A Survey of International Activities in Rural Energy Access and Electrification

May 2014

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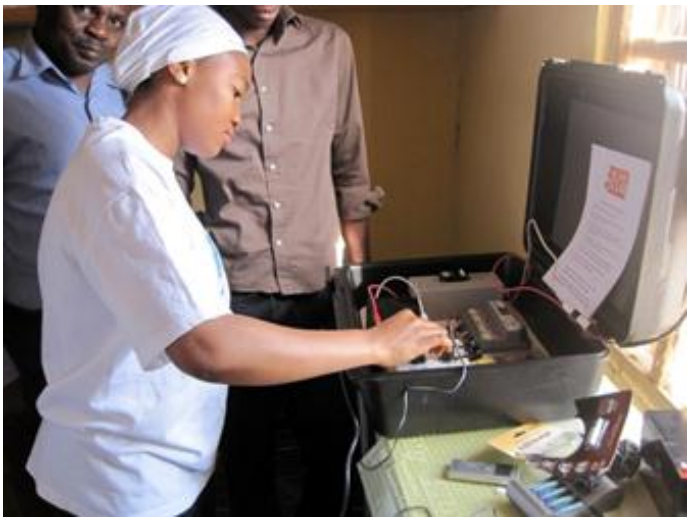

Prepared by

Division for Sustainable Development

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ACKNOWLEDGEMENTS

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Cover page photo credits:

Left: Kuyasa Cape Town Solar Water Heaters, South Africa
Right: Nurse with a Solar Suitcase, Nigeria

ABBREVIATIONS

ADB	Asian Development Bank
ADF	African Development Fund
AFD	Agence Française de Développement
AfDB	African Development Bank
AusAID	Australian Agency for International Development
BMZ	Germany Federal Ministry for Economic Cooperation and Development
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CFL	Compact Fluorescent Lamp
CSP	Concentrated Solar Power
DFID	UK Department of International Development
DSM	Demand Side Management
EBID	ECOWAS Bank for Investment and Development
EC	European Commission
EE	Energy Efficiency
EnDev	Energising Development
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESCO	Energy Service Company
EU	European Union
GEF	Global Environmental Facility
GENREN	Renewable Energy Generation Program
GPOBA	Global Partnership on Output-Based Aid (DFID, IFC, Dutch Ministry of Foreign Affairs, AusAID, and SIDA)
GVEP	Global Village Energy Partnership

HVEN	High Voltage Electric Network
IBRD	International Bank of Reconstruction and Development
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IRENA	International Renewable Energy Agency
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt Fur Wiederaufbau
kWh	Kilowatt-hour
kWp	Kilowatt-peak
LEED	Leadership in Energy & Environmental Design
MFI	Micro-Finance Institution
MW	Megawatt
MWe	Megawatt Electric
NGO	Non-Governmental Organization
NORAD	Norwegian Agency for Development Cooperation
OPEC	Organization of Petroleum Exporting Countries
PoA	Programme of Activity
PV	Photovoltaic
RE	Renewable Energy
REC	Renewable Energy Credit
SDC	Swiss Agency for Development and Cooperation
SHS	Solar Home System
SIDA	Swedish International Development Agency
SME	Small and Medium-Sized Enterprises

SNV	Netherlands Development Association
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USAID	U.S. Agency for International Development
VAT	Value Added Tax

1. Background

Energy is inherently linked to economic and social development. Scaling up access to reliable and affordable modern energy services has proved an essential driver for sustainable economic growth in both industrialized countries and emerging economies. It is undeniable that access to modern energy services can significantly contribute to efforts to eradicate poverty; increase food security; provide access to clean water; improve public health; enhance education, and income generation.

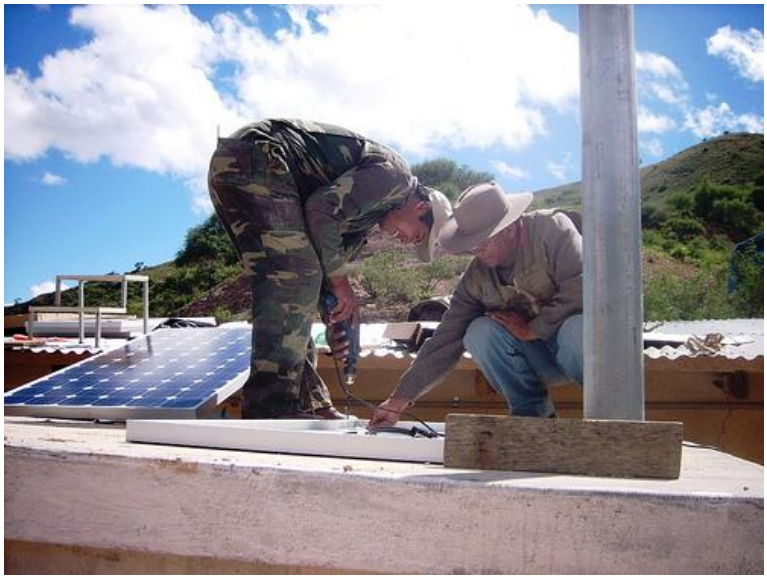
According to recent estimates energy demand is expected to grow approximately 60% by 2030,[1] under the business-as-usual scenario. In this context, the need to expand access to modern energy services has become imperative. Renewable energies in particular can be especially beneficial on multiple levels, as they can help enhance productive activities; improve energy security; reduce susceptibility to fossil fuel price volatility; decrease reliance on grid expansion projects, and contribute to electricity portfolio diversification. Moreover, there are currently over 5 million jobs in renewable energy industries[2], and the 2011 Green Economy Report had estimated that employment will be boosted 3-5 % by 2050 above business-as-usual, if additional investment is made to increase resource efficiency and reduce carbon intensity[3]. Therefore, job creation and the introduction of new innovative technologies to potentially attract investment and new areas of technical expertise can be an additional positive outcome.

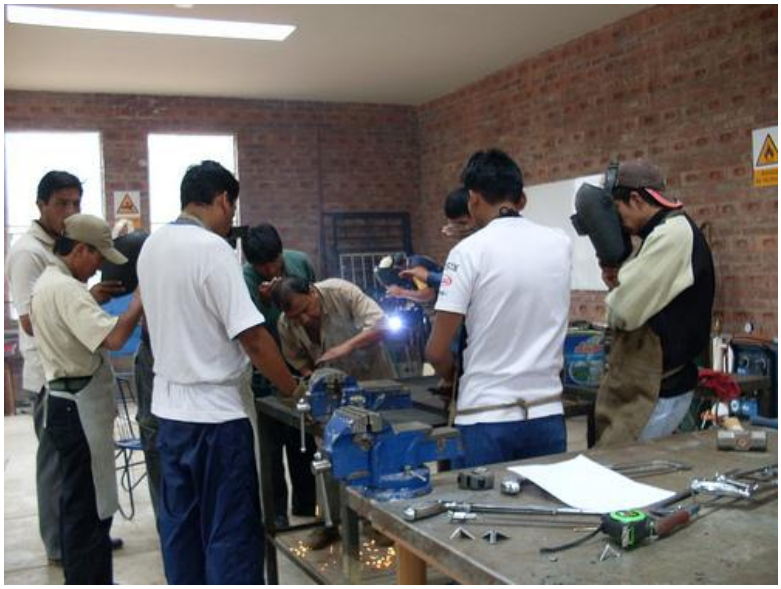
To address the skyrocketing growth in demand and, in particular, to fill the electrification gap that is especially large in rural areas, which are often most distant from national electricity grids, a global transformation is needed in the way energy sources are produced and consumed in order to truly achieve sustainable energy for all. The gap is indeed striking: 1.3 billion people, or nearly one in five people, globally lack access to electricity, and nearly 3 billion rely on traditional biomass fuels, such as wood, charcoal, and agricultural and animal waste to meet their energy needs, cook their food, and heat their homes. As a result, the "energy-poor" often suffer from debilitating health problems due to inefficient combustion of solid fuels in their homes, which are often structures with poor ventilation. According to estimates by the World Health Organization, indoor and outdoor air pollution is the cause

[1] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012.
[2] Ibid.
[3] UNEP. *Green Economy Report*. 2011.

of approximately 3.1 million premature deaths annually, most of which occur in developing countries.[4] Almost half of these deaths are due to pneumonia in children under 5 years of age.

The goal of this Survey is to highlight innovative policies that have been put into effect to stimulate electrification in rural areas of poor connection, as well as to present projects and programmes, which strive to meet this rise in energy demand and to assist communities, countries, and regions in placing themselves on a trajectory to energy sector transformation.





[4] http://www.who.int/ipcs/features/air_pollution.pdf.

2. Meeting the Increase in Energy Demand

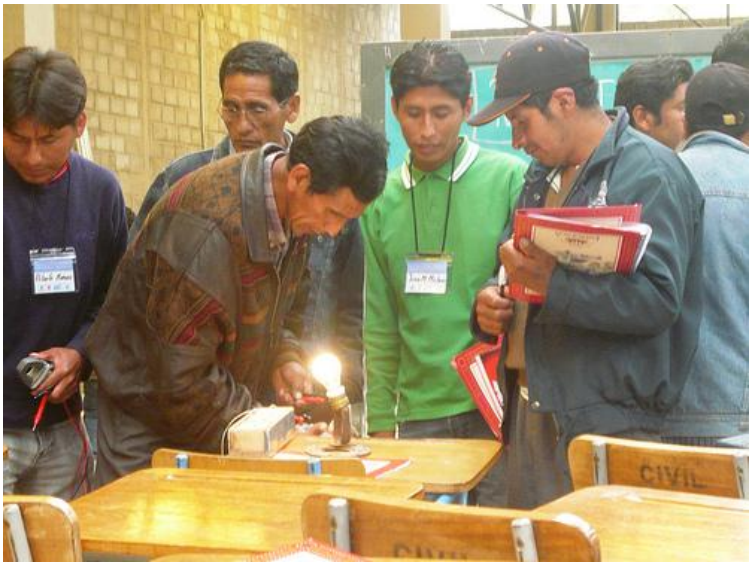
In general, modern fuels and energy efficiency technologies are out of reach for the majority of people in developing countries. This constitutes a major concern, because most of the harmful effects of climate change in large part result from fossil fuel combustion affecting developing countries, where populations largely depend on the planet's natural systems for survival. As noted in the United Nations Secretary General's Report on the Decade[5], climate change threatens food and water security for hundreds of millions of people, and undermines the most essential foundations of stability. While access to reliable sources of affordable energy is a basic human need, providing access to sustainable energy should be the strategy of choice for setting the foundations for economic growth for future generations, and contributing to climate change mitigation strategies, while also taking into consideration the increasing competition for scarce resources.

As an alternative to costly grid expansion in less densely populated areas, off-grid or distributed generation solutions have grown increasingly mainstream via sustainable sources of energy at a household level or for small or medium-sized enterprises, as well as mini-grid systems that can electrify villages. In addition, with smart design, "green" energy sectors can provide significant opportunities for investment, growth, and job creation that cater to this nascent off-grid sector. For this to occur, however, enabling and supportive legal, administrative, and regulatory frameworks are necessary prerequisites. Furthermore, it is vital to design a comprehensive strategy that will attract investment and developers, grow markets, raise awareness, as well as encourage public private partnerships to leverage public resources in the private sector.

The private sector holds the key to building economies of scale for the new energy paradigm of supporting much increased energy access, as record levels of investment are needed to "propel innovation, development, and commercialization of environmentally sound technologies"5. The private sector has responded favorably to this opportunity: global investment in renewable energy reached US$ 260-290 billion in 2011, up from US$ 40 billion in 2004, and the share of global sources of electricity from renewables rose to 20% in 20116. On a local level, provision of electricity in households creates valuable economic grassroots opportunities as well by facilitating income-generating cottage industries

[5] Report of the Secretary-General. *2014-2024 United Nations Decade of Sustainable Energy for All*. 2013.
[6] REN21. *Global Futures Report*. 2013.

during evening hours; allowing operation of electrical and electronic equipment, such as refrigerators and mobile phone chargers, and enabling children to do their homework later in the day. In addition, increased use of efficient cookstoves, can free up hours, for mostly women and children, from gathering up fuel for burning. A study by the World Health Organization on Sub-Saharan African countries found that between 1990 and 2003, women in four countries spent 2-4 hours per day collecting fuel.7 This time could have been better allocated to more productive endeavors, such as educational, child care, and business activities; thus, helping them avoid the risks of travel.



In recognition of the importance of energy as a critical factor in sustainable development, the United Nations General Assembly declared 2012 the "International Year of Sustainable Energy for All." Additionally, in an effort to stress the need for a coherent, integrated approach to energy issues, and promote synergies for sustainable development internationally, a more elaborate decade-long effort was launched to stimulate use of renewable energy and energy efficiency technologies, and increase energy access, with the title, "2014-2024 the United Nations Decade of Sustainable Energy for All". The Post-2015 development agenda has echoed the UN dedication to place a focus on energy issues. Numerous countries, regions, cities, and towns have also taken up the call to scale up energy access. In

[7] WHO. *Fuel for Life - Household Energy and Health*. http://www.who.int/indoorair/publications/fuelforlife.pdf. 2006.

addition, a wide range of policies are available for States to support the dissemination of modern energy services that include increasing targeted public investment; innovative financing mechanisms; subsidies and other financial incentives; bulk procurement; green power purchasing; building codes, and biofuel mandates.

It is imperative to emphasize that policy-making solutions entail inherent trade-offs. Approaches vary by country, and the policy-making process must be robust and agile to take into account changing conditions on the ground. The economic, social, and environmental benefits, however, are considerable. A 2008 study concluded that a 10-30% reduction in the cost of electricity can be achieved with carefully crafted policies in place to stimulate growth in the renewable energy sectors8. Energy policies should attempt to galvanize political, institutional, and financial support by synergizing activities with national strategies as well as build off existing regulatory, administrative, and institutional architectures rather than attempting to "re-create the wheel." Pre-feasibility studies should take into consideration existing technological capacities, comfort level with modern energy services, and other market concerns such as product competition, information asymmetry, and fossil fuel subsidies. Stakeholder consultations are another critical element of the energy policy design process to acquire valuable feedback, identify potential partners, raise awareness, and identify sources of actual and perceived risk that affect the cost of capital in addition to options for risk mitigation.

The costs of policy design and implementation can be high, therefore, extensive outreach and study is required in advance. In this regard, the policy reforms and initiatives discussed herein focus on low carbon, sustainable solutions that help scale up rural electricity access, while reducing climate change-causing greenhouse gas emissions. This Survey is intended to assist in the consulting process of identifying and choosing the right policies for implementation.

3. The Survey

This Survey serves as a first attempt to compile initiatives in developing countries, in an effort to demonstrate real world policies, projects, and programmes that are being utilized to scale up access to

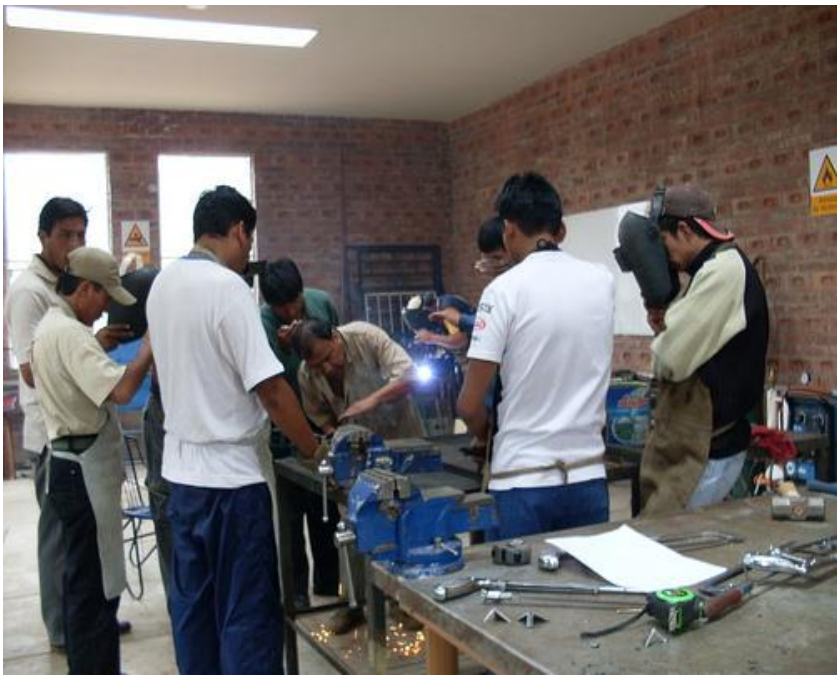
[8] de Jager, D., & Rathmann, M. (2008). *Policy Instrument Design to Reduce Financing Costs in Renewable Energy Technology Projects*. Utrecht, Netherlands: Ecofys International BV. Prepared for the International Energy Agency, Renewable Energy Technology Development.

modern energy services with an emphasis on access in rural areas. Additionally, this Survey aims at demonstrating the potential impact these modern energy service initiatives can have by stimulating replication; sharing knowledge and best practices; locating potential project partners with specific technical and financial areas of expertise in locations of interest, and promoting project synergies, while minimizing potential redundancies. The target audience for the Survey is, therefore, project developers, financiers, public institutions, and donor agencies.

The projects and programmes included in the Survey were chosen under the following criteria:

- A minimum magnitude of power generation equivalent to a 10 MW medium-sized plant, except in countries and regions with limited capacity and/or suppressed demand
- Support by the government and institutions as well as the private sector, e.g., public-private partnerships
- Initiatives must be ongoing or forthcoming. If initiatives are in a very early or pilot stage, then mobilization of substantial funding and/or other donor support should be demonstrated and
- The focus is on rural energy access; therefore initiatives that focus on urban and peri-urban areas such as new building LEED requirements are not included
- Carbon finance projects under the Clean Development Mechanism (CDM) that are of the type Programmes of Activities (PoA) are commonly labeled as nationwide initiatives to maximize possible areas of market expansion. However, only two projects that have thus far successfully issued Certified Emission Reductions (CERs) are included in the Survey.

Survey data pertaining to the initiatives include a brief description, start and end date/duration, project or program budget, sector, financiers, and the responsible and/or implementing agencies. The data provided are based on desktop surveys not confirmed by in-person interviews due to the number of initiatives. Furthermore, the project and programme budgets represent planned total budgets as noted by reporting organizations; many include in-kind co-financing and others may represent aspirational budgets not achieved due to lack of funding.



As an indication that a groundswell of support is building in the government sphere for catalyzing increased electricity access, the number of countries that have implemented policy targets for renewable electricity sources at the national or regional levels has increased from 45 in 2005 to 73 in 2012; 50 countries have some form of Feed-in Tariff in place, and 25 have mandated biofuel composition for fuels9. As noted in the 2013 REN21 Global Futures Report, stimulating rural off-grid renewable energy alternatives in particular has been an area of focus for numerous countries. Notably, Bangladesh is targeting 150,000 biogas digesters by 2016 and 2.5 million solar PV systems by 2015; Benin plans to achieve 50% rural electrification by 2025, the target in Colombia is 30% of rural electrification by 2030, 35% of rural electrification in Lesotho by 2020, and 100,000 biogas digesters in Uganda by 2017.

The specific types of policies discussed herein include tax credits, Feed-in Tariffs, high profile demonstration projects, rebates, grants, the introduction of competitive tenders and auctions for developers to bid for the right to sell electricity, tradable renewable energy credits (RECs), net metering as a means for generators to receive income for selling electricity to the grid.

It should be emphasized that the Survey is not comprehensive. It does not contain a complete listing of projects, policies, and programmes that support rural energy access due to limitations in data collection,

[9] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012.

(e.g., website limited information and data gaps, only English language documents were considered, and limited disclosure of private information). We welcome additional information for the projects listed in this Survey, as well as information on other on-going rural energy access and electrification projects. Please send additional information to Ivan Vera at vera@un.org and Isabelle Mckusick at mckusick@un.org. The Survey will continue being updated periodically, if there is enough interest.

4. Conclusions

The link between access to reliable and affordable modern energy services and sustainable economic growth has become clear in terms of income generated from productive use of energy, improved quality of life and health (e.g., to provide light for households in the evening, to supply safer and more fuel efficient means of cooking), and improved energy infrastructure to attract project developers and project finance. These elements are in addition to the climate change benefits on a global scale that result in lower greenhouse gas emissions, and lower levels of air pollution locally and domestically associated with renewable energy sources, and more efficient use of energy.

Rural areas in particular are faced with challenges in securing energy sources, because the cost of expanding electricity grids over far distances, and to areas typically less densely populated than urban areas, renders rural grid expansion a matter of lower priority. In countries with limited resources, it is not uncommon to target densely populated areas for grid electrification, because it provides the most connectivity for the money spent. Four out of every five people who live without electricity are located in rural areas of South Asia and Sub-Saharan Africa10. Mini-grids that provide electricity for villages or areas covering numerous households have risen in popularity as off-grid alternatives due to falling prices of renewable technologies. In addition, the involvement of the private sector in RE investment in rural areas has increased, because of new business models and attractive untapped markets potential10. Raising awareness is a challenge, however, because households typically will purchase a new technology if they are recommended to the product by word of mouth, especially by a person of high trust such as a village elder. In addition to prospective new entrepreneurs, other actors that are involved with rural energy access programs are local governments, development banks, NGOs, cooperatives, and micro-finance institutions.

[10] REN21. *Renewables 2013 – Global Status Report*. 2013.

This Survey of International Energy Access and Electrification provides summary information of country-level and global initiatives that give rise or have potential to lead to expansion of the rural clean energy markets. As noted in the Survey results presented in Tables 1 and 2, 87 developing countries have project, programmes, and/or policies in place to scale up energy access. It is not possible to confirm that all of these initiatives will have direct or indirect benefits for the rural energy sector because many in part focus on urban or peri-urban areas as well; however, it intends to: scale up local expertise in RE/EE sectors; attract investment; raise administrative, legal, regulatory, and technical capacity; and raise awareness amongst local, market, and institutional actors. All the aforementioned objectives have potential to bolster market development regionally and nationally.

