<b>784,271</b>	<b>767,512</b>
	<b>Total Generation Production</b>	<b>1,930,282</b>	<b>1,848,434</b>	<b>1,113,597</b>	<b>1,922,142</b>	<b>1,912,594</b>
	Emission Intensity to Generation	0.076	0.087	0.085	0.072	0.062
	Ratio of Emission Reduction to Total Emission	5	5	5	6	6

## WATER [GRI 303-1, GRI 303-3]

Water utilization in our operational process is very important. However, our commitment to water conservation and the maximum use of produced water is no less important. In our operational processes, water is used for:

- Brine water and condensate injection into the earth through injection wells to ensure the quantity of water steam as the energy source to drive the PLTP turbines.
- Use of condensate water or brine water for drilling activities.
- Supporting operational activities, namely for domestic purposes (bathing, washing and toilet).

To measure our efficiency and water utilization performances, we calculate the intensity of water usage divided by the total power generated.

**Tabel of Water Extraction Based on Source [GRI 303-1]**

WATER SOURCE	TOTAL VOLUME OF WATER USED
Surface water	3,359 m <sup>3</sup>
Ground water	8,146 m <sup>3</sup>
Rain water	1,161 m <sup>3</sup>
PAM water	-
<b>TOTAL</b>	<b>12,666 m<sup>3</sup></b>

The calculation above is based on a standard or meter reading methodology.

Reutilization of our produced water is for the processes of:

- Injection of water into the earth uses brine water and condensate water, which is water produced from the operation of the steam field and PLTP
- Using condensate water in the WIP program.

Thus, we reuse all the produced condensate water and, consequently, ground water is not needed in WIP program. The total volume of reused condensate water in 2017 is 1,355,326.92 tons, an increase at 6.29% from previous year, which amounted to 1,275,175.03 tons;

which means there was a saving of 80,151.89 tons. The amount of reused condensate water accounts for 56.36% of the total condensate water. [GRI 303-1]

Domestic water use is supplied from shallow groundwater. In 2017 we consumed 11,505 m<sup>3</sup> of shallow groundwater, a decrease of 1.9% from previous year's 11,731 m<sup>3</sup>. Thus, the intensity of water usage divided by total generated electricity in 2017 was 0.0058 m<sup>3</sup>/MWh or equal to 5.8 liters/MWh.

We have minimized water use for the Company's operations and domestic. We also run various campaigns to foster staff awareness in water conservation, such as: putting on reminder stickers, reparation of damaged faucets, advocating the use of buckets when washing operational vehicles, and so forth. We monitor surface water collection and utilization to meet domestic needs as well as to ensure a well-balanced usage of shallow groundwater around the operational area.

SEGWWL also processes a large part of water volume to reuse it. Some of the remainder, after being ensured to fulfill the quality standards set by the government, is sent back to the waterbody, Cisangkuy River. Before sending the treated waste water back to the waterbody, which is Cisangkuy River, we perform a domestic waste water treatment process at the sewage treatment plant (STP) in accordance with the provisions of the Decree of the Regent of Bandung No. 666/Kep.005/IPBL/BPMP-2015. Water processing aims to eliminate or minimize the presence of substances that are harmful to the environment. In water monitoring and processing, we cooperate with experienced independent parties to meet the approved quality standards. [GRI 306-1]

Other measures of water conservation are building water absorption facilities to absorb rainwater, in the form of water absorption wells and biopores. This program is in accordance with the Regulation of the Minister of Environment No. 12/2009 on Rainwater Utilization. The total absorption wells for rainwater absorption up to 2017 is currently 5 units. The absorption rate depends more or less on the local rainfall.



In addition, we build rainwater reservoir ponds of which the water is used for washing vehicles. After the water is used for washing vehicles, we use the water again as recycled water. Water utilization from this pond is predicted to be around 1.161 m<sup>3</sup>/month in 2017. The program is implemented to reduce the usage of surface water for domestic use.

## WASTE MANAGEMENT AND TREATMENT [GRI 306-2]

SEGWWL's waste management policy is stated in a special procedure called Waste Management (EPE.WM), which is performed in the following approaches:

- The principle of 3R (Reduce waste, Re-use and Recycle) and safe disposals
- Separation of the type of waste into two major groups, namely hazardous and toxic waste (B3) and non-B3 waste.

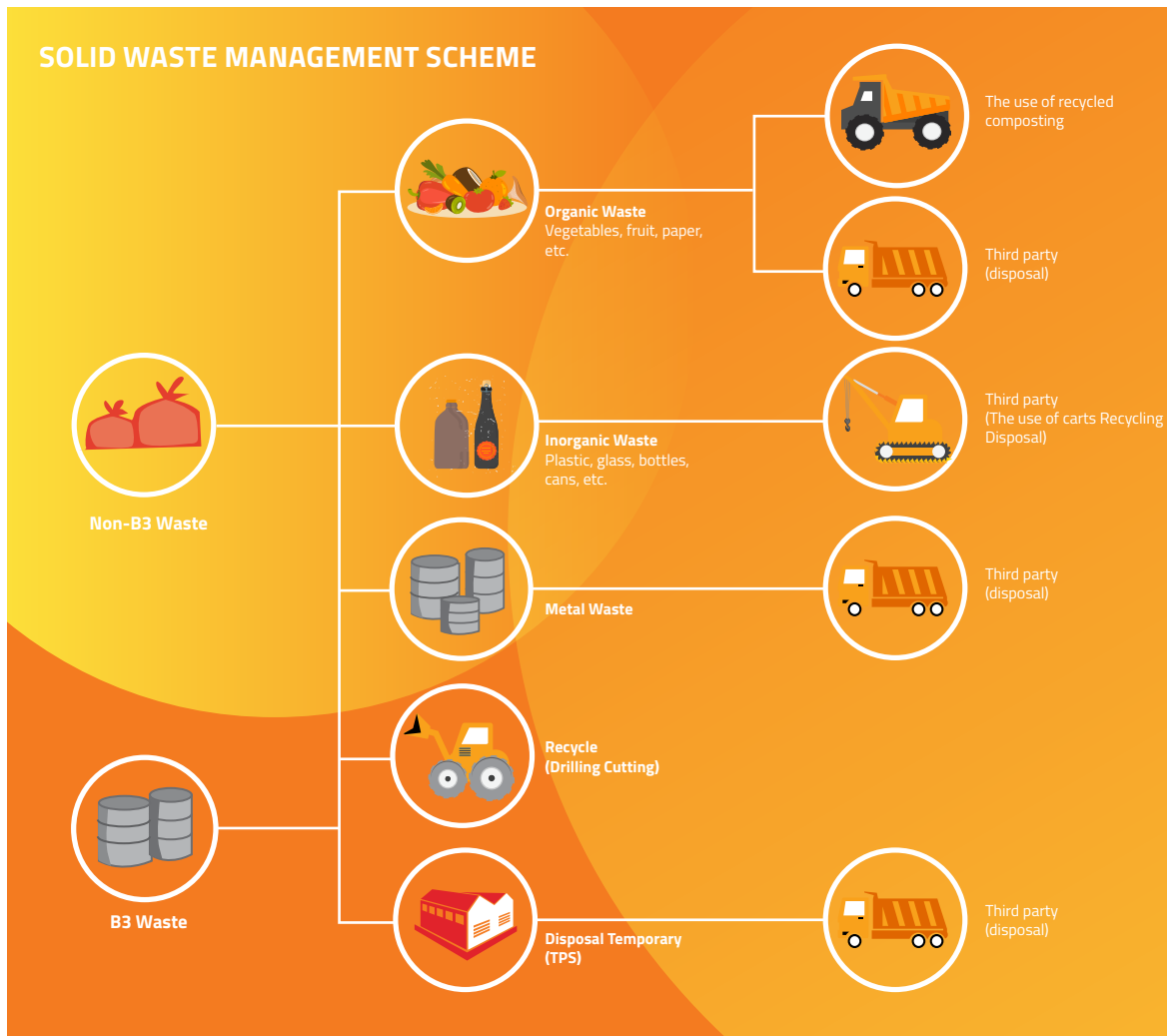
Based on its physical state, we process two types of waste, namely solid waste and liquid waste. Then according to the nature of its impacts, we classify waste into B3 and non-B3 waste. The waste management, especially for garbage, comprises waste monitoring,

waste sorting, transport to temporary storage area (TPS) and transport to final storage area (TPA)). In managing waste, we always prioritize the Reduce principle, through improved operational efficiency. The example of such implementation is ordering caustic soda using a bulk system; B3 waste from this material went down by 7.5 tons. In addition, we take efforts in reducing e-waste by using "all-in-one PC".

## E-DOCUMENT APPLICATION TO REDUCE PAPER WASTE

One of the benefits of ever-advancing technology is waste reduction. We apply this by drastically reducing the use of paper and replace it with E-Doc application for purposes. For example:

- FRACAS, which is used as an online reporting system for reporting K3LL and Work Permit.
- BPM application used by HR department for personal form filling such as pay slip, leave application, travel order, etc.
- Protap Online Application for online power transaction processing.
- Data logger for the operator reporting program. Total paper savings from the use of the application in 2017 was 8.40 kg.



### HAZARDOUS (B3) WASTE MANAGEMENT

In treating hazardous waste, we have implemented standard operating procedures that is in accordance with applicable legislations, namely:

- Managing licensed temporary storages to place hazardous waste, which is based on BPMP Decree on behalf of the Regent of Bandung No. 658.31/04/VI/ DPMPTSP.
- Equipping packaging requirements of B3 waste with symbols and labels in accordance with applicable regulations.
- Reporting B3 waste management once every three months to the Ministry of Environment and submitting a copy to the Regional Environmental Management Agency (BPLHD) of West Java Province, BPLHD Bandung Regency and PPLH Java.

Large quantities of B3 waste from the operational processes come in the form of used oil from the turbine gearbox. Through analysis program, we change lubricant oil under operational conditions, not based on the recommended changing schedule according to the equipment's specifications. This program resulted in a substantial reduction in the volume of waste oil, amounting to 456 liters of oil in 2017.

For final disposal of B3 waste, we appoint an environmentally aware, government-certified third party which complies with the applicable rules and regulations.



## NON-HAZARDOUS (NON B3) WASTE MANAGEMENT

Wayang Windu produces non-B3 waste from operational and maintenance activities of the steam field and PLTP, office operation, warehouse, clinic, garden areas around the offices, as well as employee housing and domestic activities. We equally apply Reduce and Recycle principles for non-B3 waste, and as a result, the amount of non-B3 waste decreases every year. Specifically, for organic waste resulting from the majority non-B3 waste, we applied 100% of recycle into compost fertilizer. The amount of organic waste per year is approximately 12,708 kg or 1,059 kg per month.

While the amount of non-B3 waste was 1.01 ton per year, or 83.86 kg per month. This signifies a 10.61% increase from

the previous year's 0.91 tons. The recycled waste accounts for 47.7% of the total waste.

Out of non-routine activities, the following reusable waste is produced: fan blade, fan stack and cooling tower fill. A total of 14.6 tons of this waste has been entirely used by the local community around the Company's area.

An example of a non-B3 waste reutilization is the fan Blade (a material part of the construction of NCG air booster fans from the cooling tower chimney) which is used as a gate at the village or alley. A used fan stack is reused by Pecinta Alam Tapak Tiara as an outdoor adventure arena in Rahong Forest area. The rest of the non-B3 waste, i.e. paper and plastic waste, is managed in collaboration with TBM Kertamanah and the local Department of Sanitation.

**TABLE OF WASTE BASED ON TYPE AND DISPOSAL METHOD [GRI 306-2]**

HAZARDOUS & TOXIC WASTE (B3)	WEIGHT (TON)		DISPOSAL METHOD
	2016	2017	
Contaminated waste	4.358	1.142	Packed and sent to licensed third party
Laboratory waste	0.062	0	Packed and sent to licensed third party
Medical waste	0.03	0.018	Packed and sent to licensed third party
Dry battery	0.01	5.726	Packed and sent to licensed third party
Expired chemical substance	0	0.03	Packed and sent to licensed third party
Used lubricant oil	6.266	2.971	Packed and sent to licensed third party
Used toner	0.001	0.05	Packed and sent to licensed third party
TL lamp waste	0	0.228	Packed and sent to licensed third party
Electronic waste	0	0	Packed and sent to licensed third party

NON-B3 WASTE	WEIGHT (TON)		DISPOSAL METHOD
	2016	2017	
Organic waste	12,696	12,708	The use of recycled composting
Paper	421.16	767.8	Packed and sent to Waste Bank
Plastic	206.06	238.47	Packed and sent to Waste Bank
Shredded paper	130.5	440.3	Packed and sent to Waste Bank
Bantex	70	0	Packed and sent to Waste Bank
Carton box	82	40	Packed and sent to Waste Bank
Fan blade	1,250	0	Packed and sent to Waste Bank
Fan stack	-	-	Packed and sent to Waste Bank
Fill drift	17,182	10,057	Packed and sent to Waste Bank
<b>TOTAL</b>	<b>19,341.72</b>	<b>11,543.57</b>	

## ALLOCATED FUNDS FOR ENVIRONMENT

As a commitment to improving the quality of the environment, we provide allocate funds for Occupational Safety, Health and Environmental (K3L) activities amounting to Rp 2,188,849,135. This is a decrease of 15.5% compared to that of previous year, i.e. Rp2,592,060,268. The allocated environment funds were used for numerous activities including:

- Environmental management and monitoring
- B3 and non-B3 waste management
- Revegetation and biodiversity enrichment
- Workshop, campaign, training and dissemination of environment-related issues.

The efforts we take to preserve the environment and to comply with the applicable laws and regulations have fostered trust from various parties, local communities and especially the Government. During the reporting year of 2017 we did not receive any fines or violated any laws related to violations of environmental laws and regulations [GRI 307-1]

## AWARDS

We achieved several awards for our efforts in building an environmentally friendly company. SEGWWL has participated in the PROPER program since 2004/2005 assessment year until now, achieving:

- Eight times Green rating
- Five times Gold rating

In 2017 we again achieved the Gold PROPER rating for our efforts in environmental protection and community empowerment programs. This achievement is supported by technical advantages and managerial excellence that we have, such as:

- Integrated control system with zero venting concept, the first one in Indonesia.
- Applying real-time monitoring of emission debit.

- Utilization of condensate water for drilling processes, the first one in Indonesia.
- Community empowerment program of coffee nursery and eco-tourism.

In management, we implement an "Integrated Management System": ISO 14001, ISO 9001, OHSAS 18001, ISO 50001, ISO 55001, ISO/IEC 17025 & SMK3 applied in the WIMS (Wayang Windu Integrated Management System). Also, we implemented a quadruple-helix concept in the sustainable economic development sector, which is in cooperation with industry, scholars, the Government and the communities for supporting economic and social development.

Our environmental protection and community empowerment programs comprise:

- WIP (Well Intervention Program), i.e. management of production wells so as to arrive at a optimum level through environmentally friendly methods;
- Sulfur Control Program in Cooling Water System;
- Utilization of AC Condensate Water at the Power Station for car wash;
- Green Economy Program (Three-in-One Coffee Activity – Margamulya Village Cooperative) and
- Community education improvement, collaborating with Rumah Pintar Operations through its programs.

We are committed to maintain of our achievements in the environment and community sector, considering the importance of preserving the earth for the next generations. We are aware that this Company's sustainability depends on our investments and efforts in preserving the earth.



SUSTAINABILITY  
GOVERNANCE



OCCUPATIONAL  
HEALTH AND  
SAFETY



IN HARMONY WITH  
COMMUNITIES



DEVELOPING WAYANG  
WINDU'S RESILIENT AND  
COMPETENT PEOPLE



GRI STANDARDS INDEX





# CONTRIBUTION TO ECONOMIC GROWTH



“The presence of company plays significant role on the society and other stakeholders’ economic growth, on top of accelerating national economic growth”.







SUSTAINABILITY  
GOVERNANCE



OCCUPATIONAL  
HEALTH AND  
SAFETY



IN HARMONY WITH  
COMMUNITIES



DEVELOPING WAYANG  
WINDU'S RESILIENT AND  
COMPETENT PEOPLE



GRI STANDARDS INDEX



The Government has targeted completing the 35,000 MW Program by the end of 2019 as part of its electricity infrastructure development. The Program consists of construction of power plants, transmission networks, and distribution lines across Indonesia with an end-goal of reaching a 97.4% electrification ratio by the end of 2019 and enable balanced economic growth.

## SUPPORTING THE GOVERNMENT TARGET IN RENEWABLE ENERGY

The Government's 35,000 MW Program also aims to increase the share of electricity generated from renewable and environmentally-friendly power plants, such as hydroelectric, geothermal, wind, and solar. We are committed to such targets by increasing electricity generated from geothermal energy to provide the best impact for national economic growth.

In 2017, we supplied approximately 1,910 GWh of electricity to networks managed by PT PLN (Persero). In the times to come, we aim to increase electricity supplied by the Wayang Windu geothermal field as well as other fields that we manage.

