



## **SUBMISSION FORM**

ASEAN Energy Efficiency and Conservation (EE&C)  
Best Practice Competition in Buildings  
ASEAN Energy Awards – 2014

**CATEGORY: ENERGY MANAGEMENT – LARGE BUILDING**

# **SINAR MAS LAND PLAZA**



## ENERGY MANAGEMENT

# SINAR MAS LAND PLAZA



Jl. Grand Boulevard BSD, Green Office Park – BSD City Tangerang



Name of Activity:

Energy Of Management : Sinar Mas Land Plaza
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General Information:

Name of Company: . PT. Bumi Serpong Damai, Tbk.
Address: Jl. Grand Boulevard BSD, Green Office Park BSD City Tangerang
No of Employee: 1000 Person
Jenis Industri/Gedung: Dipakai Sendiri
Usia Industri/Gedung: ± 2 Tahun
Bidang Usaha: Property
Contact Person: <b>Mr. Igenesjz Kemalawarta</b> Sinar Mas Land Plaza, Director Regulation Watch and Sustainable Programm 62-21 50368368, fax 62-21 50588221 e-mail <a href="mailto:ignesjz.kemalawarta@sinarmasland.com">ignesjz.kemalawarta@sinarmasland.com</a>

**Summary of Activity:**

Sinar Mas Land Plaza , located in the Green Office Park , Jl . Grand Boulevard BSD - Tangerang BSD City Indonesia, occupies an area of 35 430 square meters and was completed in 2011 . The building has five floors consisting of two floors and a basement floor 5 floor office area consists of 2 wing ( Wing A and Wing B ) with a total gross floor area is 21,258 square meters . Having a parking area of 25 000 m2 with a capacity of 447 units of car parking , bike parking and bike 301 units 120 units , there is parking on the park which covers 25 293 m2 , and there are 6 pieces and 1 piece of pond water lake with an area of approximately 8,000 m2 .

Sinar Mas Land Plaza earn Gold certification from the BCA Green Mark Singapore , Sinar Mas Land Plaza management in performing building maintenance every day . Activities undertaken is to monitor all the equipment to run properly and perform preventive maintenance on equipment including Mechanical Electrical control equipment building through the Building Automation System ( BAS ) . The parameters are taken to conserve energy consumption is the use of IKE ( Energy Consumption Index ) from October 2012 to September 2013 reached 199 kWh/m2/year , with reference to the then all activities can be programmed energy efficiency and comfort of residents / users of the building are also not disturbed . As it is known that the great energy from the air conditioning equipment , the Sinar Mas Land plaza building to save energy using Water Cooled Chiller with the system , screw -type chiller which used its energy efficiency reached 0.55 KW / TR and equipment used sparingly energy such as T5 and LED lights , lifts VVVF type , motor pumps and motors wear AHU Fan VSD and in the parking of vehicles using CO sensors in operation .

Management of PT. Bumi Serpong Damai Tbk (Sinar Mas Land Plaza) BSD City Tangerang hereby agree to allow the organizers and experts appointed by the Ministry of Energy and Mineral Resources to visit and verify the authenticity of the data. However, two weeks prior to the visit in order to provide information.

We also agree that the organizers may publish the information in the overall submission and publication of the Ministry of Energy and Mineral Resources website, without the consent of the owner of the building and industrial (factory). If this application form will be published in another publication, then the consent of the owner of the building in question and industry (factories) needed.

We the undersigned on the certificate, that the information provided on this application form is true

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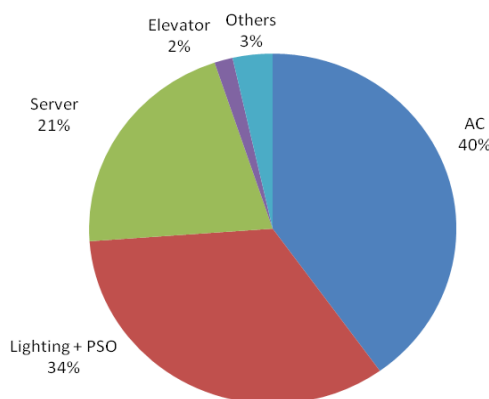
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### 1.1Energy Saving

