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Norad

Approaches and Financial Models for Scaling up Norwegian Development Assistance to Clean Energy

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Approaches and Financial Models for Scaling up Norwegian Development Assistance to Clean Energy

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Table of Contents:

Annexes provided separately:

Annex 1: Summary of the principle ownership and financing models in the power sector

Annex 2: Characteristics of Hydropower Project Development

Annex 3: Mobilising private investments through risk mitigation

Annex 4: Norwegian bilateral power sector assistance

Annex 5: A CDM Project Development Facility (PDF)

Foreword

Norway has recently launched its 'Clean Energy for Development' Initiative, thus initiating a process aimed at firmly establishing support to clean and renewable energy as a central pillar in its development cooperation. The present report should be viewed as input into this initiative. The report is the culmination of a consultative process facilitated by Norad which has served as a forum for capturing new ideas and actions for further implementation. The report is motivated by the need for proper incentives to invest in and develop renewable energy projects. In this spirit, the report lays out a set of concrete proposals regarding approaches and mechanisms which should be prioritized, together with the next steps needed to bring these recommendations forward.

The approaches proposed in this report should be viewed as *a selection* of possible interventions. Additional due diligence work will be required before implementation. The proposed interventions can thus be viewed as initial recommendations for an operationalization of the Clean Energy for Development initiative. The report could also be put forward as a platform for dialogue with other development partners and donors, including the World Bank and the regional development banks. The report is meant to be concise and operational (with additional information provided in the annexes) so as to allow for discussions and comments from a larger audience.

The report is written by Ryan Anderson, ECON; Rolv Bjelland, Norad; and Truls Holtedahl; Norconsult. In addition to the contributions of Norconsult, ECON and Norad - especially Geir Hermansen and Hans Olav Ibrekk – a Reference Group consisting of; Ole Gran, SN Power; Bjørn Nordby, Optimo Finance; Jostein Djupdal, Eksportfinans; Tore Krogh and Johan Mowinkel; Giek, Tim Lund and Mark Davis, Norfund; has provided valuable guidance in the preparation of the report. The views and conclusions in the report are, however, the responsibility of the three authors.

Executive Summary

This report provides a description of ownership and financial models and presents 10 possible interventions for scaling up Norwegian support to clean and renewable energy projects. The further discussions must lead to focus and prioritization in order to achieve the best possible impact of Norwegian resources.

1) **Allocate ODA** (Official Development Aid) **so as to mobilize public-private partnerships**: Project grants and concessionary loans should be strategically allocated so as to mobilize public participation and equity stake in PPPs. Particularly relevant are contributions to enabling infrastructure, such as roads and transmission lines built in support of generation projects. (*Section 4.1.1*)

2) **Allocate equity finance so as to mobilize renewable energy projects in LDCs** (Less Developed Countries). An additional capital injection should be provided to Norfund, aimed at accelerating the expansion of its renewable energy portfolio in LDCs. The capital injection should be first subject to an assessment of current and potential alternative tools available for delivering Norwegian state backed equity investments to renewable energy projects in LDCs. (*Section 4.1.1*)

3) **Better align guarantees with local development priorities.** Giek's 'U-landsordning' should be untied so as to allow for a greater development impact, particularly in Norwegian partner countries. This should be followed by a further increase in the ceiling of this window. (*Section 4.2.2*)

4) **Scale up support to project preparation**. Cost-sharing technical assistance for project preparation should be made available to project developers. Preparatory assistance to relevant ministries and agencies, as well as regional initiatives (e.g. NEPAD-IPPF) should be scaled up. Support should be results oriented, and monitored and evaluated against the objective of bringing projects to implementation. *(Section 4.2.1)*

5) **Actively promote engagement by private investors**. The aim of this activity should be to assist national authorities in attracting private investment to priority renewable energy projects, particularly hydro-power. Specifically, this involves project information dissemination, maintaining a global project list for possible investment, the facilitation of networking opportunities, and co-financing of market studies (in partnership with potential investors). (*Section 4.2.1*)

6) **Support rural electrification agencies/funds (REA/REF)**. Modern energy access expansion activities should be coordinated with REA and/or relevant ministry. Financial support should be provided to established and/or emerging REF's in Norway's partner countries, so as to stimulate private investment and access expansion.*(Section 4.1.2)*

7) **Rollout innovative rural renewable energy access programs**. Particular consideration should be given to the provision of financial and/or technical support to the 'Sustainable Solar Market Packages' (SSMP) approach, which is aimed at providing solar energy to critical rural social institutions and deepening the local solar market. *(Section 4.1.2)*

8) **Mobilize CDM** (Clean Development Mechanism) **project finance**. The development of renewable energy projects should be facilitated by means of scaled-up support aimed at mobilizing carbon finance. This involves; technical support and capacity building; establishment of the 'Project Development Facility'; and establishment of an innovative 'Carbon Credit Delivery Guarantee' - under Giek's existing investment guarantee window. (*Section 4.3*)

9) **Provide small scale demand-side financing.** Supply-side support should be complimented by demand-side support aimed at stimulating energy demand and enabling disadvantaged groups to overcome energy affordability constraints. In particular, this involves coordinating with, and contributing to, micro-credit facilities with a proven track record and an energy portfolio. *(Section 4.4)*

10) **Coordinate anti-corruption and governance measures.** This involves anti-corruption awareness building, as well as standardised approaches for project monitoring activities. Training activities should be arranged for local authorities, embassies and auditors. A specific team should be established with the task of assisting embassies and development partners in developing project monitoring approaches. *(Section 4.1.3)*

1 Introduction

While Norwegian development assistance to the power sector is relatively small compared with the needs of developing countries, its financial and technical contributions can have a significant impact, particularly if it is successful at leveraging additional resources to the sector. Accordingly, the aim of this report is to arrive at recommendations for a set of approaches and financial models which will optimize increasing Norwegian support to renewable energy projects. The primary concern, in this respect, is how other partners[1] and additional resources can be mobilized, and more efficient implementation of on-going projects can be achieved. Put simply, financial mechanisms relevant for this report should contribute to more effective project implementation in partner countries, thus achieving greater development impact from a given level of support.

