



ENERGY PROJECTS AND THE CLEAN DEVELOPMENT MECHANISM

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Structure of this Presentation

- **About CDM**
- **Clean Energy Funds and Finance**
 - Background
 - Examples of funding renewables
 - Urjankur Nidhi, Clean Energy Fund set up by GoM
- **Barriers for FIs against funding CDM projects**
- **Overcoming these barriers**

About the CDM

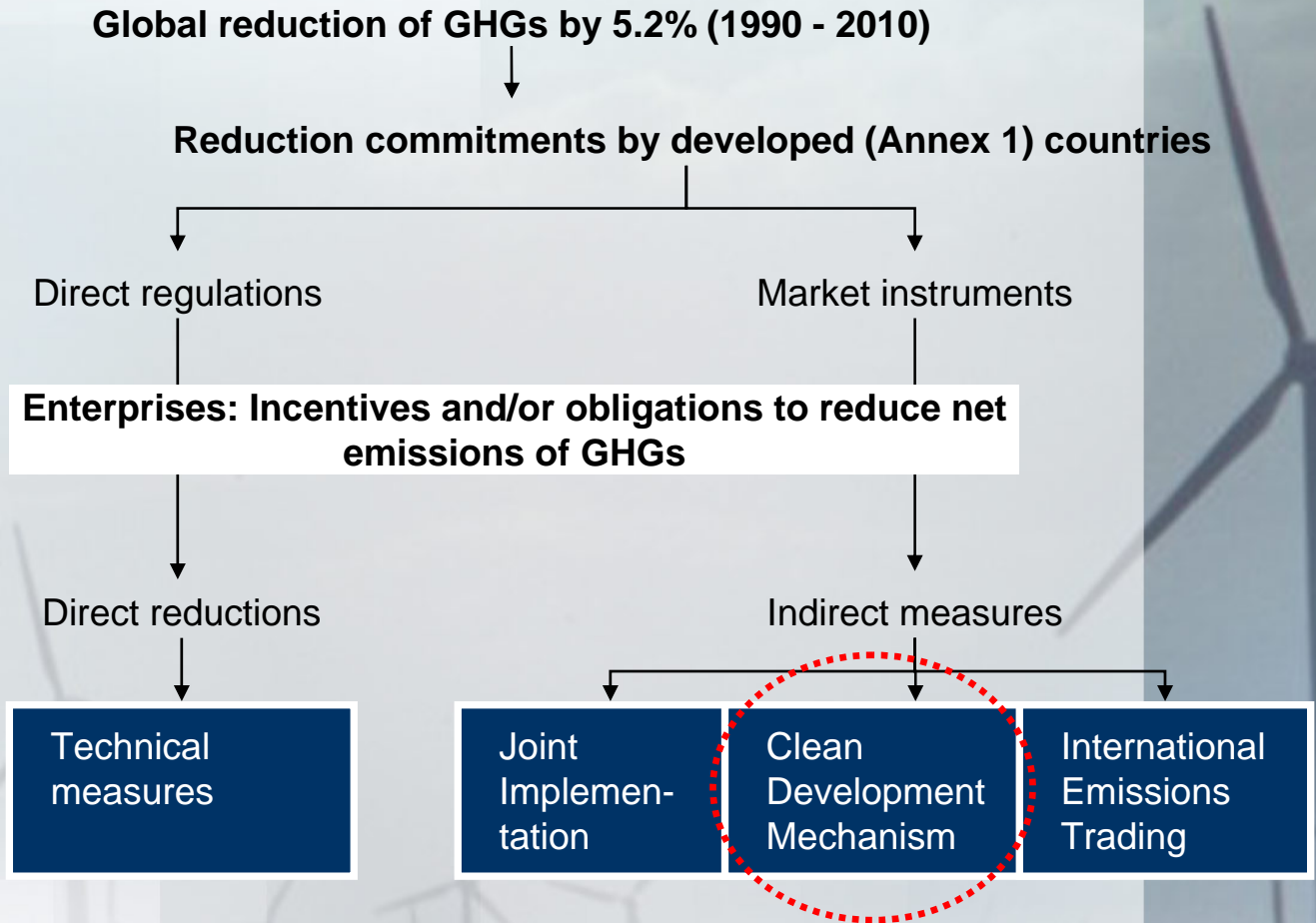


The Kyoto Protocol

Kyoto Protocol

National Policies

Options



The CDM

- A **project-based activity** between developed and developing countries (government/private sector)
- Project undertaken in a **developing country** generates a reduction in GHG emissions - as in the case of **energy efficiency improvement** or power generation from **renewable energy**
- Accrues **Certified Emission Reduction (CER) credits**
- These credits can be used to contribute to emission reduction commitments of **developed countries**
- Reduction at lower cost by investing in developed countries where marginal **cost of abatement** of GHG is **lower**