Based on data released by panasbuminews.com, Indonesian geothermal fields are distributed across 299 locations with a potential of 28,617 MW – 40% of the world's total. As of 2017, the exploited geothermal potential in Indonesia stood at 1,808.5 MW, according to the Ministry of Energy and Mineral Resources. Including our installed capacity of 227 MW, the figure is equal to 6.3% of the Indonesian potential.

## GEOTHERMAL FIELD DEVELOPMENT

We have three programs to develop geothermal power plants: by optimizing existing generators, by constructing new power plants, and by acquiring geothermal field rights. To maintain the performance of current power plants, we make every effort to sustain production capacity through maintenance of wells and generators as well as implementation of the Wayang Windu Integrated Management Systems. Both programs are aimed to:

- Improve operational efficiency of main equipment and maintain protection systems to ensure generator readiness and consistent production of power output.
- Ensure synergies, integration, and reliability of power plants.
- Ensure performance improvements of power plants in nominal operating conditions.

In such power plant operation and development, we are committed to comply with current legislation in developing and executing electricity purchase agreements. We are also committed to improve effective and efficient power plant management.





## CONTRIBUTION TO STATE REVENUE

We contribute directly to state revenue from our taxes, import duties, and retribution from land/use of geothermal energy. We are in compliance with legislation in taxes, i.e. sales tax, income tax, and other pertinent tax responsibilities.

We are also contributing to national economic growth by providing optimum and at-capacity supply of electricity. We believe that an uninterrupted supply of electricity helps to improve productivity and business operations. We also provide material contribution to the state by constructing numerous facilities and infrastructure (see "Community Development"), such as:

- Roads in rural areas.
- Rural administration infrastructure.
- Places of worship.
- Education facilities, from kindergartens, primary schools, and secondary schools.

## SUPPORTING REGIONAL ECONOMIC GROWTH [GRI 203-2]

Our contribution towards regional economic development is both direct and indirect, e.g. land and building tax on offices and supporting facilities, construction of public facilities, use of locally-sourced goods and services, and recruitment of residents adjacent to our areas of operations.

For instance, 28 or 14% of our employees in 2017 are local residents, some of whom have built their careers as staff, supervisors, and engineers.

## RELATIONSHIP WITH SUPPLIERS, CONTRACTORS, AND PARTNERS

We have implemented the Contractor Safety and Health Environmental Management System (CSMS) in our screening process and when assessing major contractors' performance. The System enables us to build the competence of both our contractors' manpower and management such that it aligns with our occupational health, safety, and environment standards. [GRI 308-1]

Following the criteria outlined in the CSMS, we require contractors to meet the rights of their manpower. The CSMS also benchmarks major contractors' performance against workmanship standards. As part of our commitment to uphold human rights, we have in place a whistleblowing system to ensure that the procurement of goods and services is conducted in a transparent and accountable manner.

The CSMS consists of six (6) phases: risk assessment, prequalification, selection, pre-job activity, job management, and final evaluation. We insist on our partners meeting our standards in quality of goods, credibility, accountability, accuracy of goods and services, and fair prices. In addition, we require our partners to meet occupational health and safety standards. We routinely evaluate our partners during procurement, execution, and conclusion of a contract as benchmark for future selection processes. In the reporting year, all, 100%, of our major partners went through the screening process. [GRI 414-1]





## PRODUCT STEWARDSHIP AND CONSUMER PROTECTION

Our product is 150 kilovolts (KV) of electric power that we sell to our sole customer, PLN, in accordance with prevailing legislation. The product is not packaged in any form and does not bear any production code. Given that we have one customer stated by prevailing legislation, it eliminates the need for sales, marketing, or other outreach to sell the product.

The electricity we generate is transmitted to the Java-Madura-Bali interconnection network managed by PLN. Our sales agreement with PLN underlines the following general provisions:

- The sale of electricity is regulated by a fixed-term sales agreement.
- The price of electricity per kWh refers to the sales agreement with PLN upon approval by the Ministry of Energy and Mineral Resources.
- The amount of power sold in each period is determined by operational plans prepared in accordance with interconnection demands and our maximum generation capacity.

- PLN is committed to receiving at least 95% of our maximum generation capacity. If PLN fails to accept 95% of the maximum generated capacity as stated in the agreement, PLN is liable to a fine calculated by the difference of unreceived supply as stated in the agreement.

We maintain intensive communications with PLN to ensure that we supply the correct amount of power and voltage. Discussions with PLN include topics such as operation plans and routine maintenance of steam production installations and generators. The production procedure and electricity sales administration are each conducted in such a sound manner that we received zero complaints during the reporting period. Furthermore, there were zero complaints and zero financial sanctions caused by breaches of the agreement on electricity supply and product usage. [\[GRI 417-3\]](#)



## PRODUCT SAFETY

We use special heat insulations in the piping network that channels steam from production wells to minimize harm for people and animals. We ensure that all equipment used in business operations is environmentally friendly. We conduct routine evaluations and inspections on the security of our production facilities, production wells, and electrical interconnection to PLN's substation. The routine evaluations and inspections are intended to ensure that all policies and security procedures do not harm the health and safety of workers, public, living beings, and the environment. [GRI 416-2]

Under our current procedures and preventive measures, we have received zero reports, grievances, or complaints that could indicate violations to health, safety, and environment in supplying the product. [GRI 419-1]



# SUSTAINABILITY GOVERNANCE



“SEGWWL is committed to implementing the best sustainability governance through the implementation of sustainability principles and compliance to accredited operational standards”.





SUSTAINABILITY  
GOVERNANCE



OCCUPATIONAL  
HEALTH AND  
SAFETY



IN HARMONY WITH  
COMMUNITIES



DEVELOPING WAYANG  
WINDU'S RESILIENT AND  
COMPETENT PEOPLE



GRI STANDARDS INDEX



We are committed to improving good corporate governance (GCG) in all business aspects, aimed to:

- Achieve maximum growth and returns to improve corporate earnings, increase long-term shareholder value, and uphold stakeholder welfare;
- Build and foster excellent relationship between our Shareholders, Board of Commissioners, Directors, and Stakeholders;
- Support internal control activities and business development;
- Improve resource management to increase accountability to corporate stakeholders;
- Improve the welfare of our employees and offer optimum benefits to our stakeholders.

We are always improving good corporate governance by implementing its five principles: transparency, accountability, responsibility, independence, and fairness. We have fulfilled the necessary prerequisites to improve the quality of GCG implementation, as follows:

- Collective Bargaining Agreement, containing binding provisions for employees concerning their duties and responsibilities and our part in the compliance with labor regulations.
- Code of Conduct, containing conduct guidelines when interacting with internal and external parties as well as professional conduct while on Company property.
- Whistleblower Policy Guidelines, offering every party the opportunity to prevent and eliminate violations and abuse of authority.

## GOVERNANCE STRUCTURE AND MECHANISM [GRI 102-18]

Our corporate structure and governance are composed of Shareholders and Directors, the latter manages daily business of the Company. The highest decision-making is vested in the Directors while the highest authority is vested in the General Meeting of Shareholders (RUPS, Rapat

Umum Pemegang Saham). To determine the business direction and evaluate Board of Directors' performance, Shareholders convene at the Annual General Meeting of Shareholders (RUPS) and at the Extraordinary General Meeting of Shareholders when deemed necessary.

## INTERNAL CONTROL

We have internal controls in place to ensure accountability and transparency according to basic GCG principles. The management offers its assurance to the Internal Audit Department on business effectiveness and efficiency, execution of operational standards, regulatory compliance, and accuracy and reliability in its reports.

To ensure compliance with prevailing legislation, we refer to the five regulatory references to benchmark our audit activities: Principles of Good Corporate Governance, Code of Conduct, Sarbanes-Oxley Act, COSO Frameworks, and Enterprise Risk Management.

The Internal Audit Charter governs the Internal Audit team in conducting its duties, responsibilities, authorities, and reporting mechanism. The Charter has been endorsed and approved by the Directors and known by the Shareholders. In addition to the Charter, the Internal Audit team also refers to the International Standards for the Professional Practices of Internal Auditing published by the Institute of Internal Auditors (IIA).

The Internal Audit team always looks for opportunities to improve their competence through training and education. Continuous training, professional certification, and business trainings deliver quality audit results and keep up-to-date with current auditing standards. Our





auditors are also equipped with specially-designed trainings on corruption and its prevention. To prevent and minimize the unwanted practice, the Internal Audit team conducts routine inspections to units that are susceptible to corruption, such as the procurement, maintenance, and finance units.

We impose harsh sanctions on discovery of strong indications of corruption, ranging from termination to criminal charges. In 2017, there were no incidents of corruption that led to criminal proceedings. [GRI 205-3]

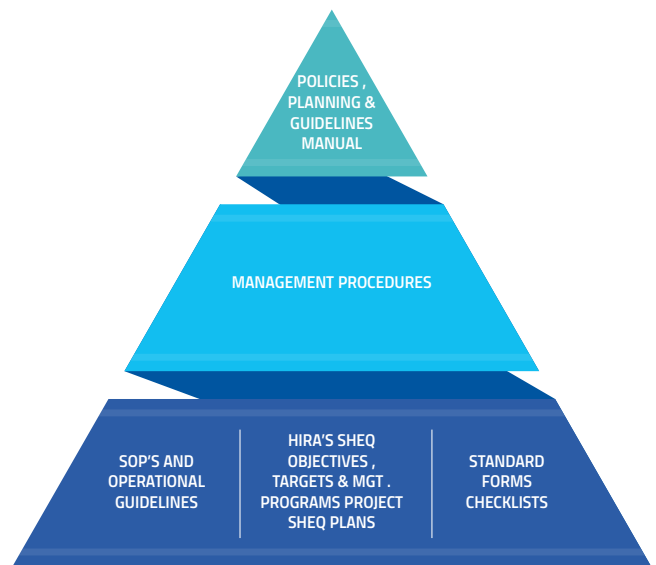
### WAYANG WINDU INTEGRATED MANAGEMENT SYSTEM (WWMS)

[GRI 102-11, GRI 102-12]

The Wayang Windu Integrated Management System is an effective mechanism to improve business and environmental management performance. In daily operations, we ensure sustainability in the Planning stage by conducting the environmental Hazard Identification and Risk Assessment (HIRA); in the Implementation stage by various standard procedures; in the Check stage by engaging both Internal Audit and External Audits (such as PROPER Audit, ISO 14001, OHSAS 18001, SMK3, and audits by the Environmental Conservation Office of Kabupaten Bandung, Office of New Energies, Renewable Energy, and Energy Conservation, and so on); and, in the Action stage by conducting the Performance Improvement Request to demonstrate continuous improvements. The

Wayang Windu Integrated Management System is part of our unwavering effort to consistently improve good corporate governance.

We adopted a number of accredited operating standards, such as ISO 14001: 2015 Environmental Management, SMK3 and OHSAS 18001: 2007 Health and Safety Management System, and ISO 9001: 2015 Quality Management Systems. We also adopt unaccredited operating standards, such as operating standards for maintenance. Every operating standard that we adopt are managed under the Wayang Windu Integrated Management System in order to streamline the administration of such standards.



### WAYANG WINDU POLICY STATEMENT

## BUSINESS ETHICS [GRI 102-16]

We have prepared a Code of Conduct to govern every level of the company to uphold and implement internationally accepted business ethics. Every level of the Company is required to comply and implement every provision in the Code of Conduct by signing a "Statement of Commitment." Items listed in the Code of Conduct include:

### WHISTLEBLOWING SYSTEM

We have consistently implemented a Whistleblowing System as a measure for transparency, accountability, and fairness in business relationships. The system is part of our plan to improve the quality of Good Corporate Governance, including participation to eradicate corruption, grafts, and other malfeasances. The standard also contains mechanisms that are designed to encourage reports and ensure the safety and confidentiality of both whistleblowers and investigators.

### BAN ON DISPATCH AND RECEIPT OF GIFTS AND DONATIONS

We consistently prohibit the dispatch or receipt of gifts and donations, in any way or form, both from internal and external parties. The ban was put in place to prevent interference in the decision making process and minimize conflicts of interest, which may impair our business partners' trust in our integrity.

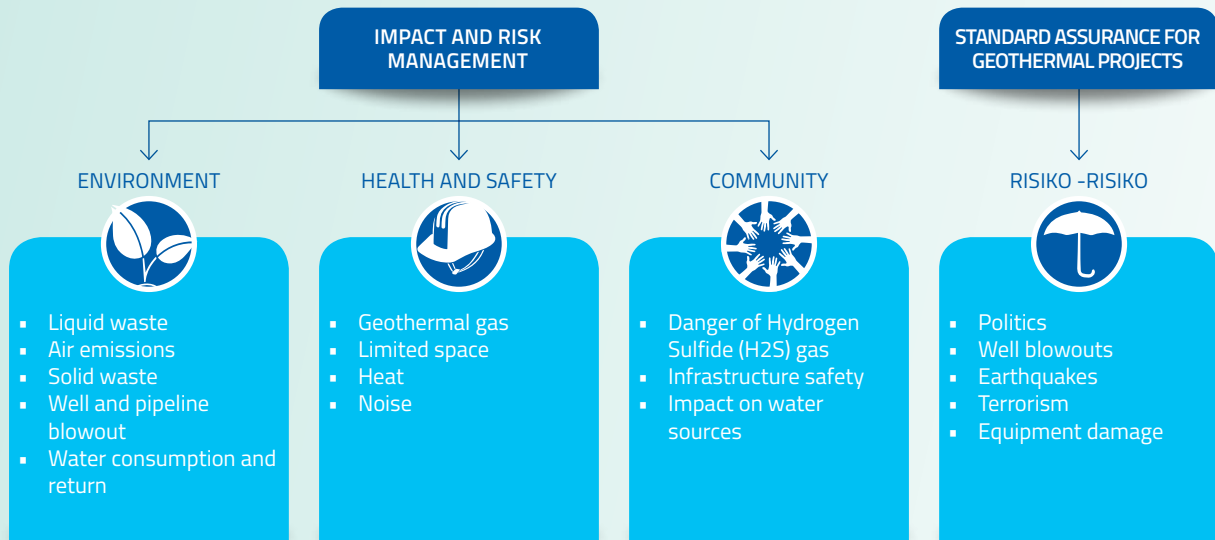
## POLICIES ON INVESTMENT AND PROCUREMENT OF GOODS AND/OR SERVICES [GRI 414-1]

Our procurement policy is founded on the principles of transparency, accountability, effectiveness, efficiency, openness, fairness, and non-discrimination. We make every effort to ensure that the procurement of goods and services are conducted according to prevailing legislation - demonstrating our commitment to business principles that respects honest and non-monopolistic business practices. When selecting contractors for contracts of substantial value, such as exploration and exploitation drillings, we have always inserted a non-violation clause. For substantial contracts, only reputable companies are considered. All new suppliers and partners undergo a screening process aimed to ensure regulatory compliance.

### EQUAL OPPORTUNITIES

In developing concession areas in remote locations, we place high respect in recruiting human resources based on competence and equal opportunity. Before exploration or exploitation takes place, we conduct a series of comprehensive environmental impact analysis, including social impact to local residents. We also enforce equal opportunities in recruitment and competence building. Career advancement is based on a dynamic assessment system that is held openly, including talented people from local communities. This is our firm commitment, resulting in zero complaints of discrimination in this reporting year.