The recommendations should be considered as inputs into the ongoing work to develop a comprehensive support strategy under the auspices of the 'Clean Energy for Development' Initiative. Accordingly, the recommendations are meant to contribute to Norway's overriding development objectives, including; improved access to modern energy services, development of clean energy sources, and promotion of an enabling environment for private sector development. Furthermore, this report is a contribution to the implementation of the climate change and clean energy component of the Norwegian Action Plan for Environment in Development Cooperation.

The following guiding principles provide the basis for the recommendations:

- Mechanisms must comply with overarching Norwegian aid principles/policies regarding (among others); recipient orientation, donor harmonization and untying of support.
- Mechanisms must contribute to Norway's overarching development objectives including contributing to economic growth, poverty alleviation, anti-corruption, gender equality and environmental sustainability.
- It is noted that public intervention is justified by the public good component of electricity access and the persistence of inefficient renewable energy markets which are yet to fully internalize relevant environmental and social concerns.
- A growing financing gap requires renewed public (donor) support to the power sector (see Section 2.1, below).
- Mechanisms should reflect an increased focus on climate change concerns while recognizing the energy needs and priorities of development partners.
- Different countries and sub-sectors (e.g. generation, transmission, distribution and rural electrification) require different types of interventions.
- The application of mechanisms should be demand driven, while looking to maximize the usefulness of Norwegian experience and competencies.

The scope of this report encompasses support to most types of power sector projects (particularly renewable energy projects), both small and large, including: generation, transmission, distribution and integrated rural electrification. Additionally, the

[1] Public institutions, including ministries and utilities; private investors; financial institutions and guarantee institutes; other donor countries; multilateral donors and institutions, including WB, UN, AfDB, ADB etc.

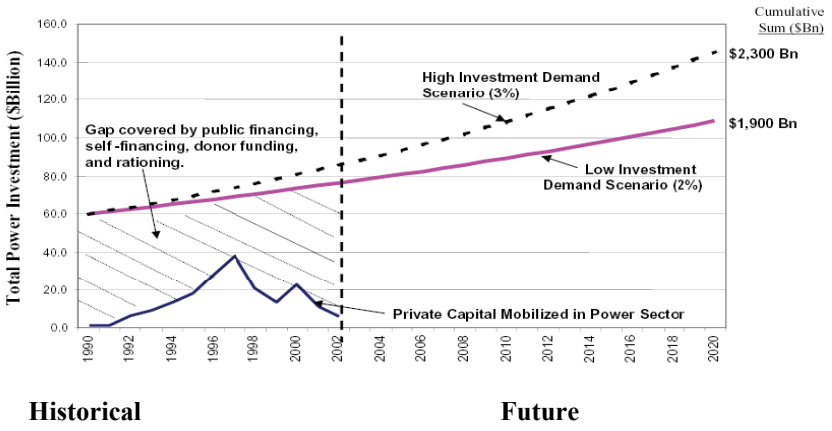
approaches and financial models described in the report may be relevant for support to other types of infrastructure projects.

2 Characteristics of Power Project Financing

2.1 Financing gap in the power sector[2]

Prior to 1990, the provision of electricity in most countries was the responsibility of the public sector, or by closely regulated private utilities. With the deregulation of the power industry in the 1990s a fundamental shift in the thinking on how projects, especially within power generation, should be financed occurred. The main emphasis was on promoting private sector involvement, which should then be relied upon to deliver efficient investments and improved services. However, investment in energy projects with private participation fell sharply after its peak in 1997, and is yet to recover. This has been a disappointment for many in developing and transitional countries, most of which embarked on sweeping sector restructuring in the hope that private investment would replace public sector financing, thereby freeing up public sector resources for other purposes, particularly social programs. The resulting widening gap between investment needs in the power sector and available private financing translates into immediate pressures on users and state budgets in meeting rapidly growing energy demand (see Figure 1.1).

Figure 1.1 Historical and projected financing gap in the power sector of emerging markets, 1990 - 2020



Source: World Bank, IEA, Deloitte Touche Tomatsu Emerging Markets Group

This report focuses on how donors can contribute, at a project level, to narrowing this financing gap and especially how to facilitate the engagement of the private sector. The following means are the most widely used;

- **Provide technical assistance and/or policy advice**. This type of assistance can contribute to; improving the financial standing of utilities, or even the entire sector; enabling greater operational efficiency, and; allowing for more rapid and sustainable modern energy access expansion; improving the overall national framework for investments.

[2] Analysis of Power Projects with Private Participation under Stress. ESMAP, October 2005.

- **Provide grants or soft loans**. Financial support to the public components of individual projects can be decisive in reaching project implementation. If strategically allocated, these grants can leverage additional public and/or private funding.