From 87 developing countries identified with initiatives to scale up access to modern energy services, the following numbers of initiatives were summarized:

- 48 RE incentives
- 40 programmes that support distribution and transmission
- 27 developing countries have Feed-in Tariffs
- 35 solar programmes
- 30 biofuel initiatives, including mandates for bioethanol and biodiesel
- 25 hydropower initiatives
- 22 EE initiatives
- 14 improved cookstoves programmes
- 8 wind
- 8 biomass
- 6 mini-grids
- 5 EE lighting
- 4 geothermal

An index of countries that indicates where the country initiative outlines are listed is presented in Table 1. A Quick Reference guide is presented in Table 2 that shows where the modern energy service initiatives are located. A Quick Reference guide is presented Table 3 presenting the number of people without access to electricity and the electrification rates by country. A Quick Reference guide is presented in Table 4 presents country projects, programmes, and policies pertaining to rural energy access.

Table 1: Index of Country Initiatives

Table 2: Quick-Reference: Modern Energy Service Projects, Programmes, and Policies

Country	RE	FiT	EE	Wind	Solar	Hydro	Biofuel	Biomass	Distribution & Transmission	Geothermal	Improved Cookstoves	Mini-grid	EE Lighting
Albania	✓	✓											
Algeria	✓	✓	✓										
Angola							✓						
Antigua and Barbuda	✓		✓										
Argentina	✓	✓	✓	✓		✓	✓						
Armenia	✓	✓	✓						✓				
Azerbaijan	✓								✓				
Bangladesh	✓				✓				✓		✓	✓	✓
Barbados			✓		✓								
Belarus	✓	✓											
Benin							✓	✓	✓		✓		✓
Bolivia	✓				✓	✓	✓		✓		✓		
Bosnia and Herzegovina	✓		✓										
Botswana					✓				✓				
Brazil	✓	✓		✓			✓	✓	✓				
Bulgaria	✓	✓											
Burkina Faso					✓				✓		✓	✓	
Burundi			✓		✓	✓			✓		✓		
Cameroon	✓					✓			✓				
Cape Verde									✓				
Chad					✓							✓	
Chile	✓				✓					✓			
China	✓	✓		✓	✓	✓	✓	✓	✓				
Chinese Taipei		✓											
Colombia						✓	✓		✓				
Costa Rica							✓						
Cote d'Ivoire					✓				✓				
Croatia													
Dominican Republic	✓					✓							
Ecuador	✓	✓				✓							

Table 2: Quick-Reference: Modern Energy Service Projects, Programmes, and Policies (Cont.)

Country	RE	FiT	EE	Wind	Solar	Hydro	Biofuel	Biomass	Distribution & Transmission	Geothermal	Improved Cookstoves	Mini-grid	EE Lighting
Ethiopia	✓		✓		✓	✓		✓	✓	✓	✓		
Fiji									✓				
Ghana					✓				✓				
Guatemala							✓						
Guinea	✓		✓			✓			✓				
Haiti									✓				
Honduras	✓				✓	✓			✓		✓		
Hungary	✓		✓				✓						
India	✓	✓		✓	✓		✓	✓					
Indonesia	✓	✓			✓	✓	✓		✓	✓			
Iran		✓											
Jamaica							✓						
Jordan	✓	✓	✓										
Kazakhstan			✓	✓	✓								
Kenya	✓	✓			✓				✓	✓	✓		
Kyrgyzstan									✓				
Lao PDR	✓		✓		✓	✓			✓				
Latvia	✓						✓						
Liberia	✓				✓	✓			✓		✓		✓
Lithuania		✓											
Malawi							✓				✓		
Malaysia	✓	✓	✓			✓	✓						
Mali					✓				✓				✓
Mauritania	✓				✓								
Mauritius	✓	✓	✓										
Mexico	✓		✓	✓	✓	✓			✓			✓	✓
Mongolia		✓											
Montenegro		✓											
Mozambique					✓	✓			✓				
Nepal	✓				✓	✓	✓		✓				

Table 2: Quick-Reference: Modern Energy Service Projects, Programmes, and Policies (Cont.)

Country	RE	FiT	EE	Wind	Solar	Hydro	Biofuel	Biomass	Distribution & Transmission	Geothermal	Improved Cookstoves	Mini-grid	EE Lighting
Nicaragua					✓	✓			✓				
Nigeria						✓		✓	✓			✓	
Pakistan	✓		✓				✓		✓				
Papua New Guinea	✓												
Paraguay			✓						✓				
Peru	✓				✓		✓		✓		✓		
Philippines	✓	✓					✓						
Poland	✓		✓				✓						
Rwanda						✓	✓						
Senegal	✓				✓		✓	✓	✓		✓		
Serbia		✓											
Seychelles	✓				✓								
South Africa	✓	✓	✓		✓		✓						
Sudan							✓						
Tajikistan						✓							
Tanzania					✓	✓			✓		✓	✓	
Thailand	✓						✓						
Tunisia	✓		✓	✓	✓								
Turkey	✓	✓					✓						
Uganda	✓	✓	✓		✓	✓			✓		✓		
Ukraine	✓	✓											
United Arab Emirates	✓												
Uruguay	✓	✓			✓		✓	✓					
Viet Nam				✓			✓		✓				
Yemen					✓				✓				
Zambia					✓	✓			✓				
Zimbabwe							✓						

Table 3. Quick-Reference: Number of People without Access to Electricity & Electrification Rates by Country (Access as % of Population)[11]

Country	People w/o Access to Electricity	Rural	Urban	Total	Country	People w/o Access to Electricity	Rural	Urban	Total
Albania	0.00	100	100	100	Cameroon	9,995,490	14	82	49
Algeria	356,000	98	100	99	Cape Verde	163,680	44	81	67
Angola	12,403,300	6	55	35	Chad	10,777,920	0	15	4
Antigua and Barbuda	10,355	74	100	88	Chile	0.00	98	100	100
Argentina	4,849,440	74	89	88	China	0.00	98	100	100
Armenia	0.00	100	100	100	Colombia	1,388,850	91	99	97
Azerbaijan	0.00	99	100	100	Costa Rica	46,700	98	100	99
Bangladesh	66,911,400	43	88	55	Cote d'Ivoire	8,092,580	37	80	59
Barbados	33,338	74	100	88	Croatia	0.00	100	100	100
Belarus	0.00	100	100	100	Dominican Republic	201,120	94	100	98
Benin	6,372,000	9	52	28	Ecuador	429,206	93	100	97
Bolivia	1,986,000	55	93	80	Ethiopia	63,871,500	5	85	23
Bosnia and Herzegovina	0.00	98	100	100	Fiji	368,399	43	68	56
Botswana	1,142,990	43	43	43	Ghana	4,438,588	61	38	82
Brazil	1,927,557	94	100	99	Guatemala	2,581,560	68	96	82
Bulgaria	0.00	100	100	100	Guinea	7,985,600	3	53	20
Burkina Faso	14,328,030	1	47	13	Haiti	6,531	12	54	34
Burundi	7,963,850	1	41	5	Honduras	1,484,061	64	97	81

[11] "Global Tracking Framework," Sustainable Energy for All (2013), p.262, http://www.se4all.org/wp-content/uploads/2013/09/11-gtf_data_annex.pdf.

Table 3. Quick-Reference: Number of People without Access to Electricity & Electrification Rates by Country

(Cont.)

Country	People w/o Access to Electricity	Rural	Urban	Total	Country	People w/o Access to Electricity	Rural	Urban	Total
Hungary	0.00	100	100	100	Mauritius	0.00	100	100	100
India	287,5 million	67	93	75	Mexico	1,178,860	98	100	99
Indonesia	14,310,000	89	99	94	Mongolia	386,120	67	100	86
Iran	1,494,660	95	100	98	Monte-negro	0.00	100	100	100
Jamaica	216,288	84	99	92	Mozam-bique	19,882,350	2	45	15
Jordan	0.00	99	100	100	Nepal	7,190,247	72	100	76
Kazakhstan	0.00	98	100	100	Nicaragua	1,513,720	43	96	74
Kenya	31,195,010	8	71	23	Nigeria	8,3048,160	35	62	48
Kyrgyzstan	0.00	100	100	100	Pakistan	13,887,440	88	98	91
Lao PDR	2,108,340	52	94	66	Papua New Guinea	6,000,705	8	63	15
Latvia	0.00	100	100	100	Paraguay	193,650	94	99	97
Liberia	3,834,240	1	7	4	Peru	4,361,550	60	93	85
Lithuania	0.00	100	100	100	Philippines	15,697,800	73	94	83
Malawi	13,559,910	4	37	9	Poland	0.00	100	100	100
Malaysia	283,000	98	100	99	Rwanda	9,455,360	4	40	11
Mali	12,757,100	3	42	17	Senegal	5,346,620	27	97	57
Mauritania	2,837,200	2	42	18	Serbia	0.00	100	100	100

Table 3. Quick-Reference: Number of People without Access to Electricity & Electrification Rates by Country

(Cont.)

Country	Millions w/o Access to Electricity	Rural	Urban	Total	Country	Millions w/o Access to Electricity	Rural	Urban	Total
Seychelles	63,736	14	42	29	Uganda	28,411,250	5	67	15
South Africa	8,623,250	64	94	83	Ukraine	0.00	100	100	100
Sudan	8,520,000	15	57	29	United Arab Emirates	450,720	90	95	94
Tajikistan	0.00	99	100	100	Uruguay	33,690	93	100	99
Tanzania	39,485,900	4	46	15	Viet Nam	3,484,000	95	99	96
Thailand	0.00	97	100	100	Yemen	13,229,150	31	75	45
Tunisia	0.00	99	100	100	Zambia	10,602,090	3	43	19
Turkey	0.00	100	100	100	Zimbabwe	7,919,731	13	75	37

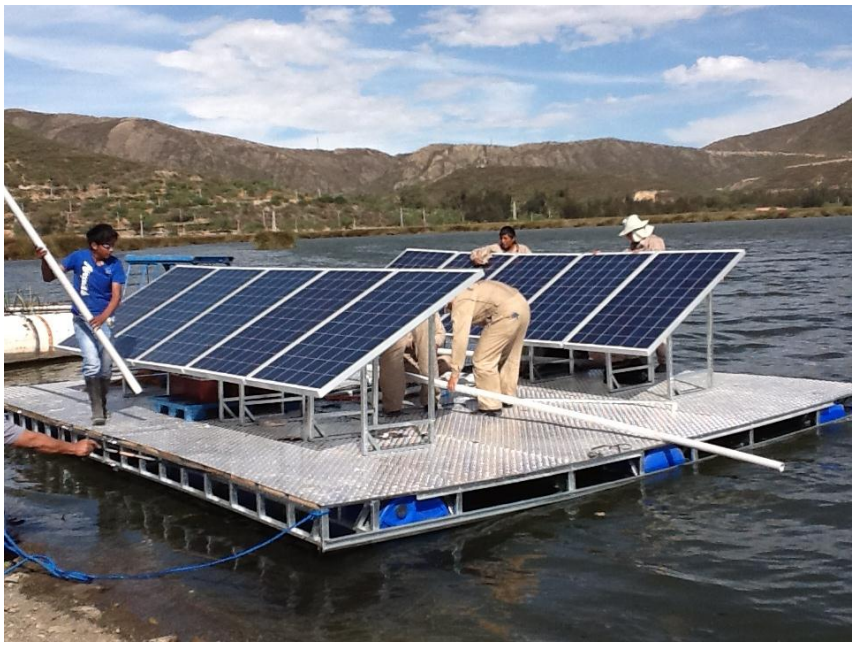


Table 4: Country Projects, Programmes, and Policies Pertaining to Rural Energy Access

ALBANIA

- **Law on Creating Facilitating Conditions for the Construction of New Sources of Electricity Generation (Law No. 8987)**[12]
  - Sector: RE
  - Start Date: 2002
  - Description: Investors building new energy plants of not less than 5MW energy generation capacity are excluded from payment of customs taxes for the machinery and equipment that are part of the object of the production of energy.
- **Feed-in-Tariffs**
  - Start Date: 2008
  - Description: Based on the European Community Dec. 2008 Implementation Report – Renewables[13], tariffs within the concession agreements were concluded for small hydro power plants not exceeding 15 MW in installed capacity. Approved tariffs are 6.5 leke/ kWh for existing privatized small hydropower plants and 9.4 leke/ kWh for new small hydropower plants. Feed-in tariffs for electricity produced from other type of renewable sources than hydro are still to be developed.

ALGERIA

- **Renewable Energy and Energy Efficiency Development Plan 2011-2030**[14]
  - Sector: RE, EE
  - Start Date: 2011
  - Agency: Ministry of Energy and Mines
  - Description: The plan's main objective is to expand usage of RE and to diversify energy sources in the country. The goals are to: (i) install 22 000 MW of power generating capacity from renewable sources between 2011 and 2030 (of which 12 000 for internal usage and 10 000 MW for export); (ii) meet 20% of electricity generation from renewables by 2030; and (iii) drive sustainable economic development of the country, increase energy security supply in Algeria and create jobs.
- **Renewable Energy National Fund**[15]
  - Sector: RE
  - Start Date: 2009
  - Description: Established on the basis of Renewable Energy Promotion in the Framework of Sustainable Development (Law 04-90). Funds are provided by 0.5% levy on oil tax revenues. Provides financial support to actions undertaken within the "Renewable Energy and Energy Efficiency Development Plan 2011-2030" and other eligible renewable projects.
- **Law 04-90 on Renewable Energy Promotion in the Framework of Sustainable Development**[16]
  - Sector: RE

[12] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[13] www.energy-community.org/portal/page/portal/ENC_HOME/AREAS_OF_WORK/RENEWABLES/Reports/Dec_2008/Albania
[14] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[15] Ibid.
[16] Ibid.

- Start Date: 2004
- Agency: Ministry of Energy and Mines
- Description: Set of tools to promote development and use of RE, including Rules for Certification of Origin, training activities, R&D, and a financial incentive framework.

- **Feed-in-Tariff**
  - Sector: Solar, Wind
  - Start Date: 2009
  - Description: For CSP, 20% of the regular tariff is to be charged to ISCC plants with > 20% power from solar generation. For wind, 300% bonuses are payable in excess of price per kWp.

ANGOLA

- **Biofuel blend mandate: E10**[17]

ANTIGUA AND BARBUDA

- **2011 Interconnection Policy for Renewable Generating Source**[18]
  - Sector: RE
  - Start Date: 2001
  - Agency: Antigua Public Utilities Authority
  - Description: The policy delineates the complete procedure for interconnecting a non-fossil fuel source (below 50 kW) to the grid.
- **Waiver of Import Duty on RE and EE equipment**[19]
  - Sector: RE, EE
  - Start Date: 2011
  - Agency: Customs and Excise Division
  - Description: Waiver of duties and taxes on the import of RE and energy efficient components

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ARGENTINA

- **Patagonia Chorriaca Wind-Diesel Hybrid and Cochico Micro-Hydro Projects**[20]
  - Sector: Hydro, Wind
  - Agency: Duke Energy, Ente Provincial de Energía del Neuquén, Global Sustainable Electricity Partnership
  - Financed by: Global Sustainable Electricity Partnership
  - Duration: 2012-2013
  - Description: This project aims to provide the Cochico and Chorriaca communities with access to a sustainable electric service 24 hours a day, 7 days a week, using local RE sources. The project features the design and installation of a 65 kW micro-hydro facility in Cochico and a 75 kW wind / 120 kW diesel hybrid plant in Chorriaca. The project will serve as a pilot experience for development of RE in isolated communities.

[17] REN21. *Renewables 2013 – Global Status Report*. 2013
[18] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[19] Ibid.
[20] www.globalelectricity.org/en/index.jsp?p=121&f=331

- **2010 Renewable Energy Generation Program (GENREN)**[21]
  - Sector: RE
  - Start Date: 2010
  - Agency: Ministry of Federal Planning, Public Investments and Services
  - Description: Launched to reach the target of 8% total electricity from renewable sources by 2016. New projects or repowered existing plants will benefit from an anticipated Value Added Tax return for capital goods purchased. In addition, the government will fix an energy purchase price, calculated on a project-to-project basis, to guarantee a fair return on investment. The project creates the Fiduciary Fund for Renewable Energy, administered by the National Council for Electricity. The Fund will be financed by an ARS pesos 0.30 /MWh tax on the electricity bill of large distribution and wholesale companies. This fund will then provide a subsidy of ARS pesos 0.9 /kWh to PV producers and ARS pesos 0.015/kWh for facilities up to 30 MW generating electricity from wind, geothermal, biomass, biogas and hydro sources.
- **Law Nr. 26.190 Providing Feed-in tariffs for the production of RE**[22]
  - Sector: Solar, Wind
  - Start Date: 2007
  - Agency: Ministry of Federal Planning, Public Services and Investments-National Secretariat of Energy
  - Description: The law underscores the political intention to create jobs by promoting the use of RE sources and to increase the national and regional net outputs by using domestic products. The law also sets the target of raising the share of RE to 8% of the national electricity mix by the end of 2016.
- **Biodiesel content requirement**[23][12]
  - Sector: Biofuel
  - Start Date: 2010
  - Agency: Ministry of Federal Planning, Public Investment and Utilities
  - Description: Required blending mandate for 5-7% biodiesel in regular diesel.
- **Biofuel Promotion Laws**[24]
  - Sector: Biofuel
  - Start Date: 2007
  - Agency: Federal Secretariat of Energy
  - Description: All vehicle fuels contain at least 5% biodiesel or ethanol (B5 and E5) starting in 2010. The law sets criteria for licensing plants for biofuels production; establishes tax incentives for producers; tax breaks for investing companies; lower export taxes for biodiesel; VAT reimbursement, and accelerated depreciation of assets for income tax purposes. Biofuels are exempt from hydrocarbon and diesel taxes.

Feed-in-Tariff[25]	
Solar PV	0.9 ARS/ kWh
Hydropower < 30 MW	0.015 ARS/ kWh
Geothermal[12] < 30 MW	0.015 ARS/ kWh

[21] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[22] http://www.iea.org/policiesandmeasures/pams/argentina/name,23911,en.php
[23] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[24] Ibid.
[25] http://www.iea.org/policiesandmeasures/pams/argentina/name,23911,en.php

ARMENIA

- **Armenia Energy Efficiency Project**[26]
  - Sector: EE
  - Agency: World Bank, Ministry of Energy and Natural Resources, Armenia Renewable Resources and Energy Efficiency (R2E2) Fund
  - Financed By: GEF, Government of Armenia, Armenia R2E2 Fund
  - Project Cost: US$ 10.66 million
  - Duration: 2012-2015
  - Description: The project aims to facilitate EE investments in public buildings and the commercial and residential sectors by raising awareness; improving information availability; improving regulations, and building capacity. Improved regulations will include those that provide financial incentives. This project will utilize a "super ESCO" model to develop, test, and refine alternative financing, procurement, and implementation options. EE investments in social and other public facilities will help stimulate the market by creating demand and send a strong market signal to the private sector and general public about the Government of Armenia's commitment to EE.
- **Electricity Supply Reliability Project**[27]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy and Natural Resources
  - Financed by: IBRD, IDA
  - Budget: US$ 52 million
  - Duration: 2011-2016
  - Description: The project strengthens the power transmission network by financing investments to replace transmission lines that need rehabilitation and upgrade, acquire land, and possible resettlement. Technical assistance is provided to train staff of the High Voltage Electric Networks on technical supervision, planning, procurement, and financial and project management. Computer software for planning and analysis, field work supervision, and covering incremental HVEN operating costs are also financed through it.
- **The Law of the Republic of Armenia on Energy Saving and Renewable Energy 2004**[28]
  - Sector: RE
  - Agency: Ministry of Energy and Natural Resources
  - Start Date: 2004
  - Description: The law regulates relations between state administration, municipal governments and legal and physical persons involved in energy savings and RE. Its goal is to strengthen energy independence; increase economic and energy security; establish and develop new industry infrastructure and organization of services promoting energy saving and RE; improve living conditions, and preserve natural environment.

Feed-in-Tariff[29]	
Wind	31 AMD/ kWh.
Solid Biomass	32 AMD/ kWh.

[26] http://www.worldbank.org/projects/P116680/electricity-supply-reliability-energy-efficiency-project?lang=en
[27] www.worldbank.org/projects/P116748/electricity-supply-reliability-project?lang=en&tab=overview
[28] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[29] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

Small Hydro	8-17 AMD/kWh

AZERBAIJAN

- **Second Rural Investment Project (AzRIP-2)**[30]
  - Sector: Distribution and Transmission
  - Agency: State Agency on Agricultural Credits under the Ministry of Agriculture
  - Financed by: IBRD, IDA, Government of Azerbaijan
  - Budget: US$ 53.6 million
  - Duration: 2012-2017
  - Description: The project's objective is to improve access to and use of community-driven rural infrastructure and expand economic activities for rural households. Micro-projects in rural infrastructure are financed to increase access to, and quality of local economic and social infrastructure such as electricity transformers, roads, rural water supply, irrigation, schools, clinics, and markets. Technical assistance is also provided to enhance the capacity of local stakeholders (e.g., community groups, local authorities) and to pilot livelihood support initiatives, as well as project management and results monitoring support.
- **Rules of Issuing Special Permission to Activity Concerning Alternative and Renewable Energy Source**[31]
  - Sector: RE
  - Start Date: 2010
  - Agency: Ministry of Industry and Energy
  - Description: Rules and procedures for operating RE plants > 10 kW.

BANGLADESH

- **Bangladesh: Rural Electricity Transmission and Distribution Project**[32]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Power, Energy and Mineral Resources, Infrastructure Development Company Limited (IDCOL), private companies, NGOs
  - Financed by: IDA, IBRD, Government of Bangladesh
  - Budget: US$ 837 million
  - Duration: 2014-2020
  - Description: The project aims to reduce system losses and enhance capacity in the rural distribution network of primarily the eastern part of the country. The project is implemented through the following components: (i) rural grid augmentation and rehabilitation; (ii) transmission enhancement; and (iii) institutional strengthening. The first component supports the augmentation and rehabilitation needs of thirty-nine Palli Biddyut Samities - rural electric cooperatives - in the eastern part of Bangladesh. The second component identifies substations that will be needed for the rural distribution network in the project areas and ensures their effective functioning and transmission

30 web.worldbank.org/external/projects/main?pagePK=51351038&piPK=51351152&theSitePK=40941&projid=P122944

31 IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

32 http://www.worldbank.org/projects/P129920/bangladesh-rural-electricity-transmission-distribution-project?lang=en

capacities. The final component supports various institutional strengthening needs as and when necessary.

