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Norad

ENERGY FOR SUSTAINABLE DEVELOPMENT

ANNUAL REPORT 2011


NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS


NORWEGIAN MINISTRY
OF PETROLEUM AND ENERGY


NORWEGIAN MINISTRY OF
THE ENVIRONMENT

PREFACE

Increased access to energy is vital for social and economic development. Energy access is perhaps the single factor that has meant the most to the development of modern societies and their citizens. It can transform lives and communities by providing opportunities for business and employment, education and improved health services. Access to electricity can free women's time from unpaid work, and is thus important to achieve gender equality. Yet 1.3 billion people today, one in five people on earth, do not have access to electricity.

The International Energy Agency has estimated that the global energy consumption will increase by 60 percent in non-OECD countries towards 2035. Energy production and consumption is one of the largest sources of greenhouse gas emissions and counts for 60 percent of global emissions. Although the exact figures of such estimations are uncertain, they illustrate the enormous challenges ahead if we do not acknowledge that a too small part of the world's energy is clean and renewable.

The Government has placed Norwegian development policy in the middle of the dilemma between development and environment – precisely because solutions must be reciprocal and simultaneous, and we must have the courage to face both challenges. For the global climate challenge to be resolved and the climate goals to be reached, the growth in demand from developing countries has to be met with a strong strategy for renewable energy and energy efficiency. At the same time, rich countries have the biggest emissions per capita, and have historically built their wealth exploiting fossil fuels. Therefore rich countries, like Norway, have a responsibility to reduce its own emissions.

International development assistance will not be enough to overcome the major challenges of ensuring global access to electricity services; it will need significant efforts from the private sector. Norwegian assistance to clean energy uses public sources to mobilise and incentivise commercial investments that lead to increased energy access and energy efficiency in development partner countries. Social and environmental considerations must be looked after, and establishing a constructive dialogue between the civil society, private- and public actors is a central component of Norwegian development assistance.

Acknowledging that access to energy is a necessity in the fight against poverty and a prerequisite for economic development, the Clean Energy for Development Initiative was launched in 2007. In 2011, The Prime Minister of Norway and the United Nations Secretary-General initiated the International Energy and Climate Initiative – Energy+. This initiative will support efforts to achieve universal access to sustainable energy and reduce greenhouse gas emissions in developing partner countries. I am pleased to see the results from the assistance to clean energy development, which are highlighted on the following pages. Support is provided to government institutions, regional and multilateral bodies, the private sector, as well as the civil society. Principles of good governance – transparency, accountability and anti-corruption – are cross cutting and essential values. The ultimate goal is to eradicate poverty, while simultaneously meeting the challenges of climate change, thus providing a better future for our children. To reach the goal of sustainable development, more renewable energy is required. The growth has to be both green and inclusive.

There is a substantial demand for Norwegian assistance related to clean energy – a testimony to Norway's reputation as a responsible and competent partner. Decades of experience with renewable energy sources have provided us with unique expertise in the management of climate friendly resources. UN Secretary General Ban-Ki Moon has set the target: By 2030 everyone should have access to sustainable energy. Norway has pledged a strong commitment to this effort. Through the Norwegian assistance to clean energy we continue to share our experience as a responsible steward of clean sources of energy.

Heikki Holmås

Minister of International Development

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HIGHLIGHTS 2011

ENERGY FOR ALL: FINANCING ACCESS FOR THE POOR AND THE LAUNCH OF ENERGY+

In October, 2011 the Government of Norway convened a high-level conference entitled "Energy for All: Financing Access for the Poor" in Oslo. The Norwegian Prime Minister Jens Stoltenberg welcomed participants to the conference and emphasised Norway's strong support for efforts aimed at increasing energy access and improving the sustainable supply and use of energy. A special address was held by the United Nations Secretary-General Ban Ki-Moon where he made reference to his childhood when studying by kerosene light in South Korea. A high-level panel debate between the UN Secretary-General and Prime Ministers from Ethiopia, Kenya and Norway, reemphasised the need for a concerted, global effort to increase access to energy, and acknowledged the need to mobilise private capital to help meet the financial investment gap.

The key objective of the conference was "to explore financing solutions and supporting policies for increasing energy access in the context of a more sustainable energy future". The conference was planned and executed in cooperation with the International Energy Agency (IEA), and convened global expertise from government (more than 25 ministers), business, non-governmental organisations and academia, to discuss possible building blocks for financing universal access.

The IEA led the analysis carried out in preparation for the conference and its Chief Economist Dr. Fatih Birol launched a special excerpt of the World Energy Outlook 2011 (see text box). A Conference Summary was presented by UN Energy Co-Chair Dr. Kandeh Yumkella, which is being shared at international processes and events such as COP 17, Rio+20 and throughout 2012, the International Year of Sustainable Energy for All. Norad developed a discussion report entitled "Gender Equality in Financing Energy for All" to demonstrate how gender responsive energy financing can contribute to basic human rights and economic efficiency. Finally, the conference also provided the platform for the Prime Minister of Norway and UN Secretary General to launch the International Energy and Climate Initiative - Energy+, an international partnership aimed at increasing access to energy and reduce greenhouse gas emissions by increasing access to renewable energy and energy efficiency.

WORLD ENERGY OUTLOOK 2011 EXCERPT, ENERGY FOR ALL: FINANCING ACCESS FOR THE POOR

In the WEO 2011 excerpt on financing access for the poor, the IEA highlights five actions essential to achieving universal access by 2030:

1. Adopt a clear statement that energy access is a political priority and that funding and policies will be reoriented accordingly;

2. Mobilize additional investment of USD 34 billion per year (USD 48 billion total) from various sources;

3. Grow the share of private investment the most, necessitating that governments adopt strong governance and regulatory frameworks, and invest in internal capacity building - the public sector must use its tools to leverage greater private investment where the commercial case is marginal;

4. Concentrate an important part of multilateral and bilateral direct funding on difficult areas of access which do not initially offer an adequate commercial return, e.g. support microfinance arrangements for end-user; and

5. Collect comprehensive data to quantify the outstanding challenge and monitor progress.

UGANDA

RURAL ELECTRIFICATION

In 2011 Norway financed the construction of 153 km of 33 kV distribution grid and 63 km of associated 11 kV lines in Central and Western Uganda. The grid was constructed in 2011 and consumers will be connected in 2012, with a connection subsidy allowing also low-income households to connect.

The project will enable around 1500 households/ customers to connect to the main grid during the initial years. Grid connection enables small businesses to utilise modern energy services and also enables the population in the area to shift their usage from high-cost and polluting energy forms (diesel, petrol, kerosene, etc) to grid electricity/renewable energy as cheaper and more environmentally friendly energy forms. It is expected that 2600 households will be connected over a period of 10 years.

The project will contribute to meet the rural population's need for improved economic and social development in a sustainable manner, through increased access to affordable electricity services in the project areas. The project will enable access to power for public services such as schools, clinics and water pumping, for small businesses such as mills and saloons and for lighting and appliances in households.

NEPAL

NEPAL ELECTRICITY TRANSMISSION EXPANSION AND SUPPLY IMPROVEMENT PROJECT

In 2011 the Royal Norwegian Embassy in Kathmandu signed a co-financing agreement with the Asian Development Bank for the "Nepal Electricity Transmission Expansion and Supply

Improvement Project." The project aims at increasing access to reliable supply of electricity.

The project is a joint donor project with Government of Nepal, ADB and Norway. The Norwegian contribution is NOK 150 million, about 20 percent of the total cost of the project. Nepal Electricity Authority (NEA) will be the executing agency. The Norwegian grant will be used to prepare a new 400 kV transmission line from Khimti to Kathmandu, which is a future oriented and environmentally friendly solution. The line will enable grid connection of new hydropower projects and also improve the electricity supply in Kathmandu. Compared to a separate agreement with the GoN, the co-financing agreement will reduce the administrative burden for both Nepal and the Embassy. The co-financing agreement is also an important step towards donor coordination in the (on-grid) energy sector and to address stronger sector priorities.

ENERGY SECTOR ASSISTANCE PROGRAMME (ESAP)

The first phase of the Energy Sector Assistance Programme (ESAP) started in 1999 by the Government of Nepal and Denmark. Norway joined ESAP in 2003. In 2007 Denmark (lead donor) and Norway signed a Joint Financing Agreement (JFA) with the Government of Nepal (GoN) for the second phase of ESAP. Later, Germany (KfW) and the UK (DFID) also signed the JFA. ESAP is implemented by the Alternative Energy Promotion Centre (AEPC) under the Ministry of Environment. The programme will continue until July 2012 and the total budget is approximately USD 70 million.

By the end of 2011, ESAP II has assisted market based instalment of 313 000 (527 000) improved cooking stoves (ICS), provided subsidies to 218 000 (298 000) household solar home systems (SHS) and provided 52 000 (73 000) households with electricity from mini-grids (numbers also including ESAP I achievements in brackets). ESAP II's pilot activities to promote credit financing of renewable energy technologies by commercial banks have resulted in credit financing of 5900 households electrified by solar. In addition, six micro hydropower projects have received loans. More than ten other projects are in the pipeline of loan approval. It is expected that credit financing will be scaled up in coming years.

Based on additional funds from Norway in 2010, ESAP has also started to target gender equality and social inclusion, primarily by focusing on income generating activities. A new Rural Renewable Energy Programme (RREP) is now under preparation, which aims at continuing activities under ESAP and other AEPC donor programmes under AEPC as a single programme modality.

SOUTHERN AFRICA

IMPROVING THE USE OF BIOMASS – THE PROBEC PROGRAMME ON ENERGY EFFICIENT STOVES

The use of biomass for energy, mainly through wood and charcoal, amounts to approximately 80 percent of the total energy consumption in Sub-Saharan Africa, representing serious human health and environmental challenges. The Southern African regional programme on biomass energy, also known as ProBEC, was supported by Norway from 2007 to 2010. The programme was run by GTZ over a period of totally ten years, which is a relatively long term intervention compared with most development projects. By 2007, after several years with slow development, the project gained momentum, and by the completion in early 2010,

the project had shown positive results both on the regional and national levels.

The programme had an overall goal of "Improving poor people's energy related income, health, cooking, convenience and natural environment", and involved six countries (Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania and Zambia). The programme addressed basic energy security and access for low-income groups through up-scaling of energy efficient stoves. It focused on market development for commercial players and appliances as well as a developmental approach using simple artisanal devices such as mud stoves. The programme further promoted the correct use of such improved energy devices. Regionally, policy advice within SADC[1] was an important feature.

A total of 330 000 efficient stoves of various types were distributed during the course of the programme. Surveys of users show that several years after starting to use the devices, most continued using them correctly, saving significant amounts of time and increasing their disposable incomes. In addition, women in the business of production and distribution of cook stoves earned profits.

After the phasing out of donor support in 2010, the intervention continues on a national scale, producing and distributing cookstoves in seven countries. SADC developed a regional Biomass Energy Strategy in 2010, and four countries have or are in the process of developing a National Biomass Energy Strategy. These strategies target facilitating and improving sustainable supply chains for efficient stoves and biofuels. A regional carbon facility, the Southern African Development Community Regional Carbon Facility, was established in 2011, to develop the carbon assets generated from ProBEC.

The results of ProBEC interventions show that with a comprehensive package of solutions, it is feasible to attain multiple, long-lasting, environmental, economic, and social benefits. Families and small businesses benefit, and on a national level there are savings of foreign exchange for energy imports. Globally, more efficient use of biomass and replacing fossil fuels with biofuels reduce net emissions of greenhouse gases, as well as optimising timber and non-timber forest products.

ProBEC was honoured at the 2011 Africa Energy Award ceremony as the winner in the "Best Clean Technology Solution Provider" category. The long-term perspective of the programme, its continuous focus on sustainability, and the ability to balance the regional policy-oriented focus with a country-wise, community oriented approach was considered important success factors for the programme.

BHUTAN

BEA – A GENDER BALANCED SUCCESS STORY

Support to electricity regulation has long been at the core of Norway's support to Bhutan through institutional cooperation with Norway's regulatory body NVE dating back to 2001. This was also the year when the Bhutan Electricity Authority (BEA) was established as a functional agency under the Electricity Act of Bhutan. BEA's function is to regulate the electricity supply industry of Bhutan and it was granted full autonomous status, independent of the legislator, by the Royal Government in 2010.

The long-standing cooperation between NVE and BEA has helped it get to where it is today – a young

1 the Southern African Development Community

and modern authority prepared to tackle the challenges of regulating the Government's ambitious programme of accelerated hydropower development, providing clean energy to the nation and lifting thousands of Bhutanese out of poverty with the income and opportunities offered by power exports to India. In this country with a history of the empowerment of women, almost half of the 35 staff of the authority are women.

BHUTAN'S DEPARTMENT OF ENERGY REORGANISED AND EXPANDING TO MEET THE DEMANDS OF THE ACCELERATED HYDROPOWER DEVELOPMENT PROGRAMME OF BHUTAN

Bhutan is currently working on implementing its policy of accelerated hydropower development and is on target to achieve the goal of adding 10 000 MW of clean renewable hydropower capacity to its energy supply by 2020. The majority of the energy will be exported to India, replacing thermal generation, earning income for Bhutan and improving economic development and livelihoods in the country. Bhutans Department of Energy is being expanded and was recently reorganised to be able to handle the challenges of such an ambitious taking.

All the existing hydropower plants and the projects for the 10 000 MW development plans are the direct result of the Power System Master Plan developed with Norwegian Assistance starting as early as 1989. The human resources of the Bhutanese energy sector have been enhanced through the various phases of assistance from Norway. From the single Department of Power a decade back, the energy sector of Bhutan has grown to take the responsibility of increasing mandate of planning, generation, transmission, regulation and other issues. Today, Bhutan has three governmental departments, one autonomous regulatory body, and two government owned corporations to address the various issues related to the electricity sector.

The Bhutanese Ministry of Economic Affairs and the Norwegian Water Resources and Energy Directorate, NVE, is now about to enter a fourth phase of cooperation. With this new phase the institutional cooperation will span a period of more than 10 years.

INTERNATIONAL ENERGY AND CLIMATE INITIATIVE – ENERGY+

The Norwegian Government decided to develop an international energy and climate initiative in early 2011, based on a recommendation from an inter-ministerial working group. The Ministry of Foreign Affairs has established a dedicated team to spearhead the efforts, with participation from the Ministry of Environment, the Ministry of Petroleum and Energy and the Norwegian Agency for Development Cooperation. The initiative was officially launched during the Energy for All conference in October 2011.

Energy+ will support efforts to achieve universal access to sustainable energy and reduce greenhouse gas emissions in developing Partner countries by scaling up access to renewable energy sources and increasing energy efficiency. Energy+ will use public sources of finance in ways that will mobilise and incentivise commercial investments that lead to increased energy access and energy efficiency in developing Partner countries.

By the end of 2011 more than forty countries and organisations have joined the Energy+ Partnership. This includes multilateral development banks, donors, developing countries, international organizations, think-tanks and civil society

organisations. In 2011 the Energy+ Partnership has initiated the following:

- The South African Renewables Initiative (SARi) was launched in December. The UK, Germany, Denmark, Switzerland, The European Investment Bank and Norway signed a declaration of intent to provide support to SARi.

- During COP17 in Durban, a strategic partnership on climate change between Ethiopia, UK and Norway was announced. The partnership comprises three pillars; energy, forest and agriculture. Norway pledged annual performance-based support up to USD 60 million evenly split between the three pillars.

- Dialogues with Kenya, Ethiopia, the Maldives, Liberia and India with a view to developing specific country level Energy+ partnerships and innovative financing

- Initiated a series of private sector consultations. The first roundtable was held in Washington DC in November 2011.

Read more about the principles and guidelines for Energy+ on page 20

NORWEGIAN ASSISTANCE TO CLEAN ENERGY FOR DEVELOPMENT

Energy has been at the core of Norway's development assistance policy for many years, and in 2011 the Norwegian assistance to clean energy for development amounted to approximately NOK 1.5 billion.

Energy access is perhaps the single factor that has meant the most to modern societies and their citizens. Access to modern lighting and electricity can significantly reduce health hazards and air pollution, help families generate more income, and give children more time and better conditions to do their school work. Further, economic growth is strongly linked to increased energy consumption and, in particular, increased electricity consumption. Without access to a reliable electricity supply, businesses are forced to depend on private diesel or petrol generators, typically costing three or more times the cost of grid supplied electricity. Unreliable electricity supply is typically cited as a major constraint to growth, particularly for small and medium enterprises, and outages can cost businesses significant revenues. However, a too small share of the world's energy is clean and renewable, and the figures for emissions of greenhouse gases are still heading in the wrong direction.

Much of the hydropower potential in developing countries remains undeveloped, and mapping of wind potential has only just started in some countries. While coal-fired power may often represent the lowest cost of supply, the development of large scale coal power plants is a daunting task, both technically, financially and environmentally. Despite their capital intensity, the costs of both hydropower and wind technologies have reduced significantly over the recent years, making these renewable energy solutions more cost effective. The increased investment in renewable energy that has been experienced in the OECD is also needed in emerging markets.

The Government has placed Norwegian development policy in the middle of this dilemma between development and environment – precisely because solutions must be reciprocal and simultaneous, and we must have the courage to face both challenges. For the global climate challenge to be resolved and the climate goals to be reached, the growth in energy demand has to be met with renewable energy and energy efficiency. To address these dilemmas when providing assistance in the energy field Norway has initiated two main initiatives; the "Clean Energy for Development Initiative" and the "International Energy and Climate Initiative – Energy+".

THE CLEAN ENERGY FOR DEVELOPMENT INITIATIVE

Acknowledging that access to energy is a necessity in the fight against poverty and a prerequisite for economic development, the Clean Energy for Development Initiative was launched in 2007 with the following overarching goal:

"To increase access to clean energy at an affordable price based on the long-term management of natural resources and efficient energy use. It is also intended to contribute to sustainable economic and social development in selected partner countries and to international efforts to reduce greenhouse gas emissions."

(Clean Energy for Development Initiative – Policy Platform)

Increased focus on energy issues and its importance in the climate agenda, coupled with a significant increase of funds allocated to energy related activities within Norwegian development aid, required better coordination of Norwegian efforts.

The Clean Energy for Development Initiative brought this about[2].

ENGAGING THE PRIVATE SECTOR

Despite the robust economic growth seen over the past decade in many emerging markets, investment in new generating capacity has often failed to meet the growth in demand. At the current time, 1.3 billion people live without access to electricity[3]. As a result, many countries have to rely on emergency solutions, often through installing large volumes of diesel or heavy fuel oil generators. Operating costs typically exceed tariff revenues, thereby perpetuating the cycle of poor financial performance in the utility sector. The only way to overcome the major challenges of ensuring global access to electricity services is to accelerate investment in long-term solutions making use of the renewable energy resources available in each country.

Current levels of financing, together with existing programmes and initiatives, are insufficient to address the challenges at hand at the required scale and scope. The IEA estimates that in 2009 USD 9.1 billion was invested globally to extend access to energy services. To provide universal modern energy access by 2030, annual investment needs to average more than five times this level (USD 48 billion). Public and donor funds will not be able to finance the significant amounts needed to boost the energy sector development alone.

"Private sector investment needs to grow the most, but significant barriers must first be overcome. Public authorities must provide a supportive investment climate, such as by implementing strong governance and regulatory reforms. The public sector, including donors, needs also to use its tools to leverage private sector investment where the commercial case is marginal."

(IEA – World Energy Outlook 2011).

The Clean Energy for Development Initiative is accommodating the private sector in various ways. The main tools for direct support to the private sector are the funding mechanisms of Norfund, GIEK and Norad's Section for Private Sector Development. Public-private partnerships are essential, and support is also given to infrastructure projects (e.g. transmission lines), capacity building, regulatory reforms and research projects to facilitate for private investments and improve the investment climate. These are only some examples of the tools and assistance used to engage the private sector.

INSTITUTIONAL COOPERATION

In order to reach the goals set forth in the Clean Energy for Development Initiative, funds are often utilised to assist in developing a well functioning framework of institutions, policies, rules and regulations in the energy sector. Capacity building and institutional strengthening is therefore of great significance for the overall Norwegian energy efforts. In several of the countries where Norway engages in the energy sector, assistance and expertise from key partners is crucial to support the capacity building and institutional strengthening activities.

Norad has entered into a framework agreement with the Norwegian Water Resources and Energy Directorate (NVE), to draw upon NVE's extensive competence and experience within energy and water resource management in our dialogue with partner institutions in developing countries. Statnett, the Norwegian Transmission System Operator, is another key partner. Statnett contributes with expertise in its field and is a sought after partner when it comes to institutional cooperation. The International Centre for Hydropower (ICH) also holds a strong position as a

2 http://www.norad.no/no/tema/energi/ren-energi
3 Reference: IEA, WEO 2011

capacity building institution in the field of developing clean energy projects. Other key partners and their contribution will be introduced later.

RESULTS MANAGEMENT

Results management is a priority within the Clean Energy for Development Initiative; to ensure and communicate the effects of development programmes/projects and to develop best practice systems. Projects and programmes develop results management systems and logical models to create a basis for evaluating effects of the intervention.

The various programmes and activities are reviewed and assessed regularly. Smaller scale reviews are undertaken throughout the project cycles as part of their results management systems, while larger scale assessments are undertaken in a more strategic manner.

CROSS-CUTTING ISSUES

Investments in energy projects are important for development. However, many components might threaten the projects' sustainability. To ensure sustainability, the projects need to balance commercial interests with social and environmental safeguards. Construction projects will often create new dynamics and affect the local population on areas such as land acquisition, resettlement and land use. Projects may lead to destruction of natural habitats and cultural property, and indigenous people may be affected. Migrant workers might pose a challenge as their presence can lead to increased disease infection rates (Sexually Transmitted Diseases and HIV/Aids) and pressure on local public services. Further, it is acknowledged that corruption and misuse of resources are risk factors when initiating new cash flows.

Norway takes part in a dialogue on sustainable energy investments. Together with representatives from private sector, NGOs and the host government, issues regarding sustainable energy investments are discussed. The discussions have a particular focus on indigenous people's rights, benefit sharing, gender, human rights, national and international law, corruption, transparency and environment. Likewise, the Clean Energy for Development Initiative aims to integrate various cross-cutting issues in all its programmes and activities at different levels and at different stages.

GENDER MAINSTREAMING IN CLEAN ENERGY: CROSS-CUTTING EFFORTS

- Norad gives priority to women's situation and gender equality through gender mainstreaming (GM). Norad has entered into a framework agreement with ENERGIA[4], a leading international network on gender and sustainable energy to assist in this work.

- A background paper for the World Development Report 2012 focusing on development and gender equality was developed in 2011. WDR 2012 is an important documentation of gender mainstreaming as smart economics. The background paper examines if and how access to modern energy and energy-efficient technologies meet the challenges related to tackling poverty in a gender-equitable way.

- Norad Discussion Report 20/2011, "Gender Equality in Financing Energy for All", was developed for "The Energy for All" conference in Oslo in October 2011. The report documents how gender-responsive energy financing can

4 www.energia.org

contribute to basic human rights and economic efficiency. The report has become an important reference document for gender mainstreaming in the sector.

- The Norwegian Water Resources and Energy Directorate (NVE) is proactive in promoting gender in its development cooperation. In 2011 they undertook a one-week workshop in Norway to strengthen participants' knowledge on how to integrate gender in the sector. In addition, NVE has started to implement gender activities in its institutional cooperation programme with the Liberian Ministry of Land, Mines and Energy (MLME).

- The Norwegian Embassies in Maputo and Kampala are pilot embassies for gender equality. In addition, a first mission to identify possibilities for integrating gender in the Clean Energy and OfD programmes in Timor-Leste was undertaken. Read more about the projects under the respective countries.

- For more information see: www.norad.no/en/thematic-areas/energy/gender-in-energy

FINANCIAL OVERVIEW

There has been a steady increase in funds allocated to clean energy activities during recent years, both within multilateral and bilateral development assistance. Total development assistance to clean energy in 2011 was approximately NOK 850 million. In addition to this come the funds allocated to Norfund, which in 2011 amounted to NOK 680 million.

Norway provides significant funds to clean energy through various multilateral channels; in 2011 this amounted to approximately NOK 217 million. However, overall Norwegian support through multilateral channels is often given as core support, not earmarked for specific sectors. Further, Norwegian funds might be reported as support to environment, although significant shares of the support might be channelled to energy related activities (energy being a sub category). This implies that the figures presented in this report represent an underestimation of the total Norwegian development assistance to clean energy activities.

Figure 1 illustrates assistance to clean energy over the period 2005 to 2011. The increased allocation to clean energy over the years is clearly visible, as is also the importance of funds invested by Norfund within the Clean Energy for Development Initiative. During the seven year period from 2005 until 2011, a total of approximately NOK 7.3 billion was allocated to development cooperation on clean energy.

Figure 1 – Assistance to clean energy in NOK million over the period 2005-2011

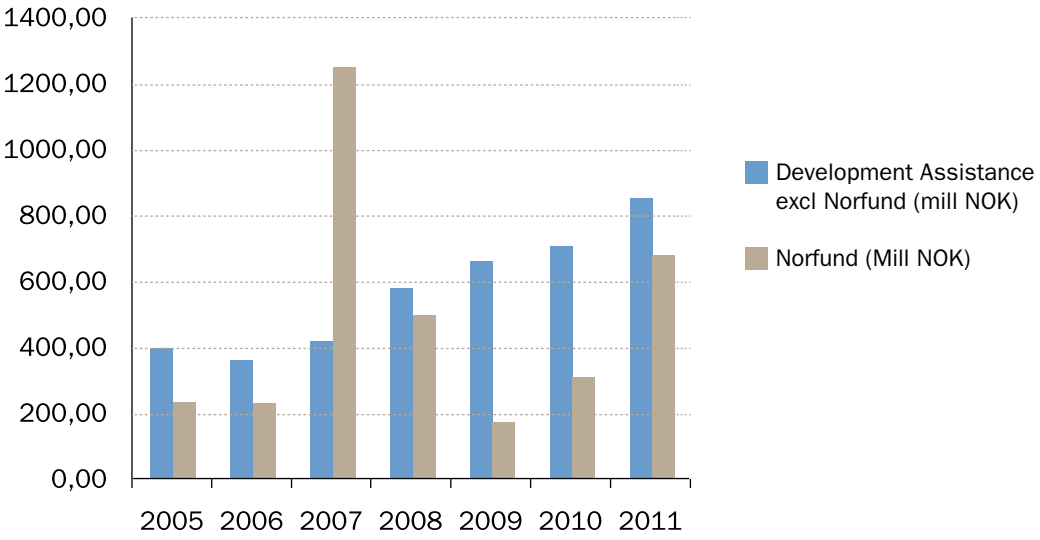


Figure 2 illustrates the division of funds allocated through bilateral vs. multilateral channels over the period from 2005 to 2011. In light of the above elaboration, it is again stressed that the multilateral portion is significantly underestimated. However, the figure shows a trend of increased support to energy also in the Norwegian support to multilateral efforts.

Figure 2 – Bilateral vs. multilateral assistance to clean energy over the period 2005-2011 (excluding investments through Norfund)

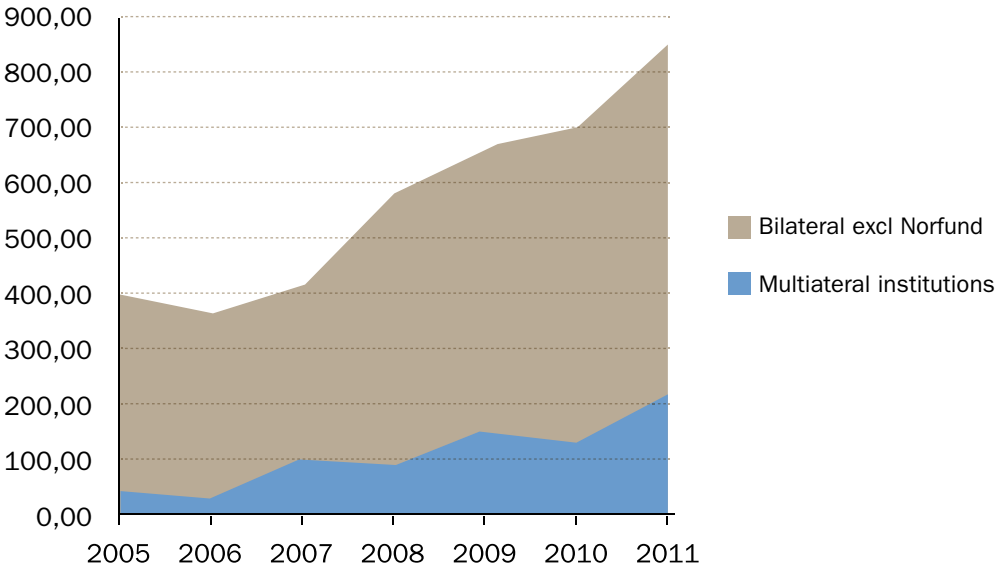


Figure 3 shows development assistance to clean energy by type of assistance. The core of the Norwegian support is directed towards energy policy and administrative planning, power generation from renewable sources and electricity transmission and distribution. Continued focus on support to these sectors over the years is a result of this being areas where Norway holds special expertise and where it is believed that Norwegian support can contribute to making a difference. Support to energy policy and administrative planning is furthermore believed to be important for creating a framework in which the energy sector can prosper, and for attracting private investments.

