

ANNEX I: DESCRIPTION OF NORAD'S EXISTING BILATERAL SUPPORT MECHANISMS

Norad

The Department for Private Sector Development and Environment (NUMI) in Norad has, today, different support schemes to facilitate private sector development through financing and guidance to Norwegian investors and businesses. The PSD scheme gives support to different phases of a project, from feasibility studies, pilots, test production and climate project development (CDM) to CSR measures as health, safety and environment initiatives. This is targeting actors from all countries, but for practical reasons mostly concentrated on Norwegian actors. In total, NUMI channel approximately 80-90 millions NOK a year through the PSD scheme.

One window gives grants to feasibility studies. Pilots and test production are also covered in this window. The grants are usually focused on future investments but it is also possible to get grant support to other types of activities. Long-term cooperation is one of the criteria in this grant window. There is also room for giving grant to a more pre-investment studies if one already has identified a project. There is a clear expectation that the project should contribute to a long-term engagement during a pre-defined period. The grant is normally up to 1 million NOK, and limited to 50 percent of total costs of the present activity.

The second grant window covers training and capacity building, including training of local staff related to opening of new business, expansion or some kind of restructuring of the company. In the case of export to a developing country, the window gives the opportunity to receive support to the training of local employees to transfer of technology, knowledge and maintenance of equipment. Support related to this scheme is limited upward to three percent of the value of the contract or USD 1 million.

The third window in the PSD scheme is grant or guarantees in order to increase export from developing countries, and establish long-term trade relationship with producers or exporters in these countries. Grants can be provided to product development efforts and market development initiatives, including marketing support for products that are imported directly from partners in developing countries to developed countries. There is also a possibility to give guarantee up to 90 percent of the value of delivery when importing from developing countries. The guarantee helps reducing the risk of direct import, and the guarantee covers importer's loss due to either a) delays in delivery and/or defects in the goods not covered by the insurance company, or b) any lack of health approval by Norwegian authorities.

Norad also has the possibility to support industry and sector studies to map the potential for trade and investment projects. An example of this can be a study that maps out the sector potential and identified needs as the basis for private investments. One prerequisite for support through this window is that the study is made public and published with other interested stakeholders in mind. This type of support may be granted on the basis of an application from the authorities, or business or trade associations.

The fifth window in the PSD scheme is related to social responsibility like health, safety and environment (HSE). Businesses can get support from Norad to raise the standard of local businesses to international or Norwegian level. Norad can similarly give support to measures to help prevent HIV/AIDS and reduce negative effects for society. Grant is given to businesses to specific projects. Further, support can be given to other CSR measures like e.g. healthcare or day care centers. In general, the grant to CSR has to be in a reasonable relation to the overall budget for the project.

The last window in the PSD scheme is support to project developers to cover the costs associated with the development of documentation required to register a project as CDM project.

Figure A1.1 Support mechanisms through NUMI (approved in 2009, NOK)

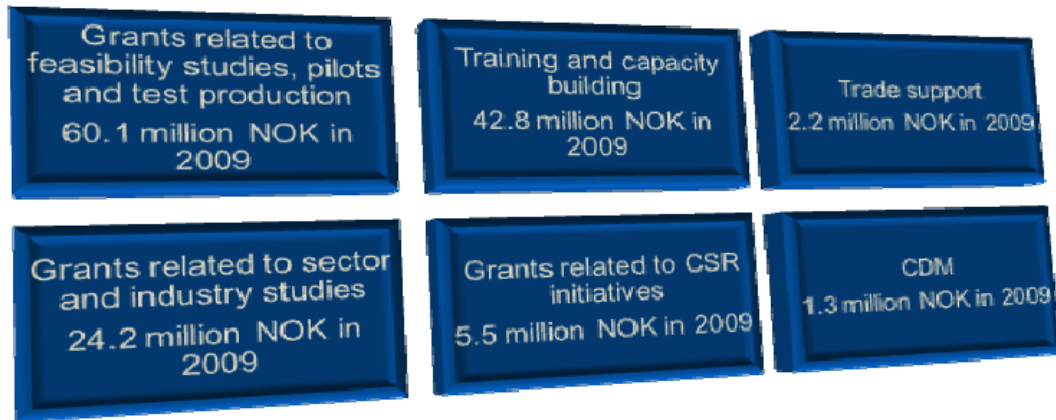
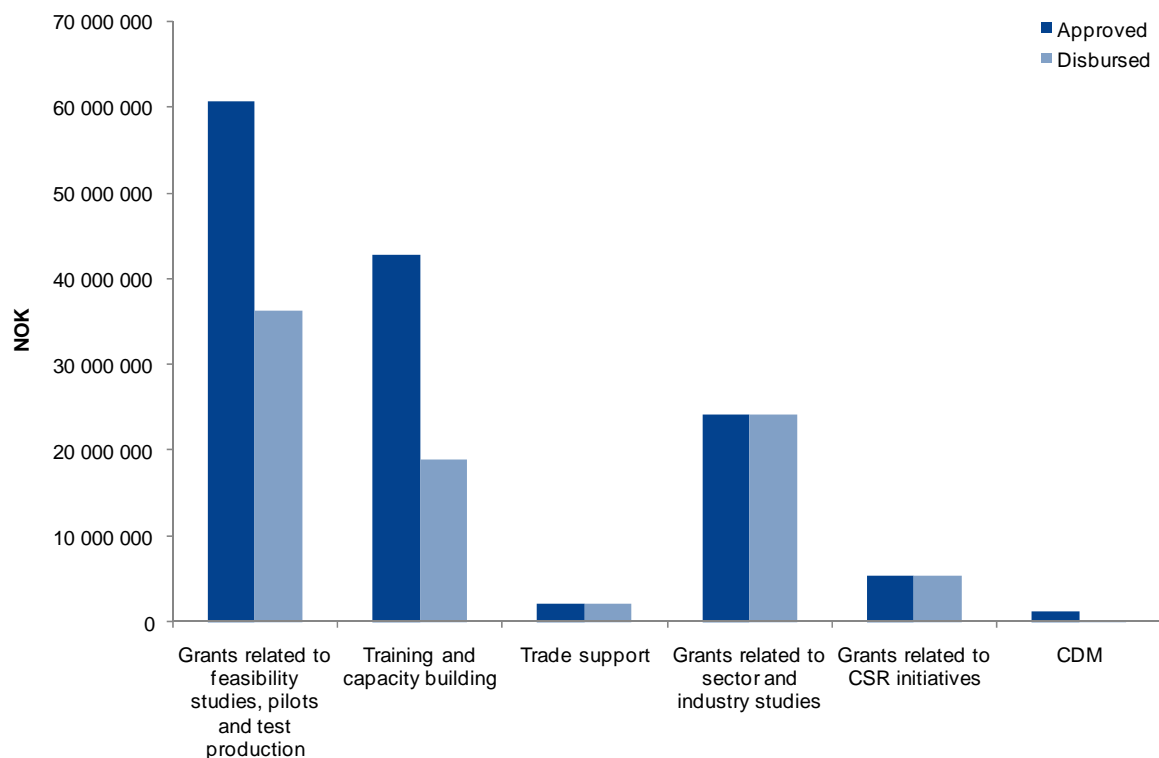


Figure A1.2 below illustrates the disbursements in relation to approved support for each of the windows.

