

NEFCO Experience of JI Project Development in the Energy Sector

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Scope of Today's Discussion

- NEFCO Carbon Finance and Funds
- NEFCO JI projects
- NEFCO Experience of JI Project Development
- Global Trends in Renewable Energy and Climate Change
- Possibilities and Challenges in Russia

NEFCO in a nutshell

- International Financial Institution established in 1990 by Denmark, Finland, Iceland, Norway and Sweden
- Around 353 million euro and 350 projects under management
- Geographic scope: primarily Russia, Ukraine and Belarus, also Baltic States
- Financing for projects that generate positive environmental effects
- Priority on projects that reduce greenhouse gas emissions or toxic pollution or improve the environmental state of the Baltic Sea
- Acts as Fund Manager for various environmental funds

NEFCO Carbon Finance and Funds

- NEFCO is Fund Manager of two public-private carbon funds
 - Baltic Sea Region Testing Ground Facility (TGF), JI fund that buys Kyoto period ERUs from projects in Russia, Ukraine and Baltic States, launched 2003, €35 million
 - NEFCO Carbon Fund (NeCF), global CDM/JI fund that buys
 Kyoto and post-Kyoto credits, launched spring 2008, €100 million
- 120+ million euro and 30+ projects under management
- Most projects concern renewable energy & energy efficiency
- Investors use carbon credits for compliance under the Kyoto Protocol and the EU Emissions Trading Scheme (EU ETS)



NEFCO JI and CDM

CFF pipeline and portfolio overview



CFF portfolio overview (as of August 2009): Emission reductions by host country and type



Nordic Environment Finance Corporation



TGF pipeline overview (as of June 2009): Emission reductions by type and host country





TGF pipeline overview (as of June 2009): Emission reductions by stage and host country





TGF pipeline overview (as of June 2009): Emission reductions by project type





TGF Portfolio Examples

JI projects with signed ERPAs

Benaičiai Wind Park, Lithuania

Project: Wind park of 6 x 2,75 MW wind turbines
Category: Renewable energy - wind
Baseline: Electricity generation with fuel oil and gas
Emission reductions: 131,000 tCO₂e (2007-12)
Technology: Vestas (DK)
Financing: Lease financing from local institution
Carbon finance: ~5% of total; 40% advance payment
Project status: Operational since 2007
JI cycle status: Final JI status achieved July 2008; first verification of emission reductions ongoing

- Health benefits via reduced local air pollution
- Local employment opportunities
- Contribution to national energy security



Viru Nigula Wind Park, Estonia

Project: Wind park of 8*3 MW wind turbines Category: Renewable energy - wind Baseline: Electricity generation with fuel oil and gas Emission reductions: 185,000 tCO₂e (2008-12) Technology: WinWinD (FI) Financing: Loan from joint venture partly owned by NEFCO Carbon finance: ~10% of total, ~50% advance payment Project status: Operational since 2008

JI cycle status: Determination successful; host country approval received; monitoring ongoing.

- Health benefits via reduced local air pollution
- Local employment opportunities
- Contribution to national energy security





Sudenai-Lendimai Wind Park, Lithuania

Project: Wind park of 7*2 MW wind turbines
Category: Renewable energy - wind
Baseline: Electricity generation with fuel oil and gas
Emission reductions: 75,000 tCO₂e (2009-12)
Technology: Enercon (DE)
Financing: Loans from Baltic bank and own equity
Carbon finance: <5% of total, 50% advance payment
Project status: Operational since Dec 2008
JI cycle status: Final determination expected Aug 2009; host country approval received; monitoring ongoing

- Health benefits via reduced local air pollution
- Local employment opportunities
- Contribution to national energy security





Khimprom Waste Coke Gas Utilisation, Western Siberia, Russia

Project: Construction to two steam boilers in Khimprom chemical plant to utilise waste gas from a nearby coke plant

Category: Energy efficiency

 Baseline: Steam production with natural gas and coal at Khimprom, and flaring of waste coke gas at the coke plant
 Emission reductions: 354,000 tCO₂e (2008-2012)

Technology: Byisk Boilers Works (RU)

