

BioGas and the Carbon Markets : The NEFCO Perspective

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Agenda

- NEFCO in Brief
- How Carbon Finance Works
- Global Performance of Biogas Projects
- Case Studies in Lithuania and Estonia
- What to look for in projects
- Carbon Market Challenges and Opportunities

NEFCO and Carbon Finance

- Nordic Environment Finance Corporation (NEFCO) is a risk capital institution and specialist fund manager, established in 1990 under international treaty by the five Nordic governments
- Since 2003 it has been the Fund Manager of the Baltic Sea Region Testing Ground Facility (TGF), a €35m regional carbon procurement fund vested as a public - private partnership
- NEFCO Carbon Fund launched in early 2008, focusing on CDM in China, India, rest of Asia and Africa.
- Carbon funds under management are currently €135 million
- Bulk of carbon finance investments include renewable energy & energy efficiency components

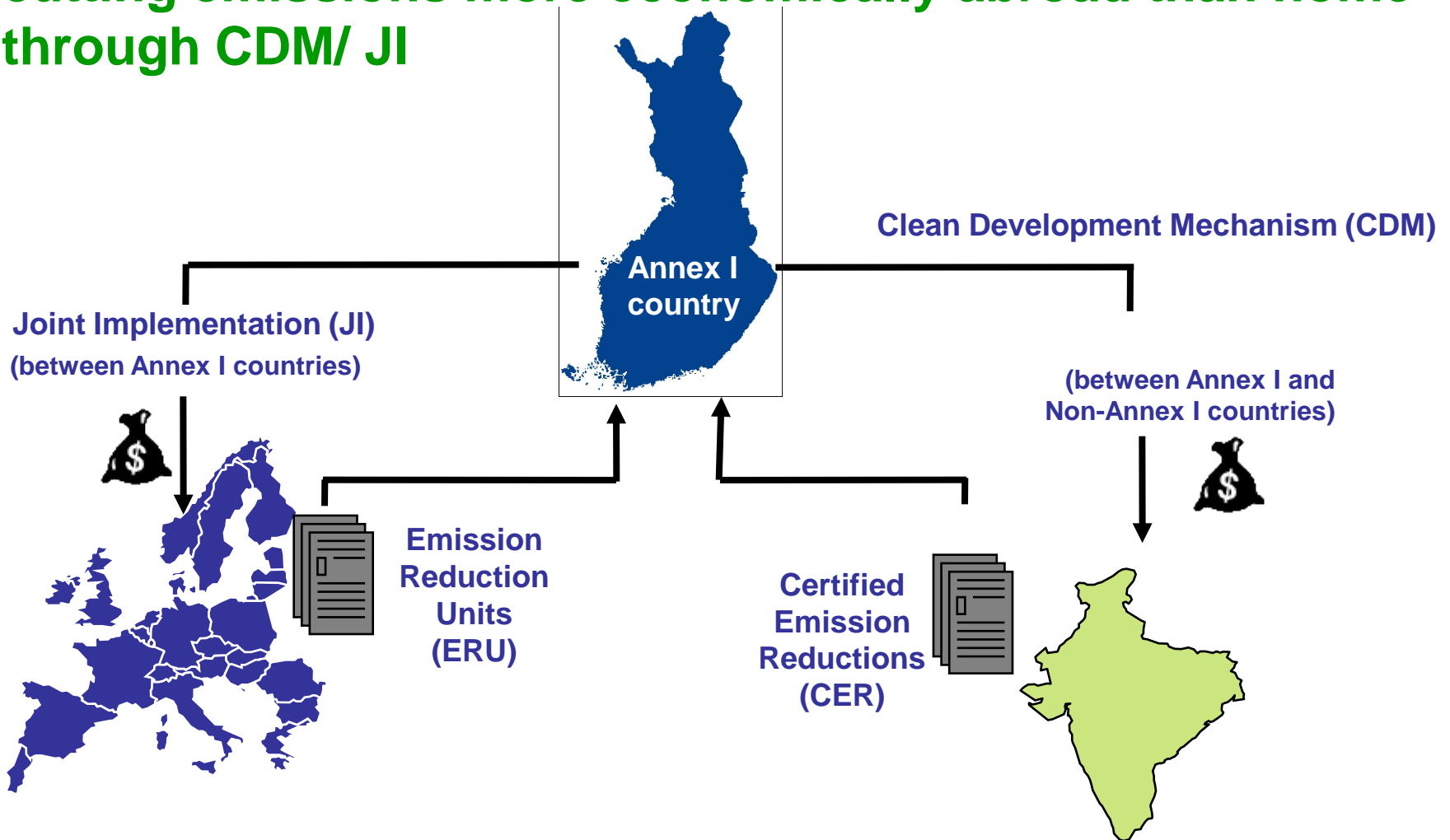
NEFCO and Agri Business

- NEFCO has much experience working with agri-business, through equity, loans, grants and carbon financing
- Main focus in Baltic countries, also Russia and Ukraine
- Typical recent investments include:
 - pig manure storage, removal and management systems, Lithuania and Estonia
 - bioreactors for heat and power generation, Latvia
- NEFCO manages an Agri-Credit Facility and local Global Environment Facility (GEF) funds
- More information at www.nefco.org/agriculture

