CDM Business Opportunities for Cogeneration Projects

2004 Cogeneration Week in Philippines

21 - 22 June 2004 Mandarin Oriental Hotel, Manila

24 June 2004 Queen Jennifer Hotel, Isabela

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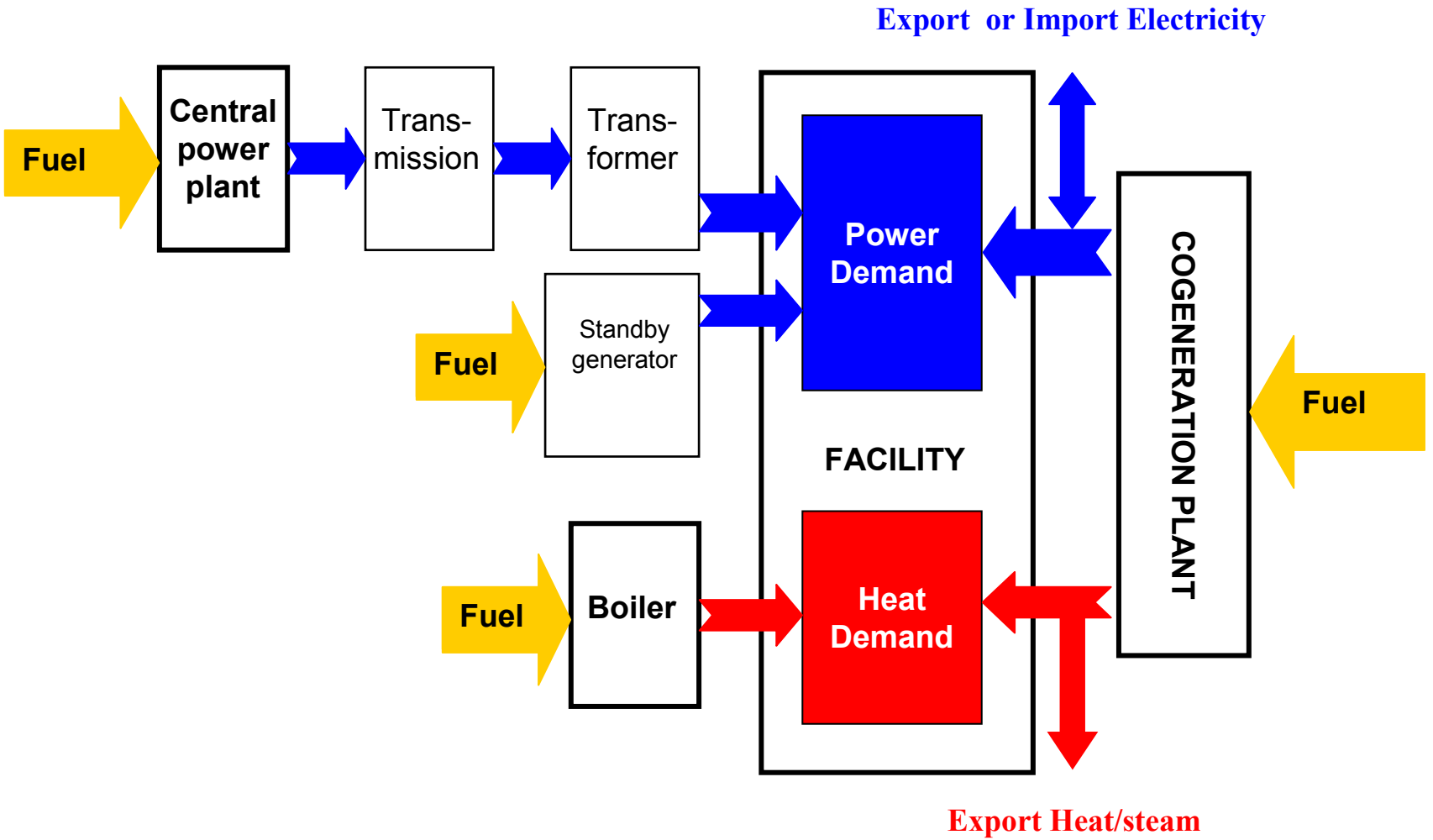
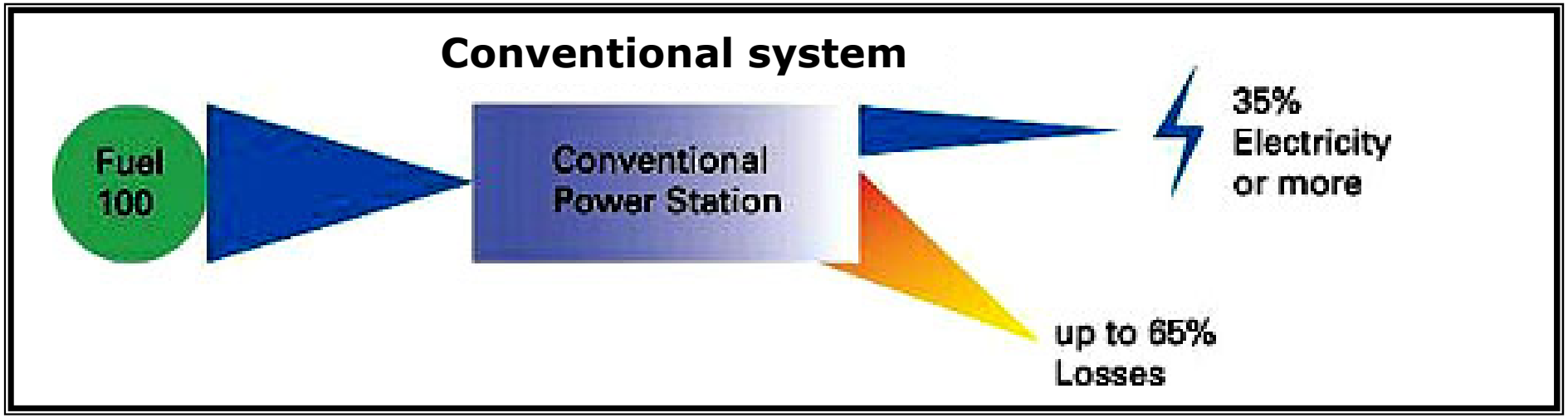
What is Cogeneration?

