Risk management in financing renewable energy and energy efficiency projects

Vilnius October, 2006

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Mission

The Nordic Investment Bank (NIB) promotes sustainable growth of its Member Countries by providing long-term complementary financing, based on sound banking principles, to projects that strengthen competitiveness and enhance the environment.

ENVIRONMENTAL LOANS

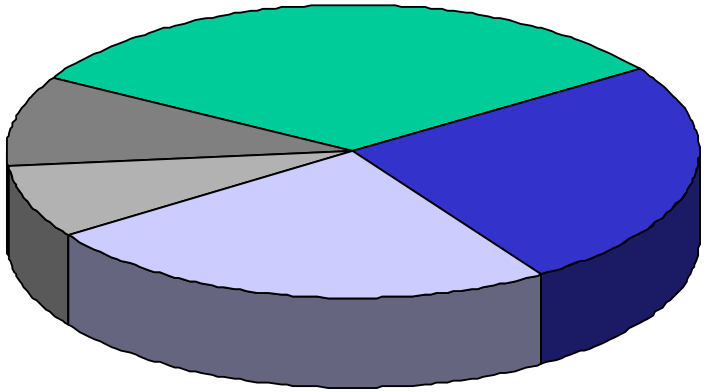
- Environmental investments play an important role in NIB's lending.
- To be labelled environmental loan a project must substantially reduce (treat) pollution or prevent the generation of pollution.
- Typical treatment projects are municipal and industrial wastewater, waste handling, recycling and flue gas cleaning.
- Pollution prevention projects usually comprise of renewable energy such as bio fuelled power plants, wind and geothermal power and implementation of environmental technology

ENVIRONMENTAL LOANS cont'd

- 272 environmental loans at a value of EUR 2.1 billion were outstanding at the end of September 2006. This is 18% of total loans outstanding. There has been a significant increase of 60% in the volume of environmental loans since 2001.

- 83% of the environmental loans are to customers in the member countries and 17% to customers in the non-member countries.

ENVIRONMENTAL LOANS cont'd



- Energy, 32%
- Other manufacturing, 25%
- Pulp and paper, 24%
- Environmental infrastructure, 8%
- Others, 10%

NIB's Environmental Policy

- NIB assesses the environmental aspects of every loan application

  All investment projects involve environmental risks and responsibilities, and the evaluation of these environmental aspects is a vital part of the processing of every single project, which NIB examines for possible financing. According to the Bank's environmental procedures, environmental aspects shall be evaluated prior to each individual credit decision.

NIB's Environmental Policy

- NIB actively promotes investments with a positive environmental impact

  NIB actively promotes investments, which directly or indirectly reduce harmful emissions or other environmental hazards. For project evaluation purposes, special importance is given to positive environmental impact. NIB gives priority to environmental investments reducing cross-border pollution in the Nordic area and its neighbouring regions.

Environmental Procedures of NIB

- The main objectives of the environmental review process are:
  - **Ensure that projects financed by the Nordic Investment Bank have been environmentally assessed, and that all relevant environmental impacts have been taken into account in projects financed by the Bank**
  - **Avoid potential environmental liabilities that could affect the implementation of the projects**
  - **Ensure that costs related to environmental protection are estimated along with other costs and liabilities**

Environmental Procedures of NIB

- Environmental Screening
  - **Classification into A, B or C. An Environmental Impact Assessment (EIA) might be necessary**
  - **Classification into 0 or 1, An Environmental Audit might be necessary (company acquisitions involving environmental liability)**
- Environmental Review Memorandum made by the Credit and Analysis Depart. The ERM is presented to the bank's Credit Committee.

Project quality is based on

Technical scope:

- definition of the project's "technical description"
- technical soundness, innovative technology, risks and mitigation measures

Implementation:

- promoter capability to implement the planned project
- information on timing and employment during implementation

Project quality is based on

Operation:

- promoter's capability to operate and maintain the project
- information on production/service, operating and maintenance costs, employment during operational life

Environmental impact:

- compliance with applicable legislation
- information on environmental impact assessment

Investment cost:

- information on project costs and its detailed components
- comparison with cost of similar projects

What are the typical environmental risks?

- Environmental liabilities (high emissions, costs for clean-up of land, ground water, asbestos, PCB, etc)
- Reputation risks (negative image, problems to recruit staff)
- Lack of permits, lack of appropriate environmental impact assessments may delay or even stop projects
- Lack of environmental management increases the risks for general accidents related to environment, pollution, health and safety

Check Lists for Loan Officers
- Evaluating Projects -

- Is an EIA required?
- What are the relevant impacts of the projects?
- Are there any environmental liabilities connected: soil or groundwater pollution?
- Environmental reports/audits available?
- ISO 14 000 or EMAS?
- Has the client insurance covering liabilities?
- Environmental permits?

Strategy

- **End of pipe solutions e.g. new or upgraded waste water treatment systems and flue gas treatment**
  - Municipal waste water treatment plants
  - Pulp and paper industry waste water treatment
  - Improved manure handling
  - Gas cleaning systems

- **Resource efficient processes, less waste means higher recovery**
  - Introduction of modern technology in the pulp and paper industry
  - Higher efficiency and less heat losses in district heating systems
  - Resource recovery from waste gas

- **Fuel switch**
  - Transition from sub-standard fuels to renewable or less polluting fuels

Wind power

- Baseline data for wind essential. Towers are usually 80 meters and wind data collected at 40 meters or ground level
- Local opposition, not in my backyard
- The major negative environmental impacts are visual impact, noise, shadow flicker and disturbance on birds or other wildlife.
- Is the needed local infrastructure in place?
- What type of environmental licence is needed and are all applicable permits in place?

Refurbishment of district heating systems

- Usually good environmental projects.
- Less losses of both water and heat gives a positive environmental effect in reduced consumption of fuel in the power station.
- It is important to handle the waste issues. Old pipes and especially the insulation can be hazardous waste and should be handled accordingly.
- During the excavation works contaminated soil can be discovered, causing delays and increased costs.

Bio fuelled combustion plants

- What type of plant? Combined heat and power, only power or only heat?
- What type of fuel? Is the fuel supply secured?
- Different fuels will give different ash characteristics. Ash management is very important for the safe and clean operation of combustion plants.
- How is the cooling water issues handled?
- Is the plant designed and constructed according to BAT?

Bio fuels

- The EU is encouraging the use of bio fuels. The current (2003) EU Bio fuels Directive requires 2 percent of the energy for transport to come from renewable sources, including both bio diesel and bio ethanol, rising to 5.75 percent by the end of 2010, and 20 percent by 2020.
- Bio fuels are fuels derived from crop plants, bio diesel from plant seed-oil, and ethanol (or methanol) from fermenting grain, grass, straw or wood.
- Although bio fuels are regarded as carbon dioxide neutral the production will consume energy and thus release carbon dioxide.