Certified Emissions Reductions (CERs)

- CERs represent GHG mitigation contribution of a project, measured in metric tons of carbon dioxide equivalent
- CERs are a second product (for example, after electricity) obtained by a CDM project
- In other words, CDM is **“a mechanism to monetize environmental value”***

*Source: Workshop on Financing Modalities of the Clean Development Mechanism, June 27&28, 2005, Jakarta. Available at:
www.iges.or.jp/en/cdm/pdf/activity02/1_3_2.pdf

Where is CDM Applicable?

- **Renewable Energy**

 - Wind Power

 - Solar

 - Biomass Power

 - Hydel Power

- **Fuel Switching (from fossil fuel to green fuel)**

- **Energy Efficiency measures related to**

 - Boilers

 - Pumps

 - Turbines

 - Installation of variable speed drives

 - Efficient cooling systems

 - Back Pressure Turbines etc

- **Cogeneration in industries having steam and power requirements**

- **Forestry**

 - Afforestation Projects

- **Waste Management**

 - Capturing of landfill methane emission to generate power

 - Utilization of waste and waste water emission for generation of energy for captive use power generation

- **Transportation**

 - IC Engine at micro level

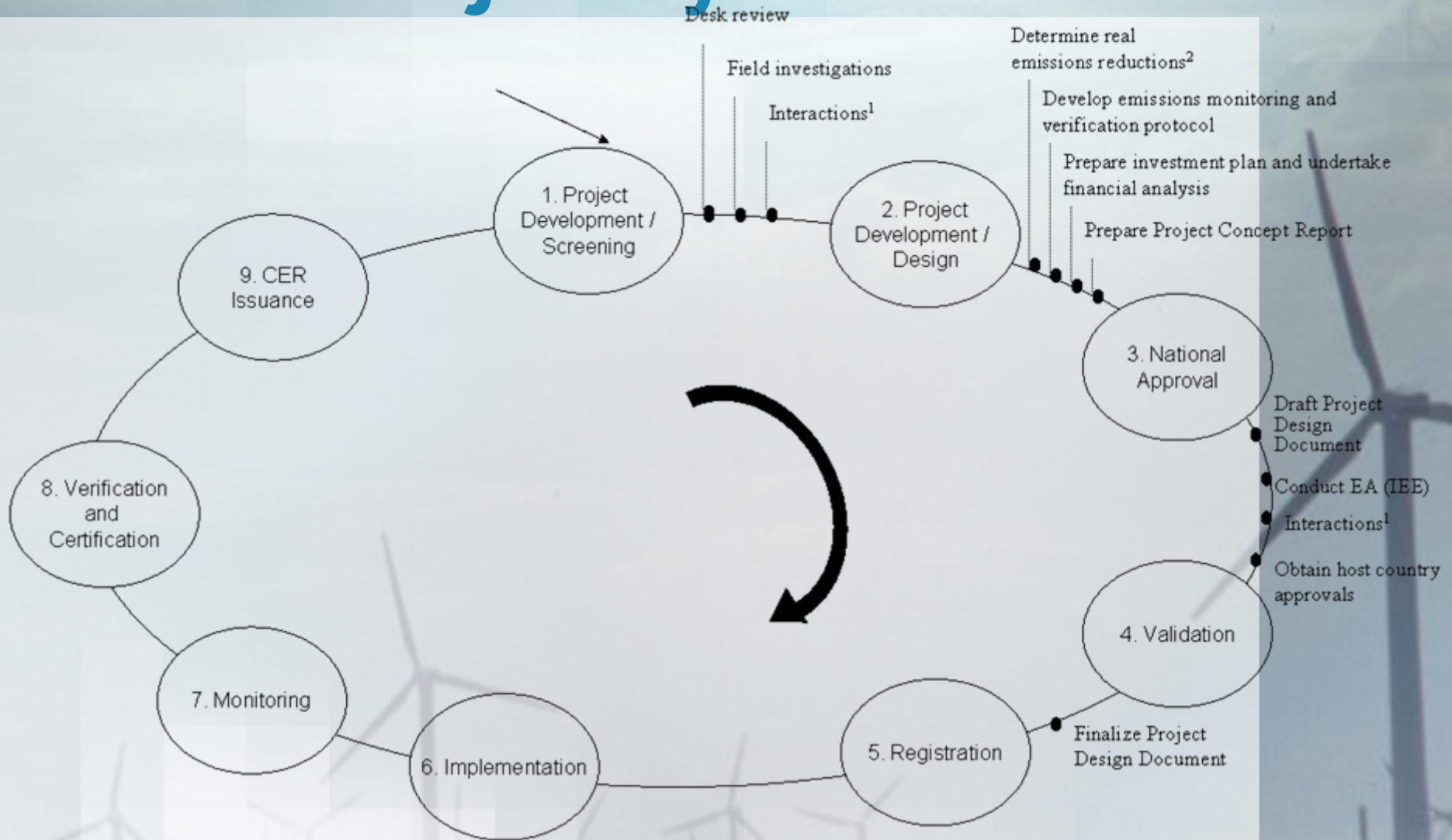
 - Fuel switch from gasoline and diesel to natural gas