- **EnDev 2 Bangladesh**[33]
  - Sector: Solar, Improved Cookstoves
  - Agency: Ministry of Power, Energy and Mineral Resources, IDCOL, private companies, NGOs
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev Bangladesh provides grants for sales and management per unit of SHS sold to the government-owned IDCOL and its partner organizations. A refinancing fund has been established and includes marketing support, capacity building techniques and measures to ensure high quality systems. EnDev subsidizes EUR 41 of the total cost per SHS, which is around EUR 320; is developing a pilot project to introduce pico-Solar Lanterns to the market; trains local trainers of stove builders, and organizes awareness campaigns and trainings for cookstove manufacturers.
- **Rural Electrification and Renewable Energy Development II (RERED II) Project**[34]
  - Sector: Solar, Improved Cookstoves, EE Lighting
  - Agency: IDCOL, Power Cell, Rural Electrification Board, Government of Bangladesh
  - Financed by: USAID, IBRD, IDA, KfW, Bangladesh Mdtf For Climate Change, others
  - Budget: US$ 386 million
  - Duration: 2012-2018
  - Description: The development objective of RERED II is to increase access to clean energy in rural areas through RE and promote more efficient energy consumption. The project supports SHS market development and other renewable energy options; provides technical assistance to the IDCOL (e.g., for inspection and monitoring, impact evaluation), and contributes to the community outreach program of NGOs in rural areas to promote clean cooking solutions. RERED II supports the distribution of 7.25 million Compact Fluorescent Lamps (CFLs) in predominantly rural areas, and supports developing national guidelines for safe disposal and recycling of CFLs.
- **Renewable Energy and Energy Efficiency Programme**[35]
  - Sector: RE
  - Agency: Ministry of Power, Energy, and Mineral Resources
  - Financed by: BMZ
  - Duration: 2013-2014
  - Description: At the policy level, the GIZ is advising the Ministry on ways to improve the legal and institutional framework for the energy sector by developing energy policies and stipulating rules and regulations for energy conservation. For the development and adaptation of technologies, the programme cooperates with research and educational institutions, such as the Bangladesh University of Engineering and Technology and the

[33] http://endev.info/content/Bangladesh

[34] http://www.worldbank.org/projects/P131263/rural-electrification-renewable-energy-development-ii-rered-ii-project?lang=en

[35] http://www.giz.de/en/worldwide/15127.html

Bangladesh Rice Research Institute. To disseminate new technologies, GIZ works with many local partners, most of which are non-governmental organizations.

- **GPOBA: Rural Electrification and Renewable Energy Development and Impact Evaluations of Solar Home Systems**[36, 37]
  - Sector: Mini-Grid, Solar
  - Agency: IDCOL, Government of Bangladesh
  - Financed by: GPOBA
  - Budget: US$ 1.1 million
  - Duration: 2010-2014
  - Description: GPOBA expands access to electricity services to poor populations through providing grants to mini-grid and solar irrigation pumps in off-grid areas to sub-project developers, and carries out feasibility studies for mini-grids. The project targets providing electricity to 5,000 households, farmers, shops, and small and medium-sized enterprises. GPOBA provides funding for an impact evaluation to measure the effectiveness of Solar Home Systems in serving the needs of the poor.
- **Additional Financing For Rural Electrification and Renewable Energy Development Project**[38]
  - Sector: Distribution and Transmission, Solar, EE Lighting
  - Agency: IDCOL, Rural Electrification Board
  - Financed by: GPOBA, ADB, GIZ, KfW
  - Budget: US$ 130 million
  - Duration: 2010-2013
  - Description: The additional financing helps finance the costs associated with: (i) scaling up the project's renewable energy components which are improving off- grid electricity supply in rural areas through the installation of SHS for affordable lighting, and also from other renewable energy sources; (ii) introducing energy efficient Compact Fluorescent Lamps to help address the severe energy shortages, notably in rural areas; and (iii) rehabilitating additional electricity distribution networks in rural areas as part of the System Loss Reduction component of the project.
- **Additional Financing II for Rural Electrification and Renewable Energy Development Project**[39]
  - Sector: Solar, RE
  - Agency: IDCOL, Government of Bangladesh
  - Financed by: ADB, IBRD, IDA, KfW, GPOBA, and others
  - Budget: US$ 255,100,00
  - Duration: 2011-2014
  - Description: The Second Additional Financing for Rural Electrification and Renewable Energy Development Project raises levels of social and economic growth by increasing access to electricity in rural areas. Support from the project will help finance the costs of further scaling-up the successful program of installations of SHS in off-grid rural areas under a micro-credit scheme implemented by IDCOL. Targets include installation of about 630,000 SHS, renewable installations including SHS for 2.5 million units.

[36] http://www.gpoba.org

[37] http://www.worldbank.org/projects/P119547/gpoba-rural-electrification-renewable-energy?lang=en&tab=overview

[38] http://documents.worldbank.org/curated/en/2009/07/10809104/bangladesh-additional-financing-rural-electrification-renewable-energy-development-project

[39] http://www.worldbank.org/projects/P126724/additional-financing-ii-rural-electrification-renewable-energy-development-project?lang=en&tab=overview

- **Improved Cooking Stoves in Bangladesh**[40]
  - Sector: Improved Cookstoves
  - Agency: Grameen Shakti, SZ Consultancy Services Ltd., J.P. Morgan Ventures Energy Corporation
  - Financed by: The carbon buyer is the United Kingdom
  - Duration: 2011-2018
  - Description: Disseminates domestic and non-domestic biomass-burning efficient cooking stoves, which replaces the traditional three-stone stove. Partner organizations will act individually in accordance with demand of the local market and use CER proceeds to reduce the stove price to users, provide maintenance, and recoup associated costs for stove dissemination such as technician training and marketing.
- **Renewable Energy Policy of Bangladesh**[41]
  - Sector: RE
  - Start Date: 2008
  - Agency: Power Cell
  - Description: The Policy's objectives are to: (i) harness the potential of RE resources and dissemination of RE technologies in rural, peri-urban and urban areas; (ii) enable, encourage and facilitate both public and private sector investment in RE projects; (iii) develop sustainable energy supplies to substitute indigenous non-renewable energy supplies; (iv) scale up contributions of RE to electricity production; and (v) scale up contributions of renewable energy both to electricity and to heat energy. The main goal is develop RE sources to meet 5% of total power demand by 2015 and 10% by 2020.

BARBADOS

- **Homeowner Tax Benefit**[42]
  - Sector: EE, Solar
  - Start Date: 1996
  - Description: Tax deduction for home improvements including energy and water saving measures and solar water heaters.
- **Fiscal Incentives Act**[43]
  - Sector: Solar
  - Start Date: 1974
  - Description: Solar Water Heater raw materials are exempt from import duties, and conventional electric water heaters were levied with a consumption tax.

BELARUS

- **Tax relief for renewable energy investors**[44]
  - Sector: RE
  - Start Date: 2009
  - Description: Incentives = exemption from land tax and rent for land payments if state-owned land, exempt from VAT and income tax in connection with property transfer, investors can deduct full amount of VAT paid on purchase of goods and property rights.

[40] http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/SE7XIMKF8NYVOTL16BW3U45C9ZDGAP/view
[41] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[42] Ibid.
[43] Ibid.
[44] Ibid.

- **2011 Resolution on Feed-in Tariffs for Electricity Generated from Renewable Energy Sources**[45]
  - Start Date: 2011
  - Agency: Ministry of Economy
  - Description: Resolution of the Minister of Economy No 100.

Feed-in-Tariff[46]	
Wind, Hydro, Biomass, Biogas, Geothermal	For < 750 W, US$ 1.3/kW first 10 years, US$ 0.85/ kW next 10 years
Solar	For < 750 W, US$ 3/kW first 10 years, US$ 0.85/ kW next 10 years

BENIN

- **EnDev 2 Benin**[47]
  - Sector: Distribution and Transmission, Improved Cookstoves
  - Agency: Ministry of Agriculture, Ministry of Environment, Ministry of Energy, Benin Electric Energy Society (SBEE), and local communities
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC, EU, AFD
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev Benin supports SBEE in increasing outreach to rural communities along the main line via new branch lines to local villages. EnDev supports SBEE in delegating the operation of these branch lines to private operators, who are then responsible for the service provision and maintenance of the branch line. EnDev also is promoting improved cookstoves for households and small restaurants in rural and peri-urban areas and assists with promotion, tendering of service providers, artisan training for stove construction and business skills, and stove testing and quality control.
- **Rural Electricity Supply Program**[48]
  - Sector: Distribution and Transmission
  - Agency: Ministère de l'Economie et de Finances; Ministère de l'Energie, des Recherches pétrolières et minières, de l'Eau et du Développement des Energies renouvelables, GIZ International Services
  - Financed by: EU Energy Facility, BMZ, AFD
  - Budget: EUR 21.8 million
  - Duration: 2008-2013
  - Description: The objective of this project is to enhance access to electricity in rural areas in order to improve the living conditions of poorer sectors of the rural population. A total of 105 villages have already been connected to the national electricity grid. By collaborating with the national electricity grid of the SBEE, the rural electrification program focuses on

[45] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[46] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[47] http://endev.info/content/Benin
[48] http://www.giz.de/en/worldwide/18991.html

expanding the electricity grid and improving its administration procedures. In addition, the rural population will be made more aware about secure and economical electricity usage; adapted payment mechanisms will be offered including prepaid electricity.

- **World Bank: Increased Access to Modern Energy**[49]
  - Sector: Distribution and Transmission, EE Lighting, Biomass
  - Agency: Communauté Électrique du Benin (CEB); Société Béninoise d'Energie Electrique (SBEE); Ministry of Energy
  - Financed by: IDA, European Investment Bank; KfW, Government of Benin, Fonds Francais De L'Environnement Mondial, Free-Standing Cofinancing Trust Fund, Nordic Development Fund
  - Budget: US$ 176.69 million
  - Duration: 2009-2016
  - Description: The project's objectives are to improve reliability and efficiency of, and access to, modern energy services in Benin. The changes involve the clarification of activities to be financed given the parallel co-financing to be provided by the Africa Renewable Energy Access trust fund. Components of the project include construction of a new interconnection, rehabilitating the SBEE network, improved lighting and appliance efficiency, Rural Electrification Fund, and modernizing biomass energy services.

BOLIVIA

- **EnDev 2 Bolivia**[50]
  - Sector: Distribution and Transmission, Hydro, Improved Cookstoves, Solar, Biogas
  - Agency: Ministry of Hydrocarbons and Energy, Vice Ministry for Electricity and Renewable Energy
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign, BMZ, Affairs, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2016
  - Description: EnDev partially subsidizes densification of the existing grid, subsidizes Solar PV and Solar Water Heaters, if grid connections are not available (the un-subsidized portion is financed by municipalities), circulates Solar Pico-PV lanterns to households, and supports commercial improved cookstove producers. For grid extension, clients pay a portion of the bill in cash up front and the remaining amount is paid through the electricity bills through a credit scheme offered by the utilities.
- **Electrificacion Rural con Energias Renovables a traves del Proceso de Participacion Popular**[51]
  - Sector: RE
  - Start Date: 2000
  - Description: This is a rural electrification programme in Bolivia, which focuses on renewable energy.

[49] http://www.worldbank.org/projects/P110075/increased-access-modern-energy?lang=en&tab=overview
[50] http://endev.info/content/Bolivia
[51] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

BOSNIA AND HERZEGOVINA

- **Advice on Energy Efficiency**[52]
  - Sector: EE
  - Agency: Ministry for Foreign Trade and International Economic Relations
  - Financed by: BMZ
  - Duration: 2010-2015
  - Description: The objective of the project is to strengthen the role that municipalities play in implementing EE measures. The project is helping municipalities to develop and operate a local environmental management system by providing consultancy and training services, and more easily identify ways of increasing EE and develop and put in place measures that will achieve this. The municipal associations and other relevant energy institutions and networks are given support to enable them to systematically evaluate their achievements and experiences in managing energy. The project is creating platforms for discussions about energy with political decision-makers and energy experts. These experiences can benefit other municipalities and form the basis of proposals that will help municipalities to become more energy-efficient from an economic, legal and technical point of view.
- **Decision on the amount of the fee to encourage electricity generation from renewable energy sources and efficient co-generation, Republic of Srpska**[53]
  - Sector: RE
  - Agency: Regulatory Commission for Energy of Republic of Srpska
  - Start Date: 2012
  - Description: The Decision establishes the fee for encouraging electricity generation from renewable sources and efficient cogeneration in the accordance with the provisions of the "Rule Book on incentives for generation of electricity from RES and in efficient co-generation" and "Decision on the amount of the feed-in prices and premium for generation of electricity from RES and in efficient cogeneration". Financial resources acquired from these fees will create a fund from which premiums will be paid to producers, who generate their electricity from renewable sources. Also, the Decision establishes a working framework for the System operator for incentives. Unit price in 2012 is established on level of 0.0018 KM / kWh.
- **Decision on the amount of the feed-in prices and premiums for generation of electricity from RES and in efficient co-generation, Republic of Srpska**[54]
  - Sector: RE
  - Agency: Regulatory Commission for Energy of Republic of Srpska
  - Funded by: The tariff of the consumed energy
  - Start Date: 2012
  - Description: The decision determines levels of feed-in tariffs and premiums for electricity generated from renewable sources or in process of cogeneration. Provisions comply with decisions of Rule Book. The feed-in tariff for electricity from renewable sources with installed power up to 5 MW is 5.8 €c/kWh on the 10 kV voltage for the BIH utility, and a 6.6 €c/kWh on the 10 kV voltage for EHZHB utility. Tariff adjustment coefficients have been established which vary by technology.

[52] http://www.giz.de/en/worldwide/21071.html
[53] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[54] Ibid.

BOTSWANA

- **Morupule B Generation and Transmission Project**[55]
  - Sector: Distribution and Transmission, Solar
  - Agency: Botswana Power Corporation, Ministry of Minerals, Energy, and Water Resources
  - Financed by: AfDB, IBRD, BPC
  - Budget: US$ 1,662.00 million
  - Duration: 2009-2014
  - Description: The objectives of the project are to support the development of reliable and affordable supply of electricity for energy security; promote alternative energy resources for low-carbon growth, and building institutional capacity in the energy sector. The project includes: (i) construction of a 600 MW coal-fired power station, transmission lines, and pipelines from a well field to the Power Station for backup supply; (ii) develop coal-bed methane and explore solar thermal and CCS; and (iii) institution and capacity building for BPC and the MMEWR.
- **National Photovoltaic Rural Electrification Programme**[56]
  - Sector: Solar
  - Agency: Botswana Power Corporation
  - Start Date: 1997
  - Description: Through the programme, rural communities in Botswana can utilise a financing scheme to purchase photovoltaic systems repayable over 4 years with interest. The government issues contracts under this programme to develop solar PV and water heating systems, installing pilot projects, such as centralised photovoltaic power plants in villages. The 2001 Revised National Policy for Rural Development emphasises the role of solar photovoltaic systems in rural electrification and development. The policy document clearly spells out that the use of renewable energy should be encouraged as a measure to reduce harmful emissions and conserve natural resources. The policy further notes that the provision of energy using renewable resources is likely to promote the development of productive activities in rural communities which are not necessarily based on agriculture.

BRAZIL

- **Luz para Todos (Light for All) Electrification Programme**[57]
  - Sector: RE
  - Agency: Ministry of Mines and Energy
  - Budget: US$ 3.13 billion
  - Start Date: 2003
  - Description: The programme's goal was to improve rural electrification through network expansion, distributed generating systems with isolated networks or individual plants, with renewable energies also used for generating electricity. The programme follows the "Luz para Campo" rural electrification programme and the PRODEEM programme, in which communal facilities were provided with electricity generating systems using renewable energy. The programmes overall ambition is to provide access to electricity to the 12 million people who live without it, 10 million of them being in rural areas. By November 2006, 4.6

[55] http://www.worldbank.org/projects/P112516/botswana-morupule-b-generation-transmission-project?lang=en&tab=overview
[56] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[57] Ibid.

million people were supplied with electricity for the first time. Approximately 72% of the programmes total funding comes from two sources, the Reserva Global de Reversão and the Conta de Desenvolvimento Energético (CDE). The RGR is a fund providing loans, collected from the concession fees and fines paid by energy supply companies. The CDE is a fund providing subsidies, collected from a tariff paid by all electricity consumers. The remaining funding is divided equally between the federal states and municipalities (14%) and the power supply companies (14%).

- **Programme of Incentives for Alternative Electricity Sources - Programa de Incentivo a Fontes Alternativas de Energia Elétrica (PROINFA)**[58]
  - Sector: RE
  - Budget: US$ 28.16 million
  - Start Date: 2002
  - Description: The Brazilian Parliament passed Law 10438 in April 2002 creating the PROINFA, among other programmes. The PROINFA programme is to be implemented in two stages: (i) 3,300 MW of renewable energy (from wind, biomass and small hydroelectric sources) would be brought on stream before the end of 2007 through a system of subsidies and incentives, which draw on an Energy Development Account funded by end-use consumers through an increase on energy bills (low-income sectors are exempt from this increase); and (ii) once the 3,300 MW objective has been met, PROINFA would increase the share of electricity produced by three renewable sources to 10% of annual consumption within 20 years. In Stage II, PROINFA renewable generators will be required, before December 30th of each year, to issue a number of Renewable Energy Certificates proportional to the amount of clean energy produced by the plant.
- **Paraíba Second Rural Poverty Reduction**[59]
  - Sector: Distribution and Transmission
  - Agency: Secretariat of Planning
  - Financed by: IBRD, IDA
  - Budget: US$ 28.16 million
  - Duration: 2008-2014
  - Description: This project supports the Government of Paraiba's efforts to reduce the incidence of rural poverty by: (i) improving access to small-scale socioeconomic infrastructure and services; (ii) raising incomes and capital assets through investments in productive activities while facilitating linkages between small producers and national and international markets; and (iii) strengthening the capacity of Municipal Councils and Community Associations to raise funding and harmonize policies and institutional arrangements for delivery of public investments intended to benefit the rural poor.
- **Electric Power Auctions**[60]
  - Sector: Wind, Biomass
  - Start Date: 2009
  - Agency: Agência Nacional de Energia
  - Description: For wind projects, the government auctioned 1,805 MW from 71 projects. Power purchase contracts were set to begin 2012 and last 20 years. For Biomass projects, the government auctioned 2,379 MW from 31 thermoelectric plants using sugar cane and napier grass. Power purchase contracts last 15 years.

[58] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[59] http://www.worldbank.org/projects/P104752/para%C3%ADba-second-rural-poverty-reduction?lang=en
[60] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

- **Mandatory Biodiesel Requirement**[61]
  - Sector: Biofuel
  - Start Date: 2008 (amended 2009 and 2010)
  - Agency: National Petroleum Agency
  - Description: 5% biodiesel content as of 2010.
- **Biofuel blend mandate: E18-25**[62]
- **Feed-in-Tariff**[63]
  - Start Date: 2005

Feed-in-Tariff[64]	
Wind	US$ 86.3-97.8 / MWh
Small Hydro	US$ 56/kWh
Solid Biomass Electricity	US$ 44.9-48.5/ kWh

BULGARIA

- **Energy from Renewable Sources Act**[65]
  - Sector: RE
  - Agency: Ministry of Economy, Energy and Tourism, Agency for Sustainable Energy Development
  - Start Date: 2011
  - Description: This Act implements the requirements of European Directive 2009/28 for the promotion of the use of energy from renewable sources. The more attractive incentive is the purchase of renewable electricity through long term contracts and feed-in tariffs. The feed-in tariffs are set for the entire contract period by the State Energy and Water Regulatory commission. The contract period depends on the technology: 20 years for electricity produced from biomass, sun and geothermal energy; 12 years for the electricity from wind; and 15 years for electricity produced from hydro power plants up to 10 MW and other renewable sources.

Feed-in-Tariff[66]	
Biogas	< 150 kW = EUR 217.31/ MWh; 150-500 kW = US$ 203.49/ MWh; 500 kW – 5 MW = US$ 154.78/ MWh

BURKINA FASO

- **EnDev 2 Burkina Faso**[67]

[61] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[62] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[63] http://www.map.ren21.net/PDF/ProfilePDF.aspx?idcountry=29
[64] Ibid.
[65] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[66] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

- Sector: Improved Cookstoves
- Agency: Ministry of Environment, Institut de Recherche en Sciences Appliquées et Technologies
- Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
- Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
- Duration: 2009-2014
- Description: EnDev is supporting a commercial improved cookstove market strategy, where producers play a central role in marketing, households have stove options, and units are more profitable for producers. EnDev trains cookstove producers in technical and marketing skills, assists with developing business models, establishes and strengthens a quality control system, and is launching publicity campaigns to raise awareness about cookstoves and about the disadvantages of charcoal.

- **Electrification of the Villages of Boala, Nagré, Barkpéréna, Bouléra, Kamandena, Ghogo through Solar Energy**[68]
  - Sector: Solar
  - Agency: Groupement Féminin Wend Panga de Boala, Groupement Féminin Namalgzenga, Groupement Di Da Sarè Barkpéréna, Groupement Si Mia Nobiel Bouléra, Association pour la Sauvegarde de l'Environnement, Groupement féminin maraicher Wend La Panga
  - Financed by: GEF, UNDP
  - Budget: US$ 706,977
  - Duration: 2011-2013
  - Description: The project aims at providing training to village women on operating solar energy equipment, setting up and providing equipment for a workshop, stockpiling extra material and spare parts, the installation of a working capital, and the electrification of 100 households.
- **Electricity Infrastructure Strengthening and Rural Electrification Project**[69]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Mines, Quarries, and Energy
  - Financed by: AfDB, Société Nationale Burkinabé d'Electricité, Electrification Development Fund (EDF), Government of Burkina Faso
  - Budget: US$ 56,144,159
  - Duration: 2009-2014
  - Description: This project is an investment project involving the rehabilitation and extension of distribution and transmission lines, implementation of accelerated connections in urban and rural areas and installation of public lighting units, and reduction of technical and commercial losses through the rehabilitation of the distribution network and the installation of pre-paid meters.
- **Energy Access Project**[70]
  - Sector: Distribution and Transmission, Mini-Grids, Improved Cookstoves

[67] http://endev.info/content/Burkina_Faso
[68] https://sgp.undp.org/index.php?option=com_countrypages&view=countrypage&country=28&Itemid=204
[69] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Burkina%20Faso_Electricity%20Infrastructure%20Strengthening%20and%20Rural.pdf
[70] http://www.worldbank.org/projects/P078091/burkina-faso-energy-access-project?lang=en

- Agency: Government of Burkina Faso, Unite d'Execution de la Reforme du Secteur de l'Energie
- Financed by: IDA, Government of Burkina Faso
- Budget: US$ 41 million
- Duration: 2007-2014
- Description: The project aims to support Burkina Faso's efforts to increase access to and use of energy services to improve living conditions in selected rural, peri-urban and urban areas. The project includes the following components: (i) increasing access to electricity services in the urban, peri-urban and rural areas through grid extension and reinforcement, mini-grids, and outreach; (ii) sustainable community-based forestry management systems and improved cookstove market development; and (iii) institutional strengthening, capacity development, and harmonization.