Electrical energy consumption in buildings Sinar Mas Land Plaza grouped into sections as follows; Lighting & PSO 34%, AC 40%, 21% of IT servers, Elevators 2%, 3% other devices. Based on the analysis from October 2012 until September 2013 Energy Efficiency Index (EEI) Sinar Mas Land Plaza building is 199 KWh/M2/Year, In addition to the savings from the results of the count I Energy Efficiency Index (EEI, Sinar Mas Land Plaza building has savings on some equipment such as

The Everage Electrical Power Consumption



#### Lobby Area non AC

In the lobby and atrium area Sinar Mas Land Plaza building is not conditioned (non-AC), it is very helpful in saving electrical energy, where the lobby area of the airflow gets cool outside the building because the building has been created around the pond and lake water so that the microclimate enough better. Areas that do not use air conditioning area of 2,069 square meters which, if converted to the use of air per square meter of 300TR, the saving in the lobby area of approximately 620.700 BTUH.

Use of energy saving due Road Lighting Photovoltaic solar, number of Road Lighting 72 Poles as 30 Watt LED lights, and 73 poles as 80 Watt + 30 Watt, while the savings of 3,668 kWh / month or 44.016 Kwh / year

Lux Sensor usage, at which time the sun light into the office, there are several zones T5 lamps are extinguished diarea perimeter office spaces, the savings amounted to; 5856 watts x 4 Hour Off x 25 days x 12 months = 7,027 Kwh / year

Fixtures T5	Jumlah	Watt	Losses Balast	Daya per unit	Total watt
2X14 Watt	48	28	4	32	1.536
2X28 watt	72	56	4	60	4.320
					5.856 Watt

#### Sensor CO (monitor emisi Co)

CO sensors used to turn on the fan if the CO level exceeds 350 ppm. While in the building Sinar Mas Land Plaza found that CO activates the fan every day is was 7.5 Kw for 2 hours which is the location of motorcycle parking, while in other places CO sensor detects less than 350 ppm of CO emissions, and therefore energy is not goes unused because the fan is 180 Kw X 12 Hours X 25 days X 12 months = 648 000 kWh / year, which is operated as a fan of smoke detected CO emission is 7.5 Kw

Hours X 25 X 2 days X 12 months = 4,500 Kwh / resistant , so the difference in energy savings for fan is: 648 000 Kwh / year - 4,500 Kwh / year = 643,500 kWh / year.

Water savings through the recycling process, in building Sinar Mas Land Plaza has recycled water treatment, in which the process is carried out using excess water from the STP effluence, the water tank is inserted into Coagulan Electrical (EC) filtering process is then performed using the filter media and Ultra filtration (UF). The output was stored in a tank and then pumped into the water tanks of Cooling Tower makeup of 19.5 m3/day or 5,850 m3/year.

**Award Sinar Mas Land as :**

**Sertificaate GOLD Green Building dari BCA Green Mark Singapore**



**PEEN 2012 - Winner, Level National/Award Efisiensi Energi National 2012 (Category New and Existing Building)**

**ASEAN Energy Award 2013, Winner in category *New and Existing Building* kelompok *ASEAN Best Practice Competition For Energy Efficient Buildings*.**



**FIABCI Indonesia Prix d'Excellence Award 2012 - Winner category Office Building pada Sinar Mas Land Plaza Office Building**

**FIABCI Indonesia Prix d'Excellence Award 2012 - Winner category Sustainable Development pada BSD Green Office Park**



**BEST OFFICE BUILDING-ASIA PACIFIC PROPERTY AWARD 2012**

**PEEN 2013 – Runner up, Level National/Award Efisiensi Energi National 2012 (Category Energy Management)**

## 1.2 Effect Against Environmental

Energy Efficiency Index (EEI) Sinar Mas Land Building at 199 kWh/m<sup>2</sup>/year , while Energy Efficiency Index (EEI) standar ASEAN / USAID office building is 240 kWh/m<sup>2</sup>/year , when compared with Sinar Mas Land Plaza building then the difference amounted to : 41 kWh/m<sup>2</sup>/year , if converted to the reduction of CO<sub>2</sub> emissions , the impact effect on the environment , building Sinar Mas Land plaza has reduced CO<sub>2</sub> emissions by 41 kWh/m<sup>2</sup>/year X 12.000m<sup>2</sup> = 492,000 kWh / year in the reduction of CO<sub>2</sub> emissions converted into 265.68 tons of CO<sub>2</sub> per year .