 - Modal shift from air to train, road to train at macro level

 - Replacement of shipment of certain raw materials through road to pipelines

- **In the power sector, induction of new technologies that are efficient reduction in technical transmission and distribution losses**

The CDM Project Cycle



1. Between the Fund , Project Sponsor / SPV, government, co-sponsors, users / public
2. Choose project boundary, select project baseline. Set crediting period, calculate emissions reductions

Impacts of Carbon Credits on Project IRR

- **The World Bank states that ER revenues can have a positive impact on Project IRR;**

Impact of ER sales @ USD 12 to 18 /MT of CO2 on Project IRRs

Sales type	Impact on Project IRR
Energy efficiency / district heating	2.0-3.0%
Wind	0.9-1.3%
Hydro	1.2-2.6%
Bagasse	0.5-3.5%
Biomass with methane kick	up to 5.0%
Municipal solid waste	> 5.0%

Clean / Renewable Energy Funds and Finance



Examples of Clean / Renewable Energy Funds

- **ADB Renewable Energy Fund**
 - Initial grant of **DKr20 million** made by Government of Denmark
 - Aimed at increasing the use of renewable energy in ADB's developing member countries (DMCs)
 - To scale up its impact, it will take a **programmatic approach** and focus on a limited number of DMCs that have significant potential and commitment to such technologies
 - Will support ADB's **REACH** (Renewable Energy, Energy Efficiency, and Climate Change) program by **financing technical assistance operations for project preparation, advisory services and training, and institutional support, including services from ADB's CDM Facility**

Objectives of ADB's CDM Facility

- Promote projects that contribute to poverty reduction, sustainable development and GHG mitigation
- Lower CDM transaction costs by supporting CDM project identification, development, registration and implementation
- Help find competitive prices for Emission Reductions (ERs), or carbon credits, arising from projects
- Facilitate access to underlying-finance by improving project viability

Renewable Energy Finance from Triodos Bank (U.K., Belgium and the Netherlands)