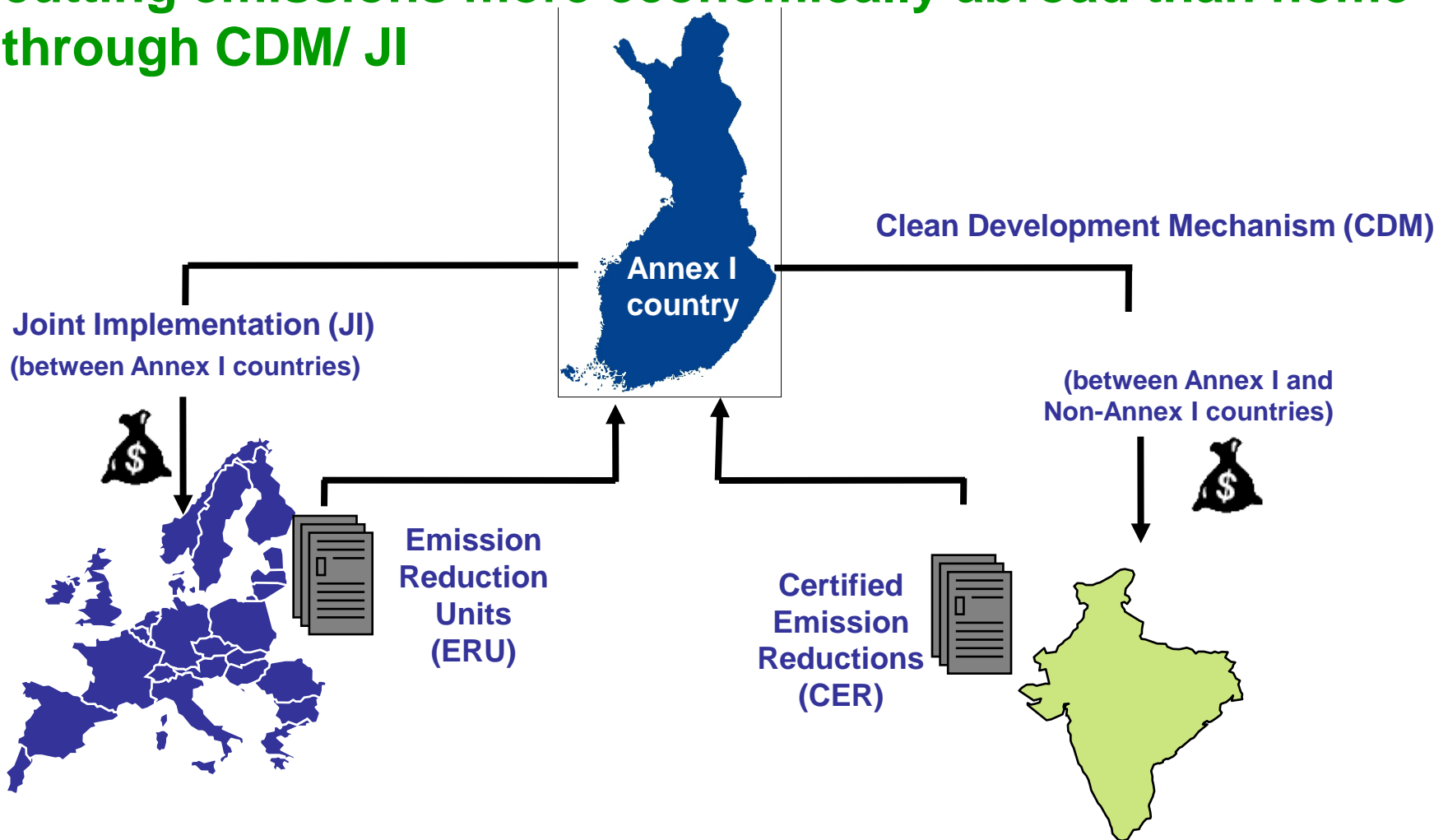
How Carbon Finance Works

- Carbon finance is an offtake agreement between project developer and a carbon purchaser (primary contract)
- Usually at a fixed price, currently in range of EUR 5.75 -10.50 /tCO₂e
(Source : Point Carbon, May 2009)
- Period from project commissioning up to 31st Dec 2012 (JI) and 7 x 3 or 10 years for CDM
- Payment on delivery but volumes are not guaranteed
- Paid only for carbon credits delivered to NEFCO's account ie mid year after generation