Figure 3 – Assistance to clean energy in 2011 by type of assistance (excluding investments through Norfund)

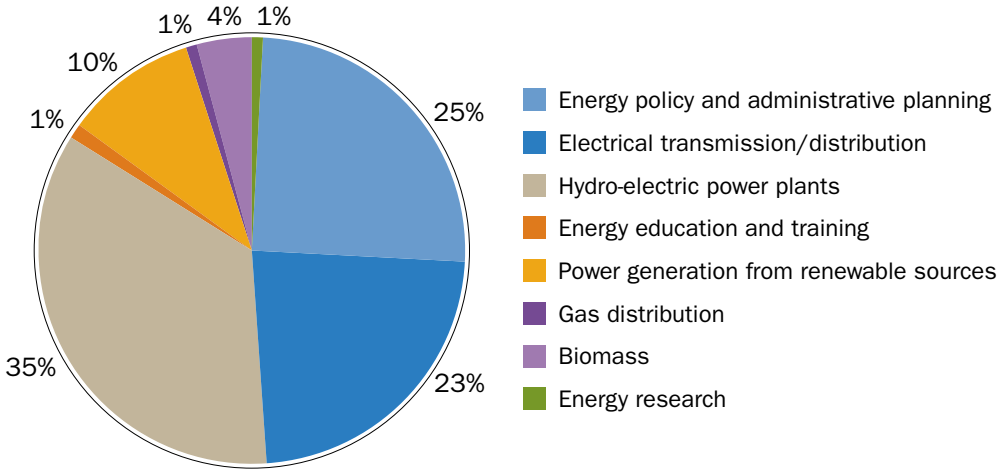


Figure 4 illustrates how the Norwegian assistance is distributed between regions covered by the Clean Energy for Development Initiative. Remaining allocations are illustrated as 'global'.

Figure 4 – Assistance to clean energy by region in 2011

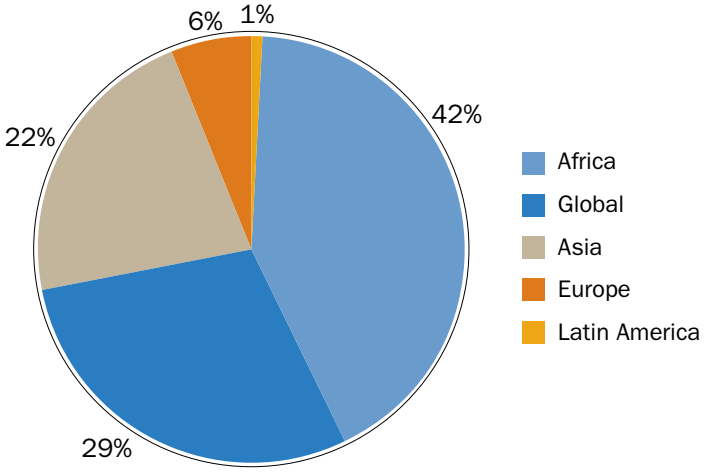
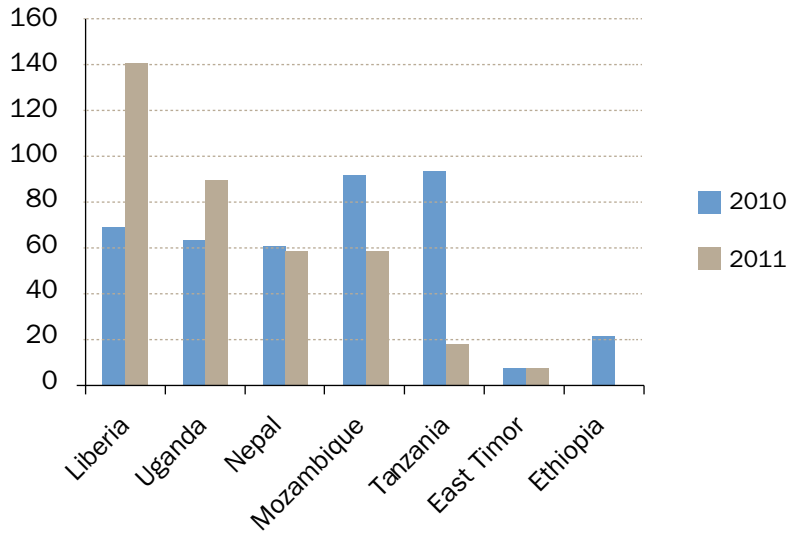


Figure 5 illustrates the division of funds allocated to the seven core countries in the Clean Energy for Development Initiative. Liberia was the country receiving the largest allocation of funds in 2011.The amount allocated to the core countries each year is highly dependent on the progress of various projects, and can vary significantly from year to year. As an example, Tanzania was the country receiving the largest allocation of funds in 2010, with approximately NOK 100 million. In 2011, the assistance to Tanzania amounted to around NOK 19 million.

Figure 5 – Assistance to clean energy in priority countries in 2011 in NOK million (excluding investments through Norfund)



INTERNATIONAL ENERGY AND CLIMATE INITIATIVE – ENERGY+

The Norwegian Government decided to develop an international energy and climate initiative in early 2011, based on a recommendation from an inter-ministerial working group. The Ministry of Foreign Affairs has established a dedicated team to spearhead the efforts, and the team will work for two years and then conclude how to take the initiative further. The Prime Minister of Norway and the United Nations Secretary-General launched the International Energy and Climate Initiative - Energy+ at the "Energy for all – financing access for the poor" conference in Oslo on 10 October 2011.

The United Nations has announced that 2012 will be the "International Year for Sustainable Energy for All" with the aim of providing universal access to modern energy services, doubling energy efficiency, and doubling the share of renewable energy in the world's energy supply by 2030.

The Energy+ will support efforts to achieve universal access to sustainable energy and reduce greenhouse gas emissions in developing Partner countries by scaling up access to renewable energy sources and increasing energy efficiency. Energy+ will use public sources of finance in ways that will mobilise and incentivise commercial investments that lead to increased energy access and energy efficiency in developing Partner countries. Energy+ builds on the conceptual framework of REDD+ (reducing emissions from deforestation and forest degradation) and its phased approach.

ENERGY+

- Energy+ is an international partnership which aims to increase access to energy and reduce or avoid greenhouse gas emissions by increasing energy efficiency and access to renewable energy in developing countries.
- The Energy+ Partnership will enter into compacts (Letters of intent) with committed developing country partners stating a set of specified, practical actions to increase energy access and improve energy efficiency.
- ODA[5] is insufficient to meet the estimated investment needs to provide universal modern energy access by 2030. The public sector needs to use its funds and tools smartly to leverage greater commercial investments.
- Energy+ builds on the premise of a sectoral approach, as opposed to a project-by-project approach.
- Energy+ promotes a phased introduction of results-based donor funding, and will use existing programmes and institutions to limit transaction costs.
- Energy+ supports the UN Secretary-General's Sustainable Energy For All (SE4All) initiative launched in November 2011, which aims to meet three interlinked global objectives by 2030: First, ensuring universal access to modern energy services; second, doubling the rate of improvement in energy efficiency; and third, doubling the share of renewable energy in the global energy mix by 2030.

5 Official Development Assistance

Norwegian Prime Minister Jens Stoltenberg and UN Secretary General Ban Ki-moon at the Energy for all – financing access for the poor conference in Oslo
Photo: Kilian Munch

ENERGY+ – CURRENT PARTNERS

The Energy+ Partnership is open to all and comprises countries and institutions that agree with and aim to work towards the principles stated in the Energy+ declaration. By the end of 2011 more than forty countries and organisations have joined the Energy+ Partnership. This includes multilateral development banks (the World Bank Group, ADB, IDB, AfDB), UN organizations (UNDP, UNIDO, UNEP), donors (UK, France, the Netherlands, Denmark, Switzerland, South Korea), developing countries (Kenya, Bhutan, Liberia, Ethiopia, Maldives, Senegal, Morocco, Tanzania, Nepal, Mali), international organizations (IEA, OECD), World Business Council for Sustainable Development (WBCSD), think-tanks and civil society organisations.

Each partner's specific contribution or means of support for the initiative will vary depending on the national or regional conditions and nature of the partners' expertise and experience. Support from partners is voluntary and non-binding.

DIALOGUE WITH PRIVATE SECTOR

The private sector has a vital role to play in financing universal access as public sources alone are insufficient to raise the necessary capital. Investments are attracted to markets where there are strong demand, stable policy environment and well functioning and profitable commercial companies that can be local partners. Investors are looking for countries that have a clear sense of priorities and a schedule to develop new sources of electricity. Through performance-based approaches, Energy+ will support countries to:

i. develop national energy plans with a results-based financing approach;
ii. gather and disseminate information necessary to make investment decisions and design successful projects;
iii. develop a regulatory framework for investments and contracts; and
iv. develop innovative and alternative financing models.

Energy+ convened a private sector roundtable in Washington DC in November 2011. Predominantly US based investors participated. Private sector participants suggested that an important role for Energy+ could be in assisting with developing national energy strategies. This would include providing technical support and assistance in the development and drafting of a plan that has clearly defined goals and policy levers, such as a renewables portfolio standard, gathering and disseminating information necessary to make investment decisions and designing successful projects, establishing a database to track the flows of public money in order to figure out what works, what does not, and where the gaps are. Participants also observed that Energy+ could support the development of a regulatory framework

for investments and contracts, and participants stressed the need to explore innovative and alternative financing models that are suited to address the risks associated with energy investments in developing countries.

COUNTRY PROGRAMMES

Energy+ will launch demonstration programmes with selected developing countries that have a significant proportion of their population without access to modern energy services, a demonstrated record of political commitment to address this issue, national low-carbon development strategies and a will to create a supportive investment climate for private investors. In 2011 the Energy+ Partnership has initiated the following:

- The South African Renewables Initiative (SARi) was launched in December. The UK, Germany, Denmark, Switzerland, The European Investment Bank and Norway signed a declaration of intent to provide support to SARi.

- During COP17 in Durban, a strategic partnership on climate change between Ethiopia, UK and Norway was announced. The partnership comprises three pillars; energy, forest and agriculture. Norway pledged annual performance-based support up to USD 60 million evenly split between the three pillars.

- Initiated dialogues with Kenya, Ethiopia, the Maldives, Liberia and India with a view to developing specific country level Energy+ partnerships.

At the country level, the Energy+ Partnership will be based on a sectoral approach, as an alternative to a project-based approach. The sectoral approach will be implemented in three phases to support development of an enabling environment for innovative energy-related initiatives, using result-based payments and other incentives:

- In Phase 1, Energy+ will support development of low-carbon and energy sector strategies, establish a reference level for projected emissions from energy production and use and access to energy, and strengthen technical and institutional capacity to support private sector investments.

- In Phase 2, Energy+ will support prioritised investment projects in institutional capacity building, implementation of policy and legal reforms, establish monitoring and reporting systems, enable transparency and efficiency of regulatory regimes, and enable functioning of incentive mechanisms.

- In Phase 3, Energy+ will support results-based payment systems aligned with strategies in developing partner countries based on emissions reductions or increased access relative to the reference level, based on agreed-upon country level indicators.

The duration and scope of each phase will depend on the country's starting point. The phases can overlap and will be flexibly applied.

CONTRIBUTION TO CLIMATE CHANGE NEGOTIATIONS

Energy+ will be a contribution to the climate negotiations in two ways; it will a) accelerate planning and implementation of NAMAs[6] already proposed under the UNFCCC[7] and underway in

6 Nationally Appropriate Mitigation Actions
7 United Nations Framework Convention on Climate Change

some developing countries, and b) develop a methodology and practical experiences for a sectoral approach that can be used as constructive inputs into the negotiations, facilitating the development of guidelines for measurement, reporting and verification MRV[8] of emission reductions and developing methodology and experiences in establishing new carbon markets.

DEVELOPMENT OF THE ENERGY+ APPROACH

Analytical work required to develop the Energy+ implementation framework will be conducted by a Technical Working Group comprised of technical experts managed by the Energy+ Secretariat in Norway to provide specific recommendations or options from which partners can choose as they implement Energy+ activities. This group, which was established in 2011, will be responsible for delivering a comprehensive report on key issues to be addressed by Energy+ Partners in implementing country-level activities and/or in managing Energy+. All partners are encouraged to contribute with relevant analytical work that can help to develop the methodological framework for Energy+.

NORFUND

"Renewable energy projects are time and capital intensive. It is important to draw on the private sector to meet the challenge in an efficient way. This is why Norfund's main investment sector is renewable energy"
(Kjell Roland – Norfund)

Norfund is the commercial investment instrument (Development Finance Institution) in Norwegian development assistance. Norfund's objectives are to contribute with equity and other risk capital for the development of sustainable commercial activities in developing countries. Private sector projects in developing countries are often perceived as high risk, and do not attract the necessary investment capital. By investing in sectors that are important for economic development, the fund contributes to economic progress and poverty reduction. In addition to supplying important capital directly, Norfund's investments have important catalytic effects. By proving that profitability is possible and taking on high risk positions, Norfund attracts additional capital from other investors.

The lack of electricity is a key constraint for growth and development in most LDCs[9], and the development effects of projects aimed at increasing access to power are therefore crucial. Based on the importance of the energy sector, it has been chosen to be the major investment area for Norfund. Coupling capital with the long and deep experience of Norwegian partners in hydropower projects has been central to Norfund's strategy, and half of the annual allocations to Norfund are to be invested in renewable energy.

8 Measurement, reporting and verification

9 Least Developed Countries

KEY FACTS ABOUT NORFUND'S RENEWABLE ENERGY PORTFOLIO:

- Total investments of NOK 3.6 billion in eight projects
- Largest investment is in SN Power (NOK 3.2 billion), which is constructing/operating 24 plants
- New company, Agua Imara, established to invest in Africa and Central America based on experience from SN Power
- Mostly hydropower, but also wind and solar
- Mostly direct equity positions in projects, but also renewable energy through SME[10]-Funds (private equity funds investing in small and medium sized enterprises)

NORFUND – A CATALYST FOR MORE CAPITAL

Norfund invests in projects with high development effects, and has a strong sectoral focus on renewable energy. Norfund's strategy is to mobilise sound technical partners while at the same time diversifying its portfolio. So far Norfund has concentrated on hydropower as this has been proven the most cost efficient technology, but the fund is to an increasing degree investing in wind and solar energy.

SN Power has been the main tool for Norfund within renewable energy, constituting half of Norfund's total portfolio and 87 percent of the investments in renewable energy. SN Power has shown that with the right combination of capital and expertise it is possible to deal with the many risk factors involved in making renewable energy investments commercially sustainable.

In addition to capitalising on the competencies of Norwegian partners such as Statkraft, TrønderEnergi and BKK, Norfund cooperates with other international investors within renewable energy. In 2010 Norfund took a central role in the establishment of the Interact Climate Change Facility (ICCF)[11] together with European sister-funds, to increase capital availability to renewable energy projects.

PROJECT MANAGEMENT

To monitor, manage and document development effects from its projects, Norfund follows up each investment and requires annual reporting of development effects. For renewable energy investments these include:

- Number of employees in the companies, and the share of these who are female
- Corporate taxes paid by the companies
- Production capacity for electricity
- Reduced CO2 emissions as a result of renewable energy replacing other sources

ACTIVITIES IN 2011

In 2011 Norfund was allocated NOK 1030 million of the Norwegian development aid budget. 50 percent of this was earmarked for investments in renewable energy, and the total committed investments in renewable energy for 2011 was NOK 1246 million, i.e. well above the 50 percent benchmark. Norfund is able to invest more than the annual capital allocations due to the positive developments in the portfolio over time. All profits from earlier project exits are re-invested in new projects.

10 Small- and medium-sized enterprises

11 Interactive climate change facility

The first investment made in renewable energy in 2011 was NOK 31.6 million in the solar company Tough Stuff. Tough Stuff sells small, robust solar panels for private use (see case description). Two other direct investments were carried out in small scale hydropower projects: a NOK 23 million loan to the 9 MW Nam Sim project in Laos, and NOK 32 million in the 5 MW Hidro Santa Cruz plant in Guatemala.

SN Power received two capital allocations totalling NOK 1027 million in 2011, and Agua Imara received NOK 112 million of funding for the projects in Panama and Zambia (see case descriptions).

In addition, Norfund invested NOK 21 million in two projects in Kenya through the newly established project development facility (PDF). This facility supports early stage development of projects that hopefully will become full scale investment projects in the future.

For more information on Norfund see: www.norfund.no/

CASES: NORFUND PROJECTS

BUGOYE

Norfund has invested NOK 69 million in the Bugoye hydropower plant in western Uganda as a joint venture together with TrønderEnergi. Bugoye was the first modern hydropower plant build in the region for 14 years when it was commissioned in 2009. The mean annual production is 82 GWh, equal to 2.7 percent of total production in Uganda in 2011.

SN POWER

SN Power has invested more than USD 1600 million in equity through acquisitions and development of new hydropower projects in Asia and Latin America. The company's vision is to become a leading hydropower company in emerging markets, contributing to economic growth and sustainable development.

Currently, SN Power is involved in hydropower and wind generation in the Philippines, Nepal, India, Chile, Brazil, Sri Lanka and Peru. Hydropower projects are under construction and/or assessment in Peru, Brazil, Nepal, India, Vietnam and the Philippines. SN Power's share of installed capacity in these operating plants and construction projects amounts to 1140 MW, with an annual mean generation of almost 5 TWh.

SN Power and its subsidiaries have 427 employees worldwide. 584 people are employed through non-consolidated joint venture companies in which SN Power is a partner, and more than 5 000 people works at construction projects where SN Power is an investor.

AGUA IMARA

Agua Imara was founded by SN Power and Norfund in 2009 as the SN Power Group's vehicle for expansion into Africa and Central America. The overall business concept is to develop, build, acquire, own and operate sustainable renewable energy projects, with a main focus on hydropower, throughout sub-Saharan Africa and Central America. Agua Imara's investments are to contribute to sustainable development. All projects entered into should have minimal adverse impact on society and the environment and yield positive benefits for both local communities and society at large through the increased generation of renewable energy.

Key to Agua Imara's strategy is the aim to be a long-term industrial investor, capitalising on its

Norwegian and international hydropower competence and expertise, and to seek a controlling influence in all business activities. During the first three years of operation, initial activities have focused on establishing local presence and evaluating project and partnership options, primarily in Panama, Costa Rica and Southern Africa

TOUGH STUFF

More than 580 million people in Africa do not have access to electricity, and more than half use kerosene lamps as their main source of light. Other light and electricity sources such as candles, biomass and diesel generators are often expensive, create health hazards and air pollution.

Electricity is also vital for charging mobile phones, whose usefulness extends far beyond communication with friends and family and include access to health information, weather forecasts, and financial services. For many poor people, the costs of charging phones may represent up to one-third of the total costs associated with the phones.

The company ToughStuff has developed robust, cheap, 1 watt solar panels. The panels can be used to charge a lamp; they can be connected to a radio; they can charge a spare battery; or they can charge mobile phones. ToughStuff has sold over 700 000 products, and Norfund's investment of NOK 33 million is allowing them to scale up their activities further, particularly in East Africa. Compared with the costs of kerosene, candles, non-rechargeable batteries and mobile phone charging, the user recoups his or her investment in 2-3 months.

BILATERAL COOPERATION

Bilateral cooperation in the Clean Energy for Development Initiative is particularly focused on areas where there is a demand for Norwegian expertise, and where it is believed Norway can make a difference.

In core countries, the bilateral cooperation is extensive and covers several areas within the energy sector. The core countries for bilateral cooperation within the Clean Energy for Development Initiative are Ethiopia, Liberia, Mozambique, Nepal, Tanzania, Timor-Leste and Uganda. There are historical and political reasons why these countries are core countries; however they have some of the following features in common:

- Cooperation within energy has been ongoing for some time, and agreements entered into are of long term perspective;
- the Norwegian support is focused on contributing towards sustainable environmental and social management of natural resources, and reduced emissions;
- the support contributes to increased access to renewable energy, and promotion of clean energy technologies; and
- the support aims to leverage commercial investments in order to facilitate the transfer of competence and capital.

In addition to these core countries, Norway has programmes with other (non-core) countries that vary in content and size. In some of these countries, Norway promotes private sector development by supporting projects initiated by private actors.

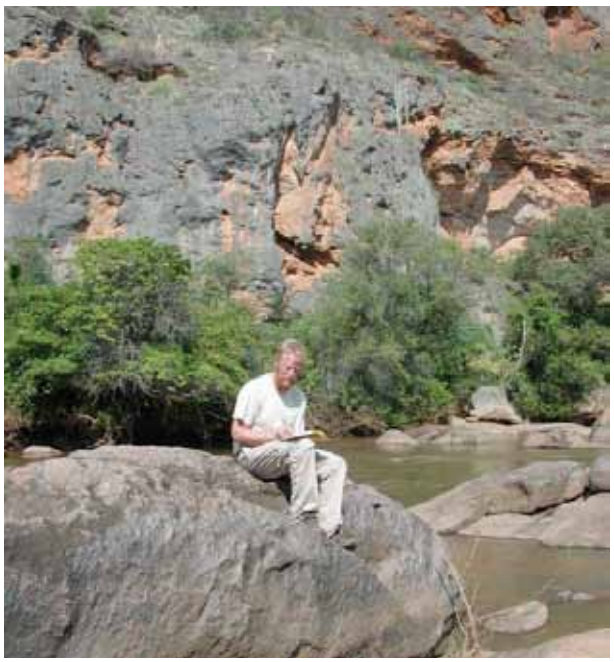
CORE COUNTRIES

ETHIOPIA
LIBERIA
MOZAMBIQUE
NEPAL
TANZANIA
TIMOR-LESTE
UGANDA

Photo: Vegard Willumsen

ETHIOPIA

–Genale, Ethiopia. Photo: Asbjørn Halvorsen, NORPLAN



In Ethiopia the national electrification rate is 14 percent. Norway has long supported the development of hydropower resources in the country. Developing Ethiopia's hydropower resources is crucial to underpin the country's overall economic development and industrialization efforts, and achieve a sustainable development.

In mid 2011, Ethiopia and Norway initiated a dialogue on Energy+. The initiative is in line with Ethiopia's priorities and the country has been selected as one of the pilot countries for demonstration of the initiative. At COP 17 in Durban, Ethiopia launched their green growth strategy aiming at becoming a middle income country by 2025, with no increase in green house gas emissions. At the same event Norway, together with the UK, announced their support to the green growth strategy within forestry (REDD+), clean energy and climate smart agriculture. Norway pledged up to USD 60 million annually for Ethiopia within these three pillars.

The Energizing Development Programme is ongoing in Ethiopia and by the end of 2011 Norway joined the Dutch-German Partnership by supporting the programme with NOK 64 million, out of which NOK 20 million is earmarked for Ethiopia.

The technical feasibility, environmental and social studies for the Mandaya and Beko-Abo Multipurpose projects in the Blue Nile basin was halted at the end of April 2011 due to the impact of the Grand Renaissance Dam (GRD)[12] on the Mandaya site. The capacity building and technical assistance within the Ministry of Water and Energy through an institutional cooperation with the Norwegian Water Resources and Energy Directorate, which is one component of the agreement, is still ongoing. Also ongoing is the technical support to the Eastern Nile Technical Regional Office (ENTRO)[13], aiming at facilitating regional consultations and information sharing between the three Eastern Nile countries (Egypt, Sudan and Ethiopia) with regards to the feasibility studies.

The Norwegian support to the East African Power Pool (EAPP) Coordination Centre and Independent Regulatory Body (IRB) is administered by the Norwegian Embassy in Ethiopia. This project will be introduced in the chapter on regional cooperation.

12 The Grand Renaissance Dam, situated on the Blue Nile, was launched in March 2011 by the Ethiopian Government, and has a capacity to generate 5250 MW
13 http://nilebasin.org/newentro/

Photo: Asbjørn Halvorsen, NORPLAN

ONGOING PROJECTS

FEASIBILITY STUDIES FOR THE BEKO-ABO AND MANDAYA

The Grant Agreement signed in 2009 on finance to the multipurpose projects comprises the following components:

- Pre-feasibility study of Beko-Abo (to be continued to a full technical feasibility study if recommended by the pre-feasibility study and by the Government of Ethiopia)
- Full technical feasibility study of Mandaya
- Full environmental and socio-economic impact assessment of Mandaya (and Beko-Abo if continued) by an independent consultancy team
- Capacity building programme between NVE and Ministry of Water and Energy (MoWE): Project Management Support & Procurement Support & Capacity building

Except the last component, the work progress of the first three has been halted due to the impacts of the Grand Renaissance Dam on the Mandaya site.

OBJECTIVES

The objectives of the feasibility studies are to enable the Ethiopian Government to make informed decisions on future multipurpose development, as well as to enable the region to prioritise future developments on the Blue Nile.

COOPERATING INSTITUTIONS

- Ministry of Finance and Economic Development, as a signatory
- Ministry of Water and Energy (MoWE), as an implementer
- Eastern Nile Technical Regional Office, as regional facilitator
- NVE for the capacity building and technical assistance to Ministry of Water and Energy

PROJECT PERIOD

2009–2012

TOTAL BUDGET

NOK 135.3 million

DISBURSED IN 2011

No disbursements in 2011

CAPACITY BUILDING PROGRAMME NVE AND MINISTRY OF WATER AND ENERGY (MOWE): PROJECT MANAGEMENT SUPPORT & PROCUREMENT SUPPORT & CAPACITY BUILDING

OBJECTIVES

The objective of the project is capacity building of and support to the executing agency MoWE in:

- Implementation of two feasibility studies and environmental and social impact assessments, and;
- Capacity Building of MoWE in project management and procurement and hydrological services.

COOPERATING INSTITUTIONS

- Ministry of Water and Energy (MoWE)
- NVE for capacity building and technical assistance to Ministry of Water and Energy

PROJECT PERIOD

2010–2012

TOTAL BUDGET

NOK 17.5 million (part of the 135.3 million budget for the "Feasibility studies for the Beko-Abo and Mandaya" project)

DISBURSED IN 2011

No disbursements in 2011

TECHNICAL SUPPORT TO EASTERN NILE TECHNICAL REGIONAL OFFICE (ENTRO) TO FACILITATE CONSULTATIONS AND REGIONAL ACTIVITIES FOR THE FEASIBILITY STUDIES OF MANDAYA AND BEKO ABO MULTIPURPOSE PROJECTS

This project comprises three major components, each having their specific tasks:

1. Overall coordination of technical support activities for Eastern Nile Technical Regional Office (ENTRO)
2. Data collection and information exchange
3. Regional consultation, capacity building, and institutional strengthening

OBJECTIVES

Ensure linkage and synergy between the Feasibility Study of Mandaya and Beko Abo and the Joint Multipurpose Program 1 Identification (JMP1 ID) for consensus in regional cooperation among the three Eastern Nile countries.