Use of Photovoltaic in Buildings PJU Sinar Mas Land come save energy because PJU on solar power , while the savings of 3,668 kWh / month or 44 016 Kwh / year , equivalent to 23.768 TCO<sub>2</sub>/year

Wastewater Management such as wastewater recycling process is carried water for Cooling Tower at 19.5 m<sup>3</sup>/day or 5.850 m<sup>3</sup>/year , if converted to CO<sub>2</sub> emission reductions gained 1,093 tCo<sub>2</sub>/year

## Garbage 3 Compartement

As an environmentally conscious company, Sinar Mas Land Plaza makes trash into 3 parts, Organic, Inorganic and B3, this is done to simplify the process of recycling waste in landfills. Although waste segregation no direct connection with the energy savings but the effect on the environment because many materials that can be recycled.



## 1.3 Effect of Economy Company

### 1.3.1 Investment and Savings

Investing in Road Lighting Photovoltaic energy savings	Rp.2.033.000.000,-
Investment in water management is needed to install treatment recycled water	Rp. 300.000.000,-
Investment in energy savings Lux Sensor	Rp. 4.671.000,-
Investments in energy saving sensors Co.	Rp. 9.382.500,-

**Total Investasi      Rp. 2.347.053.500,-**

Electrical energy savings from the difference between building and Energy Efficiency Index (EEI) ASEAN 41 kWh/m<sup>2</sup>/year X 12.000m<sup>2</sup> = 492,000 kWh / year, when multiplied by the current electricity price of Rp. 1,400, - then the savings obtained Rp. 688 800 000, - Saving water treatment recycling management for Cooling Tower at 19.5 m<sup>3</sup>/day or 5.850 m<sup>3</sup>/year, if multiplied by the price of the current BSD PAM region Rp. 9000, - the importance of the savings of Rp. 52,650,000, -

### 1.3.2 Payback Period

The payback period is calculated based on equipment investment divided by the electrical energy saving and recycling water for 1 year, which is the excess return of the investments made during purchasing of equipment, the payback period is calculated obtained after 2 months for 3 years, for details can be found in the table below this;

**Payback Period**

Peralatan	Penghematan (Rp)	Investasi (Rp)	Tahun	Bulan
Photovoltaic		2.033.000.000		
WTP Air Daur Ulang		300.000.000		
Lux Sensor		4.671.000		
CO Sensor		9.382.500		
Penghematan Energi Listrik	688.800.000			
Penghematan Air Ddaur Ulang	52.650.000			
			Payback Period	
	<b>741.450.000</b>	<b>2.347.053.500</b>	<b>3</b>	<b>2</b>

### 1.4 Index

In accordance with the bill of electricity from October 2012 until September 2013 Energy Efficiency Index (EEI) Sinar Mas Land Building at 199 kWh/m<sup>2</sup>/year, while Energy Efficiency Index (EEI) standard ASEAN / USAID office building is 240 kWh/m<sup>2</sup>/year, when compared with the differences of: 41 Kwh / m<sup>2</sup>/tahun

## 2. Sustainable

### 2.1. Level of Participation and Engagement

Sinar Mas Land Plaza always follow and support all of the government's plan especially in energy savings, this is evidenced by always following activities associated with the program efficient and environmentally friendly energy held by the Ministry of Energy and Mineral Resources, as well as those conducted by the Indonesian GBC (Green Building Council Indonesia) in the case of Sinar Mas Land become Corporate members of the GBC Indonesia. Coordination To improve the sustainability of energy management, conducted the following activities:

1. The morning briefing by the Chairman of the level of building maintenance technicians.
2. Around the site to monitor the performance of equipment checks.
3. Conduct weekly meetings at the level of Building Operations and Maintenance
4. Conduct monthly meetings at the division level.

### 2.2 Top Level Management Commitment

Doing great support by conducting training as beriku;