- May be some advance payment (but rare nowadays)
- Offers additional revenue line and improves project economics, does not contribute to the financing plan

For example Finland and Finnish companies can benefit cutting emissions more economically abroad than home through CDM/ JI

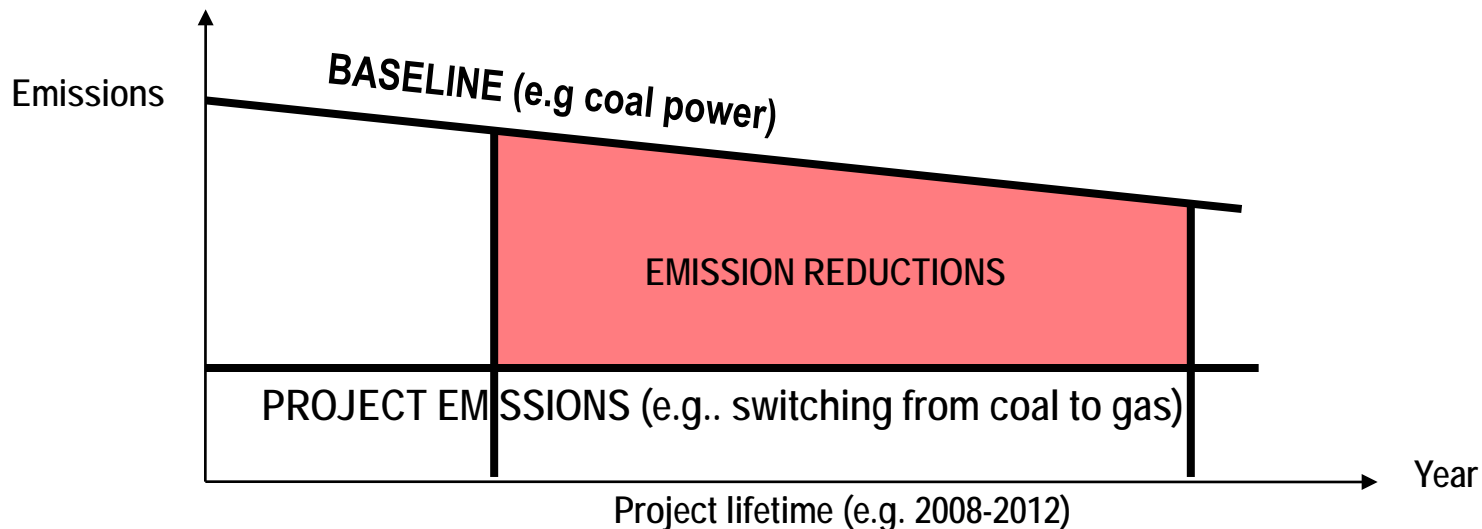


For example Finland and Finnish companies can benefit cutting emissions more economically abroad than home through CDM/ JI