[GRI 406-1]



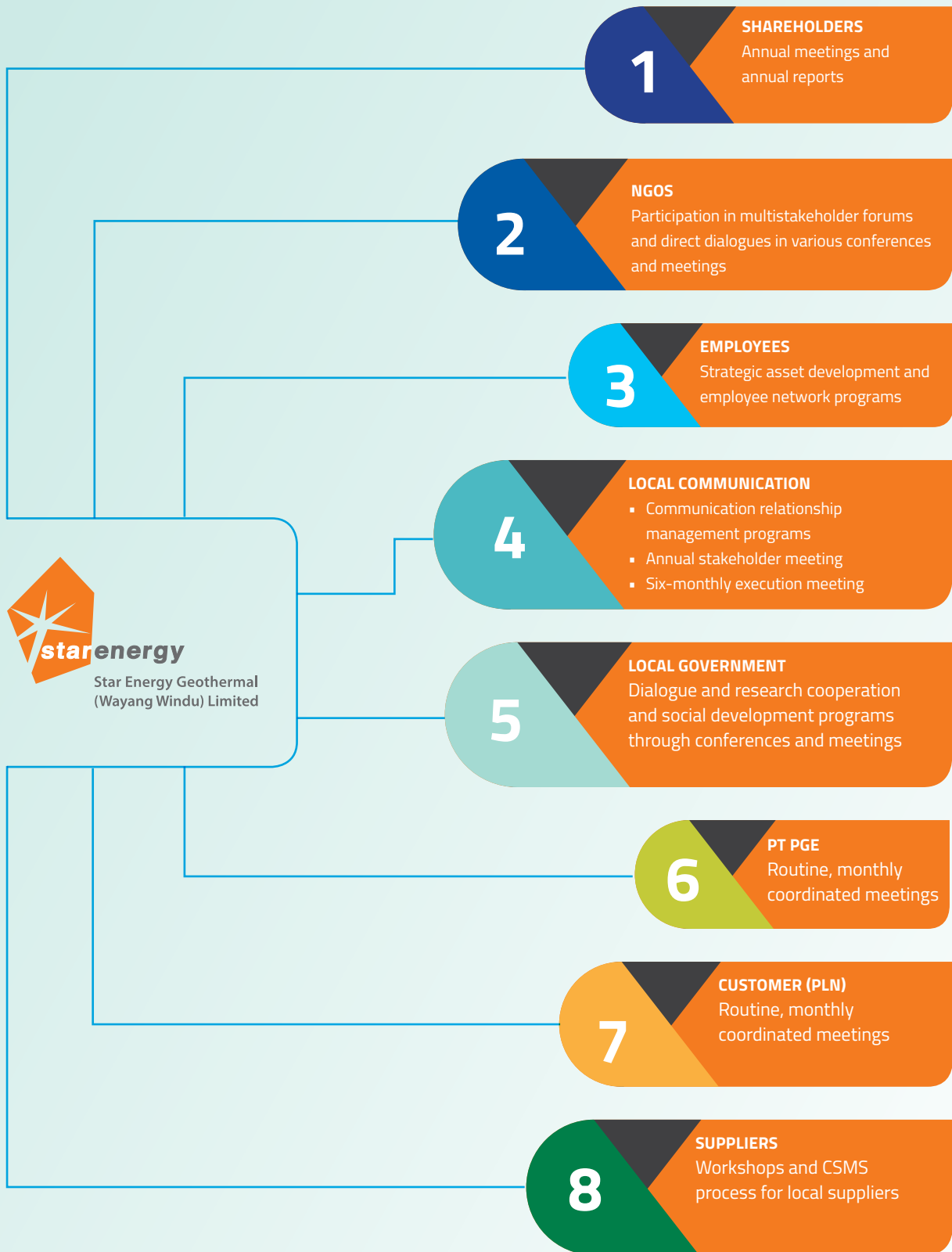
### POLITICAL ACTIVITY AND POLICY ON POLITICS

We strictly prohibit the use, both directly and otherwise, of the Company's funds or assets by political parties or candidates of political parties. We are never involved in the formulation or preparation of public policies. Our involvement in public policy is only limited to amendments to investment regulations in geothermal power that we offer to investment associations or companies working in geothermal energy. Our other involvements are proposals on community development programs designed to complement similar programs prepared and/or executed by the Central/Regional Government. [GRI 415-1]

### SUGGESTIONS TO THE DIRECTORS

We give every opportunity for our employees to submit their opinions and offer suggestions to the Directors through formal mechanisms, such as in Union-Management meetings or in working meetings. The mechanism is aimed to promote a conducive relationship among internal stakeholders, especially between Management and employees such that it positively impacts the Company's performance.

### THE DIAGRAM OF IDENTIFICATION OF STAKEHOLDERS AND THEIR NEEDS





## STAKEHOLDER MANAGEMENT

[GRI 102-40, GRI 102-42, GRI 102-43, GRI 102-44]

We believe that building harmonious relationship with every stakeholder is imperative to ensure the Company's going concern. To that end, we promote harmonious relationships with stakeholders through a stakeholder quality management system. In doing so, we have identified, in-detail, stakeholder groups with the strongest interest in the Company's going concern and that meet the Company's expectations with available resources.

Our direct and indirect stakeholders are the customers, employees, government/regulators, partners/contractors/suppliers (vendors), PLN, PGE, NGOs, and local communities. Through a relationship feedback loop, we strive to understand and meet the expectations of our stakeholders as best as we can using available resources. We also wish for our stakeholders to know the extent of our efforts towards meeting their expectations, the major issues we face, and the mutual anticipation of the results that we can reasonably expect to deliver.

Stakeholder Groups [102-40]	Identification and Selection of Stakeholders [102-42]	Approach to Stakeholder Engagement - Engagement Frequency [102-43]	Key Topics and Concerns Raised [102-44]	Results [102-44]
Shareholders	Representation	- AGMS/Annually - EGMS/As needed	Annual Report to Shareholders	Approval of financial statement and Directors' activities in corporate management, both of which require GMS approval
Directors	Responsibility	Meetings of Directors are held according to business needs Directors meet monthly to discuss business operations	Business operations	Approval of the Annual Report and other items that require Directors' Meetings
Customer (PLN)	Influence	Monthly meetings to coordinate operations and maintenance	- Generator maintenance schedule	Agreement of generator maintenance schedule
			- Generator loading	Agreement of monthly and weekly loading
			- Operational reliability	Maintenance of Grid and Plant operational reliability
Dependence	Committee meeting between PLN, PGE, and Star Energy (Joint Committee Meeting)	- Application of ESC in operations	Agreement between PLN with PGE and Star Energy	

Stakeholder Groups [102-40]	Identification and Selection of Stakeholders [102-42]	Approach to Stakeholder Engagement - Engagement Frequency [102-43]	Key Topics and Concerns Raised [102-44]	Results [102-44]
Employees	Representation	Town hall meetings, gathering, outbound, training, workshop and seminar, mentoring, and coaching. Meetings held as needed.	Development programs for strategic assets in employees' networks	Input to corporate plans on employee development
PGE	Representation	Meetings to discuss Budget and Expense Plans, Work Program & Budget (WP & B) Meetings held every quarter.	Presentation of realized work programs	Realization of programs in presentations and activity photos.
Contractors/ Partners (Vendors/ Suppliers)	Dependence	Annual gatherings Audit of OHS plans every quarter/ semester	Performance evaluation	Input to improve performance
Government/ Regional Government	Representation	Regular meetings with officials	Information and program sharing mechanism pursuant to main duties and functions (tupoksi)	Regulatory compliance
		Participation in government programs that aligns with corporate plans		
		Transparent and comprehensive information sharing in regular meetings with multiple institutions and FGDs (Forum Group Discussion)	Receive and synergize aspirations Network building	Cooperate in research and socio-economic development programs to improve public welfare
Local Communities	Proximity	Execution meetings held every six months	Contributions to the public through community-based development programs (economic, educational, and health)	Carry out activities with the public (educational, economic, health, and environment)
		Community relations governance programs	Assistance in constructing public and basic social infrastructure	Planning, presenting, and describing relevant information transparently and carry out self-managed work
		Stakeholder meetings held twice a year		
		Transparent and comprehensive information sharing in 4 monthly bulletins, regular meetings with multiple institutions, and FGDs (Forum Group Discussion)		
		Forming an outreach team, consisting of community leaders, to mediate the company and adjacent public		



Stakeholder Groups [102-40]	Identification and Selection of Stakeholders [102-42]	Approach to Stakeholder Engagement - Engagement Frequency [102-43]	Key Topics and Concerns Raised [102-44]	Results [102-44]
NGOs	Representation	Participation in multi-stakeholder forums and direct dialogue initiatives in various conferences and meetings	Informing regulatory compliance	Presenting and describing relevant information transparently
		Transparent and comprehensive information sharing in meetings with stakeholders and multiple institutions and FGDs (Forum Group Discussion)		
		FGDs held as needed		

## EXTERNAL INITIATIVES AND ASSOCIATION MEMBERSHIPS

[GRI 102-12, GRI 102-13]

We have actively adopted a number of external initiatives in response to climate change, such as the Clean Development Mechanism/CDM, which is part of the Kyoto Protocol, ratified into law by the Government of Indonesia into Law No. 17 Year 2004 concerning the Ratification of the Kyoto Protocol in the United Nations Framework Convention on Climate Change (UNFCCC). We have also implemented a number of accredited operating standards, such as ISO 14001: 2004 Environmental

Management, OHSAS 18001: 2007 Health and Safety Management System, and ISO 9001: 2015 Quality Management Systems.

Furthermore, SEGWWL actively promotes the creation of a favorable investment climate to generate power using geothermal energy through advocacy in the following associations:

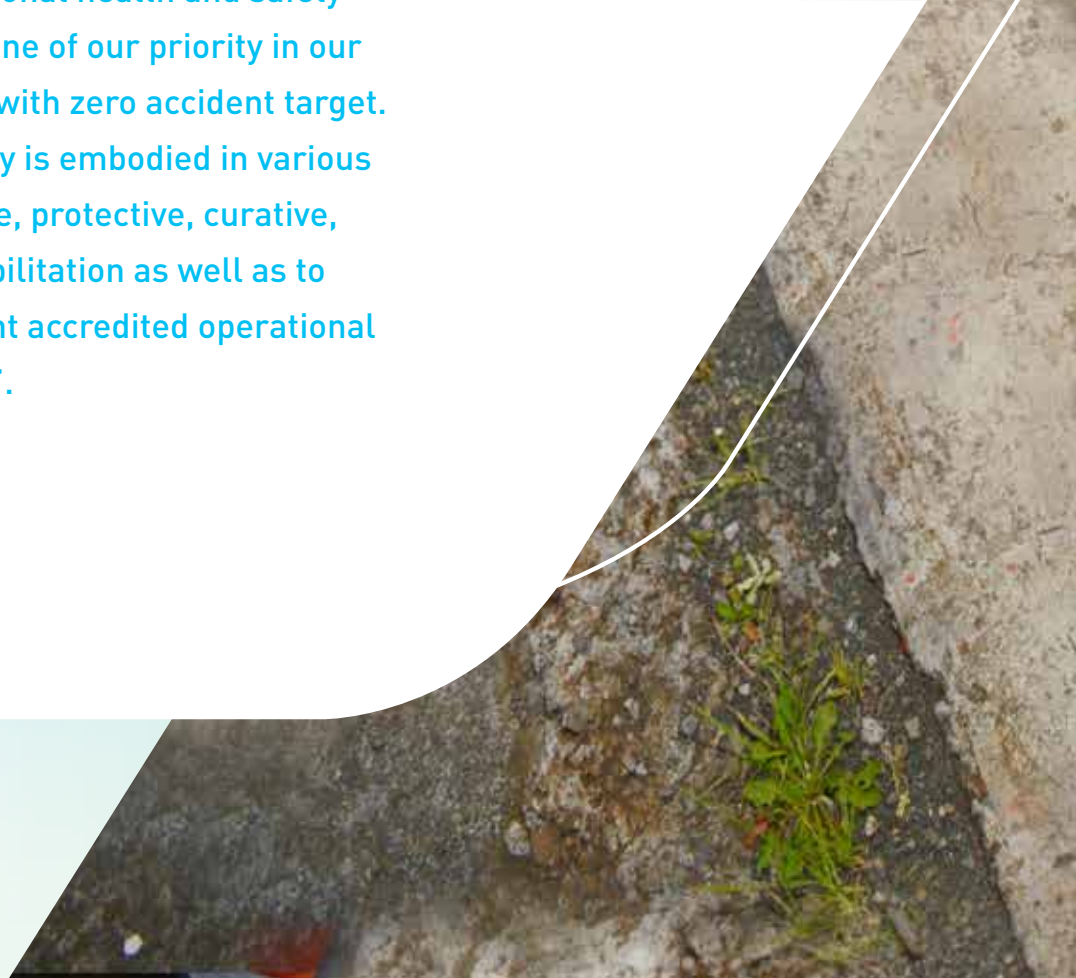
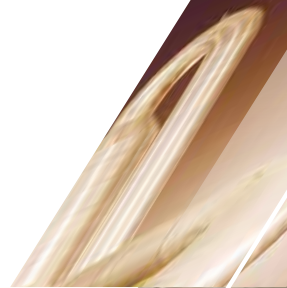
- Indonesian Geothermal Association (API, Asosiasi Panas Bumi Indonesia)
- Indonesian Electrical Society (MKI, Masyarakat Ketenagalistrikan Indonesia)
- Indonesian Renewable Energy Society (METI, Masyarakat Energi Terbarukan Indonesia).



# OCCUPATIONAL HEALTH AND SAFETY



“Occupational health and safety (OHS) is one of our priority in our industry, with zero accident target. This policy is embodied in various preventive, protective, curative, and rehabilitation as well as to implement accredited operational standard”.







SUSTAINABILITY GOVERNANCE



OCCUPATIONAL HEALTH AND SAFETY



IN HARMONY WITH COMMUNITIES



DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE



GRI STANDARDS INDEX



Occupational Health and Safety (OGS) is one of the main priorities in our industry, of which the target is 'zero accidents'. This policy is carried out in a number of preventive, protective, curative and rehabilitative programs, and applying accredited operational standards as reference for managing the operational activities.

Investment in Geothermal power plants (PLTP) requires a large amount of capital and the risks are high. Such large capital is required because PLTP applies advanced technology, especially for exploration and drilling of the earth's interior structure as well as for the power generation itself. PLTP energy sources are derived from geothermal stream that has been separated from the brine originating from within the earth's interior.

Sources of hazard in the operation of the steam field and PLTP present themselves at all stages from geothermal well drilling, stream transfer piping all the way to the electricity generating facility located in the Power House. The risk of an occupational accident is very high, so security, control and supervision throughout the vital facilities are important to prevent both non-fatal and fatal accidents and to help assure continuous operational activities.

Geothermal power is considered renewable energy as heat extraction is far lower than geothermal capacity, that is the core of earth contains more heat than humans can reasonably ever extract via any current technology. The carbon dioxide emission of geothermal power plant is very low, less than 100 kg CO<sub>2</sub> per megawatt-hour (MWh). However, there is associated gas that may be emitted together with the geothermal stream which is potentially dangerous for occupational safety.

Due to the importance of risk management of the Company's operational activities, we are committed to the application of high standards of occupational health and safety in the operational procedures – from the early stage, through development and PLTP operations of

PLTP up to the electricity power transmission to PT PLN networks. In line with that commitment, we set a target of zero accidents in every operational period for the geothermal fields under our management.

## OPERATIONAL COMMITMENT, POLICY AND STANDARDS

We are committed to the implementation of quality occupational Safety, Health and Environment (SHE), as stated in the points of "Wayang Windu Field Policy" as follows:

- To prevent accidents, illness, damage to property, work place and to conserve the environment including prevention of pollution by avoiding certain losses to employees, contractors, communities and the environment to ensure sustainable business.
- To apply continuous improvement in the aspects of Occupational Health, Safety and Environmental Protection, energy and asset performance in the SEGWWL organization.
- To comply with SHE regulations and other rules including related to energy use, consumption, efficiency and asset management issues.
- To satisfy customers with our products and service and to maintain respectful communication.
- To take responsibility for the impacts of business activities related to SHE, energy and asset management including social responsibility and likewise encourage other parties including our business partners, suppliers or vendors and contractors.
- To manage SHE aspects, energy and asset issues as the basis of day-to-day business activities.
- To periodically evaluate Wayang Windu's Integrated Management System to ensure its effectiveness and to ensure that this policy remain in line with the program objectives and goals and with the business.



We:

- Provide comprehensible information and sufficient explanation related to SHE issues to stakeholders, representing Wayang Windu's Integrated Management accurately with verifiable performance.
- Ensure that this policy is communicated to and understood by our employees and the persons working under our control and/or on behalf of the Company. This policy is also applicable to related parties.

We concretely apply OHS policy through programs of accident prevention and provision of occupational health insurance. This policy is in accordance with point three in 2030 Sustainable Development Goals (SDGs) scheme, i.e. "to ensure healthy lives and promote wellbeing for all at all ages."

To ensure quality SHE performance, we have integrated the Occupational Safety and Health Management Systems (OSHMS) as a certified operational standard of OHSAS 18001:2007 and by the Ministry of Manpower Republic of Indonesia as in Regulation No. 50 of 2012, as well as the environmental management system certification in ISO 14001: 2015 and quality management system ISO 9001:2008 as an integrated system. [GRI 102-12]

We also periodically conduct audits on the implementation of the certification standards through an independent and competent third party. As a result, we have constantly delivered all the criteria set by the independent assessors, e.g. no major records in the auditing process. The latest certification process for occupational safety and health

standard of OHSAS 18001:2007 was conducted by PT Lloyd's Register Indonesia on January 9-11, 2017 as a certificate renewal until March 20, 2020.

## OCCUPATIONAL SAFETY COMMITTEE

We have established a Safety, Health, and Environment Committee (SHE Committee) to coordinate the SHE-related activities and programs which includes all employees. Regulations on the functions and position of the SHE Committee, as well as its duties and responsibilities, are stated in the Chapter X: Contractual Bargaining Agreement on Occupational Protection. Approximately 16% of the Contractual Bargaining Agreement is related to occupational health and safety topics. The organizational structure of SHE Committee includes the Executive Management, Operational Senior Manager, and eight employee representatives (5.3% of the total permanent employees).

[GRI 403-1, GRI 403-4]

The duties of the SHE Committee include:

- To discuss every problem in occupational safety, health, and environment (SHE), covering the activities of protecting, preventing, and resolving the possibility of occupational hazards;
- To conduct an investigation on the occupational accident cases that include production facility safety, occupational safety, and environmental pollution;
- To assess the SHE performance that includes standardization, production facility safety, occupational safety, and environment;
- To evaluate the implementation of SHE programs, and to conduct the evaluation, the SHE Committee has regular meetings.