- **Attracting private investors.** This is generally achieved by reducing investment risks, either directly (risk guarantees, financing preparatory studies, roads or transmission lines) or indirectly (sector- or economy-wide assistance which improves the overall investment climate). Additionally, donors can assist in disseminating project opportunities to potential foreign investors, as well as offer insight/competence and facilitate network building.

Norway currently employees each of these strategies, to varying degrees, in its support to the power sector. In the growing literature on RE project finance, researchers and policy-makers are identifying an important role for public interventions in 'filling important gaps' in stimulating finance flows and project implementation.[3] Section 4 draws on some of this literature and presents a number of recommended approaches and mechanisms which should be prioritized by Norway so as to contribute to narrowing the financing gap depicted in Figure 1.1, particularly in least developed countries.

It is noted here that in addition to stimulating project finance, a highly relevant approach to closing the financing gap is through energy efficiency programs, which typically contribute to improved overall sector finances and environmental conditions. While the authors recommend a consideration of this type of support, the report does not explicitly address potential approaches or models for this type of support.

2.2 Ownership and financing

This section provides a description of the most common ownership and financing structures in the power sector. The natures of these structures have important implications for support approaches and mechanisms.

2.2.1 Trends in ownership and financing: From Public to Private to PPP[4]

Prior to 1990, the provision of electricity in most countries was the responsibility of the public sector, or closely regulated private utilities. With the deregulation of the power industry, there has been a fundamental shift in the thinking on how projects, especially within power generation, should be financed. The policy over the last decade and a half has been that public sector financing institutions (governments, multi- and bilateral agencies) should draw back from investments in power projects, and that the private sector should be relied upon to deliver efficient investments and improved services. However, private investments in the power sector have largely failed to materialize.

This has led to a search for practical solutions for public-private partnerships that lie between the purely public and purely private models for power sector finance and electricity service provision. The scope for private financing is seen as being primarily limited to generation and, to a lesser extent, distribution and rural electrification.

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[3] For example, see Sonntag-O'Brien and Usher: http://www.environmental-finance.com/2004/0504may/financ.htm , or UNEP: http://www.uneptie.org/energy/publications/pdfs/RE_Risk_Manag.pdf

[4] PPP - Public-private partnership

Transmission, on the other hand, is primarily considered to be within the public domain, as in most contexts, it constitutes a natural monopoly.

2.2.2 Ownership and financing models

Ownership and financing structures are closely intertwined in power sector projects. Generally speaking, ownership of the assets may rest with the public sector, through the power utility, or with private sector investors. Between the two ends of this spectrum, there are many variations which involve a mix of public and private ownership and management, often known as public-private partnerships (PPP).

Accordingly, two models have traditionally been considered relevant when power projects are to be financed: (1) Traditional public financing, (also known as balance sheet financing), and; (2) Private project financing, (also known as limited recourse financing). Largely as a result of limited capital commitments to power projects over the last decade, a third set of models are being implemented; (3) Public-Private models, where the focus is on the most effective way of attracting private financing and/or management capacity to publicly owned projects. The three models are briefly described in the boxes below. In Annex 1, the models are given a more comprehensive presentation and are illustrated diagrammatically.

The relevance and use of the models, in a country-specific context, depends on a number of factors such as government power sector policy framework, political and macroeconomic stability, sector maturity and state of reforms, as well as the type of project to be financed.

Box 1: Public Financing of Power projects (Balance Sheet Financing)

- Assets (project) owned by public utility
- Borrowing undertaken by utility/executing agency
- Funding generally a combination of internal resources, government outlays, and loans (partly grant/soft terms)
- Funding may or may not be dedicated to a particular project
- Financing raised on the basis of the financial strength or credit rating of utility
- Project cash shortfalls for reimbursement of loans made up by utility

Box 2: Private Project Financing (Project financing)

- Financing prospects rest mainly on financial strength of project itself
- Requires a separate entity – a special purpose company (SPC)
- SPC will, for example, build, own, operate and transfer (i.e. BOOT) the assets to government
- Financed by equity from sponsors and/or loans to SPC
- Loans on commercial terms, with possible soft financing for infrastructure components
- Limited recourse => reimbursement of loans from SPC cash flows plus potential guarantees
- Investors in SPC may be the private sector, the public sector, or a mix

Box 3: Public-Private Partnerships Models*

- With **a management contract**, the public sector owns all assets, but pays a private company for managing the utility. If payments are performance-based, then some operational risk is shifted to the private sector.
- With **a lease**, the operational risks are shifted entirely to the private sector for a limited time, but the public sector retains ownership of the assets.
- With **an SPC model** (Special purpose company), public involvement can be:
  - i) As a share holder in the SPC (e.g. Mavuzi & Chicamba in Mozambique)
  - ii) A public loan or guaranty to the project (e.g. one of the Karuma models)
  - iii) Public contribution in "Kind" (e.g. Bujagali project land rights and settlement compensation from government)
  - iv) As an owner of the assets - once they have been transferred to the government following a BOOT, or similar (see box 2 above)
  - v) As an EPC project developer
- With a **'rural electrification fund' model** (described in Annex 2), private and public investors compete for a defined rural project, with the winner providing new investments and owning all assets. The project will generally define the responsibilities of the private investors. In return, the investor will generally enjoy some degree of exclusivity, up-front capital subsidies and/or output-based-aid.

