

Biomass for Electricity Generation

Comments on the Background Paper

*Directorate General of Electricity and Energy Utilization
Republic of Indonesia*

Outline

- *Comments on the biomass background paper*
- *Comments on biomass policy orientation*
- *The way forward*
- *Information of local manufacturing capability and equipment sourcing*

Biomass energy

- *Big potential to develop*
- *Controllable feedstock*

- *Share to about 35% of primary energy*
- *Traditional level: wood fuel*
- *Not in sustainable way*
- *Low efficiency*

Biomass for electricity generation

- *Value added*
 - *Waste-to-energy project*
- *Environmental consideration*
 - *Electricity from urban municipal waste*
- *Economical reason*
 - *CPO for boiler*

National target on biomass for energy

- *100 MW power plants by the end of 2010*
- *5% of diesel fuel substituted by biodiesel at 2020, or 1% at 2010*

Biomass costs

- *Varied (types, technologies and places)*
- *Biomass costs in each member countries*
- *Biomass conversion costs in relation with technologies*

Policy orientation and recommendation

- *Recommendation for each country;*
- *More specific recommendation:*
 - *Incentives (type and how)*
 - *Attractive tariffs (in what level)*
 - *Recommendation on technologies*
- *Correlation with the policy orientation paper*
- *Provide answers to the challenges*

Case studies/Success stories

- *Case studied/success stories are important information*
- *Biomass for electricity generation are mainly in palm oil mills*
- *For other than in palm oil mills, most of them are in demonstration stage/pilot projects*
- *Current status are not available; need a survey*

Information on case studies

- *Cogen project, Pekanbaru-Riau*
- *Rice husk, Indramayu-West Java*
- *Biogas to Electricity Project, Cakung-Jakarta*
- *Waste wood gasification, East Kalimantan*

Biomass Plant

- *Ready for construction*
 - *10.3 MW Palm Oil Residue Plant, Pangkalanbrandan, Sumatra.*
 - *10.5 MW Palm Oil Residue Plant in Riau, Sumatra*
 - *3 MW Rice Husk Plant, Lampung, Sumatra*
- *Feasibility study*
 - *Jakarta Urban Municipal City*
 - *Surabaya Urban Municipal City*

Case study in Indonesia

Project brief	
Name of project:	<i>Rice-husk power generation</i>
Brief introduction of the project:	<i>The project was built by Indonesia Power, electricity generation company, in cooperation with PT. Pertani (state-own agricultural company). Indonesia Power constructed the plant while PT. Pertani provided land and feedstocks</i>
Location:	<i>Indramayu, West Java</i>
Operating since (month/yr):	<i>September 2002</i>
Who is involved:	<i>Indonesia Power, PT. Pertani</i>
Installed Capacity:	<i>100 kW</i>
Biomass feedstocks used:	<i>Rice husk</i>
Grid or off-grid?	<i>Off-grid</i>
Capacity sold to the grid?	<i>-</i>
At what tariff?	<i>-</i>
Cost: Investment	<i>IDR 755 million (US\$ 888/kW)</i>
Cost: O&M	<i>IDR 127/kWh</i>
Cost: Feedstock	<i>IDR 50/kg (IDR 150/kWh)</i>
Funding: (sources of funding)	<i>Indonesia Power</i>
What are targets and aims: (To whom and who gets the benefits)	<i>To utilize and create value added of useless rice husk for electricity generation. The target of the project is farmer and rice hull industried</i>
Achievements: (Major outcomes of the project)	<i>The project proved that fuel cost could be save by 80% compared with the use of diesel generator which uses diesel fuel. It is equevalent with 50,000 liter or about IDR 100 million saving each year.</i>
Lessons learnt: (Key success factors and recommendations, conclusions for further actions.)	<i>The project was stopped last year because problems from the tar could not be solved completely. Tar gives a negative effect to the environment and diesel engine as well.</i>
Further information: (Contact information, website link for full information.)	<i>PT. Indonesia Power, Jl.Gatot Subroto, Jakarta Selatan Indonesia. Tel. 62-21-5267666. Www.indonesiapower.co.id</i>
Project pictures : (Relevant photo, map or image of the project which can give readers first impression.)	