**Total Employee Representatives in The She Committee Structure**

JOB DESCRIPTION	2013	2014	2015	2016	2017
Occupational Safety	2	3	3	3	3
Occupational Health	2	3	3	3	3
Environmental Protection	1	2	2	2	2
<b>Total</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>

**SHE PROGRAMS**

Several strategic SHE programs were realized in 2017 in accordance with the evaluation results from SHE Committee that include:

- Conducting national SHE Month campaign through several SHE competitions and campaigns of occupational safety at work.
- Establishing a fruit garden with the local community.
- Training for work permits for employees and contractor employees.
- Conducting occupational safety workshop for employees to increase contract holder’s capability in the prevention of incidents.
- Conducting Proper Evaluation Workshop to evaluate and take lessons from previous year’s performance and to plan for the incoming year, held in Bandung on April 29, 2017.
- Blood donor of Indonesian Red Cross (PMI) Bandung Regency for employees and contractors.
- Discussion on the draft of Minister of Energy and Mineral Resources Decree on Safety and Health in geothermal energy facilitated by The Directorate-General of New Renewable Energy and Energy Conservation (Dirjen EBTKE).
- Dissemination of ADITAMA award assessment by EBTKE.
- Training and test of Wayang Windu SIM for employees and contractors.
- “PLATINUM” Award of P2HIV and “GOLD-FLAG” OHSMS award from the Ministry of Manpower.

- Award for category of “Best Environmental Performance for Industry in Bandung Area” from Environment Bureau of Bandung Regency.
- Technical workshop for PROPER 2017.
- Fitness test (handgrip, flexibility, rockport) and aerobics by Bandung Agency of Public Health and Sports for employees and contractors.
- Receiving Subroto Award for SHE and efficient energy from the Ministry of Energy and Mineral Resources.
- Leadership Engagement Program in the activity of SHE Observation and Inspection at Wayang Windu fields.
- OHSEP technical coaching for employees and contractors of SEGWWL.
- Emergency response drilling with landslide scenario and demonstration by locals residing around operational areas.
- Refreshment training on SHE for Well Intervention Project (WIP) project for employees and contractors.
- Regular medical check-up for all employees based on work risk exposure.
- Receiving PROPER Gold award from Ministry of Environment and Forestry.
- Receiving Subroto award from Ministry of Energy and Mineral Resources.
- Receiving ADITAMA Award for Safety and Environmental Management category.
- Receiving special award of innovation in energy efficiency, particularly building management in industry sector.
- Platinum award for P2HIV-AIDS program and “GOLD-FLAG” for OHSMS from the Ministry of Manpower.
- “Best Environmental Performance for Industry in Bandung Region” Award from Bandung Local Government.



## SHE PERFORMANCE STATISTICS

[GRI 403-2]

Geographic conditions of the large field and certain natural conditions may cause field workers to be less alert during operational activities. Worker negligence may thus lead to occupational work incident, even though we have applied the safest operational procedures and have taken high consideration of environmental aspects.

The number of reported occupational accidents in 2017 with a majority befalling male employees is as follows.

### Total Occupational Accidents

OCCUPATIONAL ACCIDENT TYPE	2013	2014	2015	2016	2017
Minor	4	4	9	10	4
Moderate	0	0	0	0	0
Major	0	0	0	0	0
Fatal	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>10</b>	<b>4</b>

Reference:

Decision of Minister of Mining & Energy No. 555/K/26/M.PE/1995 concerning OHS of General Mining

Note:

Minor Injury: Injury > 1 and less than 3 weeks (FAC, MTC and RWC)

Severe Injury: Injury > 3 weeks (LWC)

Fatal: Deceased within 24 hours after the accident

In 2017 the intensity of field activities was not as high as that in 2016; the most critical project in this period was the Work Over WWA-7, followed by several other jobs. In spite of some increased field work intensity on Work Over programs for some production wells, the number of occupational work incidents went down compared to 2016 and the number of lost man-hours decreased within the minimum range. This good achievement indicates success in the Company raising occupational work safety awareness.

The severity of the incidents in 2017 also decreased, i.e. four types of minor accidents (bee sting, hand cut, slipped at the toilet and seizure during work) happened to three male workers and one female worker, all were in our operational area in Bandung regency. The total man-hour in 2016 was 7,348,393 hours while in 2017 it is 8,495,864 hours. The calculation of Incident Rate (IR) and Frequency Rate (FR) of the events above is as follows:

DESCRIPTION	2013	2014	2015	2016	2017
IR	0.000000	0.000000	0.000001	0.0000001	0
FR	0.00	0.00	0.58	0.57497	0.00

Note =:

IR= Recordable Cases/1.000.000

FR= (Recordable Cases x 1.000.000)/Safe Manhours

Recordable Case= MTC + RWC + LWC

To minimize the incidents in the future, we have initiated the following activities:

- Socialization and obligation for every employee to obey all work procedures as stated in the SHE-based Standard Operating Procedure (SOP) in conducting their tasks;
- Analysis on every incident to avoid the similar accident in the future;
- Restriction on employee rotation.

## OCCUPATIONAL HEALTH

As a part of meeting regulatory mandates, we conduct activities which are aimed to improve occupational health awareness and maintain workers' health. We provide educational activities, training, counseling, prevention and control of risks of serious and contagious illnesses, such as dengue fever and malaria, to employees. This is part of the efforts to raise awareness on occupational health.

Our occupational health management activities are classified as medical and working environment health. For the medical health, we have initiated cooperation with privately-owned and public hospitals with sufficient facilities near the operational area in Pangalengan or Bandung and the headquarters in Jakarta.

Occupational health implementation in medical areas include health counseling/ talks for the employees and their families as well as regular medical check-ups for employees as mandated in the Employment Act (UU Ketenagakerjaan) and other provisions stated in Collective Work Agreement. For the working environment health, we coordinate through our SHE unit with activities such as noise/decibel measurement, sanitation treatment, emission level measurement, and others.

**Activities to Support Occupational Health in 2017**

ACTIVITY TYPE	EMPLOYEE	NUMBER OF PARTICIPANTS
Promotion/Counseling		
Health Talk about Stroke, "Waspada Penyakit Jantung Koroner» by dr. Melisa Valensia from RS Immanuel, Bandung.	Employees & Contractors	80 participants
Health Talk "Smoking and Risk" by dr. Marwan, Sp.P(K). FCC.MM	Employee	54 participants
First Aid Knowledge	Employees (E&I team)	18 participants
OH&S National Day 2016 Workshop: Gangguan Pendengaran Akibat Bising by dr. Anna Suraya, Mkk, SpOK.	Employees & Contractors	84 participants
Bottle Water Handling and Hygiene Practice	Employees (Dwikora)	9 participants
Health Talk about acute respiratory disease	Employees (Maintenance)	44 participants
Health Talk and Sportive Activity "Jantung Sehat"	Employees & Contractors	71 participants
Health Talk "Penyakit Akibat Kerja"	Employee	47 participants
First Aid Training for ERT members	Employee	30 participants
Health Talk tentang "TB di Tempat Kerja" by dr. Sudi Astono.	Employee	45 participants
SHE Talk with topic of "Pembuatan Mikroorganisme Lokal (MOL) dari Limbah sayur dan Buah" on June 22, 2017	Employee	48 participants
Dissemination of health bulletin by e-mail		
"Tips of Staying Healthy During Ramadhan"	All SEGWWL employees via email	102 employees
"Depression Let's Share Stories"	All SEGWWL employees via email	102 employees
"Let's Walk"	All SEGWWL employees via email	102 employees
"VCT-Voluntary Counseling & HIV & AIDS Testing"	All SEGWWL employees via email	102 employees
"Super Gorilla-Brand Tobacco"	All SEGWWL employees via email	102 employees
"Vaccine Information for Parents"	All SEGWWL employees via email	102 employees
"Zika Virus"	All SEGWWL employees via email	102 employees
"Alert for 7 Illnesses due to Floods"	All SEGWWL employees via email	102 employees

**AWARDS**

Achievement of OHS management in 2017 bore the fruit of several Occupational Health Safety and Environmental Protection (OHSEP) awards, as follows:

- Zero Accident award from the Ministry of Manpower of the Republic of Indonesia.
- Award of P2-HIC and AIDS Program at Work Place from the Ministry of Manpower of the Republic of Indonesia.
- ADITAM "SUBROTO Award" from the Ministry of Energy and Mineral Resources of the Republic of Indonesia.



# IN HARMONY WITH COMMUNITIES



“If the society is prosperous, we can also feel the benefit because we grow together with them. Our Corporate Social Responsibility (CSR) programs include four important pillars in the society: education, economy, health, and infrastructure. Through CSR, we develop objectives which align with Sustainable Development Goals (SDGs)”.





SUSTAINABILITY GOVERNANCE



OCCUPATIONAL HEALTH AND SAFETY



IN HARMONY WITH COMMUNITIES



DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE



GRI STANDARDS INDEX



When communities are prosperous, we also like to take the benefits because we grow with them. Our Corporate Social Responsibility (CSR) programs cover four important pillars in the communities, i.e. education, economy, health and infrastructure. Through CSR, we develop goals that are in accordance with the Sustainable Development Goals (SDGs).

## BACKGROUND

Corporate Social Responsibility (CSR) has been a business standard for responsible corporations, including Star Energy Wayang Windu. To us, CSR is a company's contribution to realize social prosperity and improve communities' life quality. Apart from supporting a company's image, CSR can also increase the company's competitive power. We implement CSR by integrating social and environmental aspects into the Company's strategies. Concern over human development ('People') and environmental conservation ('Planet') as well as generating revenues ('Profit') are inseparably important parts in the deliberation of the Company's strategic plans.

SEGWWL consider the regular CSR programs not as costs, but rather as investment. What we pursue is not profit, but benefit. To us, community development is not an obligation, but rather one form of important investment, as it benefits the Company in the long term. When communities are developed and prosperous, the Company likes to develop along with them, because we are aware that we originate and grow in the community of our operational zones.

## CSR PROGRAM OBJECTIVES

The Corporate Social Responsibility programs of SEGWWL in terms of community empowerment are aimed at:

1. Assisting and supporting the government's programs, raising the Human Development Index in Pengalengan sub-district in particular and Bandung Regency in general; with emphasis on the education, community green economy empowerment and improvement, environment, health and improvement of social and public facility and infrastructure.
2. Building and maintaining good communication and relations with the communities, public figures, religious leaders, the government and related institutions.
3. Uplifting the level of welfare and life quality of the communities in the environmental- and health-based economy.
4. Opening access to quality education especially for dropout students and teenagers as well as illiterate persons.
5. Building, rehabilitating and improving facilities and infrastructure to support the acceleration of community life's welfare and quality improvement.
6. In 2017, our CSR programs cover four categories, i.e. education, economic development, public health and infrastructure development as illustrated in the scheme below:

**Up to today, SEGWWL sees that the regular CSR programs not as costs, but rather investment. What we pursue is not only profit, but benefit.**





CSR SEGWWL

HDI IMPROVEMENT IN PENGALENGAN SUB-DISTRICT



EDUCATION

- Distributing access to education for communities
- Improving the quality of education



HEALTH

- Developing 'Desa Siaga' (village on alert)
- Raising community awareness of clean and healthy lifestyle.
- Empowering the communities so as to be independent in handling natural disaster.



ECONOMY

- Increasing revenue levels of Pengalengan residents.
- Encouraging SMEs to be able to develop.
- Empowering Pengalengan as a tourism destination.



INFRASTRUCTURE

- Increasing the quality of public and social facility and infrastructure.

### CSR PROGRAM APPROACH

Community development and empowerment is an approach where the members of the society themselves are actively involved in finding solutions to their issues. This community development approach is very useful and efficient, as it transfers empowerment and confidence to the community to participate in changing their condition and thus reduce dependency on external parties. This is

the approach that SEGWWL takes in its CSR programs to increase the HDI in our operational zones and create more prosperous and independent community life.

In the implementation, SEGWWL has designed a framework that is deemed appropriate for the existing condition, with processes as follows:



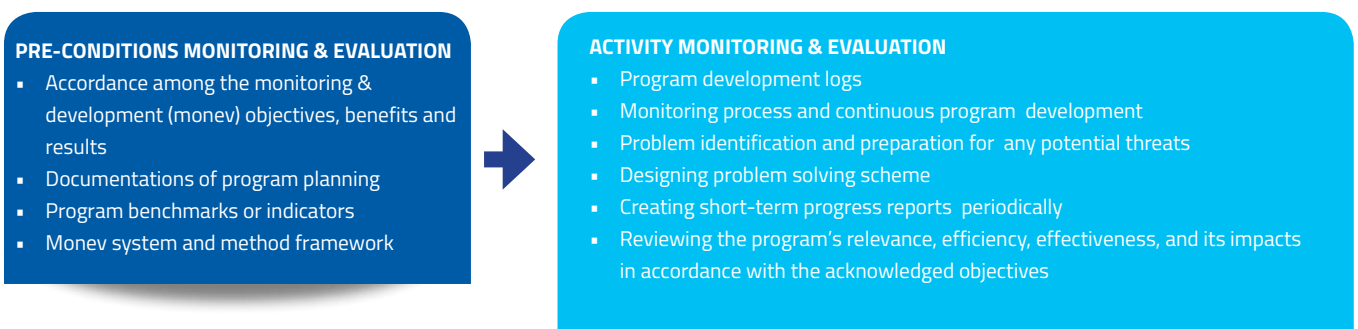
Community development and empowerment activities that Wayang Windu has conducted, referring to the Sustainable Development Goals (SDGs) are:

- Goal 1 - No Poverty – End poverty in all its forms everywhere;
- Goal 3 - Good Health and Well-being – Ensure healthy lives and promote well-being for all at all ages;
- Goal 4 - Quality Education - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- Goal 10: Reduce Inequalities – Reduce income inequality within and among countries.

We implement CSR programs as a means of obtaining maximum results in the improvement of education, economy, health, and infrastructure development. We

also measure the success of the community’s potential development program, referring to the development parameters issued by the Central Bureau of Statistics (BPS), the Human Development Index (HDI, or IPM in Indonesian) released each year. In addition, we are also using internal evaluation mechanisms. Wayang Windu’s concern of creating prosperous communities in appropriate and directed ways is also manifested through opening channels of communication and feedback, connecting to the beneficiaries of our programs. These measurement and feedback systems are aimed at evaluating and increasing our CSR programs’ efficiency and effectiveness.

The chart below illustrates our CSR programs’ monitoring and evaluation processes.





Our main objective is increasing the Human Development Index (HDI) of Pengalengan subdistrict, our operational area. HDI is the measurement of ratios of life expectancy, literacy, education and standard of living, and it applies to all countries in the world. Referring to the Central Bureau of Statistics (BPS) of 2017, the HDI of Pengalengan is 76.41, which is slightly lower than that of Bandung Regency, 76.45. It is our commitment to transform Pengalengan into a subdistrict that has the highest development and prosperity level compared to other subdistricts. Also, we aim to increase quality of life of the residents.

## PREPARATION OF CSR PROGRAMS

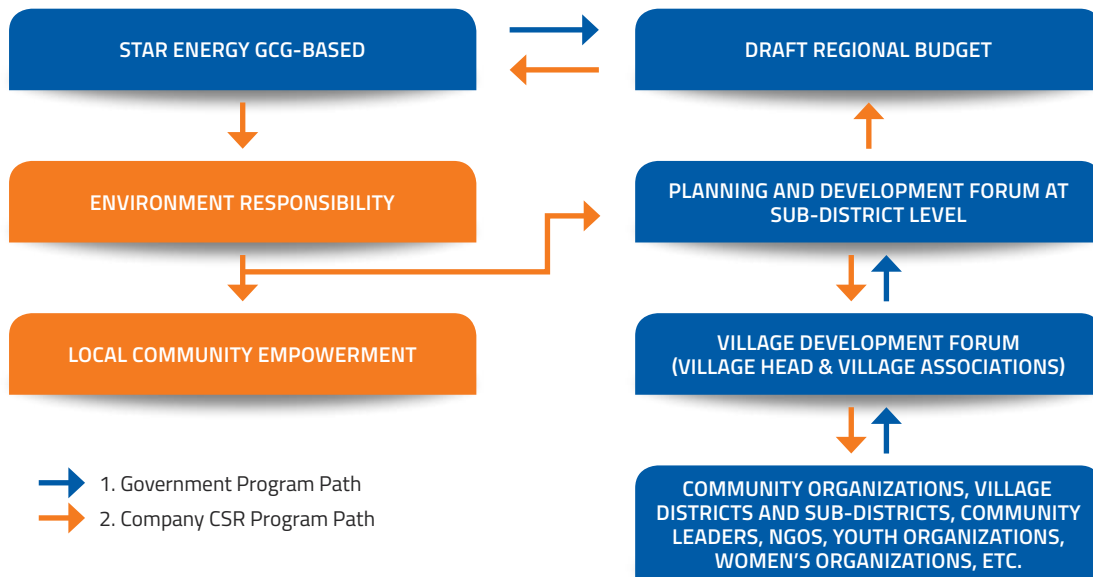
[GRI 413-1]

To obtain a global and accurate view of the implementation of our programs, we conduct periodic social mapping prior to the formulation of CSR programs. Through this, we obtain an overall picture of the community's social and

economic conditions, including physical environment and problems. The reason for this is that the programs being prepared would reach the target and meet the needs of the locals.