Financing: Own equity, short-term loans

Carbon finance: ~75% of total

Project status: Implemented

JI status: Determination successful; seeking host country approval

- Reduced local air pollution
- Reduced fuel costs to companies







Belokurikha District Heating Fuel Switch and Energy Efficiency, Altai, Russia

- **Project:** Construction of new boiler houses to allow switch from mazut to biomass and natural gas and the shut-down of an outdated and oversized combined heat and power plant
- Category: Fuel switch and energy efficiency
- Baseline: Inefficient heat and power generation with coal
- **Emission reductions:** 396,230 tCO₂e (2008-12)
- **Financing:** Financed by own equity, local bank loans and advance payment for carbon credits
- **Carbon finance:** ~20%
- Project status: Operational

JI cycle status: Determination successful; verification ongoing; seeking host country approval Sustainable development benefits:

- Reduced local air pollution
- Stable heat supply



Strezhevoi District Heating Rehabilitation, Western Siberia, Russia

Project: Installation of improved control equipment and new heat exchangers at seven sub-centrals to reduce energy losses and fuel use in district heating network

Category: Energy efficiency

MEECO

- **Baseline**: Heat generation with natural and petroleum gas **Emission reductions**: $89,000 \text{ tCO}_2\text{e}$ (2008-12)
- **Technology**: Alfa Laval Potok (SE), Vexve (FI), Grundfoss, Danfoss (DK)
- **Financing**: Own equity, local bank loans, possible NEFCO loan **Carbon finance**: ~20% of total
- **Project status:** Partially implemented (1 of 7 sub-stations)
- JI cycle status: At determination

- Stable local heat supply and higher comfort level
- Health benefits via reduced local air pollution





NEFCO Experience

JI Project Development

Key JI actors

ACCREDITED INDEPENDENT ENTITIES (AIEs, Track 2) or NATIONAL EXPERTS (Track 1): determination, ex post verification of emission reductions

FECC

JI Supervisory Committee (JISC, Track 2): JI project approval, development of guidance, accredication of AIEs FINANCIER: loan/equity to underlying project

PROJECT DEVELOPER/OWNER: project development, management and implementation, operation and monitoring, sale of carbon credits

CARBON FUND: buys carbon credits from JI project on behalf of investors

GOVERNMENT/COMPANY: acquires carbon credits directly or through a carbon fund or facility 1. PRIORITY Track 1 approval from Russia

JI HOST COUNTRY approval as JI project, issuance and transfer of ERUs, Track 1 procedures as agreed

INVESTOR COUNTRY approval of JI project and authorisation of buyers to participate in project on behalf of investor country



Renewable energy and climate change

Global Trends

Key trends

- New energy policies are adopted
- Investment in renewable energy is growing
- Carbon neutral options are emerging
- Emission caps are no longer voluntary options
- CO2 Emission reductions are tradable commodities
- Carbon finance possibilities are a reality: JI projects must show that carbon finance offers critical leverage for the implementation of the project, i.e. without carbon finance, the more polluting baseline scenario would occur
- Focus on energy related climate change projects

Carbon finance must be considered at early stages of the project, at least before final investment decision is taken



New energy policies include:

- ensuring efficient energy systems
- securing supply and self-sufficiency
- contributing to the competitiveness of industry and sustainable development
- decoupling economic growth from CO2 emissions and other pollution
- promoting renewable energy

Implementation and priorities vary



Global competition for new investments

Global Investment by Technology, 2007



Source: New Energy Finance

In 2007 clean alternative energy investments were \$150 billion and corresponded of 21% of world's new power generation increase.



Possibilities and Challenges in Russia



Significant decoupling of GDP and emissions – but Russia's economy remains energy intensive and offers new possibilities

Russia renewable energy – limitless opportunities

The Question is – why is Russia's assessed economic viable renewable energy potential of 224 Mtoe per year still practically untapped? In 2007 primary energy balance only 19 Mtoe are renewables.

Energy efficiency potential – the largest fossil fuel reserve of Russia

The utilisation of this reserve has hurdles to overcome:

- National energy policy does matter.
- Domestic natural gas pricing a driver for development of alternative energy resources and energy efficiency improvements.



Thank you for your kind attention!

NEFCO Carbon Finance and Funds

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