BURUNDI

- **Burundi Energy Efficiency Project**[71]
  - Sector: EE, Distribution and Transmission, Hydro
  - Agency: World Bank, REGIDESO
  - Financed By: GEF, REGIDESO, IDA Multi-Sectoral Water and Electricity Infrastructure Program (MSWEIP)
  - Project Cost: US$ 25,118,182
  - Duration: 2012-2015
  - Description: The project will scale up and strengthen REGIDESO's efforts to promote EE lighting, specifically compact fluorescent lamps (CFLs). CFLs will be procured in bulk and distributed to households: the first phase will distribute 200,000 lamps in batches of 3 lights per household; phase two will distribute 200,000 CFLs in batches of 2-4 lights. These distributed lights will be free to beneficiaries. Public awareness and implementation of a media communications strategy will include distribution of information materials, radio and television spots, newspaper supplements, and banners in French and Kirundi. Technical and managerial capacity building will be provided to the EE unit inside the REGIDESO to implement the project and further lead EE measures, which include developing policy and regulatory responses to allow widespread uptake of EE appliances. Sub-components include: auditing energy consumption, targeting loss reduction and improved pumping system efficiency; EE advice to large public institutions and commercial and industrial consumers; developing national EE guidelines in the real estate sector; and project management support to monitoring and evaluation, and improved revenue collection; rehabilitating the transmission and distribution network, and hydropower feasibility studies.
- **EnDev 2 Burundi**[72]
  - Sector: Solar, Improved Cookstoves
  - Agency: Ministry of Energy and Mines, General Directorate of Water and Rural Energies, International Fertilisation and Development Committee
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available

[71] http://www.thegef.org/gef/sites/thegef.org/files/documents/document/01-18-2012%20Council%20document.pdf
[72] http://endev.info/content/Burundi

- Duration: 2010-2014
- Description: Rural electrification is achieved through Solar PV systems with households, private operators, and social institutions as the primary target group. The capacity varies from 1-10 Wp to 260 Wp (for health centers) and units will be sold at battery charging stations and small rural shops. EnDev Burundi funds PV systems for social infrastructure like schools and street lights, conducts promotions for Solar products, supports battery charging stations that are privately owned and operated, and provides training in operating and maintaining equipment.

CAMEROON

- **Lom Pangar Hydropower Project**[73]
  - Sector: Hydro
  - Agency: Ministry of Finance
  - Financed by: AfDB, Development Bank Of The Central African States, European Investment Bank, AFD, IDA, Ministry of Finance
  - Budget: US$ 494 million
  - Duration: 2012-2018
  - Description: The project increases hydropower generation capacity and reduces seasonal variability of water flow in the Sanaga River to increase access to electricity. The project co-finances the construction of a regulating dam, constructs a hydropower plant and transmission line to the grid, constructs a substation that connects 13 localities between the hydropower plant and the town of Bertoua to electrify approximately 2,400 households, and provides technical assistance on hydropower.
- **Cameroon - Kribi Gas Power Project**[74]
  - Sector: Distribution and Transmission
  - Agency: Kribi Power Development Company (KPDC), Perenco Cameroon, National Hydrocarbons Company (SNH), Government of Cameroon
  - Financed by: IFC, Government of Cameroon, IDA, unidentified
  - Budget: US$ 350 million
  - Start Date: 2011
  - Description: The objective of the project is to develop, construct and operate a 216 MW natural gas-fired power plant located near the Mpolongwe village and 100 km transmission lines with substations and transformers, all developed by the KPDC. Associated infrastructure include the offshore Sanaga South gas field, marine pipelines, and a Central Gas Processing Facility, all developed by Perenco Cameroon, and an 18-km onshore gas pipeline developed by the SNH and transmission line, including substations and transformers.
- **Energy Sector Development SIL**[75]
  - Sector: RE
  - Agency: Ministere de l'Energie et de l'Eau (MINEE), AES SONEL, Agence d''Electrification Rurale(AER), Electricity Development Corporation (EDC)
  - Financed by: IDA, Government of Cameroon
  - Budget: US$ 70 million

[73] http://www.worldbank.org/projects/P114077/cm-lom-pangar-hydropower-proj-fy12?lang=en
[74] http://www.worldbank.org/projects/P110177/cameroon-partial-risk-guarantees-kribi-gas-power-project?lang=en
[75] http://www.worldbank.org/projects/P104456/cm-energy-sector-development-sil-fy08?lang=en&tab=overview

- Duration: 2008-2015
- Description: Through its intervention, the project contributes improved reliability and access to electricity supply. There are three components to the project: (i) the Rural Energy Fund (REF) help set up a rural energy fund as foreseen under National Energy Plan for Poverty Reduction (PANERP) and the decree establishing AER to streamline interventions and increase the effectiveness of investments in rural energy; (ii) provide technical assistance to MINEE on planning and investment strategy, and energy legal and institutional framework development; and (iii) project preparation, including assisting EDC with the preparation of Lom Pangar Project and AER.

CAPE VERDE

- **Recovery and Reform of the Electricity Sector Project**[76]
  - Sector: Distribution and Transmission
  - Agency: ELECTRA and Ministry of Economy and Competitiveness
  - Financed by: IBRD; Republic of Cape Verde
  - Budget: US$ 58.50 million
  - Duration: 2012-2016
  - Description: The objectives of the project are to increase electricity generation in the Islands of Sao Vicente and Santiago and to assist ELECTRA to reduce electricity losses on Santiago Island. The investment component of the project would focus on priority investments, notably extension of Palmarejo Power Plant in Praia, extension of Lazareto Power Plant in Mindelo, additional water storage capacity in Palmarejo through the construction and installation of two water storage reservoirs and related interconnecting pipes at the Palmarejo Power Plant.

CHAD

- **Promoting Renewable Energy Based Mini-Grids for Rural Electrification and Productive Uses**[77]
  - Sector: Mini-Grids, Solar
  - Agency: UNIDO, Ministry of Oil and Energy, Directorate of Energy
  - Financed By: GEF, Government of Chad, UNIDO
  - Project Cost: US$ 5,918,180
  - Duration: 2012-2014
  - Description: The project promotes RE-based mini-grids to increase rate of access of rural and peri-urban populations. There are three project components: (i) creation of an enabling environment for wide-scale replication of RE generation for rural electrification through policy development (including investment incentives, standardized power purchase agreements, tariffs, pricing mechanisms, risk management, and business models); (ii) improve existing data on RE potential by preparing pre-feasibility studies on several sites; and (iii) demonstrate technical and economic feasibility of Solar PV-based mini-grids and using on the job training to raise technical capacities.

[76] http://www.worldbank.org/projects/P115464/cape-verde-recovery-reform-electricity-water-sectors-project?lang=en&tab=overview

[77] http://www.thegef.org/gef/project_detail?projID=3959

CHILE

- **2012 Support for Non-Conventional Renewable Energy Development Programme**[78]
  - Sector: RE
  - Start Date: 2012
  - Agency: Ministry of Energy
  - Description: 2012 Budget Law approved US$ 85.5 million to subsidize pilot projects based on non-conventional energy sources like CSP, transmission lines for the sources, geothermal exploration, and tide energy. Public project contests are sponsored. Non-conventional = geothermal, wind, solar, tidal, biomass and small hydroelectric plants (< 20 MW).
- **2009 Regulatory Framework for Solar Water Thermal (Law 20,365)**[79]
  - Sector: Solar
  - Start Date: 2009 (amended 2010)
  - Agency: Ministry of Energy
  - Description: Construction companies and housing developers where household annual hot water demand > 30% from solar systems are eligible for tax credits.
- **Program for Rural and Social Energy (PERYS)**[80]
  - Sector: RE
  - Start Date: 2009
  - Agency: Ministry of Energy
  - Description: The programme aims to contribute, in the context of energy, to socioeconomic development and environmental sustainability, improving the overall quality of life and prioritising the use of non-conventional renewable energy (NCRE) sources in vulnerable sectors and public establishments. Activities under this programme include: design, financing, and development of NCRE projects in remote and vulnerable areas; training of users, decision makers, and stakeholders for the development and operation of energy projects; and research and development projects to enable future development of NCRE in vulnerable or isolated areas.
- **Non-Conventional Renewable Energy (NCRE) Law (Law 20.257)**[81]
  - Sector: RE
  - Start Date: 2008
  - Agency: National Energy Commission
  - Description: Until 2014, 5% electricity of electricity-providing companies > 200 MW must come from NCRE, then increases 0.5% annually up to 10% in 2024. Non-compliance results in a fine.
- **Law 19.657 on Geothermal Energy Concessions**[82]
  - Sector: Geothermal
  - Start Date: 2000
  - Agency: Ministry of Energy
  - Description: Law 19,657 establishes regulatory frameworks for geothermal exploration and exploitation, as well as standards for concession allocation and tenders.

[78] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[79] Ibid.
[80] Ibid.
[81] Ibid.
[82] Ibid.

CHINA

- **Renewable Electricity Generation Bonus**[83]
  - Sector: RE
  - Start Date: 2013
  - Agency: National Development Reform Commission
  - Description: From 25 September 2013 the bonus for the renewable electricity generation is increased from RMB 8/kWh to RMB 15/ kWh.
- **2010 Import Duty Removal on Wind and Hydro Technological Equipment**[84]
  - Sector: Wind, Hydro
  - Start Date: 2010
  - Agency: Ministry of Finance, General Administration of Customs and People Republic of China, and State Administration of Taxation
  - Description: Removes import duties and VAT on key technological equipment
- **2010 Interim Measure on the Management of Offshore Wind Farm**[85]
  - Sector: Wind
  - Start Date: 2010
  - Agency: National Energy Administration, State Oceanic Administration
  - Description: Requires competitive bidding process that takes into account offered prices, technical abilities, and forecasted performance results. Developers must be at least 50% Chinese ownership.
- **Market Entry Standards for Wind Equipment Manufacturing Industry**[86]
  - Sector: Wind
  - Start Date: 2010
  - Agency: National Development and Reform Commission
  - Description: Regulations introduced with minimum 2.5 MW turbine capacity, setting minimum expertise level of manufacturers and researchers.
- **2009 Notice on the Removal of Local Content Requirement in Wind Power Projects Equipment Procurement**[87]
  - Sector: Wind
  - Start Date: 2009
  - Agency: National Development and Reform Commission
  - Description: Removes requirement on wind turbines installed in China that 70% of components should be sourced locally.
- **2012 The Notice on the Establishment of Demonstration Areas for Large-Scale Solar PV Power Generation**[88]
  - Sector: Solar
  - Start Date: 2012
  - Agency: National Energy Administration

[83] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[84] Ibid.
[85] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[86] Ibid.
[87] Ibid.
[88] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

- Description: Provinces to establish demonstration areas for large-scale Solar PV installations, smart grid technologies are encouraged, implements standards for subsidy creation for systems and net metering. Each province can establish up to 3 demonstration areas up to 500 MW through 2017.

- **Notice 28 on Import Duty Reduction for Ethanol**[89]
  - Sector: Biofuel
  - Start Date: 2010
  - Agency: State Council
  - Description: Reduced import duty on imported ethanol from 30% to 5% starting in 2010.
- **SGCC In-advance Distribution Transformer Replacement CDM Programme**[90]
  - Sector: Distribution and Transmission
  - Agency: State Grid Corporation of China
  - Financed by: The carbon buyer is the Government of Spain, and SGCC is the Coordinating Maintenance Entity
  - Duration: 2011-2018
  - Description: The project replaces low efficiency in-service grid-connected transformers with high efficiency units. Over 150,000 transformers will be replaced. The physical boundary of the project is the SGCC-controlled grids in China's 25 provinces. The project is listed as a registered POA project in the UNFCCC registry of CDM projects.
- **Biofuel blend mandate: E10 in nine provinces**[91]
- **Feed-in-Tariffs**
  - Sector: Wind, Solar PV, Biomass
  - Start Date: 2009 (On-Shore Wind), 2010 (Biomass Electricity), 2011 (Solar PV)
  - Agency: National Development and Reform Document
  - Description: Tariffs are presented in the table below.

Feed-in-Tariff[92]	
On-Shore Wind	EUR 0.052-0.062/ kWh
Solar PV	CNY 1.15/kWh or 1/kWh
Biomass Electricity	CNY 0.75/kWh

CHINESE TAIPEI

- **2009 (updated 2011) Renewable Energy Feed-in-Tariffs**[93]
  - Start Date: 2011

[89] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[90] cdm.unfccc.int/ProgrammeOfActivities/poa_db/5DEPL4CVSQZAU23JR9H6F8KOYGMW70/view
[91] REN21. *Renewables 2013 – Global Status Report*. 2013.
[92] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[93] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

Feed-in-Tariff[94][12]					
Wind On-Shore	EUR 0.185/kWh < 10 kW, EUR 0.066/kWh > 10 kW.	Solar PV, Ground-mounted	EUR 0.184/kWh	Biomass	EUR 0.055/kWh
Wind Off-Shore	EUR 0.140/kWh	Hydro, Run of the River	EUR 0.055/kWh	Waste	EUR 0.068/kWh
Solar PV, Roof-top	EUR 0.231/kWh for 10-100 kW, EUR 0.222/ kWh for 100-500 kW, EUR 0.200/kWh > 500 kW	Geothermal	EUR 0.121/kWh	Other	EUR 0.055/kW

COLOMBIA

- **2009 Obligatory blends for Ethanol (E8 & E10), and the faculty to increment the blends (Decree 4892)[95]**
  - Sector: Biofuel
  - Agency: Ministries of Mines and Energy, Agriculture and Rural Development, Environment and Sustainable Development, and Transport
  - Start Date: 2009
  - Description: Obligatory blends 8-10% (E8 and E10). Enabled above 10% blends starting in 2013.
- **Rural Electrification Fund[96]**
  - Sector: Transmission and Distribution
  - Agency: Ministry of Mines and Energy
  - Start Date: 2003
  - Description: The "Financial Support Fund for Rural Electrification of Grid-connected Areas" aims to provide resources to develop energy projects related to the expansion and reinforcement of the electricity service in rural areas.
- **Tax exemptions and incentives for ethanol producers (Law 788)[97]**
  - Sector: Biofuel
  - Agency: Ministry of Finance and Public Credit
  - Start Date: 2002
  - Description: As part of a wider tax reform, ethanol destined for blending with gasoline for motor vehicles was exempted from the global tax on gasoline. Ethanol, as a fuel, was exempted from VAT. According to Article 18 of the law, the sale of electricity generated from wind, biomass and agricultural residue was exempted from income tax (after fulfillment of some conditions).

COSTA RICA

- **Biofuel blend mandate: E7 and B20[98]**

[94] Ibid.
[95] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[96] Ibid.
[97] Ibid.
[98] REN21. *Renewables 2013 – Global Status Report*. 2013

COTE D'IVOIRE

- **Electrification through solar energy of facilities in the village of Krekrenou, Blanfla, Sietinfla, Konéfla, Bapo, Angokoun-kpangbassou, Abolé Kouassikro, Daoukro, Fiela, Djorofa, Modeste, Kongobo**[99]
  - Sector: Solar
  - Agency: Association des Jeunes de Krekrenou, Grand Comite de Gestion et de Suivi des Projets de Developpement de Bouafle, Mutuelle pour le Developpement de Bapo, Mutuelle pour le Developpement d'Angokoun-Kpangbassou, Dunia Arts et Cultures, Fiela Nature et Developpement, Association Yeguefa, ONG Energie pour Tous, Le Levier
  - Financed by: UNDP
  - Budget: US$ 204,960
  - Duration: 2011-2013
  - Description: The project aims at providing training to village women on operating solar energy equipment, setting up and providing equipment for a workshop, stockpiling extra material and spare parts, the installation of a working capital, and the electrification of 100 households.
- **Emergency Infrastructure Renewal Project**[100]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Economic Infrastructure
  - Financed by: IBRD, IDA, Republic of Côte D'Ivoire
  - Budget: US$ 200 million
  - Duration: 2012-2016
  - Description: The objective of the project is to improve access to basic infrastructure in targeted urban and rural areas in Abidjan, Yamoussoukro, Korhogo, Bouake, Abengourou, and Soubre. It supports the costs for a 15-year US$1.8 billion capital districts program and the current recovery efforts of the government and its development partners through emergency rehabilitation and enhanced delivery of basic infrastructure services.

CROATIA

- **Tariff System**
  - Start Date: 2012
  - Description: Article 28, paragraph 3 of the Energy Act. Tariffs are in listed in the table below. Contracts are for 14 years. Cogeneration tariff incentives are included in the Tariff System as well but are not listed here.

Feed-in-Tariff[101]					
Solar	HRK 3.40/ kWh for < 10 kW, HRK 3.00/ kWh for 10-30 kW, HRK 2.10/ kWh for > 30 kW	Solid Biomass from the Wood Processing Sector	HRK 0.95/ kWh for < 1 MW, HRK 0.83 for > 1 MW	Plants using Steam or Gas from Waste Treatment Plants	HRK 0.36/ kWh
Hydro	HRK 0.69/ kWh for	Geothermal	HRK 1.26/	Other (e.g.,	HRK 0.60/

[99] https://sgp.undp.org/index.php?option=com_sgpprojects&view=allprojects&Itemid=211
[100] http://www.worldbank.org/projects/P124715/cote-divoire-emergency-infrastructure-renewal-project?lang=en
[101] releel.mingorp.hr/UserDocsImages/1_Tariff_System_RES_CHP_33_07.pdf

Feed-in-Tariff[101]					
	< 1 MW, HRK 0.69/ kWh for < 5000 MWh, HRK 0.55/ kWh for 5000-15000 MWh, HRK 0.42/ kWh for > 15000 MWh		kWh	Ocean, Tidal)	kWh for < 1 MW, HRK 0.50/ kWh for > 1 MW
Wind	HRK 0.64/ kWh for < 1 MW, HRK 0.65 for >1 MW	Biogas from Agriculture and Food Processing	HRK 1.20/ kWh for < 1 MW, HRK 1.04/ kWh for > 1 MW		
Solid Biomass form Forestry and Agriculture	HRK 1.20/ kWh for < 1 MW, HRK 1.04 for > 1 MW	Liquid Biofuel	HRK 0.36/ kWh		

DOMINICAN REPUBLIC

- **Electrification and environmental protection of the community La Pelada[102]**
  - Sector: Hydro
  - Agency: Asociación de Productores de Café Orgánico La Pelada (APROCAFE)
  - Financed by: GEF Small Grants Programme, UNDP
  - Budget: US$ 175,604
  - Duration: 2012-2014
  - Description: Installation of a 18 kW micro-hydropower plant to provide electricity for 38 homes
- **Renewable Energies Incentive Law 57-07[103]**
  - Sector: RE
  - Agency: National Energy Commission, Superintendent of Electricity, Coordinating Agency for the Interconnected Electrical System
  - Start Date: 2007
  - Description: Wind < 50 MW, Hydro < 5 MW, Solar PV, Biomass plants < 80 MW, Biofuel plants any size, Energy farms plantations or agro-industrial infrastructures, Ocean Energy, Solar Thermal for heating or cooling. Exemption from import duties, VAT, and income tax for up to 10 years. 5% tax reduction on interest from foreign financing of RE projects, tax credit on cost of capital equipment, preferred rates of finance for community small-scale RE projects up to 500 kW.

ECUADOR

- **Climate Protection Through the Use of Renewable Energies on the Galapagos Islands with Special Focus on Power Generation using Jatropha Oil[104]**

[102] https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=17674&Itemid=205
[103] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[104] http://www.giz.de/en/worldwide/12701.html

- Sector: Biofuel, RE
- Agency: Ministerio de Electricidad y Energía Renovable
- Financed by: BMU
- Duration: 2012-2015
- Description: The objective of the project is to establish a grid for RE in which generators driven by jatropha oil make a significant contribution to a sustainable energy supply, environmental protection, and the reduction of greenhouse gases. The Government of Ecuador wishes to convert the power supply on the islands of Floreana and Isabela to a hybrid system that uses a combination of electricity from solar energy and jatropha-powered generators. The project is also working to develop and promote financially viable jatropha production by small-holder farmers, and conducts knowledge management for RE.

- **2012 Biodiesel Blending Mandate (Decree 1303)**[105]
  - Sector: Biofuel
  - Start Date: 2012
  - Description: Presidential Decree 1303. 5% biodiesel blending mandate, and all biodiesel must be locally produced.
- **Law on the Energy Sector (Ley de Régimen del Sector Eléctrico)**[106]
  - Sector: RE
  - Start Date: 2010
  - Description: Tax exemption for imported RE equipment, 5- year income tax exemption for RE generators and developer
- **Feed-in tariff**[107]
  - Start Date: 2013
  - Agency: Consejo Natyional de Electricidad
  - Description: Regulación para La participación de los generadores de energía eléctrica producida con Recursos Energéticos Renovables No Convencionales No. CONELEC 001/13. The period of time for the feed-in-tariff contracts are 15 years. Tariffs are presented in the table below.

Feed-in-Tariff[108]			
Wind	US$ 0.1174/kWh mainland, US$ 0.1291/kWh	Biomass and Biogas	US$ 0.1108/kWh mainland, US$ 0.1219/kWh
Solar Thermal	US$ 0.2577/kWh mainland, US$ 0.2834/kWh	Geothermal	US$ 0.1381/kWh mainland, US$ 0.1519/kWh
Wave / Tidal	US$ 0.3243/kWh mainland, US$ 0.3567/kWh	Hydro	US$ 0.0781/kWh up to 10 MW, US$ 0.0686/kWh for 10-30 MW, US$ 0.0651 for 30-50 MW

[105] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[106] Ibid.
[107] Ibid.
[108] Ibid.