Figure A1.2 The relation between approved and disbursed funds in 2009 (NOK)



Norfund

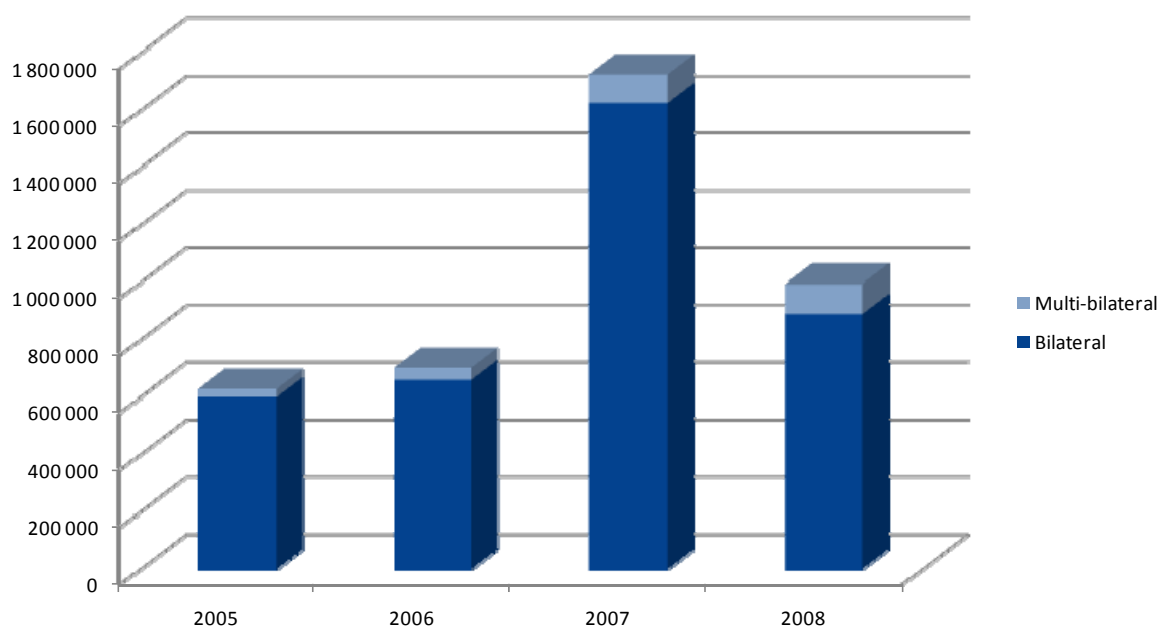
The Norwegian Investment Fund for Developing Countries – Norfund – was created by the Storting (parliament) in 1997. Its mandate is to contribute through investment capital, loans and guarantees, to the development of profitable and sustainable business activities in countries which have limited access to commercial financing because they represent a

high level of risk. Norfund's mission is to reduce poverty and create sustainable economic growth by investing risk capital in profitable businesses in developing countries.

Norfund, as an instrument of Norway's development policy, serves its purpose through investments in profitable companies and the transfer of knowledge and technology. As a development finance institution, Norfund aims to bridge the gap between commercial investments and State development aid. Support from institutions like Norfund, is typically placed in relatively high risk projects in order to mobilize the private businesses and companies. Creating additional value is the main purpose of all investments. This means that all investments whether direct or indirect through funds and/or other financial institutions should result in some sort of development in the countries invested in. This could be gender balanced employment taxes, health and maternity clinics and programs, better infrastructure, environmental programs etc.

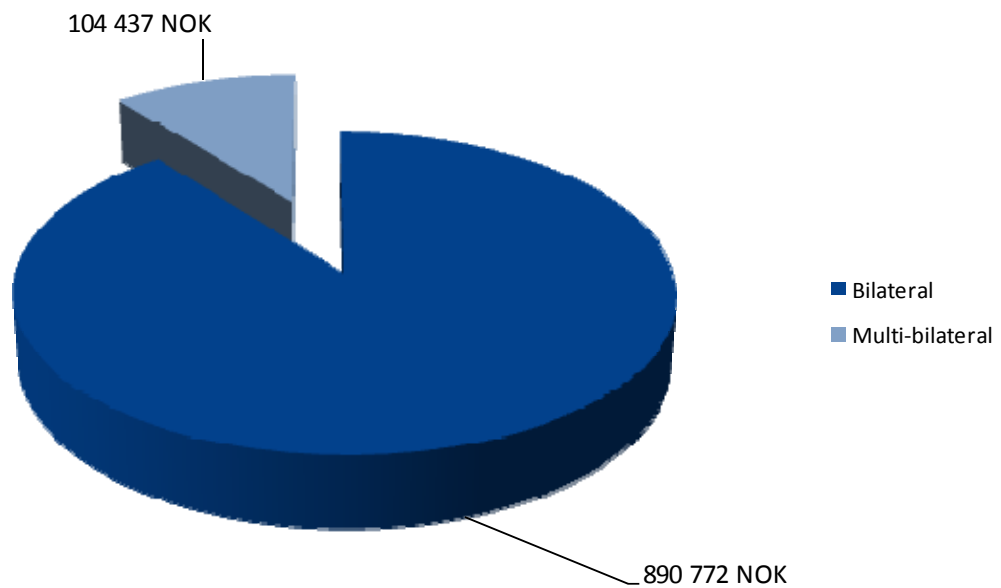
As of January 1 2009, more than 248,000 jobs have been supported by Norfund's investments and amongst them 49 percent of these were held by women. Further, some 3.2 billion NOK was paid in tax in developing countries, and 43 percent of the investments were done in least developed countries. The support invested through Norfund multiplies on the ground in developing countries. Norfund's investments in clean energy are usually done through SN Power where Norfund holds 40 percent of the shares (the other owners are Statkraft and private investors). Further, in clean energy projects SN Power owns 50 percent of the project, with a 40 percent equity share. Thus, when Norfund invests in clean energy projects they have a leverage factor of at least 1:10 on their investments. Norfund's total investment portfolio was NOK 5.3 billion as of end 2009, of which 45% was invested in renewable energy.

Figure A1.3 Norwegian bilateral and multi-bilateral support to energy 2005-2008



Source: Norad (Support to multilateral funds and programs with a thematic focus are registered as multi-bilateral ODA)

Figure A1.4 Norwegian energy related ODA in 2008



Source: Norad (Support to multilateral funds and programs with a thematic focus are registered as multi-bilateral ODA)

The Clean Energy for Development Initiative

As a response to the pressing needs for access to sustainable energy in the developing world, the Government of Norway has given high priority to energy and climate issues. The Clean Energy for Development Initiative (CEDI) is one element in achieving the Norwegian goals on these areas, including what was stated in the Norwegian Action Plan for Environment in Development Cooperation, and covers the period up to 2015. The main objective is to “increase access to clean energy at an affordable price based on the long-term management of natural resources and efficient energy use” and to “contribute to sustainable economic and social development in selected partner countries and to international efforts to reduce greenhouse gas emissions”¹.

The CEDI will take advantage of Norway’s competitive expertise advantages within the areas of energy technology and management. Since the Norwegian public-sector contribution will only cover a small piece of the total need, it is of key importance to use the funds in a catalytic way. The CEDI will involve both bilateral and multilateral efforts and support is to be tailored to specific countries and regions on the DAC list of ODA recipients. Support to NGOs will also increase.

Improving the framework for private-sector investments and public-private partnerships (PPP) is one of the core aims of the Initiative. This is planned to be achieved through facilitation of possible investment projects, establishment of national energy funds, strengthening of local capital markets and active use of guarantee instruments. Furthermore, the available financial mechanisms, including the CDM, will be mobilised, and support will be aimed at feasibility studies and training.

The CEDI will also take advantage of regional cooperation in the energy sector. To improve the situation of women, to include environmental concerns, and to make decision based on the developing countries’ own needs and strategies are other core fundamentals of the Initiative.

¹ Norad (2007): “Clean Energy for Development”, accessed via www.norad.no (2010-02-18)

To transfer Norwegian clean energy experience and expertise will require cooperation between several partners, such as ministries and directorates, companies, research institutions, universities and NGOs. Cooperation is specifically planned with power sector enterprises and hydropower and clean energy companies. The CEDI organisation consist of a Project group with representatives from the MFA, Norad and Norfund, and a Reference group consisting of representatives from other relevant ministries, institutes, academia, businesses and NGOs.