We adopt the Quadruple Helix as an approach to model the CSR Program, namely the involvement of cross-actors, consisting of the Government, communities, scholars and business players. We also include local communities in preparing and conducting all of these programs. Through this cooperation, we expect to obtain a community potential development program design that can take into account all walks of life. Thus, the strategic steps for the development of the community's potentials can bear fruits that are concrete for the people.

## STAKEHOLDER INVOLVEMENT



Our CSR program's benchmark is the ascension of Pengalengan's HDI through programs that are aimed to empower the locals and their potentials. Our CSR programs have been developing over they years both in terms of quantity and quality. In 2017, the allocation of CSR budget is as follows:

### CSR 2017 Activities Funding Allocation

PROGRAM/ACTIVITY NAME	TOTAL BUDGET
Humanitarian donation	Rp216,718,500
Infrastructure	Rp1,529,575,000
Empowerment	Rp298,884,150
Capacity Building	Rp1,088,415,650
Total	Rp3,133,593,300

### Table of 2017 CSR Work Program Summary

PROGRAM	OBJECTIVE	ACTIVITY	TARGET	INDICATOR
FORMAL EDUCATION Edu – Star!		Scholarships for students with outstanding achievement at elementary, junior high, and high school levels	Students with Outstanding Achievement	<ul style="list-style-type: none"> <li>- 350 awardees of elementary school students</li> <li>- 100 awardees of junior high school students</li> <li>- 50 awardees of high school students</li> <li>- 75% of annual presence of scholarship awardees</li> <li>- 20% of higher marks of scholarship awardees</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Improve the quality of education services in Pangalengan Subdistrict</li> <li>▪ Expand community opportunities in having education services in Pangalengan Subdistrict</li> </ul>	Scholarships for students with outstanding achievement and with low-income family background at elementary, junior high, and high school levels	Outstanding students from the low-income family	<ul style="list-style-type: none"> <li>- 350 awardees of elementary school students from low-income family</li> <li>- 100 awardees of junior high school students from low-income family</li> <li>- 50 awardees of high school students from low-income family</li> <li>- 60% of annual presence of scholarship awardees</li> <li>- 20% of higher marks of scholarship awardees</li> </ul>
		Scholarship for outstanding students of secondary education (D4 diploma) of Padjadjaran University (UNPAD) and Bandung State Polytechnic (POLBAN)	Graduates of SLTA (High School) Pengalengan	<ul style="list-style-type: none"> <li>- &gt;5 students passed the selection test</li> <li>- 60% of presence during KBM</li> </ul>



PROGRAM	OBJECTIVE	ACTIVITY	TARGET	INDICATOR
GREEN ECONOMY Green Edu -Economy Saba Desa	<ul style="list-style-type: none"> <li>To promote interest in reading and foster the culture of reading among the community by using their spare time to read in order to create a creative, dynamic, productive, and independent community</li> <li>To educate the community to maintain and utilize the library's materials in a proper and effective manner</li> <li>To reduce the illiteracy rate of school dropouts and mothers, especially in Kertamanah village</li> <li>To build an environmentally-caring attitude and creating new economic activities</li> </ul>	Literacy Class of Saba Desa	Illiterate persons above 15 years old	<ul style="list-style-type: none"> <li>Minimum 25 students in reading class</li> <li>60% of presence of reading class students during 1 year period</li> <li>50% passing the reading class</li> </ul>
		Hydroponic Farming	Participants/students of TBM Saba Desa Karang Taruna Setia Bhakti	<ul style="list-style-type: none"> <li>The hydroponic farming can operate for minimum 8 months or 4 cultivation periods.</li> <li>This activity can produce 50 kg of crop in each harvest.</li> </ul>
		Waste Bank		<ul style="list-style-type: none"> <li>10 new customers</li> <li>Able to absorb 200 kg of waste per month</li> </ul>
		Chayote cultivation		<ul style="list-style-type: none"> <li>Able to operate with minimum 4 times of harvest/year</li> <li>Producing crop of minimum 1500 pieces</li> <li>Able to cultivate and sow independently</li> <li>Having additional assisted farmers</li> </ul>
INFORMAL EDUCATION 'Rumah Pintar' Pengalengan	<ul style="list-style-type: none"> <li>Raising the number of junior high school graduates</li> <li>Providing quality education of 'Kejar Paket'</li> <li>Facilitating education for communities having limited social, economic abilities.</li> </ul>	Learning Activities of 'Kejar Paket C'	Dropped-out and junior high school graduates of Pengalengan	<ul style="list-style-type: none"> <li>Minimum 20 participants of 'Kejar Paket C'</li> <li>50% participants passed mid-term and final term tests</li> </ul>
		Learning Activities of 'Kejar Paket B'	Dropped-out and elementary school graduates of Pengalengan	<ul style="list-style-type: none"> <li>Minimum 20 participants of 'Kejar Paket B'</li> <li>50% participants passed mid-term and final term tests</li> </ul>

PROGRAM	OBJECTIVE	ACTIVITY	TARGET	INDICATOR
ENVIRONMENT & HEALTH Kampung Tangguh Bencana	1. Building the prototype of 'Kampung Tangguh Bencana' (Disaster-Resilient Village) 2. Empower the inhabitants in terms of awareness, alertness and ability in emergency condition. 3. Accelerate the success of the Government's program of establishing 'Desa Siaga' in Pengalengan Subdistrict 4. Raising community awareness of clean and healthy lifestyle.	Counseling and training of 'Sadar Bencana' or disaster emergency response	<ul style="list-style-type: none"> <li>- Inhabitants and RW chief of Margaluyu Kampong, Pengalengan Village</li> <li>- High school students of Pengalengan Subdistrict</li> <li>- NGO and village Karang Taruna</li> </ul>	<ul style="list-style-type: none"> <li>- 65 participants of training and counseling</li> <li>- Absorption level of training material is 35% (from simulation and games)</li> </ul>
		Counseling and training of disaster emergency response for elementary, junior high and high school students	<ul style="list-style-type: none"> <li>- Inhabitants and RW chief of Margaluyu Kampong, Pengalengan Village</li> <li>- High school students of Pengalengan Subdistrict</li> <li>- NGO and village Karang Taruna</li> </ul>	<ul style="list-style-type: none"> <li>- 200 participants of training and counseling</li> <li>- Absorption level of training material is 35% (from simulation and games)</li> </ul>
		Utilization of social media for knowledge sharing and early detection activity	<ul style="list-style-type: none"> <li>- Inhabitants and RW chief of Margaluyu Kampong, Pengalengan Village</li> <li>- General public</li> </ul>	<ul style="list-style-type: none"> <li>- Creating social media account</li> <li>- Managing account for 6 months</li> <li>- 10 posts per week</li> </ul>
ENVIRONMENT Konservasi Tanah Airku ('Conserving Motherland')	1. Preserving the functions of soil 2. Spring conservation in forest area 3. Reducing waste piles in plantation area	1. Re-vegetation of critical land with hard plants 2. Hazardous waste management campaign in plantation area 3. Education on the environment and health for agricultural and forest farmers	<ul style="list-style-type: none"> <li>- Illegal farmers (petani perambah) in forest area of Mount Malabar, Wayang, Kahuru</li> <li>- Agricultural farmers in PTPN area</li> <li>- Vegetable farmers in forest ares, particularly the surroundings of Campaka and Situ Aul springs</li> <li>- Campaka and Situ Aul springs</li> </ul>	<ul style="list-style-type: none"> <li>- Accountability report of the environment Counseling/ Campaign on cultivation activity</li> <li>- Minutes and Presence List of Conseling</li> <li>- Documentation photo</li> </ul>
ECONOMY Nurkayana Micro-, Small-, Medium-Scaled Enterprise (MSME)	1. Cooperative-based MSME development 2. Helping SME market the products and have access to financing 3. Accommodating the inhabitants to become social-preneur through soft skill training 4. Opening new potentially profitable business unit	1. Basic sewing training 1. Advanced sewing training 2. Making a tourism map 3. Creating new business unit	1. MSME players 2. Tourism business players 3. Graphic design business players 4. Pengalengan inhabitants in general	<ul style="list-style-type: none"> <li>- Manpower absorption</li> <li>- Number of MSME Nurkayana members</li> <li>- Repayment Rate of Member Loan Installment</li> <li>- Establishment of Tourism department at MSME Nurkayana</li> </ul>





PROGRAM	OBJECTIVE	ACTIVITY	TARGET	INDICATOR
ECONOMY AND SOCIAL ESTABLISHMENT OF INFRASTRUCTURE SELF-MANAGED COLLABORATION IN 13 VILLAGES	<ol style="list-style-type: none"> <li>Assistance of social and public infrastructure improvement and repair in 13 villages of Pengalengan Subdistrict with Village Government &amp; Subdistrict Government Meeting (Muspika)</li> <li>Raising a sense of unity for development in Pengalengan Subdistrict</li> <li>Elevating economic, health and social levels of the communities</li> </ol>	<ol style="list-style-type: none"> <li>Gathering of stakeholders</li> <li>Establishment of Infrastructure Self-Managed Collaboration Of 13 Villages</li> </ol>	<ol style="list-style-type: none"> <li>Muspika</li> <li>of Village Organs (village chief, BPD)</li> <li>Pengalengan inhabitants in general</li> </ol>	<ul style="list-style-type: none"> <li>Nurtured sense of unity among the Company, the Government and the villagers</li> <li>Better prosperity of the villagers in general</li> <li>Improved village government services for villagers</li> </ul>
COFFEE CULTIVATION & ENVIRONMENT GOVERNANCE Ambeu Coffee Preanger	<ol style="list-style-type: none"> <li>Building a partnership between coffee business players to grow society-based economy especially in development of coffee cultivation management, commerce, training, tourism, the environment, in line with the local potentials and based on green economy; this is elaborated under the name of "Eco-Tourism Java Preanger Field Camp".</li> <li>Creating systematic and sustainable activities for distribution of knowledge and insights on Arabica coffee (particularly Arabica JG Java Preanger) to build human resources capacity for entrepreneurship through tourism education development in Pengalengan Subdistrict</li> <li>Increasing good service and governance in environmental management and coffee raw materials produced in Pengalengan.</li> </ol>	<ol style="list-style-type: none"> <li>Arabica coffee cultivation <ol style="list-style-type: none"> <li>Introducing Specialty grade coffee and coffee flavors</li> <li>Post-harvest process education</li> <li>Introducing coffee tourism of Java Preanger</li> </ol> </li> <li>Socialization <ol style="list-style-type: none"> <li>Field activities</li> <li>Cupping &amp; brewing training</li> <li>Coffee tourism of Java Preanger</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>Coffee farmers</li> <li>Coffee business players</li> <li>Coffee consumers</li> <li>Pengalengan inhabitants in general</li> </ol>	<ul style="list-style-type: none"> <li>Coffee farmers are more informed and skilled in terms of governance of profitable plant cultivation to increase crop production every year</li> <li>Coffee consumers and coffee players can learn at Ambeu Coffee Preanger community to facilitate the selection of coffee that would be consumed and sold at their coffee shops</li> <li>Growth of confidence in Pengalengan's arabica coffee product that is competitive with coffee products of Indonesia and the world, and motivation in producing coffee of better quality</li> </ul>

## EDUCATION DEVELOPMENT

[GRI 203-1]

One of the dominant factors of poverty is the low level of education. Thus, the amelioration of the education level must become a top priority. According to the data of the Central Bureau of Statistics (BPS), the majority of inhabitants in six villages in Pengalengan are graduates of elementary, junior high and high schools. Some of them quit schools due to limited finance to pay the tuition.

This is unfortunate because low education level would lead to lack of competence and, consequently, limited work opportunities. In other words, poverty causes impact on family's prosperity.

The CSR programs of SEGWWL are aimed to create opportunities for inhabitants to have access to quality education. The education programs were started in 2013 and covers both formal and non-formal education. The education programs are categorized into two, i.e.:

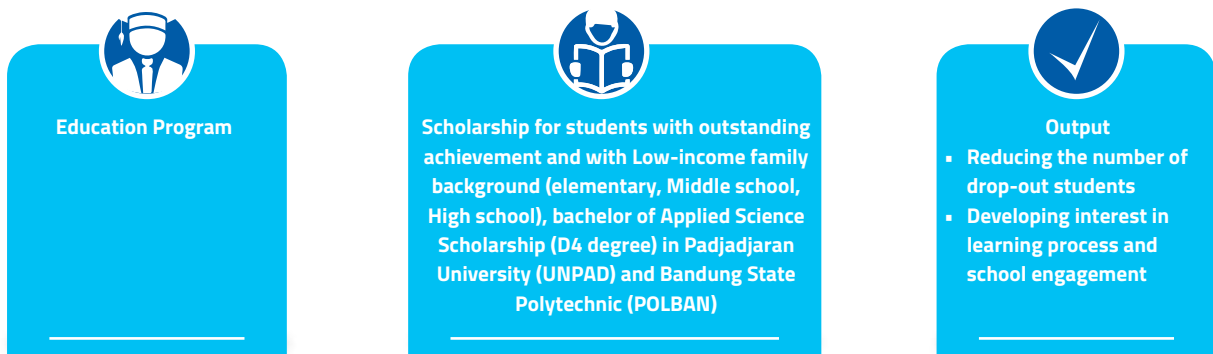
1. Formal Education
  - a. Scholarship for students with excellent achievement
  - b. Scholarship for underprivileged students with excellent achievement

- c. Full scholarship of secondary education (D III - D IV) at Bandung Polytechnic and Padjadjaran University
2. Non-Formal Education
  - a. Establishing "Rumah Pintar" for Pengalengan inhabitants
  - b. Assistance and support for "Taman Bacaan" library and similar education-oriented organizations in Rancamanyar and Padamukti

## FORMAL EDUCATION PROGRAM PLANNING AND IMPLEMENTATION

Financial problems are in fact the main obstruction for the majority of inhabitants in accessing education. In 2017, SEGWWL provided scholarships to 1533 students or elementary, junior high and high schools as well as university. The objective of these programs is so that the students could pursue higher education for better future and for increasing life quality of their family. The scheme and table below illustrate the formal education assistance programs of SEGWWL.

### SCHEME OF FORMAL EDUCATION PROGRAM IMPLEMENTATION



EDUCATION LEVEL	EXCELLENT STUDENTS	SISWA PRA-KS	TOTAL
Elementary School	680	350	1,030
Junior High School	153	153	306
Senior High School	90	90	180
Diploma III-Diploma IV		17	17
			1,533



## NON-FORMAL EDUCATION PROGRAM PLANNING AND IMPLEMENTATION

Apart from formal education through school and university enrollment, another important type is non-formal education. This is because the latter plays a significant role in maintaining socio-cultural values and local wisdom. The non-formal education activities that SEGWWL develops include:

1. Taman Baca Masyarakat (TBM)/Pabukon Saba Desa Program  
Partnering with Taruna Karya Setia Bhakti of Margamukti Village, we intend to eradicate illiteracy through a unique and creative method, namely transforming the activity into a part of household revenue increase and environment conservation program – or 'green economy'.



### SABA DESA INFORMAL EDUCATION

The young generation's concern over social issues are channeled through the Taman Baca Masyarakat (TBM) Saba Desa located in Margamukti Village. TBM Saba Desa was initially called Karang Taruna Setia Bhakti, which was a media of creative and innovative activities for the young. TBM Saba Desa organized Education for Sustainable Development (EfSD), i.e. a program for eradicating illiteracy through a unique method. This characteristic brought the program to win the first place at National-Level Village Public Library. In addition to the library, the organization's other activities are community radio station, mobile library and KUBE (joint business group).



### COMMUNITY RADIO 97.0 FM

From 8:00 AM to 7:00 PM everyday, the Community Radio 97.0 FM is on air with the program called "Curhat Literasi", which is aimed to create intense communication with the inhabitants concerning their problems and aspirations in elevating their quality of life. The program reaches 20 kampongs in Margamukti Village and 10 kampongs in Pengalengan Village. A number of reference materials are in use, including the books available at the village and kampong libraries and information from the local government. The visible impacts of the community radio include:

- High reading interest among the community
- Additional library members
- Effective and efficient library services
- Additional librarians
- Inhabitant's aspiration in literacy is channeled.

### AUDIENCE'S TESTIMONY

"Thanks to the assistance from SEGWWL for TBM for the community radio, we are helped in distributing various types of information and in literacy activities for Pengalengan inhabitants".