ETHIOPIA

- **Electricity Network Reinforcement and Expansion Project (ENREP)**[109]
  - Sector: Distribution and Transmission, RE, EE
  - Agency: Ethiopia Electric Power Corporation (EEPCo.), Government of Ethiopia
  - Financed by: IDA, Opec Fund
  - Budget: US$ 250 million
  - Duration: 2012-2017
  - Description: The ENREP objectives are to improve reliability of the electricity network and to increase access to electricity services in Ethiopia. There are four components to the project: the first component being grid upgrade and expansion; intensification of connections to the households and villages in the areas already connected by the grid, including financing materials an equipment for last-mile connectivity; market development for RE and EE products, and development of stand-alone RE programs such as solar home systems, solar lanterns, improved cookstoves, and biogas plants to provide additional coverage for household access to energy; and the fourth component is modernization of utility support.
- **Energy Coordination Office**[110]
  - Sector: Distribution and Transmission, RE
  - Agency: Ministry of Water, Irrigation and Energy
  - Financed by: BMZ
  - Duration: 2010-2017
  - Description: The project aims to: (i) develop and support the wider use of small-scale solar and hydropower facilities and energy-efficient stoves; (ii) improve access to modern energy supplies by developing the market for renewable energies, and the promotion of the private sector and the local economy in rural areas; and (iii) provide advice to the Ethiopian Government on policy measures, strategies, laws and programmes for the energy sector, and encourage civil society and private sector participation in the discussion of energy.
- **Energy Access Project - Additional Financing**[111]
  - Sector: Distribution and Transmission, Geothermal
  - Agency: EEPCO, Ministry of Mines and Energy
  - Financed by: IDA, Government of Japan, OPEC Fund
  - Budget: US$ 245 million
  - Start Date: 2010
  - Description: The objectives of the Additional Financing for Energy Access Project were to: (i) expand access to electricity and for improvement of the quality and adequacy of the electricity supply; (ii) reduce environmental degradation, and improve the supply and efficient use of energy; (iii) reduce the barrier to the wide spread use of RE technologies; and (iv) provide technical support for the institutional and capacity building of key sector agencies, and for regulatory, fiscal and institutional reforms in the mining sector to attract private investment. Specific elements were: upgrading the distribution network and associated substations in 7 cities; electrifying about 50 new villages and connecting more than 70,000 consumers in those villages; evaluating and appraising the geothermal resource

[109] http://www.worldbank.org/projects/P119893/electricity-network-reinforcement-expansion-project-enrep?lang=en
[110] http://www.giz.de/en/worldwide/18899.html
[111] http://www.worldbank.org/projects/P120172/additional-financing-energy-access-project?lang=en

base, and upgrading the EEPCo power sector master plan, and strengthening the planning and procurement capacity of EEPCo.

- **Energy Access Project**[112]
  - Sector: Distribution and Transmission, Biomass, RE
  - Agency: Ethiopia Rural Energy Development and Promotion Center (EREDPC), EEPCo, Ethiopian Electric Agency
  - Financed by: EIB, IDA, Global Environment – Associated IBRD Fund
  - Budget: US$ 199.12 million
  - Duration: 2002-2013
  - Description: The project will help establish a sustainable program for expanding the population's access to electricity, and improve the quality of electricity supply. The project supports institutional and capacity building through the preparation of a long-term power sector strategy of a rural electrification master plan and specific studies, to build private sector investments. This will include biomass energy. Capacity building for enterprises investing in small-scale RE investments, and, for key agencies, will be supported, as will regulatory, fiscal, and institutional reforms in the mining sector. The urban distribution system will be expanded and rehabilitated and studies and feasibility reports will be financed on reinforcing telecommunications and energy management systems. In rural areas, least-cost RE options will be identified, including solar PV systems and the project will also finance the Environmental Management Plan, which includes training and advisory services.
- **Ethiopia Electricity Access Rural Expansion Project, Phase II - GPOBA**[113]
  - Sector: Distribution and Transmission
  - Agency: EEPCo, Government of Ethiopia
  - Financed by: GPOBA
  - Budget: US$ 7 million
  - Duration: 2008-2013
  - Description: The Second Phase of the Electricity Access Rural Expansion Project increases access to electricity in rural towns and villages with grid access, by assisting EEPCo in its connection fee-financing program, extending loan tenures of five years to poor household customers.
- **Electricity Access (Rural) Expansion Project Phase II**[114]
  - Sector: Distribution and Transmission
  - Agency: EEPCo, Government of Ethiopia
  - Financed by: IDA
  - Budget: US$ 160 million
  - Duration: 2007-2014
  - Description: The development objective is to establish a sustainable program for expanding access to electricity in rural communities. The extension enables EEPCo to complete the ongoing works and the pending International Competitive Bids that are in the pipeline, and support EEPCo's capacity strengthening for new electricity generation and transmission project development

[112] http://www.worldbank.org/projects/P049395/energy-access-project?lang=en

[113] http://www.worldbank.org/projects/P105651/ethiopia-electricity-access-rural-expansion-project-phase-ii-gpoba?lang=en

[114] http://www.worldbank.org/projects/P101556/electricity-access-rural-expansion-project-phase-ii?lang=en

- **Ethiopia/Nile Basin Initiative: Ethiopia-Sudan Interconnector**[115]
  - Sector: Distribution and Transmission
  - Agency: EEPCo, Government of Ethiopia
  - Financed by: IDA and others not specified
  - Budget: US$ 70.95 million
  - Duration: 2007-2013
  - Description: The project promotes Ethiopia's power export revenue generation capacity through the development of regional trade opportunities in the context of the Nile Basin Initiative regional effort. The project has two components: (a) construction of a transmission interconnection between the Ethiopian towns of Bahir-Dar and Metema at the Ethiopia/Sudan border, including substation expansion and rehabilitation; and (b) strengthening EEPCo's institutional capacity to promote and implement regional power integration.
- **EnDev 2 Ethiopia**[116]
  - Sector: Solar, Hydro, Improved Cookstoves
  - Agency: Ministry of Water and Energy
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev provides financial resources to cover parts of the investment costs of pico and micro-hydropower plants for household electrification, and promotes and finances the hardware and installation of Solar PV systems at rural health centers. Improved cookstove dissemination is supported through raising awareness, marketing, and establishing a network of stove producers. EnDev is also promoting a Feed-in Tariff law, training technicians on repairs, is supporting firewood planting, and facilitates fast market penetration by providing 20% stove price subsidies for the first 100,000 stoves sold.
- **Biofuel blend mandate: E5**[117]10

FIJI

- **Rural Electrification Policy (amended in 2010)**[118]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy, Environmental Protection Agency
  - Description: The Fiji Rural Electrification Policy 1993 has been used by the Fiji Department of Energy in the implementation of rural electrification projects, which includes diesel schemes for villages, micro hydro projects, house wiring, biofuel projects, solar home systems and grid extension. In 2010, the government reduced the contribution from communities to 5% and this has increased the number of applicants. The Fiji Department of Energy will be reviewing the policy in 2014.

[115] http://www.worldbank.org/projects/P074011/ethiopianile-basin-initiative-ethiopia-sudan-interconnector?lang=en&tab=overview
[116] http://endev.info/content/Ethiopia
[117] REN21. *Renewables 2013 – Global Status Report*. 2013
[118] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

GHANA

- **EnDev 2 Ghana**[119]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy, Environmental Protection Agency
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2014
  - Description: EnDev Ghana is fostering the creation of light industrial zones with adequate energy for productive use in selected district capitals, facilitates the planning process for zone development, and facilitates the installation of electricity distribution networks by co-financing hardware such as transformers and low voltage lines. Thus far, 550 small and medium-sized enterprises have moved to seven zones, including about 2,000 employees.
- **Renewable Energy Services Programme (RESPRO)**[120]
  - Sector: Solar
  - Agency: Ministry of Energy
  - Financed by: Ministry of Energy, UNDP, GEF
  - Start Date: 1999
  - Description: The programme's goal is to create a non-profit trust to manage and extend solar PV services to needy communities as an integral part of the Ministry's rural electrification programme. RESPRO took charge of the design and specification of the PV components, installation and/or supervision of installation of systems and instructions to users in their operation. The project oversaw the installation and dissemination of PV operation instructions to the end-users, and provided maintenance and replacement parts for the PV systems. An operations centre was also incorporated as the principal staging and service centre to meet project implementation and operational requirements. RESPRO has supported the governments rural electrification programme by providing solar home appliances to over 2000 households including provision of solar streetlight, solar powered water pumps, and refrigeration for clinics as well school lighting systems.
- **Ghana Energy Development and Access Project (GEDAP)**[121]
  - Sector: Distribution and Transmission
  - Agency: Electricity Company of Ghana (ECG), Government of Ghana
  - Financed by: Africa Catalytic Growth Fund, AfDB, GEF, IDA, IBRD, SDC, Government of Ghana
  - Budget: US$ 210.55 million
  - Duration: 2007-2015
  - Agency: Ministry of Energy
  - Description: The project's development objective is to improve the operational efficiency of the electricity distribution system and increase the population's access to electricity.

[119] http://endev.info/content/Ghana

[120] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

[121] http://www.worldbank.org/projects/P074191/ghana-energy-development-access-project?lang=en&tab=overview

- **Ghana Energy Development and Access Project (GEDAP) - Additional Financing**[122]
  - Sector: Distribution and Transmission
  - Agency: ECG, Government of Ghana
  - Financed by: IDA, Government of Ghana
  - Budget: US$ 77.0 million
  - Start Date: 2010
  - Description: GEDAP improves the operational efficiency of the electricity distribution system and increases the population's access to electricity, and helps transition Ghana to a low-carbon economy through the reduction of greenhouse gas emissions. The financing scales up the scope and impact of the electricity distribution network reinforcement activities implemented by ECG under the on-going GEDAP. These activities will help ECG to further reduce technical losses, improve supply quality to clients, connect more customers, and increase revenue collection in the project areas.
- **Solar PV Systems to Increase Access to Electricity Services in Ghana**[123]
  - Sector: Solar
  - Agency: Ministry of Energy
  - Financed by: GPOBA
  - Budget: US$ 4.5 million
  - Start Date: 2008
  - Description: The project aims to provide people in rural areas with access to electricity services by subsidizing off-grid solar PV installations, notably solar lanterns and solar home systems. The "dealer model" used to implement this project promotes free market entry and competition between rival firms and seeks to increase the number of solar home system dealers operating in Ghana.
- **Self-Help Electrification Project (SHEP)**[124]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy
  - Start Date: 2011
  - Description: This project is a Government of Ghana initiative with support from ECOWAS Bank for Investment and Development. It includes the provision of low voltage electricity poles for 110 communities that must be within 20 km of a town source of electricity and wire > 30% of houses in the community.

GUATEMALA

- **Biofuel blend mandate: E5**[125]

GUINEA

- **Electricity Sector Efficiency Enhancement Project - Additional Financing**[126]
  - Sector: EE, Hydro, Distribution and Transmission
  - Agency: Electricite de Guinee, Government of Guinea

[122] http://www.worldbank.org/projects/P120016/addtional-financing-ghana-energy-development-access-project-gedap?lang=en
[123] http://www.oba-data.org/index.cfm?page=projects&pa=3&prj=428
[124] allafrica.com/stories/201112090216.html
[125] REN21. *Renewables 2013 – Global Status Report*. 2013
[126] http://www.worldbank.org/projects/P129148/additional-financing-electricity-sector-efficiency-enhancement-project?lang=en

- Financed by: IDA
- Budget: US$ 18.3 million
- Start Date: 2012
- Description: The project aims to improve the technical, commercial, and operational efficiency of its power sector through investment support and capacity building. The project has three components: (i) improve distribution efficiency and deploy innovative technology solutions, such as pre-payment meters, to improve service delivery to reduce losses in the Kaloum area of Conakry; (ii) rehabilitate critical generation facilities by financing equipment, spare parts, and technical assistance for operations, and to improve the reliability and efficiency of the existing Garafiri hydroelectric plant and the Tombo thermal power plant; and (iii) strengthen institutions through technical assistance to help improve commercial management of the power utility and to implement an EE program for the utility's large customers. The project also supports a pilot program to introduce EE lamps and capacity building of the Ministry in charge of energy to process public-private partnership projects

- **Decentralized Rural Electrification Project**[127]
  - Sector: RE
  - Agency: Bureau d'Electrification Rurale Décentralisée (BERD)
  - Financed By: GEF, Government of Guinea
  - Project Cost: US$ 12 million
  - Duration: 2002-2013
  - Description: The project's objective is to test institutional, financial and delivery mechanisms to promote better access to electricity in rural and peri-urban areas by: (i) providing technical assistance to BERD in monitoring, evaluation, and dissemination of activities; (ii) creating a fund for long-term credit and up-front costs to cover rural electrification systems. The funds cover operational costs and provision of loans and grants to promoters of RE; and (iii) supporting project management, strengthening the operational capacity of BERD, and assisting with coordination, supervision, and monitoring. Private sector actors were assisted in identifying and providing electricity delivery services in rural areas and training was provided in equipment installation and maintenance.

HAITI

- **Rebuilding Energy Infrastructure and Access**[128]
  - Sector: Distribution and Transmission
  - Agency: Government of Haïti, Ministère des Travaux Publics, Transports et Communications (MTPTC), L'Électricité d'Haïti (EDH)
  - Financed by: IDA
  - Budget: US$ 90 million
  - Duration: 2012-2017
  - Description: The project strengthens energy policy and planning capacity, improves the sustainability and resilience of the electricity sector and restores and expands access to reliable electricity services, and provides financial assistance in case of an energy sector emergency. There are three components: (i) strengthening energy sector institutions and improving energy access; (ii) enhancing EDH's performance and rehabilitating and expanding infrastructure, and (iii) improving risk and emergency response capability to respond to

[127] http://www.worldbank.org/projects/P042055/decentralized-rural-electrification-project?lang=en&tab=overview
[128] http://www.worldbank.org/projects/P127203/rebuilding-energy-infrastructure-access?lang=en

energy sector emergencies. The project expands the power transmission network and grid densification.

HONDURAS

- **EnDev 2 Honduras**[129]
  - Sector: Distribution and Transmission, Hydro, Solar, Improved Cookstoves
  - Agency: Secretaria Tecnica de Planificación y Cooperacion Internacional, Instituto de Conservación y Desarrollo Forestal
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2010-2014
  - Description: EnDev Honduras provides training to local NGOs and cooperatives on how to construct improved cookstoves and subsidizes a portion of the stove prices. The project also supports locally produced micro-hydropower plants with funding and technical support to a local NGO who provides system operations and maintenance and financial management. EnDev finances a portion of national grid extension costs and promotes SHS for household and social use, and for productive use (e.g., cacao and coffee drying). Two NGOs that are trained by EnDev in cookstove construction conduct capacity building, awareness raising, installations, and technical training.
- **Honduras Rural Electrification Project**[130]
  - Sector: RE, Hydropower
  - Agency: World Bank, Fondo Hondureño de Inversión Social
  - Financed By: IDA, IBRD, GEF, EC, Government of Honduras
  - Sector: RE, Mini-Grids, Solar
  - Project Cost: US$ 21.09 million
  - Duration: 2005-2013
  - Description: The objectives of the project are: (i) to improve access, quality and sustainability of infrastructure services (roads, water and sanitation, and electricity) for the rural poor in Honduras; and (ii) to develop capacities and enabling environment for locally-driven service provision and planning.
- **Rural Infrastructure Project**[131]
  - Sector: Distribution and Transmission, Solar
  - Agency: El Fondo Hondureño de Inversión Social
  - Financed by: IDA, Government of Honduras
  - Budget: US$ 54.80 million
  - Duration: 2005-2016
  - Description: The project seeks to improve the access, quality and sustainability of infrastructure services (roads, water, sanitation, and electricity) for the rural poor; develop capacities and an enabling environment for locally-driven infrastructure service provision and planning, and improve the capacity to respond promptly and effectively to an eligible emergency. The project includes participatory local planning for integrated infrastructure service delivery, infrastructure service, micro-finance services for solar home systems, local

[129] http://endev.info/content/Honduras
[130] http://www.worldbank.org/projects/P090113/rural-electrification-project?lang=en
[131] http://www.worldbank.org/projects/P086775/hn-rural-infrastructure-project?lang=en

capacity building and policy development technical assistance, and development of an immediate response mechanism.

HUNGARY

- **Green Investment Scheme (GIS or ZBR)**[132]
  - Sector: RE, EE
  - Start Date: 2009
  - Agency: EMI (a non-profit limited liability company)
  - Description: Provides investment grants to reduce residential energy consumption. Eligible activities are EE improvements in buildings (e.g., heat insulation, door and window replacement, building engineering solutions), equipment upgrades, and RE utilization. There are 2 sub-programs = Climate-Friendly Home Panel Sub-Programme, EE Sub-Programme.
- **Excise Tax Exemption for Biofuels**[133]
  - Sector: Biofuel
  - Start Date: 2007
  - Agency: Ministry of Economy and Transport
  - Description: Exemption from excise tax for biofuels up to 4.4% volume. Extra tax burden, if fuel distribution companies don't comply.

INDIA

- **Indo-German Energy Programme (IGEN): Renewable Energy Supply for Rural Areas (RESRA)**[134]
  - Sector: RE, Biogas, Biomass
  - Agency: Ministry of New and Renewable Energy, Government of India
  - Financed by: GIZ
  - Duration: 2010-2013
  - Description: RESRA takes the diversity of India's rural landscape into account by undertaking cluster-based pilot interventions in 26 selected villages across two distinct regions. It focuses on three different RE technologies: Straight Vegetable Oil-based electricity generation, Napier Grass-based dry anaerobic digestion, and De Oiled Cake (non-edible)-based wet anaerobic digestion. The community is integrated into the project through the formation of cluster level Village Energy Committees, village level sub-Committees and Village Energy Enterprises. Promoting entrepreneurship and dovetailing of government schemes such as Integrated Child Development Schemes are the key approaches aimed at increasing the productive application of the energy/ electricity generated in the project. The project, thus, follows a sustainable and integrated concept and covers environmental, economic, and social aspects. RESRA 's major achievement is the allocation of land for the power sub-station by the Gram Sabhas in villages; the construction of sheds for feedstock storage, and the procurement of electrical and mechanical equipment and construction of biogas plants. RESR established an office in Korba and electricity generation was started in villages to support the local entrepreneurs. In Kolwan, dedicated plantations of Napier grass were established to provide a sustainable source of biomass.

[132] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[133] Ibid.
[134] http://jijeevisha.org/resra.html#

- **Rajasthan Solar Policy**[135]
  - Sector: Solar
  - Start Date: 2011
  - Agency: National Load Dispatch Centre
  - Description: Solar power producers are exempted from electricity duty on the energy they consume and can apply for incentives; solar thermal energy producers are granted access to the water quantity required for generation by local authorities and solar power will be guaranteed grid access. Creates the RE infrastructure Development Fund to finance transmission network extension, road construction, and ease the integration of RE generation. Creates the Solar Research Center of excellence.
- **Renewable Energy Certificates System**[136]
  - Sector: RE
  - Start Date: 2011
  - Agency: National Load Dispatch Centre
  - Description: RE certificates to be used by states and utilities to meet renewable portfolio obligation targets. Eligible RE projects must have a minimum installed capacity of 250 kW, be commissioned pre-April 2010, and are not eligible for a Feed-in-Tariff. India Energy Exchange conducts audits monthly.
- **Indian Solar Mission**[137]
  - Sector: Solar
  - Start Date: 2010 (through 2022)
  - Agency: Ministry of New and Renewable Energy
  - Description: Power Purchase Tariff fixed by the Central Regulatory Commission and revised annually. Solar electricity can be purchased by utilities as RECs. Reduce customs levy on import of machinery, instruments, equipment, and appliances for solar PV and solar thermal plants.
- **Solar Power Generation Based Incentive**[138]
  - Sector: Solar
  - Start Date: 2008
  - Agency: Ministry of New and Renewable Energy
  - Description: Subsidy for solar power plants, 12 rupees/kWh for solar PV, 10 rupees/kWh for solar thermal power fed to the grid, maximum 5 MW per developer and max 10 MW from each Indian State.
- **Generation based incentives for wind power**[139]
  - Sector: Wind
  - Start Date: 2008
  - Agency: Renewable Energy Development Agency
  - Description: To promote investment in new and large wind IPPs > 5 MW grid-connected. INR 0.5/kWh payment for 10 years, funded by the MNRE and disbursed through the Agency.

[135] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[136] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[137] Ibid.
[138] Ibid.
[139] Ibid.

- **Ethanol Blended Petrol (EBP) Programme**[140]
  - Sector: Biofuel
  - Start Date: 2012
  - Agency: Cabinet Committee on Economic Affairs
  - Description: Mandatory for oil marketing companies - Bharat Petroleum, Hindustan Petroleum and Indian Oil Corporation - to blend 5% ethanol with petrol. In 13 of 19 States. Import of ethanol if OMCs face any shortage of the biofuel in the domestic market for blending purpose
- **Promotion of Biomass Based Heat Generation Systems in India**[141]
  - Sector: Biomass
  - Agency: Thermax Sustainable Energy Solutions Limited, RWE Power Aktiengesellschaft
  - Financed By: The carbon buyer is the United Kingdom, TSESL is the Coordinating Management Entity.
  - Duration: 2012-2022
  - Description: The project is a CDM Programme of Activities registered by UNFCCC that involves replacing fossil fuel-fired equipment with biomass fired thermal energy generation or in new projects.
- **Biofuel blend mandate: B2.5**[142]
- **Feed-in-Tariff**[143]
  - Start Date: 2009 (amended 2010)
  - Agency: Central Electricity Regulatory Commission
  - Description: Tariffs are noted in the table below. Tariff periods are 13 years for most RE technologies, 35 years for small hydro < 5 MW, and 25 years for Solar PV and Solar Thermal.