COOPERATING INSTITUTIONS

- Governments of Ethiopia, Sudan and Egypt
- Consultants procured for feasibility studies
- The Joint Multipurpose Project implemented by ENTRO

PROJECT PERIOD

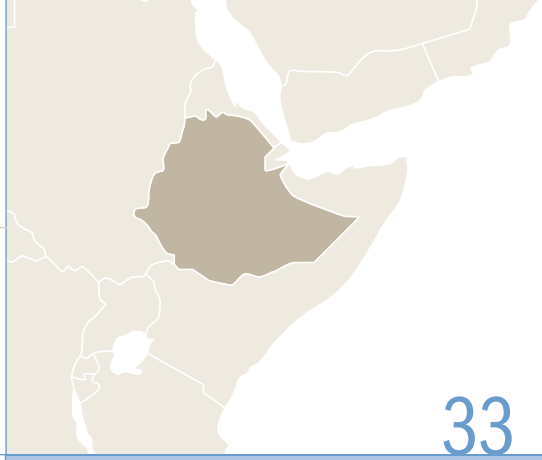
2009-2012

TOTAL BUDGET

NOK 6 million

DISBURSED IN 2011

No disbursements in 2011



KEY ACHIEVEMENTS IN ETHIOPIA 2011

- Ethiopia supportive of the Energy+ initiative and selected as a pilot country to demonstrate the initiative on the ground;
- At COP17 in Durban, Norway pledged up to USD 60 million annually for support to the Ethiopian Government's green economy strategy, focusing on forestry, clean energy and agriculture;
- Norway entered into the Energizing Development Partnership (EnDev) with funds earmarked for Ethiopia;
- The Government of Egypt provided comments to the draft pre-feasibility study report of Beko-Abo, draft inception report and draft EIA/SEIA of Mandaya through ENTRO. The comments were submitted to the Ethiopian Ministry of Water and Energy;
- National workshop with relevant stakeholders present was organized by MoWE to review the pre-feasibility study reports of Beko-Abo;
- A renewable energy seminar was organized for participants drawn from Norwegian and Ethiopian private and public sectors, as well as from other institutions working in Ethiopia;
- The Embassy initiated a study on 'Opportunities and Barriers to Renewable Energy Investments in Ethiopia';
- The Embassy initiated a 'Mapping of Private Sector Actors for Clean Energy in Ethiopia';
- Sediment and flood data secured for the 2011 flood season.

OFFICIAL NAME
Federal Democratic Republic of Ethiopia

CAPITAL
Addis Ababa

HEAD OF STATE
President
GIRMA Woldegiorgis

HEAD OF GOVERNMENT
Prime Minister
MELES Zenawi

POPULATION
85 237 338
(July 2009 est.)

ELECTRICITY PRODUCTION
3981 GWh (EEPCO 2010 strategic planning and programming report)

ELECTRICITY CONSUMPTION
3264 GWh (EEPCO 2010 strategic planning and programming report)

NUMBER OF CUSTOMERS
1.89 million

CURRENT INSTALLED CAPACITY
2100 MW

LIBERIA

According to a recent World Bank study, Liberia is probably the country in the world with the lowest access rate to a public electricity network (currently less than 1 percent). Norway is committed to supporting the rebuilding of the power sector, which was decimated during the civil wars from 1989 to 2003. In 2010, Norway finalised agreements which will likely make it the largest bilateral contributor to restoring electricity services throughout the capital Monrovia over the next 5 years, with about NOK 80 million per year. The centre piece of this support is the 5-year management contract for the Liberian Electricity Corporation (LEC)[14], and Manitoba Hydro International (MHI)[15] was selected as Operator from July 2010. The contract has enabled Norway and other donors to work together towards Liberia's goals by channelling significant investment contributions to the sector. This will enable an increase in grid connections from some 2500 today to well over 35 000 in 2015. Liberia has ambitious plans concerning renewable energy production and Norway's contribution to strengthening and extending the network is an essential component in realizing these ambitions.

In 2011, Norway made a commitment to support the reconstruction of the nationally strategic hydropower station, Mt. Coffee (about 65MW), with up to NOK 400 million. The hydropower station was the primary asset of LEC before the war and has the potential to allow for accelerated energy access programs and significant reduction in the end-user tariff, currently among the highest in the world. More broadly, the power sector in Liberia is still very small and Norway is now involved in nearly all aspects of the sector's development, supporting the following activities:

- Critical generation and distribution installations through the Monrovia "Gaps" Project, which has enabled some 3500 new connections and was completed in 2011
- Financing of the fixed and performance fees associated with the LEC Management Contract (2010-2015)
- A programme agreement committing up to NOK 189 million over 5 years to the implementation of LEC's investment plans (2010-2015)
- An institutional capacity building programme between NVE and Ministry of Lands, Mines and Energy (MLME) (2010 to 2015)
- Co-financing the fast-track rehabilitation of the hydro power station Mt Coffee

The overall energy programme in Liberia targets many important elements of the Clean Energy for Development Initiative; access to clean energy, pro-poor approach, gender mainstreaming, long term management of natural resources, well functioning and transparent framework for the energy sector and sustainable economic and social development. The LEC Management Contract is receiving international attention for the innovative PPP and the early results, with the IFC PPP Advisory Services having won second prize in the prestigious IFC "Smart Lessons" competition.[16]

14 http://www.libelcorp.com/
15 http://www.mhi.mb.ca/
16 http://www1.ifc.org/

ONGOING PROJECTS

MANAGEMENT CONTRACT FOR LIBERIAN ELECTRICITY CORPORATION (LEC) & SUPPORT TO THE ASSOCIATED 5-YEAR INVESTMENT PROGRAMME

OBJECTIVES OF THE PROJECT

The overall objective of this support is to put in place an international operator who will manage LEC for 5 years and thereby:

- Establish LEC as a competent, professional, financially robust and responsible electric utility.
- Significantly improve electricity services throughout Monrovia, reduce sector costs and thereby electricity prices, and enable LEC to effectively manage donor contributions so as to achieve at least 30 000 new connections.

COOPERATING INSTITUTIONS

- Ministry of Lands, Mines and Energy
- Liberian Electricity Corporation
- International Finance Corporation

PROJECT PERIOD

2010–2015

TOTAL BUDGET

NOK 275 million

DISBURSED IN 2011

NOK 127 million

INSTITUTIONAL COOPERATION BETWEEN MLME AND NVE 2010–2015

OBJECTIVES OF THE PROJECT:

The overall goal of the institutional cooperation is to contribute to the economic and social development of Liberia. This will be done through capacity building at the Ministry of Lands, Mines and Energy, by helping to develop skills for monitoring and managing water and energy resources. The Programme is based on the following seven components:

- Preparation of a legal and regulatory framework for the power sector
- Capacity building in the MLME and LEC, as well as other government agencies where relevant
- Generation, planning and coordination
- Upgrading of the national hydrometeorological network and database
- Rural and renewable energy
- Gender aspects and women's empowerment in the energy sector
- Coordination and backstopping from NVE

COOPERATING INSTITUTIONS

- Ministry of Lands, Mines and Energy
- NVE

PROJECT PERIOD

2010–2015

Small light today, big light tomorrow Photo: Solveig Ulseth, NORPLAN

TOTAL BUDGET
NOK 52 million

DISBURSED IN 2011
NOK 14.9 million

KEY ACHIEVEMENTS IN LIBERIA 2011

- Manitoba Hydro, in a joint venture with Kenyan Power and Light Corporation, took over full management of LEC when the management contract commenced in July 2010. A consulting company was recruited to assist the Board of LEC.

- LEC's performance during its first year under MHI's management has demonstrated that a well-structured management contract with an appropriate incentive framework can be a useful tool for governments looking to improve the performance of state-owned electricity utilities.

- In the first year, MHI performed well against the targets:

  – New connections: Nearly 2500 (against a target of 3000), despite delays in procurement and donor funding for materials used for connections. LEC has 4659 active connections, more than doubling its customer base over the year and providing access to about 12 500 additional people (based on a household of five).

  – Collection rate: 92.2 percent (against a target of 94.0 percent).

  – Total losses: Reduced to 18.2 percent (against a target of 23.0 percent).

  – Cost control: Nonfuel operating costs were 14.0 percent under the budget established by LEC.

  – Financially, MHI helped LEC achieve revenues of USD 13.1 million for the first year (40.8 percent above budget). Overall, LEC's (unaudited) financial condition improved from a loss of USD 1 million in June 2010 to a profit of USD 1.2 million one year later, a turnaround of USD 2.2 million.

- 3MW of new generation were commissioned in December 2010, which is now providing desperately needed power to Monrovia. Additionally, 100 solar street lights have been installed to illuminate the highway to the airport.

- The institutional cooperation between MLME and NVE started in June 2011. Key achievements during 2011:

  – The Inception Period was completed after consultations between MLME and NVE, as well as discussions with and among other

sector stakeholders. The Inception Report sets out a detailed framework for the institutional cooperation between NVE and MLME, including outlines of activities to be carried out during the 5 year period.

- A workshop was held in Monrovia in February 2011, assisted by Norconsult, as an introduction to economic/financial analysis of power projects and options for legal structures.

- The recruitment process for resident long term advisors was undertaken and completed in 2011; the positions cover hydrological services, the energy sector, and gender challenges.

- Important preparatory work was carried out for the restoration of hydrological services.

- Gender mainstreaming has been defined, elaborated and finally established as a key issue on the development agenda governing the MLME-NVE cooperation. This is a key principle in the programme execution.

• Norway has committed funds to assist a fast-track rehabilitation of the hydro electric project Mt Coffee. Preparations are underway to establish a Project Implementation Unit within LEC to manage the project.

OFFICIAL NAME
Republic of Liberia

CAPITAL
Monrovia

HEAD OF STATE
President Ellen
JOHNSON SIRLEAF

HEAD OF GOVERNMENT
President Ellen
JOHNSON SIRLEAF

POPULATION
3,887,886 (July 2012 est.)

ELECTRICITY CONSUMPTION
23 GWh (2010 est)

ELECTRICITY PRODUCTION
29 GWh (2010 est)

NUMBER OF CUSTOMERS
2403 (Oct 2010)

CURRENT INSTALLED CAPACITY
9 MW (Oct 2010)

MOZAMBIQUE

The process of electrification in Mozambique started from an extremely low level after the end of the civil war in 1992, but has shown steady progress in later years. Although the level of electrification is still very low, less than 20 percent of the population has access to the national electricity grid, the numbers are increasing and the Mozambican Government is strongly committed to linking all corners of the country to the national grid. The share of the rural population with access to alternative, modern energy solutions is increasing, but still has a long way to go (standing at approximately 10 percent by the end of 2011). The main source of energy is traditional biomass, which has detrimental effects on health and the environment, and provides limited development potential.

Mozambique has important, yet significantly underdeveloped, hydropower potential, far exceeding Mozambique's domestic demand for electricity. This places Mozambique in a strategically unique position as potential provider of clean energy to the sub-region. Developing these resources will require significant investments, and a substantial and coordinated effort from the public sector, private actors, donors and international financing institutions.

Mozambique is one of Norway's main development partners within the field of clean energy. A new programme targeted at support for off-grid clean energy, including solar, mini hydro and wind, is under development. In 2011, bilateral energy assistance to Mozambique amounted to NOK 60 million (excluding support to CDM capacity building). In addition, Norwegian assistance was channelled through multilateral organisations such as the African Development Bank and the World Bank.

The Norwegian assistance aims at increasing the electricity access rate and support national goals of sustainable exploration of Mozambique's renewable energy resources. This includes supporting infrastructure development, improving the legislative framework, and increasing the implementation capacity of governmental institutions. In order to achieve more commercial sustainability for the utilities, and as a means to achieve economic growth and create employment, focus has been given to productive use of electricity.

Norway also provides significant support to Mozambique through the Oil for Development Programme. It is believed that this dual role, with support and dialogue both within clean energy and the oil and gas sector, leads to important synergies and mutual benefits in the Norwegian cooperation with Mozambique.

In 2011, the international network ENERGIA[17], which specializes in gender issues related to energy development, developed a programme for gender mainstreaming in the energy cooperation with Mozambique. The three year programme will start in early 2012, and is expected to improve the knowledge and capacity among staff in the institutions on gender relations and women's special needs and challenges in relation to energy.

17 http://www.energia.org/

Rural electrification Mozambique Photo: Jan Erik Lømo, NORPLAN

ONGOING PROJECTS

INSTITUTIONAL CAPACITY BUILDING IN THE MINISTRY OF ENERGY

OBJECTIVES

- Increase the impact of national energy policies by pro-actively guiding the sector
- Enhance the planning and regulatory functions for the power, down-stream hydrocarbon and overall bio-fuel sectors, as well as for the renewable energy sector, increase processing capacity, and also create the legal and socioeconomic framework to enable the sector to grow
- Strengthen the ability to plan for larger investments and negotiate with investors
- Enhance the efficiency and effectiveness of the Ministry in performing its ancillary internal functions

COOPERATING INSTITUTION
Ministry of Energy

PROJECT PERIOD
2007–2011

TOTAL BUDGET
NOK 30 million

DISBURSED IN 2011
NOK 4.2 million

MAIN ACHIEVEMENTS 2011
Among the achievements of this programme, the Government's Energy Strategy has been revised, and a "Generation Master Plan" as well as a "Small Scale Hydro Power Study" have been developed.

The programme's first phase will be finalized in 2012. In 2011 a mid-term review was conducted in order to advice the Embassy whether to move into the Programme's second phase from 2012.

TECHNICAL ASSISTANCE TO ELECTRICIDADE DE MOÇAMBIQUE

OBJECTIVES
The objective of the technical assistance is to strengthen Electricidade de Moçambique's capacity to develop, structure, finance, promote and implement large power generation and transmission projects.

COOPERATING INSTITUTION
Electricidade de Moçambique

PROJECT PERIOD
2008–2010 (a no cost extension approved for 2011)

Clearing the path for the grid, Cabo Delgado. Photo: Jan Erik Lømo, NORPLAN

TOTAL BUDGET
NOK 13 million

DISBURSED IN 2011
NOK 5.5 million

MAIN ACHIEVEMENTS 2011
The technical assistance provided through this programme is judged by EDM to be highly valuable, in particular in the view of the investment strategy of the company for the coming years. The support provided to EDM contributed to important progress in the planning of major hydropower and transmission line investments with great importance for Mozambique's future role as a key regional provider of clean energy. The programme period was extended into 2012.

CABO DELGADO RURAL ELECTRIFICATION PROJECT

OBJECTIVES
The objective of the Cabo Delgado rural electrification project is to contribute to socio-economic development in rural areas by promoting infrastructure improvements and stimulating economic and social activities in districts and local communities.

COOPERATING INSTITUTION
Electricidade de Moçambique

PROJECT PERIOD
- 2006–2010
- 2010-2011 (Addendum I)
- 2011-2013 (Addendum II)
- 2011-2013 (Addendum III)

TOTAL BUDGET
- NOK 200 million
- NOK 30 million (Addendum I)
- NOK 27 million (Addendum II: Substation in Auasse)
- NOK 85 million (Addendum III: SVC plant in Nampula)

DISBURSED IN 2011
NOK 41.5 million

MARRUPA-CUAMBA-MECANHELAS ELECTRIFICATION PROJECT

OBJECTIVES
Enhance economic and social development in Niassa Province, by giving households and businesses increased access to electricity, and improving quality of life in local communities by providing a reliable electrical power supply for public administration and services.

COOPERATING INSTITUTIONS
Electricidade de Moçambique

Co-Financing with Sweden, Norway acting as lead donor.

PROJECT PERIOD
- 2007–2010

- Addendum I: 2011-2012

TOTAL BUDGET
- NOK 41 million (Norway), and SEK 52 million (Sweden) by 2008.

- Addendum I: SEK 6 million (Sweden)

MAIN ACHIEVEMENTS 2011
The final Norwegian disbursements to the project were made in 2009. By the end of 2011, approximately 1000 connections to the EDM grid were established through the project. In 2011, the project period was extended until 2012, with an additional Swedish contribution in order to connect 1400 more households.

Niassa province is one of the least developed provinces of Mozambique, with a largely rural population and a very low population density.

CHIMBONILA ELECTRIFICATION PROJECT

OBJECTIVES
Improve access to electricity for industrial, commercial, public and domestic consumers in Chimbonila and Mbandeze in Niassa province, and thus improve economic and social development in the province.

COOPERATING INSTITUTIONS
Electricidade de Moçambique

PROJECT PERIOD
- 2011-2012

TOTAL BUDGET
- NOK 11 million

DISBURSED IN 2011
NOK 6 million
Support to the National Energy Fund (FUNAE)

OBJECTIVES
The cooperation is in a preparatory phase, aiming at assessing FUNAE's[18] capacity to implement off-grid rural electrification projects and identifying where needs are most pressing. The assessment will create the basis for the future Norwegian assistance to FUNAE.

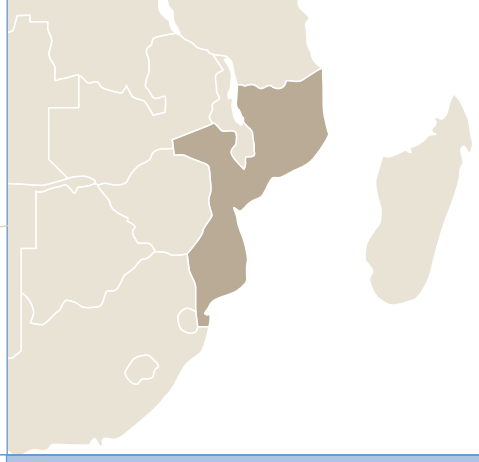
COOPERATING INSTITUTIONS
National Energy Fund (FUNAE)

PROJECT PERIOD
- 2010–2011

TOTAL BUDGET
- NOK 3 million for the initial phase

ACHIEVEMENTS IN 2011
The assessment study was launched in December 2011. A draft cooperation programme will be presented in early 2012.

18 http://www.funae.co.mz/



KEY ACHIEVEMENTS IN MOZAMBIQUE 2011

- The Government made progress in the pursuit of connecting all the country's district capitals to the national grid. By the end of 2011, 104 of 128 districts were connected, up from 80 in 2008 and 57 in 2007. Norway has been an important contributor to this through the rural electrification programme.

- Finalization of the first phase of the grid extension to the districts Mecanhelas, Metarica, Maua and Marrupa in Niassa province with 1000 connections, expected to increase to 2400 connections in 2012.

- Official launch of the "Mozambique Regional Transmission Backbone (CESUL)" project by the President Mr. Armando Guebuza.

- Two agreements were established on additional funding for Cabo Delgado in order to strengthen transmission capacity.

- Agreement on a new rural electrification project in Chimbonila.

- Development of the programme on Gender and Energy to be started in 2012.

- Launch of the assessment study for FUNAE.

OFFICIAL NAME
Republic of Mozambique

CAPITAL
Maputo

HEAD OF STATE
President
Armando GUEBUZA

HEAD OF GOVERNMENT
Prime Minister
Aires Bonifacio Ali

POPULATION
22 894 000
(2009)

ELECTRICITY CONSUMPTION
10 000 GWh (2010 est.)

ELECTRICITY PRODUCTION
16 666 GWh (2010)

NUMBER OF CUSTOMERS
858 108 (EDM 2010)

CURRENT INSTALLED CAPACITY
TOTAL: 2.43 GW (2009)

EDM: 240 MW
(HYDRO: 110 MW, DIESEL/GAS/JET: 130)
HCB: 1920 MW (hydro)

NEPAL

Conductor caos in Nepal. Photo Solveig Ulseth, NORPLAN

Nepal has significant hydropower resources (more than 80 000 MW), yet about 50 percent of the population still has no access to electricity, and in the rural areas the electrification level is less than 10 percent. The main thematic areas for Norwegian bilateral energy cooperation with Nepal are i) Accelerated Hydropower Development, ii) Rural Renewable Energy and Development and iii) Technical Energy Research. The main focus is on using bilateral aid to strategically leverage private sector hydropower investments through support to transmission infrastructure and institutional capacity building projects. In 2011 Nepal became an Energy+ partner country, and future bilateral energy cooperation with Nepal will be based on an Energy+ approach. Bilateral assistance, including assistance through the NGO channel, amounted to NOK 60 million in 2011, mainly targeting support to transmission infrastructure and rural energy.

Nepal needs foreign investments to develop its hydropower resources. The Norwegian commercial energy sector is represented in Nepal through SN Power[19] and BKK[20], which are the major shareholders of Himal Power Limited (HPL), together with the national Butwal Power Company (BPC). HPL has successfully operated the 60 MW Khimti Hydro Power plant since the commissioning in 2000. The shareholders of HPL are planning to develop the 68 MW Kirne project. Commissioning may be before the summer of 2015. Further progress primarily depends on entering into necessary agreements with the Government of Nepal (GoN)[21].

In 2011, a co-financing agreement was signed with the Asian Development Bank for the “Nepal Electricity Transmission Expansion and Supply Improvement Project.” GoN, ADB and Norway will provide USD 28 million, USD 75 million (mainly loans) and NOK 150 million (about USD 25 million, grants), respectively. For more information on the project, refer to the “Asian Development Bank” section.

Together with Denmark (lead donor), Germany and the UK, Norway supports the Energy Support and Assistance Programme (ESAP) which includes off-grid electrification through micro-hydro, solar home systems and more efficient cooking stoves in remote areas. In 2011 gender equality and social inclusion was implemented more systematically in the programme. The program expires in 2012 and a new Rural Renewable Energy Programme (RREP) is now under preparation. Compared to ESAP, RREP will be designed with a stronger poverty reduction focus and Gender Equality and Social Inclusion is mainstreamed into the RREP programme.

Two grid electrification/community development projects supported by Norway and implemented by the private sector (HPL and BPC) are close to completion.

19 http://www.snpower.com/
20 http://www.bkk.no/?l=en
21 In addition, SN Power, in partnership with Indian Tata Power, is planning to develop the 650 MW/2400 GWh Tamakoshi III project. Investment costs will be in the order of USD 1.4 billion and commissioning will be in 2018/19 at the earliest. The two partners have however decided to take a pause on this project due to lack of progress on the Project Development Agreement. SN Power is now prioritizing the Kirne project.

ONGOING PROJECTS

NEPAL ELECTRICITY TRANSMISSION EXPANSION AND SUPPLY IMPROVEMENT PROJECT

DEVELOPMENT OBJECTIVE:
Increased access to reliable supply of electricity.

COOPERATING INSTITUTION
Nepal Electricity Authority

PROJECT PERIOD
2011–2015

TOTAL (NORWEGIAN) BUDGET
NOK 150 million
(Co-financed with ADB, which is the agreement partner with GoN)

DISBURSED IN 2011
NOK 30 million

ENERGY SUPPORT AND ASSISTANCE PROGRAMME (ESAP) OFF-GRID ENERGY SOLUTIONS

OBJECTIVES
The immediate development objective of ESAP is to improve the living conditions of the rural population by enhancing their energy access with solutions that are efficient, environmentally friendly and socially justifiable.

COOPERATING INSTITUTION
Alternative Energy Promotion Centre

PROJECT PERIOD
2007–2012

TOTAL BUDGET
NOK 165.6 million (including two cost addendums)

DISBURSED IN 2011
NOK 18.2 million

RURAL ELECTRIFICATION AND MITIGATION (INCLUDING COMMUNITY DEVELOPMENT)

OBJECTIVES
Mitigation component: increase access of the targeted population to economic and social activities, leading to a balanced and sustainable socio-economic growth and well-being.

Rural electrification component: use electricity to improve living standards and to enhance socioeconomic activities.

COOPERATING INSTITUTION
Butwal Power Company

PROJECT PERIOD
2006–2013 (a no-cost extension until 31 July 2013 was agreed on in 2011)

TOTAL BUDGET
NOK 12.8 million

DISBURSED IN 2011
No disbursements in 2011

KHIMTI NEIGHBOURHOOD AND DEVELOPMENT PROJECT (GRID ELECTRIFICATION AND COMMUNITY DEVELOPMENT)

OBJECTIVES
Increase the living standards and potential of people living in the project area.

COOPERATING INSTITUTION
Himal Power Limited

PROJECT PERIOD
2007-2011

TOTAL BUDGET
NOK 19.6 million

DISBURSED IN 2011
No disbursements in 2011, the project is under completion

SMALL HYDROPOWER FEASIBILITY STUDIES

OBJECTIVES
Contribute to economic and social development in rural areas.

COOPERATING INSTITUTIONS
Government of Nepal
NVE

PROJECT PERIOD
2004–2012

TOTAL BUDGET
NOK 10 million

DISBURSED IN 2011
NOK 2.7 million

RENEWABLE NEPAL

OBJECTIVES
The purpose of Renewable Nepal is to build applied research capacity at Nepalese universities and research institutions that can serve Nepal's energy industry.

COOPERATING INSTITUTIONS
Kathmandu University
Sintef Energy Research AS

PROJECT PERIOD
2009–2013

TOTAL BUDGET
NOK 8.43 million

DISBURSED IN 2011
NOK 2.3 million

HYDRO LAB PHASE II

OBJECTIVES
Support Hydro Lab so it will become a centre of excellence in water resource development in steep sediment-loaded rivers with focus on hydraulics and sediments.

COOPERATING INSTITUTIONS
HYDRO LAB TVT. LTD.

PROJECT PERIOD
2006–2013 (a no-cost extension until 31 December 2013 was agreed upon in 2011)

TOTAL BUDGET
NOK 6.5 million

DISBURSED IN 2011
NOK 0.4 million

TURBINE LABORATORY AT KATHMANDU UNIVERSITY

OBJECTIVES
Build applied research and development capacities at Nepalese universities in order to serve the industry and private sector system analysis.

COOPERATING INSTITUTION
Kathmandu University

PROJECT PERIOD
2009–2011

TOTAL BUDGET
NOK 4.6 million

DISBURSED IN 2011
No disbursements in 2011, the project is under completion

FEASIBILITY STUDY FOR A TWINNING ARRANGEMENT BETWEEN NEA AND STATNETT

OBJECTIVES
To examine to what extent there is a basis for long term cooperation between Nepal Electricity Authority (NEA) and Statnett.

The twinning arrangement will provide assistance to NEA in different areas to improve its capability and capacity (issues on transmission capacity development, transmission system operation, strengthening of the capability and capacity to participate in regional power cooperation and increasing NEA's capacity in power system analysis).

COOPERATING INSTITUTIONS
Nepal Electricity Authority (NEA)
Statnett

PROJECT PERIOD
2009–2012

TOTAL BUDGET
NOK 3.7 million (Two separate PTA agreements)

DISBURSED IN 2011
NOK 1.5 million

INSTITUTIONAL COOPERATION BETWEEN NEA AND STATNETT ON SYSTEM UTILISATION

OBJECTIVE
To increase NEA's capacity on system utilization and transmission expansion during 2011 and finalize the preparation for a Twinning project with expected start-up within the first quarter of 2012.

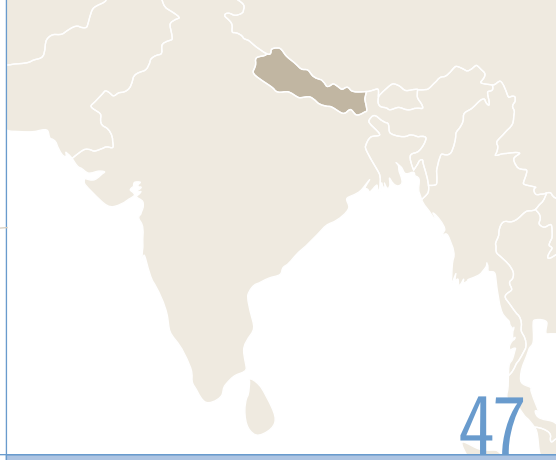
COOPERATING INSTITUTIONS
Nepal Electricity Authority (NEA)
Statnett

PROJECT PERIOD
2011–2012

TOTAL BUDGET
NOK 2.2 million

DISBURSED IN 2011
No disbursements in 2011

Improved Water Mill. Photo Vegard Willumsen.



OTHER PROJECTS

The Embassy is also cooperating with the Association of Independent Power Producers of Nepal (IPPAN) and People, Energy & Environment Development Association (PEEDA). These projects will be completed in 2012. Total disbursements in 2011 amounted to NOK 134 000.

KEY ACHIEVEMENTS IN NEPAL 2011

- The new Nepal Electricity Transmission Expansion and Supply Improvement Project will facilitate transmission evacuation of hydropower projects in and around the Tamakoshi Valley, including Kirne and Tamakoshi III. The project is also important from a donor coordination perspective

- Norwegian support to the Alternative Energy Promotion Centre contributed to mini-grid (micro hydro) electrification of 21 000 (52 000) households, in addition to the installation of 52 000 (218 000) solar home systems and 103 000 (313 000) improved cooking stoves (aggregated numbers since 2007 in brackets). ESAP has also started to facilitate access to credits.

- In 2011, the rural energy ESAP programme started piloting Gender Equality and Social Inclusion (GESI) activities, addressing income-generating activities. GESI will be mainstreamed in the new RREP programme.

- A turbine testing laboratory was completed at Kathmandu University.

OFFICIAL NAME
Federal Democratic Republic of Nepal

CAPITAL
Kathmandu

HEAD OF STATE
President
Ram Baran YADAV

HEAD OF GOVERNMENT
Prime Minister
Dr. Baburam Bhattarai

POPULATION
26.6 million
(2011 census)

ELECTRICITY CONSUMPTION
3850 GWh (2010/11)

ELECTRICITY PRODUCTION
3150 GWh (NEA 2010/11 annual report).