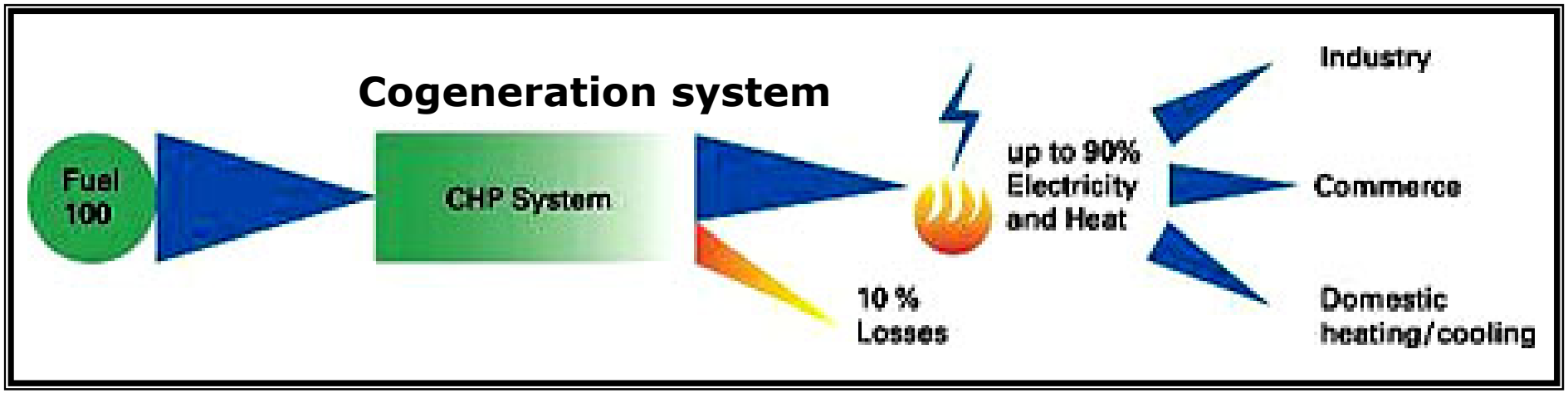
- Sequential generation of two different forms of useful energy using a single primary energy source
- Most usual:
  - electrical (or mechanical)
  - thermal: heating or cooling

What is Cogeneration?