Feed-in-Tariff[144]	
Wind	INR 5.33/kWh for 200-250 W/m2, INR 4.63/kWh for 250-300 W/m2, INR 3.95/kWh for 300-400 W/m2, INR 3.55/kWh for > 400 W/m2
Solar PV	INR 17.91/kWh for PPA signed before March 31, 2011, INR for PPA signed after March 31, 2011
Solar Thermal	INR 15.31/kWh

INDONESIA

- **EnDev 2 Indonesia**[145]
  - Sector: Hydro, Solar, Biogas

[140] articles.economictimes.indiatimes.com/2012-11-23/news/35300815_1_cent-ethanol-crore-litres-ebp-programme
[141] cdm.unfccc.int/ProgrammeOfActivities/cpa_db/LRG8QU1F9XHWZANKPTODEJ6402VY35/view
[142] REN21. *Renewables 2013 – Global Status Report*. 2013
[143] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[144] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[145] http://endev.info/content/Indonesia

- Agency: Ministry of Energy, Ministry of Home Affairs, World Bank
- Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
- Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
- Duration: 2009-2018
- Description: Building on the mini-hydropower plant progress made during the first phase of EnDev, the second phase will implement 136 mini-hydropower plant schemes. EnDev supports community preparation and participation, facilitates suitable institutional and legal frameworks, provides training on operations and maintenance, management procedures, tariff setting, and customer relations.

- **Mini Hydro Power Project for Capacity Development (MHPP^2)[146] [BMZ, 2009-2013]**
  - Sector: Hydro
  - Agency: Ministry of Energy and Mineral, Directorate General for New and Renewable Energy and Energy Conservation
  - Financed by: BMZ, Netherlands Directorate-General for International Cooperation (DGIS)
  - Budget: Data not available
  - Duration: 2009-2013
  - Description: The project is a part of the German-Dutch Energizing Development initiative that works to consolidate and institutionalize the micro-hydropower sector. The project promotes the dissemination of, and exchange of know-how about micro-hydropower, as well as the sharing of best practices in the building of sustainable facilities. In addition to this, it also advises the Ministry on rural electrification, provides capacity building, disseminates information, monitoring and evaluation, and establishes pilot projects.
- **Renewable Energy Support Programme for ASEAN (ASEAN-RESP)[147]**
  - Sector: RE
  - Agency: GIZ, ASEAN Centre for Energy
  - Financed by: GIZ, ASEAN Centre for Energy
  - Duration: 2009-2013
  - Description: The project follows a threefold approach and concentrates its activities on the following main areas: networking within the ASEAN RE sector, support and advice on RE policy and framework conditions, and capacity building and training for practitioners in the sector. By identifying and promoting best practices, ASEAN-RESP contributes to enhanced regional cooperation and integration. The setup and steering of promotion networks and the development of dissemination models for successful examples of RE use complement the project strategy. Particular attention is attributed to the inclusion of the private sector since, for the development of a sustainable RE sector, the experience and know-how of private companies is a core success factor.
- **Indonesia Power Transmission Development Project[148]**
  - Sector: Distribution and Transmission
  - Agency: PT PLN PERSERO, Government of Indonesia
  - Financed by: IBRD, Government of Indonesia
  - Budget: US$ 254.21 million
  - Duration: 2010-2015

[146] http://www.giz.de/en/worldwide/16641.html
[147] http://resp.aseanenergy.org
[148] http://www.worldbank.org/projects/P117323/indonesia-power-transmission-development-project?lang=en

- Description: The project assists the Government of Indonesia to meet growing electricity demand and improve the reliability of electricity supply in Java and south-central Sumatra by strengthening the dower transmission system. The project has 2 components: Java-Bali transmission substation expansion and construction, the South-Central Sumatra transmission substation upgrading and expansion.

- **2013 Power purchase from solar photovoltaic plants (Solar auction programme)**[149]
  - Sector: Solar
  - Start Date: 2013, Ministry of Energy and Mineral Resources
  - Description: Sets maximum price benchmark for power purchases from solar installations at US$ 0.25/kWh, or up to US$ 0.30/kWh for high local content.
- **2009 Biofuel Decree (Biofuel consumption mandates)**[150]
  - Sector: Biofuel
  - Start Date: 2009
  - Agency: Ministry of Energy and Mineral Resources
  - Description: Ministerial Regulation No. 32/2008. Biodiesel levels in the transportation sector ranges from 1 to 20% from 2009 to 2025. Bioethanol levels in the transportation sector from 1 to 15% from 2009 to 2025 for the public sector, and 5 to 15% for the non-public sector.
- **2011 Tax incentive for geothermal exploration**[151]
  - Sector: Geothermal
  - Start Date: 2011
  - Agency: Ministry of Energy and Mineral Resources
  - Description: Goods imported for upstream oil and gas activities or geothermal explorations are exempt from VAT.
- **Financial Support Policy for Geothermal**[152]
  - Sector: Geothermal
  - Start Date: 2008
  - Agency: Ministry of Finance
  - Description: Government Regulation 62/2008. 30% net tax deduction on total investment in geothermal over 6 years.
- **Feed-in-Tariff (Electricity Purchase from Small and Medium-Scale RE)**[153]
  - Start Date: 2012
  - Agency: Ministry of Energy and Mineral Resources
  - Description: Tariffs are indicated in the table below. Tariffs are applicable for < 10 MW.

Feed-in-Tariff[154][12]			
Biomass	Rp 975/kWh medium voltage, Rp 1,325/kWh	Landfill Gas	Rp 850/kWh medium voltage, Rp

[149] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[150] Ibid.
[151] Ibid.
[152] Ibid.
[153] Ibid.
[154] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

Feed-in-Tariff[154][12]			
	low voltage		1,198/kWh low voltage
Hydro	Rp 656/kWh medium voltage, Rp 1,004/kWh low voltage	Geothermal	US$ 10-17/kWh high voltage, US$ 11.5-18.5/kWh medium voltage
Municipal Solid Waste	Rp 1,050/kWh medium voltage, Rp 1,398/kWh low voltage		

IRAN

- **Feed-in-Tariff[155]**
  - Start Date: 2009
  - Agency: Ministry of Energy – RE Organization of Iran (SUNA)
  - Description: The base electricity purchase rate = 1863.2 rials/kWh for < 10 MW, 1792.9 rials/kWh for > 10 MW.

JAMAICA

- **Biofuel blend mandate: E10[156]**

JORDAN

- **Renewable Energy and Energy Efficiency (Law No. 13)[157]**
  - Sector: RE, EE
  - Start Date: 2010 (amended 2012)
  - Agency: Ministry of Energy and Mineral Resources
  - Description: All RE and energy conservation systems and equipment and its production inputs will be exempted from customs duties and sales tax. RE and EE Fund will be established to exploit RE sources. Sets up the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF). National and foreign private companies will be allowed to apply for subsidies when setting up RE generation projects, interest rate subsidies on commercial loans, a Public Equity Fund to support private investment, a RE guarantee facility for RE/EE, and research and technical cooperation grants.
- **2012 Reference Pricelist Record for the Calculation of Electrical Energy Purchase Prices from Renewable Energy Sources[158]**
  - Start Date: 2012
  - Agency: Electricity Regulatory Commission
  - Description: Ceiling tariffs are indicated in the table below. Tariffs are increased 15% if sourced fully in Jordan.

[155] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[156] REN21. *Renewables 2013 – Global Status Report*. 2013
[157] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[158] Ibid.

Feed-in-Tariff[159][12]			
Wind	85 fils/kWh	Biomass	90 fils/kWh
Solar Thermal	135 fils/kWh	Biogas-based Electricity	60 fils/kWh
Solar PV	120 fils/kWh		

KAZAKHSTAN

- **Promotion of Renewable Energy Sources in Distant Non-Electrified Settlements of Kyzylorda Oblast on the Example of Moynak Village**[160]
  - Sector: Solar
  - Agency: Youth Public Association "Korkyt eli-Karmakshy
  - Financed by: UNDP-GEF Small Grants Programme
  - Budget: US$ 47,290
  - Duration: 2012-2014
  - Description: The project objective is to demonstrate the solar system efficiency as power-supply sources for remote districts and settlements of Kizilorda area on the example of Moinak settlement and for further replication by local communities and governmental authorities on other areas.
- **Use of Renewable Energy Sources for Energy and Hot Water Supply to the International School Center of Berkuchi "Kusbegi" and Heat Supply to the Elementary School "Kairakty"**[161]
  - Sector: EE, Solar, Wind
  - Agency: PA Association of Farms of Shetsky Area of Karaganda Oblast
  - Financed by: UNDP-GEF Small Grants Programme
  - Budget: US$ 79,897
  - Start Date: 2012
  - Description: The project aims to demonstrate the solar and wind energy use possibilities as well as the implementation of EE technologies based on solar and wind pilots in the Berkutchi School and an EE furnace for heating in the Kairakty Elementary School. The project will promote project experience on the local and national levels.

KENYA

- **EnDev 2 Kenya**[162]
  - Sector: Improved Cookstoves, Solar
  - Agency: Ministry of Energy, Ministry of Agriculture, Ministry of Education
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2015

[159] Ibid.
[160] https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=17744&Itemid=205
[161] https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=18262&Itemid=205
[162] http://endev.info/content/Kenya

- Description: EnDev Kenya is promoting improved cookstoves in the Transmara, western and central districts and stove adoption rates have thus far risen from 5 to 38%. With EnDev support, the Improved Stoves Association of Kenya was launched with more than 300 stove dealers. By June 2010, EnDev helped create about 2,800 self-sustaining businesses.

- **Electricity Expansion Project**[163]
  - Sector: Distribution and Transmission, Geothermal
  - Agency: Kenya Power and Lighting Company, Ltd, Ministry of Energy
  - Financed by: EIB, AFD, KfW, JICA, GPOBA, IDA, Government of Kenya
  - Budget: US$ 1,390.65 million
  - Duration: 2010-2016
  - Description: The Electricity Expansion Project increases the capacity, efficiency, and quality of electricity supply, and expands access to electricity in urban, peri-urban, and rural areas. There are 4 components: (i) finance the construction of 280 MW of geothermal generation capacity, a new power station, and connections of steam wells to 2 power stations, and the finance consulting services for design, supervision, and the installation of construction infrastructure and facilities required to operate the plants; (ii) construction of 132 kV transmission lines as well as substations; (iii) expand and upgrade the distribution network to connect an additional 300,000 customers; and (iv) institutional development and operational support.
- **Energy Sector Recovery Project - Additional Financing**[164]
  - Sector: Distribution and Transmission, Geothermal
  - Agency: Kenya Power and Lighting Corp., Ministry of Energy, KenGen, Government of Kenya
  - Financed by: IDA, Government of Kenya
  - Budget: US$ 81 million
  - Start Date: 2009-2014
  - Description: The project meets a financing gap associated with completion of the original project activities, and finances expanded project activities that scale-up the project's distribution extension program to enhance the project's development impact. Components of the project include: technical assistance and training to strengthen the sector entities' capacity to design and implement the Government's expanded electrification program; feasibility and design studies and engineering services for the expanded electrification program, which would connect about 1 million new customers over a 5-year period. The project also helps cover international price escalation for the Olkaria II 3rd geothermal generating unit and scaling-up distribution expansion works.
- **2012 Solar Water Heating Regulations.**[165]
  - Sector: Solar
  - Start Date: 2012
  - Agency: Energy Regulatory Commission
  - Description: For premises with > 100 L hot water requirements have 5 years to install SHS that cover > 60% hot water demand. New premises need to install SHS.
- **Energy Act 12 of 2006 … IEA database**[166]

[163] http://www.worldbank.org/projects/P103037/electricity-expansion?lang=en

[164] http://www.worldbank.org/projects/P110173/kenya-energy-sector-recovery-project-additional-financing?lang=en

[165] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

- Sector: RE
- Start Date: 2006
- Agency: Ministry of Energy
- Description: Up to 4 MW RE systems can produce energy w/o a license, income tax holidays for relevant generation and transmission projects, customs and import duty exemption for RE equipment.

- **Feed-in-Tariff**[167]
  - Start Date: 2010
  - Agency: Ministry of Energy
  - Description: Tariffs are presented in the table below. Tariff time periods are 20 years.

Feed-in-Tariff[168]			
Geothermal	< 70 MW, US$ 0.05/kWh	Hydro	0.5-0.99 MW = US$ 0.10-0.12/kWh, 1-5 MW = US$ 0.08-0.10/kWh, 5.1-10 MW = US$ 0.06-0.08/ kWh
Wind	0.5-100 MW, US$ 0.12/kWh	Biogas	0.5-40 MW, US$ 0.06-0.08/kWh
Biomass	0.5 -100MW, US$ 0.06-0.08/kWh	Solar	0.5-10 MW, US$ 0.1-0.2/kWh

KYRGYZSTAN

- **Second Village Investment Project**[169]
  - Sector: Distribution and Transmission
  - Agency: Community Development and Investment Agency
  - Financed by: IDA, DFID, Government of Kyrgyzstan
  - Budget: US$ 35.7 million
  - Duration: 2006-2014
  - Description: Assists the Government of Kyrgyzstan with: (a) improving governance and capacity at the local level; (b) strengthening the provision of, and access to, essential infrastructure services; and (c) supporting private group-owned small-scale enterprise development. The project has reached each of the 475 aiyl okrugs (local municipalities) and has gained strong recognition amongst the rural population. More than 70,900 local government officials and community members have been trained in principles of budgeting and planning, and 1,698 villages have gained access to improved social and economic infrastructure. Approximately 2.3 million people have benefited directly from the completion of about 6000 micro-projects. The second project or extension is necessary to enable the implementing agency to continue with structural remediation works for technically complex infrastructure built before 2009 in 2 projects.

[166] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[167] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[168] Ibid.
[169] http://www.worldbank.org/projects/P098949/second-village-investment-project?lang=en

LAO PDR

- **Lao Rural Electrification Project (REP) Phase II**[170]
  - Sector: EE, RE, Distribution and Transmission, Solar, Hydro
  - Agency: Electricite du Laos (EdL), Ministry of Energy and Mines, World Bank
  - Financed By: GEF, NORAD, AusAID, IDA, Government of Laos PDR
  - Project Cost: US$ 10.45 million
  - Duration: 2011-2015
  - Description: Increase the efficiency of the energy supply by EdL and consumption by consumers, and incorporate RE in the Government rural electrification program. Under REP Phase I, a DSM and EE unit was created within EdL, an action plan was prepared for DSM and EE, and an EE program was piloted for government buildings.
- **Rural Electrification Phase II Project (Additional Program Loan)**[171]
  - Sector: Distribution and Transmission, EE
  - Agency: EdL, Ministry of Energy and Mines (MEM)
  - Financed by: IDA, NORAD, Government of Lao PDR, Energy Sector Management Assistance Program, Local Communities
  - Budget: US$ 34.82 million
  - Duration: 2010-2015
  - Description: The objectives are to increase access to electricity of rural households in villages of project provinces and further improve the financial performance of EdL. The EdL component will comprise grid extension, loss reduction, information technology system and financial management, safeguards capacity building, and demand-side management and energy efficiency program. The MEM component will include off-grid investment, institutional strengthening, alternative rural electrification delivery models, rural electrification master plan and database, and MEM organizational strengthening.

LATVIA

- **Reduction of Excise Duty for Biofuel … IEA database**[172]
  - Sector: Biofuel
  - Start Date: 2007
  - Agency: Ministry of Finance
  - Description: Reduce the excise duty for fuel with 70-85% ethyl alcohol by volume (E85), diesel with > 30% biodiesel from rapeseed oil (B30), or 100% rapeseed oil (B100).
- **Electricity Tax Law**[173]
  - Sector: RE
  - Start Date: 2007
  - Agency: Ministry of Finance
  - Description: Electricity exempt from taxes if obtained from RE, hydropower, or cogeneration plants complying with certain efficiency criteria.

[170] www.worldbank.org/projects/P117177/gef-project-lao-rural-electrification-phase-ii-project?lang=en
[171] http://www.worldbank.org/projects/P110978/rural-electrification-phase-ii-project-rural-electrification-apl-program?lang=en
[172] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[173] Ibid.

LIBERIA

- **EnDev 2 Liberia**[174]
  - Sector: Improved Cookstoves, Solar
  - Agency: Ministry of Lands, Mines and Energy
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2012-2015
  - Description: Initially charcoal stoves are imported and sold at the local market, and a prototype of a low cost improved charcoal stove, specifically adjusted to the local cooking condition, has been designed, tested and further developed. Initial testing of these stoves in households indicates that charcoal can be saved by at least 50% when using ICS. Local craftsmen are trained in producing the stove type locally, and awareness is raised among the households about advantages of modern stoves. In the area of pico PV products, solar retailers participating are the Lighting Africa program, the GIZ "Development Oriented Emergency and Transitional Aid" program with its local partner organisations as well as the SOS Children's Village in Monrovia.
    Locally built solar cocoa bean dryers among farmer groups among a newly established farmer's cooperative. the installation of one pilot minigrid up to a size of 100 kW, based on hydropower or PV / diesel hybrid systems
- **Liberia Electricity System Enhancement Project (LESEP)**[175]
  - Sector: Distribution and Transmission, RE, Solar
  - Agency: Liberia Electricity Corporation, Government of Liberia
  - Financed by: USAID, IDA, NORAD, GPOBA
  - Budget: US$ 53.0 million
  - Duration: 2010-2014
  - Description: The project improves and increases access to electricity in Liberia in the following areas: (i) distribution network reinforcement and extension; (ii) enhancing options for power generation through the procurement of a thermal power plant of approximately 10MW; and (iii) providing modern RE services through a GEF financed lantern exchange program.
- **Liberia Electricity System Enhancement Project (LESEP) – Additional Financing**[176]
  - Sector: Solar, Distribution and Transmission, EE Lighting
  - Agency: Liberia Electricity Corporation, Liberia Rural and Renewable Energy Agency, Government of Liberia
  - Financed By: IBRD, IDA, GEF, JICA, NORAD
  - Project Cost: US$ 23.45 million
  - Start Date: 2012
  - Description: Key outputs include enhanced distribution services, including extension to encompass low-income households, procurement of a 10 MW thermal power plant, and establishing a solar lantern exchange program associated with "Lighting Africa" to seed the market and displace fossil fuels such as kerosene. Additional financing provides for a scale-up of the LESEP impacts.

[174] http://endev.info/content/Liberia
[175] http://www.worldbank.org/projects/P120660/liberia-electricity-system-enhancement-project-lesep?lang=en&tab=overview
[176] www.worldbank.org/projects/P129097/additional-financing-liberia-electricity-system-enhancement-project?lang=en&tab=overview

- **Liberia Electricity Access**[177]
  - Sector: Distribution and Transmission
  - Agency: Liberia Electricity Corporation
  - Financed by: GPOBA
  - Budget: US$ 30 million
  - Duration: 2011-2014
  - Description: The project aims to rehabilitate Monrovia's power supply and rapidly expand roll-out of the network to a significant share of the population, or about 16,806 low-income households, over a 5-year period. In 2007, the IFC signed an advisory mandate with the Government of Liberia to introduce private sector participation in the Liberian power sector. IFC has prepared a number of scenarios, including one for a 20-year concession model to rehabilitate power supplies in Monrovia as part of its advisory mandate. The GPOBA grant offsets part of the capital costs associated with building the transmission and distribution networks for Monrovia. The grant will also cover part of the overall subsidies required for the distribution/household connections components.
- **Lighting One Million Lives in Liberia**[178]
  - Agency: World Bank, Liberia Rural and Renewable Energy Agency (RREA)
  - Financed By: GEF Trust Fund, Government of Liberia
  - Sector: Solar, EE Lighting
  - Project Cost: US$ 5,504,540
  - Duration: 2012-2016
  - Description: Component 1 of the project supports private sector strengthening and market conditioning specific to supporting Lighting Liberia goals. Policy support will include working with the Government of Liberia to address tax and duty barriers to the importation of approved solar products, and work to implement a quality assurance program through the Bureau of Standards based on the technology standards established under the Lighting Africa program. Component 2 promotes the use of solar energy technologies for rural populations with micro-solar products like CFL and LED lanterns that have been qualified under the Lighting Africa program. Activities will catalyze the private sector to jump start the market, and possibly include incentivized exchange of solar for kerosene lamps and seeding the market with initial dissemination of 100,000 solar lanterns.
- **Liberia: SPWA-CC Installation of Multi-Purpose Mini-Hydro Infrastructure (for Energy and Irrigation)**[179]
  - Sector: Hydro
  - Agency: UNIDO, Liberia Electricity Corporation, Ministry of Lands, Mines and Energy, Environmental Protection Agency
  - Financed By: GEF, Government of Liberia, UNIDO, Winrock / USAID
  - Project Cost: US$ 5,812,334
  - Duration: 2012-2016
  - Description: The project establishes a 'run of the river' hydropower station with a capacity of 1MW and uses the process for learning by doing and building local capacity. Power will be distributed through the national grid or the local distribution grid, and will reach an estimated 30% of households in Suakoko town, 15% of which are in rural areas.

[177] http://www.gpoba.org/project/P110723
[178] www.thegef.org/gef/project_detail?projID=4336
[179] http://www.thegef.org/gef/sites/thegef.org/files/documents/document/3-8-12%20%20ID3944%20%20Council%20%20Letter.%20pdf.pdf

The project will also lay the foundation for a market environment for mini-hydro-based RE, formulate recommendations to strengthen the existing regulatory framework, and enable the Government to scale up and replicate the project's achievements.

LITHUANIA

- **Feed-in-Tariff**[180]
  - Start Date: 2013
  - Agency: Ministry of Energy, National Control Commission for Prices and Energy
  - Description: Based on the Law on Energy from Renewable Energy Sources (Law No. XI-1375, it grants feed-in tarriffs for a period of 12 years. Tariffs are presented in the table below.

