

Biogas CDM in Thailand

February 2008



Waste



To



**Energy
(or flare)**

Overview

- **Biogas CDM**

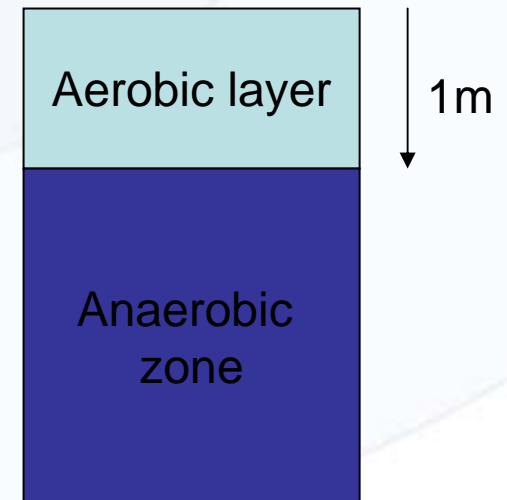
- Project Criteria: Baseline and Project Activity
- Which methodologies are applicable?

- **CDM Project Development**

- Good projects
- Risk factors
- Successful implementation strategies

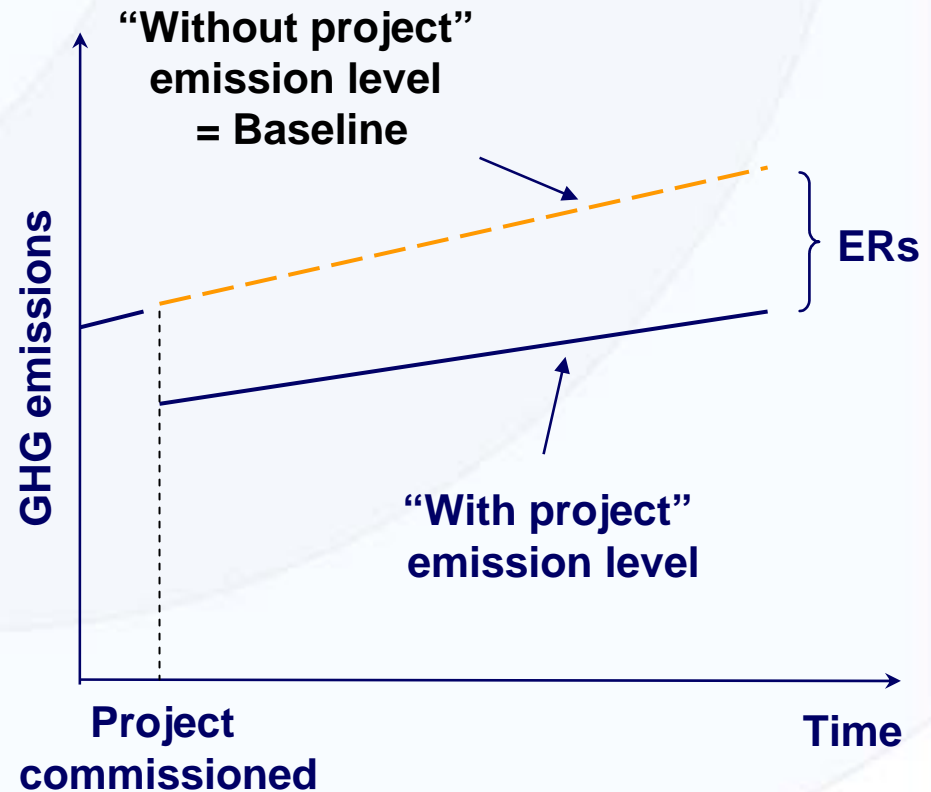
Project Criteria

- Wastewater: High Strength Organic
 - Chemical Oxygen Demand (COD)- water quality measurement, quantifies the amount of organic pollutants in wastewater.
- Anaerobic Lagoons
 - >1m deep
 - >30 day Hydraulic residence time
 - >10 ° C ambient temp.