ANNEX II: WHAT OTHER DONORS ARE DOING?

Summary Text for Donors Reviewed

In Sweden, Sida's new guarantee facility focuses on seeking collaboration with already established guarantee facilitators, such as IFC, USAID and ADB. The UK supports existing mechanisms such as PPIAF, EAIF and UNEP Finance Initiative, but is also developing a new, innovative mechanism for private contributions to clean energy investments. Comparable to Norfund, the UK has its CDC group for private equity investments in emerging market funds. This is however not directly supporting projects. Both Germany and the Netherlands have development banks, the KfW Bankengruppe (Germany) offering loans and dealing with emission rights, and Ontwikkelingsbank FMO comprising equity, mezzanine, loans, syndicated loans, and guarantees. The Dutch development cooperation is the responsibility of the MFA, and in Germany, GTZ does not give any financial support, and an umbrella organization, develoPPP.de, comprises all PPP initiatives.

Sida - New Guarantee Facility

The main part of the new guarantee facility is aimed towards investments in infrastructure and environmental projects. A total of 5 billion SEK has been allocated towards this facility. The idea is that the guarantees will be marketed by the Swedish Embassies and be priced in such a way as to not distort the local markets. The guarantee will be untied. The aim is that the guarantee will support seven to ten projects under 2010. In order not to reinvent the wheel, Sida has been searching for partnerships with already established guarantee facilitators such as the IFC, USAID Development Credit Authority and the Asian Development Bank:

IFC. In January 2010, Sida signed an agreement with IFC to provide 1.2 billion SEK towards expanding the availability of trade finance in Central and Eastern Europe. The provision is for unfunded guarantees to global and regional banks that finance trade in these markets. This is part of the IFC lead Global Trade Liquidity Program. The unfunded guarantee will encourage banks to finance trade by assist to mitigate the credit risk of re-enter or expanding into emerging markets. IFC will manage the facility and match Sida's contribution.

USAID. The cooperation will consist of parallel guarantees with USAID where USAID will be the agent for collection and fee administration. For example, if USAID contributes 25%, Sida will match and contribute 25%. So far, the cooperation has not been formalised but the aim is to sign an agreement in February/March 2010

ADB. Cooperation with the ADB has been initiated with the aim to establish an Urban Development Infrastructure (UDI) facility for Asia. Sida has allocated SEK 500 million from the guarantee frame for the facility. The purpose with the UDI is to mobilise private capital for investments in environmental projects.

DFID – focus on innovation

DfID provides support to the Public-Private Advisory Infrastructure Facility (PPIAF). PPIAF is a multi-donor technical assistance facility aimed at assisting developing countries to improve the quality of their infrastructure by utilising private resources. In January 2002, DfID launched the Emerging Africa Infrastructure Fund (EAIF)² that had a capital base of USD 500 million and aim at provide long-term debt finance for infrastructure in sub-

² www.emergingafricafund.com/

Saharan Africa. EAIF lends on commercial terms and loans are provided without the need for political risk cover. The debt finance products offered includes senior debt in USD, Euro or local currency, mezzanine/equity as well as other financing on customary terms. DfID is also one of the funding agencies of the UNEP Finance Initiative.

Furthermore, DfID is currently undertaking research to assess new innovative mechanism. The report is due early 2010. Some of the potential finance mechanisms include

- Cornerstone funds: a private sector proposal for raising private finance for low carbon infrastructure. Such funds would use initial financing from institutional investors (pension funds) and then leverage further finance with assistance from fund managers to invest in low carbon energy in developing countries. Additional public support instruments would be required to share some of the risks related to such investments.
- Challenge fund: Such fund would offer packages of public support instruments to fund managers who would bid for the support by demonstrating how it would be used to leverage significant additional finance for developing countries.
- Low Carbon Advanced Market Commitments (AMCs): To guarantee a viable long-term market ad price for green technologies, giving the private sector the incentive to invest now rather than in the future.
 - The most widely used AMC is feed in tariffs, which guarantee a future market for renewable electricity at a fixed rate.
 - Other potential AMCs include:
 - Establish green mini-grids with telecom companies
 - Solar Challenge Fund: to bring down the cost of distributed solar thermal electricity generation.
 - X-prices offering substantial cash advances for developers of breakthrough technologies.

The CDC group plc is a Development Finance Institution (DFI), the UK government backed private equity emerging markets fund, with DfID as sole shareholder. CDC is not a direct investor but places its capital in 127 investment funds managed by 59 fund managers at end of 2008. CDC has no specific focus in terms of sectors but must invest 75% in low income countries and 50% must be in sub-Saharan Africa. Currently 2% of their portfolio was allocated towards 'cleantech', 14% to 'energy and utilities' and 10% to 'infrastructure'.³

Germany

The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH works on behalf of the German government in the field of development cooperation. The GTZ does however *not* contribute with any financial assistance for projects. This is instead provided by e.g. develoPPP.de or the KfW Bankengruppe, described below.

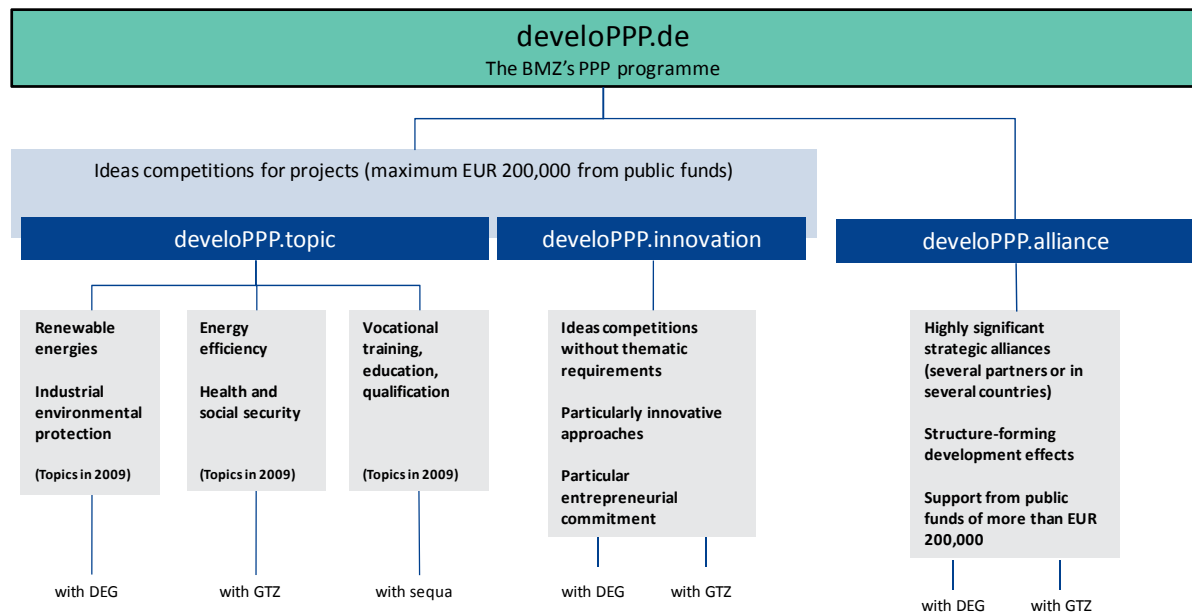
develoPPP.de

The develoPPP.de is financed by the BMZ and executed by GTZ, DEG and sequa. The program aims at supporting projects that benefit development in partner countries. It provides targeted funding for involvement of private enterprises, implementation of

³ www.cdcgroup.com

measures deemed to be extraordinary promising regardless of sector, and larger PPP projects. The activities are divided as shown in Figure A2.1 below.

