



# COGEN 3 Services and Full Scale Demonstration Projects (FSDP)

## Seminar on “COGEN 3: A Business Facilitator”

Manila, Philippines	20-21 August 2002
Cebu, Philippines	22 August 2002
Bangkok, Thailand	20 August 2002
Phnom Penh, Cambodia	22-23 August 2002
Jakarta, Indonesia	26-27 August 2002
Ho Chi Minh, Vietnam	28-29 August 2002
Hanoi, Vietnam	30-31 August 2002
Singapore	30 August 2002
Kuala Lumpur, Malaysia	2-3 September 2002



# COGEN 3 Services

- **General Services**
- **Advisory Services**
- **Capacity Building**
- **Support to Cogeneration Projects**



# General Services

**COGEN 3 provides technical, business and market information**

- **Databases of**
  - European equipment suppliers and service providers
  - ASEAN energy intensive industries and relevant organisations
- **Reports about technology, markets and investment climate**
- **Tools for development, assessment and implementation of cogeneration projects**



# Advisory Services

- Support with feasibility studies
- Technology selection
- Support with financial packaging



# Capacity Building

**Seminars, workshops, study tours and training programmes focused on:**

- **technical issues**
- **policy issues**
- **financial issues**



# Support to Cogeneration Projects and Full Scale Demonstration Projects (FSDPs)

- **Active facilitation among stakeholders of cogeneration projects**
- **Financial packaging, networking and fund mobilisation**
- **Selected projects (FSDP) will get support with investment, training and monitoring**



## Full Scale Demonstration Project

**The implementation of proven cogeneration technology in a full scale project, in order to demonstrate its technical reliability and economic viability.**

**An FSDP is a showcase in ASEAN aiming to convince other potential end-users to select European cogeneration technology.**



## FSDP Eligibility Criteria

- **Cogeneration**
- **Implemented in ASEAN**
- **European equipment**
- **Proven technology**
- **Biomass, coal and/or gas as fuels**
- **Compliance with national regulation**
- **Implemented before December 2004**



# Evaluation Grid

1. **Technical merits**
2. **Commercial viability**
3. **Environmental/national/social benefits**
4. **Demonstration value/replicability**



## Point Scale

**5 = very good;**

**4 = good;**

**3 = adequate;**

**2 = poor;**

**1 = very poor.**

**Priority will be given to applications which have obtained the highest scores.**



# Evaluation Grid

(continued)

Criteria	Maximum Score
<b>1. Technical merits</b>	<b>25</b>
<b>1.1 Quality and completeness of project documentation</b>	<b>5</b>
<b>1.2 Heat/steam utilisation</b>	<b>5</b>
<b>1.3 Reliability and technical soundness</b>	<b>5</b>
<b>1.4 Equipment efficiency</b>	<b>5</b>
<b>1.5 Fuel supply security</b>	<b>5</b>



## Evaluation Grid

(continued)

Criteria	Maximum Score
<b>2. Commercial viability</b>	<b>25</b>
<b>2.1 Project Internal Rate of Return (IRR)</b>	<b>5</b>
<b>2.2 Debt Service Coverage Ratio (Bankability)</b>	<b>5</b>
<b>2.3 Source of equity</b>	<b>5</b>
<b>2.4 Lenders' commitment</b>	<b>5</b>
<b>2.5 Quality and status of contractual/ security arrangements</b>	<b>5</b>



# Evaluation Grid

(continued)

Criteria	Maximum Score
<p><b>3. Environmental/national/social benefits</b></p> <p><b>3.1 Global impact (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O)</b></p> <p><b>3.2 Local impact (NO<sub>x</sub>, SO<sub>x</sub>, particulates, ...)</b></p> <p><b>3.3 National, social and community impact</b></p>	<p><b>25</b></p> <p><b>2x5</b></p> <p><b>2x5</b></p> <p><b>5</b></p>



# Evaluation Grid

(continued)

Criteria	Maximum Score
<p><b>4. Demonstration value/replicability</b></p> <ul style="list-style-type: none"> <li><b>4.1 Status of project development</b></li> <li><b>4.2 Geographical spread and replicability</b></li> <li><b>4.3 Fuel spread</b></li> <li><b>4.4 Supplier spread</b></li> <li><b>4.5 Technical &amp; environmental improvement compared to baseline</b></li> </ul> <p>If a total score lower than “adequate” (15 points) is obtained, the proposal will not be evaluated further.</p>	<p><b>25</b></p> <p><b>5</b></p> <p><b>5</b></p> <p><b>5</b></p> <p><b>5</b></p> <p><b>5</b></p>