Feed-in-Tariff[181]			
Solar integrated into buildings	< 10 kW to > 350 kW = LTL 0.52 to 0.61/kWh	Biomass (reconstructed)	< 10 kW to > 5000 kW = LTL 0.38 to 0.49/kWh
Solar not integrated into buildings	< 10 kW to > 350 kW = LTL 0.81-0.97/kWh	Wind**Error! Bookmark not defined.**	< 30 kW, 0.37 LTL/kWh
Biomass (new)	< 10 kW to > 5000 kW = LTL 0.38 to 0.49/kWh		

MALAWI

- **EnDev 2 Malawi**[182]
  - Sector: Improved Cookstoves
  - Agency: Ministry of Environment and Climate Change Management
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2012-2014
  - Description: EnDev Malawi's strategy is to enhance a financially sustainable market for improved cookstoves in urban and peri-urban areas by strengthening the supply and demand sides. Craftsmen receive training on producing the high efficiency cookstove called "Chitetezo Mbaula" and EnDev serves as an interface between predominantly rural, small-scale producers and urban, formal sales outlet chains, organizes transportation of stoves to urban areas, thereby creating a sustainable distribution system.
- **Biofuel blend mandate: E10**[183]

[180] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[181] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[182] http://endev.info/content/Malawi
[183] REN21. *Renewables 2013 – Global Status Report*. 2013

- **Development of a Micro Hydro to Generate Electrical Power at Tapang Pungga Longhouse in Sarawak**[184]
  - Sector: Hydro
  - Agency: Sarawak Dayak Graduates Association
  - Financed by: UNDP-GEF Small Grants Programme
  - Budget: US$ 51,501
  - Duration: 2012-2014
  - Description: This proposed 8.3 kW micro hydro project at Tapang Pungga Longhouse aims to: provide electrical power to the longhouse people, and demonstrate that typical longhouses in Sarawak can be benefited from small micro-hydro RE sources to reduce pollution from fuel consumption; raise awareness over green energy use among rural people, and increase night activities, especially educational ones. Expected activities include capacity building, material procurement, construction of weirs and powerhouses, installation of penstock and a turbine generator, electrical wiring, and commissioning. The local community will be engaged in all activities.
- **Green Technology Financing Scheme (GTFS)**[185]
  - Sector: RE, EE
  - Start Date: 2010
  - Agency: Ministry of Finance
  - Description: Preferential low-interest loans. The Government of Malaysia would invest MYR 1.5 billion, cover 2% of a loan interest rate, and provide a guarantee for 60% of the financing amount offered by banks. Covers RE, sustainable energy, and green technology.
- **Biofuel blend mandate: B5**[186]
- **2011 Renewable Energy Act Establishing Feed-in-Tariff System**[187]
  - Start Date: 2011
  - Agency: Ministry of Energy
  - Description: 21 year contract for Solar PV and Mini-Hydro and 16 years for Biomass and Biogas. Tariffs are presented in the table below.

Feed-in-Tariff[188]			
Biogas	<= 4 MW = 0.32 RM/kWh; 4-10 MW = 0.30 RM/kWh; 10-30 MW = 0.28 RM/kWh	Solid Biomass	<10 MW = 0.31 RM/kWh; 10-20 MW = 0.29 RM/kWh; 20-30 MW = 0.27 RM/kWh
Solar PV	<= 4 kWp = 1.23 RM/kWh; 4-24 kWp = 1.20 RM/kWh; 24-72 kWp = 1.18 RM/kWp; 72 kWp - 1 MWp = 1.14 RM/kWh; 1-10 MWp = 0.95 RM/kWh; 10-30 MWp = 0.85 RM/kWh	Hydro	<10MW = 0.24 RM/kWh; 10-30 MW = 0.23 RM/kWh

[184] https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=17996&Itemid=205
[185] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[186] REN21. *Renewables 2013 – Global Status Report*. 2013
[187] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[188] www.mbipv.net.my/dload/FiT%20Handbook%20English.pdf

- **Mali Rural Electrification Hybrid System Project**[189]
  - Sector: Solar
  - Agency: Mali Agency for Domestic Energy and rural Electrification (AMADER)
  - Financed by: IDA, IBRD, Strategic Climate Fund
  - Budget: US$ 45.4 million
  - Duration: 2013-2020
  - Description: The project's objective is to expand access to modern energy services in rural areas of the recipient and to increase renewable energy generation in target areas. There are three components to the project: (i) service improvement and extension of existing mini-grids. This component will increase renewable energy generation capacity in existing rural power stations supplying rural mini grids and expand those mini-grids, through the addition of approximately 4.8 MWp of capacity through hybrid systems, including photovoltaic panels, inverters, batteries and control electronics, and mini-grid extension and densification ; (ii) development of off-grid lighting markets and energy efficiency by catalyzing the markets for off-grid lighting and solar lanterns in targeted rural areas, and improve energy efficiency and promote a rational and efficient use of electricity on targeted mini-grids ; and (iii) management support and capacity building by supporting project management and implementation, capacity building and technical assistance to rural energy sector stakeholders, monitoring and evaluation.
- **EnDev 2 Mali**[190]33
  - Sector: Solar
  - Agency: Ministère de l'Administration Territoriale et des Collectives Locales, Direction Nationale de Collectivites Territoriales (DNCT), AMADER
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev Mali is focusing on Solar PV-driven communal battery charging stations to provide electricity to households since the national grid will not be available in most rural areas in the near term. The charging stations are the property of communes that select a private service provider who operates the facilities on a fee-for-service basis. EnDev Mali also provides Solar PV stand-alone systems for social infrastructure institutions (e.g., schools, health posts), and the service providers are responsible for operations and maintenance of PV systems in these institutions. EnDev performs tendering and supervision of the hardware installation, and training on solar installation handling and maintenance.
- **Mali Energy Support Project**[191]
  - Sector: Distribution and Transmission, EE Lighting
  - Agency: Energie du Mali, AMADER
  - Financed by: IDA
  - Budget: US$ 120 million
  - Duration: 2009-2015

[189] http://www.worldbank.org/projects/P131084?lang=en
[190] http://endev.info/content/Mali
[191] http://www.worldbank.org/projects/P108440/mali-energy-support-project?lang=en

- Description: The objective of the Energy Support Project for Mali is to improve the access and efficiency of electricity services in Bamako and in other targeted areas in the country. Project components include upgrading the electricity transmission line between Segou and Bamako, and30 kV facilities and distribution networks in and around Bamako and other regions. It will also finance a residential lighting program to replace incandescent or neon light bulbs with compact fluorescent lamps (CFLs) in urban and rural households, a CFL street lighting program in key urban and rural centers, and a public facilities' lighting program to replace incandescent light bulbs by CFLs. Capacity and institutional strengthening of key sector institutions is also performed.

MAURITANIA

- **PERUB: Rural Electrification Project in the Brakna, Mauritania**[192]
  - Sector: Solar, RE
  - Financed by: GRET
  - Budget: EUR 1,612,645
  - Duration: 2007-2010
  - Description: The general goal of the project is to improve socioeconomic conditions for populations in small villages in the Brakna by allowing them access to electricity services, develop models that can be duplicated on the large scale, and develop the skills of various participants and local actors interested in these issues. Notably, the project seeks to test and validate a model schema for small-scale hybrid (solar/diesel) electrification (approximately 10 to 20 kW), involving local populations and institutions and implementing credit mechanisms and innovative public-private partnerships while remaining environmentally friendly.

MAURITIUS

- **Maurice Ile Durable (MID)**[193]
  - Sector: RE, EE
  - Agency: Ministry of Environment and Sustainable Development
  - Start Date: 2009 (updated 2013)
  - Description: MID Fund 47 MW wind projects, 10 MW solar projects, and a 350 kW hydro power plant. The main objective of the MID concept is to make Mauritius a world model of sustainable development and lowering its dependency on fossil fuels through increased utilization of renewable energies and EE measures by 2028. In order to finance necessary RE and EE projects MID establishes MID Fund and carbon tax on fossil fuels. MID Fund will be managing and distributing revenues gathered from carbon tax.[12]
- **Small Scale Distributed Generation (SSDG) – Feed-in-Tariff Scheme**[194]
  - Start Date: 2012
  - Agency: Central Electricity Board
  - Description: Tariffs are presented in the table below and are granted for a period of 15 years.

[192] http://www.gret.org/projet/rural-electrification-project-in-the-brakna-mauritania/?lang=en
[193] www.oecd.org/dac/environment-development/Joya%20Bhandhari,%20Mauritius%20Ile%20Durable%20Fund.pdf
[194] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

Feed-in-Tariff[195][12]			
Wind	20 Rs/kWh for < 2.5 kW, 15 Rs/kWh for 2.5-10 kW, 10 Rs/kWh for 10-50 kW	Solar PV	25 Rs/kWh for < 2.5 kW, 20 Rs/kWh for 2.5-10 kW, 15 Rs/kWh for 10-50 kW
Hydro	15 Rs/kWh for < 2.5 kW, 15 Rs/kWh for 2.5-10 kW, 10 Rs/kWh for 10-50 kW		

MEXICO

- **Sustainable Energy in Mexico[196]**
  - Sector: RE, EE
  - Agency: Ministry of Energy (SENER), National Commission for Energy Efficiency, Energy Regulatory Commission, Comisión Federal de Electricida, Secretaríat of the Environment and Natural Resources, Instituto del Fondo Nacional de la Vivienda para los Trabajadores, Comisión Nacional de Vivienda, Centre for International Migration and Development, The German Academic Exchange Service
  - Financed by: BMZ, KfW
  - Duration: 2009-2017
  - Description: The objective is to improve the conditions for scaling up the use of RE resources and improving EE. Within the programme, GIZ assumes the role of a sectoral and technical advisor, backstops processes of policy and institutional change, offers training measures and promotes the national, regional and international transfer of know-how. In doing so, it cooperates mainly with key public players on the federal level. Cooperation with the private sector in the form of public-private partnership also plays an important role. Methodologically, the programme is designed to provide an impetus for a significant increase in EE and for the broad-scale use of RE resources. The programme will entail creating favorable legal conditions (e.g., biofuel quality standards), design and implementation of promotion and dissemination programmes (e.g., for solar collectors), and strengthening public and private actors.
- **Mexico – (CRL) Integrated Energy Services[197]**
  - Sector: Distribution and Transmission, RE, Solar, Mini-Grids
  - Agency: SENER
  - Financed by: IBRD, Government of Mexico
  - Budget: US$ 85,0 million
  - Duration: 2008-2014
  - Description: The objective is to increase access to efficient and sustainable integrated energy services in predominantly indigenous rural areas of Mexico. The restructuring is proposed to reflect the following: (i) the focus on Solar PV in the form of centralized 'solar farms' with mini-grids and distribution lines to supply electricity to households; (ii) electrification of households; and (iii) SENER set up as the project implementing agency CFE.

[195] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

[196] http://www.giz.de/en/worldwide/13919.html

[197] http://www.worldbank.org/projects/P088996/mexico-crl-integrated-energy-services?lang=en

The project targets 1,000 new social / productive activities and micro-businesses developed, at least 15 private companies operating as service companies, an increase of over 10% private equity invested in rural projects, about 1,000 agents trained, and 47,080 households electrified with RE technologies.

- **Integrated Energy Services Project for Small Localities in Rural Mexico**[198]
  - Sector: Mini-Grids, Hydro, Wind
  - Agency: World Bank, SENER
  - Financed By: GEF Trust Fund, Government of Mexico, World Bank, Japan Policy and Human Resources Development Fund, Global Village Energy Partnership
  - Budget: US$ 99,865,000
  - Duration: 2008-2013
  - Description: The project seeks to increase access to public resources and attract private investment, engage the private sector in RE market development, demonstrate RE projects for rural electrification, notably decentralized mini-grids, wind, and hydropower. The target of the first phase is to electrify 50,000 households in Mexico's southern states, Oaxaca, Chiapas, Guerrero, and Veracruz. Capacity building will be provided for state and municipal institutions on finance, technology, and administrative alternatives. The project will strengthen policy and regulatory frameworks and assist the Government create appropriate tools for the implementation of sustainable rural electrification models based on RE.
- **Large Scale Development of Renewable Energy (PERGE) Project**[199]
  - Sector: RE
  - Financed By: GEF and World Bank-financed 101 MW IPP wind farm.
  - Budget: EUR 20 million
  - Start Date: 2013
  - Description: State-owned utility Comisión Federal de Electricidad provides an incentive (EUR 0.73/kWh) for La Venta III project. CFE also buys electricity at EUR 0.03/kWh for 25 years. Project to develop initial experience in commercial grid-connected RE application, develops a national wind resource map, and builds institutional capacity.
- **Energy Sustainability Fund (Fondo de Sustentabilidad Energética) … IEA database**[200]
  - Sector: RE, EE
  - Agency: Secretariat of Energy
  - Start Date: 2008
  - Description: Funding is from 20% of the 0.65% total national oil and gas sales per year. Legal reference = Ley Federal de Derechos and Ley de Diencia y Tecnologia. The fund goes to enhance R&D and deployment (adoption, innovation, assimilation, development) for EE, RE, clean technology use, diversification of primary sources of energy.
- **Integrated Energy Services Project (2007-2014)**[201]
  - Sector: Solar
  - Agency: Secretariat of Energy
  - Duration: 2007-2014
  - Description: The project's objective is to increase access to efficient and sustainable integrated energy services in predominantly indigenous rural areas of Mexico and to achieve reduction of greenhouse gas emissions through the use of renewable energy in rural areas

[198] www.thegef.org/gef/project_detail?projID=2611
[199] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[200] Ibid.
[201] Ibid.

for the provision of electricity. The Project has five main components: (i) strengthening of strategy, policy, and regulatory frameworks, (ii) investment in rural electrification sub-projects, (iii) technical assistance and capacity building activities necessary to ensure the success and sustainability of the Project at different stages of implementation, (iv) technical assistance to increase productive uses of electricity and co-financing - on a pilot basis - of a limited number of productive or micro-business activities, and (v) project management.

- **CUIDEMOS Mexico (Campana De Uso Intelegente De Energia Mexico, or Smart Use of Energy Programme)[202]**
  - Sector: EE Lighting
  - Agency: Implemented and managed by Cool nrg Carbon Investments Pty Ltd and Cool nrg Mexico SRL de CV.
  - Financed by: Bulbs are provided free of charge from carbon revenue from the Clean Development Mechanism (CDM). The carbon buyer is the United Kingdom and Cool nrg Carbon Investments is the Coordinating Management Entity.
  - Duration: 2009-2016
  - Description: The project involves the distribution of EE light bulbs to households across Mexico, and its goal is to distribute up to 30 million compact fluorescent lamps. Education and raising awareness through media campaigns and information provided with products will help promote behavioral change and support existing and future government programs. CUIDAMOS Mexico is the first 'Programme of Activities' type of CDM project to be issued certified emission reduction (CER) credits, and the project is registered by UNFCCC.
- **Fund for the Energy Transition and Sustainable Electricity Use[203]**
  - Sector: RE
  - Agency: Secretariat of Energy
  - Start Date: 2009
  - Description: This fund intends to help the development of projects, initiatives, studies and actions in order to achieve the objectives of the Law for the Development of Renewable Energy and Energy Transition Financing (LAFAERTE).
- **Law for the Development of Renewable Energy and Energy Transition Financing (LAFAERTE)[204]**
  - Sector: RE
  - Agency: Secretariat of Energy
  - Start Date: 2008 (amended in 2011)
  - Description: At the end of 2008, a law on renewable energy utilization and energy transition financing (LAERFTE) was adopted in Mexico, compatible with the existing Law of Public Electricity Service. The law is meant to define and regulate the use of RE for power production and establish a set of instruments such as a Special Programme, an Energy Transition Strategy and an Energy Transition Fund, among others. The 2011 reform also establishes maximum targets of fossil generation in the total power mix by the year 2024, 2035 and 2050. Energy targets: 65% of fossil generation by 2024; 60% by 2035 and 50% by 2050. Finally, this law states that it is mandatory for the Energy Secretariat to develop a National Renewable Energy Inventory to provide reliable information on renewable energy resources in Mexico.

[202] cdm.unfccc.int/ProgrammeOfActivities/poa_db/17BH6AJX524TYQUZF8KGCWV3OIPSE9/view
[203] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[204] Ibid.

MONGOLIA

- **Law of Mongolia on Renewable Energy**[205]
  - Start Date: 2007
  - Description: Feed-in-Tariff rates are presented in the table below. Tariffs of RE shall be followed for a period of at least 10 years.

Feed-in-Tariff[206]			
Wind	US$ 0.08-0.095/kWh. If independent power source, US$ 0.10-0.15/kWh	Solar	US$ 0.15-0.18/kWh. If independent, US$ 0.2-0.3/kWh
Hydro	< 5000 kW, US$ 0.045-0.06/kWh. If independent, US$ 0.08-0.10/kWh for < 500 kW, US$ 0.05-0.06/kWh for 501-2000 kW, US$ 0.045-0.05/kWh for 2001-5000 kW		

MONTENEGRO

- **Feed-in-Tariff**[207]
  - Start Date: 2011
  - Agency: Regulatory Energy Agency
  - Description: Pursuant to Article 20, Paragraph 2 of the Energy Law ("Official Gazette of Montenegro", No. 28/10). Feed-in-Tariffs are presented in the table below. The period of contact duration is 12 years.

Feed-in-Tariff[208]			
Wind	EUR 0.096/kWh	Solid Waste	EUR 0.09/kWh
Biomass from Forestry and Agriculture	EUR 0.137/kWh	Waste Gas	EUR 0.08/kWh
Biomass from Wood-Processing Industries	EUR 0.123/kWh	Biogas	EUR 0.08/kWh
Solar	EUR 0.15/kW	Hydro	EUR 0.104/kWh for < 3 GWh, EUR 0.0744/kWh for 3-15 GWh, EUR 0.0504/kWh for > 15 GWh

MOZAMBIQUE

- **EnDev 2 Mozambique**[209]
  - Sector: Distribution and Transmission, Solar, Hydro

[205] Ibid.
[206] www.nrec.mn/data/uploads/law.pdf
[207] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[208] Ibid.
[209] http://endev.info/content/Mozambique

- Agency: Ministry of Energy, Electricidade de Mozambique (EDM)
- Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
- Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
- Duration: 2009-2015
- Description: EnDev Mozambique's second phase develops the solar market in selected villages in the province of Sofala with SHS and pico-PV systems for households and bigger Solar PV systems for social institutions. EnDev advises and provides connections between supply chain actors, and trains solar technicians. EnDev supports grid densification, identifies customers, prepares contracts; focuses on peri-urban areas with a high percentage of low income households, and provides energy efficient compact fluorescent lamps for each household. Local engineering firms are trained in production of solar home systems, credit products are developed for clients in partnership with micro-finance institutions, and EnDev provides quality assurance for component assembly in addition to marketing and awareness raising. For hydro plant development, EnDev assesses plant site feasibility, provides technical training, marketing, and overall management.

- **Energy Development and Access Project (APL-2)**[210]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy, EDM, Fundo Nacional de Energia (FUNAE)
  - Financed by: IDA
  - Budget: US$ 80 million
  - Duration: 2010-2015
  - Description: The objective of the project is to increase access to electricity and modern energy services in peri-urban and rural areas in a sustainable and affordable manner. There are three components to the project: (i) reinforcement of the primary networks and grid extension component via improved transmission efficiency, engineering and consulting services, network rehabilitation and reinforcement, and grid extension; (ii) investments on rural and RE by supporting the implementation of conventional and RE sources and technologies; and (iii) energy sector planning, policy, and institutional development, which includes elaboration of a national 'Rural Electrification Strategy and Investment Program (RESIP), institutional strengthening, and capacity building of the Ministry of Energy.
- **Mozambique-Malawi Transmission Interconnection Project (APL-2)**[211]
  - Sector: Distribution and Transmission
  - Agency: EDM
  - Financed by: IDA, Government of Mozambique
  - Budget: US$ 109.7 million
  - Duration: 2007-2014
  - Description: The Mozambique-Malawi Interconnection is designed to increase access to diversified, reliable, and affordable supplies of energy, and expand Malawi and Mozambique's opportunities to benefit from bilateral and regional power trading on the South African Power Pool (SAPP). The project consists of three components: (i) construction of the transmission interconnection from the Malawi electricity grid to the Mozambique

[210] http://www.worldbank.org/projects/P108444/mz-energy-development-access-project-apl-2?lang=en&tab=overview

[211] http://www.worldbank.org/projects/P084404/southern-african-power-market-program-mozambique-transmission-interconnection-project?lang=en

electricity grid, thereby interconnecting Malawi with the SAPP network; (ii) capacity building and technical support for upgrade and expansion to support power trading to in part improve ESCOM's efficiency and quality of service; and (iii) improve infrastructure to support power trading to replace worn-out, inadequate, or obsolete equipment to remove critical bottlenecks in the networks which could impede the flow of traded electricity

- **Biofuel blend mandate: E10 in 2012–2015; E15 in 2016–2020; E20 from 2021**[212]

NEPAL

- **EnDev 2 Nepal**[213]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy (MoE), Nepalese Energy Authority (NEA), Alternative Energy Promotion Centre (APEC)
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2015
  - Description: EnDev Nepal gives financial support to connect communities to the grid. The Government of Nepal started the Community Rural Electrification programme in 2003, according to which communities are required to contribute 20% of the project costs to be connected to the grid, and the remaining 80% is paid by the government through NEA. EnDev helps connect communities that cannot afford to pay the 20% with an additional fund; if the community can provide at least 5% of the costs, EnDev can fill the gap for the remaining 15%. The large number of applications from rural communities shows the high demand for electricity connections in rural areas. EnDev improves funding for decentralized, small-scale, off-grid electrification of rural areas by building links between the governmental AEPC, commercial banks, project developers, and micro-finance institutions. EnDev's engagement is expected to lead to 400 kW of additional generation capacity that will reach approximately 19,000 people.
- **Nepal – Energy for Education Project**[214]
  - Sector: Solar
  - Agency: Duke Energy, Global Sustainable Electricity Partnership, Beautiful Nepal Association, Kansai Power Electric Company
  - Financed by: Global Sustainable Electricity Partnership
  - Start Date: 2013
  - Description: The project aims to demonstrate the potential of solar energy as a viable power source for improving education in the region, to use solar PV for lighting and to launch a computer program in two rural schools in the Surkhet District, and to provide clean portable small solar home systems for students and residents of rural Matela.
- **Renewable Energy for Rural Livelihood (RERL)**[215, 216]
  - Sector: RE, Hydro
  - Agency: Alternative Energy Promotion Centre (AEPC), Government of Nepal

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[212] REN21. *Renewables 2013 – Global Status Report*. 2013
[213] http://endev.info/content/Nepal
[214] http://www.globalelectricity.org/en/index.jsp?p=121&f=373
[215] http://www.undp.org/content/nepal/en/home/operations/projects/environment_and_energy/rerl/
[216] http://www.rerl.org.np/

- Financed by: World Bank, UNDP
- Budget: US$ 34.7 million
- Duration: 2011-2013
- Description: RERL contributes to economic, environmental, and social benefits of rural people by removing barriers to wider promotion and use of RE resources. RERL will support AEPC through implementing the following objectives: develop a strategy to internalize and institutionalize best practices in AEPC; assist AEPC implement various RE initiatives; support AEPC's implementation of a micro-hydro programme; analyze and recommend key areas for growth in the RE sector; and draw linkages between financial market mechanisms and rural livelihoods in terms of the RE sector. This short-term project is anticipated to be a bridge to a larger scale RERL programme beginning 2013.