Figure A2.1 The structure of develoPPP.de

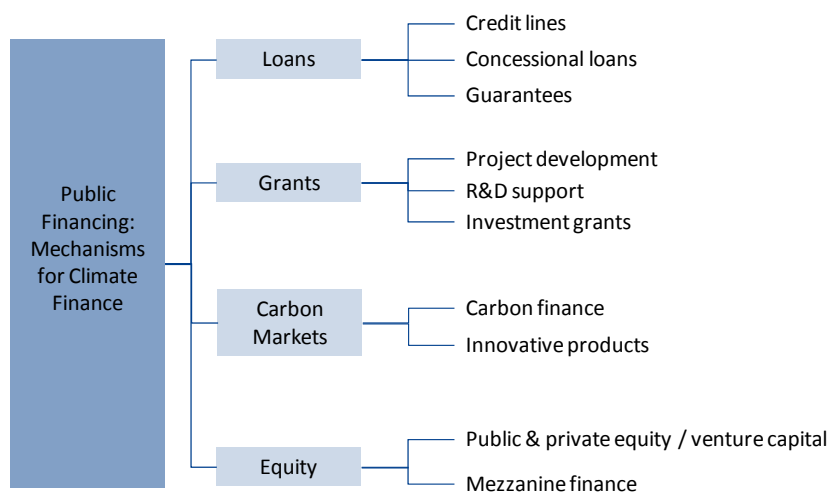


Source: *develoPPP.de – Public-Private Partnerships with the BMZ*, Federal Ministry for Economic Cooperation and Development, p. 12, own processing

KfW Bankengruppe

The KfW Bankengruppe is a promotional bank owned by the Federal Republic and the Länder (federal states). The KfW's mechanisms for Climate Finance are as shown in Figure A2.2 below.

Figure A2.2 KfW's funding mechanisms



Source: Based on information in KfW Entwicklungsbank (2009): "International Financing Instruments for Renewable Energy Projects" – A presentation by Frank Bellon on the German-Chilean Renewable Energy Conference (2 July 2009)

In 2008, the KfW committed EUR 340 million for renewable energy (RE) investments (excluding large-scale hydropower). Financing instruments targeting RE include:

- **German International Climate and Environment Program (IKLU)** – at least EUR 2.4 billion in low-interest loans until 2011. Implemented by the German Federal Ministry for Development (BMZ) and the KfW.
- **German International Climate Initiative (IKI)** – EUR 120 million annually for financing projects with climate relevance. Implemented by the German Federal Ministry for the Environment (BMU).
- **Carbon Funds** – covering two periods; 2008-2010 and post-Kyoto. Emission rights are bought from JI or CDM projects and sold to German and European firms.

Other members of the KfW Group include Deutsche Investitions- und Entwicklungsgesellschaft (DEG), supporting and financing private firms' investments in long-term projects in emerging and developing economies, and IPEX Bank, financing exports in the environment and energy sector.

The Netherlands

Some of the financial mechanisms for boosting private sector participation, managed by the Dutch development cooperation structure are listed below. All of them are not specifically targeting the energy sector, but may be used for this purpose as well.

- **ORIO** is a Facility for Infrastructure Development, funded by the Dutch Minister for Development Cooperation, and aims at encouraging development of public infrastructure in developing countries. Governments, on initiatives from private actors, may apply for grants to support development, implementation, operation and maintenance of public infrastructure.
- **Package4Growth** is a subsidy program supporting Dutch companies' investments in China and India in selected sectors, of which energy sustainability is one. 50 percent of the investment, or maximum EUR 200,000, can be subsidized. Applications should relate to durable capital goods (excluding land and real estate) or directly related expenses. For 2010, the disbursement ceiling is EUR 2 million.
- The **Private Sector Investment program (PSI)** offers financial contributions to the investment costs when a Dutch (or foreign) company teams with a local partner in a developing country in order to implement an innovative investment project.

Ontwikkelingsbank FMO

Ontwikkelingsbank FMO (FMO) is the Dutch entrepreneurial development bank with an investment portfolio of EUR 4.2 billion. The Bank provides financing where regular banks are not willing to do so, and the services comprise equity, mezzanine, loans, syndicated loans, and guarantees. The FMO has access to governmental funds, and provides local-currency funding in order to mitigate currency risks.

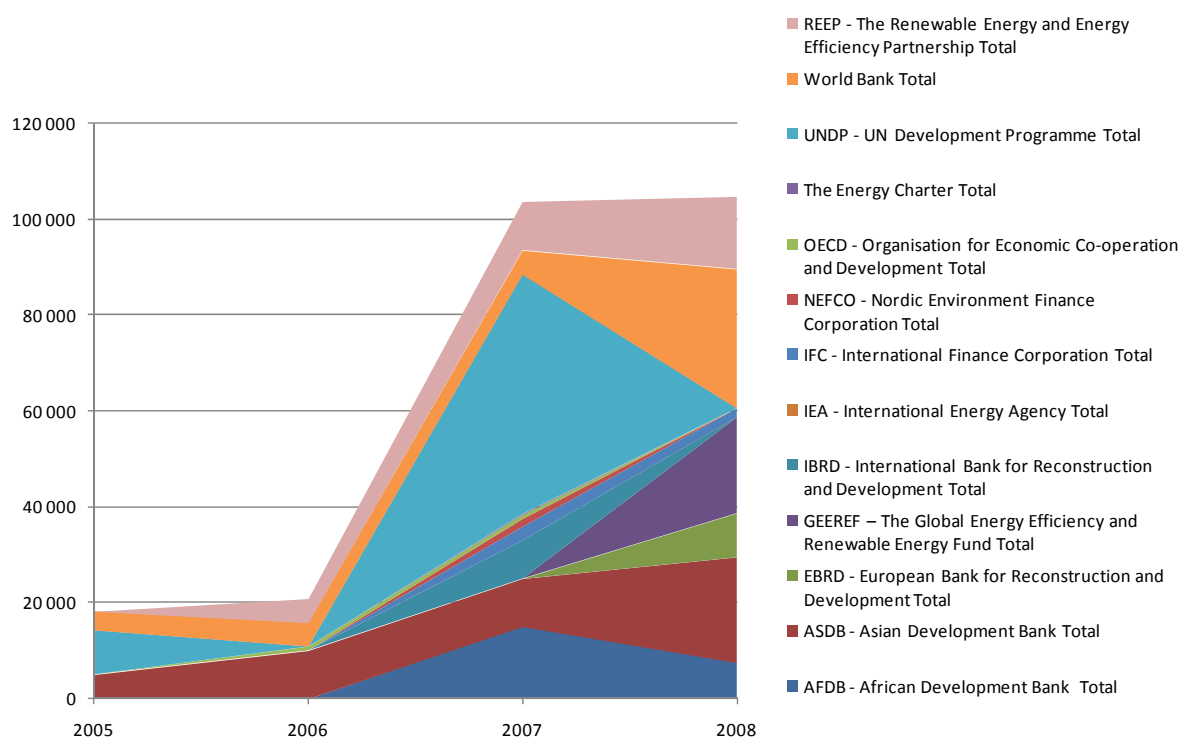
The FMO manages the **Fund Emerging Markets (FOM)**, which contributes with equity, loans or guarantees to projects where “the Dutch sponsor contributes to strengthening the financial structure of the local enterprise and is prepared and able to provide certain guarantees”⁴.

The FMO is also responsible for the **Infrastructure Development Fund** (an offshoot of the ORET grant program), which aims to stimulate private investments in private or public-private socio-economic infrastructure (e.g. power) projects in developing countries. The Fund offers long-term financing (up to 20 years), loans of up to EUR 15.5 million, equity of up to EUR 7.75 million, and grants for development of new projects.