NUMBER OF CUSTOMERS
2 050 000 (NEA 2010/11 annual report)

CURRENT INSTALLED CAPACITY
705 MW (NEA 2010/11 annual report)

TANZANIA

Kihansi, local mountain village to be electrified. Photo Geir Helge Kiplesund, NORPLAN

In Tanzania less than 15 percent of the population is connected to the national grid, and the access to electricity in rural areas is estimated to only 2 percent. The country has an electricity deficit, resulting in rationing. Despite the large hydropower potential and other renewable energy resources in Tanzania, the development of new sites is currently not keeping track with the increasing local demand.

Norway has been involved in the building of several of the existing hydropower stations in Tanzania, with the last one, Kihansi, currently providing Tanzania with more than 20 percent of their produced electricity. Norway supported the submarine cable from the mainland to Zanzibar, replacing diesel generators and meeting the expected demand for 20-25 years to come. Norway has furthermore supported projects aiming at increasing the access to electricity.

Norway will continue to contribute to increased generation of renewable energy by supporting private investments and also studies of small and large potential hydropower sites.

Tanzania Electric Supply Company Limited (TANESCO)[22], which is responsible for the electricity supply on mainland Tanzania, commenced institutional cooperation with Statnett[23] in 2010. The aim is to allow TANESCO to tap into Statnett's long experience in energy transmission through workshops, training and technical assistance. In addition, a new agreement was signed in 2011 to support TANESCO for hydropower plant maintenance.

More than 95% of Tanzanians rely on wood fuel for cooking. The unsustainable wood fuel consumption pattern is alarming in a country that is endowed with significant energy resources. Norway supports the implementation of TaTEDO's wood fuel programmes that has resulted in more than 2.5 million improved cooking stoves (charcoal and firewood) being disseminated and more than 3000 trained technicians and artisans.

The overall energy support in Tanzania targets many important elements of the Clean Energy for Development Initiative; access to modern energy services, development of clean energy resources, pro-poor approach, gender mainstreaming, long term management of natural resources, well functioning framework for the energy sector, reduced greenhouse gas emissions and sustainable economic and social development.

22 www.tanesco.co.tz/
23 www.statnett.no

ONGOING PROJECTS

SUPPORT TO FEMALE ENGINEERS

OBJECTIVES

The development objective is to contribute to sustainable socio-economic development in Tanzania by promoting gender balance in professional training, and empowering women engineers to confidently hold and manage professional responsibilities in government, industry and business.

COOPERATING INSTITUTION

Engineers Registration Board

PROJECT PERIOD

2010-2015

TOTAL BUDGET

NOK 11.5 million

DISBURSED IN 2011

NOK 2.5 million

SUPPORT FOR THE DEVELOPMENT OF BIOFUEL FRAMEWORK

OBJECTIVES

To strengthen the policy, legal, regulatory and institutional framework in order to support the biofuel industry development.

COOPERATING INSTITUTION

Tanzania's Ministry of Energy and Minerals (MEM)

PROJECT PERIOD

2009–2011

TOTAL BUDGET

NOK 11 million. The project is co-financed with Sweden, acting as the lead partner (providing SEK 12 million). Total budget is USD 4 million.

DISBURSED IN 2011

NOK 6 million

HYDROPOWER PLANTS EMERGENCY REPAIR PROJECT

OBJECTIVES

Build maintenance capacity in TANESCO and carry out maintenance of hydropower plants in Tanzania.

COOPERATING INSTITUTIONS

TANESCO and NVE

PROJECT PERIOD

2011-2013

TOTAL BUDGET

NOK 25 million

DISBURSED IN 2011

NOK 2 million

INSTITUTIONAL CO-OPERATION BETWEEN TANESCO-STATNETT

OBJECTIVES

To achieve a customer-oriented and improved transmission system operator, single buyers function and improved corporate efficiency.

COOPERATING INSTITUTIONS

TANESCO and Statnett

PROJECT PERIOD

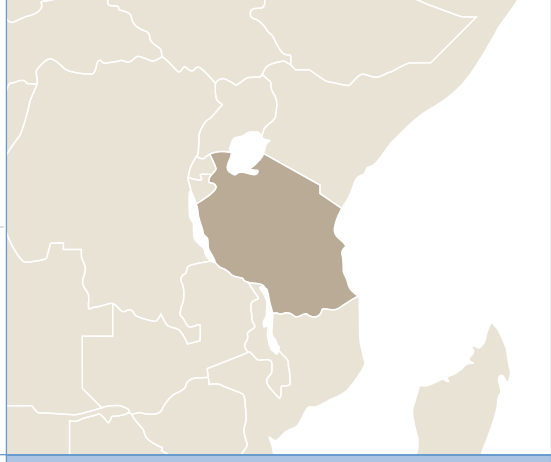
2009–2014

TOTAL BUDGET

NOK 37 million (NOK 22 million for phase I and NOK 15 million for optional phase II)

DISBURSED IN 2011

NOK 9.6 million



TANZANIA TRADITIONAL ENERGY DEVELOPMENT AND ENVIRONMENT ORGANIZATION (TATEDO)

OBJECTIVES

Scaling up and commercializing sustainable modern energy technologies as TaTEDO's core activities. The support will lead to increased use of improved cooking fuels, efficient woodfuel stoves, promotion of the transition to modern energy sources, a/reforestation, improved livelihoods particularly for women (due to reduced health risk with more efficient stoves – less respiratory diseases from smoke), improved access to alternative energy sources, promotion of small scale business ideas, improved access to credit facilities. About 35000 households will benefit from the support.

COOPERATING INSTITUTIONS

TaTEDO

PROJECT PERIOD

2011–2015

TOTAL BUDGET

NOK 13.2 million

DISBURSED IN 2011

NOK 1.55 million

KEY ACHIEVEMENTS IN TANZANIA 2011

INCREASED USE OF EFFICIENT WOOD FUEL STOVES.

- The TANESCO-Statnett twinning agreement has started producing results, including preparation of a new Grid Code and revised Grid Tariff, formalisation of TSO Regional Cooperation Group for regional power trade, introduction of a system protection scheme and reliability based maintenance and benchmarking for transmission lines.

- After an extremely slow start, a first draft of a new biofuels policy has been produced and active consultation has contributed to increased understanding in government circles of biofuel issues.

OFFICIAL NAME
United Republic of Tanzania

CAPITAL
Dodoma

HEAD OF STATE
President
Jakaya MRISHO KIKWETE

HEAD OF GOVERNMENT
President
Jakaya MRISHO KIKWETE

POPULATION
43 188 000 (2010 est.)

ELECTRICITY CONSUMPTION
4028 GWh (2011)
ELECTRICITY PRODUCTION
4938 GWh (2010)

NUMBER OF CUSTOMERS
874 556

CURRENT INSTALLED CAPACITY
1017 MW

TIMOR-LESTE

Norway has since 2002 supported the electricity sector in Timor-Leste through institutional cooperation, expanding power production capacity, management support, electricity metering and billing, rehabilitation of the electricity grid, development of a small scale hydropower scheme and planning of a medium scale hydropower project.

Timor-Leste has a national electrification level of about 20 percent, but it is estimated to be less than 10 percent in rural areas. The cooperation with Norway has an institutional component and a technical/ commercial component. The goal of the former is to assist in developing the management of the hydropower sector in Timor-Leste through an institutional cooperation arrangement with NVE. The goal of the latter is to establish a viable economic basis for electricity supply in the country through support to Electricidade de Timor-Leste (EdTL) and the introduction of an effective revenue collection system.

The long-term cooperation on energy and water resources has had a profoundly positive impact on Timor-Leste's ability to manage and develop its resources in these fields. An agreement between Timor-Leste and Norway on continuing institutional cooperation was signed in September 2009, with a purpose to significantly improve efficiency and effectiveness of the water resources and power management in Timor-Leste by 2014. This will be achieved through improving legal frameworks, capacity building, hydrological and meteorological mapping and a hydropower master plan. The cooperation will strengthen the National Directorate of Water Resource Management, State Secretariat for Energy Policy and the National Directorate of Environment. Feasibility studies for two hydropower schemes (Maliana and Atsabe) will be conducted.

A scholarship program for postgraduate- and undergraduate students has been established and successful candidates have been identified. A national hydrological network comprising approximately 30 rainfall stations is in operation and the office of the National Directorate of Water Resource Management manage the largest collection of rainfall data in Timor-Leste. The Norwegian contribution to the cooperation is NOK 50 million over the period 2009 to 2014.

In Timor-Leste, Norway also has ongoing activities and dialogue within the Oil for Development Programme. It is believed that this dual role, with support and dialogue both within clean energy and Oil for Development, will lead to important synergies and mutual benefits in the Norwegian cooperation with Timor-Leste.

A first mission to identify possibilities for integrating gender in the Clean Energy and Oil for Development programmes in Timor-Leste was undertaken in 2011. The analysis documents that the programme has made efforts to include women in the undergraduate and other short term courses, but that it has been difficult to secure women applications for postgraduate courses. The majority of women in the institutions are in administrative positions and few occupy key positions. There is a gap in terms of understanding gender issues in the sector.

Photo: Geir Helge Kiplesund, NORPLAN

ONGOING PROJECTS

INSTITUTIONAL COOPERATION WITHIN THE POWER SECTOR, PHASE THREE

OBJECTIVES

The overall goal of phase three of the programme is to contribute to the economic and social development of Timor-Leste. The purpose of phase three is to improve significantly the general efficiency and effectiveness of power and water resource management in Timor-Leste by 2014.

COOPERATING INSTITUTIONS

Ministry of Infrastructure
NVE

PROJECT PERIOD

2009–2014

TOTAL BUDGET

NOK 50 million

DISBURSED IN 2010

NOK 8.6 million

KEY ACHIEVEMENTS IN TIMOR-LESTE 2011

- A final draft Water Resource Law (WRL) has been prepared during 2011. The WRL is ready to be presented in the Council of Ministers and Parliament

- Nine new rainfall and eight new water level stations were established. The coverage of the hydrological network is now considered to be satisfactory for all of Timor-Leste, with new stations launched in both Ocussi and at Atauro during 2011.

- A draft Hydropower master plan was submitted in December 2011. The document provides a thorough overview of the hydropower potential in Timor-Leste, ranking the respective projects based on economic parameters.

- Repair work on the Garuai MHPP was completed in September 2011, and the plant has been up and running since end of October, providing electricity to the grid.

- Full feasibility studies of Atsabe and Maliana, including local consultations, were finalized and

are now ready to be presented to national and international investors/donors.

- An environmental seminar was held in February 2011 together with the Norwegian Petroleum Programme. Six scholarship candidates commenced their studies in 2011, while two more will start in 2012.

Photo: Geir Helge Kiplesund, NORPLAN

OFFICIAL NAME
Democratic Republic of Timor-Leste

CAPITAL
Dili

HEAD OF STATE
President
Jose RAMOS-HORTA

HEAD OF GOVERNMENT
Prime Minister Kay Rala XANANA GUSMAO

POPULATION
1 066 582 (PRELIMINARY RESULTS CENSUS 2010)

ELECTRICITY CONSUMPTION
120 GWh

ELECTRICITY PRODUCTION
130 GWh

NUMBER OF CUSTOMERS
30 000 (2010 est.)

CURRENT INSTALLED CAPACITY
41 MW

UGANDA

In Uganda, the electrification level remains less than 10 percent in total and only 6 percent for the rural population. Development of electricity infrastructure is a priority for the Government of Uganda (GoU).

The Norwegian Government has supported the Ugandan power sector since late 1990s. Energy is a key area of cooperation between GoU and Norway, and the support to the power sector has increased over the last years. In 2011 the contribution was NOK 87 million. The major contribution includes investments in national power infrastructure such as power production, transmission and distribution lines as well as support to capacity building in key government institutions. Increasing the access to electricity and improving the capacity of the energy sector framework, will be crucial in underpinning the country's overall social and economic development and industrialisation efforts.

The support has contributed to increasing the production of renewable energy in Uganda and has increased access to modern energy services. Norwegian companies have also invested in power production in Uganda. In 2011 TronderPower and Jacobsen Elektro contributed with approximately 20 percent of the countr's power production through the Bugoye hydropower plant and the Namanve thermal plant. In 2011, Norad entered into an agreement with Trønder Energi AS[24] for use of the N-REP (Norwegian Renewable Energy Partnership) facility in connection with the feasibility study for the Nsongezi Hydro Power Project. The feasibility study is expected to be completed by September 2012. Norad's support of NOK 2 925 000 is 50 percent of the total budget for the feasibility study.

The Norwegian Embassy in Kampala, which is a pilot embassy for gender equality, assisted the Rural Electrification Agency (REA)[25] in Uganda to identify the needs and possibilities for gender mainstreaming in rural electrification projects. REA has already started to implement some of the recommendations. The Embassy started to develop a baseline for gender mainstreaming in its energy and petroleum programmes.

The Embassy has developed a strategy for the continued energy cooperation with Uganda. The strategy is based on national development priorities, coordination with other donors and on how Norwegian support can add value. Mobilisation of commercial investments and increased access to energy through direct support for energy infrastructure are key focus areas in the strategy, which gives priority to the following areas of support:

- Development of transmission system infrastructure with national and regional significance
- Feasibility studies and other support for commercial large scale hydropower investment
- Rural electrification investments; increasing access to modern energy services

24 www.tronderenergi.no/
25 www.rea.or.ug/

ONGOING PROJECTS

IMPLEMENTATION OF TWO RURAL ELECTRIFICATION PROJECTS

OBJECTIVES

The purpose of the project is to achieve an improved livelihood for 1700 households through access to electricity in rural areas by construction of distribution grid in Myanzi to Kiganda: Muhanga via Kisiizi to Kyempene.

COOPERATING INSTITUTION

Rural Electrification Agency

PROJECT PERIOD

2010–2012

TOTAL BUDGET

NOK 36.7 million

DISBURSED IN 2011

NOK 15.4 million

CONSTRUCTION OF SIX RURAL DISTRIBUTION PROJECTS

OBJECTIVES

The purpose of the project is to meet the rural population's need for improved economic and social development in a sustainable way through increased access to affordable electricity services for 15 000 households.

COOPERATING INSTITUTION

Rural Electrification Agency

PROJECT PERIOD

2011–2015

TOTAL BUDGET

NOK 196 million

DISBURSED IN 2011

NOK 64.9 million

FEASIBILITY STUDY OF THE KARUMA INTERCONNECTION PROJECT

OBJECTIVES

Enable the Government of Uganda to prepare for the financing and construction of the Karuma interconnection transmission line project.

COOPERATING INSTITUTION

UETCL

PROJECT PERIOD

2008–2011

TOTAL BUDGET

NOK 14.6 million

DISBURSED IN 2011

No disbursements in 2011

FEASIBILITY STUDY OF A TRANSMISSION LINE, HOIMA-KAFU

OBJECTIVE

Contribute to increasing the electrification level in Uganda and to improving the opportunities for increased social welfare, education, health and income generation.

COOPERATING INSTITUTION

UETCL

PROJECT PERIOD

2010–2011

TOTAL BUDGET

NOK 7 million

DISBURSED IN 2011
No disbursements in 2011

FEASIBILITY STUDY OF ISIMBA HYDROPOWER PROJECT

OBJECTIVE
Contribute to increasing the electrification level in Uganda and to improving the opportunities for increased social welfare, education, health and income generation. Furthermore, to facilitate the required planning process and prepare documents for construction tendering.

COOPERATING INSTITUTION
Ministry of Energy and Mineral Development

PROJECT PERIOD
2009–2012

TOTAL BUDGET
NOK 20.7 million

DISBURSED IN 2011
NOK 6.7 million

UETCL CAPACITY BUILDING TWINNING UETCL-STATNETT PHASE II

OBJECTIVES
Contribute to the provision of sufficient and sustainable electricity to Uganda and the region.

Make UETCL more efficient in its function both as a single buyer and as a transmission system operator in fulfilling its public service obligations.

COOPERATING INSTITUTIONS
UETCL
Statnett

PROJECT PERIOD
2009–2011

TOTAL BUDGET
NOK 14 million

DISBURSED IN 2011
No disbursements in 2011

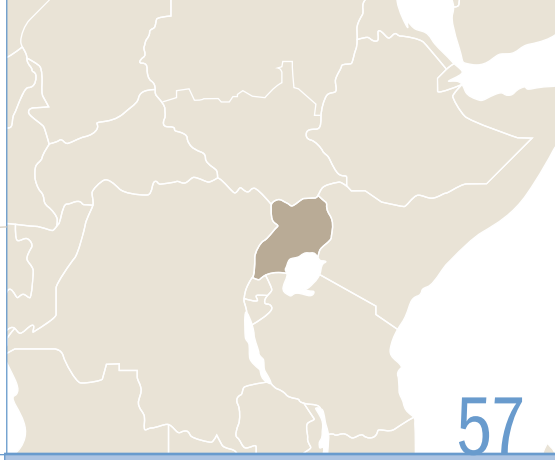
KEY ACHIEVEMENTS IN UGANDA 2011

- Construction of two rural electrification projects in western and south-western Uganda finalised. The extension of 153 km of 33 kV distribution grid and 63 km of associated 11 kV lines to unelectrified areas will provide opportunities for increased access and contribute to sustainable economic and social development for up to 1700 households.

- Bidding for construction of six rural distribution projects in central, western and northern Uganda started. The extension of the distribution grid to unelectrified areas will provide opportunities for increased access and contribute to sustainable economic and social development for up to 15 000 households.

- Feasibility study and environmental and social impact assessment (ESIA) for Isimba Hydropower Plant (100 MW) ongoing. When developed, the Isimba project will contribute to increased access to clean energy at an affordable price based on the long-term management of natural resources. It is also intended to contribute to sustainable economic and social development.

- Feasibility study and ESIA of Karuma interconnector transmission line finalised;



enables financing and implementation of priority transmission line to evacuate Uganda's priority hydropower plant.

- Agreement signed for feasibility study and ESIA of Uganda-DR Congo interconnector, with NELSAP as implementing agent. The feasibility study will facilitate future financing and construction of the regional interconnector from Nkenda in Uganda to Bunia in DR Congo.

- Phase II of Statnett capacity building of UETCL in the areas of finance, transmission infrastructure, regional cooperation, and information management finalized. Contributes to make UETCL more efficient in its function both as a single buyer and as a transmission system operator in fulfilling its public service obligations.

- Dialogue with Ministry of Energy continued with objective to extend the project pipeline to:

  – Construction of a 226 km transmission line in western Uganda; Nkenda- Hoima

  – Statnett-UETCL twinning phase III, includes regional cooperation with transmission system operators (TSOs) in Kenya and Tanzania

  – Feasibility study and ESIA of Mirama-Nsongezi transmission line

OFFICIAL NAME
Republic of Uganda

CAPITAL
Kampala

HEAD OF STATE
President Lt. Gen. Yoweri Kaguta MUSEVENI

HEAD OF GOVERNMENT
President Lt. Gen. Yoweri Kaguta MUSEVENI

POPULATION
34 612 250 (July 2011 est.)

ELECTRICITY CONSUMPTION
2910 GWh (Jan 2012 est.)

ELECTRICITY PRODUCTION
3026 GWh (Jan 2011 est.)

NUMBER OF CUSTOMERS
450 000 (Nov 2011)

CURRENT INSTALLED CAPACITY
621 MW

NON-CORE COUNTRIES

AFGHANISTAN
ARMENIA
AZERBAIJAN
BANGLADESH
BHUTAN
BRAZIL
CHINA
GEORGIA
GHANA
INDIA
INDONESIA
KENYA
KYRGYZSTAN
LAOS
MACEDONIA
MADAGASCAR
MALI
MONGOLIA
NICARAGUA
NIGERIA
THE PALESTINIAN TERRITORY
PHILIPPINES
SOUTH AFRICA
SOUTH SUDAN
SRI LANKA
TAJIKISTAN
UZBEKISTAN
VIETNAM
ZAMBIA
ZIMBABWE

AFGHANISTAN

NATIONAL ENERGY POLICY

In 2010 the Afghan Minister of Mines requested Norway to provide technical assistance and support to the development of a Comprehensive National Energy Policy and to assess and plan for a gas transmission and distribution network in the Jowzjan, Faryab, Sar-e-Pol and Balkh provinces. A dialogue was initiated based on the mentioned request, and a Terms of Reference was drafted and put out for tender. Technical experts were contracted[26], and an Inception Report was submitted in 2011. Subsequently, however, the project was temporarily suspended, due to need for further clarification between ministries, of issues related to their mandates. The project is expected to reopen in 2012, once these issues are clarified.

ARMENIA

SUSTAINABLE SMALL HYDROPOWER DEVELOPMENT FOR ENERGY SECURITY

Norway supports the development of the Armenian small hydropower sector to increase environmental sustainability and energy security. The work includes assessment of the framework for small hydropower with regards to efficient use of water resources and mitigation of environmental impacts, as well as support to training programmes for students and private sector. The project is implemented by Norsk Energi[27], and NOK 1 million was disbursed in 2011.

AZERBAIJAN

INDUSTRIAL ENERGY EFFICIENCY AND CLEANER PRODUCTION

This project aims at strengthening the capacity of the industry in Azerbaijan with regard to energy efficiency and environmentally friendly production, and to establish a commercially viable cleaner production and energy efficiency (CPEE) Centre. The project is implemented by Tekna[28], and NOK 1.6 million was disbursed in 2011.

PROMOTING DEVELOPMENT OF SUSTAINABLE ENERGY

This work builds on the activities of the UNDP project “Technical Assistance for Promoting Development of Small Hydropower in Azerbaijan”, supported by the Government of Norway, and other previous activities that have supported the identification and preparation of technically and economically feasible small hydropower projects.

Several small hydropower projects were identified by local and international consultants with the aim to select one of them for further development and actual implementation. The Norwegian- funded project is part of a larger EU-funded initiative. The project is implemented by the UNDP, and USD 800 000 of unspent funds from the previous project has been transferred to this work.

BANGLADESH

GREEN TELECOM BASE STATIONS; SCATEC SOLAR

Support for a feasibility study for an investment programme replacing fossil fuel (diesel) with solar energy at telecom base stations in Bangladesh. The study was approved for support of NOK 445 000 (50 percent of approved budget), but was not

26 IPAN - International Petroleum Associates Norway AS; http://www.ipan.no/
27 http://www.energi.no
28 http://www.tekna.no/

conducted due to capacity constraints and Scatec's[29] heavy involvement in India.

TRAINING IN CONNECTION WITH EXPORT CONTRACT

Norad supports two projects related to training in connection with export contracts to Gopalganj and Faridpur in Bangladesh. Reports received in January 2012 and disbursement prepared, in total NOK 835 000.

BHUTAN

In 2011 Norway supported institutional cooperation programmes within the Department of Hydropower and Power Systems (formerly Department of Energy) and the Department of Geology and Mines in Bhutan. Both departments are administered by the Ministry of Economic Affairs in Bhutan and are important to the economic development of Bhutan. The Norwegian assistance to Bhutan's energy sector goes back more than 20 years, and today the export of electricity to India is lifting more and more of the Bhutanese population out of poverty.

INSTITUTIONAL DEVELOPMENT AND CAPACITY STRENGTHENING; DEPARTMENT OF ENERGY

In two separate Bilateral Agreements from May 2008, Norad supported the institutional development and capacity strengthening of the electrical sector in Bhutan, in addition to the country's "Advanced Hydropower Development Programme", which is part of Bhutan's current five year plan of economic development for the country. This support, which was concluded in November 2011, is the latest in a series of bilateral agreements through which Norway has enabled Bhutan to first map out and thereafter be in a position to develop its hydropower resources for the economic benefit of the nation.

The low population and modest degree of energy intensive development of Bhutan, imply a limited domestic demand and a slow growth in industrial/ commercial electricity demand. With its relatively large hydropower potential, much of the generated electricity can be exported to neighbouring India in the foreseeable future. This has two distinct advantages: i) Bhutan will be able to make revenue from its natural resources; ii) India will be helped to reduce its dependence on fossil fuels.

The "Strengthening of the energy sector" project was a three year (2008-2011) institutional cooperation between the Department of Hydropower and Power Systems, Ministry of Economic Affairs, and NVE. NVE provided support for institutional strengthening and human resources development within the electricity sector, particularly for regulation and hydro meteorological services and studies of effects of climate change on hydropower flows. The total budget was NOK 15 million, whereof NOK 4.2 million was disbursed in 2011.

The goal of the project is accelerated development of the hydropower resources of the country, thereby leading to socio-economic development and poverty reduction. Furthermore, to ensure the required regulatory capacity to allow the growth of the power sector in an orderly and cost effective manner, and thereby to support the accelerated hydropower development strategy of the 10th five year plan for Bhutan.

NVE also worked with the Department of Hydropower and Power Systems on the "Accelerated hydropower development programme",

29 http://www.scatecsolar.com/

where NVE supported reconnaissance surveys for the remaining listed sites under the power system master plan, and pre-feasibility studies of project sites, including environmental studies. The total budget was NOK 15 million, NOK 6.5 million was disbursed in 2011.

Both programmes were successfully concluded in 2011. Some of the key results from this cooperation are:

- Strengthening of the Bhutan Electrification Authority which has become an autonomous electricity regulator body during the course of the cooperation
- Improvements to the hydro-meteorological and river sediment data collection and analysis capacity
- Regional cooperation within low flow hydrology and the effects of climate change on Himalayan rivers
- Prefeasibility studies of two hydropower project sites and reconnaissance studies of 15 previously unvisited hydropower project sites from the Power System Master Plan of Bhutan, including environmental studies

INSTITUTIONAL DEVELOPMENT AND CAPACITY STRENGTHENING; DEPARTMENT OF GEOLOGY AND MINES

The "Management of the risks that natural hazards represent to new infrastructure development in Bhutan" has recently been completed (December 2011) with a total budget of about NOK 6 million. In 2011, NOK 1.6 million was disbursed to perform the technical activities in the project. The Norwegian Geotechnical Institute (NGI)[30] performs capacity building in the Department of Geology and Mines, as well as with stakeholders. The major stakeholder of the project is the Druk Green Power Corporation (DGPC) which has the mandate from the Bhutanese Government to own, build and operate hydropower projects in the country. In 2011, a Memorandum of Understanding (MoU) was signed between DGPC and NGI. The intention of this MoU is to provide a facilitating mechanism for the two parties to work together on mutually agreed progressive and supportive activities related to hydropower development in Bhutan. The interaction between DGPC and NGI will focus on technical matters related to research, consulting and cooperation on hydropower and other renewable energy projects.

A joint review of the institutional development programmes was carried out in 2011. The review recommends extending all programmes and adds that with the significant challenges ahead for the energy sector, the Norwegian cooperation is more important than ever. The review further shows that the assistance is successful and all three programmes make a difference. The Norwegian assistance is well adapted and carried out in a spirit of genuine partnership by the involved institutions.

The findings and recommendations of the review can be summarised as follows:

- Combined effort in capacity building and institutional cooperation is successful and should be continued

30 http://www.ngi.no/no/

- Environmental concerns should be addressed also on a more strategic level and not only on a project by project basis
- Overall observation is that there is room for improvement on reporting and documentation of results
- Realign the support programmes towards hydropower also for the DGM-NGI cooperation
- Ensure coordination and avoid possible overlap with other programmes
- In order to retain focus it is recommended not to include support to other renewable energy initiatives in DOE.

FEASIBILITY STUDY ON ESTABLISHMENT OF ADVISORY ACTIVITIES

Norad has supported a feasibility study on possibilities to establish advisory activities towards development and financing of environment and climate change projects. The total budget of NOK 90 000 was disbursed in 2011.

BRAZIL

FECULA ENERGIA

In 2010, Norad financed part of a feasibility study for the CDM-project Fecula Energia in Brazil. The project focuses on reforestation as well as growing and processing of palm oil on deforested areas. The total budget for the feasibility study is NOK 4.14 million of which Norad will provide NOK 1.24 million.

The feasibility study has been delayed and the project owners are considering dropping the study altogether. The final decision will be made after a field visit taking place in February 2012. No disbursement has been made so far.