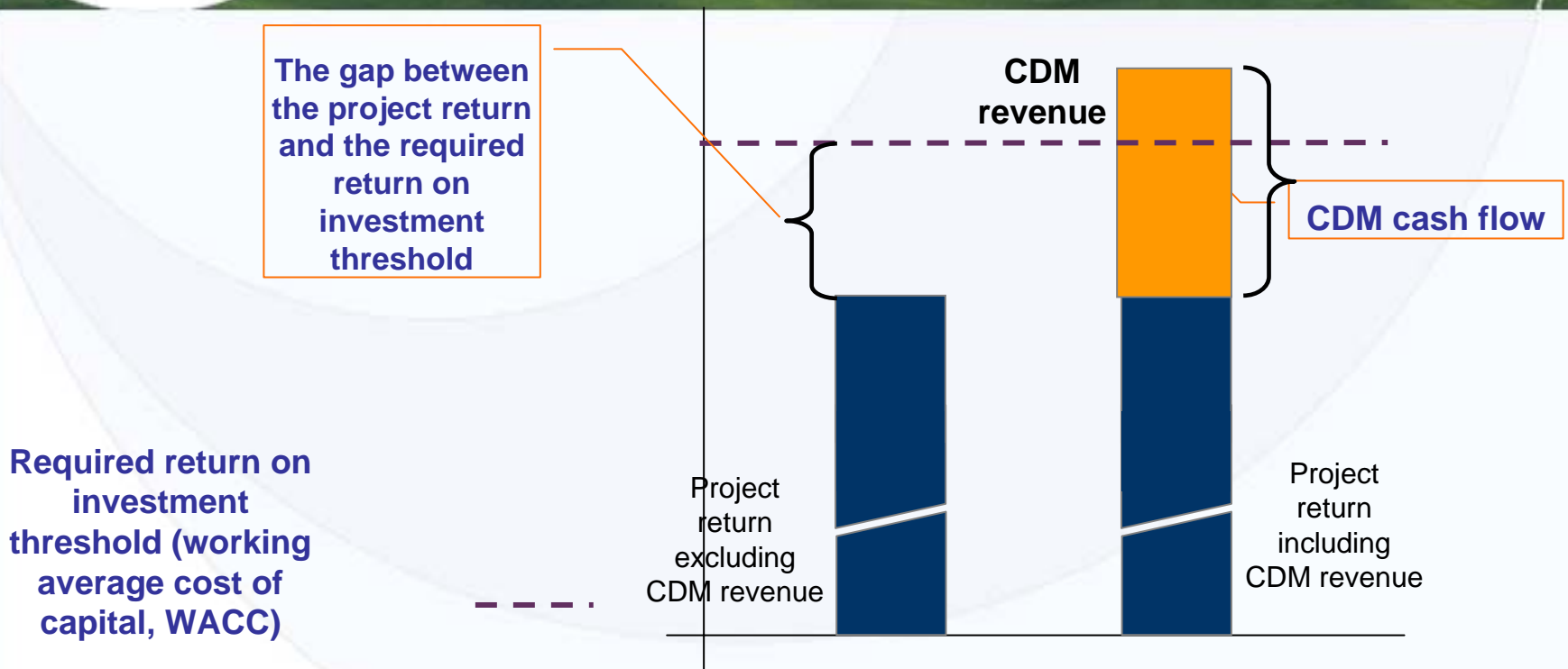


Concepts and terms

- **Baseline:** Emissions that occur in the absence of the CDM project
- **Additionality:** Proof that emissions are reduced from what would occur without project
- **CERs:** Certified Emissions Reduction due to the CDM project implementation
- **ERPA:** Emission Reduction Purchase Agreement between the owner of the CERs in the host country and the buyer of the Certificates