⁴ www.fmo.nl (2010-02-17)

ANNEX III: REVIEW OF POTENTIAL MULTILATERAL CHANNELS FOR SCALED UP NORWEGIAN SUPPORT

Figure A3.1 Clean Energy channeled through multilateral institutions (kNOK)



The main multilateral channels for Norwegian support in the Clean Energy Initiative are the World Bank Group and the Renewable Energy and Energy Efficiency Partnership (REEEP). Norwegian support through the World Bank in energy related issues is mainly channeled through the Norwegian Trust Fund for Private Sector and Infrastructure (NTF-PSI). The funds to Energy Sector Management Assistance Program (ESMAP) and Lighting Africa are amongst the initiatives supported through the NTF-PSI. Norway is also funding specific project on country level through the World Bank system outside the trust fund. About 70 million NOK is allocated annually through NTF-PSI.

The NTF-PSI has four broad defined thematic windows:

- Investment Climate and Governance
- Infrastructure Service to the Poor
- Existing Global/regional Private Sector Oriented Multi-Donor Programmatic
- Petroleum Governance Initiative

The table below presents a summary of many of the more obvious potential destinations for Norwegian funding to target clean energy channeled through multilateral channels. The majority of the mechanisms listed in the table have at least one private sector angle, directly supporting clean energy projects, implemented by private actors. However, the two last ones, UNEP and REEEP, are broader mechanisms. They are however included as they contribute to a larger context of policy and regulation dissemination, key aspects for private investments in renewable energy projects.

Table A3.1 *Overview relevant multilateral mechanisms*

Name	Short description (including size)	Type of projects	Norwegian money? How much?
WB Scaling Up Renewable Energy Program in Low Income Countries (SREP)	The aim is to pilot and demonstrate the economic, social and environmental viability of low carbon development investments. Total pledge is USD 210.7 million.	Supports country programmes and regional programmes. Financing would be available for renewable energy generation and technical Assistance	Norway has pledged USD 26.5 million. Norway's share: 12.6%
Climate Investment Fund (CIF)	Administered by WB. Two trust funds: Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). CTF: pledge: USD 4 958 mn, deposited: USD 483 mn SCF: pledge: USD 2,000mn	CTF finances demonstration, deployment and transfer of low carbon technologies. SCF target programmes funding new approaches, such as SREP above.	CTF: none SCF: USD 176 mn Norway's share: 8.8%
WB Africa Renewable Energy Access Grants Program (AREAGP)	Aim to improve public and private sector capacity for renewable energy in SSA; catalyse additional investment for renewable energy; and expand access through renewable energy projects. USD 28.75 mn	Supports larger programmes such as Lighting Africa and country programmes. Also funds pre-investment activities to accelerate deployment of renewable energy projects.	No detailed info
IFC	Products: Senior debt; Structure finance; Mezzanine finance; private equity; sustainable finance; and advisory services. Total capital of IFC: USD 2.4 bn	Private sector projects within all sectors. To be eligible, projects must be profitable, benefits the host country and comply with stringent standards.	Norway: USD 15,44 mn Norway's share: 6,2%
NDF - Nordic Climate Facility	NCF aim to facilitate transfer of technology, know-how and innovative ideas between Nordic and low-income countries. NDF: Euro 330 mn	Must be carried out by Nordic agent with local partners. Calls for proposals every year within e predefined theme	Norway: Euro 74 mn Norway's share: 22,4%
Post-2012 Carbon Credit Fund (CCF)	Consortium of EIB, Caisse des Depots, Instituto de Credito Official, KfW Bankengruppe and NIB. Euro 125 million	Purchasing Koyoto compliant carbon credits generated after 2012. Eligible projects include renewable energy, energy efficiency, CCS among others.	No info
Global Environment Facility (GEF)	Assist developing countries fund projects to protect the environment. GEF-4 funding (2006): USD 3.13 bn	Any one can propose a project, which must fulfil: 1) Reflect national priorities and have support of the involved country 2) Improve global environment	Norway: NOK 228,32 mn Norway's share: 1,44%
The Global Energy Efficiency and Renewable Energy Fund (GEEREF)	A global risk capital fund, using public and private money to invest in small scale energy efficiency and renewable energy projects in developing countries: Commitment: Euro 110 mn	Private equity funds dedicated to SME (Euro 5-10 mn) projects in developing countries. Renewable energy and energy efficiency	Norway: NOK 80 mn
ADB Funds*	Clean Energy Financing Partnership Facility (CEFPF): Clean Energy Fund (CEF), Climate Change Fund (CCF), Asia Pacific Carbon Fund, Future Carbon Fund. CEF: USD 16.2 mn	Investments include: deployment of new technologies, projects that lowers barriers to adopt clean energy technologies, increased access to modern energy	CEF: Norways contribution USD 3,2 mn Norway's share: 19,8%
UNEP	UNEP Sustainable Energy Finance Initiative: aim to promote,	No specific projects Focus: to facilitate networks and	No info

Name	Short description (including size)	Type of projects	Norwegian money? How much?
	facilitate and support increased investment in energy efficiency and renewable energy.	create partnerships, link donor funding with the finance sector to buy down and share risk.	
Renewable energy and energy efficiency partnership (REEEP)	Aim to reduce barriers that limit the update of renewable energy and energy efficiency technologies. 7 th project cycle: Euro 4.7 mn Funds received 2008/09: Euro 6,47 mn	Two target areas: 1) Assisting governments to create enabling regulatory and policy frameworks 2) Promoting innovative finance and business models to incentivize the private sector	Norway: Euro 1,87 mn in 2008/09

* Note: ADB REACH has been replaced with 'Clean Energy Programme', 'Energy for All', 'Clean Energy, Energy Efficiency, and Climate Change Program (CEFPF) and Climate Change Fund (CCF) from 2009.

In terms of determining the appropriateness and completeness of each of these multilateral channels against the bottlenecks as presented in the pyramid framework, it proved difficult to carry out a high level review as was done for Norwegian mechanisms. This is primarily because most of the multilateral channels address several of the bottlenecks. Thus, the team has carried out a two stage high level review, whereby; i) four multilateral channels were short listed based on a review against relevance against all bottlenecks, and; ii) specific channels are singled out based on criteria similar to the guiding principles presented in the main report and in Annex IV.

Table A3.2 Review of Multilateral Mechanisms

		Evaluation Criteria				
		Comp advantage, Norway	Leverage factor	Targeting the poor/society	Size of project	Effective implementation structure in place
Multilateral Mechanism		Yes/No	Low/High	Direct/ Indirect	Small/ Medium/ Large	Yes/No
	SREP	Yes	Not known	Direct	Small/ Medium	No
	WB AREAGP	No	Low	Direct	Small/ Medium	No
	IFC	Yes	High	Indirect	Medium/ Large	Yes
	GEEREF	Yes	Potentially high	Direct	Small/ Medium	Yes

SUMMARY

Based on the brief overview presented in the table above, it is evident that Norway is engaged in a number of funds and initiatives already. However, there is room for strengthening the Norwegian support to increased investment in renewable energy. In order not to re-invent the wheel, Norad should aim to piggy back on some of the ongoing initiatives and mechanisms. Three main paths are recommended:

1. The newly established **SREP** is one initiative where Norway can be an active key donor from the start and affect the way forward, how funds are being used and contribute to results.

2. For large scale renewable energy projects, **IFC** is one of the key facilitators of finance. Starting up, or intensifying, cooperation with IFC would mean that Norwegian money would benefit from the institutional capacity built up within IFC, the Norwegian funds can be matched with the IFC project pipeline and Norad would contribute to leverage private capital without having to take the administrative burden in-house.
3. The newly established **GEEREF** is targeting small and medium scale projects, often ignored by other funds. As SMEs will play a key role in increasing access to modern energy and contribute to curb the climate change, contributed Norwegian support to this fund is recommended. As it is a new fund, tangible results are yet to materialize. However, the benefit of being a new fund is that Norway, as one of the contributors can affect the way forward. The European Investment Bank and the European Investment Fund provide advice to the GEEREF. Norway and GEEREF will hence benefit from their institutional expertise in developing countries as well as their fund management experience.