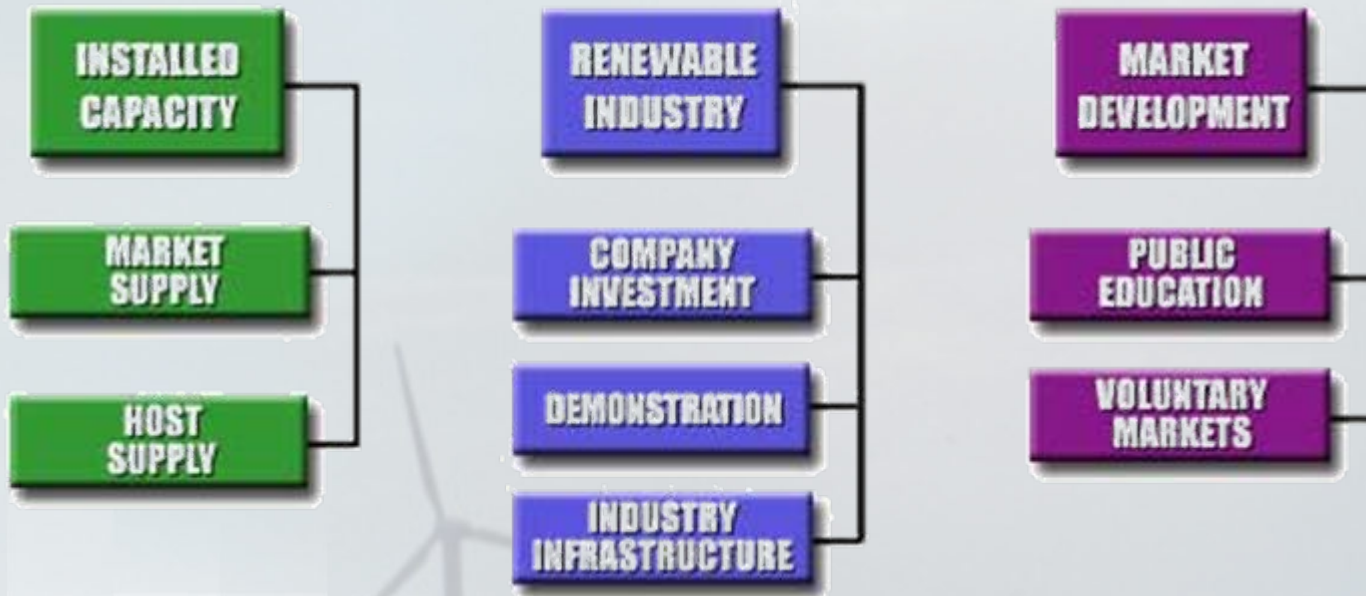
- Ethical bank which finances projects **only** with **social and environmental benefits**
- Finances **genuinely** clean renewable technologies and projects (not including, for e.g. municipal waste-to-energy schemes)
- Minimises environmental impact through **sensitive siting**
- Minimises impact on local communities by making sure **noise** and any **visual** impact are kept to an **acceptable level**

Renewable Energy Finance from Triodos Bank (U.K., Belgium and the Netherlands)

- Explores the most appropriate way to **secure local community involvement** for each project
- **Encourages investment in Triodos Renewables** from people who live close to projects as a way of participating in their local energy scheme
- Demonstrates a **meaningful public consultation process**; follows best practice guidelines as set out by the renewable energy agency for the South West (Regen SW)

Connecticut Clean Energy Fund, U.S.

- Has created innovative strategic initiatives and investments in clean energy



Connecticut Clean Energy Fund, U.S.*

- Objectives of the Fund:
 - To provide access to a **diverse supply** of installed clean energy resources
 - To foster the **growth, development and commercialization** of clean energy technologies and related enterprises
 - To play a significant role in **increasing consumer knowledge** of clean energy and in consumers actively seeking and adopting clean energy technology for their homes, businesses, and institutions

*: In mid-2005, there were 17 such state-level funds across the U.S.

FE Clean Energy Group Inc., U.S.

- **Private equity fund manager**
- **Specialises in investing in privately held companies in Europe, Asia and Latin America that deliver energy efficiency and renewable energy services to the industrial, commercial and public sectors**
- **Seeks to generate tradable carbon credits from GHG emissions reductions generated by its investments**
- **Objective is to pursue investment opportunities that meet the investors' desired return rates, while also serving as models of efficient energy management**