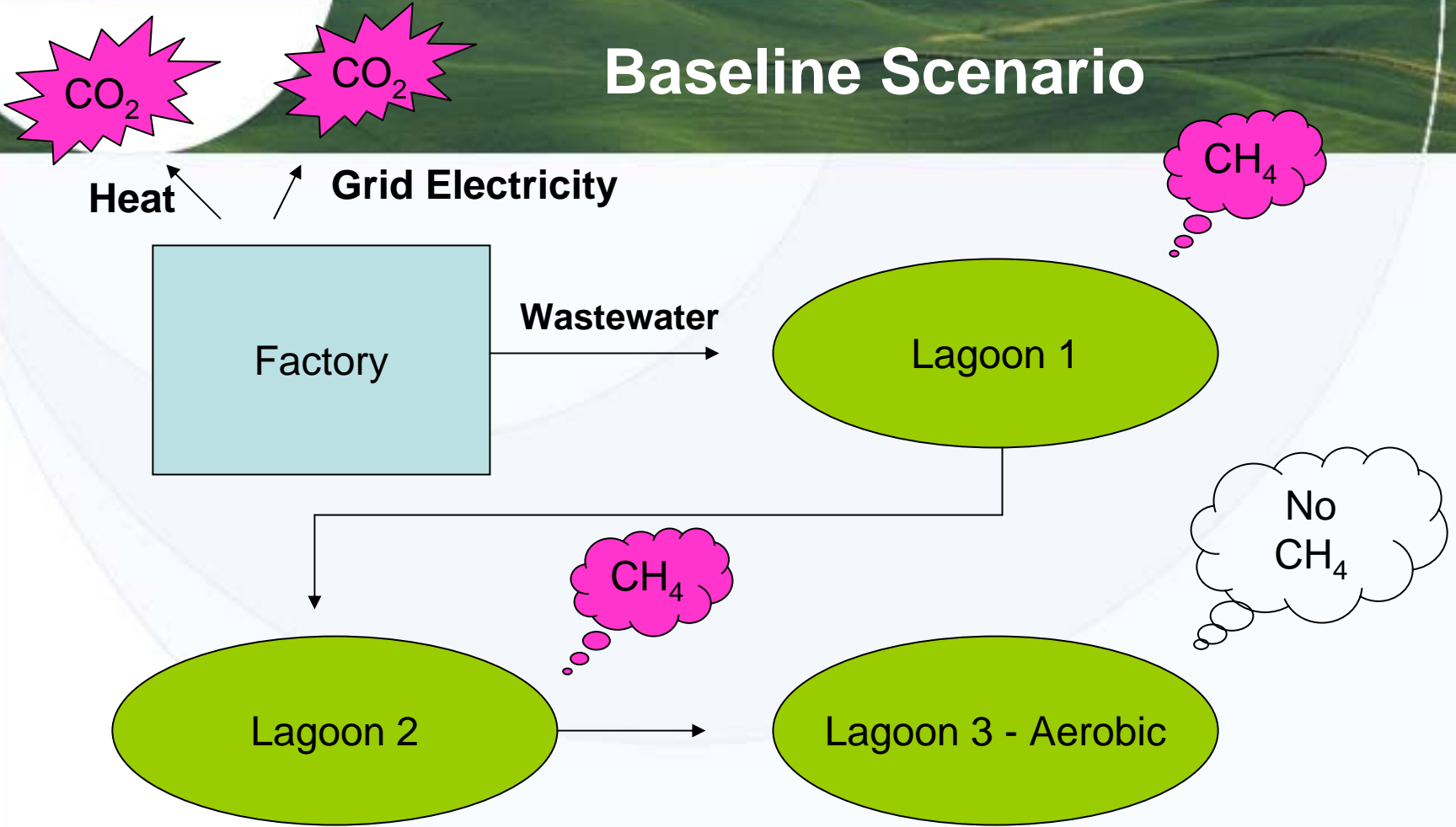


Financial Additionality



The CER cash flow increases the IRR of the project making it more attractive for investment

Baseline Scenario



Project Intervention

- Wastewater is diverted from lagoons to an Anaerobic Digester.
 - wastewater is converted to methane in a controlled/engineered environment.
- Onsite Energy Generation or Flare
 - Combustion of biogas (65% methane) can be done to displace energy from grid or onsite fossil fuel consumption
 - Crediting is subject to biogas destruction efficiency of the flare and/or generator.