1. Green Training Association and Greenship in GBC Indonesia,
2. Forming Team handles internal Greenship energy-





efficient buildings and based Green Building

3. Following judging various activities that support sustainable development

## 2.3 Short and Long Term Plan

### 2.3.1 Short-Term Plan

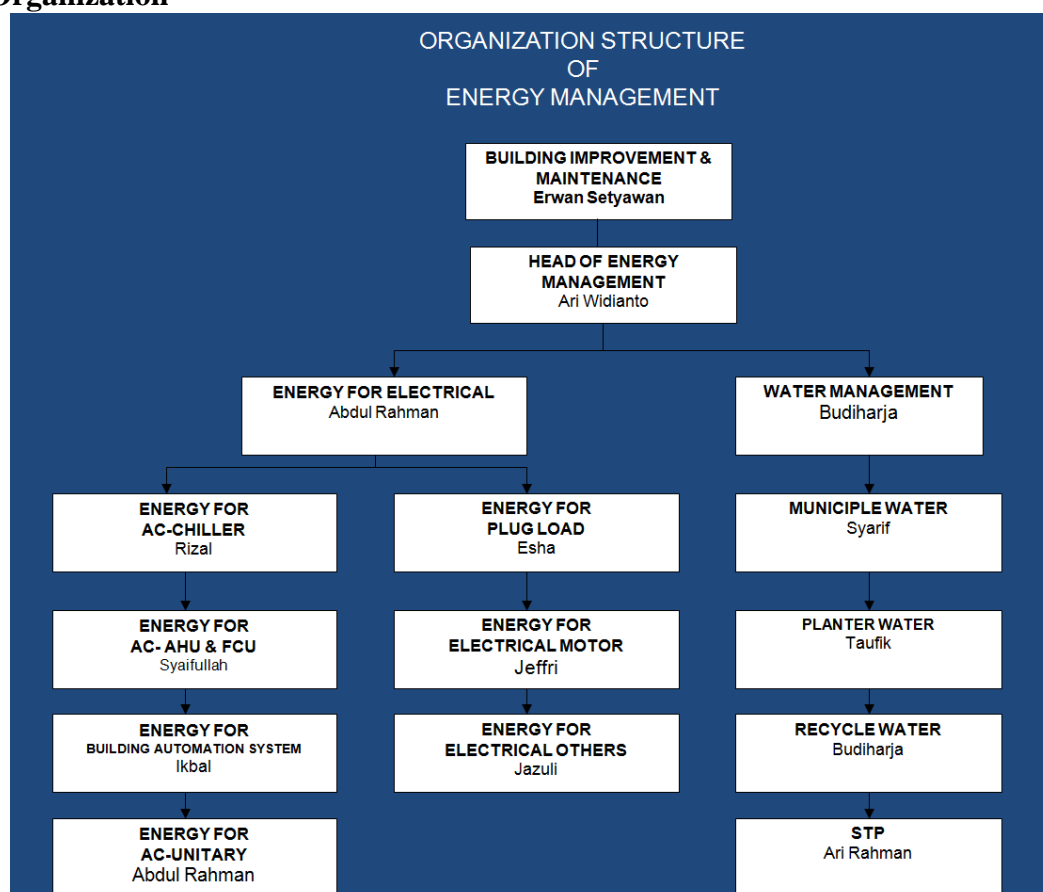
1. Perform routine maintenance on all equipment, such as Chiller, Cooling Tower, AHU and FCU
2. Perform routine maintenance on STP and Recycle Water Plant
3. Doing Routine checking of the performance of electric meters and water meters, to be more accurate