ANNEX IV: BOTTLENECK MATRIX

Colour coding:

L	Low
M	Medium
H	High

The colour coding reflects the importance of the bottleneck to Norad in terms of financial support to overcome the bottleneck.

Issue	Description	Is this a bottleneck to reach FC? From a financial sector (banks etc) perspective	Comment reg solution - can this be overcome with donor supported financial instruments?
Technological Maturity			
M Valley of death	A funding gap emerge when technologies are taken out of the laboratory as the business risk is seen to be significant due to high cost of production and low market demand.	Yes, banks tend to be reluctant towards new technologies. These are high risk projects.	A range of interventions can be applied such as venture funds, technology incubators and soft loan funding. The range and design will differ in line with the maturity of the financial market.
M Lack of project development capital and capacity	High project development costs required to bring a new technology from an idea to commercialisation on the ground.	Not for banks but a bottleneck for the developers to take the new technology to the banks for further development funding. Due to the high risk and high transaction cost, developers fail to progress the technology through all the phases.	Project development grants
M Debt-equity gap	Unfamiliarity with the technology among the lenders/credit institutes may hinder access to debt while the project developer has difficulties sourcing the equity part.	Yes, due to financial sectors lack of knowledge and trust in new technologies.	Credit lines, guarantees and project equity can be structure to close this gap, depending on context.
L High risk	The risks faced by the private developed are perceived to be high as the technology is unproven or if the market is uncertain.	No. This is rather a business challenge when it comes to developing new technologies	Through risk mitigation instruments

Issue	Description	Is this a bottleneck to reach FC? From a financial sector (banks etc) perspective	Comment reg solution - can this be overcome with donor supported financial instruments?
Project Preparation			
<p>H</p> <p>Utility as off taker</p> <p>1. Low credit worthiness of national utility/off taker</p> <p>2. Take up/connection rate</p>	<p>1) Many developing countries are not rated by credit institutes;</p> <p>2) National utilities are struggling to be financially viable and are hence seen as risky off-takers of the produced electricity, low creditworthiness of the utility.</p> <p>An IPP will try to secure its future revenue stream by signing a PPA with an off taker, mostly the national utility. Such PPA can be agreed on a take or pay basis in order to assure the producer of a certain level of revenue stream while also assuring the national utility of a certain level of supply into the national grid. An off taker can also be a larger industry or industry park. Such agreements must be in place before project planning has come to far as the projects financial viability rely on such off-take agreement.</p> <p>PPAs are complex agreements and includes a number of key paragraphs relating to risk allocations. Capacity to negotiate PPAs are often lacking in energy markets in developing countries as private sector participation in the energy sector is still at its infant stage.</p>	<p>Yes.</p> <p>Lenders and investors are not willing to engage in projects in which the revenue stream can not be guaranteed.</p>	<p>Could be over come by the project by selling to alternative buyer, such as a larger industry which has better financial standing. If the utility is the sole eligible off-taker, the issues can be settled through a PPA, with a take or pay setting.</p> <p>With proper funding for pre-feasibility and feasibility studies, this risk can be reduced. Support to the design of necessary agreements between the investor and the off taker could be a donor facilitated intervention.</p> <p>MIGA does not cover this risk.</p> <p>USAID has a programme in Africa - Mobilizing Finance for Clean Energy Deployment, 2007-2010: they provide energy and financial experts to support project development, including PPAs</p> <p>PPAs often need backup by government guarantees.</p>
<p>H</p> <p>Pricing of RE:</p> <p>1. Low overall regulatory tariffs;</p> <p>2. Unfavourable pricing rules for RE</p>	<p>Tariffs in many developing countries are not on cost reflective levels.</p> <p>Renewable energy feeding into the power grid may not be fully appreciated due to:</p> <p>1) renewable energy production is often located near consumers and need not transmission and distribution. However, utilities may pay whole-sale price for the energy, as if it required transmission and distribution. Hence the 'locational' value is not captured.</p>	<p>Yes.</p> <p>The 'below-cost-reflective' tariffs and the competitive disadvantage faced by renewable energy set the revenue stream and debt repayment at risk.</p>	<p>A regulatory issue in most cases, not a quick fix as moving towards cost reflective tariffs is a rather political issue in many countries. A subsidy should be just large enough to incentivise and not distort the market. This needs careful design.</p> <p>Could an international/national feed-in tariffs fund be introduced to boost development of renewable energy?</p>

Issue	Description	Is this a bottleneck to reach FC? From a financial sector (banks etc) perspective	Comment reg solution - can this be overcome with donor supported financial instruments?
	<p>2) Renewable energy is an intermittent source as the output relies on the resource. As such, the off taker (utility) can not count on supply at any given time & hence require a lower price for the output. Two forms of lower price are common: i) zero price for capacity value of the generation; ii) average price being paid at peak times when the electricity is valued at highest by the utility.</p> <p>In addition, when it comes to subsidies/ incentives, clean energy technologies and renewable energy is often disadvantaged in relation to conventional fuel. Large subsidies on conventional fuel, lower the final price and put renewable energy at competitive disadvantage.</p>		
<p>H Perceived technology performance uncertainty and production risk</p>	<p>Developing country utilities that have used a certain standard and technology for several decades might be reluctant to take on new technologies as supplier to the national power grid. New low cost or clean technologies need to prove themselves before being able to be applied at larger scale. <u>Local technology champions</u> will be needed to prove a technology.</p> <p>In addition, consumers may also be reluctant towards new technologies which entail a risk in terms of projected sales volumes. Some argue that 'why should I have solar panels when the urban area is getting grid electricity'.</p> <p>An extensive information and awareness raising campaign will be required to set renewable energy at equal stands as tried and tested conventional technologies.</p> <p><u>Uncertainties in regards to how the ongoing</u></p>	<p>Yes.</p> <p>Uncertainty regarding the performance of RE technologies in a combination with the unsecure supply/production risk due to changing weather conditions.</p>	<p>In terms of changing the mindset among utilities and other power sector authorities, this bottleneck is being targeted through various donor funded capacity building programmes to REAs etc in developing countries. However, capacity building is a long term process. The change from conventional technology to new, clean energy technologies is also a long term process that might require more than one champion; preferably, each country will need a champion per technology as scepticism exists towards pilot projects/champions existing in other countries.</p> <p>However, the financial sector is not as involved in these capacity building programmes. By involving the financial sector in the development of the power sectors, their level of knowledge will be steadily increased.</p> <p>A number of derivatives and insurance policies to manage resource and weather risks are being developed.</p> <p>The information gap is being targeted through match</p>

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	<p><u>climate change</u> will affect electricity production levels using hydro, wind and solar. In terms of energy for fuel, ethanol production might also be affected due to dryer conditions for growing the necessary input.</p> <p>Clean energy technologies are still an upcoming sector in many developing countries and hence <u>the required skills in terms of installation, operation and maintenance may not be present</u>. An international investor can fulfil such short comings but international lessons (from WB) show that most renewable energy projects are being implemented by local companies. Also, to assure long-term sustainability of a project, local capacity to run the project will be necessary. Skills may not only be lacking on the technical side but also in terms of financial and business development skills. For a project to be sustainable, capable local project developers, working with an international developer, is often a key to success. However, the identification of capable local project developers has been one key barrier highlighted by international investors. <u>An Information gap</u> exists regarding identified projects, capable local partners and available funding.</p>		making programmes, se below.
<p>H The lack of fuel price risk is not acknowledged.</p>	<p>Projection of future price of fossil fuels entails an uncertainty when projecting future energy prices using conventional energy sources. Renewable energy (except biomass) does not have this fuel price risk (however there might still be a supply risk due to climate change). This benefit, or a potential risk-reduction-premium, is most often missed out in the analysis as the benefit is difficult to quantify.</p>	<p>Yes, without the 'risk reduction premium' the projects might be financially unviable and hence not attract the necessary funding. This is a barrier for RE projects as they are disadvantaged in relation to conventional energy projects as they are not given the benefit of being able to avoid the fuel price risk.</p>	<p>Renewables should be given a 'risk-reduction-premium' as they do not rely on future fossil fuel projections. On the other hand, renewables have the supply/production level risk outlined below. Public funds can be used to provide a risk reduction premium for RE projects.</p>

