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The Mitigation of Green House Gas Emissions from Intensive Livestock Production in Thailand

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Overview of presentation

- CDM in brief
- Danish CDM Project Development Support
- CDM Projects in Thailand - Methane Capture projects at Pig Farms in Thailand

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The Kyoto Protocol and the Clean Development Mechanism (CDM)

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Reduction target commitments

Country/Region	% CO2 reduction
All EU	~8
Austria	~13
Belgium	~17
Denmark	~21
Germany	~21
Italy	~6
Netherlands	~6
UK	~13
Canada	~6
Japan	~6
USA	~7

Over all Kyoto Protocol target

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The Kyoto Flexible Mechanisms

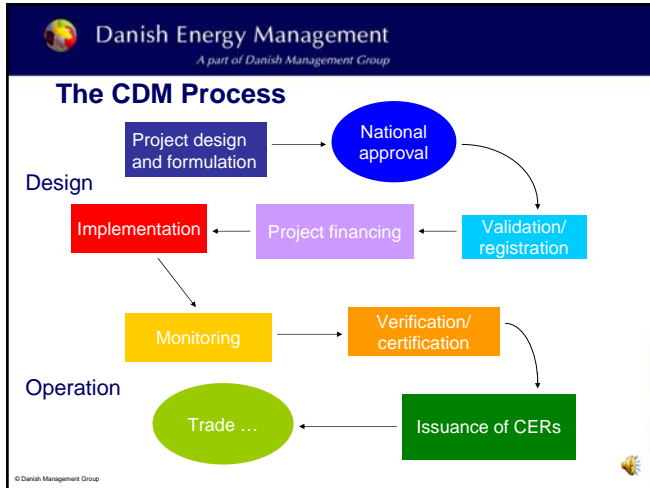
- Emissions Trading
 - Cap-and-trade between industrialised countries
 - Traded unit: Assigned Amount Units (AAU)
- Joint Implementation (JI)
 - Emission reduction projects in industrialised countries
 - Traded unit: Emission Reduction Unit (ERU)
- Clean Development Mechanism (CDM)
 - Emission reduction projects in developing countries
 - Traded unit: Certified Emission Reductions (CER)

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How Does Emission Trading and CDM Work?

```

    graph TD
        A[Annex 1 Country Emissions In 2012] --> B[CO2 added to inventory]
        B -- CERs --> C[CO2 reduced from inventory]
        C --> A
        D[Non Annex 1 Emission with CDM projects In 2012] -- Investment --> A
    
```



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- ### Eligible Project Types
- End-use energy efficiency improvement
 - Supply-side energy efficiency improvement
 - Renewable energy
 - Fuel switching
 - Sinks (only afforestation and reforestation)
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Baseline and Additionality

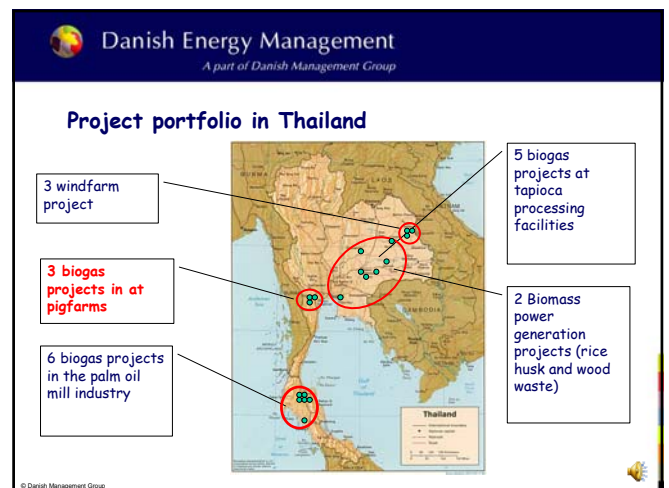
Baseline;
What would the emissions be without the implementation of the proposed project activity.

Additionality;
The project activity is expected to result in GHG emission reduction, which is additional to any that would occur in the absence of the certified project activity, i.e. it should not be included in the baseline.

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- ### Benefits from CDM projects
- Financial:**
- Funding for new technology to reduce emission
 - Guarantee for saleable emission credits
 - One more product to sell
- Company profile:**
- International cooperation
 - Sustainability and environmental friendly
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- ### Danish CDM Project Development Support
- Support programme started in 2003
 - Capacity building to Thai DNA
 - Assistance to project identification and development
 - Project development assistance include
 - Project assessment and development Project Idea Note (PIN)
 - Development of Project Design Document
 - Validation fee
 - Approval / registration fees – Thai DNA and EB
 - Monitoring
 - Verification fee
 - Conditions for the project development support
 - Letter of intent
 - Emission Reduction Purchase Agreement
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Methane capture from pig farms basics

Baseline

 → manure →
 
 Methane => global warming

Project Scenario

 → manure →
 
 → Methane →
 
 Clean / green power

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Methane capture at pig farms in Ratchaburi

- Three individual CDM projects at pig farms
- The first Pig Farm CDM projects registered in Thailand (and still the only three July 2009)
- The development started in 2004
 - Initially a bundled project with three farms
 - Split into three individual projects (SMALL SCALE) due to UN's revisions and modifications of project definitions and revisions of methodologies on how to calculate emission reductions
 - Delay in registration due to minor differences in project titles!!!

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Impacts of the projects

The project contributes to sustainable development, through:

- Creating employment opportunities in the area where the project is located both during its construction and operation phases
- Enabling the transfer of knowledge - will train site employees in the installation, operation and maintenance of the biogas system
- Contributing to local and regional economy since the cables, transformers, construction equipment, and subcontractors are procured locally;
- Diversifying the sources of electricity generation and support Thailand in meeting its growing energy demands
- Reducing the dependence on foreign sources of energy thereby strengthening Thailand's energy security and self sufficiency
- Assisting Thailand in accelerating the commercialization of grid-connected renewable energy technologies and markets in the country

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SPM Group Pig Farms (expected ER per year 23,556)



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Veerachai Farm (expected ER per year 32,092)




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Nong Bua Farm (expected ER pr. Year 15,958)



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Summary of project performance

Farm	Farm size (no. of pigs)	Biogas sent to Gas engine (m ³ /yr)	Electricity generation (kWh/yr)	Monitoring CER (tCO ₂ e/yr)	Expected CER in PDD (tCO ₂ e/yr)
Nong Bua Farm	65,000	2,437,054	3,612,411	15,207	15,958
SPM Farm	70,000	1,465,305	1,676,556	12,840	23,556
Veerachai Farm	120,000	3,027,560	6,685,422	28,738	32,092
Total					71,606

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Thank you !

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