** For more information on PPPs in infrastructure, see: http://www.ppiaf.org/*

A wide range of ownership and financing models are being implemented and tested, internationally. In the majority of the least developed countries, power markets are small and the customer base is weak (in terms of numbers, affordability and level of consumption). Usually, when markets are small and immature there is no economic rationale for unbundling transmission or distribution ownership and operation. However, the development and implementation of generation projects can benefit significantly from private sector participation, often allowing for an efficient distribution of risks and responsibilities, while freeing up limited government resources. From this, it follows that:

- Balance sheet financing is likely to continue to be the preferred financing model for transmission and distribution projects;
- Project financing through an SPC, generally speaking, is likely to emerge as the preferred model when it comes to investments in generation projects, with the financing source being either private or some sort of PPP.
- Relevant PPP models will likely continue to emerge as a mode for developing integrated rural electrification projects.
- Management contracts[5] and lease arrangements[6] will likely continue to be employed in an effort to introduce improved efficiency into integrated utilities, distribution network operators, and generator operation[7].

2.3 Norwegian bilateral assistance

As illustrated in the following figure, the bulk of Norwegian direct support to the power sector is provided as bilateral assistance[8]. Norfund's stake in SN Power also represents

[5] E.g. Tanzania, Namibia, Lesotho, etc

[6] E.g. Uganda "Umeme"

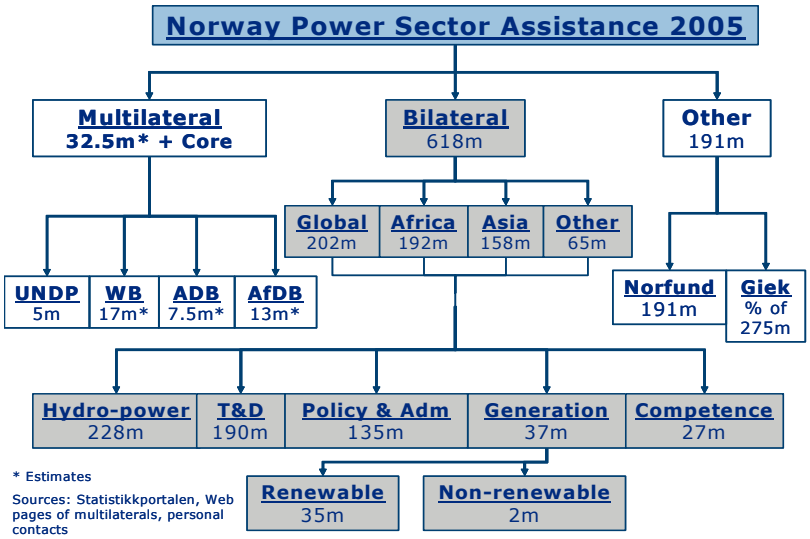
[7] E.g. Uganda: Owen Falls is operated by a lease contract

an important strategic channel for channelling state backed equity investments in renewable energy projects in developing countries. The Ministry of Foreign Affairs generally channels the bilateral assistance through the embassies. In addition, a budget allocation is available for application based mechanisms and is channelled through Norad. The public sector is the major recipient of this assistance.

It is worth noting that there is a general shift in Norwegian funding policy towards increased focus on programs, rather than projects. Monitoring activities are likewise being shifted from a micro- to a more macro-approach, and are country-specific. This approach thus primarily relies on the credibility of the recipient and the capacity of the partner country.

Increasing the development impact of bilateral funding represents a significant challenge. In particular, given the small amounts of bilateral aid in the power sector, compared with significant investment needs, bilateral funds should be better aligned with the aim of stimulating additional investment.

Further description of the Norwegian bilateral assistance is given in Annex 4.



3 Bottlenecks to Power Project Development

Below, a set of critical bottlenecks, at various stages of the project cycle, are identified. The recommendations presented in the following section are then grounded in the guiding principles identified in Section 1, as well as the urgency of overcoming these bottlenecks.[9]

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[8] For 2006, the total bilateral aid budget was NOK 11 000 million (including country specific assistance of NOK 3 328 million and 7 666 million as a global allocation). Approximately 5.5 %[8] of this (NOK 650 in 2006 and NOK 618 in 2005) was allocated to the Power Sector.

[9] It is however recognized that Norwegian support will be well positioned to address only a limited number of bottlenecks in any given situation.

a) **Lack of bankable projects**, primarily due to:
   - Small-scale renewable energy projects often do not justify the significant up-front and/or fixed costs associated with most projects.
   - Potential large-scale projects are often met with small and uncertain domestic markets.
   - There is a lack of financially attractive projects due to low government-regulated tariffs, uncertain demand and payment risks.
   - There exists inadequate communication and cooperation between donors and recipients, which has resulted in a lack of both energy projects earmarked for donor support, as well as local implementing partners.

b) **Reduced public funding available for power investments in recent years.** This applies to government as well as to donor funds.

c) **Difficulties in establishing stakeholder consensus.** The social and environmental concerns of stakeholders surrounding power projects present real risks both to bringing projects to the implementation stage, as well as to the eventual sustainability of the project.

d) **Unfavourable institutional and macroeconomic framework.** In many countries, an enabling environment, amenable with private investment under sufficiently favourable terms, is lacking. To a variable extent, this is largely due to:
   - An institutional and regulatory environment not geared towards handling large power projects with private involvement.
   - An uncertain political climate and frequent changes in rules and regulations.
   - Corruption and a large portion of funds for overhead and administration.
   - Unstable currency and a limited/immature domestic financial market.
   - Prolonged project preparation and implementation cycles.