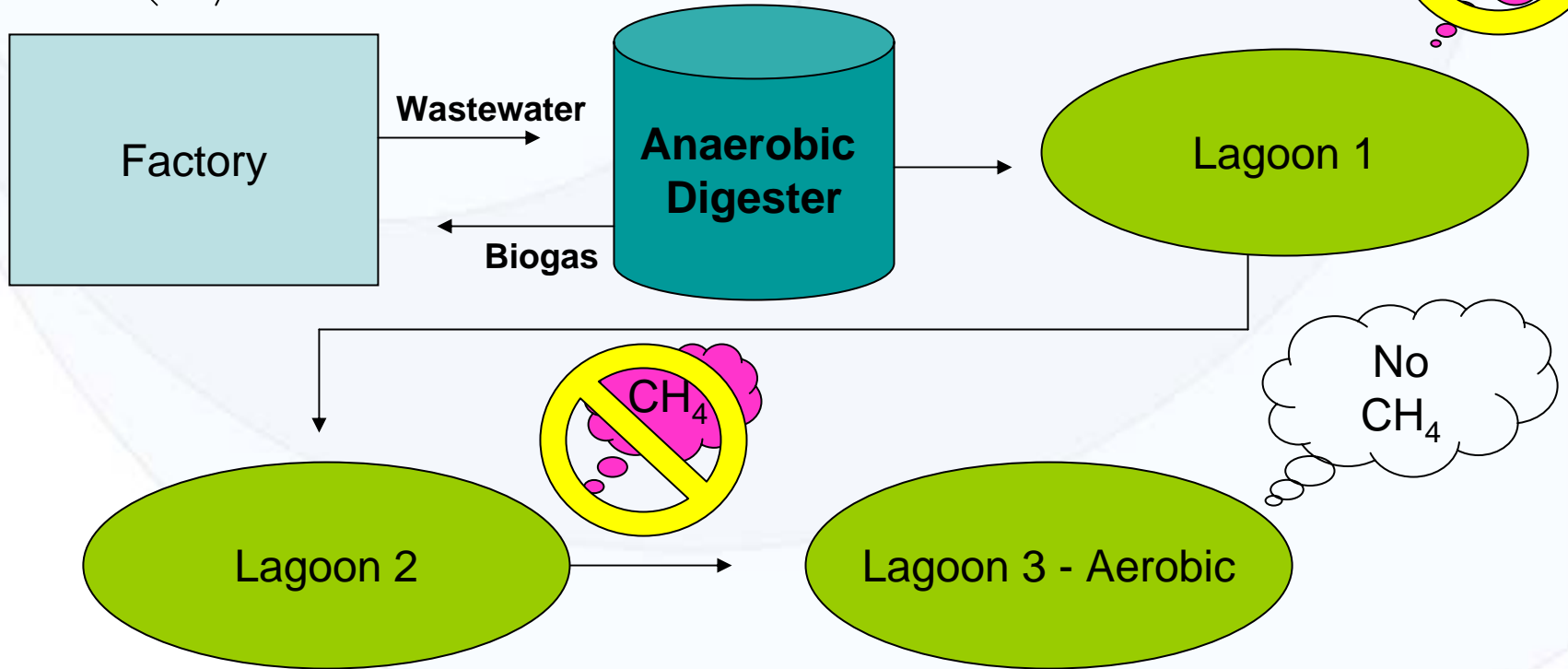
Project Scenario



Heat

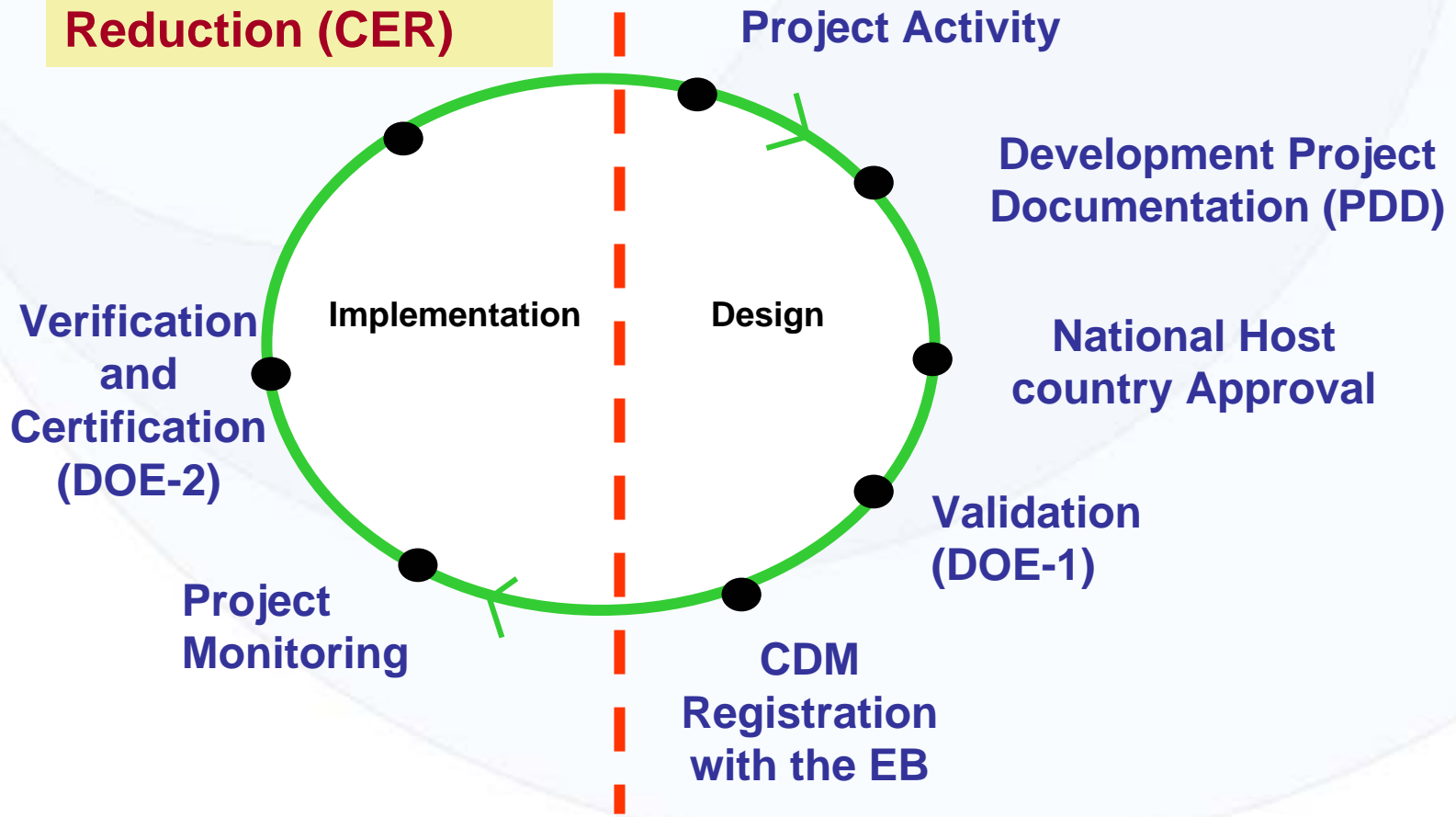


Grid Electricity



CDM Development Process

Certified Emission Reduction (CER)



Which Methodologies Are Applicable?

- **Industrial Wastewater**
 - ACM0014 (consolidated AM0022 and AM0013)
 - AMS IIIH: Methane Recovery
- **Manure Management**
 - ACM0010 (consolidated AM0006 and 0016)
 - AMS III.D

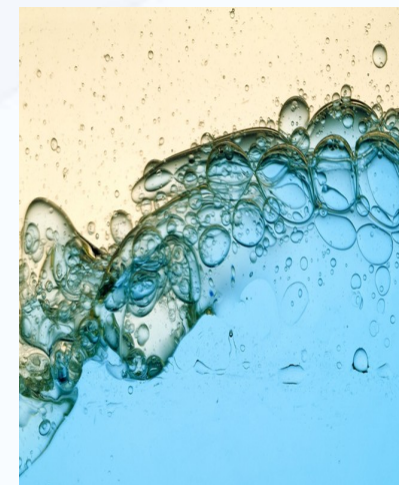
Potential Risk Factors

Wastewater Data Quality

- Inaccurate historical data
- Wastewater analysis

Monitoring

- Poor record keeping
- Non-compliance to Monitoring Plan
- Measurement equipment failure & lack of calibration
- Process change



Flare Efficiency Issue

- All biogas projects are subject to flare efficiency.
- EB's recent development of Flare Tool sets default values for flares
 - Open flare: 50% eff. ← ~ Baht 60,000
 - Enclosed flare 90% eff. ← ~ Baht 3 Million
- Monitoring frequency
 - Increased from bi-annually to continuous

Realizing the Potential

- CDM requires the active participation of the host company for the project life
- Accurate, thorough, and consistent monitoring is an absolute requirement for issuance of CERs
- CDM must be an active and primary part of biogas project planning, not just a financial bonus toward project closure!

About EcoSecurities

- Founded in 1997, listed at AIM in December 2006
- Registered 1st CDM project - NovaGerar, 2004
- Structured 1st project to have CERs issued - La Esperanza, 2005
- 100 projects registered with the CDM EB
- Current **project portfolio**
 - 402 projects, in 36 countries using 18 different technologies
 - potential to generate 142 million tonnes of CO₂eq. up to 2012

Questions

Any wastewater questions?

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