### MOBILE LIBRARY VEHICLE

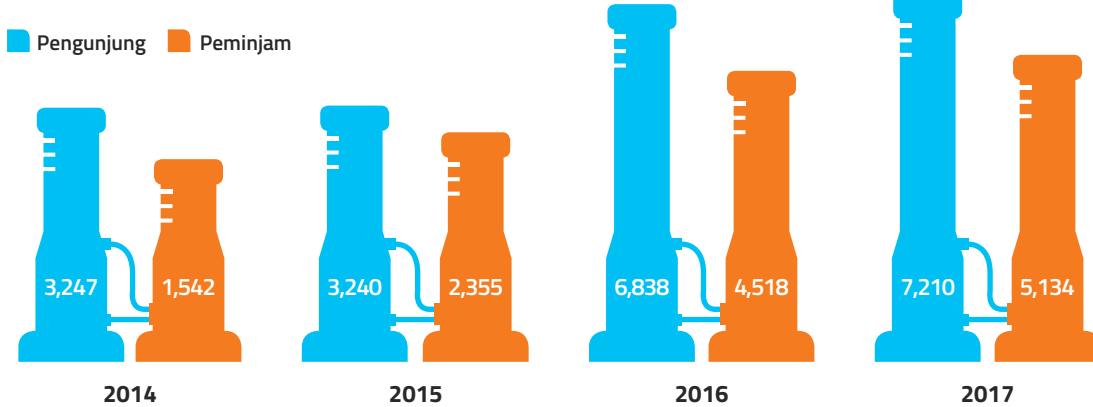
One of the supporting factors in community development is the availability of correct information on print and electronic media. However, this does not apply to all regions. A library is one of the important facilities to meet the public needs of information and knowledge, especially in rural areas where the access to information is rare. SEGWWL Mobile Library presents quality books and information to the public with limited access or located far from the main library and Saba Desa literacy program services unit. The visitors and members of this mobile library have been increasing over the years. The mobile library circulates in:

- Posyandu at 26 RWs throughout Margamukti Village from Monday to Thursday
- Schools, as a reference source, every Friday
- For private sector employees, plantation labor and farmers, every Saturday

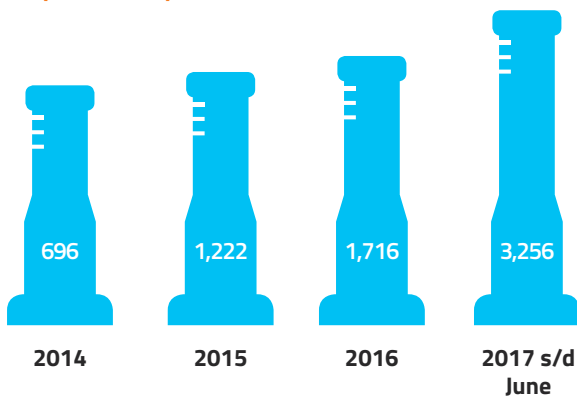
### PARTICIPANT'S TESTIMONY

"We are very thankful to SEGWWL for helping all this time, so that the TBM programs, particularly the library, can develop continuously and has even its own library outreach units outside Margamukti Village".

Number of Library Visitors and Members per Year



Graph of Library Members





### KUBE (SOCIAL ASSISTANCE FOR JOINT-MICRO BUSINESS)

KUBE is one of the programs declared by the Ministry of Social Affairs of the Republic of Indonesia which is aimed to empower the underprivileged by providing business capital and managing the productive economy. In 2017, organized by SEGWWL, "Ekonomi Hijau Saba" built a new business unit of KUBE, namely poultry husbandry, which is exercised in collaboration with Karang Taruna RW 18 of Loscimaung, Margamukti village. The aim of KUBE is to increase the economy of young people. Run by 10 young people who had not any permanent job, this activity has borne impressive results. The revenue as per early June 2017 was Rp 2,616,000, [ed. I am confused. If this is education why is the revenue stated, and this revenue seems low for 10 people. Is it monthly? ] originating from the sales of 76 ayam sayur, 6 free-range chicken (ayam kampung), one ayam pelung and one ayam kate. All KUBE's activities are implemented directly by referring to the bibliography and literacy. The importance of literacy in the improvement of communal economy is indispensable.

#### PARTICIPANT'S TESTIMONY

"The assistance from SEGWWL has very much helped us in encouraging chicken husbandry and creating opportunities for young people in the neighborhood."

## PUBLIC HEALTH DEVELOPMENT

Being healthy is a necessary condition for people to be able to do productive activities every day. However, some parts of the communities are not aware of the importance of healthy lifestyle and some regions do not have the necessary health care services. That is why SEGWWL develops health care services for the communities, of which the specific objectives are: improving the quality of basic health care especially in remote areas in Pengalengan Subdistrict and supporting the development of social mechanism in natural disaster response. These are to be achieved through the following programs:

1. DEVELOPMENT OF 'DESA SIAGA' (VILLAGE ON ALERT) REVITALIZATION OF POSYANDU (PUBLIC HEALTH CENTER)

'Desa Siaga' is the Government's program for developing villages whose inhabitants have preparedness, ability and will to independently

prevent and manage health, natural disaster and critical issues. This would consequently make the villagers healthy, aware and alert of health issues in their areas. Posyandu serves as the forefront in public health care, providing basic health care for nursing mothers, babies and toddlers. In the Posyandu revitalization program, SEGWWL provides Posyandu services for remote areas that have minimum public transportation. In 2017 we completed the construction of a new Posyandu building in Margamukti and Tribaktimulya village. It is expected that the accessible Posyandu would encourage villagers to have check-ups for future and nursing mothers as well as babies and toddlers. In addition, Posyandu facilitates the Government in monitoring public health.



CONSTRUCTION OF POSYANDU IN TRIBAKTIMULYA VILLAGE



CONSTRUCTION OF POSYANDU IN MARGAMUKTI VILLAGE

## 2. STRENGTHENING OF MASYARAKAT TANGGUH BENCANA (MTB) OR DISASTER-RESILIENT COMMUNITY

MTB is a community who is alert when facing emergency situation during natural disaster. This condition is necessary for Pengalengan villagers bearing in mind that the region is circled by at least three active volcanoes. The program consists of training in first-aid, evacuation methods of disaster victims, coordination with relevant institutions, data collection and information management, call for aid and aid distribution.

Through this program, the community is trained to be able to assess disaster-prone points, to assess vulnerability, to be able to set up safe zones as the

direction for evacuation, to be capable of independent evacuation prior to any external assistance. Not less important is the improvement of lifestyle to reduce disaster risks. The capacity and performance of MTB cadres were put in test during the landslide in Cibitung in 2015.

In 2017 we held a drilling of community strengthening and disaster risk management by creating "Kampung Tangguh Bencana dan Lingkungan" in Margaluyu hamlet, Pengalengan village. We continue disseminating the program by touring to 13 villages, reaching a total participant of 98 people. MTB training has resulted in cadres who are active in socializing the importance of MTB vision and mission.





## ECONOMIC DEVELOPMENT

In terms of economic development, we initiated programs which are aimed to raise prosperity and life quality of Pengalengan villagers through economic activities. These activities are carried out through Nurkayana cooperative, a Small-, Medium-Scaled Enterprise (SME) cooperative established independently by the entrepreneurship training participants as one of the

CSR programs of SEGWWL in the area of increasing the income level of communities. Nurkayana Cooperative's mission is sharing the knowledge learned from the entrepreneurship training, which plays a significant role in business development. Currently the cooperative has 72 members, with 16 additional members in 2017.

Nurkayana Cooperative's activities in 2017 are, among others:



### 1. CREATION OF 'GALERI NIAGA' (COMMERCE GALLERY)

Galeri Niaga, or Commerce Gallery, is a facility where the members showcase their business products. The Gallery is in Nurkayana Cooperative's office area. The product display function is complemented with the presence of permanent officers who would clearly describe the products' features. In addition, also available is well designed and attractive information regarding the products.



Interior of Coffee Cultuur Nurkayana

### 2. ESTABLISHMENT OF COFFEE CULTUUR

Coffee Cultuur is a place dedicated for enjoying the globally known coffee originating from Gunung Tilu, which is known as 'A Cup of Java'.

To further promote the Kopi Gunung Tilu products, SEGWWL in cooperation with Nurkayana Cooperative established a 'coffee corner' named Coffee Cultuur. The concept of Coffee Cultuur is as a place dedicated for enjoying the globally known coffee originating from Gunung Tilu, which is known as 'A Cup of Java'. Coffee Cultuur features relaxing ambience for enjoying coffee, while the serving and brewing the coffee are professional and taken seriously. At Coffee Cultuur, the coffee served would taste better as the surrounding is refreshing nature and sometimes blanketed with thin and humid fog. Coffee Cultuur is located on the premises of Galeri Niaga.

The market segment of this coffee shop is coffee enthusiasts from Pengalengan and beyond. Specifically, the customer targets are students, Nurkayana guests and SEGWWL visitors.

## TESTIMONY OF NURKAYANA COOPERATIVE MEMBERS

Iman Suryadi, Garment Business Owner of Under Tower Since 2011, Iman has received four cases of revolving capital funding assistance from Nurkayana Cooperative. Three times were in the form of regular revolving capital fund, each amounting to Rp7 million, and once as a "bailout fund" when he had to produce 150 jackets within two weeks.

Before becoming a member of Nurkayana Cooperative, Iman Suryadi was a garment businessman who specialized in making jackets and T-shirts. His business was run alone with his child. If they were both overwhelmed with the orders, Iman will ask 2-3 tailors to do freelance work helping him. This happened because Iman had a limited capital, he could not afford to hire permanent employees.

After receiving revolving capital funds from Nurkayana, and attending entrepreneurship training and mentoring sessions, Iman ventured to hire two permanent

employees to take care of production activities, while he spends more time to expand the market and improve his business' cashflow.

Now Iman's garment business has grown and has been able to hire 4 permanent employees, with 3 sewing machines, 1 embroidery machine, and 1 overdeck machine, capable of cutting fabric in large quantities. Besides working on jackets and T-shirts by order, Iman is already marketing his own brand name, Under Tower, whose products are sold under a consignment scheme.

In the SEGWWL CSR program of 2017, Iman Suryadi is involved as a tutor as well as a provider of materials in basic sewing skills training, the result of collaboration between SEKWLL and Nurkayana Cooperative and Rumah Pintar Pangalengan. Imam wishes to help create new skilled workers and small-scaled business players like himself.

### 3. INTEGRATED TOURISM OF PENGALENGAN

Situated near three volcanoes and exposed to fresh air and green landscapes, Pengalengan is a nice place for vacation for both local and international tourists. Not far from Pengalengan, attractive tourism destinations are located, including: Situ Cileunca Lake, tea plantations, hot springs, camping and hiking sites in a natural forest, and a waterfall.

To develop these tourism potentials, SEGWWL cooperates with Nurkayana Cooperative to establish a tourism network. This is aimed to create networks

among tourism business managers who already exist in Pengalengan Subdistrict. Thus, Nurkayana can serve as an information center that meets the needs of the tourists coming to those locations. The cooperation would strive to standardize management, starting from complete facility to evacuation procedures in case of unpredicted situation.





**WELCOMING SPEECH OF BANDUNG REGENT  
H. DADANG M NASER, SH. S.IP  
SEGWWL'S PARTICIPATION IN GROWING PENGALENGAN TOURISM  
IN CORPORATE SOCIAL RESPONSIBILITY PROGRAM**

Pengalengan Subdistrict possess wonderful nature and places that are worth becoming tourism destinations. Yet, in the eyes of local and international tourists, these characteristics only comprise of the commonly visited destinations, such as Situ Cileunca, which offers rafting, flying fox, camping and outbound activities. Other common activities are the Villa Boscha residence and tomb, as well as Cibolang hot spring. Pengalengan Subdistrict actually has numerous natural and historical tourism areas already open to public, with many locals visiting these destinations.

This gap between local knowledge and wider awareness is due to the information on the destinations and tourism activities which is not yet managed optimally, and the abundant natural potentials are not utilized at

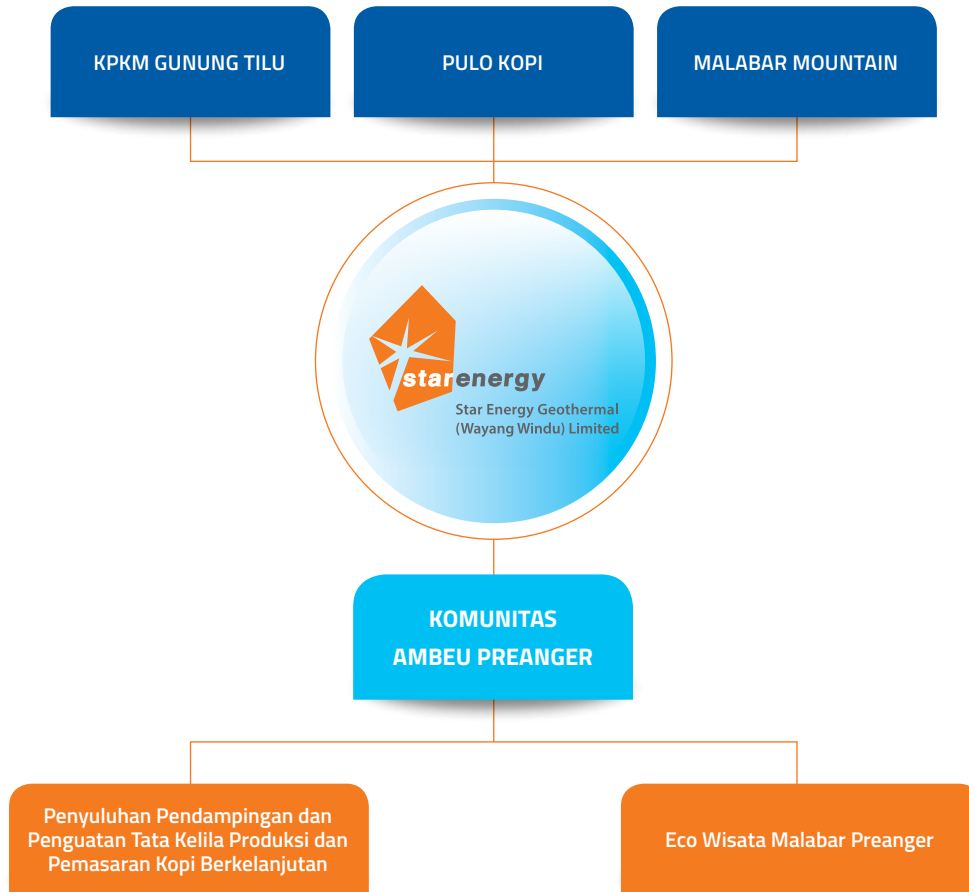
the maximum. This is despite a tourism sector that can generate economy for the residents around the tourism destinations, as tourism activities contain multiplier effects – creating other business activities.

In accordance with this condition, the Tourism and Culture Service (Disparbud) of Bandung Regency highly appreciates the efforts of Star Energy Geothermal Wayang Windu Ltd (SEGWWL), which has made a long-term plan to promote tourism throughout Pengalengan Subdistrict and has cooperated with the society research institution Indonesia Center for Sustainable Development (ICSD). We hope that these measures can successfully bring out the tourism potentials and simultaneously make the surrounding communities more prosperous.

4. BIRTH OF NEW SOCIO-ECONOMIC INSTITUTION  
SEGWWL established the 'Ambeu Coffee Preanger Community' with the objective of building a partnership among coffee farmers, coffee consumers and coffee business players to grow society-based

economy especially in development of coffee cultivation management, commerce, training, tourism, the environment, in line with the local potentials and based on green economy; this is elaborated under the name of "Eco-Tourism Java Preanger Field Camp".

LAHIRNYA INSTITUSI SOSIAL & EKONOMI BARU

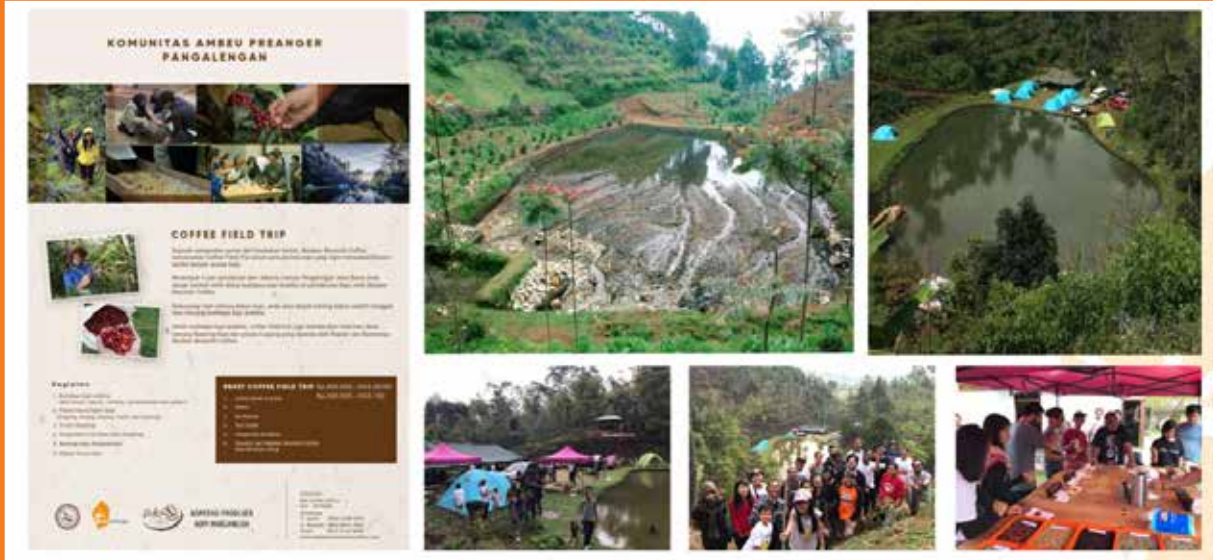


Objective of Program:

1. Building a partnership between coffee business players to grow society-based economy especially in development of coffee cultivation management, commerce, training, tourism, the environment, in line with the local potentials and based on green economy; this is elaborated under the name of "Eco-Tourism Java Preanger Field Camp".
2. Creating systematic and sustainable activities for distribution of knowledge and insights on Arabica coffee (particularly Arabica JG Java Preanger) to build human resources capacity for entrepreneurship through tourism education development in Pengalengan Subdistrict

3. Increasing good service and governance in environmental management and coffee raw materials produced in Pengalengan.

In 2017, SEGWWL and Ambeu Coffee Preanger Community agreed to synchronize their commitment to help the development of farmers and business players's coffee production and sales. This is demonstrated in the implementation of training and counseling, coffee cultivation governance from upstream to downstream; and it is aimed to highlight Pengalengan coffee farmers as specialty coffee producers.