   This situation, together with project-specific aspects, constitutes important elements in what becomes the risk profile of a power project in a developing country.

e) **Inadequate technical and institutional models for rural electrification**. Providing modern energy services to rural communities often requires unique technical and institutional approaches. Promising innovative approaches have yet to be rolled out at a large scale – either within or across countries.

f) **Specific obstacles for regional project development.** A lack of regional coordination or sufficient delineation of responsibilities may hold back donor support for regional initiatives, stalling discussions/agreements on potentially promising regional projects.

g) **Lack of sufficient incentives for renewable energy projects.** Long payback periods, often new and un-tested technologies, and significant risks involved in clean energy projects often result in difficulties in attracting private investors and raising debt financing. Programs aimed at rolling out renewable energy access to larger rural populations will require innovative business models if they are to prove sustainable. Most of the world's poorest countries are yet to

establish the enabling environment needed in order to reap the benefits of the Clean Development Mechanism or effectively raise carbon finance.

4 Proposals for New Approaches, Measures and Financial Models

This section lays out a set of recommendations for addressing the bottlenecks described in the previous section. In particular, with significant needs and limited aid budgets, Norway's involvement should look to maximize the mobilization of other financial resources through its involvement. In this context important factors will include;

- Increased engagement by the public sector in development partner countries
- Risk mitigation and attracting private investors

A critical cross-cutting element of public-private partnerships is the proper allocation, and mitigation, of risks. Accordingly, this issue is addressed by many of the mechanisms discussed below. In this context, it is noted that innovative tariff structures, as well as the use of smart subsidies and other financial incentives will play a critical role.

4.1 Promote public sector as a partner in power projects

There is a renewed recognition of the importance of the public sector as a partner in power sector project development. Donor contributions to public or PPP projects can be very effective, potentially providing the 'keystone' for project implementation. This support should be aimed at leveraging additional investment, achieving an efficient distribution of ownership and responsibilities and assuring transparency and good governance. This section provides recommendations aimed at achieving these ends.

4.1.1 Targeted support for PPP projects

Support to a public entity, as a partner in a PPP power project, generally takes the form of; i) equity/quasi-equity[10] in, or the provision of loans to, a Special Purpose Company, ii) technical assistance, iii) financing of enabling infrastructure which is best kept under public ownership (e.g. transmission lines or access roads). However, the most effective approach to promoting and supporting the implementation of individual PPP projects is a complex issue, generally requiring specific knowledge about the project and international best practices.

It is thus proposed that a coordinated effort be initiated aimed at actively promoting the PPP models presented in 2.2.2, when relevant. Regarding equity instruments, an additional capital injection should be provided to Norfund, aimed at accelerating the expansion of its renewable energy portfolio in LDCs. This should be coupled with renewed cooperation between Norfund and Norad on a project basis. A one-day seminar is proposed to initiate an effort to develop and implement innovative PPP ownership and financing models in the power sector of partner countries. A pre-seminar review should explore how best to promote PPPs within the Norwegian development assistance framework,

[10] Quasi-equity: A specialized form of private equity, characterized chiefly by use of subordinated debt, or preferred stock with an equity kicker. Quasi-equity takes many forms (mezzanine finance, B shares, etc).

addressing in particular; i) the appropriateness of available instruments/channels, particularly Norfund and SN Power[11], ii) international lessons learned, iii) the alignment of the various approaches with Norad/MFA strategies and available funding, and iv) alignment with recipients' strategic priorities. The conclusions should be applied to concrete examples presented by individual embassies.

4.1.2 Rural electrification

In many of Norway's partner countries, 'Rural Electrification Agencies' are the parliament-mandated agencies responsible for access expansion in rural areas, and relevant support should be coordinated through them. In many of these countries, 'Rural Electrification Funds' represent an emerging public-private partnership model. Contributions to these funds hold the possibility of allowing for efficient allocation of aid, as well as leveraging additional investment. These partnerships are well aligned with the Paris Agenda including donor coordination and recipient ownership, and are proving an effective model for stimulating access expansion and private investment in a number of countries. (For a fuller description see Annex 1). Furthermore, support to these funds is well in line with Norwegian efforts to expand access to renewable energy and mobilizing private investors.

It is thus proposed that Norway provide larger-scale financial and/or technical support to individual REAs/REFs in one or more partner countries. As a first step, the funds in Uganda and Tanzania, together with rural electrification initiatives in Mozambique and Nepal, should be reviewed for potential support.

With respect to access expansion, a particular area of growing interest among donors is support for large-scale semi-commercial solar programs, known as the Sustainable Solar Market Packages (SSMPs) approach. Put simply, the SSMP aims to establish a sufficient market size so as to attract private sector contractors, and achieve a sustainable development impact. Donor support to this approach allows for a larger number of packages and/or connections per package – thus contributing to increased rural access to modern energy services. If designed well, donor support will contribute to leveraging both private investment and local public funding, as well as an overall deepening of the local solar PV markets.

This approach represents a promising model for scaling-up, as well as diversifying (away from hydro), Norwegian support to renewable energy. In particular, large-scale support to this approach in individual countries would likely have significant and wide-ranging development impacts, including improved education opportunities, improved health services, reduced environmental degradation and private sector development, while targeting underprivileged groups. Finally, it is worth noting that the impacts resulting from this support, in the form of investment in PV units, are generally tangible and easily monitored (e.g. number of systems installed, number of people affected, amount of CO_2 emissions displaced, etc.).