# Evaluation Grid

(continued)

Criteria	Maximum Score
<b>1. Technical merits</b>	<b>25</b>
1.1 Quality and completeness of project documentation	5
1.2 Heat/steam utilisation	5
1.3 Reliability and technical soundness	5
1.4 Equipment efficiency	5
1.5 Fuel supply security	5
<b>2. Commercial viability</b>	<b>25</b>
2.1 Project Internal Rate of Return (IRR)	5
2.2 Debt Service Coverage Ratio (Bankability)	5
2.3 Source of equity	5
2.4 Lenders' commitment	5
2.5 Quality and status of contractual/security arrangements	5
<b>3. Environmental/national/social benefits</b>	<b>25</b>
3.1 Global impact (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O)	2x5
3.2 Local impact (NO <sub>x</sub> , SO <sub>x</sub> , particulates, ...)	2x5
3.3 National, social and community impact	5
<b>4. Demonstration value/replicability</b>	<b>25</b>
4.1 Status of project development	5
4.2 Geographical spread and replicability	5
4.3 Fuel spread	5
4.4 Supplier spread	5
4.5 Technical & environmental improvement compared to baseline	5
<b>Maximum total score</b>	<b>100</b>



## Support to FSDP

- **15% of eligible equipment cost**
- **Ceiling at 400,000 Euro**
- **Support for training, monitoring and advertising**



## Eligible Costs

- **Cost for equipment relevant for cogeneration systems is eligible for financial contribution. The cost for equipment can include equipment (boiler, heat recovery steam generator, gas-turbine, steam-turbine, gas-engine), including engineering, shipment, equipment assembly, function tests and equipment commissioning.**
- **The equipment eligible for financial contribution must be supplied by a European Union (EU) cogeneration equipment supplier. The EU cogeneration equipment supplier is defined as a legal or natural person in one of the EU Member States.**
- **Only new equipment is eligible for financial contribution.**



# Obligations of the End-Users and Equipment Suppliers

- The end-user and supplier shall allow public access to the cogeneration plant for the FSDP to act as a showcase in ASEAN for potential end-users and investors to select similar technology.
- The end-user and supplier shall allow monitoring of the performance of the plant, and allow dissemination of the results of the monitoring campaign.



## Standard advisory package for FSDPs

- Advise on eligibility criteria and how to fulfil them;
- Review of chosen technical solutions and heat utilisation;
- Review of financial, technical and environmental assumptions;
- Advise on sale of electricity and steam;
- Advise and training in conduct of feasibility studies:
  - for smaller projects, less developed projects providing a pre-feasibility study.
- Calculation of environmental performance:
  - mainly GHG mitigation potential;
- Recommendation of areas that need further development in the projects.





## Rice Mill in Malaysia

- 450 KW Cogeneration Plant
  - steam boiler : 8 tph, 32 bar
  
- Cost : ~ € 1.0 million
- Pay back period : 3 years
- Main suppliers from Belgium
- Customer : Ban Heng Bee Rice Mill (1952) Sdn. Bhd.



## Rice Mill in Thailand

- 2.5 MW Cogeneration Plant
  - steam boiler : 17 tph, 35 bar, 420°C
  - turbine type : condensing
- Cost : ~€ 3.6 million
- Pay back period : 3.6 years
- Main suppliers from Germany
- Customer : Chia Meng Co., Ltd.



# Wood Complex in Malaysia

- 1.5 MW Cogeneration Plant
  - steam boiler : 16 tph, 22 bar, 280°C
  - turbine type:
    - condensing (900 kW)
    - back pressure (600 kW)
- Cost : ~ € 1.5 million
- Pay back period : 3.5 years
- Main suppliers from Belgium, Germany
- Customer : IB Timber Industries Sdn. Bhd.



# Plymill in Indonesia

- 3.2 MW Cogeneration Plant
  - steam boiler : 35 tph, 35 bar, 380°C
- Cost : ~€ 1.3 million
- Pay back period : 1 year
- Main suppliers from Denmark
- Customer : PT Kurnia Musi Plywood Industries