CHINA

Clean energy support to China is focused on energy efficiency improvements, aiming at contributing to reach the Chinese Government's target of improved energy efficiency in production, and reducing emissions of greenhouse gases. The support is given through the following institutions and projects:

- IFC: "China Utility Based Energy Efficiency Financing programme" (CHUEE). CHUEE supports marketing, development and equipment financing services to energy users to implement energy efficiency projects in China. CHUEE brings together financial institutions, utility companies, and suppliers of energy efficiency equipment to create a new financing model for the promotion of energy efficiency
- Innovation Norway[31]: "Energy Management programme" targeted at industry and construction/building
- NHO[32]: "Energy Management programme" in cooperation with China Enterprise Confederation
- "Dalian Economic and Technological Development Area" in cooperation with Norwegian ENSI[33] to establish a centre for energy efficiency in the industrial area of Dalian
- The University College in Narvik in cooperation with Reinertsen AS[34] and Chinese partners in Inner Mongolia: "Green Energy Solutions in buildings"

31 http://www.innovasjonnorge.no/
32 www.nho.no
33 Energy Saving International AS - http://www.ensi.no/
34 http://reinertsen.no/

- REEEP (Renewable Energy and Energy Efficiency Programme) works with the Chinese Renewable Energy Industry Association (CREIA). They initiate and fund projects aiming at catalyzing the market for renewable energy and energy efficiency by assisting the Government in creating favourable regulatory and policy frameworks and promoting innovative finance and business models to incentivise the private sector

The projects are together contributing to increasing awareness and improving knowledge of technologies and solutions to enhance energy efficiency in industry, construction and management, in housing and larger buildings. The strengthening of the financial sector's capacity to finance energy efficiency is seen as a complementary development, making it possible to translate the improved knowledge into concrete energy efficiency improvement measures. The projects being realised as a result of these projects contribute to substantial reductions in Chinese greenhouse gas emissions.

The total Norwegian support to these projects is NOK 52.6 million, whereof NOK 8 million were disbursed in 2011.

GEORGIA

ATTRACTING INVESTMENTS TO LARGE SCALE HYDROPOWER DEVELOPMENTS

Norway provided support to the Georgian Government to attract large scale investment into hydropower assets through the tender of the Mtkvari cascade, as well as to the preparations of two pre-feasibility studies and a capacity building component for the energy sector in Georgia. Unused funds in the project are in 2011/2012 being used for a feasibility study regarding wind power. The capacity building project is implemented by Econ Pöyry AS.

CDM PROGRAMME OF ACTIVITIES FOR GREENFIELD HYDROPOWER PROJECTS

The goal is to provide assistance with the development of small, mini and micro greenfield hydropower projects in rural areas of Georgia by setting up a CDM Programme of Activities. This includes providing manuals, tools and templates for following a step-by-step project development process. The project is being implemented by Norsk Energi, and NOK 1.5 million was disbursed in 2011.

GHANA

ESTABLISHMENT OF NATIONAL DAM SAFETY UNIT (NDSU)

The three major owners of dams of significant height and/or reservoir volume in Ghana, the Volta River Authority (VRA), the Ghana Water Company Ltd. (GWCL), and the Ghana Irrigation Development Authority (GIDA), administer some 30 dams. An additional 1500 smaller dams built for local water supply or irrigation purposes are owned by local authorities.

NVE was engaged by Norad to assist the Water Resources Commission (WRC) for the establishment of an authority responsible for dam safety. By the end of the project in May 2013, it is expected that an independent National Dam Safety Unit (NDSU) will be established in Ghana. NVE's inputs have been financed by special funding from Norad.

The institutional agreement between NVE and WRC was signed in December 2010 and the programme was officially established. Dam breakage can cause serious damage to life, property and environment, and the main programme activities are focused on

the preparation of legal provisions and regulations, technical guidelines and modus operandi, data management, capacity building, and long term financing strategy, all as required for the functioning of the NDSU.

NOK 2.4 million was disbursed in 2011.

INDIA

Climate change, environment and clean energy are priority areas of cooperation between India and Norway. The aim is to establish partnerships between the Government, the private sector and research institutions within these fields.

SOLAR-BASED RURAL ELECTRIFICATION OF VILLAGES IN FOUR INDIAN STATES

This pilot project aimed to develop viable business models for increased private investments in rural electrification using solar energy. The project was co-funded by Norad, Scatec Solar and the Ministry of New and Renewable Energy, India. Installations were completed in 2011, and covered 28 villages in four states of India. A completion review of the project was carried out in July-August 2011 by the Nordic Consulting Group[35] along with an Indian consultant. The review team confirmed installation of 28 community solar power plants (CSPPs) as per plans and specifications, but found that the load installation was slightly lagging behind.

The key conclusions from the review are:

- The Project, as a "pilot", has been a success, as a lot of useful lessons learned have been noted
- Significant social benefits have been observed
- The approach and methodologies applied in the project/business model have had varying degrees of success, the foreseen marginal private profit expected has not materialised
- It has been challenging to reach economic sustainability in the project for various reasons, especially in the poorer villages

Total Norwegian support was NOK 16 million.

FUND FOR ACCESS TO RENEWABLE ENERGY (FARE)

The "Fund for Access to Renewable Energy" (FARE) is a joint initiative of the Governments of India, UK and Norway. The Fund aims at leveraging private investment for expanding access to off-grid renewable energy services to the poor in India. Further work was undertaken in 2011 to prepare the set-up of the Fund.

The Fund would target the four Indian states of Bihar, Orissa, Madhya Pradesh and Uttar Pradesh. Pledges made in 2011 indicate that the total size of the Fund over five years will be in the order of NOK 500 million (GBP 25 million from the UK and NOK 250 million from Norway). This may be increased based on performance.

The crucial difference between current Government of India schemes and FARE lies in that FARE proposes to use market forces to identify the most cost-effective projects to achieve its results, thus reducing the share of subsidies in such investments. FARE, however, would not dictate the choice of technology or the specific location for service delivery within the target states, and would not restrict the amount of support offered. Instead, by using a competitive bidding (reverse auction)

35 http://www.ncg.no/

process, FARE lets the market decide these parameters.

FARE has an in-built mechanism linked to monitoring and evaluation to ensure its proceeds are not wasted. The 'cash on delivery' concept is a crucial component of FARE design that only awards the subsidy support to initiatives after they have started delivering energy to the villages.

TERI FRAMEWORK AGREEMENT

Launched in 2008, with a total budget of NOK 60 million for five years, the Framework Agreement aims to address knowledge gaps in three strategic areas:

i. Clean energy
ii. Climate change; and
iii. Energy security and climate change.

The Clean energy strategic area works towards designing, testing and customization of clean energy technologies based Multi-Utility platform (e.g. solar, biomass, wind battery chargers and hybrids) for various livelihood generation activities. It also attempts to demonstrate the above technologies and assess the impact of these technological interventions on livelihood generation activities in selected locations, as well as to create local technical capabilities for their servicing.

There are several components in the Framework Agreement addressing different aspects of energy, e.g. sustainable energy pathways, energy efficiency, energy governance etc. One such component aims to analyse rural energy inequities and to understand how transitions to clean energy can be enabled in rural India. Another component attempts to develop state level energy (electricity) efficiency roadmap by undertaking load research and identifying relevant energy efficiency measures.

BIOCO$_2$; USE OF SOLAR ENERGY TO PRODUCE RENEWABLE HYDROGEN AND CAPTURE CO$_2$

This institutional cooperation between Indian Institute of Technology (Kharagpur), Uppsala University and Bioforsk[36] was launched in 2008 with a total budget of NOK 12.35 million. The project, in an integrated manner, uses different areas of algae technology to capture CO_2 and produce renewable bioenergy in a biological process that produces hydrogen directly from solar energy.

As a part of the project, the "International Workshop on Algae Technology, Hydrogen Production and Use of Algae Biomass" was organized in October 2011 in Kolkata, India. Close to 100 people, mostly researchers, from across 14 states of India actively involved in algae technology, carbon dioxide sequestration and bioenergy shared their experiences, ideas and work, together with researchers from Norway, Sweden and Italy. Furthermore, representatives from various Indian industries participated in the workshop, such as the Indian Oil and Natural Gas Corporation Limited (ONGC), Reliance Industries, and several companies in the agriculture and energy sectors from different parts of India. The project has resulted in the publication of several articles in reputed research journals. Although results at present are at a preliminary stage for industrial application, the strong industry participation in the workshop enabled useful discussions on possibilities for future co-operation.

36 http://www.bioforsk.no

INDONESIA

The Norwegian development cooperation with Indonesia focuses on climate and forest, democracy, justice, women, energy and fisheries.

BARON TECHNOPARK RENEWABLE ENERGY PROJECT

This project, located in Baron Beach, Gunung Kidul, Administrative Territory of Yogyakarta, intends to encourage the utilization of renewable energy to reduce fossil fuel independency for electricity generation, optimize the utilization of local energy resources and build capacity in engineering of hybrid electricity generation technologies in remote areas. The goal of the project is to build a research and utilisation model for electricity generation technologies using renewable energy sources, and the implementing agency is the Agency for Assessment and Application of Technology (BPPT).

Norway is supporting the project with NOK 6.5 million over a period of three years, 2009–2012. The construction work has been concluded, and the commissioning of the power plant is expected to be finished within March 2012.

TANKA/MANIPI

Tinfos AS[37] and KF Gruppen AS have established a private company in Indonesia, under the name of PT. Sulawesi Mini Hydro Power (PT. SMHP). A mini hydropower plant, generating and distributing power to the local community, was opened in February 2011. The project is called “Tanka/Manipi Hepp” and has an installed capacity of 10 MW. The project is financed by private funding. An annual power generation is estimated at 44 GWh. The company also started a capacity building programme, with the aim of transferring know-how and training local employees on all levels. Norad financially supported this training programme with NOK 480 000 of which NOK 240 000 was disbursed in 2010. The programme was finalised in 2010. A new hydropower development project in South Sulawesi with up to 120 MW is underway and is managed by the same investors.

37 http://www.tinfos.no/

KENYA

FEASIBILITY STUDY - KENYA LNG POWER PROJECT

Norad supported in 2011 a feasibility study on delivery of gas to the electricity sector in Kenya. The gas (LNG) will be transported by ship to a terminal in Mombasa. The support amounted to NOK 800 000 and was disbursed to BW Gas AS[38] in December 2011.

PROJECT - REGIONAL COOPERATION AND KPLC-STATNETT TWINNING

In 2011, Norad supported Statnett with NOK 500 000 to develop a programme document for a proposed three year twinning project (2012-2014) between Kenya Power and Lighting Company Ltd. and Statnett. This includes support to capacity building for a new East African regional transmission system operator (TSO) forum between Uganda, Tanzania and Kenya, and strengthening the internal capacity of Kenya Power. The proposed regional cooperation and twinning arrangement amount to NOK 15 million.

KYRGYZSTAN

FEASIBILITY STUDY

The Kyrgyz Government requested support for preparation of feasibility studies for two hydropower projects which includes a total of seven hydropower stations. The projects are medium scale. Implementing partner is Norconsult AS[39], and NOK 2 million was disbursed in 2011.

38 http://www.bwgas.com/
39 http://norconsult.no/

LAOS

RURAL ELECTRIFICATION PROGRAM

The "Rural Electrification Program" is supported by the World Bank and has been implemented in cooperation with the Ministry of Energy and Mines and Electricite de Laos. In phase I (2006-2010) Norad supported on-grid solutions with NOK 60 million, whereas in Phase II Norad is supporting capacity development for both on- and off-grid electrification with NOK 23 million. The programme has contributed towards increasing the country's electrification rate to 70 percent (2010), and it is contributing towards the national target of 90 percent by 2020. Norad disbursed NOK 1 million in 2011.

HYDROPOWER DEVELOPMENT; XESET II

Norway supported the hydropower construction project Xeset 2 (76 MW) in the form of an Owner's Engineer with NOK 9 million, of which NOK 400 000 was disbursed in 2011. Electricite de Laos has highly valued this cooperation and has requested further support for two other major hydropower construction projects which are currently under review by Norad.

NAM SIM HYDROPOWER PROJECT

Through a mixed credit financing agreement with the Lao PDR, Norad is supporting the "Nam Sim Hydropower Project" of 8 MW in the Huaphan Province. While Norfund and Finnfund are financing the loan component of this mixed credit, Norad's grant element amounts to NOK 38 million. The grant was disbursed in 2011 and the construction is likely to begin during the first half of 2012. The overall goal of the project is to improve the electricity supply coverage in the province, thus reducing the dependence on energy import from Vietnam. This will lead to increased socio-economic development through making the Huaphan Province self sufficient, in addition to providing valuable foreign exchange contributions to Laos, as surplus power will be exported.

MACEDONIA

TRANSFER OF ANAEROBIC DIGESTER TECHNOLOGY FOR ENERGY EFFICIENT AGRICULTURE

This refers to a biomass project where the objectives are to develop and promote a model farm using on-farm renewable energy among livestock, contribute to development of agro-energy technologies in Macedonia, raise public awareness and enable business cooperation with biogas technology suppliers. The project is a cooperation with the largest penitentiary in the republic of Macedonia, and total budget is NOK 2 500 000. NOK 700 000 was disbursed in 2011.

CLEANER AND MORE COST EFFECTIVE INDUSTRY IN MACEDONIA

This project is implemented by Norsk Energi and the NGO Centre for Climate Changes, with a purpose of contributing to a cleaner and more cost efficient industry in Macedonia. The project aims at reducing greenhouse gases and is aligned with Macedonias National Strategy for the Clean Development Mechanism (CDM). The project includes technical assistance to development of local expertise on energy efficiency and introduction of new cleaner energy technologies. The project was started in 2009 and ends in 2012. The total value of the project is NOK 6 070 000, and NOK 2 300 000 was disbursed in 2011.

MADAGASCAR

THE INTERNATIONAL BIOGAS PARTNERSHIP PROJECT OF MADAGASCAR

The project aims at building a small scale household digester that will facilitate for more

similar systems to be built throughout Madagascar. By utilizing waste through a biogas digester the households will reduce their fuel expenditure, and reduce GHG emissions.

Many households have a septic tank, and many of these could easily be converted to become a biogas digester. This is even more cost effective than building new household digesters. Hence the project might include both building new digesters and modifying septic tanks.

The project period is 2011-2012, and Norad supports the project with NOK 460 000.

No disbursement has been undertaken in 2011

BIOENERGY

In 2011, Norad provided support to a feasibility study on the possibilities of introducing bioenergy to Madagascar, using local fir and eucalyptus. The total budget of NOK 190 000 was disbursed in 2011.

MALI

PHOTOVOLTAIC ENERGY SOLUTIONS; SCATEC SOLAR

Support for a feasibility study of photovoltaic energy solutions in Mali. The primary aim of the project is for Scatec Solar to establish PV solar energy as a competitive source of electricity in Mali. The total support is NOK 432 750, of which NOK 450 000 were disbursed in 2011.

MONGOLIA

ECO-EFFICIENT AND LOW COST HOUSING

Norad has supported the mobilisation phase of the Mongolian Government's "Eco-efficient and low cost housing" project. The project was initiated to support the Mongolian Government`s efforts to alleviate the housing situation for hundreds of thousands of former nomads who have gathered around Ulan Bator. The support amounted to NOK 3 million, of which NOK 0.6 million was disbursed in 2011.

NICARAGUA

DEVELOPMENT OF SMALL HYDRO-ELECTRIC PLANTS FOR PRODUCTIVE USE IN OFF-GRID ZONES

The programme "Development of Small-Scale Hydroelectricity for Productive Use outside the Grid (SHPs)" lies under the Ministry of Energy and Mines (MEM). It is part of the rural electrification strategy to promote investments in small hydropower plants in rural areas lying distant from the Interconnected National System - SIN (Sistema Interconectado Nacional).

Its objective is to contribute to the reduction of poverty levels in rural communities of the North Atlantic Autonomous Region (RAAN) and the Central Region of Nicaragua. To that end, electric energy will be supplied to these zones by integrating small hydropower plants and hydroelectric micro-plants into the rural development plans of places where the density of demand does not justify extension of the conventional grid. The programme also aims at building local management, organisation and technical capacities to guarantee the correct administration of the various concessions for distribution and generation on the basis of renewable energy sources in isolated areas.

At the end of the second phase of the programme, it is expected that progress has been made towards promoting productive capacity in rural environments, thus promoting rural development and benefitting 48 000 persons directly over the six years of programme duration. The project will be

implemented by the Ministry of Energy and the funds will be channelled through UNDP.

IDB has approved funds for the programme, in addition to those approved by Norway, Cosude (Switzerland) and the Government of Nicaragua. The total budget is USD 27 million and the Norwegian contribution is NOK 60 million, out of this NOK 5 million was disbursed in 2011. For the years 2012 and 2013, disbursements of NOK 20 million are scheduled.

This project has led to strong UNDP ownership of the Small Hydro Programme and this is a positive sign, considering that the follow-up of the programme by Norway is transferred to the Embassy in Guatemala. The programme has reported encouraging implementation of the 2011 annual plan and the construction of hydro-electric plants were initiated in the first half of 2011.

LA CAMPANA WIND POWER PROJECT (PREVIOUSLY LAS BRISAS)

Norad has provided support to the "La Campana" project, targeting project planning, facilitating financial closure and licenses approval for the construction of a 40 MW wind power project in the Rias region of Nicaragua. Norad supports the project with a total of NOK 6 million, NOK 2.5 million was disbursed in 2011. The project is progressing well and expects financial closure in first half of 2012.

NIGERIA

OKABA SAWDUST UTILIZATION FOR BIOMASS FUEL (LAGOS STATE ENVIRONMENTAL AGENCY (LASEPA))

Norad supports a feasibility study to quantify the potential energy benefits and GHG emission reductions from collecting the sawdust and wood waste that is currently produced in small sawmill operations clustered in the Okababa community in the metropolitan area of Lagos. The project has both significant climate benefits, and local environmental benefits from reduced particulate pollution.

The support will be NOK 247 000, there were no disbursements in 2011.

THE PALESTINIAN TERRITORY

Norway's energy assistance to the Palestinian territory started after the 1993 Oslo Accords. Norway has financed a substantial part of the electricity infrastructure in the West Bank and Gaza, including repairs after the actions of war.

PALESTINIAN ENERGY SECTOR ASSISTANCE PHASE V

In September 2008, Norway and the Palestinian Authority signed an agreement on Norwegian support to the project "Palestinian Energy Sector Assistance Phase V", worth NOK 105 million. From 2009 through 2011, Norway also administered a Swedish grant of SEK 30 million to Phase V on behalf of Swedish International Development Cooperation Agency (Sida). NOK 21.9 million was disbursed in 2011.

The goal of the programme is to reduce the fiscal burden of the electricity sector on PA's budgetary resources. The programme aims at:

- Remedying current system deficiencies
- Improving service delivery and public accountability

- Laying down the legal, institutional, economic, financial and technical basis for efficient system development

- Finalising the necessary power infrastructure to meet the growth of demand up to 2020

Some of the key achievements experienced in the sector in 2011:

- Net lending, i.e. Palestinian Authority's fiscal burden stemming from the electricity sector has been reduced from USD 232 million in 2008 to USD 180 in 2011.

- According to the Palestinian Central Bureaux of Statistics, 99.8 percent of the Palestinian households were connected to the public electricity network by July 2010.

- There is an improvement in the collection performance by the utilities in the period from 2008 to 2011, but there is little change in the total network losses. Approximately 1500 monitoring meters have been purchased to monitor the consumption and identify the system losses.

- The programme helped finance the electrification of more than 50 villages and small communities in the Hebron region. The electrification of a few more communities in the West Bank is still pending Israel's approval.

- The tender to supply about 229 000 prepaid meters was completed in June 2011, and PEA and the utilities finalized the necessary tests in October 2011. Training of staff started December 2011.

- The Northern Electricity Distribution Company (NEDCO) established its branch offices in Nablus and Jenin in 2011. NEDCO is now responsible for electricity services in the two cities in addition to some other neighbouring villages.

- Supply of low voltage cables, poles and transformers to be used for the network rehabilitation in West Bank was supported with USD 1.216 million.

- The number of consumers serviced by the utilities has increased from approximately 382 000 in 2007 to 526 286 in 2011.

PHILIPPINES

FLOOD CONTROL MASTER PLAN FOR BUCAYAO AND MAG-ASAWANG TUBIG RIVERS

Since 2007, Norad has provided support to the provincial Government of Oriental Mindoro for development of a "Flood control master plan". The plan was presented to the provincial Government in 2010, with recommendations for implementation of flood protection measures. NVE is the coordinator with overall responsibility for execution of the project and the total Norwegian support is NOK 4.3 million. The project is almost completed, except for a final summary report which is still not approved.

IMPROVEMENT OF THE FLOOD FORECASTING AND WARNING SYSTEM FOR MAGAT DAM AND DOWNSTREAM COMMUNITIES

In November 2010, NVE and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) started an institutional cooperation project for rehabilitation and upgrading of the flood forecasting and warning system for the Magat Dam and its downstream communities. Norad supports the project with NOK

10.7 million, and key activities will include restoration and enhancement of the hydrometric network for real time data collection, establishment of a decision support system for the operation of Magat Dam, and the enhancement of a public information drive within the flood prone areas. Training is an essential part of the whole project. After a reconnaissance study in May 2011, which resulted in a rather critical report from NVE, it was decided to put the project on hold. It is expected, however, that the project will continue in 2012.

FEASIBILITY STUDY OF RESOURCES AND ETHANOL PLANT RESOURCES FOR 2ND GENERATION BIOFUEL

In 2011, Norad supported the National Institute of Technology with funds for preparation of a feasibility study on ethanol plant resources for 2nd generation biofuel. The total budget amounted to NOK 120 000, all disbursed in 2011.

SOUTH AFRICA

PV SOLAR MARKET ASSESSMENT

In 2011, Norad provided support to Scatec Solar to perform a PV Solar Market assessment in South Africa. The budget amounted to NOK 500 000, all disbursed in 2011.

SOUTH SUDAN

FEASIBILITY STUDY OF FULA RAPIDS HYDRO POWER PROJECT

Initiated by the Embassy, Norad engaged NVE to organise a feasibility study for Fula Rapids, a 40 MW run of river hydropower project on the Nile. Fula Rapids HPP has been studied several times, last time by Norfund in 2007. During 2011 the Sudanese authorities again requested Norwegian assistance to develop Fula Rapids. Norfund confirmed their willingness to manage the process going forward and undertook NVE's work with the technical feasibility study and the environmental and socio-economic impact assessment study. Norplan was re-engaged for this job. Final report is expected by May 2012.

INSTITUTIONAL COOPERATION

NVE is engaged to prepare a programme for institutional cooperation between Norway and South Sudan in the energy sector. The focus in 2012 will be on environmental licensing, development of legal framework, hydrology and planning the expansion of Juba's distribution network in order to absorb Fula Rapid's power production. In addition, general short term training will be provided in relevant technical areas.

A total of NOK 7 million was allocated for these projects in 2011.

SRI LANKA

FEASIBILITY STUDY AND TEST PRODUCTION

Norad supported a feasibility study and test production of use of methane from landfills/dumps as source of energy. Implementing partner Etech Miljø AS, was supported with NOK 650 000 for 2011 and 2012.

TAJIKISTAN

TAJIKISTAN/AFGHANISTAN CROSS BORDER ENERGY COOPERATION

The project involves the extension of an 8 km power line, which is now supplying over 500 households, 25-30 shops, five government offices, a clinic, a school and an international organisation. The extension will connect additional villages in Afghanistan to the Tajik-based substations in Porshinev and Khorog. It will promote additional energy cooperation between the regions and as a result should also increase regional economic activity. The quality of life will increase while

dependence on fossil fuels for lighting and cooking purposes will be reduced. It also includes construction of a mini-hydro in Sharisabz village of Afghanistan. NOK 2.2 million was disbursed in 2010, and the implementing partner is Aga Khan Development Network[40].

Based on this effort, a new project that will enhance energy services in Ishkashim, Tajikistan by rehabilitating and building energy transmission lines was implemented in 2011. It will also provide energy to Ishkashim, Afghanistan by extending transmission lines across the border to the district centre and villages. NOK 7 million was disbursed in 2011.

DEVELOPMENT OF THE SMALL SCALE HYDROPOWER SECTOR

In cooperation with the Ministry of Energy and Industry and other relevant stakeholders, Norway provided support for building of sustainable capacity in Tajikistan. The work focuses on further developing the small hydropower sector, including establishment of a local focal point of expertise. Econ Pöyry AS is the implementing partner, and NOK 5 million was disbursed in 2011.

UZBEKISTAN

ENERGY EFFICIENCY CAPACITY BUILDING

In Uzbekistan, Norway supports the development of tailored capacity building programmes, supporting improved energy efficiency, coordinated with programmes and plans of other international organisations. The work includes organising energy efficiency seminars and University guest lectures. The implementing partner is ENSI[41], and NOK 450 000 was disbursed in 2011.

VIETNAM

FORMULATION OF PROCESSES AND CAPACITY BUILDING PACKAGE ON LICENSING WATER RESOURCES EXPLOITATION AND UTILISATION FOR HYDROPOWER

The project is a four year institutional cooperation project between the Department of Water Resources Management, Ministry of Natural Resources and Environment (MONRE), and NVE. NOK 400 000 was disbursed in 2011.

The objective of the project is to contribute to the sustainable, environmentally as well as socially sound management of water resources and the development of hydropower projects in Vietnam by:

- Establishing an efficient and transparent system for licensing hydropower projects and other kinds of reservoirs, including multipurpose reservoirs
- Building adequate competence of personnel involved in the licensing process through various forms of training

Some of the key achievements of the cooperation in Vietnam:

- Skills on hydropower licensing are increased through:
  - A workshop on hydropower licensing guidelines
  - A summing-up conference for all stakeholders
  - Staff training, particularly on hydropower licensing

40 http://www.akdn.org/
41 Energy Saving International AS: http://www.ensi.no/

- NVE assistance on four actual hydropower licensing cases in Vietnam
- Finalising the hydropower licensing guidelines
- Developing a database for hydropower licensing
- Facilitating contact and cooperation between ministries that will last beyond the project

ZAMBIA

Norad provided support to Agua Imara AS for a feasibility study regarding investment in a hydropower plant in Zambia. The agreement between Norad and Agua Imara AS was signed in 2010, with actual disbursement in 2011 of almost NOK 600 000.

In December 2011, Norad agreed to support a phase II of the feasibility study with an amount of NOK 416 000 to be disbursed in 2012.

ZIMBABWE

In 2011, a team of experts visited Zimbabwe to carry out a mapping of Zimbabwean energy challenges and needs, and assess potential areas for Norwegian support within the energy sector. A report will be finalized in 2012, to identify possible areas for cooperation if the political situation should allow for increased cooperation. The total budget for this assignment was NOK 400 000, whereof NOK 285 000 was disbursed in 2011.

Norway also contributed in 2011 with support to renewable energy through the Zimfund, administered by the African Development Bank. The Zimfund is a multidonor trust fund, providing funding to rehabilitation of infrastructure in Zimbabwe, focusing on energy, and water and sanitation sectors. In 2011 NOK 41 million was disbursed in total to Zimfund.

REGIONAL COOPERATION

Norway provides direct financial and technical support to regional energy cooperation. Some of the areas wherein the Norwegian support has been focused are energy planning, in example through development of master plans, assistance to the establishment and institution building of power trade organisations and power pools, and the promotion of regional expansion of infrastructure. These projects are expected to contribute to long term management of natural resources, improving access to electricity, well functioning frameworks for the energy sector and sustainable economic and social development.

A recent example of regional cooperation has come out of the twinning arrangement and cooperation between the Norwegian transmission system operator (Statnett) and its counterparts in Uganda, Tanzania and Kenya (in the planning). Creation of a dialogue forum between the three neighbouring transmission system operators has led to improved regional collaboration and coordination.

In the following, the various regional organisations and projects receiving Norwegian funds will be introduced.

THE EAST AFRICAN COMMUNITY

The East African Community (EAC) is the regional intergovernmental organisation of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Rwanda and Republic of Burundi, with headquarters in Arusha, Tanzania.

The EAC is committed to engaging EAC Partner States in an initiative to scale up access to modern energy services to meet the Millennium Development Goals (MDG). A regional strategy on scaling up access to modern energy services has been developed.

The strategy has four key targets, which were approved by EAC Energy Ministers in August 2005, to be fulfilled by 2015, in line with the MDG framework on scaling up access to modern energy services that include:

- providing access to modern cooking practices for 50 percent of the population that currently uses traditional cooking fuel;
- providing access to reliable electricity for all urban and peri-urban poor;
- providing access to modern energy services for all schools, clinics, hospitals and community centres; and
- providing access to mechanical power for heating and productive uses for all communities.

The regional strategy is a key factor in achieving a synergy that will accelerate achieving the MDGs in the Partner States.