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		Hence, banks tend to compare conventional energy projects and RE projects on unequal criteria.	
<p>M</p> <p>Consumer as off takers</p> <p>1. Perception of low ability to pay and WTP</p> <p>2. Risk of not achieving the projected connection rate</p>	<p>A general perception is that rural households, or urban poor, have a low ability and willingness to pay for electricity or alternative energy sources. However, several studies show that both the ability and willingness to pay is at levels required to be able to afford the new services. The cash flow in these settings differ from the conventional monthly cash flow that urban households have and that conventional electricity providers are used to. Monthly electricity bills are hence more suitable for areas where income flows are steady on a monthly basis. In rural setting and peri-urban settings, pre-paid electricity might be a more suitable option, or a strengthened cooperation with MFIs to provide credit or savings products. To overcome the ability to pay (in terms of irregular cash flow), MFIs could be a key counterpart to assist end-users with a credit or with a savings facility. In addition, for rural projects, a comprehensive market assessment requires detailed and sometimes expensive fieldwork. Such a cost can entail a barrier for a SME but is crucial in order to take the project to financiers in order to prove the income stream.</p>	<p>Not a bottleneck from a bank perspective but rather from a SME perspective.</p> <p>However, if no solid feasibility and market assessment is done, the project can not be taken to the financiers.</p> <p>Financiers might be reluctant due to the perception that the market is uncertain. Lenders and IFIs do not have deep knowledge about these markets and how these market function. They are hence reluctant to provide support to RE projects, especially smaller, rural projects with often disbursed markets.</p>	<p>1) Could be overcome by support to MFIs. This has been done for SHS in Bangladesh where MFIs install systems, extend microcredit to finance the systems, provide maintenance during the repayment period, deliver training on O&M of the SHS. With the support from properly designed instruments through MFIs, rural households and entrepreneurs could get support to connect to the project as well as to pay the consumed electricity.</p> <p>2) Lenders and IFIs need deeper knowledge about this 'new' market segment as well as a security that the market will generate the necessary revenue flow to pay off debt.</p> <p>With proper funding for pre-feasibility and feasibility studies, this risk can be reduced through detailed market assessment. This is linked to issues of high transaction costs below. Funds for pre-feasibility studies are available, but do they reach all segments, small, medium, large scale investors? Are they successful, ie how many projects that have received support reach financial closure and get implemented?</p>
<p>M</p> <p>High transaction costs</p>	<p>Costly and lengthy pre-feasibility and feasibility studies entail a high transaction cost for investors which mean high risk. The additional resource assessment, siting, permitting, planning, develop project proposal, negotiate PPA and assess financing package, might be larger per kW than for conventional power plants.</p>	<p>Not for banks but a bottleneck for the developers to adequately prepare the project in order to take it to the project to the banks.</p> <p>Due to the high risk and high transaction cost, project developers fail to progress the projects through all the phases. Hence, projects do not reach</p>	<p>Many donors are already offering a mechanism to overcome this barrier. For example the SREP fund include mechanism to overcome this barrier. Sida has a facility called DemoMiljö, supporting pre-feasibility studies for pilot projects. However, a number of Swedish energy actors have argued that the administrative process is too slow. A fast track mechanism for support for pre-feasibility studies</p>

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		a preparation that is adequate enough to take it to lenders/investors.	could fill this gap. Are these mechanisms quick enough? Sufficient and flexible enough to provide the right incentive?
M No benefit consideration of the production of positive externalities - public good	A private investment in renewable energy produce local and global benefits such as zero or lower greenhouse gas emissions (or no/low pollution), improved energy security, promote local employment and income generation. While such benefits make renewable projects economically attractive such benefits are not taken into account from an investors point of view and hence not in the financial viability analysis.	Yes, without the public benefits the projects might be financially unviable and hence not attract funding. This barrier pushes for the use of public funds being used in RE investments. However, in developing countries, the public funds are limited in relation to the investment needs. Public funds could act as a catalyst as they require lower return than private capital and is hence lower cost financing. This barrier strengthens the arguments for the use of PPP (Public Private Partnerships) in RE projects.	CDM mechanism could be used in terms of the reduced emissions but no special mechanism is in place for other public benefits. As local and global benefits are not cash flows, they can and should not be included in the financial analysis. A renewable project must hence be financially viable 'on its own'. However, for projects with high public benefits, the call for PPP set up becomes crucial. Public funds are a lower cost financing and could assist the project to be financially viable. Public funds in structuring the equity/debt of a project in a PPP setting.
L High upfront capital cost	Renewable energy tend to cost more on a per unit basis (\$/kW). On a lifecycle cost basis, renewable energy technologies are in general at lower cost. Lifecycle costs include initial capital costs, annual fuel costs, annual O&M costs, decommissioning and equipment lifetime. The uncertainties lie in the uncertain projection regarding future fuel costs/supply. However, the higher initial upfront capital cost per installed capacity requires higher amounts of initial funding for the same capacity. This may mean, depending on situations, that capital markets require a higher premium in lending rates as more capital is being put at risk.	No. If the project is good enough, this should not be a challenge/barrier in order to reach FC. This is rather a business challenge for RE in general.	If the project is good enough, this should not be a challenge/barrier in order to reach FC. This is rather a business challenge for RE in general. In order to be able to generate power at a competitive price, the high capital cost associated with renewable energy technologies need to be amortized over a long period, hence long-term debt is necessary. Grants/Subsidy to reduce capital cost is being offered through most REAs.
L	A risk to project developers, post FC	Not a barrier to reach FC per se.	Mitigated through EPC contracts. No mechanism covers the risk

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Construction Delays			
L Breach of contracts	A risk to project developers	An indirect risk/barrier to reach FC depending on the experience and capacity of the project developers and their contractors.	ICSID provides arbitration facilitation. No mechanism to avoid this risk
Carbon finance			
M Uncertain 2012 world and price levels	Currently, many initiatives and projects in pipeline are being kept on hold due to the uncertainties related to COP-15 and the Post-Kyoto commitments.	To access carbon finance mechanism a project must be eligible according to the 'additionally' condition, ie the planned reductions would not occur without the additional incentive provided by the emission reduction credits. As many developing countries need many of the projects for their basic energy supply, projects can fail to be eligible. COP 15 failed to reach commitment, uncertainty prevails.	High importance but can Norad on its own overcome this barrier? Is this a true barrier or would many projects in fact be financially viable even without the extra carbon finance (additionality requirement)? Or at least with subsidy support from a REA etc?
M Uncertain registration	Currently, many initiatives and projects in pipeline are being kept on hold due to the uncertainties related to COP-15 and the Post-Kyoto commitments.	As above	As above
M Uncertain level of actual delivery	Currently, many initiatives and projects in pipeline are being kept on hold due to the uncertainties related to COP-15 and the Post-Kyoto commitments.	As above	As above
Market Segment			
H Lack of access to credit as well as debt and equity, large projects	While low equity shares are preferred by sponsors, policy planners should be aware that debt financing in excess of 70-80% can create an unfavourable financial/tariff situation. In particular, if the debt has a relatively short payback period (e.g. <10-15years), then the	Yes. Unfamiliarity with the technology among the lenders/credit institutes may lead to higher required rates of return, result in less capital availability or place tougher requirements on	Several mechanisms aim to overcome this barrier. However, most target larger project and/or larger companies with solid financial standing only. Increased access to modern energy often mean increasing access in rural areas where the population is disbursed. As such, rural energy projects are often