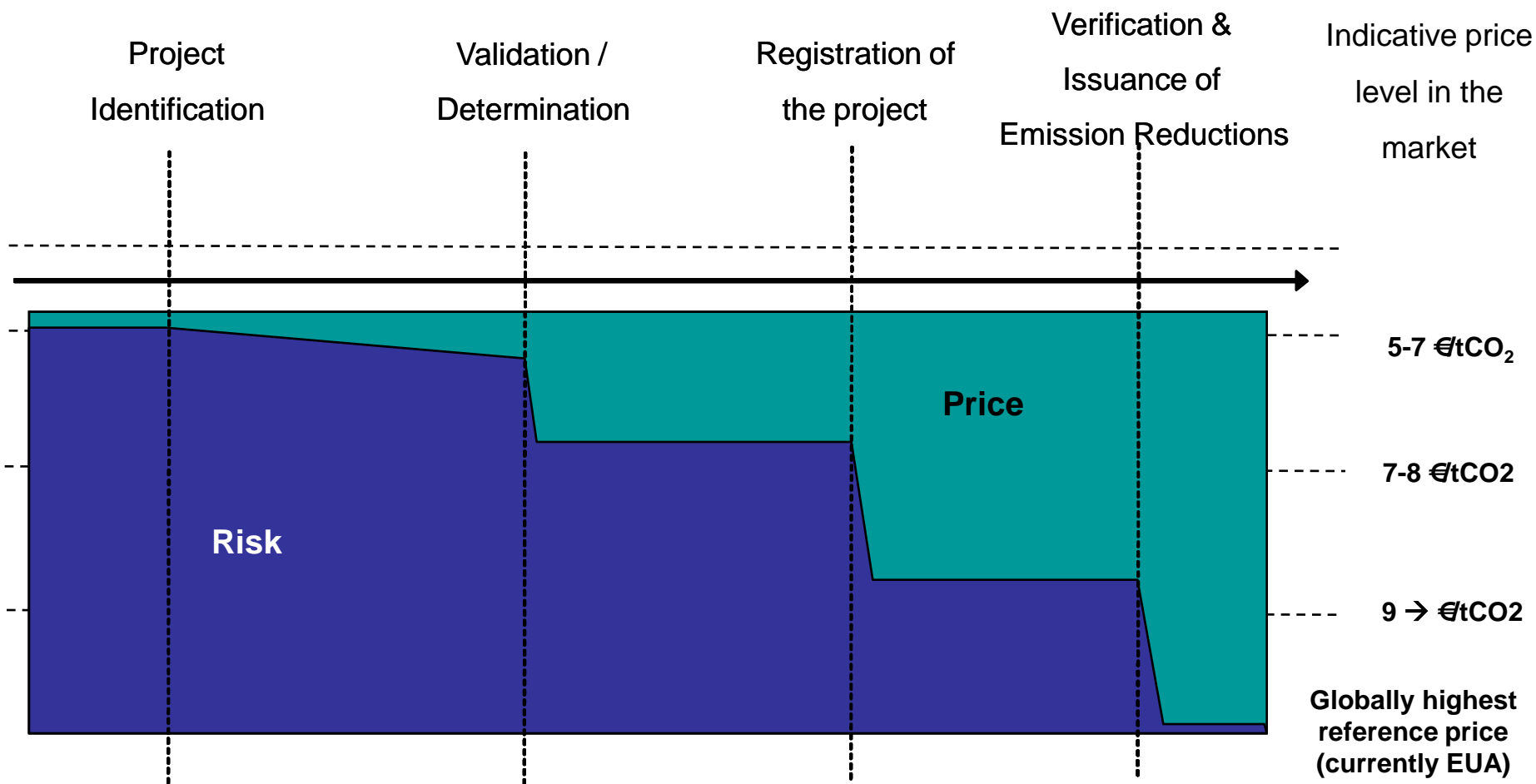


Emission reductions are calculated against the baseline

- Baseline is determined for each project case by case
 - Baseline = emission development without the project (most likely alternative)
 - Emission reductions (ERU/CER) are formed against the baseline
 - Emission reductions = baseline emissions – project emissions