Conventional Power Generation vs Cogeneration





Greenhouse Gas Effect

- Mainly caused by CO_2, CH_4 and N_2O in the atmosphere.
- The so-called "greenhouse gases" trap more heat in the form of infra-red radiation emitted by earth (heat from the sun), so it gradually warms up more than it should.
- Consequences
  - Sea level rise and flooding in coastal areas
  - Climate extremes and disasters
  - Human health problems

Kyoto Protocol - Outcome

Three market based mechanisms

- Emission Trading (ET)
- Joint Implementation (JI)
- Clean Development Mechanism (CDM)

Clean Development Mechanism (CDM)

CDM can be defined as

a Mechanism under which developed (Annex I) countries can implement GHG mitigation projects in developing (Non-Annex I) countries to meet a part of their emission reduction commitment.

Joint Implementation (JI) has a similar definitions as CDM, but it will be operational within Annex I countries.

Benefits to Developing Countries

- New source of foreign Investments
- Transfer of technology and expertise
- Employment generation
- Infrastructure development
- Reduction in imported energy demand

Benefits to Developed Countries

- Reduction in emission mitigation costs
- More flexibility for meeting their commitment
- Market for new and advanced technologies
- New investment opportunities

How CDM works?

If you are implementing a CDM project, which results in the reduction of CO_2, CH_4 and N_2O emission, then you will get a certificate for your emission reduction (Certified Emission Reduction – CER).

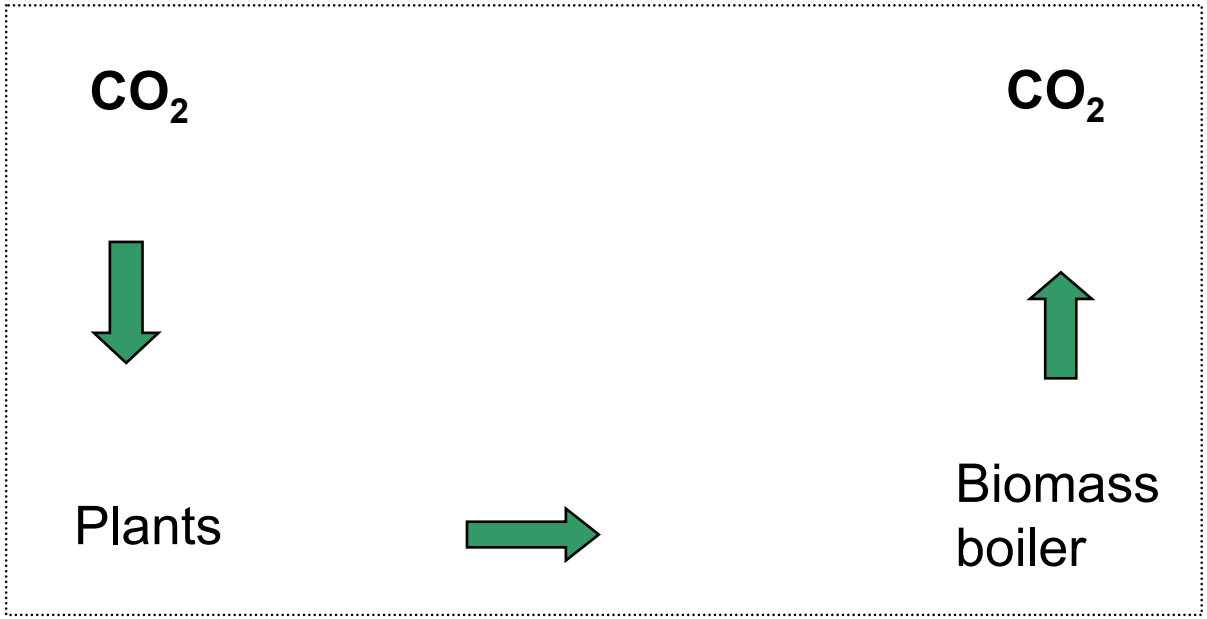
1 Unit CER = 1 ton of CO_2 equivalent mitigation

This CER can be sold in international market.