**TESTIMONY OF PAK ALEH**  
Member of Ambeu Preanger

Alhamdulillah wasukrulillah, ala nikmatilah, thank God for all blessings.

Through this brief note I'd like to express my great gratitude to Star Energy Geothermal Wayang Windu Ltd., which has provided assistance, specifically the CSR funds to us, Cooperative of Margamulya Coffee Producers. We utilized the funds for:

1. Plantation of coffee trees in 2007; and
2. Stimulation funds for construction of a coffee shop and rest area of Gunung Tilu coffee in 2017.

The CSR funds have consequently increased the income of the cooperative and its members, as well as raising the confidence of buyers, the cooperative's business partners. I'd like to conclude this short testimony. Once again we thanks for the assistance.

## INFRASTRUCTURE DEVELOPMENT

It is undeniable that economic and tourism development go in line with sufficient social facilities. This is the reason why SEGWLL is involved in developing the infrastructure, with objectives as follows:

1. To improve the quality of infrastructure, public facilities and social facilities in 13 villages in Pangalengan Subdistrict
2. To ensure even distribution of road access in all areas in Pangalengan Subdistrict

Initially, in 2009, we focused on improving and renovating social facilities destroyed by the earthquake. Infrastructure development activities in 2017 were, among others:

1. Installation of electricity connection at 102 houses of underprivileged families. This installation would effectively support the amelioration of social, economic and cultural productivity, which would have impact on the higher prosperity of communities.



2. The development and renovation of public facilities are detailed as follows:

NO	ACTIVITY	BUDGET	IMPLEMENTATION
1	Margamukti : Construction of Posyandu (community health center) in RW 12.5 x 7m. Construction of MCK (public bathing, washing and toilet facility) in RW 04 4x6m. Procurement of village library facility.	195,000,000	100%
2	Banjarsari : Village road penetration, Hamlet 1 Cibolang vol 2000 m <sup>2</sup>	130,000,000	100%
3	Wanasuka : Renovation of Posyandu RW 02, 04 and renovation of MCK in RW 01, 02, 04	130,000,000	100%
4	Sukamanah : : Construction of rebate concrete road in alley/neighborhood of Kadus 1, Kadus 2, Kadus 3, Kadus 4 vol 1300 m <sup>2</sup>	130,000,000	100%
5	Pangalengan : Construction of Posyandu in RW 21 vol 4x6m and Posyandu in RW 14 vol 4x6m.	130,000,000	100%
6	Margamulya : Construction of podium in RW 04 Kp. Pasir mulya vol 20m x 5m and Posyandu RW 04 Kp.Bojong Mulyasari vol 4m x 6m	130,000,000	100%
7	Margamekar : Construction of rebated concrete road in RW 08 Kp. Las Kulalet vol 100m x 2m	84,500,000	100%
8	Lamajang : Construction of rebated concrete alley road from RW 02 badra to RW 03 Cikondang, vol 700m <sup>3</sup> [ed. Yes is this volume? What is vol?]	84,500,000	100%
9	Sukaluyu : Renovation of Posyandu (health center) of 16 RW	84,500,000	100%
10	Warnasari : Construction of Posyandu RW 04 vol 18m <sup>2</sup> , and RW 06 vol 18 m <sup>2</sup>	84,500,000	100%
11	Tribaktimulya : : Construction of Posyandu in RW 09 Kp. Mekarbakti vol 24 m <sup>2</sup>	84,500,000	100%
12	Pulosari : Construction of cliff protective wall in RW 10 vol 70m <sup>2</sup>	84,500,000	100%
13	Margaluyu : Construction of drainage RW 01 vol 200m <sup>2</sup> , and RW 02 vol 200 m <sup>2</sup>	84,500,000	100%
<b>TOTAL</b>		<b>1,436,500,000</b>	



### 3. Relocation of Cibitung landslide disaster victims



In 2015 another natural disaster shocked Pengalengan Subdistrict. On May 5, landslides hit Cibitung Kampong, Margamukti Village. The disaster took place when rain fell incessantly for days over the slopes of Mount Bedil, whose soil structure had already been frail. This caused land to glide for 1.2 km and hit the residence area of the villagers, after breaking one of SEGWWL's geothermal pipes. The volume of the land debris

was 300 m<sup>2</sup>, and the depth was 4m. The Cibitung landslides caused the death of nine people, seven severely injured and five lightly injured. Ten houses were badly damaged and one with with minor damage. SEGWWL's geothermal pipe of 250 in length was damaged. 134 villagers of Cibitung RW 15 took refuge at Margamukti Village Hall. In response to this disaster, SEGWWL has committed to the construction of 8 houses (worth Rp 500,000,000) for the victims who lost their homes. The construction of the relocated houses was carried out based on RAB and design from the Bureau of Public Works and People's Housing (formerly Department of Housing, Land Planning, and Sanitation) of the Regency of Bandung. Started in 2016, the program was completed in December 2017.

#### EXPENSES OF 2017 CSR PROGRAMS

COMMUNITY ENGAGEMENT-STAKEHOLDER COLLABORATION AND COMMUNITY EMPOWERMENT – CAPACITY BUILDING PROGRAM	EXPENDITURE	ACHIEVEMENT %
<b>Community relations &amp; stakeholder engagement</b>		
Stakeholder collaboration	Rp521,589,579	79%
Community relations & engagement	Rp216,718,500	112%
<b>Sub total</b>	<b>Rp738,308,079</b>	<b>86%</b>
<b>Community empowerment – capacity building (community development)</b>		
Education improvement & assistance	Rp970,704,650	88%
Infrastructure swakelola improvement for 13 villages	Rp1,436,500,000	100%
Jabar caang listrik masuk desa for 102 poor & low income families	Rp93,075,000	93%
Economic empowerment & capacity building	Rp298,884,150	100%
Environment & health program	Rp117,711,000	107%
<b>Sub total</b>	<b>Rp2,916,874,800</b>	<b>96%</b>
<b>Grand total</b>	<b>Rp3,655,182,879</b>	<b>93.6%</b>



# DEVELOPING WAYANG WINDU'S RESILIENT AND COMPETENT PEOPLE

“As the Company’s most valuable asset, human resources were developed in 2017 under the special attention of the management. The development of human resources – as human capital – is focused on the improvement of employee capacity. This starts from the selection of quality employees, continual competence development, and synchronization between work achievement and remuneration”.



SUSTAINABILITY  
GOVERNANCE



OCCUPATIONAL  
HEALTH AND  
SAFETY



IN HARMONY WITH  
COMMUNITIES



DEVELOPING WAYANG  
WINDU'S RESILIENT AND  
COMPETENT PEOPLE



GRI STANDARDS INDEX

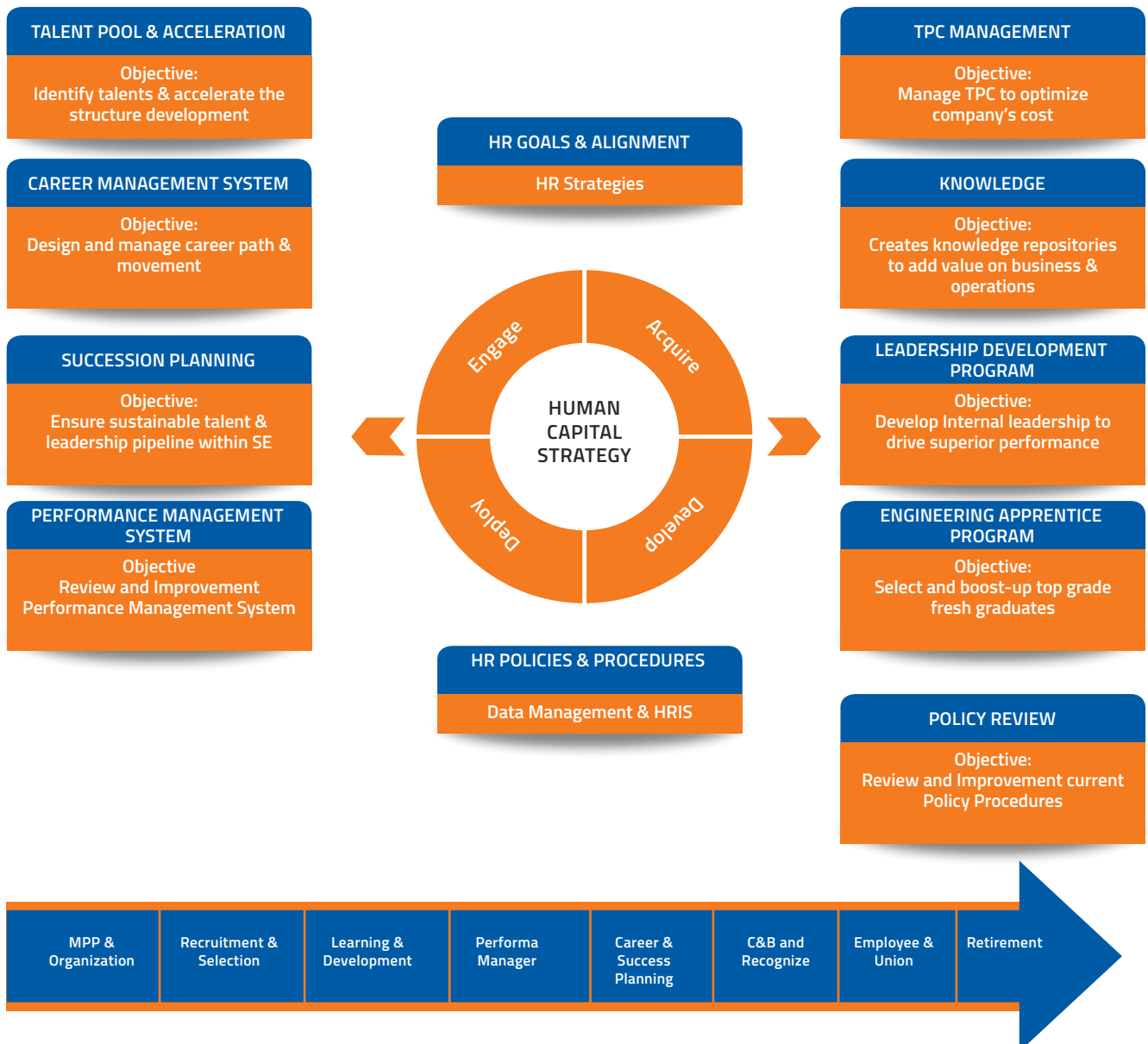


## BASIC CONCEPT OF HUMAN RESOURCES DEVELOPMENT

Human Resources as human capital plays a central role in the realization of the Company's vision and mission. We plan and apply a human resources management strategy by taking into account assignments of human resources as in line with their qualifications and business development needs. This strategy does not only synchronize human resources' potential with the Company's needs, but would also optimally raise the human resources' performance.

Another strategy is the continuous employee capacity development through various educational and training programs. The HR policy is in line with the 8th Sustainable Development Goal (SDG), i.e. Decent Work and Economic Growth - Promote sustainable and inclusive economic growth, provide productive employment and decent work for all".

SEWW's human resources development strategy is illustrated as below:







## MAIN PILLARS OF HUMAN RESOURCES DEVELOPMENT

We apply the Human Resources Goals & Alignment Human Resources Strategies (HRG & AHRS) as the main pillars of the HR development strategy. This strategy consists of TPC management implementation, competence development, a career advancement system, policy evaluation, upholding employees' rights and pension preparation.

HRG & AHRS is comprised of 9 main pillars, i.e.:

1. Third party contract Management,
2. Engineering Apprentice Program,
3. Knowledge Management,
4. Leadership Development Program,
5. Talent Pool & Acceleration,
6. Career Management System,
7. Succession Planning,
8. Performance Management System and
9. Policy Review.

### THIRD PARTY CONTRACT (TPC)

By maintaining the accordance of the Company's needs and business development, we consider the parameters for contract-based human resources. These parameters include worker composition, budget["a budget" or "budgeting"], and the efficiency and productivity of employees. In this way we expect that the discrepancy between the needs and the talents available can be well manage to support an effective and efficient human resources performance in achieving the Company's goals.

### ENGINEERING APPRENTICE PROGRAM

By considering the competence of local future employees in recruitment and supporting the increase of local employee numbers in worker composition, we recruit and develop fresh graduates based on the long-term needs of human resources.

In cooperation with the local government, we provide scholarships for students in junior high school, high school and university, the 'Kejar Paket C' educational program as well as sewing training for the locals. Through this mechanism, up to the end of 2017, the

number of our local employees is 26 (or 14.4%) of the total 210 employees.

### Total Employees by Location [GRI 401-1]

YEAR	TOTAL EMPLOYEES	LOCAL EMPLOYEES	PERCENTAGE (%)
2013	450	305	68
2014	505	393	78
2015	403	223	55
2016	252	103	41
2017	210	26	12

In 2017 we recruited 16 employees, of which 11 are male and 5 female employees. [GRI 401-1]

### The Number of New Employees by Age (GRI 401-1)

NOTES	2013	2014	2015	2016	2017
< 30 years old	3	2	2	1	7
30-50 years old	3	1	3	4	8
> 50 years old	-	-	1	1	1
Total	6	3	6	6	16

### The Number of New Employees by Location (GRI 401-1)

NOTES	2013	2014	2015	2016	2017
Pangalengan	5	1	5	6	9
Jakarta	1	2	1	-	7
Total	6	3	6	6	16

### The Number of Employee Turnover by Gender (GRI 401-1)

NOTES	2013	2014	2015	2016	2017
Female	-	1	1	-	5
Male	6	2	5	6	11
Total	6	3	6	6	16

### The Number of Employee Turnover by Age (GRI 401-1)

NOTES	2013	2014	2015	2016	2017
< 30 years old	3	2	2	1	7
30-50 years old	3	1	3	4	8
> 50 years old	-	-	1	1	1
Total	6	3	6	6	16

**The Number of Employee Turnover by Location (GRI 401-1)**

NOTES	2013	2014	2015	2016	2017
Pangalengan	5	1	5	6	9
Jakarta	1	2	1	-	7
Total	6	3	6	6	16

These employee candidates attended an orientation program prior to becoming permanent employees, which includes a training for enriching employee’s basic competence and an induction program on occupational health, safety and environment conservation.

**TALENT POOL & ACCELERATION AND LEADERSHIP DEVELOPMENT PROGRAM**

In 2017 the management focused on preparing employees for leadership roles at the level of manager, senior manager and vice president (established leaders) to meet the target of Star Energy Geothermal (Wayang Windu) for the next five years up to 2021. The management also focused on supervisor and superintendent (emerging leader) level regeneration, so employees can take the posts of their leaders in the future. SEGWWL grooms employees for leadership in cooperation with INSEAD under the program called the “Star Energy Leadership and Management Program”.

**PERFORMANCE & CAREER MANAGEMENT SYSTEM AND SUCCESSION PLANNING [GRI 404-3]**

We consistently execute a competence-based human resources management system, i.e. executive level development through enriching human resources competence with the requirements of the respective level. For measuring employees’ performance, we develop a performance evaluation system that is based on the individual and team’s key performance indicator (KPI). This also serves as the basis in career advancement and remuneration. Every year all employees (100%) undergo performance review in accordance with the respective KPIs.

We also prepare a succession planning program by taking into account human resources competence and career

advancement in our decision making. For 2017, as many as 37 employees were promoted.

**Total Employees Receiving Performance Assessment and Career Advancement**

NOTES	2013	2014	2015	2016	2017
Promotion	34	50	0	0	37
Demotion	0	0	0	0	0
Mutation/ Rotation	0	2	0	2	0

**EQUALITY IN HUMAN RESOURCES MANAGEMENT [GRI 406-1]**

In optimally managing human resources, we consider both the employees’ interests and the Company’s capability. As part of the implementation of the quality human resources management policy and the fair and responsible consideration of the two parties, we apply human resources policy as follows:

- Complying with all rules and regulations in manpower.
- Maintaining good relations with employees based on mutual cooperation and the periodically reviewed Contractual Bargaining Agreement (CBA).
- Applying a fair, transparent and accountable remuneration system based on performance.
- Respecting employees’ rights including providing full support in the establishment and activities of the Employee Union.
- Conducting programs of employee’s competence enrichment and training to improve individual, team and eventually corporate performance.
- Applying equality in career advancement and remuneration by opening equal opportunities for all employees in developing their career in line with their competence and the Company’s growth.