The price for CDM/ JI project emission reduction credits depend on what phase the credits are sold



Carbon finance can boost the economic attractiveness of marginal biogas projects'

- Carbon financing means the revenue that the project owner gets from sales of emission reduction credits from the project
- CDM/JI rules require projects to be “additional”- meaning that they would not be implemented without carbon finance, would not be most attractive option to investor without carbon financing
- Carbon financing must be shown in very early states of the project before the investment decision is taken
 - Basic info on project is needed to assess the emission reduction potential

Global Performance of BioGas Projects

| Clean Development Mechanism | Biogas | Landfill Gas |
|--|---------|--------------|
| No. of Projects | 283 | 322 |
| - of which Small Scale | 142 | 52 |
| Emission reductions by 2012 (tCO ₂ e) | 61.7m | 220.3 |
| Projects Issuing / Rejections | 11 / 26 | 36 / 37 |
| Issuance Yield | 66% | 33% |

| Joint Implementation | Biogas | Landfill Gas |
|--|--------|--------------|
| No. of Projects | 4 | 19 |
| - of which Small Scale | 142 | 52 |
| Emission reductions by 2012 (tCO ₂ e) | 2m | 12.4m |

Source : UNEP Risoe, June 2009 Analysis



Saaremaa Biogas Combined Heat and Power Plant, Estonia

Project: Biogas plant for combined heat and power production based on pig waste

Category: Waste-to-energy

Baseline: Methane emissions from manure tanks and electricity generation with oil shale

Emission reductions: 80,000 tCO₂e (2006-12)

Technology: Ecomac (Belgium)

Financing: EU grants and commercial loans

Carbon finance: ~15% of total, 40% advance payment

Project status: Operational

Jl cycle status: Early determination completed

Sustainable development benefits:

- ⌘ Reduced local odour nuisance
- ⌘ Generation of fertilizing/soil improvement material





Lapes Landfill Gas Utilisation, Central Lithuania

Project: Landfill gas collection and utilisation for heat (1.4 MW) and power (1.1 MW) generation

Category: Waste-to-energy

Baseline: Methane emissions from landfill until 1.1.2012, and heat and power generation with natural gas and mazut

Emission reductions: 152,000 tCO₂e (2008-12)

Financing: Own equity, NEFCO's subordinated loan

Carbon finance: >25% of total, 40% advance payment

Project status: Operational

JI status: At determination

Sustainable development benefits:

- ⌘ Increased safety and less local pollution
- ⌘ Energy security and demonstration of technology
- ⌘ Local employment opportunities

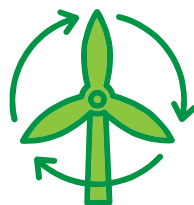




What is NEFCO Looking for in Projects?

Carbon purchasers focus on certainty of delivery, depends on a number of factors, of which:

- Delivery risk is key – focus on supplier’s financial status and technical capacity to deliver
- Ability to service debt / deliver credits, evidenced by
 - i.a. financial analysis, credit checks & business plan
- Other risks are manageable under conventional investment procedures
 - social & environmental, technology, market (sector viability), financial, construction etc



- Kyoto window of opportunity closing, requires adequately advanced project development
 - Project within months of financial closure
 - Most key agreements or permits in place
 - Ideally with IFI or other strong commercial institutions also acceptable
- Transparency of ownership and business conduct
- Acceptable methodology and registration risks



Carbon Market Challenges & Opportunities

- Ever tightening supply curve in the CDM market
 - UNFCCC system constraint : cannot keep up with market
 - AIE/DOEs constraints : understaffed and overworked
 - Procedures are complex, slow, most projects being called for review
 - Closing window of opportunity for JI (and CDM)
- Lack of predictability in the system
 - The system is applying principles such as retroactivity of regulations or “presumptions of guilt”
 - Reforms have been proposed
- Lack of market definition post 2012
 - An opportunity for funds offering Kyoto & post Kyoto purchases
 - projects with post-2012 credits must start before the end of 2012



For further information contact:

For additional information, please visit
www.nefco.org/cff

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