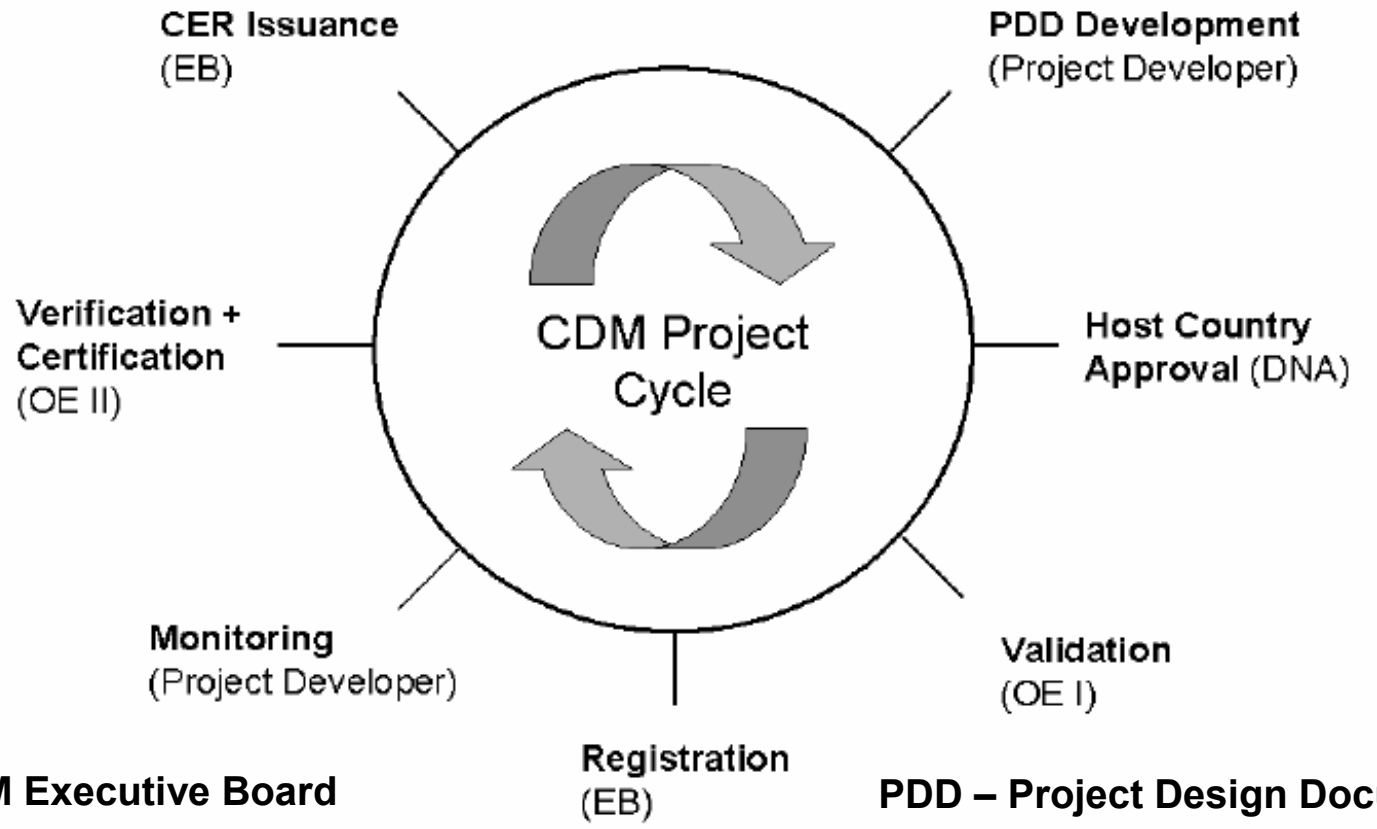
Potential CDM Projects

- **Biomass cogeneration/power generation**
- **Biogas cogeneration/power generation**
- **Methane capture projects**
- Wind
- Geothermal
- Hydropower
- Fuel Switching
- Ethanol, biodiesel
- Efficiency, capacity upgrades

Biomass: CO_2 neutral



CDM Project Activity Cycle



EB – CDM Executive Board

CER – Certified Emission Reduction

PDD – Project Design Document

DNA - Designated National Authority

OE – Designated Operational Entity (DOE)

Major Players in CDM

- Project developers
- PDD consultant (sometimes in-house)
- Validators (Designated Operational Entity - DOE)
- Designated National Authorities (DNA)
- CDM Executive Board (EB)
- CDM Methodology Panel
- Other consultants
- NGOs and interested public (local, international)
- CDM credit buyers
- Annex I and Non-Annex I Countries