The consistent application of the equality principle has created a conducive and comfortable working condition. During the reporting period, there had not been any discrimination case related to ethnicity, race, religion or gender at any level of position at the Company. The



equality principle application is evident in the employee composition based on position level, under the description of "Employee Demography".

## WELFARE PACKAGE

We apply a fair remuneration policy that is based on salary grade level (SGL). It is expected that the policy would reflect the balance in everyone's position level, duty and responsibility. The policy also consists of religious holiday, health insurance, pension funds, social security and annual leave benefits, all provided in accordance with the applicable regulations and the complement of the remuneration. There are two types of remunerations based on employment status: permanent employee and the contract employee. Some types of benefits are not applicable to contract employees, such as pension funds. This welfare package is given to all employees located in the head office in Jakarta as well as in the operational site of SEGWWL in Pangalengan. [GRI 401-2]

We also provide other incentives for employees, i.e.:

- Educational/training fee
- Regular medical check-up
- Loans on salary
- Prostheses, glasses and hearing aid purchase
- Scholarship for employee's family member
- Hajj fund
- Property fund
- Annual holiday leave
- Assistance for infertility and artificial insemination

The Company specifically applies a policy of a 90-day leave for female employees who are in labor and provides assurance of a position on their return. During maternal leave, the Company still will provide employees' rights, a comprising salary and benefits. We also provide unpaid leaves for employees who undergo an education program abroad; they would be able to work again at the Company after completion of their education.

## PENSION PROGRAM [GRI 201-3]

The Company cooperates with enterprise competence in pension fund management for the implementation of the pension program. The pension program is aimed to ensure the sufficiency of pension funds for employees entering retirement age. The benefit provided to these employees is a pension fee payment. Pension fee funds are derived from two sources, i.e.:

- The Employer's Contribution amounting to 6% of employee's Basic Pension Income (PhDP)
- Employee's Contribution amounting to 2% of employee's PhDP at the time of entering retirement age, then all pension funds eligible for the employee would be provided in a lump sum through the Financial Institution Pension Fund (FIPF).

## AWARD PROGRAM FOR EMPLOYEES

In addition to the programs above, we conduct an employee appreciation program as one of the forms of work achievement evaluation and mentorship for employees. Employee appreciation comprises of an Achievement Award, Employee of the Year Award, Dedication Award and Retirement Award.

## ENRICHING INDUSTRIAL RELATION QUALITY [GRI 407-1, GRI 102-41]

The Employee Union is a medium of communication between the employees and the management. Therefore, the Company fully supports the Employee Union's activities in bridging the interests of the employees and the management. We hope that the Employee Union would nurture constructive interaction that promotes a two-way communication between the employees' expectations and the management's policy, so as to encourage optimum performance from the employees.

It has been agreed that the Contractual Bargaining Agreement (CBA) that had been signed on September 10, 2015 and starting from September 10, 2015 to September 9, 2017, would be extended for a year up to 2018. The CBA has been registered at the Manpower and

Transmigration Service of the Bandung Regency, with the Decision Letter No. 230/72/I/HIPK/2006 dated January 16, 2006 and at the Manpower and Transmigration Ministry c.q. Directorate General of Industrial Relation and Labour Social Security Development, with No. 134/Pdf.03/PKB/VIII /2012.

The points in the CBA are a collective agreement between the employees and the Company's party, and these have been agreed by all SEGWWL employees who are members of SP-WWL (100%) upon the completion of the deliberation. Therefore, all employees have been protected and their rights have been represented in the Contractual Bargaining Agreement.

The CBA regulates the basic provisions and agreements related to employee rights, obligations and company relations, including a minimum notice time in case of a substantial change in work conditions, such as job unit closure. The CBA also regulates differences of opinions between the employees' party and the Company's management; during the reporting period there had not been any case of dispute which may have lead to a strike.

**FREEDOM OF ASSOCIATION [GRI 407-1]**

We assure the employees' right of free association to establish an employee organization or trade union in the Company's environment, including the freedom to be the part of that organization's management. This is in accordance with the Law Number 21 of 2000 concerning Employee Union/Trade Union. The total number of employees who are members of SEGWWL Employees Union (SP-SEGWWL) is 57 out of 180 permanent employees or 31.6%.

Employees can propose improvement ideas, give opinions or constructive criticisms for the betterment of the operational pattern and prosperity to the Top Management through the SP-SEGWWL. These inputs can be conveyed in the General Shareholders' Meeting or other interaction forums between Top Management and

SP-SEGWWL. These important mechanisms show how employees, as stakeholders, contribute to the Company's policy orientation and are responsible for the continuity of business.

**CONVENIENCE IN WORK ENVIRONMENT**

The working environment has impacts the effectiveness of operational activities. We develop the work environment both physically and psychologically so that the working atmosphere is conducive, healthy, safe and convenient at all times. The aim of this is to positively influence the employees' performance. Such conducive condition is demonstrated in the relatively low turnover of employees.

During the reporting period, 18 of our permanent employees resigned. This accounts for only 10% of the total 180 employees of the Company as per end of year.

**Number of Employees Retired, Deceased and Resigned**

NOTES	2013	2014	2015	2016	2017
Retire	1	5	3	0	1
Deceased	0	0	0	0	0
Resign	2	4	4	4	18
<b>Total</b>	<b>3</b>	<b>9</b>	<b>7</b>	<b>4</b>	<b>19</b>

**MAN-HOUR AND CHANGE IN MAN-HOUR**

The Company applies a regular man-hour, shift and special man-hour for the operational and security tasks. We provide compensation in the form of a overtime fee in line with the regulation provisions to the employees who complete their task longer than the standard man-hour. In case of a change in regulation concerning working time, operational patterns and/or operational terminations, we spare three months at the minimum before the change comes into effect.

**EMPLOYEES' REMUNERATION**

Remuneration for employees comprises a basic salary, leaves pay, long-service reward, employee of the year, performance incentive, bonus and other allowances.



(See description of "Welfare Package") The amount of minimum wage of a new recruit of lowest level is higher compared to the regional/provincial minimum wage.

As an example, below is a table of comparison between a newly recruited SEGWWL employee's salary and the minimum wage of the closest main region. [GRI 202-1]

#### Comparison of Wage/ Remuneration to Provincial Minimum Wage [GRI 202-1]

YEAR	EMPLOYEE LOW LEVEL	AMOUNT OF WAGE /PROVINCIAL MINIMUM WAGE	PERCENTAGE
2011	2,842,000	1,123,000	153%
2012	3,155,000	1,223,800	257.8%
2013	3,284,000	1,388,333	236.5%
2014	3,539,000	1,35,476	203.9%
2015	3,539,000	2,001,195	176.8%
2016	3,539,000	Rp2,280,175	155.2%
2017	4,500,000	2,468,289	182.3%

#### HUMAN RIGHTS RECOGNITION

We are fully committed in paying attention to human rights upholding at every stage of operational activity. Freedom of association, political practice, channeling political aspirations including giving suggestions for the Company's growth (through the Employee Union of other available mechanism for that purpose) are manifestations of our respect to human rights.

#### TRAINING AND SOCIALIZATION OF HUMAN RIGHTS

We conduct training of competence building for Company Security Unit to ensure that human rights are upheld for the security measure of the Company. For this objective, the curriculum of training is the most recent one compiled by the National Police (Polri), which includes training on human rights for all security guards.

#### CHILD LABOUR

We highly uphold the Government's policy as stated in Law Number 13 of 2003 on employees who are minors by setting minimum requirements for recruitment,

i.e. education level of junior high school (SLTP) or equivalent, and minimum age of 20, proven with a legitimate identity card.

#### DEMOGRAPHY AND TOTAL EMPLOYEES [GRI 102-8]

There are three statuses of our employees, namely the permanent employee, non-permanent employee and outsourced employee. In the reporting period of 2017, the Company's permanent employees total 168. Out of this figure, 103 employees work at Wayang Windu fields, while 65 others at the Headquarters. The data regarding the workers below are obtained from the data collected by HRD.

#### Number of Employees Based on Employment Status

NOTES	2013	2014	2015	2016	2017
Permanent Employee	218	214	221	221	168
Non-Permanent Employee	6	5	2	7	12
Outsourced Employee	226	286	180	24	30
<b>Total</b>	<b>450</b>	<b>505</b>	<b>403</b>	<b>252</b>	<b>210</b>

#### Number of Permanent Employees Based on Work Station

NOTES	2013	2014	2015	2016	2017
<b>Permanent Employee</b>					
SEGWWL Field, Pangalengan	189	183	191	187	103
Head Office, Jakarta	29	31	30	34	65
<b>Total</b>	<b>218</b>	<b>214</b>	<b>221</b>	<b>221</b>	<b>168</b>
<b>Non-Permanent Employee</b>					
SEGWWL Field, Pangalengan	5	4	2	7	9
Head Office, Jakarta	1	1	0	0	3
<b>Total</b>	<b>6</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>12</b>
<b>Outsourced Employee</b>					
SEGWWL Field, Pangalengan	217	277	169	22	26
Head Office, Jakarta	9	9	11	2	4
<b>Total</b>	<b>226</b>	<b>286</b>	<b>180</b>	<b>24</b>	<b>30</b>

The number of non-permanent employees is 12 personnel while the number of outsourced employees is 30, whose duties includes maintenance, cleaning, office assistant, driver and catering. The two figures are an increase from previously 7 contract employees and 24 outsourced employees in 2017. This is due to the change in the Company's business strategy, from focusing on two business units, i.e.:

- a. Oil and gas
- b. Geothermal

In 2017, the Company focused on the development of new and renewable energy.

The majority of the permanent employees in 2017 hold a senior high school (SLTA) diploma, and a bachelor's degree (S1), totaling 29.6% and 34% respectively. Some employees graduated with a Diploma 3 from vocational schools (26.25%), and other employees graduated with a Master's degree (9.49 %), while the rest have Doctoral graduates.

The largest composition of high school graduates is related to the non-operational scope in security whose main duty is safety and field patrol that require less skill but stronger physical condition. The composition of employees in 2017 based on educational level is shown in the following table:

**Total Number of Permanent Employees based on Educational Level [GRI 401-1]**

NOTES	2013	2014	2015	2016	2017
Primary/junior high school	3	3	3	3	0
High school	106	100	100	100	53
Vocational School (1-3 years)	34	34	34	35	47
University Undergraduate (S1)	69	69	72	76	62
University Graduate (S2/ Master)	12	13	13	13	17
Doctorate (S3/ Doctor/Phd)	0	0	1	1	1
<b>Total</b>	<b>224</b>	<b>219</b>	<b>223</b>	<b>228</b>	<b>180</b>

**Total Number of Employees based on Gender [GRI 401-1]**

GENDER	2013	2014	2015	2016	2017
Female	22	21	19	19	34
Male	202	198	204	209	146
<b>Total</b>	<b>224</b>	<b>219</b>	<b>223</b>	<b>228</b>	<b>180</b>

**Total Number of Employees based on Age [GRI 401-1]**

AGE (BY YEAR)	2013	2014	2015	2016	2017
19 - 30	42	31	28	31	32
31 - 40	67	60	63	63	62
41 - 50	99	114	121	122	64
>=51	16	14	11	12	22
<b>Total</b>	<b>224</b>	<b>219</b>	<b>223</b>	<b>228</b>	<b>180</b>

We do not discriminate nor restrict on employees based on gender. In accordance with the nature of the job, however, the total number of female employees is lower than that of their male colleagues, i.e. 33 female employees or 18.43 % of the total employees. Most of our female employees are stationed in the administration and other jobs other than field operation. In 2017, the Company's management is handled by 27 managers and 54 supervisors assisted by 50 staff and 48 non-staff members as shown in the following table:

**Positional Composition of Permanent Employees in 2017 [GRI 401-1]**

NOTES	DESCRIPTION					
	NUMBER	GENDER		AGE		
		MALE	FEMALE	<30	30-50	>50
Manager	27	24	2	0	22	4
Supervisor	55	42	14	2	46	8
Staff	50	36	14	17	31	2
Non-Staff	48	44	4	6	33	9
<b>Total</b>	<b>180</b>	<b>146</b>	<b>34</b>	<b>25</b>	<b>132</b>	<b>23</b>



# STATEMENT GRI STANDARDS CORE IN ACCORDANCE CHECK



NATIONAL CENTER FOR SUSTAINABILITY REPORTING

## Statement GRI Standards in Accordance Check

The National Center for Sustainability Reporting (NCSR) has conducted a GRI Standards in Accordance Check on the Star Energy Geothermal (Wayang Windu) Ltd Sustainability Report 2017 ("Report"). The check communicates the extent to which the GRI Standards Core criteria has been applied in the Report. The check does not provide an opinion on the sustainability performance of the reporter or the quality of the information provided in the report.

We conclude that this Report has been prepared in accordance with the GRI Standards - Core Option.

Jakarta, 5 October 2018

**National Center for Sustainability Reporting**

**Dewi Fitriasari, Ph.D., CSRA, CMA  
Director**

# GRI

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# LINKING THE SDG's AND GRI STANDARDS

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1. NO POVERTY  End poverty in all its forms everywhere	Earnings, wages and benefits	GRI 203: Indirect Economic Impacts	203-2	
	Economic development in areas of high poverty	GRI 203: Indirect Economic Impacts	203-2	
	Economic inclusion	GRI 401: Employment GRI 202: Market Presence	401-2 202-1	
2. ZERO HUNGER  End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Economic development in areas of high poverty	GRI 203: Indirect Economic Impacts	203-2	
3 GOOD HEALTH AND WELL BEING  Ensure healthy lives and promote wellbeing for all at all ages	Air quality	GRI 305: Emissions	305-1, 305-4, 305-5, 305-6	
	Occupational health and safety	GRI 403: Occupational Health and Safety	403-1, 403-2, 403-4	
	Spills	GRI 306: Effluents And Waste	306-1, 306-2	
	Kepatuhan pada peraturan perundangan	GRI 308: Environmental Assessment of Suppliers	308-1	
		GRI 416: Customer Health and Safety	416	
4 QUALITY EDUCATION  Ensure inclusive and quality education for all and promote lifelong learning	Employee training and education	GRI 404: Training And Education	404-3	
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5 GENDER EQUALITY  Achieve gender equality and empower all women and girls	Equal remuneration for women and men	GRI 406: Non-discrimination	406-1	
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SDG's	Business Theme	Relevant GRI Standard		
6 CLEAN WATER AND SANITATION  Ensure access to water and sanitation for all	Sustainable water withdrawals	GRI 303: Water	303-1, 303-3	
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7 AFFORDABLE AND CLEAN ENERGY  Ensure access to affordable, reliable, sustainable and modern energy for all	Energy efficiency	GRI 302: Energy	302-3, 302-4	
8 DECENT WORK AND ECONOMIC GROWTH  Promote inclusive and sustainable economic growth, employment and decent work for all	Changing productivity from various organizations, sectors, or general economy	GRI 203: Indirect Economic Impacts	203-2	
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	Build resilient infrastructure, promote sustainable industrialization and foster innovation	Economic development in areas of high poverty	GRI 203: Indirect Economic Impacts		203-2
10. REDUCED INEQUALITIES	Economic development in areas of high poverty	GRI 203: Indirect Economic Impacts	203-2		
	Mengurangi kesenjangan di dalam dan antar Negara				
11 SUSTAINABLE CITIES AND COMMUNITIES	Infrastructure investments	GRI 203: Indirect Economic Impacts	203-2		
	Make cities inclusive, safe, resilient and sustainable				
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Air quality	GRI 305: Emissions	305-1, 305-4, 305-5, 305-6		
	Ensure sustainable consumption and production patterns	Materiality	GRI 301: Materiality		301-1
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13 CLIMATE ACTION	Energy efficiency	GRI 302: Energy	302-3, 302-4		
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15. LIFE ON LAND	Pelestarian Keanekaragaman Hayati	GRI 304: Biodiversity	304-3, 304-4		
	Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	Kepatuhan terhadap peraturan dan undang-undang.	GRI 307: Environmental Compliance		307-1





SDG's	Business Theme	Relevant GRI Standard	
16. PEACE, JUSTICE AND STRONG INSTITUTIONS  Promote just, peaceful and inclusive societies	Anti-corruption	GRI 205: Anti-corruption	205-3
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	Inclusive decision-making	GRI 102: General Disclosure – Governance, stakeholder engagement, , collective bargaining agreement	102-18, 102-40, 102-41, 102-42, 102-43, 102-44
17. PARTNERSHIP FOR THE GOALS  Revitalize the global partnership for sustainable development	External initiatives	GRI 102: General Disclosure – external initiatives	102-12





## SUSTAINABILITY REPORT 2017

### **Star Energy Geothermal (Wayang Windu) Ltd.**

Wisma Barito Pacific

Star Energy Tower Lantai 3

Jl.Let.Jend.S.Parman Kav.62-63

Jakarta Barat 11410

Indonesia

Tel. +62 21 532 5828

Fax. +62 21 532 2345

[www.starenergy.co.id](http://www.starenergy.co.id)