[11] Currently, Norfund and SNPower are the only potential channels available for Norwegian state sponsored equity investments in renewable energy. The proposed capital injection should be subject to a review of alternative state sponsored equity infrastructure investment models with particular focus on anticipated development impacts in LDCs.

It is thus proposed that: Norway provides technical and/or financial support to the SSMP programs of 1-2 partner countries.

4.1.3 Transparency, governance and development impacts

Good governance, anticorruption measures and transparency are relevant for infrastucture projects , both in the planning and the implementing/follow up phase.

It is thus proposed that this effort is intensified and rolled out to other partner countries, with the aim of improving the due diligence of project selection, as well as monitoring routines and the systems of both Norwegian Embassies and local partners, so as to achieve greater development and leverage impacts. Focus should be placed on how best to ensure transparency and good governance practices in donor supported infrastructure projects. A designated team should be established to assist embassies and development partners with increasing the impact of project support, through the application of appropriate monitoring approaches and tools.

Table 4-1 Recommended support to public sector involvement in projects

Approach	Aim	Financial and Geographic Scope	Recommended next steps
Optimize support to PPPs	Apply innovative renewable energy project financing schemes so as to achieve project implementation, mobilize private investment and a further deepening of renewable energy financing mechanisms.	Cost of matching innovative financing schemes with projects, and product development. Implementation would likely require a significant grant, or capitalization of new window at Norfund.	Initiate; i) seminar planning; ii) collaboration with Norfund and MFA, and iii) commissioning of necessary background studies. Contribute to financial closure of at least one renewable energy PPP in a partner country by early 2008.
Support to REF	Leverage new private investment in projects prioritized by government, while adhering to the Paris Agenda, by supporting national REF/REA.	Consider significant contribution to at least one of the REF's in Tanzania, Uganda or Zambia, and/or technical support to the relevant public agency.	Begin a process to identify 1) which fund is best suited for Norwegian support, 2) type of support needed and timeframe, and 3) amount to be committed
Support SSMP	Provide critical rural institutions with access to solar energy, leverage private and public funding, contribute to overall deepening of domestic solar market.	Technical assistance program in the order of NOK 2-3m in e.g. Uganda or Zambia. Financial assistance for institutional systems determined by target number of connections.	Identify recipient, followed by a needs assessment in collaboration with national REA and/or Ministry of Energy, as well as other donors.
Improve effectiveness of bi-lateral assistance	Provide professional support to embassies and development partner authorities regarding effective and innovative approaches to supporting and monitoring bi-lateral project-level support within the power sector.	Does not necessarily imply increase to relevant posts. Capacity constraints at Norad/MFA/ Embassies should be taken into consideration.	Norad assembles and coordinates efforts of team.

4.2 Risk mitigation and mobilizing private investors [12]

It is recommended that efforts to attract private investors to renewable projects in least developed countries be scaled-up and multi-faceted, addressing calls for thorough preparatory work, risk mitigation and the dissemination of project information to potential investors.

4.2.1 Project preparation

Renewable energy projects in LDCs are very often of too small-scale to motivate private investors to provide the significant up front capital needed to properly carry out preparatory work. Thus, in response to calls from governments and investors, and recognizing Norwegian competencies, Norway should significantly scale up its support for project preparatory work. Relevant uses of bilateral funding for project preparation will be to; i) identify attractive power projects, and; ii) assist in attracting investors to bankable power projects. Relevant activities in this context include:

a) **Project identification**: It is proposed that in addition to the project lists maintained by the embassies, an overview portfolio of possible hydro power projects relevant for Norwegian investors should be established and maintained. The overview should specify; the phase of the project and indication of cost & benefits; progress to date and critical issues and bottlenecks, and; relevant partners. As a start up, it would be relevant to establish a project group to create the portfolio, funded by MFA. Later, it should be a specific task at Norad/MFA to maintain the portfolio. Close cooperation with embassies as well as collaboration with relevant regional facilitation institutions e.g. NEPAD, RECs, ASEAN, OAS[13], etc. will be important here. Additionally, relevant project information should be actively disseminated to potential investors, particularly in Norway.

b) **Project facilitation**: It is proposed that an active project facilitation should be maintained in relation to the above mentioned *project portfolio*. This support should be channelled through, and/or in coordination with, relevant partners who are in a strong position to bring projects forward such as other donors, project facilitation organizations like NEPAD – IPPF[14], and national partners. Support should contribute with innovative organization, ownership, and finance models aimed at risk mitigation. A cost-sharing TA fund should be made available for use by project developers and for dispersion by embassies, for financing pre-feasibility or market studies. This could potentially be set up as a revolving fund which converts preparatory investments (e.g. feasibility studies) into loans or equity stakes upon project implementation. Norfund could be well positioned to host this fund.

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[12] The term "private" should be interpreted broadly to also denote investors that may be state-owned enterprises or partly state owned (and generally international) companies. However, while international companies are most relevant for larger power projects, local and regional companies should also be regarded as potential partners, particularly in the case for smaller-scale projects.

[13] NEPAD – The New Partnership for Africa's Development. RECs – Regional Economic Communities, ASEAN – Association of South-East Asian Nations, OAS – Organisation of American States.