100 kW Rice husk power generation



Regional level

- *Role of NRSE-SSN*
- *Regional competence*
- *Coordinated regional strategy*

The way forward

- *Discussion on:*
 - *Financial aspect*
 - *Creating the market*
 - *Technology evolvemens*
- *Integrated renewable energy planning*
- *Action plans/combine policies/strategies*

Information on local manufacturer

- *Mainly as in PRESSEA*
- *Addition:*

PT. Bharata

EPC for palm oil mill including its power plant

HEAD OFFICE

Jl. Ngagel No.109 Surabaya 60246

Tlp. 62-31-501 9060 (hunting)

Fax. 62-31-501 9077, 502 2642

Email. info@barata.co.id

Information hubs for biomass

- *Indonesian Renewable Energy Society, www.meti.or.id*
- *DGEEU: www.djlpe.go.id,
www.energiterbarukan.net*
- *Agency for Technology Assessment and Application: www.bppt.go.id*
- *R&D Center for Energy Technology*

Additional information

- *Potential capacity for electricity generation from POME is about 200 MW*
- *5 M ton/year urban municipal city (from 11 main cities) or 0.5 kg/day/person.*

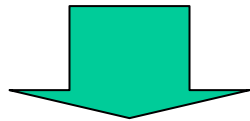
Terima kasih

www.djlpe.go.id

www.energiterbarukan.net

GTZ Project

- *Microhydro power development in Indonesia;*
- *Long term project (12 year)*
- *Capacity development*
- *Domestic competency up to 600 kW*
- *Exports*



Similar project for biomass

General

- *If possible, data and discussion should be more specific;*
- *Recommendation for each country;*
- *Kick-off workshop (country presentation)*
- *Bibliography;*

Manufacturer

PT. Boma Bisma Indra

Involved in the design and manufacture of gasifier systems using wood and rice husk as fuels. The electrical capacities of the gasifiers are between 15 and 176 kW.

Address:

PT BBI cab Jakarta Gedung, Granada Lt III,

Jl Jend Sudirman Kav.50, Jakarta

Tel: (62-21)-5252248 Fax: (62-21)-5254241.

PT IMSF

Design and manufacture of gasifier systems

Address:

Jl Pulogadung No 12, Jakarta Timur

Tel: (62-21)-4604047, 4892450, 4893960 Fax: (62-21)-4609087

PT Spektra Matrika Indah

The company is involved in biogas design and construction using fixed dome and drum type for animal manure and human waste. System capacity ranges from 30-50 m³.

Address:

Pondok Indah Plaza Kav 22, Jl Taman Duta I, Jakarta 12310,

Tel: (62-21)-7653180 Fax: (62-21)-7691005

Boiler

Aalborg Sunrod Indonesia

Address:

*Jl Rawa Sumur II Blok 3, Kav CC7, Kawasa Industri Pulo Gadung
Tel: (62-21)-4610569 Fax: (62-21)-4610568.*

Stork Indonesia

Address:

*Wisma GKBI Suite 3506, Jl Jend Sudirman No 28, Jakarta 10210
Tel: (62-21)-5740545 Fax: (62-21)-5740540.*

PT PAL/ABB

Address :

*Ujung Surabaya, PO BOX 1134, Surabaya
Tel. : (62-031)-3292275 Fax : (62-031)-3292493*

Babcock Wilcox

Address :

*Jl Bawal Batu Ampar, Pulau Batam
Tel. : (62-778)-411860 Fax : (62-778) 411866*

DESIGN

LIPI Bandung

Experience in boiler design

Address:

Jl. Cisitu no. 21/154, Bandung 40135.

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