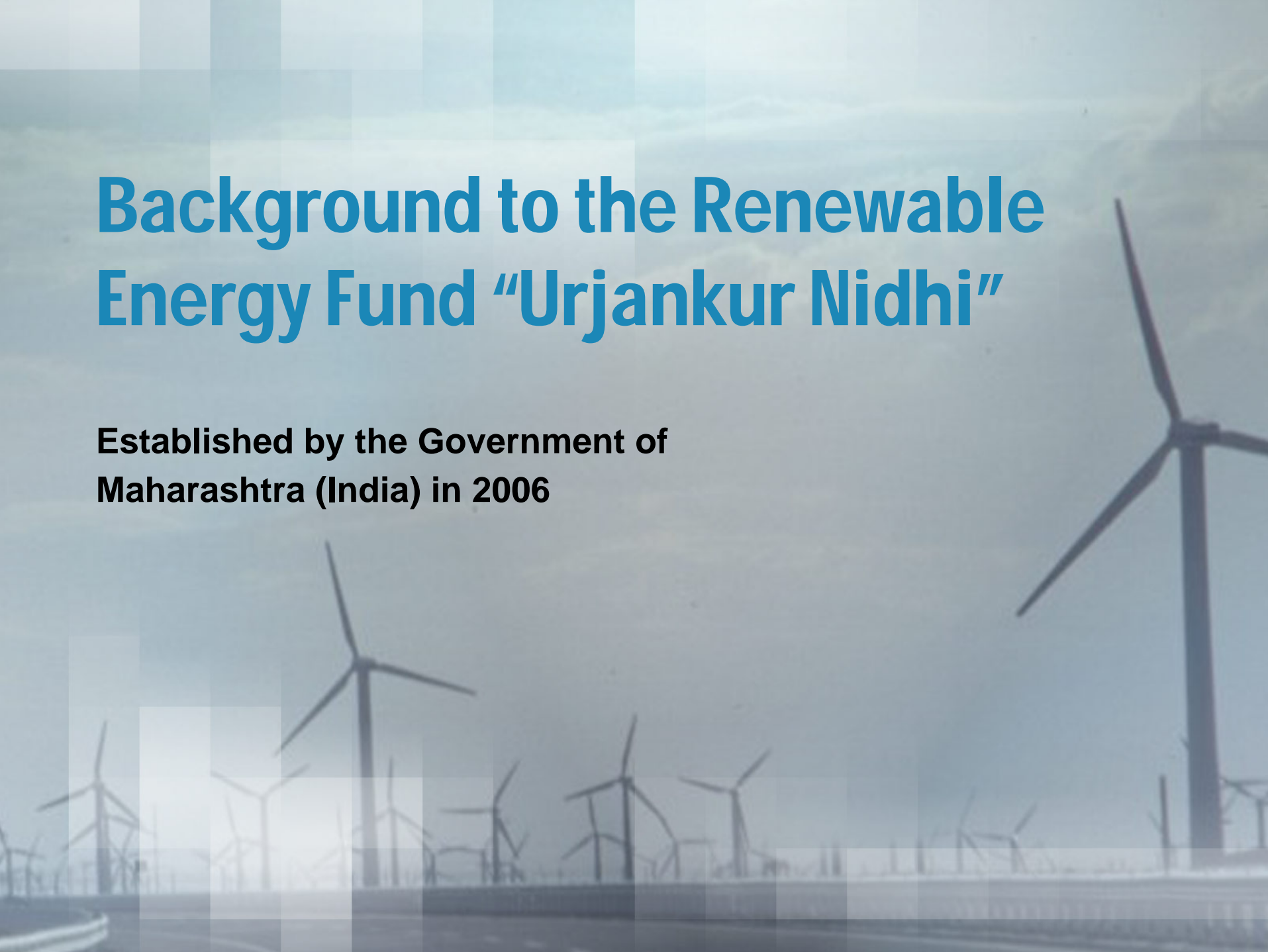
FE Clean Energy Group Inc., U.S.

- **Created three funds**

Name and investment region	Size of fund
European Fund (Non-EU countries and 10 newly inducted EU countries)	Euro 71 million
Latin American Fund (Mexico, Central and South America)	USD 31.6 million
Global-Asian Fund (China, India and South East Asia)	USD 65 million

Background to the Renewable Energy Fund “Urjankur Nidhi”

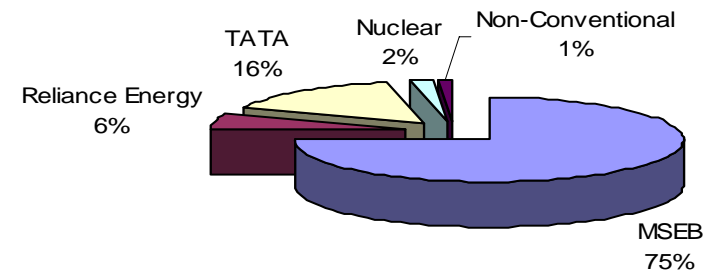
Established by the Government of Maharashtra (India) in 2006



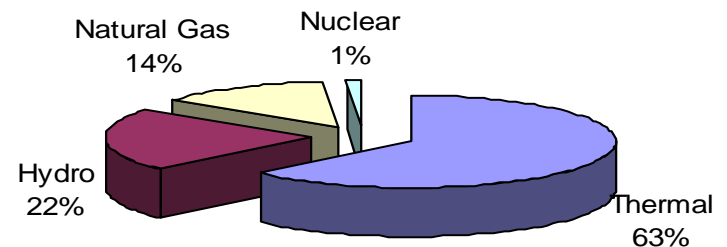
Power Scenario in Maharashtra

- **Maharashtra State Electricity Board (MSEB) faces peak demand shortage of approx. 2000 MW**
- **Power demand increasing at 500 MW - 600MW every year**
- **Power generation not keeping pace with the demand**
 - **Peak Power demand at 29,738 MW by 2017**