[14] IPPF – Infrastructure Project Preparation Facility

c) **Social and environmental impact assessments and mitigation strategies**. It is proposed that Norway provide technical and financial support to social and environmental assessments/strategies for proposed projects. This is viewed as an important role for donors in project preparation, serving to mitigate investment, as well as social and environmental, risks. In addition, the potential need for support to improved databases, investigations and studies should be carefully considered during country programme preparations. This assistance could be provided in conjunction with the preparatory investments described in (b).

d) **Institutional support & training**. It is proposed that results oriented institutional support and training should be used as an instrument where:

- There is a need to promote project implementation and prepare for private investment;
- The recipient has the capacity to absorb the assistance and a high-level commitment to implementation and monitoring is present;
- The area of support is identified as a critical bottleneck for the recipient organization and there exists a basis for good governance.

Where these conditions are in place, long-term support programs can have a significant impact on the entire sector and should be designed so as to incorporate international best practice. In particular, there is a need to incorporate innovative approaches which provide long-term assistance with an element of flexibility and an effective monitoring program. These support programs should, as a general rule, be placed out on competitive international tender.

4.2.2 Risk guarantees

Credit enhancement schemes and investment guarantees are employed by many donor countries as an important tool in utilizing aid so as to stimulate private investment. The current Norwegian guarantee schemes, including its U-landsordning, are ear-marked for projects with Norwegian equipment suppliers or investors. Now that all development assistance is to be un-tied, equipment suppliers have lost much of their incentive to develop projects in poorer countries. In this situation, Giek's contribution to mobilizing investment to the power sector of developing countries will primarily be through investment guarantees.

The 'Norwegian component' requirement inhibits the potential development impact in two ways; i) it restricts coordination between MFA and Norad on the one side and Giek on the other, in providing innovatively packaged projects for international tender, and ii) it prevents Giek from supporting promising power projects in partner countries, potentially with local investors.

It is thus proposed to**:**

- **Increase the ceiling for 'u-landsordningen'**. The ceiling for guarantees to developing countries from GIEK ("U-landsordningen") should be increased and subject to more frequent reviews than in the past. This is in light of a track record of high demand and financial sustainability.

- **Un-tie 'u-landsordningen'**. Given that this window has proven financially sustainable and that the prevailing trend is towards un-tied aid, this would allow for a greater development impact, addressing the issues described above. In particular, this would allow for greater flexibility in promoting projects in Norway's development partner countries. If this is outside of the potential mandate of Giek, a similar mechanism could be considered for Norad.

Table 4-2 Recommended approaches for mitigating risks for private investors

Approach	Aim	Financial and Geographic Scope	Recommended next steps
Project Databases and dissemination	Maintain overview of power projects relevant for Norwegian support and/or private investors in Norway, thus contributing to project implementation.	Intended to be 'global' but should emphasize partner countries. Involves minimum outlays, but capacity constraints will have to be considered.	A task force of representatives from Norad, MFA and possibly the Private Sector Advisory Unit (at Norad) should be provided mandate.
TA Fund	Facilitate the preparation of infrastructure projects prioritized by partner countries and Norwegian development assistance, while ensuring proper due diligence (e.g. environment)	Funds should be made available to project developers so as to bring prioritized projects from the global list to the market. A revolving fund should be considered.	TA fund should be administered by either the MFA (grants) or Norfund (revolving). Same task force as above should recommend how best to support projects through TA fund.
Support IPPF	Facilitate the preparation of infrastructure projects (incl. power), which are prioritized by NEPAD and RECs.	Should coordinate with other donors so as to make an effective marginal contribution (e.g. fund additional feasibility study). African projects only.	Norad carry out the necessary due diligence which would allow for an informed decision. Open dialogue with IPPF and participating donors, such as Sida, Danida and Cida.
Giek u-landsordning	Mobilize private investment by expanding the scale and scope of Giek's mandate in lower income countries.	An increased ceiling may imply that additional capital be set aside – currently at about NOK 275m.	Hereby forwarded to MFA for comments.

4.3 Carbon financing and the Clean Development Mechanism

The Clean Development Mechanism (CDM) represents an extra revenue stream to projects that reduce the emissions of greenhouse gases and contribute to sustainable development in developing countries. Renewable energy- and power sector projects are well placed to utilize the CDM mechanism as a source of extra, hard currency. If designed properly, a project financing plan can internalize these expected revenues so as to improve the ROE and thus allow for increased debt financing – at least in theory. Development assistance should aim at both increasing the number of CDM projects and, through institution- and capacity building, enable priority countries to better utilize the mechanism, particularly in renewable energy projects.

The most relevant bottlenecks hindering the implementation of CDM projects involve some combination of financial barriers and insufficient knowledge/competence. The financial barriers primarily stem from high up-front project development costs with an uncertain future revenue stream, as well as raising finance based on uncertain future revenue streams. Additionally, many potential CDM projects in Africa, particularly power projects, are not of a sufficient scale to attract the upfront risk capital needed to bring these projects forward. Insufficient local knowledge and competence, on the other

hand, results in underdeveloped and untested national CDM procedures and regulations, which is viewed as a project risk by investors. Additionally, there is insufficient awareness among project developers as to the potential of the CDM mechanism.

In addressing these bottlenecks, **it is thus proposed** that Norway;

- **Scale up, coordinate and focus institutional support and capacity building** to recipient countries, particularly the Designated National Authority (DNA), as well as information dissemination to project developers. Emphasis should be on identifying, preparing and implementing specific CDM projects and on-the-job training. While Norway already provides this type of support, providing it in parallel to the PDF would create a more enabling environment for bringing CDM projects to the implementation stage. Given that a number of agencies and departments are involved in CDM support projects, a strategic process should be initiated aimed at coordinating and focusing (geographically and thematically) this support.