CDM Project Activity

- Propose a New Baseline and/or Monitoring Methodology
- Use the Approved Baseline and/or Monitoring Methodology
- Validate the CDM project activity
- Register the CDM project activity
- Certify/Verify the emission reductions (ERs) of a CDM project activity
- Request issuance of CERs related to a CDM project activity

Project Design Document

- Additionality (not the business-as-usual project): baseline
- Approved baseline methodology (existing or new)
- Project boundary, leakage
- Emission reduction: emission without the project (baseline) - emission with the project
- Crediting period (fixed or renewable)
- Monitoring, verification methodology and plan
- Environmental impact assessment
- Stakeholder consultation and action for comments
- Contribution to sustainable development
- Host country criteria

Host country approval

- Sustainable development
- Host country criteria
- Country preferences
- Host country's letter of approval
- Credit sharing ???

Validation

- Independent third party assessment on project's baseline, monitoring plan and compliance (UNFCCC + host country)
- Completeness of PDD documentation
- Use of approved methodologies, host country acceptance
- Project activities additional to business-as-usual
- Project results in emission reductions relative to the baseline
- Environmental and social performance
- Monitoring plan: quality assurance of data collection, recording
- Local stakeholder consultation
- International stakeholder consultation and action
- If validation is positive, will be recommended for registration

Monitoring, verification and certification

- Data collection by Project Managers as specified in the monitoring plan
- Changes to the monitoring plan need to be approved by a Validating Operational Entity
- Verification: periodic independent review of the monitored reductions
- Definition of the verification protocol
- Verification of data, report and technical review resulting in issue of verification opinion by the verifier
- The Verifier "certifies in writing" the number of avoided emissions and submits a Certification Report to the CDM EB
- CDM EB issue the certificate

Small Scale CDM Project - Definition

- Renewable energy project up to 15 MW.
- Energy efficiency improvement project activities which reduce energy consumption by up to the equivalent of 15 GWh per year.
- Other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kt CO_2 equivalent per year.

Development Cost

- Initial evaluation
- PDD
- Validation
- Registration
- DNA approval
- Monitoring cost
- Operating cost (transparency, documentation)
- Approximately 100,000 – 200,000 USD
- Plus credit sharing ???

CDM Credits – Market Price

- Current transaction – 2 to 4 USD
- Few small projects managed to get higher price
- Few buyers willing to buy high quality CERs at higher price (small projects)
- High price expectation in 2008

CDM Credits Buyers (so far)

- International Organisations – e.g. World Bank (PCF), IFC, Asian Development Bank
- Governments – e.g. Netherlands, Finland, Austria, Italy, Canada
- Financial Sector Funds – e.g. RaboBank
- Bilateral transactions – e.g. Japanese Trading Houses, utilities

Lesions Learnt in 2003

- Several lesions learned from 14 projects submitted in 2003 to the EB
- None of the baseline methodology approved as it was proposed
- Stringent baseline approach is required
- Anybody in the world can critically review the project
- Project should document several evidence
- More transparency is required

Current status of CDM

- Still waiting for Russia to enter
- 2 Annex I countries not participating (USA and Australia)
- Several methodologies are approved
- Several issues resolved, but still some issues to be sorted out
- Not even a single project completed the whole CDM Project cycle

Current status of DNA in SEA

- Several countries (except Indonesia) ratified Kyoto Protocol
- Few countries already set up interim DNA
- Other countries are working on it
- National priorities are being looked into
- Overall slow progress in SEA due to few uncertainties in CDM on Global level

Business Opportunities

- Additional revenue from CDM credits
- Higher visibility for the project
- New investors for the project
- Green image
- New, improved technology
- Professionalism in the project development and implementation
- Better risk management

Risks in the CDM Projects

- Kyoto Protocol not yet ratified
- High development cost (not feasible for small projects)
- Long development period (sometimes damaging to the project)
- Low CER price (limited buyers of CER at present)
- Future price uncertain (Demand and supply not clearly known)
- CDM is not increasing the project IRR considerably

Recommendation

- Plan for CDM in the early stage of project development
- Good scheduling, so that CDM and project development/implementation can go together
- Give more attention for the baseline
- Avoid over estimation of CDM credits
- Give more attention host country criteria
- Involve experienced consultants
- Take calculated risk, if you can

For more information,
please visit UNFCCC Website at:

http://www.unfccc.org

Thank You !