Electricity Generation (%)



Installed Capacity (%)



Source: Economic Survey 2003-04 for Maharashtra, CRISINFAC
Data relates to FY04

The Need for Non-Conventional Energy

- **Acute power shortage in Maharashtra state**
- **Non-conventional energy projects relatively smaller and quicker to implement**
- **Renewable in nature**
- **Environmentally friendly**

Potential for Non-Conventional Energy in Maharashtra

Source	Approx. Potential (MW)*
Wind	3,650
Mini Hydel	600
Bagasse-based Cogeneration	1,250
Power from Biomass / Agri-waste	780
Waste to Energy (Municipal & Industrial), WTE	640
Total	6,920

* Source: Maharashtra Energy Development Agency (MEDA)

Objectives of Urjankur Nidhi

Lead sector development

Provide risk capital

Assist in Project Development

Create framework for replicating successful projects

Induce equity participation by financial investors

Attract professional management

Induce debt from banks and FIs

Provide CDM Advantage

About Urjankur Nidhi

- **Fund Objective**
 - Promote investments in the non-conventional energy and renewable energy sector in the state of Maharashtra
 - 20-25 projects to be developed, funded and implemented over 24 months
- **Candidate Sectors**
 - Wind power, bagasse-based cogeneration, solar, mini hydel, waste-to-energy
- **Fund Structure**
 - Constitution
 - Contributory Trust, registered with the Securities and Exchange Board of India (SEBI) as a Venture Capital Fund
- **Fiduciary / Compliance Manager**
 - IL&FS Trust Company Ltd

About Urjankur Nidhi

– Corpus

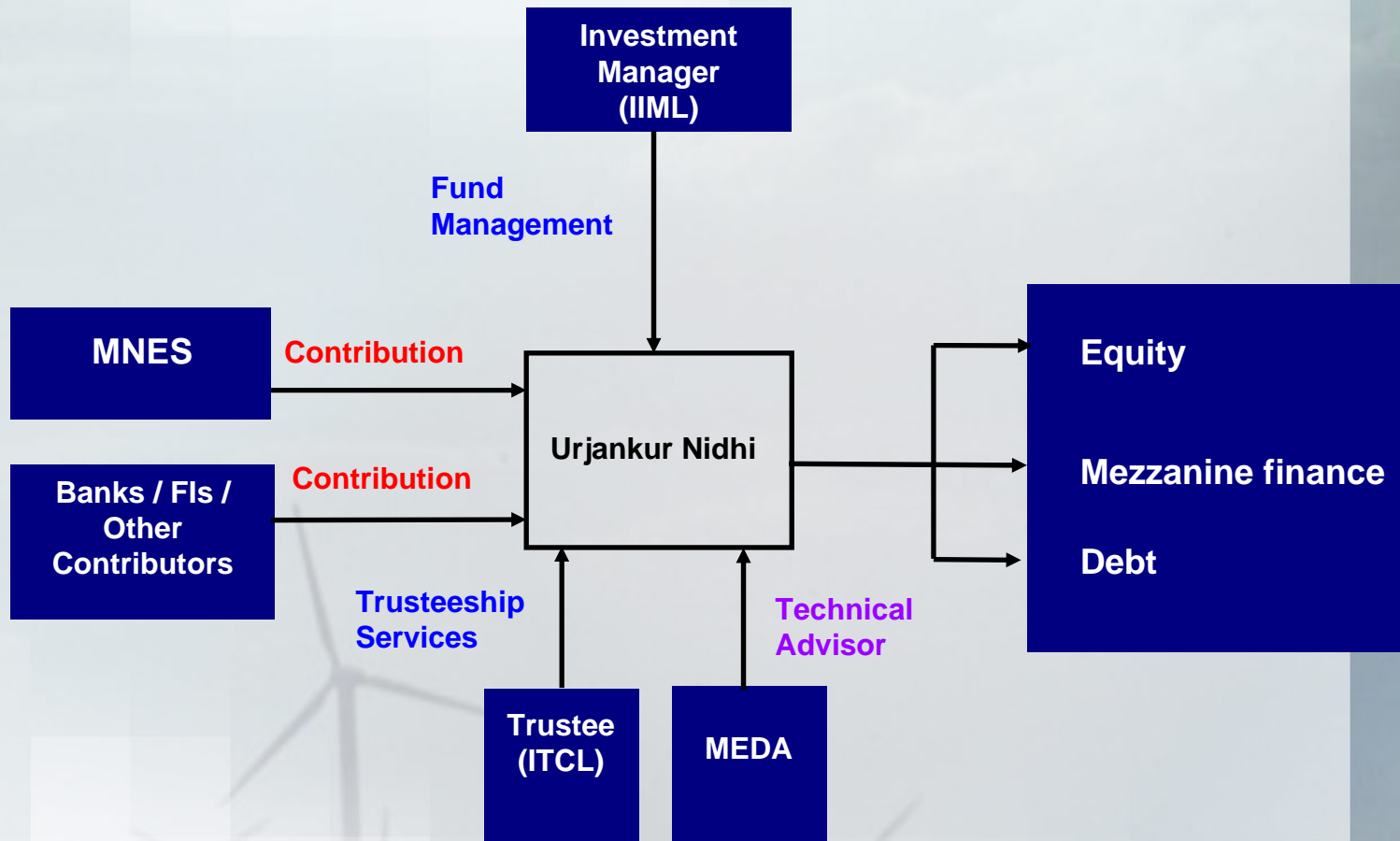
	(Rs., Crore)		
Contributors	Year 1	Year 2 & 3	Total
GoM*	100	118	218
IL&FS/Banks/FIs	100	100	200
Total	200	218	418