Implementation of the strategy started with the recruitment and reporting of the Project Development Officer on 1st June 2010, after securing funding from the Norwegian Ministry of Foreign Affairs. The main purpose of this job is to secure planning, coordination and monitoring of EAC activities for implementation of the strategy, as well as serving as a link between the EAC Secretariat and development partners and the private sector. In addition, the purpose is to secure coordination of the activities with the Nile Basin and Great Lakes Initiatives and other regional cooperation arrangements in Eastern Africa. The ongoing project will be introduced in the following:

SUPPORT TO DEVELOP A REGIONAL STRATEGY ON SCALING UP ACCESS TO MODERN ENERGY SERVICES (THE STRATEGY) AND RECRUITMENT OF A PROJECT DEVELOPMENT OFFICER.

The EAC "Energy Access Strategy" aims to encourage EAC Partner States to scale up access to modern energy services to ensure that at least half of the EAC population has access to modern energy services by 2015. In order to achieve this it was necessary to strengthen the EAC secretariat with a project development officer. An agreement was entered into with the EAC, for a project with a three year timeline from 2009-2011. The total budget is NOK 1.73 million. Project activities are ongoing after a delayed start, and the support will be extended with a view to complete implementation in 2012. This project is followed up by the Norwegian Embassy in Dar es Salaam.

KEY ACHIEVEMENTS OF THE PROJECT IN 2011 INCLUDE:

- Political commitment from the partner states to the "Scaling-Up Strategy" captured by having the Sectoral Council on Energy directing both the Partner States and EAC Secretariat to make the Regional Strategy a priority and reflect it in their

budgets for financial year 2012/2013. This was the first time the highest political decision making body on energy at a regional level directed the EAC Secretariat and Partner States to make the Strategy a priority in their budgets. The means of achievement was by engaging the Partner States in the last one year by providing information on the required investments to achieve the strategy targets.

- Coordination of relevant activities in partner states improved. EAC Secretariat managed to have all the five Partner States appoint Focal Point Officers to coordinate Strategy activities at national level. Focal Points are members of the Renewable working group thereby exchanging information at every expert meeting. This helps avoid duplication, resource and time wasting.

- Information exchange at regional level improved. This has been achieved through meetings and networking using internet. Helps identify best practice and avoiding repetition of mistakes.

- Funds and activities relevant for the implementation of the strategy mobilised. More development partners made aware of the regional strategy hence several new initiatives getting started in 2012. This has been achieved through formulating proposal and submitting them to development partners for financing. Helps bring in new investments for modern energy supply and improved joint planning.

- Interventions to strengthen regional implementing capacity are under advanced stages of preparation. A draft report financed by EU assessing needs and proposing capacity building interventions is currently being consulted with partner states.

- Several new regional programmes relevant for the implementation of the Strategy are under initiation, including:

- Development of the "Regional Renewable Energy and Energy Efficiency and Conservation Master Plans" to improve on the joint regional projects to avoid duplication (to be financed by KfW)

- Establishment of an EAC Energy Fund with the purpose of catalysing regional development will be studied. The TOR has been approved by the Sectoral Council on Energy. (Study to be financed by EU.)

- Best practices for scaling up access to modern energy services will be identified, compiled and promoted to partner states (to be financed by EU).

- A 5 year regional clean energy programme to be funded by USAID to the tune of USD 25 million is expected to start next year.

- Policy and Standards harmonisation to be supported by African Development Bank under the EAC Integrated Energy Market Project.

For more information on the EAC see:
www.eac.int/

EASTERN AFRICA POWER POOL

Countries in East Africa have been planning, developing and implementing their power systems in isolation and with the view to satisfying only growth in the national demand, although with some limited bilateral power exchange agreements between some countries in the region. During the last decade there has been a growing political interest in scaling up regional integration.

The Eastern Africa Power Pool (EAPP) was formed in February 2005 to contribute to power systems interconnection in the Eastern Africa Region, so that optimal power resources are used to provide adequate, secure and affordable electricity to the population of the Region by pooling together all available energy resources in the Region in a coordinated manner.

In November 2008, the permanent EAPP Secretariat EAPP-PS requested assistance from the Norwegian Embassy in Dar es Salaam. The agreement was signed between the EAPP and the Norwegian MFA in November 2009. The ongoing project will be introduced in the following:

EAPP CAPACITY BUILDING TO OPERATIONALIZE THE EAPP-COORDINATION CENTER (CC) AND INDEPENDENT REGULATORY BODY (IRB)

The main objective of this project is to operationalise the EAPP CC and IRB by 2012 to facilitate efficient power trading in the region when the critical mass of regional interconnection projects has been realised. The permanent EAPP Secretariat (EAPP-PS) is the main cooperating institution, during the three year project (2009-2011). The project has a total budget of NOK 15 million, of which NOK 8.5 million was disbursed in 2011. The project is being followed up by the Norwegian Embassy in Addis Ababa.

THE PROJECT'S KEY ACHIEVEMENTS IN 2011 INCLUDE:

- The staff for the IRB (three persons) in place. The staff for CC (three persons) reported in 2010. The staff conducted attachment training with dispatch centres and regulators in the region. However, the CC and IRB are not operational by 2012;
- Training services contract signed with Energinet-DK and training conducted in 3 batches;
- Contract for the management consultancy services awarded and the work expected to be finalised by end February 2012;
- Contract for the database facility and database consultancy awarded and work expected concluded by end February 2012;
- Mid-term review conducted with the conclusion to continue the support to EAPP;
- Dialogue on continued support established between EAPP, Norway and Sweden. Consultant hired to assist EAPP in revising the proposal and a no cost extension approved until end April 2012. New agreement expected to be signed by end April 2012;

For more information on the EAPP see: www.eappool.org/

NILE BASIN INITIATIVE

The Nile Basin Initiative (NBI) is a partnership initiated and led by the Nile riparian states that seeks to develop the river in a cooperative manner, share substantial socioeconomic benefits and promote regional peace and security. The NBI began with a dialogue among the riparian states that resulted in a shared vision to "achieve sustainable socioeconomic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources." It was formally launched in February 1999 by the water ministers of nine countries that share the river: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, the Democratic Republic of Congo (DRC), as well as Eritrea as an observer. In 2011, the state of South Sudan became the tenth riparian state, but has not yet been fully admitted as a member of the NBI. From its beginning the Nile Basin Initiative has been supported by the World Bank[42] and by other external partners, among others Norway, with a total financial contribution of approximately NOK 202 million. The riparian countries have yet to agree on a political agreement (Comprehensive Framework Agreement) regarding the establishment of a Nile Commission to administrate the joint management of the Nile water resources.

Cooperative water resources management is complex in any international river basin. In the Nile Basin, which is characterised by water scarcity, poverty, a long history of dispute and insecurity, rapidly growing populations and demand for water, it is particularly difficult.

Norway has contributed with core support to the NBI through the Nile Basin Trust Fund (NBTF) until 2010, and the fund is chaired by the World Bank. Through this fund, support is channelled to various projects and investment programmes. Some of these, Shared Vision Projects (SVP), Institutional Strengthening Project, the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) or the Eastern Nile Subsidiary Action Program (ENSAP), have activities within the energy sector. Norway also provides additional funds to other NBI activities/ projects, some of these will be introduced below:

THE NKENDA (UGANDA)-BUNIA (DEMOCRATIC REPUBLIC OF CONGO) TRANSMISSION LINE

This is one of the NBI and NELSAP initiated transmission projects. This interconnection line is part of the overall regional system plans, which also include Tanzania, Burundi and Rwanda. The planning of the line enables cooperation between countries and will eventually introduce the possibility of cross-border trade.

The Agreement for the financing of the feasibility study, ESIA and detailed design was signed between the Norwegian Embassy in Kampala and NELSAP in December 2011. The transmission line study will be implemented during 2012-2013. The project is being followed up by the Norwegian Embassy in Kampala.

THE KENYA-TANZANIA INTERCONNECTOR

Another prioritised regional transmission line is the interconnection between Kenya and Tanzania. A feasibility study for this project was undertaken in 2002 and recommended the construction of a 330 kV single circuit line between Nairobi and Arusha. This line was expected to link the region with the Southern African Power Pool (SAPP) through another 330 kV transmission line between Tanzania and Zambia. Dry hydrological conditions resulting in

42 http://www.worldbank.org/

serious power deficits made financiers reluctant to fund the project, which has been put on hold.

New developments led to the revival of this interconnection project, and in 2010 an agreement to support a revision and upgrading of the 2002 feasibility study was signed between NELSAP and the Norwegian Embassy in Tanzania. The budget of the project is NOK 24 million, whereof NOK 7.3 million was disbursed in 2011.

RUSUMU FALLS HYDROELECTRIC AND MULTIPURPOSE DEVELOPMENT PROJECT

Together with the World Bank and Sweden Norway supports an ongoing feasibility of the Rusumu Falls Hydroelectric and Multipurpose development project. The objective of the project is “to provide multi-purpose use of water and energy resources with investment in sustainable livelihoods in the project area (Rwanda, Burundi and Tanzania)”. The Norwegian contribution amounts to NOK 10 million, which was disbursed in 2006-2007. The feasibility and ESIA are expected to be finalized in 2012. This project is being followed up by the Norwegian Embassy in Kampala.

For more information on the Nile Basin Initiative see: www.nilebasin.org/newsite/

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

In order to implement the Southern African Development Community (SADC) Common Agenda, SADC and International Co-operating Partners (ICPs) have developed a SADC/ICP Partnership. This new partnership, as outlined in the Windhoek Declaration (April 2006), aims at an effective dialogue and cooperation between SADC and ICPs within various sectors and areas.

Despite being rich in primary energy resources, the SADC region experiences a power shortage. Furthermore about 80 % of the region's population use various forms of biomass very inefficiently. Against this background, there is a substantial involvement from various ICPs in energy related projects. To pursue this task the SADC Energy Thematic Group (ETG) was established.

Through taking a lead role and providing substantial advice and support to the regional energy agenda consistently through a long period, Norway has strengthened our position within energy in the region. Ensuring access to decision-making forums, this offers an opportunity to enhance beneficial energy solutions in the region.

Norway supports the regional energy agenda through several projects, described below.

SUPPORT TO THE SADC SECRETARIAT ON ENERGY RELATED ISSUES

SADC designated Norway as lead ICP in energy in January 2007, and the Norwegian Embassy in Maputo took the lead on the Norwegian side. Norway supports SADC through the financing of an Energy expert position in the SADC Secretariat. Norway's technical support for the secretariat as Lead ICP in 2011 has been provided from the Norwegian Embassy in Maputo and through external consultants. The SADC ETG is the main instrument to meet the objectives of the project.

AS LEAD ICP NORWAY SUPPORTS SADC IN SEVERAL WAYS:

- assists SADC in facilitating the co-ordination of ICPs involved or interested in activities within the energy sector;
- strategically advises the SADC Secretariat and other SADC structures on the various ICPs' comparative advantages and individual ICP priorities of support to the sector and the SADCs Energy Strategy;
- maintains a continuous dialogue and flow of information between SADC and ICPs on regional energy issues, strengthening the information dialogue

From 2009 to early 2011, Norwegian funds amounting to NOK 2.5 million per year were used to cover the salaries and subsistence allowance for a full time energy coordinator based in Maputo, professional backstopping and contingencies. The support was highly valued by the SADC Energy Thematic Group and the group of ICPs engaged in the regional energy cooperation. Since 2011, Norway supports SADC through providing funds to cover the cost of a full-time Power Sector Programme Officer to be seconded to the SADC Energy Division for a three year period.

ELECTRICITY REGULATORS' PEER REVIEW NETWORK

OBJECTIVE

The objective of this regional programme is to achieve an increased level of investments and improved performance in electricity infrastructure and services in selected countries as a basis for

enhanced sustainable development. Currently, Ghana, Kenya, Tanzania, Uganda, Namibia and Zambia form the network.

The Programme includes active peer review and learning network amongst electricity regulators in the selected countries that benchmarks regulatory performance and progressively improves the credibility, transparency and robustness of regulatory decision-making.

The programme's second phase started in 2011 with a budget of NOK 6 million for three years.

ACHIEVEMENTS IN 2011

Joint peer reviews of the Lesotho Electricity Regulator and of the Malawi Electricity Regulator were conducted in 2011. The project coordination team also published several articles on electricity regulation based on the findings of the reviews, and also communicated this insight through a number of presentations in international conferences.

Approximately NOK 2 million was disbursed to the project in 2011.

THE SOUTHERN AFRICAN POWER POOL; REGIONAL ELECTRICITY MARKET

Southern African Power Pool (SAPP) was created in 1995 with the primary aim of providing reliable and affordable electricity supply to the consumers of the SAPP members. The aim was to improve the efficiency in the production of energy and thereby also have a positive impact on the environment. The members of SAPP have undertaken to create a common market for electricity in the SADC region and to let their customers benefit from the advantages associated with this market.

Since 2003, Norway has provided a total of NOK 60 million for support to the Southern African Power Pool. The support has been in the form of parallel financing with Sweden. The aim has been to develop a competitive electricity market in the SADC-region through support to SAPP on planning and strategy development for transmission and generation capacity in the region.

The ongoing programme, which was in its final phases in 2011, is for support to the establishment and implementation of the competitive market, the Day Ahead Market (DAM). In the competitive electricity market existing national utilities, IPPs, Independent Transmission Operators and big end users will participate in trading. In addition, support is given to support the development of adequate transmission and generation capacity. The implementing institution is SAPP-Coordination Centre, and the project period runs from 2009 until 2012. The total budget for the project is NOK 22.5 million (Sweden SEK 12 million). In 2011 NOK 5.2 million was disbursed under the Norwegian support. This project is being followed up by the Norwegian Embassy in Maputo.

The competitive electricity market, named the 'Day Ahead Market', was launched in late 2009. In 2011, the work has been focused on improving the market functioning, related to market monitoring, system upgrade, information and guidelines.

Studies related to ZIZABONA, a transmission project involving four countries, have also been undertaken and will be finalized in 2012.

A mid-term review of the support was undertaken in early 2011, and concluded that the technical assistance provided through the project has been successful, and has provided valuable contributions

to the establishment and operation of the DAM. However, in spite of the technical aspects of the DAM working well, the volumes traded are still very low. The volumes will need increased significantly before the DAM will produce the intended results in terms of improving the market dynamism in particular and the regional energy situation in general.

The ongoing support will be finalized in 2012, and continued support for SAPP is being discussed.

For further information on the SAPP see: www.sapp.co.zw/

COMMUNICATING ENERGY

The regional project Communicating Energy has been supported by Norway since 2007, with a total of NOK 5.2 million. The project's goal is to promote and catalyze dialogue on the development of national and regional policies that allow for new private sector investment into the power sector and greater access as well as more efficient use of basic primary energy sources.

The project thus aims to raise regional awareness among stakeholders in Southern Africa about key regional energy issues through production and distribution of publications on these issues.

In 2011, SARD (Southern African Research and Documentation Centre) communicated progress and policy issues on energy to the wider community through a number of communication tools, in the print, broadcasting and other electronic media in the region. Communicating Energy has recieved support in three phases and NOK 1.5 million was disbursed in 2011.

KAFUE GORGE TRAINING CENTRE

The cooperation between KGTC and International Centre for Hydropower (ICH) in Norway on regional training courses continued in 2011, where ICH recently entered into a new agreement with KGTC to hold annual regional training sessions. The 2011 training session focused on Small Hydro Resources in Africa.

SADC'S KEY ACHIEVEMENTS IN 2011 ARE:

- Support for and strengthening of, information exchange among the ICPs.
- Identification of areas where coordinated ICP initiatives can make a significant contribution to address SADC's energy challenges.
- ICP cooperation to fund new initiatives to develop renewable energy and energy efficiency programmes.
- Dialogue and strategic support to the SADC Secretariat.
- Through the role as lead ICP, Norway has achieved a strong position within energy in the region. The role has provided access to decision-making forums, hence offering an opportunity to enhance beneficial energy solutions in the region.

MULTILATERAL COOPERATION

Within the Clean Energy for Development Initiative it is believed that channelling support through various multilateral channels will lead to a value added in reaching the goals set for the Initiative. Norwegian support to multilateral institutions includes both core support and more energy sector specific support to programmes within clean energy. In 2011 around NOK 217 million of the Norwegian development assistance to clean energy was allocated to multilateral institutions. In addition some of the support provided through multilateral channels is categorized as support to environment, even if the support also covers activities within energy. [43]

The following chapter seeks to present the total Norwegian clean energy support channelled through multilateral institutions.

- United Nations
  - UNDP
  - UN-Energy
  - UNEP
  - UN-HABITAT
  - UNIDO
- World Bank Group
  - CARBON FUNDS
  - CCS
  - ESMAP
  - IDA
  - IFC Trust Fund
  - NTF-PSI
  - SEDF
  - SREP
- African Development Bank
- Asian Development Bank
- The Inter-American Development Bank
- Multilateral organizations
  - EnDev
  - GEEREF
  - GEF
  - GLOBAL ALLIANCE FOR CLEAN COOKSTOVES
  - GREEN AFRICA POWER (GAP-PIDG)
  - NDF
  - REEEP

43 A rough estimate indicates that the total support is approximately NOK 250 million if all energy related activities supported by Norway through multilateral institutions were included.

UNITED NATIONS

Norway is a strong supporter of the United Nations (UN) and is one of its most important contributors. There are many organisations within the United Nations that deal with clean energy, but none that have energy as a sole focus area. The most important UN organisations that Norway contributes to that have a clean energy portfolio are UNDP, UNEP, UNIDO and UN-HABITAT.

UNDP

UNDP is the United Nation's development network and links and coordinates global and national efforts to reach the Millennium Development Goals. In the period 2010-2011 Norway contributed approximately NOK 250 million through UNDP. During the last two years Norway has supported UNDP's Thematic Trust Fund for Energy and Environment (EE TTF) with a total of NOK 22 million.

The contribution for energy and environment shall be used towards achieving the following objectives:

- Mainstreaming environment and energy
- Mobilizing environmental financing
- Promoting adaption to climate change
- Expanding access to environmental and energy services for the poor

UNDP focuses both on upstream activities, for example policies needed to support energy options for sustainable development, and on downstream activities concentrated on integrated energy solutions addressing social, economic and environmental objectives to address poverty and promote sustainable development.

The Energy Access Program is funded through the EE TTF. The overarching goal of the program is to strengthen capacities of the developing countries in expanding access to modern energy services for the poor. The Energy Access Program has also assisted national counterparts in their efforts to mainstream energy issues into national development strategies by developing a catalogue of policy notes, guidelines, tools, and other resources which are currently available.For more information see:
www.undp.org/

UN-ENERGY

After the World Summit on Sustainable Development, UN-Energy, an inter-agency mechanism on energy was established. UN-Energy's task is amongst others to promote system-wide collaboration in the area of energy, with a coherent and consistent approach. In 2007 Kandeh Yumkella was elected as Chair. Dr. Yumkella is the Director General of UNIDO (United Nations Industrial Development Organisation). To promote policy coherence and operational cooperation within the UN-System, UN-Energy has created three thematic clusters: the Energy Access cluster, the Renewable Energy Cluster and the Energy Efficiency cluster. In addition to joint publications UN-Energy has in 2011 been working with a compilation of all UN-activities within the field of energy, a strategy forward for UN-Energy and a knowledge network.
For more information refer to:
www.esa.un.org/un-energy/.

UNEP

The United Nations Environment Program (UNEP) has identified six cross-cutting thematic priorities.

These thematic priorities are, in alphabetical order:

- Climate change;
- Disasters and conflicts;
- Ecosystem management;
- Environmental governance;
- Harmful substances and hazardous waste;
- Resource efficiency; sustainable consumption and production.

Norway has actively worked for a non-earmarking of the support to UNEP, and has therefore allocated its support along with the organisations own thematic priorities. In 2011, Norway contributed NOK 100 million through the frame agreement with UNEP. This contribution was disbursed on the different thematic priority areas as follows: Climate change (22 %); Disasters and conflicts (5 %); Ecosystem management (18 %); Environmental governance (23 %); Harmful substances and hazardous waste (13 %) and Resource efficiency (9 %)[44]. The only earmarked contribution was an allocation of USD 1 million per annum to the joint UNEP/UNDP Poverty and Environment Initiative.

UNEP's work within energy falls within the Climate Change priority area. The goal of UNEP's Energy Branch is to bring the environmental dimension into energy sector decisions, with a focus on reducing emissions of greenhouse gases. The energy branch works with the following areas: mobilising finance, energy efficiency, renewable energy, transport and bio-energy.

UNEP is actively engaged in producing information and sharing knowledge about various aspects of how to green central sectors of the economy in order to shift development and unleash public and private capital flows onto a low carbon, resource-efficient path.

For more information see:
www.unep.org/

UN-HABITAT

The United Nations Human Settlements Program, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. UN-HABITAT has both a normative and an operational function.

Examples of UN-HABITAT's work within the field of Clean Energy in 2011 are:

- Energy efficiency in buildings being supported by the Global Environment Facility in co-operation with UNEP
- Development of multi functional clean energy centres in co-operation with BASF foundation
- Publications on renewable energy technologies; first one is energy in water and sanitation
- Planning of energy corridors in West Africa in cooperation with ECOWAS

44 The last 10 % is reserved for emerging issues, to be agreed upon between UNEP and Norway.

- Pilot project with prisons in Kenya on biogas sanitation

- Development of an UN-HABITAT energy strategy with focus on three regions.

Norway contributes NOK 79 million annually to UN-HABITAT in the period 2010-2013, out of which NOK 25 million is core support and NOK 54 million is related to a program agreement. Approximately NOK 6 million was disbursed for energy related activities in 2011.

For more information see:
www.unhabitat.org/

UNIDO

The United Nations Industrial Development Organisation (UNIDO) is a specialised agency of the United Nations. Its mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition.

UNIDO FOCUS ON THREE MAIN THEMATIC AREAS TO ACHIEVE ITS GOALS:

i. Poverty reduction through productive activities
ii. Trade capacity –building
iii. Energy and Environment

In 2011 Norway contributed with almost NOK 30 million to UNIDO. Norwa's contribution to UNIDO's work within clean energy in 2010 was concentrated to the support of a National Cleaner Production Centre in Sri Lanka, which Norway has supported since it was established in 2001. The objective of the support to NCPC has been to contribute to sustainable development by promoting and building capacities on cleaner production methods and policies.

For reference and more information see:
www.unido.org/

WORLD BANK GROUP

Norway provides co-financing to the World Bank's work with energy related issues through the Norwegian Trust Fund for Private Sector and Infrastructure (NTF-PSI), Scaling-up Renewable Energy in low income countries (SREP), Carbon Capture and Storage capacity building (CCS), Carbon funds, the Energy Sector Management Assistance Program (ESMAP) and the International Development Assistance (IDA).

The World Bank Group supports developing countries' efforts to provide cleaner, sustainable and reliable electricity services to households and businesses through its financing instruments, policy advice, partnerships, and knowledge transfer. In the fiscal year 2010/2011 (ending in June), Bank Group financing for low-carbon energy activities (including all forms of renewable energy and energy efficiency, as well as policy loans and institutional capacity building in these areas) totalled USD 5.9 billion. This caps a trend of increasing support by the Bank Group in these areas in the last five years, which has brought the share for low-carbon activities in the total energy financing to the 70 percent range. As Bank lending in energy declines due to IDA/IBRD constraints, a significant scale-up of Clean Investment Funds and other similar sources of concessional financing will be necessary to maintain the low-carbon share at this level.

For more information on the WB group see: www.worldbank.org/.

CARBON FUNDS

The World Bank has pioneered carbon finance, and this area of operations has bloomed into a number of special purpose funds. Norway is currently participating in the Prototype Carbon Fund (PCF), the Forest Carbon Partnership Facility and the Carbon Partnership Facility.

Norway supports both the capacity building part of the Carbon Partnership Facility for infrastructure (post 2012) and the buying part of the partnership-. This program builds a partnership between future carbon sellers in developing countries with future buyers, thus guaranteeing a deal for both seller and buyer. The idea is that this instrument may give incentives to investors and planners to ensure that big infrastructure projects on the drawing table to day, (which will have an impact on emissions for years to come), are designed with the cleanest possible technology, knowing that the avoided carbon emissions may be sold. The capacity building component supports developing countries in identifying suitable projects.

The "Prototype Carbon Fund" (PCF) became operational in April 2000. As the first carbon fund, its mission is to pioneer the market for project-based greenhouse gas emission reductions while promoting sustainable development and offering a learning-by-doing opportunity to its stakeholders.

The PCF has been structured as a public-private partnership of six governments and 17 companies. From its inception, the PCF has followed three primary strategic objectives:

- High-quality emission reductions to show how project-based greenhouse gas emission reduction transactions can promote and contribute to sustainable development and lower the cost of compliance with the Kyoto Protocol.

- Knowledge dissemination to provide the parties to the United Nations Framework Convention on Climate Change (UNFCCC), the private sector, and other interested parties with an opportunity to "learn-by-doing" in the development of policies, rules, and business processes for the

achievement of emission reductions under CDM and joint implementation.

- Public-Private Partnerships is an important mechanism to demonstrate how the World Bank can work in partnership with the public and private sectors to mobilise new resources for its borrowing member countries while addressing global environmental problems through market-based mechanisms.

CARBON CAPTURE AND STORAGE CAPACITY BUILDING (CCS)

A new World Bank trust fund for "Capacity building on carbon capture and storage" was set up in December 2009 as a result of cooperation between Norway, the World Bank and the Global CCS Institute in Australia. Norway is the largest donor with a contribution of NOK 53 million. The Global CCS Institute in Australia is also a supporter to the fund.

The trust fund will facilitate inclusion of CCS options into low-carbon growth strategies and policies developed by national institutions and supported by World Bank Group in developing countries.

The fund has through close cooperation with national authorities already financed or is offering financing of capacity building activities in China, South Africa, India, Botswana, Jordan, Egypt, the Maghreb countries, Kosovo, Indonesia and Mexico. The major focus has been the energy sector; however, the fund is now also focusing on CCS in industry.

THE ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAM (ESMAP)

The "Energy Sector Management Assistance Programme" (ESMAP) is a global technical assistance program aimed at promoting environmentally sustainable energy solutions for poverty reduction and economic growth. Twelve bilateral donors and the World Bank provide grant funding for ESMAP, which is managed by the Sustainable Energy Department of the World Bank Group.

In Fiscal Year 2011 (FY2011) Norway contributed NOK 5 million, or approximately 4% of the program's total annual budget of USD 22 million.

Current actions are guided by ESMAP's Strategic Business Plan for 2008–13, which identifies three priority challenges: energy security, energy poverty, and climate change. The overarching objective of ESMAP's activities is to promote reliable, affordable and sustainable energy access for low and middle income countries. This means a strong emphasis in ESMAP's programs on building capacity, finding institutional and technical solutions, and mobilizing resources to bring electricity access to the 1.3 billion people worldwide who currently are in the dark, and cleaner, healthier and more efficient energy choices to the 2.66 billion people who rely on solid biomass for cooking and heating. At the same time, ESMAP supports client countries to address climate change, which threatens many development gains.

Over the past year, ESMAP has increasingly focused on areas such as low-carbon and climate-resilient energy sector strategies, access to sustainable household energy, energy efficient cities, and results-based funding for clean energy access. ESMAP's work is increasingly becoming a leading

indicator of the World Bank's overall energy lending portfolio, which has grown almost ten-fold over the past decade.

For the three fiscal years starting FY2009 (FY2009-FY2011), ESMAP activities contributed to the identification and design of USD 13.4 billion in approved World Bank financing.

ESMAP'S KEY ACHIEVEMENTS FOR FY2011 INCLUDE THE FOLLOWING:

- Supported over 130 analytical and advisory activities to inform public policies and investments and improve sector governance, with over USD 16 million in grants disbursed
- Contributed to international efforts to scale up concentrated solar power in the Middle East and North Africa that that are expected to accelerate local manufacturing, entrepreneurship, and job creation.
- Produced Low Carbon Growth Studies for South Africa, India and Poland that identify greenhouse gas mitigation opportunities and the financial, technical and policy requirements for transition to a low carbon development path
- Through the Energy Efficient Cities Initiative, informed World Bank lending operations by synthesizing best practices and implementation lessons on public procurement of energy efficiency services and building energy efficiency codes from around the world.
- Launched HEAT, the Hands-on Energy Adaptation Toolkit, which provides step-by-step guidance for practitioners as they conduct a risk assessment of climate vulnerabilities and adaptation options for a country's energy sector.
- Delivered country-specific "market transformation" strategies to help plan for large-scale integration of renewable energy, for India, Belarus and Mexico.
- Supported Lighting Africa, which has reached close to 1.5 million people with cleaner, quality-certified off-grid lighting products in Sub-Saharan Africa.
- Demonstrated positive results from the use of TRACE, the Tool for Rapid Assessment of City Energy, which offers cities a quick and easy way to assess their energy efficiency and identify key sectors for improvement, in Indonesia, Turkey, Philippines, and Vietnam.
- Integrated gender-sensitive approaches to improving access to energy services that are operational, and focused on results, into World Bank-financed energy projects in Mali, Kenya, Senegal, Benin and Tanzania.