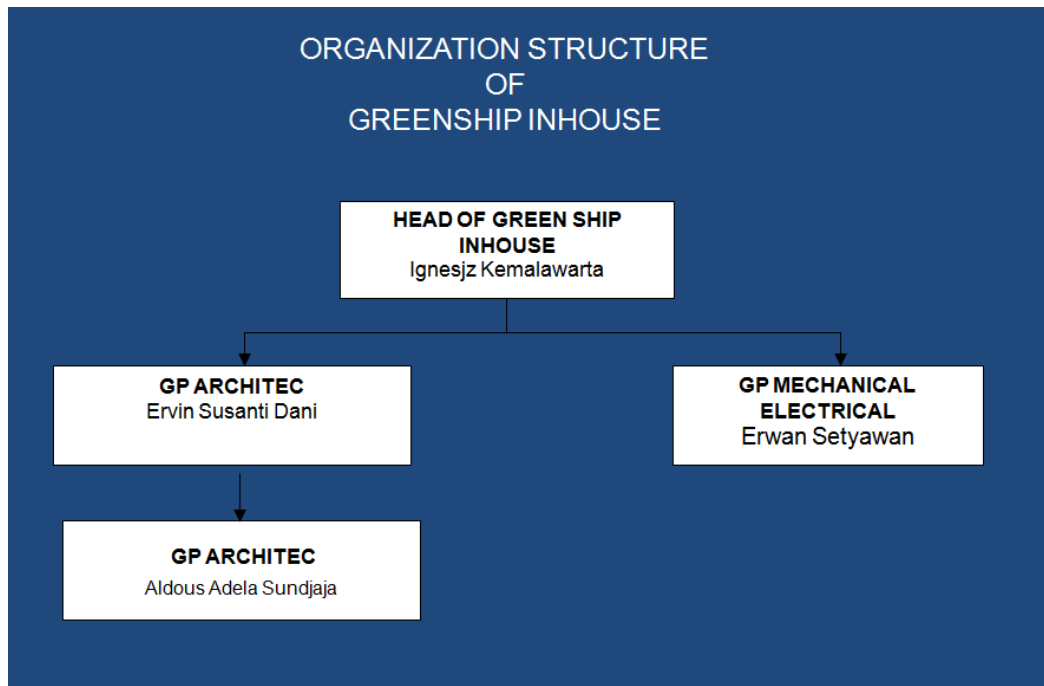
### 2.3.2 Long Term Plan

1. Replacing lamps with more efficient LEDs in areas such as purchasing Office
2. Replacing filters Water Recycle Plant at a certain period
3. Adding chemical dosing pump for chiller condenser pipe so that water quality at a better condensor

## 2.4 Organization



## Organization Structure Greenship Inhouse



## 2.5 Capacity Building

### 2.5.1 Activity

- Checked all building facilities in order to function properly as planned has been made.
- Making energy monitoring energy consumption of buildings that monitored every day.

### 2.5.1 Education and Training

Supervision and control of Project quality Training, tujuan untuk pencapaian target pekerjaan sesuai KPI



Building Electricity Basic Training

Tujuan untuk pencapaian penghematan energi pada gedung

Maintenance of Building Safety Sensor System Training,

Tujuan untuk menjaga gedung dari hal yang membahayakan seperti kebakaran, dll





Greenship Associate and Professional at Green Building Council Indonesia, tujuan untuk mencapai terciptanya bangunan hijau yang sehat dan hemat energi

K3 (health safety) Training, tujuan untuk keselamatan dalam bekerja dan meningkatkan produktifitas



Fire Fighting Drill

The goal to train employees in the face of threats fires and earthquakes

### 3.Replicability

Energy savings are made in Sinar Mas Land Plaza did not rule can be implemented in other buildings. Building certification by the Green Building Council of Indonesia or Singapore Green Mark or other certification bodies will help implement the concept of the building is energy efficient and environmentally friendly.

#### 3.1 Practice and Management Measures

Energy savings made should be able to lower / reduce energy use without losing the function of the equipment and comfort of existing standards. Energy Savings provides great benefits to the company. With a short payback period, the proposed energy savings will be readily accepted by the management company. Management policies to reduce the use of raw water and ground water by maximizing the production of recycled water can also be applied in other buildings.

#### 3.2 Technology

Energy saving technologies applied in Sinar Mas Land Plaza which has a significant impact savings that can be applied in other buildings are:

1. The air is not conditioned lobby (non-AC)
2. Installing Chiller with a good selection efficiency is 0.55 KW.TR
3. Using a T5 fluorescent lamp and LED lamp
4. Install the inverter on each motor pumps and motors AHU
5. Installing the Monitor Chiller and AHU motors and FCU

## **4.Original**

### **4.1 Creativity / Innovation**

Energy Savings designed by Sinar Mas Land Plaza produce profits and manajemn major impact for the company. Here are some of the innovations that have a major impact on the implementation of austerity energ1 :

- 1 . The air is not conditioned lobby ( non- AC )
- 2 . Installing Chiller with a good selection efficiency is 0.55 KW.TR

## **5. Appendix (Supporting Documents)**

### **5.1 Certification / Awards**

- 1 . GOLD Green Building Certificate of BCA Green Mark Singapore
- 2 . Peen , 2012 - First place winner , National Level / National Energy Efficiency Award 2012
- 3 . ASEAN Energy Award 2013 in the category of New and Existing Building category group ASEAN Best Practice Competition For Energy Efficient Buildings .
- 4 . PEEN 2013 – Runner up, Level National/Award Efisiensi Energi National 2012 (Category Energy Management)
- 5 . Indonesian FIABCI Prix d' Excellence Award 2012 - Winner of the Main Office Building category at Sinar Mas Land Plaza Office Building
- 6 . Indonesian FIABCI Prix d' Excellence Award 2012 - Grand Prize Winner in the category of Sustainable Development BSD Green Office Park
- 7 . BEST OFFICE BUILDING - ASIA PACIFIC PROPERTY AWARDS 2012