– Financial Support

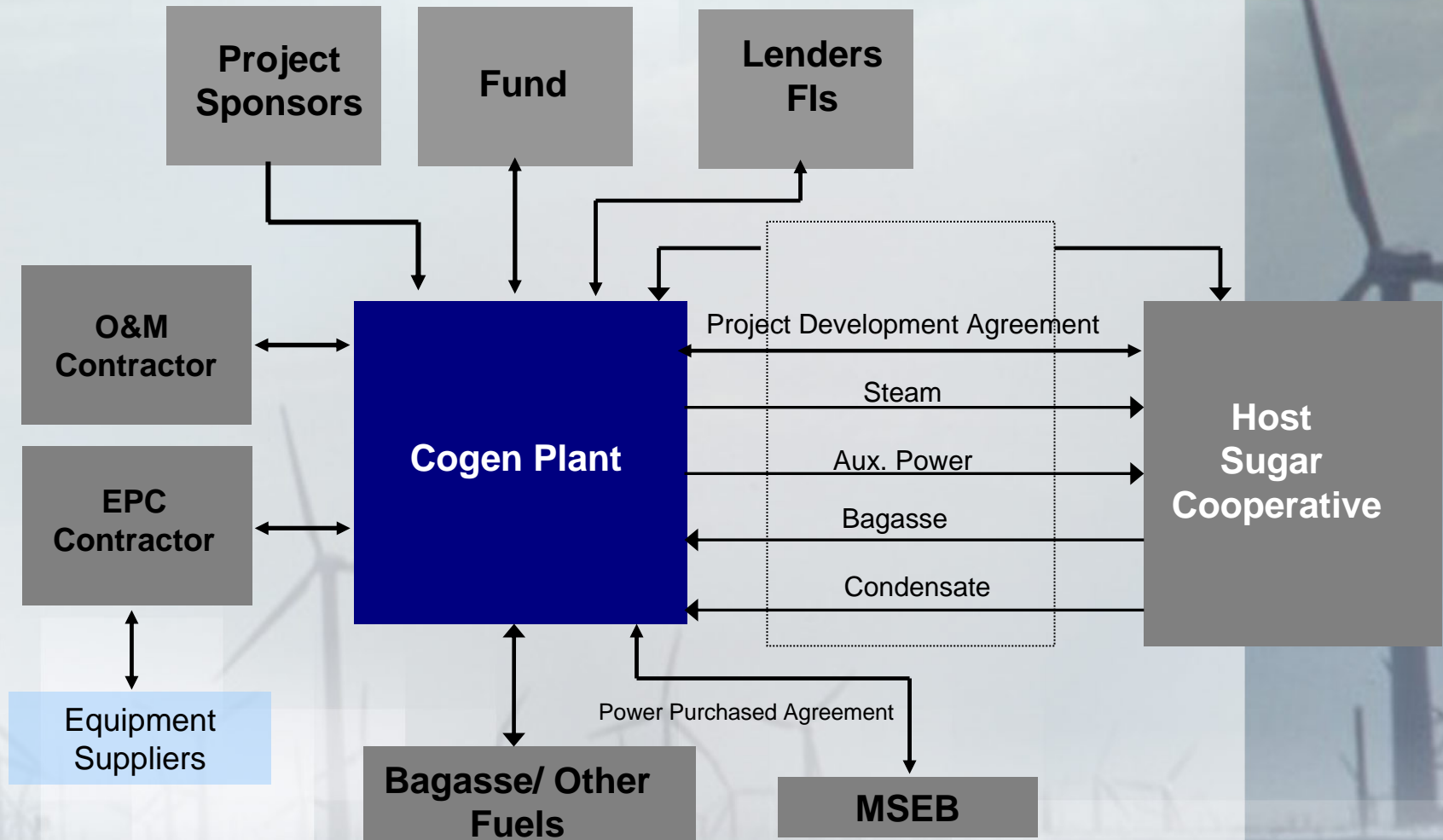
- In the form of equity
- **Maximum support per Project: Upto 20% of the Project Cost or 20% of the Corpus, whichever is lower**