- **Establish a Project Development Facility (PDF) at Norfund or Norad**. A revolving fund, initially capitalized with 15m NOK, would finance the transaction costs required to register a project as a CDM activity. On successful registration, the grant would be converted to a loan to be repaid to the PDF by the project developer. The focus of the PDF will be on emission reduction projects (including power projects) in Norwegian partner countries. It should be noted that this proposal re-enforces the earlier recommendations of ECON[15] and the Power Group[16]. There is an urgency to establish the PDF given the closing window for the 2008-2012 Kyoto commitment period, although the PDF will also seek to bolster confidence in project development for emission reductions post-2012. Annex 5 provides a more detailed description of the PDF, provided by Norfund.

- **Credit Delivery Guarantee.** The aim of this product would be to facilitate additional finance for CDM projects. The product would provide a delivery guarantee to third-party CER buyers, allowing the developer to securitize the CER revenue stream with a financial institution. While this type of mechanism is needed by project developers (subject to further investigation)[17], its availability is currently restricted in the market, suggesting a potential role in laying the ground work for similar private sector instruments. Initially, this mechanism should be established as an extension to an existing GIEK guarantee scheme (limiting its application to projects with Norwegian exports or investment), and developed on a pilot project. There is the possibility to link the scheme to a specific financial institution, so that the guarantee is linked to a loan instrument, and the risks shared with that institution.

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[15] See: ECON (2003): ”Project Development Facility for Southern Africa.” Report 2003-050. Commissioned by Norad.

[16] See: ”Forslag til strategi og tiltak for å fremme norsk innsats inn kraft sektoren i utviklingsland” by “Kraftgruppa” the ”Power Group” established by the Norwegian Ministry of Foreign Affairs. 2005. http://www.norad.no/power.

[17] In a review of risk management instruments for renewable energy projects, Marsh (2004) noted that a number of developers were unable to secure carbon finance. Marsh noted that “risk transfer through insurance was seen as a potential risk management solution but the insurance markets were thought to be unable to provide the right risk transfer products at present.”

Table 4-3 Recommended approaches for mobilizing CDM finance to LDC's

Approach	Aim	Financial and Geographic Scope	Recommended next steps
Project Development Facility	Increase the number of CDM projects in priority sectors and countries.	A 'revolving fund' set up in Norfund or Norad. Initial capitalization of MNOK 15 can be financed through ODA budget. Focused Norwegian partner countries.	Framework is developed, endorsed by Norad, and is awaiting approval and funding from MFA.
Competence building and project development	Provide badly needed assistance to recipient countries (DNA) and project developers in identifying, preparing and implementing CDM projects. Build programs in conjunction with actual project development.	Financed entirely through ODA budgets – fully integrated into development assistance strategies. Focused on Africa.	A coherent and coordinated Norwegian support program will require a consolidation of roles and responsibilities among ministries and other stakeholders. Nonetheless, scaled up support to individual projects should be initiated immediately.
Provide a guarantee product	Increase CDM transactions and thereby the flow of benefits to developing countries by mitigating the perceived risks of project developers. Could also pave the way for other similar instruments.	Initially structured as an extension to existing GIEK guarantee instrument, thereby linked to projects in developing countries with Norwegian export content. Establish links with a financial institution(s) to facilitate finance and share risk.	Norad finance assistance to Giek in 1) confirming that a market niche exists, 2) facilitating interaction with partner financial institutions (including Norfund), and 3) developing and implementing the scheme on a specific pilot project.

4.4 Micro-credit and the activation of local financial markets

In most developing countries, the financial markets are underdeveloped and, as a result, economically viable (energy) projects may never be undertaken. On the one hand, potential consumers of modern energy services often face affordability constraints when it comes to up-front/lumpy investments (e.g. solar panels, a stove, the connection fee). Helping these consumers overcome these constraints by providing micro-credit will likely contribute to; directly increasing access to modern energy; improving the financial outlook for larger power sector projects; overcoming barriers to clean energy projects and improving local environmental and health conditions.

Local financial markets, on the other hand, offer a potentially significant source of power sector project financing. Thus, support provided to improving the functioning of financial markets in partner countries could be an effective use of donor financing in stimulating additional investment to the power sector, as well as nearly all other sectors. While this issue should be a central focus of donors, the inherent scope and complexity of this type of support places it beyond the scope of recommendations directed at power sector support.

> **It is thus proposed** that Norway provide *demand-side* financing through support to micro-finance institutions which have a proven track record, as well as an established energy portfolio. Further, these institutions should be consulted during the planning stages of all access expansion projects. Given the complexity and scale of the challenges facing most partner countries with

respect to *supply-side financing*, Norway should consider channelling relevant financial and technical support through multilateral programs.

Table 4-4 Recommended approaches for mobilizing CDM finance to LDC's

Approach	Aim	Financial and Geographic Scope	Recommended next steps
Micro-credit	Help potential consumers overcome affordability constraints, contributing to modern energy access and improving financial prospects of larger projects, particularly clean energy.	Two options; 1) encourage a focus on energy sector vis a vis civil society development partners 2) provide additional financial support earmarked for energy service credit schemes.	Engage with current network of micro-credit providers regarding support to modern energy services.
Local financial markets	Stimulate local financing sources for energy projects.		Take-up in broader forum and/or channel support through multilaterals.

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