For more information on ESMAP see: www.esmap.org/esmap/

INTERNATIONAL DEVELOPMENT ASSOCIATION

In Mozambique Norway has entered into an agreement with the International Development Association (IDA), and established a trust fund to finance transmission projects of regional importance. The fund has a budget of NOK 500 million for the period 2008-2013. The overall objective of the fund is to increase the availability and reliability of low cost, environmentally friendly electricity in the region, thereby increasing the competitiveness of industry, fostering economic growth and decreasing poverty. No disbursements were made in 2011.

The support to IDA is administered by the Norwegian Embassy in Maputo. For more information on the IDA see: www.worldbank.org/ida/africa/index.html

MOZAMBICAN REGIONAL TRANSMISSION BACKBONE PROJECT (CESUL)

One of the two main projects targeted through the trust fund is the Mozambique Regional Transmission Development Program, also called the CESUL project. CESUL consists of one HDVC[45] and one HVAC[46] transmission line from the Cahora Bassa Hydropower plant to Maputo and onwards to South Africa and the regional grid. The project is seen as one of the most important transmission projects in the region, as it will make major investments to exploit the important hydroelectric potential of the Tete region in Mozambique possible. This will enable the supply of large volumes of clean energy to the region, which suffers from severe energy deficiency and in which the main energy sources are fossil.

The project, which is estimated to require investments of approximately USD 2.1 billion, will involve a large number of actors in the public and private sectors, regionally and internationally. Norway is one of several donors contributing in the project, including the World Bank and the French Development Cooperation Agency, among others. The Norwegian grant to the project has so far been used to undertake the important preparatory work for the project.

In 2011, the Inception study and the Feasibility Study for the project were completed. The Feasibility study concluded that the project is economically, financially and environmentally sustainable, and in November 2011 the project was officially launched by the President of Mozambique, Mr. Armando Guebuza. The project preparations thereafter went into their final stage including legal and financial structuring. Financial close is planned to be reached in the first half of 2013.

IFC TRUST FUND FOR SUSTAINABLE BUSINESS ADVISORY SERVICES

Norway supports the IFC Trust Fund for "Sustainable Business Advisory Services" (SBA) with NOK 5.3 million. SBA is a global funded mechanism for IFC's sustainability related advisory services, with a focus on clean energy.

45 High-voltage direct current
46 High-voltage alternating current

NORWEGIAN TRUST FUND FOR PRIVATE SECTOR AND INFRASTRUCTURE

For World Bank fiscal year 2012 (FY12), Norway has channelled NOK 15 million through NTF-PSI for freestanding clean energy activities. These funds were allocated through a competitive Call for Proposal (for World Bank fiscal years 2011 and 2012). The objectives of the Call for Proposals were to finance activities supporting analytical work, operational pilots and/or capacity building to promote clean energy technologies and increase private sector engagement in this sector.

Through the FY12 Call for Proposals, 20 new activities were granted funding. Among the new activities for FY12, the following can be mentioned:

"Africa Clean Energy (Rwanda, Kenya, Mali, Ghana, Mozambique, Tanzania)"; an advisory project that will focus on increasing the level of private investment in renewable energy, in order to address the gap in access to electricity in a way that also contributes to reduced greenhouse gas emissions. The focus will be largely on off-grid systems and renewable energy schemes including small hydro, solar, wind power and geothermal sources in both urban and rural areas.

Lighting Africa (Mali and Senegal); the purpose of this activity is to accelerate adoption of modern off-grid lighting technologies by households and business in the selected area. The activity aims to share knowledge, tools, and lessons from Lighting Africas pilot activities in Kenya and Ghana and adapt the instruments for the use by rural energy agencies in Mali and Senegal.

Angola Mini Hydro; the project focuses on attracting private investment to the implementation of a mini-hydro program to electrify isolated centres and rural areas in Angola in a way that also contributes to reduce greenhouse gas emissions as the population affected rely on diesel generators and wood resources or simply do not have access to energy.

SOUTH ASIA ENTERPRISE DEVELOPMENT FACILITY (SEDF)

"South Asia Enterprise Development Facility" is a program for development of small and medium enterprises in Bangladesh, Bhutan, Nepal and north-east India. The program is funded by DFID, NORAD and the IFC. The latter is also responsible for the administration. Phase 2 (2009-2014) has a total budget of USD 28.4 million, and Norad's share is 28.8%. The program's goal is to increase employment and income in selected sectors. It has three main pillars:

i. Improved framework conditions
ii. Improved credit access, and
iii. Increased competitiveness.

The latter, among others, includes productivity-enhancing measures under the activity "Cleaner Production".

SCALING-UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES (SREP)

"Scaling-up renewable energy in low income countries (SREP)" is one of the sub-funds under the Strategic Climate Fund (SCF). SREP is part of the Climate Investment Funds (CIF), handled by the World Bank in cooperation with the other regional multilateral development banks.

Norway is providing a total of NOK 300 million over five years in support for the program, which focuses on a small number of low income pilot countries to

promote alternatives to traditional fossil fuel, by demonstrating that renewable energy sources like sun, wind, geothermal, biofuel and hydropower (up to 10 MW) can cover access to energy needs, both for households and as basis for income generating activities. The program addresses policy and the enabling environment in the energy sector as well as investments, which will be the substantial part, on the basis of clean energy sector investment plans.

SREP started its operations at the end of the year 2010, after USD 300 million was pledged to the program. Through 2011 four of the six pilot countries have developed their Clean Energy Investment plans, and got them endorsed by the Steering Committee. The Steering committee of SREP has equal representation of donors and partners. This is a new form of governance structure, used in the CIF climate funds, and this design has also been chosen as the governing principle in the future Green Climate Fund. Norway has a seat in the SREP Steering Committee. The first group of pilot countries are Ethiopia, Kenya, Mali, Honduras, Nepal and Maldives. The program is highly requested by developing countries who want to be among the pilots. Another group of six is lined up to start implementing as soon as more funds are available, among them Tanzania and Liberia.

AFRICAN DEVELOPMENT BANK (AFDB)

The African Development Bank (AfDB) was established in 1964 to help development efforts on the African Continent. In 2011, Norway supported the African Development Bank with NOK 83 million, in addition to NOK 500 million to the African Development Fund.

The AfDB is committed to supporting Africa's move toward climate resilience and low carbon development. A "Clean Energy Investment Framework for Africa" was established in 2008, and the "Climate Change Risk Management and Adaptation Strategy" the following year. Recent years have seen growth in the Bank's engagement in regional energy operations and Public Private Partnerships (PPPs) energy investments. To support the implementation of the AfDB's "Private Sector Development (PSD) Strategy" a "Sustainable Energy Fund for Africa" (SEFA) has been established. SEFA provides untied grants and equity support to smaller-size renewable energy and energy efficiency players. It is also envisioned that SEFA will support the Bank's energy strategy, which is currently under development. The AfDB also has a "Financing Energy Services for Small-scale Users (FINESSE) in Africa" program to assist African countries in generating a pipeline of investment projects in renewable energy and energy efficiency.

The "Climate for Development in Africa (ClimDev-Africa)" is a joint initiative of the African Development Bank, the Commission of the African Union and the United Nations Economic Commission for Africa. It aims to ensure that reliable, useful and useable climate related data are generated and made widely available to policy makers, policy support organisations and the general population on the continent. It also seeks to increase the capacity of end-users, particularly national development policy-makers, to be able to mainstream climate change into development plans on the continent.

One goal of the AfDB is to expand access to international climate change financing, in part through implementing the Climate Investment Funds (CIF) in the form of grants, concessional loans and risk mitigation instruments.

The African Development Bank provides advisory and technical support to The New Partnership for Africa's Development (NEPAD) and prepared an infrastructure short term action plan.

For more information see:
www.afdb.org/en/

ASIAN DEVELOPMENT BANK (ASDB)

The Asian Development Bank (AsDB) Strategy 2020 identifies energy as a core operational sector for poverty reduction. The aim of AsDB is to invest USD 2 billion in clean energy annually by 2013. In 2011 USD 2.1 billion was invested in clean energy, which is expected to result in additional 875 MW of renewable energy generation capacity, 3.3 TWh energy savings per year, and annual greenhouse gas emission reductions of 13.7 million tons carbon dioxide equivalent.

AsDB uses various financing instruments to support clean energy projects. This include grant funding for studies and project preparation, lending and risk enhancement, up-front purchase of certified emission reduction credits, regional private equity funds and donor funded grant components of investments to buy down the cost of projects. In the same way as the World Bank, the AsDB has created carbon funds; Asia Pacific Carbon Fund and Future Carbon Fund.

Clean Energy Financing Partnership Facility (CEFPF) was established in 2007 with the goals of increasing energy security among AsDBs developing member countries and assisting them in the ongoing transformation for their economies to low carbon development. The facility supports projects that deploy new clean energy technology, lower barriers in adopting clean energy technologies, increase access to clean and efficient energy for the poor and technical capacity programs for clean energy. From 2009 the facility also supports carbon capture and storage (CCS). To date projects supported by CEFPF have contributed to leveraging USD 1.8 billion in clean energy investments over the AsDBs ordinary financing mechanisms. Norway has supported the CEFPF with NOK 80 million (2007-2013). Investments in access-to-energy projects exceeded USD 950 million, from USD 418 million in 2009. The investment will provide access to electricity and modern fuels for 1.5 million households, adding to 1.27 million households connected during 2003-2009.

KEY ACTIVITIES AND RESULTS IN 2011:

- Support to 58 projects which are estimated to mitigate 6 million ton CO_2/year and generate 3.5 terawatt-hours (TWh) of energy savings.
- 58 of the projects supported contributed to the deployment of 38 new technologies
- CEFPF's total project allocations of USD 66.7 million have leveraged USD 1.8 million clean energy investments.

In 2011 a co-financing agreement was signed with the Asian Development Bank for the Nepal Electricity Transmission Expansion and Supply Improvement Project.GoN, ADB and Norway will provide USD 28 million, USD 75 million (mainly loans) and NOK 150 million (grants), corresponding to USD 25 million, respectively. Nepal Electricity Authority (NEA) will be the executing agency. The Norwegian grant will be used to prepare a new 400 kV transmission line from Khimti to Kathmandu, which is a future oriented and environmentally friendly solution. The line will enable grid connection of new hydro power projects and also improve the electricity supply in Kathmandu.

The last payment of Norway's NOK 56 million contributions to rural electrification under ADB's "Conflict-Affected Areas Rehabilitation Project" (CAARP) in Sri Lanka was made in 2010.

For more information on the AsDB see:
www.adb.org/

THE INTER-AMERICAN DEVELOPMENT BANK (IDB)

The Inter-American Development Bank (IDB) was established in 1959 to help development efforts in Latin-America. Norway has only 0.17 % of the shares in the bank. However, the IDB is an important development partner in Latin-America, the same size as The World Bank. In 2010 the members decided to increase the IDB's capital with USD 70 billion. Unlike the Asian and African Development Bank, there is no replenishment exercise for IDB's concessional window. Consequently the Norwegian financial contributions to the IDB are limited.

The risks of global climate change clearly necessitate an international ambitious effort and IDB who is already among the leading agencies in climate change in LAC is further gearing up in order to assist her member states in meeting the challenges of this change.

To respond to increasing demand from borrowing countries for assistance in addressing climate change, the "General Capital Increase (GCI-9)" commits the Bank to support mitigation and adaption efforts of these countries while meeting their developmental and energy requirements. GCI-9 sets an ambitious 2015 target of total lending going to the fast growing portfolio on climate change, environmental sustainability, and renewable energy. As a result IDB has developed a comprehensive system of indicators. In order to address risks, mainstream climate change in its operations, and further integrate both public and private sectors the Bank is working on strategic and operational development, adaptation and mitigation efforts, knowledge generation and dissemination, the establishment of partnerships, and the mobilization of climate finance from external sources.

IDB had after public consultation its "Integrated Strategy for Climate Change Adaption and Mitigation, and Sustainable and Renewable Energy" approved by the Board of Executive Directors in March 2011. The Bank is now developing a climate change strategy with detailed plans of actions for each sector the Bank is engaged in, such as sustainable transport, sustainable energy, tourism and infrastructure, agriculture and forestry.

In 2007 IDB established the "Sustainable Energy and Climate Change Initiative" (SECCI), which led to the creation of the Sustainable Energy and Climate Change Unit within the Bank. This unit was as of January 2012 converted from a unit to a new Climate Change and Sustainability Division.

There exists a substantial untapped energy efficiency potential in the LAC-region which could help reduce the region's carbon footprint at a relative low cost. Energy efficiency programs reduces energy demand in the short term, they delay construction of new power generation capacity, increase market competitiveness, and lower fossil consumption.

IDB public sector operations are supporting energy efficiency projects in Barbados, the Bahamas, Chile, Dominican Republic, Jamaica, Mexico and Peru with over USD 150 million. The Bank's private sector operations are financing significant energy efficiency investments in heavy industry and agribusiness. The private sector department has partnered with UNDP and the Global Environment Facility (GEF) to create guarantee for developing and stimulating energy efficiency investments.

For more information see:
www.iadb.org/en/

MULTILATERAL ORGANISATIONS

THE ENERGIZING DEVELOPMENT PARTNERSHIP (ENDEV)

The partnership Energizing Development is an impact oriented global sector initiative that was established in 2005 by the Germany and the Netherlands. By summer 2011 EnDev had provided about 8 million people, 10 000 schools and 26 000 small enterprises with new energy access, either by electricity or improved cooking technologies in households.

Norway joined this partnership in 2011 for a three year period with a total budget NOK 64 million, whereof NOK 54 million were disbursed in 2011. Support will be given to projects with three major objectives:

1. Increase energy access in developing countries through renewable energy and energy efficiency
2. Reduce emissions of greenhouse gases through renewable energy and energy efficiency
3. Test and further develop selected components of the International Energy and Climate Initiative - Energy+.

Energizing Development has activities in 18 low- and middle income countries in Asia, Latin America and Africa, with sub-Saharan Africa being the focal point. There is a strong cooperation with national partners such as central government ministries, local government administrations, civil society organisations and private sector.

EnDev selects and supports projects based competition and needs assessment. The approach allows for a fast scaling-up of successful activities and flexible reallocation of funds between countries according to performance. EndDev is working with results-based management. Baseline studies are conducted before project interventions, and systematic impact studies are accomplished after completion of energy access projects.

The goals and features of EnDev are compatible with central components of the International Energy and Climate Initiative - Energy+, which was launched at the Energy for All: Financing Access for the Poor conference in Oslo in 2011. EnDev is seeking to test and further develop selected components of this Initiative like for example development and testing of sectoral approach, results-based payments and securing large-scale commercial investment for renewable energy and energy efficiency.

GLOBAL ENERGY EFFICIENCY AND RENEWABLE ENERGY FUND (GEEREF)

Together with the EU and Germany, Norway has contributed to the establishment of an innovative fund for energy efficiency and renewable energy known as "Global Energy Efficiency and Renewable Energy Fund" (GEEREF).

GEEREF is a Public Private Partnership (PPP) and aims to accelerate the transfer, development, use and enforcement of environmentally sound technologies for the world's poorer regions, helping to bring secure, clean and affordable energy to local people.

Norway has committed NOK 80 million over 4 years. In 2011 Norway contributed NOK 20 million to the fund. GEEREF is structured as a Fund-of Fund, and invests in private equity funds that specialise in providing equity finance to small and medium-sized project developers and enterprises.

GEEREF will typically invest tickets below EUR 10 million (approximately NOK 75 million), a market niche usually ignored by private investors and international finance institutions. Geographically, GEEREF targets funds in the African, Caribbean and Pacific region, non-EU Eastern Europe, Latin America and Asia. GEEREF is advised by the European Investment Bank Group (European Investment Bank and the European Investment Fund).

Since 2009 GEEREF has undertaken five investments in the following private equity funds:

- "The Renewable Energy Asia Fund" aims to invest into renewable energy projects in their development stage and help them transform into operating projects. The Fund will specifically focus on operationally and economically mature technologies which are best placed to help Asia bridge its current electricity supply and demand gap (primarily with wind, small hydro and solar energy).

- "The Evolution One Fund" will invest in sustainable energy projects in Africa. It is managed by Inspired Evolution Investment Management which is positioned to lead cleantech investments in southern Africa - taking first mover advantage in emerging clean technology and environmental markets.

- "Barefoot Power" is a social enterprise supplying low-cost solar equipment to off-grid populations (currently using kerosene lamps) in Uganda, Kenya, Papua New Guinea, Vanuatu and several ACP countries.

- "DI Frontier Market Energy and Carbon Fund" is a private equity fund focusing on investments in renewable energy and energy efficiency infrastructure projects in Eastern Africa. The fund aims at 8 to 12 investments ranging from USD 3 to 10 million, mainly through equity.

- "CleanTech Latin America Fund II" is a projected USD 150 million private equity fund focusing on clean technology and renewable energy infrastructure in Latin America and the Caribbean. The targeted sectors are renewable energy, energy efficiency, climate and environmental projects and transport efficiency, with the envisaged portfolio size averaging between 8-12 projects.

For more information see:
www.geeref.com/pages/home

GLOBAL ENVIRONMENTAL FACILITY (GEF)

Established in 1991, the Global Environmental Facility (GEF) is today the largest funder of projects to improve the global environment. As an independent financial organisation, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants. The GEF covers the incremental costs of achieving global environmental benefits. Biodiversity and climate change each receive approximately 30 % of GEF funds.

The GEF has allocated USD 9.2 billion, supplemented by more than USD 40 billion in co-financing, for over 2 700 projects in around 165 developing countries and countries with economies in transition. Through its Small Grants Programme (SGP), the GEF has also made more than 12 000 small grants (totalling almost USD 500 million) directly to non-governmental and community organisations.

For GEF 5 (2010-14), Norway contributes a total of NOK 376 million. In addition, NOK 68 million was allocated to the Least Developed Countries Fund (NOK 53 million) and the Special Climate Change Fund (NOK 15 million). Both these funds were created in 2001 as GEF-managed funds under the Climate Convention with a particular focus on adaptation.

As an operating entity of the United Nations Framework Convention on Climate Change's (UNFCCC) financial mechanism, the GEF has supported climate change mitigation efforts in developing countries during the past 20 years in close cooperation with recipient countries and the ten GEF agencies. The GEF's work on climate change has maintained a strong focus on the transfer of environmentally sound technologies, closely allied with the UNFCCC's technology transfer framework. Total investment of USD 3.1 billion has leveraged an additional USD 19.9 billion in co-financing.

GEF`s climate change mitigation strategy during GEF 5 consists of six objectives. The first focuses on innovative, emerging low-carbon technologies at the stage of market demonstration or commercialisation where technological push is still critical. The second through fifth objectives focus on technologies that are commercially available but face barriers and require market pull to achieve widespread adoption and diffusion. The last objective is devoted to supporting enabling activities and capacity building under the Climate Change Convention.

For more information see:
www.thegef.org/gef/

GLOBAL ALLIANCE FOR CLEAN COOKSTOVES

In 2011 Norway signed a contract to provide support to the newly established Global Alliance for Clean Cookstoves (the Alliance); a global effort led by the United Nations Foundation (UNF), the Shell Foundation and other bilateral- and private sector partners to dramatically scale up efforts to deploy clean cookstoves in the developing world.

Three billion people still rely on biomass as their primary energy source. Estimates (by the International Energy Agency; IEA) show that 2.5 billion people will still use traditional biomass for cooking in 2030. Health effects related to this will likely result in 1.5 million premature deaths per year, mostly affecting women and children. Unsafe and inefficient cookstoves also has serious consequences on the environment through local air pollution, continued deforestation and land degradation.

The overall goal of the Alliance is to:

- Save lives and reduce the incidence of disease caused by cookstoves smoke, particularly affecting women and children;
- Mitigate emissions of black carbon and greenhouse gases that contribute to climate change;
- Build a commercially sustainable clean cookstoves industry; and
- Help meet the Millennium Development Goals on poverty, health, gender, and the environment.

To reach the above goals the Alliance will strive to:

- Build a 'robust' Alliance institution, with the ability to deliver the Alliance's headline target of 100 million homes adopting clean and efficient cookstoves and fuels by 2020
- Identify the Sector's needs and priorities so that the Alliance can target its (limited) resources to the activities that will have the greatest impact.
- Champion the Sector: Increase awareness about the sector and its needs as a way to attract significant additional resources (financial and non-financial)
- Increase national and multinational commitment to clean cookstoves
- Direct Market Support: help the stove sector to develop a thriving global market with the ability to sell tens of millions of clean cookstoves a year.
- Research to Support the Stove Sector: Conduct research into fuels, technologies, health, climate, gender and livelihoods with the aim of proving or strengthening the link between toxic cookstove smoke and a range of health, environment, gender and livelihoods challenges.
- Furthermore, help prove or strengthen evidence that clean cookstoves can save lives, improve livelihoods, empower women and combat climate change.

Through this support Norway will support this initiative with a total of NOK 3 million in its initial 1 year start-up phase. In this first phase the aim is to map the various ongoing initiatives, find best-

practices, develop financing mechanisms, share information and raise awareness, and identify the way forward.

One of the major results of the Alliance in 2011, was the release of an overall sector strategy; Igniting Change - a plan to reduce the two million annual deaths caused by toxic cook smoke from burning solid fuels in rudimentary cookstoves and open fires. The report weaves together recommendations from more than 350 international experts from a range of disciplines and organizations participating in nine Working Groups and two Cross-Cutting Committees over the past year.

NOK 2.5 million was disbursed to the Alliance in 2011.

For more information see:
www.cleancookstoves.org/

Preparing new clean cookstoves. Photo by Nina Hake

GREEN AFRICA POWER (GAP-PIDG)

"The Private Infrastructure Development Group Trust" (PIDG) initiated the "Green Africa Power project", a concept that aims to overcome the constraints and obstacles to private sector investment in renewable energy generation in Sub Sahara Africa.

In late 2010, Norad together with DFID agreed to fund project preparation in two phases. The first phase was to assemble a pipeline of potential actual example transactions. The objective was to find developers whose projects were facing difficulty because of one or more of typical market failures, which would be willing to explore with GAP the possibility of finding a workable transaction structure involving GAP, to drive it forward.

Phase 2 of project preparation was to take the most promising of the pipeline of potential transactions in Phase 1, and do the detailed structuring and negotiation work to bring one or more of them to a point where they could be submitted for firm approval to all stakeholders, for implementation in the next stage of the project.

The total Norwegian support to this project in 2011 was NOK 3 million.

NORDIC DEVELOPMENT FUND (NDF)

The Nordic Development Fund (NDF) is the joint development finance institution of the five Nordic countries; Denmark, Finland, Iceland, Norway and Sweden. A new mandate was given to the Fund in 2009 to provide grant financing for climate-related interventions in low-income countries using the reflows of previously provided development credits. NDF finances projects mainly in cooperation with other development financing institutions.

NDF finances projects which aim to mitigate climate change or assist partner countries to adapt to impacts of climate change. Mitigation projects are typically projects related to energy production and use. They mainly deal with energy efficiency, renewable energy and waste-to-energy.

Since June 2009 NDF has approved financing of 39 climate change projects with a total value of approximately USD 145 million. The projects are divided between mitigation (44%) and adaptation (36%), and with 20% covering both areas. The approved projects are located in low-income countries in Africa (42%), Asia (30%), and Latin America (28%) The annual emission reductions as a result of projects approved by NDF so far are estimated to exceed 3 million tons of CO2.

NDF's interventions under the new climate change mandate approved during 2011 are listed below.

COUNTRY/REGION	PROJECT	NDF FINANCING (USD MILLION)	PARTNER AGENCY
Global	Nordic Climate Facility	8.0	Nordic Environment Finance Corporation
AFRICA			
Regional (Africa)	Addressing the Vulnerability of Africa's Infrastructure	0.8	WB
Regional (Africa)	Insurance Instruments for Africa Climate Adaptation	0.7	WB
Regional (Africa)	Technologies for Low Carbon Development	0.7	WB
Ghana	Greater Accra Septage Digesters Project	3.4	WB
Kenya	Off-grid Energy Supply using Wind and Solar Energy	5.4	WB
Tanzania	Impacts of Climate Change in Coastal Areas	1.0	WB
ASIA			
Regional (Asia)	Gender and Climate Change	2.7	ADB
Vietnam	Nordic Partnership Initiative Pilot Programme	2.0	ADB
Vietnam	Integrating Climate Change Adaptation to Transport	2.7	ADB

LATIN AMERICA			
Regional (Central America and Bolivia)	GreenPyme II: Energy Efficiency in SME's	4.0	Inter-American Investment Corporation
Regional (Latin America)	Economics of Climate Change	0.7	IDB
Regional (Central America)	Climate Proofing and Review of Infrastructure Investments	2.0	IDB
Regional (Honduras and Nicaragua)	Adaptation to Climate Change in Honduras and Nicaragua	0.7	IDB
Regional (Latin America)	EcoMicro Regional Microfinance and Climate Change Programme	2.0	IDB
Regional (Latin America)	Regional Geothermal Training Programme	2.0	IDB
Regional (Latin America)	Climate Change and Sustainable Cities	2.9	IDB
Nicaragua	Biogas Development Programme	2.0	IDB

For more information on the NDF see:
www.ndf.fi/

Preparing new clean cookstoves. Photo by Nina Hake

THE RENEWABLE ENERGY AND ENERGY EFFICIENCY PARTNERSHIP (REEEP)

The "Renewable Energy and Energy Efficiency Partnership" (REEEP) was established alongside the 2002 world summit on sustainable development in Johannesburg. Since 2004 the International Secretariat has been situated in Vienna, Austria. REEEP partners are governments, private companies and international organisations.

REEEP'S OVERARCHING GOALS ARE TO:

- Reduce greenhouse gas emissions.
- Deliver social improvements to developing countries and countries in transition, by improving the access to reliable clean energy services, and by making renewable energy and energy efficiency more affordable.
- Bring economic benefits to nations that use energy in a more efficient way and increase the share of indigenous renewable resources within their energy mix.

REEEP WORKS TO ACHIEVE THESE GOALS BY

- Initiating and funding projects that:
- assist governments in creating favourable regulatory and policy frameworks
- promote innovative finance and business models to activate the private sector
- Facilitating networking through specific sub-networks
- Disseminating and replicating learning

Norway is REEEP's 2nd largest donor. Since 2006, Norway has supported REEEP with a total of NOK 51.5 million, and REEEP has supported 150 projects in 65 different countries. The 8th programme cycle will support another 30 projects funded or co-funded by Norway, and implementation of these started in July 2011.

By 2011 REEEP had implemented projects in for example Algeria, Brazil, China, Ghana, India, Lesotho, Liberia, Mexico, Mozambique, the Pacific Island countries, South Africa, Sub-Saharan Africa, Tunisia and Uganda. Examples of REEEP projects funded by Norway are:

COMBINED LEGISLATIVE AND FINANCIAL MECHANISMS FOR SOLAR WATER HEATER MASS ROLL-OUT IN SOUTH AFRICA

Supporting South African provincial and local governments in moving solar water heater legislation forward, and to continue the development of a combined framework of legislation, sound business models and additional government support to promote the large-scale rollout of solar water heaters in South Africa. The cooperating partner is Sustainable Energy Africa.

CARBON FINANCING FOR ENERGY EFFICIENCY IN INDIAN SMALL AND MEDIUM ENTERPRISE (SME) CLUSTERS

To work with one SME cluster as a pilot, to explore options for financing energy efficiency equipment by pooling the cluster's demand and using a carbon financing mechanism, and then to disseminate this model to other nearby clusters. The cooperating partner is Alliance to Save Energy.

For more information on REEEP see:
www.reeep.org.

Kihansi gorge. Photo Johannes Holmen, NORPLAN

NON-GOVERNMENTAL ORGANISATIONS (NGO)

Norad supports both national and international organisations and networks working with the civil society in developing countries. In 2011 Norad disbursed NOK 2.049 billion through 12 different budget lines to various NGOs. Over 100 Norwegian organisations were supported.

At least NOK 15 million of the support to civil society in 2011 was channelled to clean energy activities. This is a conservative estimate as there are funds to clean energy activities channelled through NGOs that are reported as support for other purposes, such as environment.

In this section, some of the most relevant and significant organisations working on clean energy projects are introduced. Minor energy initiatives/activities supported will not be presented here.