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	<p>tariff will have to be set high during the payback period in order to ensure liquidity in the project company. This type of project situation will likely lead to a high tariff during payback, thus also having financial implications for the single-buyer and/or consumers.</p> <p>Given current difficulties in raising long-term debt finance could thus imply that countries should consider a lower limit of around 30% on equity contribution. In this case, the public sector will likely have to contribute with some equity finance.</p>	<p>which technology to apply and/or how to carry out the resource assessment.</p> <p>In addition: the financial sector is unable to assess risk; low ability to assess financial viability; look at borrowers assets rather than future cash flow; weak local bank sector; venture capital reluctant; pension funds unused.</p>	<p>of smaller scale (mini-hydro's of <5MW, stand alone SHS etc) and do not fall under the 'traditional' IFIs target projects.</p> <p>Large project, such as Bujagali HPP in Uganda took several years to reach FC due to the complex financial set-up as well as environmental considerations. Another example is the Moraca HPP in Montenegro which has been under preparation since the 80's without reaching FC.</p> <p>To boost electricity rates in the developing world, mechanisms to support smaller projects are needed.</p>
<p>H</p> <p>Lack of access to credit and debt for SMEs</p>	<p>SMEs have lower financial, managerial and technical expertise. There is little experience with regulatory framework for small providers, commercial banks are reluctant to finance small scale, off grid, rural projects due to lack of experience and perception of higher risk. Smaller providers need guidance in transforming ideas and proposals into bankable business plans.</p>	<p>Yes,</p> <p>Banks are reluctant to provide finance due to lack of experience and perception of higher risk.</p>	<p>As written above, rural energy projects are smaller and could be implemented by SMEs actors rather than large multinational/international companies. However SMEs lack both the financial, technical and management skills required to pull projects into bankable status.</p> <p>Donor support is needed to 1) increase capacity among SMEs 2) increase access of SMEs to funding options.</p> <p>Many capacity building SME programmes have been implemented in the developing world. Have they been successful in terms of projects implemented?</p>
<p>M</p> <p>Perceived lack of models for rural electrification, a knowledge barrier</p>	<p>Many models are being discussed but there is yet to be a champion model. However, a champion in Bangladesh might not be suitable for Angola and many models can be suitable depending on the setting.</p>	<p>Yes.</p> <p>The barrier to reach FC for rural electrification projects mainly consist of the unfamiliarity of the context and uncertainty of the new and yet unproved business models.</p>	<p>Generic guiding principles could be developed but tailor-made to each project. There is no easy fix. When a project has been identified, mapping of already established local network/infrastructure should be developed and utilised. For example MFI networks, mobile phone dealers network etc.</p>

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<p>L</p> <p>Perceived lack of bankable projects</p>	<p>There is a perception that there is a lack of projects, or at least, the projects that exist are high risk. However, there are many projects in the pipeline but they need to 1) be matched with potential investors 2) be subject to design of appropriate financing structure. Many projects suffer from over planning on the technical side and fail to be implemented as no consideration has been taken in regards to finding suitable financial structures, ownerships models, delivery models etc.</p>	<p>This is not a barrier to reach FC. Projects exist but the barrier consists of a mismatch of projects with capable investors and a mismatch of potential international investors with local investors.</p>	<p>Many match making platforms are being proposed and tested. Sida has changed their donor role in some countries and are now working on 'Selective Cooperation (Aktörssamverkan)' which means that they aim to support private sector investments, matching Swedish actors with actors in the selected countries. However, this has not yet resulted in any tangible results.</p> <p>Many of the other 'match making platforms' are struggling to 'take off'.</p> <p>A more pro-active match making facilitation might be needed for international actors to 'find' the suitable partners and projects.</p>
Country conditions			
<p>M</p> <p>Changes in tariff levels</p>	<p>Lack of adherence to regulatory framework or lack of regulatory framework and an independent regulator might lead to unfavourable changes in the tariff levels.</p>	<p>No as a PPA should eliminate this risk. However, a PPA must be backed up by a government guarantee. If such cannot be issued, then this is a bottleneck to reach FC as no solid PPA can be put in place.</p>	<p>Donor funds can provide technical support to increase national capacity to develop and negotiate comprehensive PPAs</p>
<p>M</p> <p>Local Currency risk which limits foreign investment</p>	<p>Unstable local currencies risk the revenue stream and the debt repayment, which is often in foreign currency.</p>	<p>Yes, if loan is in foreign currency but revenue is in local currency, unstable local currency is a risk for debt repayment.</p>	<p>MIGA provides guarantee, see comments above. Financial instruments tend to require that: 1) if instrument is in USD, payments under the project should be in USD or 2) if instrument is given in local currency, payments under the contract should be given in local currency.</p> <p>There is a special Currency Exchange Fund supported by the Dutch Ministry for Development Cooperation.</p>
<p>M</p> <p>Current account deficit which limit national governments borrowing power.</p>	<p>Limits the amount of local public funds available</p>	<p>Yes, since the use of public funds in project financing lowers the cost.</p>	<p>Donor supported guarantee instruments</p>

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M Inflation which drives up interest rates.	Eroding the investment	Yes, in countries with highly fluctuating inflation, the project risk to impoverish the project revenue stream for debt repayment.	Guarantee instruments
L Expropriation	Perceived risk of nationalisation of private companies and projects. However, most developing countries have clear guidelines on when expropriation can be applied and how the private actor will be compensated.	Not perceived as a major risk in most developing countries. Most countries have developed transparent investment acts that are in line with international standards. If expropriation is in fact deemed necessary, it must be due to national security concerns and private actor will be compensated.	MIGA provides a guarantee even for SM-investors, but before an SM investor can apply, they must have business and financial plans and financial projections in place. This might create a barrier to the application of guarantee from MIGA as lack of financial and management skills is a barrier for SMEs in developing countries.
L War	Still a risk in some parts of the developing world.	Only in post-conflict and unstable countries.	As above
L Social and environmental requirements	Strong social and environmental lobby groups have emerged as a results of badly managed hydropower projects, mainly in Asia. Strong environmental and social concerns can stop a project to reach FC.	Strong environmental and social concerns can stop a project to reach FC. It is not banks that set this barrier but rather NGOs and other environmental actors. However, to access funding from major international financing institutions such as IFC, strong environmental and social requirements must be adhered to, something smaller project and project developers might not have capacity to do.	This barrier can be overcome by applying strict environmental and social impact assessments to each RE project. Most developing countries have their own legal and regulatory frameworks but such might not always be aligned with international requirements. If only local financing is involved this is not a barrier. But if international financing and international investors are engaged, a gap might appear between local and international requirements.
L Changes in policy and regulatory frameworks for 1) energy and 2) private sector investment	In several developing countries, national utilities still hold monopoly. This is starting to ease up with current power sector reforms. In countries which have recently introduced the participation of the private sector in the development of the energy sector, the progress is still slow as it is a new working context for all parties.	Yes at it creates an uncertainty and risk to the lenders.	Through a guarantee product.

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L Restrictions on siting and constructions	Countries may have strict or non-transparent regulations regarding areas eligible for construction etc.	A business bottleneck, not a bottleneck to reach FC. The business model will have to be adapted to meet the local conditions.	Out of control of the private actors, will avoid targeting countries were the legislation/regulation is not clear on this.
L Transmission access	Due to legislations and regulation, the access of private sectors to the transmission and distribution network can be limited.	A business bottleneck, not a bottleneck to reach FC. The business model will have to be adapted to meet the local conditions.	Out of control of the private actors, will avoid targeting countries were the legislation/regulation is not clear on this.
L Utility interconnection requirements	Due to legislations and regulation, the interconnection requirements by the private sectors can be 'unfair'.	A business bottleneck, not a bottleneck to reach FC. The business model will have to be adapted to meet the local conditions.	Out of control of the private actors, will avoid targeting countries were the legislation/regulation is not clear on this.