Established through the levy of a cess of 4 paise per unit on energy consumption by commercial and industrial units. Under management of the Ministry of Non-Conventional Energy Sources (MNES), GoM

Fund Transaction Structure




Typical Project SPV Structure (Bagasse Cogeneration Project)



Roadmap for Urjankur Nidhi

- Will provide **crucial support functions** during project development, project management and distribution of resulting power
- Already mandates an **Environment and Waste Management Plan** as part of its Detailed Project Report
- Has prepared an EA/SA framework to **minimise any environmental and social impacts** due to projects
- Seeks to **generate tradable carbon credits from GHG emissions reductions** by projects by providing assistance and taking a stake



However, while the financial sector is expected to play a key role in developing and promoting CDM projects...

... there are barriers to be overcome...

***Source: (1) The Clean Development Mechanism: Special Considerations for Renewable Energy Projects.** Available at: <http://www.reeep.org/index.cfm?articleid=1425>

(2) Montreal 2005: What Happened and What It Means. Available at: <http://www.oxfordenergy.org/pdfs/EV35.pdf>

Overcoming some of the barriers

- The CDM rules now explicitly allow the "bundling" of projects to reduce transaction costs
- Parties to the Kyoto Protocol have agreed that renewable energy projects which are implemented as part of government policies or a "programme of activities" are also eligible under the CDM
 - This could allow for a so-called programmatic approach, crediting a range of activities such as energy efficiency improvements across a series of entities or an entire sector
- This additional flexibility in the CDM rules should reduce transaction costs for renewable energy projects, and also enable some smaller scale projects which would not otherwise be feasible to be recognized under the CDM

Overcoming some of the barriers

- The parties to the Kyoto Protocol agreed in Montreal in December 2005 to continue the Kyoto Protocol for a **second commitment period**, and to negotiate binding emission reduction targets for developed country parties
- This should provide some much needed certainty for CER purchasers and investors in potential CDM projects that **CERs will have some value after 2012**

Overcoming some of the barriers

- The United Nations Climate Change Conference in 2005 at Montreal approved a number of measures that should go some way towards addressing the resources and capacity difficulties experienced in the early years of the CDM
 - Clarifying the procedural rules
 - Strengthening governance
 - Speeding up the development of methodologies
 - Overcoming the bottleneck in project processing by providing more funding for the professional functioning of the CDM Executive Board, be it through bilaterally pledged donations (currently about \$8 million), or through a levy on CDM credits

Overcoming some of the barriers

- Many developing countries (including India) have begun to **develop local regulatory frameworks in addition to the CDM** that encourage the implementation of renewable energy projects
 - Through renewable energy targets or feed-in tariffs
- Most importantly, the CDM Executive Board has recognized that **such regulations should not affect a project's eligibility under the CDM**
 - i.e. that developing countries should not be "penalized" in terms of CDM investment because they implement laws and regulations designed to reduce emissions



“The financial sector has a key role to play in delivering market solutions to climate change.”

***- Climate Change and the Financial Services Industry: Executive Briefing Paper. Available at:
http://www.unepfi.org/fileadmin/documents/CEO_briefing_climate_change_2002_en.pdf***

Thank you