ARC-AID

Arc-Aid is an idealistic and independent humanitarian organisation working towards poverty eradication and sustaining peace. Clean energy and development is the core focus in all their project activities focusing on capacity building by facilitating knowledge transfer through exchange visits and education programs. In addition, the organisation also contributes with service delivery through promoting clean energy solutions as an alternative to fossil based electricity production and use, facilitating sale of equipment, and conducting local training sessions in use and maintenance.

Norad has been supporting the organisation's project "FabLab" in Kisumu, Kenya. The FabLab centre offers courses, workshops and other types of assistance for skills development and job creation in the field of renewable energy in order to promote innovation and entrepreneurship. The target group are craftsmen, teachers, students and ordinary families which have had increased knowledge of product development and technical equipment.

The organisation was approved funding for the project The Solar Energy and Environmental Technology Education Program (SEETEP) in Kenya in 2011. The purpose of the project is to establish a school to educate technicians in the fields of solar technology in order to improve local competence on environmentally friendly technology. ARC-Aid aims at educating 180 students in 2016.

The present budget for the years 2011-2013 is about NOK 6.8 million.

For more information on ARC-Aid's projects refer to: www.arc.aid.no/ or www.arc-kenya.org/aro/.

DIGNI (FORMER NORWEGIAN MISSION IN DEVELOPMENT)

Digni is a Norwegian umbrella organisation with 18 member organisations where the development activities are carried out by the individual member organisations. Norwegian Missionary Society (NMS) has within the field of clean energy been particularly active in promoting and installing biogas systems for households in China. 460 biogas units have been installed so far in the project. The project also emphasises training for farmers and technicians to maintain biogas digestives which can be used for cooking and production of electricity for light. In 2011 NMS also started a new program where they are transferring biogas technology from China to Madagascar.

For more information on NMS refer to: www.nms.no/

NATURVERNFORBUNDET (NORWEGIAN SOCIETY FOR THE CONSERVATION OF NATURE)

Clean energy for development is one out of several focus areas of project activities for Naturvernforbundet. The main objectives of Naturvernforbundet's international project activities are to ensure local partners' improved capacity regarding organisation development, increasing competence on energy, environmental and developmental issues, as well as policy campaigning on both local and national level. The organisation is present in Mozambique, one of the core countries of the Clean Energy for Development Initiative, and in the non-core country Togo.

In Mozambique, the organisation is involved in two projects: Local Sustainable Energy Centre in Sofala and Forum for Sustainable Energy in Mozambique (FEDESMO). The focus areas are support to local

community organisations through the establishment of energy, agricultural and resources committees, formalisation and organisation of 250 charcoal producers as well as the establishment of a national stakeholder forum for sustainable energy as a platform for sharing knowledge and experiences.

Naturvernforbundet also works with an environmental organisation in Togo called Jeunes Volontaires pour l'Environnement (JVE) to promote improved energy solutions for households, and to work on international energy and climate issues. In 2011 a semi-industrial production of improved stoves for charcoal was established. Furthermore, a pilot project was initiated that demonstrate new techniques with potential to double the dividend in charcoal production. In addition a resource centre for sustainable energy solutions has been established.

For more information on Naturvernforbundet's projects refer to:
www.naturvernforbundet.no

NORWEGIAN CHURCH AID (NCA) (KIRKENS NØDHJELP)

NCA is an independent humanitarian and ecumenical organisation with headquarters in Oslo, Norway. NCA work areas are emergency assistance, advocacy, and long-term development. NCAs main objective is to eradicate poverty and injustice.

Clean energy for development is one of NCAs focus areas and the organisation has been engaged in clean energy projects in 9 different countries. In terms of rural electrification, mini-grid and non-grid solar technology is the focus in countries such as Afghanistan, Eritrea, Mali, Zambia and Brazil, while micro and pico hydropower is given priority in Laos and Brazil. Biogas is a focus area in Vietnam, Haiti and Brazil. Project activities are also related to strategies for sustainable biomass based energy consumption and production in countries such as Haiti, Dominican Republic, Zambia, Kenya, Tanzania and Brazil. Other clean energy activities include the promotion of energy-efficient stoves and cultivating of Jatropha Curcus.

NCA has established cooperation with relevant resource organisations that provide technical assistance and expertise to their projects. Among them are TERI and Barefoot College in India, and ZERO and Energigården in Norway.

For more information on NCA refer to:
www.kirkensnodhjelp.no/

WORLD WILDLIFE FUND (WWF)

WWF is one of the largest environmental organisations in the world. WWF-Norway is currently focusing on four main areas of work: Policy change for low carbon development, increased access to clean energy services, sustainable development of large and medium-scale hydropower, sustainable development of solar, wind, geothermal and biofuels, and community based natural resource management including wood-fuel and charcoal production.

WWF initiated a pre-project on clean energy in 2010 supported by Norad in Mozambique and Uganda. The objective is to contribute to sustainable solutions for increased access to modern energy services in developing countries. Based on this pre-project WWF initiated a 3 year plan in 2011. The focus area of this project is to create change in three overall areas: civil society, national energy planning and project planning. In 2011 the focus was to continue to build partnerships and civil

society organisation (CSO) networks relevant to clean energy development and engage in hydropower project development. The strengthening of CSOs as informed and constructive actors engaging in national strategic planning, and policies promoting sustainable energy solutions were key to this work.

The main beneficiaries of this 3 year project will be civil society organisations, local communities and environment, government agencies, energy project developers, and electricity consumers.

For more information on WWF refer to: wwf.panda.org/.

KEY NORWEGIAN PARTNERS AND PROGRAMMES

In order to ease the understanding of how the Norwegian assistance to Clean Energy is organised, who are at play, and how responsibilities are divided among those with budgetary responsibilities a brief introduction to the various parties are given here. First there is an introduction of the Ministry of Foreign Affairs, the Embassies and Norad. Thereafter the other key implementing partners are introduced;

MINISTRY OF FOREIGN AFFAIRS

The Ministry of Foreign Affairs (MFA) has the overall responsibility for all Norwegian development aid. The Ministry, through the department of Regional Affairs and Development, Section for International Development Policy has the overall responsibility for the Norwegian assistance to clean energy for development. Some of the efforts within the Initiative are directly funded through the Ministry, as for example the overall support to Norfund and to the different multilateral organizations, wherein some of the support is channelled to energy projects (as introduced in the previous chapter).

Furthermore the Ministry allocates funds over the bilateral development aid budget to the various embassies with development aid portfolios.

The International Energy and Climate Initiative – Energy+ is also organized under MFA

For more information on the Ministry refer to: www.mfa.no.

THE EMBASSIES

In line with the above, the Embassies with development aid portfolios are therefore given the responsibility to allocate funds to various sectors and programmes, guided by the overall policy for the Norwegian development aid and the guidelines in the annual appropriation by the Parliament (St. Prop. 1).

Through a close dialogue with the Ministry of Foreign Affairs and Norad (providing technical advice), the embassies enter into agreements of support to various projects, after a systematic process of assessing the various proposals for support received by the embassies. The embassies therefore have an important role in defining which areas to support, and through which partners.

In the Policy Platform for the Clean Energy for Development Initiative seven main cooperation countries are identified, and the embassies in these countries therefore has an important role in following up and promoting activities within clean energy.

Norway has more than 100 diplomatic and consular missions located all over the world, and all of these have their own websites.

For more information see: www.norway.info/

NORAD

Within Norad different departments are directly involved in the Clean Energy for Development Initiative.

Department for Economic Development, Energy, Gender and Governance includes several sections working with assistance to clean energy, notably The Section for Private Sector Development, the Gender Team and the Energy Section. The latter functions as the Secretariat for the Clean Energy for Development Initiative. The Energy Section has a technical advisory responsibility towards the MFA and the Embassies, and only a limited budgetary responsibility within the Initiative. The Section for Private Sector Development aims to stimulate private sector development in developing countries, and offers financial assistance and guidance to private companies. Support is usually in the form of support to pre/feasibility studies, capacity building, pilot projects and CDM project development etc. In 2011 the Section for Private Sector Development

disbursed a total of NOK 65 million to projects within the energy sector. These projects have been introduced in the previous chapters of this report.

The Civil Society Department administers all the Norwegian support channelled through Non Governmental Organisations (NGOs), Norwegian and International. The support to NGOs with activities within clean energy is presented previously in the report.

The department for Higher Education and Research is another important actor within Norad, with responsibility for programmes focusing on research and higher education sometimes with clean energy as an integrated theme.

Furthermore other departments in Norad are also more indirectly involved in the Norwegian Assistance to Clean Energy, providing quality assurance, undertaking evaluations, advising on cross-cutting issues and other technical advice.

For more information see:
www.norad.no

NORFUND

Norfund is the commercial investment instrument in Norwegian development assistance (Development Finance Institution), and has the following mandate: "to fight poverty and to create sustainable development by investing in profitable businesses in developing countries".

Norfund invests in Southern- and Eastern Africa, Central America, and Southeast Asia, mostly in LDCs. Norfund provides equity, directly to companies or indirectly through funds, and loans to local companies in selected industries. Through the investments, Norfund contributes to development of private sector, creates employment, tax income and economic growth. Read more about Norfund in the introduction of the annual report.

THE NORWEGIAN WATER RESOURCES AND ENERGY DIRECTORATE (NVE)

The Norwegian Water Resources and Energy Directorate (NVE) is responsible for ensuring an integrated and environmentally sound management of Norway's water and energy resources. In addition to its domestic responsibilities, NVE has more than 30 years of experience in cooperating with developing countries, both through the United Nations but also directly as part of Norway's bilateral development cooperation within the field of clean energy.

NVE's development cooperation work is managed by the International Section. Their main tasks are project preparation and cost and quality controls on projects and programmes during implementation. Most of the professional work is carried out by staff from the various technical departments and sections of NVE. In 2011 the work undertaken by NVE within the Clean Energy for Development Initiative amounted to 13 man years.

Due to NVE's extensive knowledge and expertise in the field of water and energy resources, they are sought-after partners for institutional cooperation.

NVE's work within the Clean Energy for Development Initiative in 2011 involved activities in Bhutan, Ethiopia, Bulgaria, Ghana, Tanzania, Vietnam, Nepal, Timor-Leste, Republic of South Sudan, Angola and Liberia. These activities

are documented under each country they are involved in.

The Norwegian Water Resource Directorate (NVE) is proactive in promoting gender in its development cooperation. NVE invited female professionals from their partner institutions to a one-week workshop in Norway to strengthen participants' knowledge on how Norway organizes its energy sector and how to integrate gender in the sector. The workshop provided examples of good practices and methods for gender mainstreaming in energy projects. 13 participants from Nepal, Liberia, Ethiopia, Bhutan, Timor-Leste, Ghana and Tanzania attended. NVE's institutional cooperation program in Liberia is currently implementing a gender action plan.

The Norwegian Water Resource Directorate (NVE) and the Liberian Ministry of Land, Mines and Energy (MLME) started to implement gender activities in their institutional cooperation program. The work is related to strengthening the collection and use of sex disaggregated data and capacity building of the MLME in gender mainstreaming and of women's empowerment in local communities as direct and indirect beneficiaries of the development of the energy sector.

For more information on NVE see:
www.nve.no

THE NORWEGIAN TRANSMISSION SYSTEM OPERATOR (STATNETT SF)

Statnett is responsible for coordinating electricity generation and consumption, offering access to the power transmission grid on equal terms to all market participants, developing and maintaining the Norwegian main transmission grid.

Because of Statnett's expertise from long-term, hands-on experience as a Transmission System Operator they offer advisory and consultancy services related to all important aspects of running a modern utility and grid operator. For Statnett this includes among others long-term planning of the Norwegian high-voltage grid, operating the Norwegian and Nordic system and developing the main grid in the country.

Statnett has expertise on technical, organisational and market-oriented solutions as well as all training aspects necessary for both domestic and regional grid development and system operation.

Due to Statnett's extensive knowledge and expertise in this field, they are sought-after partners for institutional cooperation. In 2011 Statnett's work as part of the Clean Energy for Development Initiative and Energy + involved activities in Tanzania, Uganda, Kenya and Nepal. These activities are documented under each country they are involved in.

For more information on Statnett see:
www.statnett.no

GUARANTEE INSTITUTE FOR EXPORT CREDITS (GIEK)

The Norwegian Guarantee Institute for Export Credits (GIEK) is the central governmental agency responsible for providing guarantees and insurance for export credits. GIEK's goals are to promote Norwegian export and investments abroad by offering guarantees that cover commercial and political risk. GIEK also offers credit insurance through its wholly owned subsidiary, GIEK Credit Insurance.

GIEK has four different active guarantees schemes

- General guarantee scheme with a ceiling of NOK 120 billion.
- Building loan guarantee scheme with a ceiling of NOK 5 billion.
- Guarantee scheme for developing countries (LDC scheme) with a ceiling of NOK 3.15 billion.
- Power purchase scheme with a ceiling of NOK 20 billion.

GIEKs guarantee commitment includes guarantees issued and guarantees for which GIEK has given a binding offer. As of December 2011, the following was committed within the total limit of the guarantee schemes: general guarantee scheme NOK 93.1 billion, building loan guarantee scheme NOK 0.8 billion, guarantee scheme for developing countries NOK 0.5 billion, power purchase scheme no commitment. GIEK has several guarantee products. The most used are:

- Buyer credit (export credit)
- Supplier credit guarantees
- Building Loan guarantees (for shipyards in Norway)
- Bond guarantees
- Investment guarantees

GIEK supported several clean energy projects in 2011; e.g. four solar power plants in Czech Republic, one solar power plant in Bulgaria and two small hydro power plants in Turkey. GIEK also provided a guarantee for a maintenance vehicle to serve offshore wind plants.

GIEK AND CLEAN ENERGY PROJECTS IN DEVELOPING COUNTRIES

GIEK can cover projects in developing countries both under the general guarantee scheme as well as the LDC scheme. Subject to an acceptable credit risk GIEK can issue guarantees also for projects in developing countries under its general guarantee scheme. However, if the credit risk is considered to be too high but the project has a positive effect on the country's development, GIEK can give coverage under the LDC scheme. In the past GIEK has issued guarantees in connection with renewable energy projects both under the general guarantee scheme and under the LDC scheme. In these cases GIEK has provided both investment guarantees and buyer credit guarantees. Investment guarantees cover political risk on equity/loan from Norwegian companies to the project or on loan from bank/financial institution to the project. Buyer credit guarantees are given on the background of Norwegian exports to the project and can cover both political and commercial risk. The projects in which GIEK has been involved have mainly been within hydropower and most of them have been taken under the general guarantee scheme.

For more information on GIEK see: www.giek.no.

EKSPORTFINANS / NEW STATE ENTITY FOR EXPORT FINANCING

2011 saw major changes in the Norwegian export financing system. On the 18 November 2011, Prime Minister Jens Stoltenberg announced that a state entity would assume responsibility for the

government-supported export credit scheme that until that date had been managed by Eksportfinans. Eksportfinans has been asked to manage the scheme temporarily on behalf of the government until a permanent public sector solution is in place by 1 July 2012.

Prior to 18 November, Eksportfinans provided competitive long-term debt financing to foreign buyers of Norwegian goods and services, backed by guarantees from the Norwegian Institute for Export Credits (GIEK) and/or commercial banks. The new state entity for export financing will continue to offer export credits on both government-supported and commercial terms (so-called CIRR qualifying loans), including to renewable energy and environment projects.

Among the renewable energy projects that Eksportfinans financed in 2011 were solar parks in the Czech Republic and hydro power plants in Turkey and Indonesia. A total of NOK 5.5 billion NOK was disbursed during the course of the year to renewable energy and environment projects and companies, compared to NOK 2.5 billion in 2010. A large part of the lending volume in 2011 was related to general corporate financing of Norwegian hydro power utilities. There were no new loans within the sector disbursed to projects in developing countries.

Eksportfinans is owned by Norwegian and Nordic banks (85%) and the Government of Norway (15%).

For more information on Eksportfinans see: www.eksportfinans.no/

INTERNATIONAL CENTRE FOR HYDROPOWER (ICH)

The International Centre for Hydropower (ICH) is a non-profit organisation based on institutional membership among international companies and organisations that are active in all aspects of hydropower generation and supply. The purpose of ICH is to raise the standards of competence of industry personnel and promote a sustainable development.

ICH offers training in order to contribute to sustainable development of hydropower resources. The courses are built around the overarching concepts of planning, construction and operation of hydropower facilities as part of a mixed energy system as well as multipurpose projects. The courses deal with questions related to current international trends in the restructuring of the power sector focusing on economic and financial questions, climate change and environmental and social issues.

Norad has since 1997 supported ICH courses on hydropower development and management and issues related to environmental and social aspects, economics and financing, legal frameworks, dam safety and other areas, as well as conferences and workshops. Norad has during 2011 entered into a 5 year cooperation agreement with ICH providing support for its courses. ICH is considered to play an important role in Norway's Clean Energy for Development Initiative.

In 2011 ICH has organised events in Africa, Latin America and South Asia, as well as in Norway. The proportion of female participants continue to increase, and as an example the course Social Impact Assessment arranged in Trondheim in October had two thirds female participation, and

the course on Small Hydropower Development arranged in Guatemala in November had 6 female lecturers out of a total of 11 lecturers. However, there is also a trend that sponsored seats given to female applicants are declined due to lack of support from their respective managers.

At the Guatemala course the Indigenous leader Candelario Elias Cruz from the Chel community in Guatemala was certified as an ICH lecturer and was presenting the Community Management of the Chel Indigenous group with focus on hydropower development. He had previously been a participant at various ICH courses over the last 3 years.

ICH is based in Norway, but an increasing proportion of its course activities are taking place in developing countries through cooperation with local actors. ICH runs core courses (normally one week or three weeks) and tailored courses for a specific region (normally one to two weeks). In 2011 total support to ICH amounted to NOK 9 million.

For more information on ICH see:
www.ich.no/

ICH ACTIVITIES IN 2011

*** UNDER THE NORAD AGREEMENT:**

- 11 courses and events, 4 in Norway and 7 in the regions
- 234 participants with 21% female component

*** OUTSIDE THE NORAD AGREEMENT:**

- 6 courses and events
- 130 participants

*** PARTICIPANTS FROM 37 COUNTRIES:**
Bhutan, Canada, Colombia, Congo, Costa Rica, East Timor, Ecuador, El Salvador, Ethiopia, Germany, Ghana, Guatemala, Honduras, India, Kenya, Laos, Liberia, Madagascar, Malawi, Mexico, Mozambique, Namibia, Nepal, Nigeria, Norway, Pakistan, Panama, Peru, Philippines, Rwanda, Salvador, South Sudan, Sri Lanka, Tanzania, Uganda, USA, Zambia

HIGHER EDUCATION AND RESEARCH

ENPE MASTER PROGRAMME

Norad's "Master Programme for Energy and Petroleum" (EnPe) was launched in 2009. This is, as the name suggests, a joint support programme for petroleum and renewable energy related higher education. The programme aims to contribute to the education of staff in the energy and petroleum sectors through building capacity at the Master level in higher education institutions (HEI) in the South.

The programme is managed by the Norwegian University of Science and Technology (NTNU) and a separate Programme Board. HEI in the South and in Norway submit joint project proposals to the Programme Board, which decides on project funding.

THE OBJECTIVES OF THE ENPE PROGRAMME ARE:

- To support the development of Master programmes at HEI in the South through close collaboration with HEI in Norway in accordance with national needs
- To achieve, in a longer term perspective, sustainable capacity of institutions in the South to provide the national work force with adequate qualifications within selected academic fields of study of relevance to the energy and petroleum sectors

- To stimulate South-South-North cooperation through support to the development of regional Master programmes

- To enhance gender equality in all programme activities

- To strengthen and further develop the competence of Norwegian HEI to integrate global as well as developmental perspectives in their professional work

The first allocations were made in December 2009, and as of January 2012 there are currently 12 different programmes running with support from EnPe. This includes programmes in Africa, Asia and South America and involves the major academic institutions within energy and petroleum in Norway.

In 2011 two new projects were granted support; an R&D-based education within Carbon Capture and Storage (CCS) at the University of Witwatersrand and the University of Cape Town in South Africa, and a new master programme in petroleum engineering at the University of Dar es Salaam in Tanzania.

NORAD'S PROGRAMME FOR MASTER STUDIES (NOMA)

Norad's "Programme for master studies" (NOMA) was established in 2006 to support the development and operation of Master's programmes in developing countries through cooperation between higher education institutions in Norway and in its partner countries. The programme's goal is to educate employees in the public and private sectors and in non-governmental organisations in Norwegian partner countries.

Oil and energy is one of the thematic areas for the NOMA programme. In the current programme period (2011-2013) there are five NOMA master's programmes in Africa and Asia related to the field. One example is "Master of Engineering in Electrical Power Engineering" at Kathmandu University, Nepal, in cooperation with the Norwegian University for Science and Technology (NTNU). Two other examples are Master Programme in renewable energy systems, Makerere University, NTNU and MSc Programme in Hydropower Development, Tribhuvan University, NTNU.

THE NORWEGIAN PROGRAMME FOR DEVELOPMENT, RESEARCH AND EDUCATION (NUFU)

The goals of the "Norwegian Programme for Development, Research and Education" (NUFU) are to support the development of sustainable capacity and competence for research and research based higher education in developing countries relevant to national development and poverty reduction, and to contribute to enhanced academic collaboration in the South and between the South and North.

Two projects within the field of clean energy are receiving funding from NUFU for the period 2007-2012, both of them with NTNU as a Norwegian partner. A project on small scale concentrating solar energy systems have been implemented at Eduardo Mondlane University in Mozambique and regional network partners. The second project, at the University of Dar es Salaam, focuses on the production of biofuel as an important source of alternative energy for sustainable development, environmental protection and poverty reduction in Tanzania.

Norad supports the following research projects on energy and development: Large developing economies: current and potential future contributions to climate change:

The main focus of this project is to improve the knowledge basis for greenhouse gas (GHG) emission scenarios for China and India by considering a wider set of emissions and by studying the impact of the development process and policies of China and India on global warming. A core issue in global warming and climate policy is the future role of large developing economies like China and India. Economic development will go along with increasing, but more efficient energy use, which at first hand seems promising for climate mitigation. However, emissions from energy use contain a set of emission species that work with different warming potential and some of them even with a cooling effect. It is therefore essential for global climate research to sort out the sources and trends in various emissions components and to identify emission drivers, in particular for countries like China and India, where a rural population of more than a billion people rapidly might change their energy use and climate footprint.

Responsible institution:
CICERO (2010-2012)

Cooking with the sun- a comparative country analysis of Solar Cooking, its adoption and impacts on people's lives:

The project concerns general challenges related to development and implementation of solar cookers in a rural African environment. A new small scale concentrating solar energy system with high temperature heat storage is being developed in a research collaboration between NTNU and 5 African universities. Non-technical issues which can limit the use of new solar cookers have been the subject of an extensive MPhil study at NTNU. The project brings these two types of activities together to make a multidisciplinary effort on challenges related to introduction of new, small scale solar energy systems at the level of households and institutions. The project will focus on the following particular issues:

- Comparative studies on adoption and impact of solar cookers
- Gender aspects in the introduction of solar cookers
- Evaluations of climate and health benefits resulting from a shift from bio energy towards solar energy

Responsible institution:
NTNU, 2009-2012

Biochar on acidic agricultural lands in South-East Asia: Sequestering carbon and improving crop yield:

The project aims at investigating the potential of biochar from organic waste to sequester carbon and improve soil quality and thus livelihoods. The research program involves social and agricultural/ environmental components. Social, environmental and agricultural scientists from universities and research institutes in Norway, Indonesia and Malaysia will collaborate. UNDP Indonesia will lead knowledge transfer, disseminating project findings to local institutes, extension services and farmers. Three PhDs are envisioned in Norway + Indonesia. Mutual research visits and workshops will ascertain

knowledge transfer. The research addresses call on climate, environment and energy The Indonesian Embassy in Norway supports the proposal

Responsible institution:
Norges Geotekniske Institutt, 2011-2010

Development of Processes for low cost and high efficiency solar cell based on Upgraded Metallurgical Silicon:

The project intends to develop processes for the fabrication of low cost and high efficiency silicon solar cells based on Upgraded Metallurgical Silicon (UMG-Si). The price of UMG-Si is significantly cheaper compared to conventional purified solar -grade Si. If fabrication process for high efficiency solar cells can be developed based on this low price material it would result in mass production of low-cost solar cells and make utilization of sunlight energy more accessible in developing countries all over the world and Vietnam particularly.

The research activities will be conducted both at Norut Narvik and the Laboratory for NanoTechnology (LNT) in the South of Vietnam. The project shall contribute to reduce the greenhouse gas emissions from those countries thus also contribute to mitigate the climate change. The knowledge gained from the project will improve competence of both parties and strengthen cooperation between Norway, Vietnam and India, especially in development of renewable energy.

Responsible institution:
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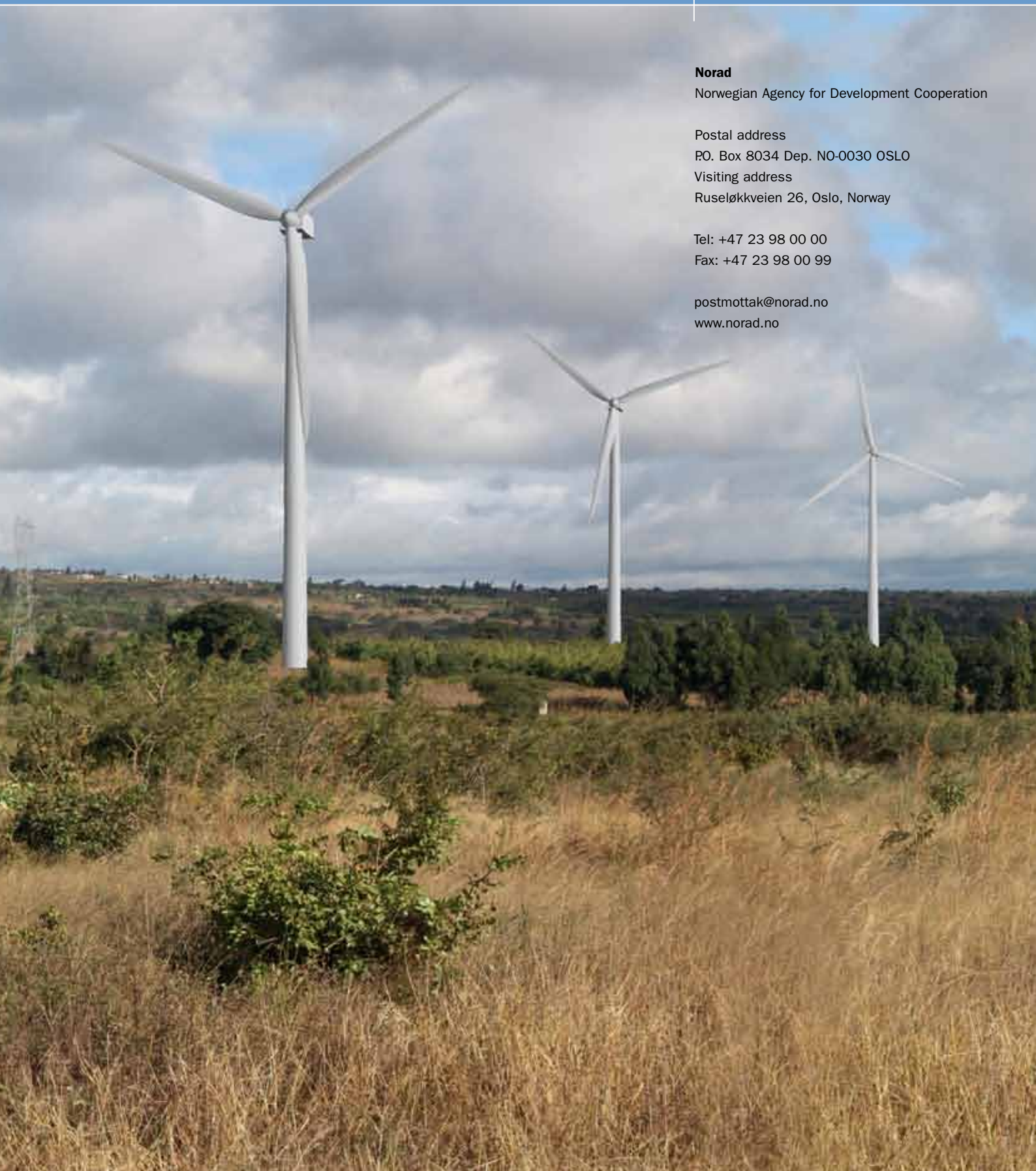

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