- **Kabeli Transmission Project**[217]
  - Sector: Distribution and Transmission
  - Agency: NEA
  - Financed by: IDA, Local Communities, Government of Nepal
  - Budget: US$ 47.69 million
  - Duration: 2011-2015
  - Description: The objectives of Kabeli Transmission Project are: to support the addition of transmission capacity to the Integrated Nepal Power System; and to provide access to electricity and cooking fuel to communities in the area of the Kabeli 132 kV transmission line. This project has three components: (i) construct a new 132 kV transmission line in eastern Nepal; (ii) install distribution lines and associated infrastructure to provide access to electricity to communities in the area of the transmission line; and (iii) provide access to electricity and cooking fuel through off-grid schemes in communities for which Component (ii) grid extension is not a feasible option. Technical assistance is provided through all components as well.
- **Nepal Power Development Project (PDP) – Additional Financing**
  - Sector: Distribution and Transmission
  - Agency: AEPC, NEA,
  - Financed by: IDA, Government of Nepal
  - Budget: US$ 15.5 million
  - Start Date: 2009
  - Description: The project helps finance the costs associated with: (i) rehabilitation of existing assets and new investments required to support the response of the Government of Nepal to the energy crisis in the country; (ii) scaling-up off-grid rural electrification; and (iii) technical assistance to benefit the NEA and the AEPC.
- **Nepal Power Development Project (PDP)**[218]
  - Sector: Distribution and Transmission, Hydro
  - Agency: Ministry of Water Resources
  - Financed by: IDA, UNDP, Local Communities, Government of Nepal
  - Budget: US$ 133.4 million
  - Duration: 2003-2013
  - Description: The Nepal PDP seeks to increase access to electricity in rural areas and improve the quantum and efficiency of electricity supply. It aims to increase the flow of private investment in small and medium hydropower plants through the creation of a Power

[217] http://www.worldbank.org/projects/P112893/kabeli-transmission-project?lang=en
[218] http://www.worldbank.org/projects/P043311/nepal-power-development-project?lang=en

Development Fund, which provides long-term financing to private investors, leveraging debt (and developer's equity) financing from the local capital markets. The project also aims to reduce costs of new plants by implementing improved international competitive tendering processes.

- **Nepal – Biogas Program**[219]
  - Sector: Biogas
  - Agency: AEPC, Government of Nepal
  - Financed by: Government of Netherlands, KfW, Government of Nepal, the Community Development Carbon Fund is the carbon buyer
  - Budget: US$ 61.9 million
  - Duration: 2006-2015
  - Description: The project reduces the demand for scarce biomass resources in rural areas and improves rural agricultural productivity through the creation of a nutrient-rich byproduct of biogas production, which can be used as a fertilizer to improve crop yields. The project consists of four bundles, which have all been registered successfully as CDM projects under the UNFCCC. About 60,000 biogas plants were installed and are earning emission reduction credits (CERs).
- **Nepal - Village Micro Hydro**[220]
  - Sector: Hydro
  - Agency: Alternative Energy promotion Center
  - Financed by: IDA, Danish International Development Assistance, UNDP, Local Communities
  - Budget: US$ 59.1 million
  - Duration: 2007-2015

NICARAGUA

- **EnDev 2 Nicaragua**[221][33]
  - Sector: Distribution and Transmission, Hydro, Solar
  - Agency: Ministerio de Energia y Minas
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2014
  - Description: EnDev Nicaragua supports grid connection to villages by promoting the National Fund for the Development of the Electricity Industry. To support the micro-hydropower plant sector, EnDev co-finances plants where local actors perform construction and NGOs do the engineering, procurement, design, and construction. EnDev promotes the distribution of solar home systems, trains local engineers, and raises awareness.

NIGERIA

- **Mini-Grids Based on Renewable Energy (Small-Hydro and Biomass) - Sources to Augment Rural Electrification**[222]

[219] http://www.worldbank.org/projects/P090038/nepal-biogas-program?lang=en
[220] http://www.worldbank.org/projects/P095978/nepal-village-micro-hydro?lang=en
[221] http://endev.info/content/Nicaragua
[222] http://www.thegef.org/gef/sites/thegef.org/files/documents/document/11-23-2011%20ID3943%20Council%20letter.pdf

- Sector: Hydro, Biomass, Mini-Grids
- Agency: Federal Ministry of Energy, Energy Commission of Nigeria, Federal Ministry of Environment, Housing, and Urban Development, UNIDO
- Financed by: UNIDO, Government of Nigeria
- Budget: US$ 14,676,800
- Duration: 2011-2015
- Description: Development of techno-economic feasibility studies and business plans for identified potential sites to facilitate replication; demonstration of techno-economic viability of biomass-based mini-grids; strengthening of financing and policy environments to support RE-based mini-grids; and capacity development to facility project replication.

- **Nigeria Electricity and Gas Improvement Project – Additional Financing**[223]
  - Sector: Distribution and Transmission
  - Agency: Transmission Company of Nigeria, Power Holding Company of Nigeria, Government of Nigeria
  - Financed by: IDA
  - Budget: US$ 200 million
  - Start Date: 2012
  - Description: The project objectives are to: (i) improve the availability and reliability of gas supply to increase power generation in existing public sector power plants; and (ii) improve the power network's capacity and efficiency to transmit and distribute quality electricity to the consumer. This will be achieved mainly by supporting gas supply contracts through Partial Risk Guarantees to insure Government payment risks for the private sector, and complementary investments in transmission and distribution systems. The project will improve gas supply quality and reliability and reduce losses. Technical assistance is provided for legal and institutional support for capacity building.

PAKISTAN

- **Renewable Energies and Energy Efficiency**[224]
  - Sector: RE, EE
  - Agency: Ministry of Water and Power, Alternative Energy Development Board, National Energy Conservation Center (ENERCON) in the Ministry of Environment
  - Financed by: BMZ
  - Duration: 2005-2014
  - Description: The Government of Pakistan is working toward a decentralized supply structure in which RE provide a cost-efficient alternative to grid expansion in remote locations, especially the Khyber Pakhtunkhwa region. Through the project, advice will be given to ENERCON concerning the strategy for implementing the national energy savings policy. Activities also focus on increasing the use of the CDM, promoting the ESCO concept, and formulating financing models, e.g., microloans, and feed-in tariffs for RE. The project has thus far helped define political targets for RE and EE that have been adopted by Pakistan's cabinet. Likewise, the project is helping to implement policies. The incentives created have resulted in increased investment in RE from private and public funds. To date, around 100 villages have been electrified through solar energy. A hydropower model,

[223] http://www.worldbank.org/projects/P126190/nigeria-electricity-gas-improvement-project-additional-financing?lang=en
[224] http://www.giz.de/en/worldwide/17995.html

including CDM instruments, is helping villages to build up their business activities. Textile companies are making economically advantageous energy savings of between 10 and 20%.

- **Electricity Distribution and Transmission Improvement Project**[225]
  - Sector: Distribution and Transmission, EE
  - Agency: Electricity Transmission and Distribution Companies, Government of Pakistan
  - Financed by: IBRD, IDA, Government of Pakistan
  - Budget: US$ 309.9 million
  - Duration: 2008-2014
  - Description: The objectives of the project are to: (i) strengthen the capacity of the distribution and transmission networks to meet increasing electricity demand in the selected areas more efficiently and with better reliability and quality; and (ii) strengthen institutional capacity of the selected distribution companies and support other priority areas of the power sector reform. The project includes the following components: (i) physical strengthening of distribution networks operated by 4 distribution companies (Hyderabad Electric Supply Company, Islamabad Electric Supply Company, Lahore Electric Supply Company, and Multan Electric Power Supply Company; (ii) removing bottlenecks in the transmission grid, operated by National Transmission and Dispatch Company (NTDC); (iii) technical assistance for capacity building, specialized studies, EE, and sector reform; and (iv) a pilot EE program, involving installation of energy saving equipment at the customer level.
- **Policy Recommendations for Use of Biodiesel as an Alternative Fuel**[226]
  - Sector: Biofuel
  - Start Date: 2008
  - Agency: Ministry of Water and Power, Alternative Energy Development Board
  - Description: National Biodiesel Programme: biodiesel blending increased to 5% by 2015, 10% by 2025. Petroleum diesel to be blended (B5).

PAPUA NEW GUINEA

- **PNG Energy Sector Development Project**[227]
  - Sector: RE
  - Agency: Department of Petroleum and Energy, PNG Power LTD
  - Financed By: IBRD, IDA, Government of Papua New Guinea
  - Project Cost: US$ 8.35 million
  - Duration: 2013-2018
  - Description: The objectives of the Project consist of: (i) strengthening policy development and strategic framework for renewable energy and rural electrification; and (ii) attracting investors for sustainable development of new hydropower generation to supply the Port Moresby electricity grid. There are two components of the project, the first component being: institutional and policy development for renewable energy and rural electrification, which includes three sub-components: (i) energy policy development; (ii) institutional and strategy development; and (iii) capacity building. The second component is technical assistance for preparation and planning for Port Moresby hydropower supply, which includes two sub-components: (a) preparation of the Naoro Brown hydropower project for Port Moresby; and (b) improved planning related to hydropower supply for Port Moresby.

[225] http://www.worldbank.org/projects/P095982/electricity-distribution-transmission-improvement-project?lang=en&tab=overview
[226] http://www.aedb.org/BioDieselPolicy.htm
[227] http://www.worldbank.org/projects/P101578/png-energy-sector-development-project?lang=en

PARAGUAY

- **PY Energy Sector Strengthening Project**[228]
  - Sector: Distribution and Transmission, EE
  - Agency: Administración Nacional de Electricidad (ANDE), World Bank
  - Financed By: IBRD, IDA, ANDE
  - Project Cost: US$ 125 million
  - Duration: 2011-2015
  - Description: The objective of the project is to increase the quantity and quality of the provision of electricity services and improving performance. There are three components to the project: (i) modernizing ANDE's distribution management system and installing an automated metering infrastructure; (ii) improving the performance of the transmission network via substation upgrades; and (iii) strengthening the electricity sector and institutional capacity, including investment planning, design, and implementation and mainstreaming social and environmental safeguards.
- **Biofuel blend mandate: E24 and B1**[229]

PERU

- **EnDev 2 Peru**[230]33
  - Sector: Distribution and Transmission, Solar, Improved Cookstoves, Biogas
  - Agency: Ministry of Energy and Mines, Ministry of Agriculture, Ministry of Health, Support Programme for the Poorest (JUNTOS)
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2015
  - Description: EnDev Peru promotes access to energy for lighting in rural and semi-rural areas, where beneficiaries finance unit and monthly electricity costs. EnDev provides assistance to governments, private companies, and NGOs that implement the interventions. Technical assistance is provided to the Government and private companies that implement solar water heater projects, and to small farmer suppliers producing biogas for digesters.
- **Second Rural Electrification Project**[231]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy and Mines
  - Financed By: IBRD, IDA, Government of Peru
  - Project Cost: US$ 82.7 million
  - Duration: 2011-2016
  - Description: The project objective is to increase rural access to electricity through three components: (i) support investment in infrastructure by distribution companies to provide electrical services to about 42,500 households, small enterprises, and community facilities; (ii) technical assistance for rural electrification; and (iii) project management by the General

[228] www.worldbank.org/projects/P114971/py-energy-sector-strengthening-project?lang=en
[229] REN21. *Renewables 2013 – Global Status Report*. 2013
[230] http://endev.info/content/Peru
[231] www.worldbank.org/projects/P117864/second-rural-electrification?lang=en&tab=overview

Directorate of Rural Electrification (DGER) through a technical unit to provide evaluation, supervision, technical assistance, monitoring, and evaluation operations.

- **Second Rural Electrification**[232]
  - Sector: RE, Distribution and Transmission
  - Agency: Ministry of Energy and Mines, DGER
  - Financed by: IBRD, Government of Peru
  - Budget: US$ 82.71 million
  - Duration: 2011-2016
  - Description: The Project aims to increase access to electricity in the rural areas of Peru on an efficient and sustainable basis by supporting investment in infrastructure by electricity distribution companies to provide electricity services to about 42,500 households, small enterprises, and community facilities, as well as performing technical assistance on rural electrification. DGER carries out project management activities such as evaluation and supervision of investment subprojects.
- **Accelerated Depreciation Benefits**[233]
  - Sector: RE
  - Start Date: 2008
  - Description: Legislative Decree No. 1058, Article 1. Allows accelerated depreciation benefit for income tax purposes for up to 20% of investments in RE generation machinery, equipment, and construction.
- **Electric Social Compensation Fund (FOSE)**[234]12
  - Sector: RE
  - Start Date: 2004
  - Description: Law No. 28307 and Law No. 27510. Promoted off-grid rural RE through subsidies. Customer pays only 20% of the cost if consumption < 100 kWh/month.
- **Biofuel Production and Commercialization Law with Amendments**[235]12
  - Sector: Biofuel
  - Start Date: 2003 (amended 2007)
  - Agency: Ministry of Energy and Mines
  - Description: Law 28054 and Implementation Supreme Decree 021-2007 - EM and amendments, Supreme Decree 013-2005 – EM. 2011 mandatory 5% biodiesel with diesel. 2010 compulsory use of gasohol (7.8% bioethanol, 92.2% gasoline).

PHILIPPINES

- **Philippines: Additional Financing for Rural Power Project**[236]
  - Sector: RE
  - Agency: Development Bank of the Philippines
  - Financed By: Government of Philippines, IBRD, GEF
  - Project Cost: US$ 48,356,000
  - Duration: 2009-2013

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232 http://web.worldbank.org/external/projects/main?projid=P117864&theSitePK=40941&piPK=51351143&pagePK=51351001&menuPK=51351213&Type=Overview

233 IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

234 Ibid.

235 Ibid.

236 documents.worldbank.org/curated/en/2009/03/10388114/philippines-additional-financing-rural-power-project

- Description: Originally approved in 2003, the first phase of the project sought to test and demonstrate business models, implement institutional and operational improvements to transform electric cooperatives, and reduce CO2 emissions. The additional financing scales up a pipeline of projects, supports rural electrification for households, encourages private sector participation by sharing risks, and upgrades cooperatives. The project addresses on-grid and off-grid RE projects and conventional off-grid projects, enables the DBP and the sector to further expand public-private partnerships in the provision of energy access, particularly in Mindanao, where over 50% of the scaled-up projects will take place, targeting 10,000 new customers in poor rural areas.

- **Biofuels Act**[237]12
  - Sector: Biofuel
  - Start Date: 2007
  - Agency: Department of Energy
  - Description: Republic Act No. 9367. Requires 1% biodiesel blend by volume in all diesel fuels, 5% blend within by 2009, 10% by 2011. Biofuel exempt from specific tax, raw materials for biofuel production exempt from VAT, water effluents from biofuel production exempt from wastewater charges.
- **Renewable Energy Act**[238]
  - Sector: RE
  - Start Date: 2008
  - Agency : National Renewable Energy Board
  - Description: For RE sources, 7-year income tax holiday and tax exemptions for carbon credits generated. After holiday expires, corporate income tax is 10% as opposed to the regular 30%. Realty tax cap 1.5% on cost of equipment and facilities to produce RE. Other incentives include duty-free import of RE machinery, equipment and materials; exempt from VAT for sale of fuel or power generated from RE, tax credit on domestic capital equipment and services.
- **2012 Feed-In Tariff for Electricity Generated from Biomass, Ocean, Run-of-River Hydropower, Solar and Wind Energy Resources**[239]
  - Start Date: 2012
  - Agency: Energy Regulatory Commission
  - Description: Decision, Energy Regulatory Commission Case No. 2011-006 RM. Guaranteed 20 years. Tariffs are presented in the table below.

Feed-in-Tariff[240]			
Solar	P9.68/kWh	Biomass	P6.63/kWh
Wind	P8.53/kWh	Hydro, Run-of-the-River	P5.90/kWh

[237] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[238] www.senate.gov.ph/republic_acts/ra%209513.pdf
[239] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[240] www.iflr.com/Article/3110463/Feed-in-tariff-rates-for-renewable-energy-in-the-Philippines.html

POLAND

- **Poland Sustainable Energy Financing Facility (PolSEFF)**[241]
  - Sector: RE, EE
  - Start Date: 2011
  - Description: EUR 180 million credit line to help SMEs invest in new sustainable energy technologies (EE, RE). Credit lines up to EUR 1 million available through partner banks and leasing companies, provided by EBRD.
- **National Fund for Environmental Protection and Water Management (NFOSiGW)**[242]12
  - Sector: RE
  - Start Date: 2009
  - Description: EUR 1.5 billion to support investment in and construction of RE and high efficiency cogeneration facilities: 40% budget for biomass (< 20 MW for thermal power, < 3 MW for CHP production), 25% to wind < 10 MWe, 20% for geothermal < 5 MWe. Offers low interest loans up to EUR 10 million, 6% interest rate, 18-month pay back grace period.
- **Biofuels Targets 2013-2018**[243]12
  - Sector: Biofuel
  - Agency: Ministry of Economy
  - Description: % biofuels as portion of energy content of total transportation fuels = 7.1% in 2013 up to 8.5% in 2018.
- **RE Excise Tax**[244]
  - Sector: RE
  - Start Date: 2002 (updated 2011)
  - Agency: Ministry of Finance
  - Description: Electricity from RES exempt from excise duty.

RWANDA

- **EnDev 2 Rwanda**[245]
  - Sector: Hydro, Biogas
  - Agency: Ministry of Infrastructure, Energy, Water and Sanitation Authority, Ministry of Infrastructure, Netherlands Development Association
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country
  - budgets are not available
  - Duration: 2009-2017
  - Description: Construction of three micro-hydropower plants (100-400 kW) planned during the first phase of EnDev will be completed under the second phase, and three new micro-hydropower plants are under study. EnDev provides up to 50% of the costs via grant and private developers must contribute at least 15%. Training is provided on hydroplant maintenance and management, and EnDev coordinates stakeholder meetings and conducts promotion activities. To increase dissemination of biogas digesters to rural, cattle-owning

[241] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[242] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[243] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[244] Ibid.
[245] http://endev.info/content/Rwanda

households for cooking, EnDev runs awareness and promotional campaigns, train technicians, disburse subsides, conducts quality control, and perform applied research to reduce costs and increase performance.

- **Private Sector Participation in Micro-hydro Power Supply for Rural Development**[246]
  - Sector: Hydro
  - Agency: Energy, Water, and Sanitation Authority
  - Financed by: BMZ, Netherlands Directorate-General for International Cooperation
  - Budget: Data not available
  - Duration: 2006-2017
  - Description: The project aims to enhance electricity connectivity with a focus on small and medium-sized enterprises. The project first identifies suitable private development firms, supports them in constructing and operating small and micro-hydropower plants, and provides advice, training and a limited amount of co-financing. In addition, the project is supporting the integration of a sustainable energy strategy into participatory development processes and the development of a legal framework for promoting RE.

SENEGAL

- **EnDev 2 Senegal**[247]
  - Sector: Distribution and Transmission, Solar, Improved Cookstoves
  - Agency: Ministère de l'Energie et des Mines, Direction des Hydrocarbures et des Combustibles Domestiques, Agence Senegalaise de l'Electrification Rurale
  - Financed by: Dutch Ministry of Foreign Affairs, , Norway Ministry of Foreign Affairs, BMZ AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev establishes a commercial supply chain and basic market structure for improved cookstoves. Cookstove market development activities include training stove producers, transitioning from artisanal to semi-industrial production, quality control, sensitization measures, collaborating with micro-finance institutions, and supporting the sales and charcoal supply chain. To alleviate demand from the national grid, EnDev supports electricity through Solar PV, diesel-powered, or hybrid village grids, household solar home systems, or solar lanterns where households pay on a fee-for-service basis. 70% of the hardware for rural electrification is paid by EnDev, 20% is covered by the private company operating the systems, and 10% comes from the village or customer. Related activities include identifying, sensitizing, and mobilizing communities, tendering for hardware, providing business and technical training to private operators, and rehabilitating non-operational systems.
- **Program to Promote Rural Electrification and a Sustainable Supply of Domestic Fuel (PERACOD)**[248]
  - Sector: RE
  - Agency: Ministry of Energy
  - Duration: 2004-2015

[246] http://www.giz.de/en/worldwide/20776.html
[247] http://endev.info/content/Senegal
[248] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

- Description: Increase rural energy access through deployment of domestic fuels and RE. Programme between Government of Senegal and GTZH. Advises regional and local institutions on how to improve energy policies, create suitable institutions to promote rural electrification, integrated private energy producers, and stimulate energy generations. Supports a sustainable and diversified domestic fuel supply, helps local populations improve wood consumption efficiency, and subsidizes improved charcoal that burns cleaner. Partners with the Rural Electrification Agency (ASER), subsidizes up to 80% of initial investment with a major focus on SHS. Supports income-generating energy activities.

- **Electricity Sector Support Project (ESSP)**[249]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy, National Power Utility of Senegal (SENELEC)
  - Financed by: IDA, Government of Senegal
  - Budget: US$ 93.5 million
  - Duration: 2012-2016
  - Description: The project seeks to reduce SENELEC technical and commercial losses and improve the reliability of electricity services in selected areas focusing primarily on Greater Dakar. The project includes: (i) upgrading, modernization, and extension of the transmission and distribution network; (ii) reducing the cost of billing, increasing bill collection and reducing non-technical losses through fraud reduction, in part via installation of Smart Meters for SENELEC; (iii) carrying out studies designed to assist in developing long term strategy for the energy sector regarding energy diversification, private sector participation, improving energy sector governance, efficiency, transparency, and accountability; and (iv) financial restructuring of SENELEC and electricity tariff review. The project also includes monitoring and evaluation.
- **Second Sustainable and Participatory Energy Management (PROGEDE II)**[250]
  - Sector: Biomass, Improved Cookstoves
  - Agency: Ministry of Environment, Directorate of Petroleum Products and Household Energy
  - Financed by: IDA, Nordic Development Fund
  - Budget: US$ 19.37 million
  - Duration: 2010-2016
  - Description: Through the project, the availability of diversified household fuels is scaled up in a sustainable and gender equitable way, and contributes to increasing the income of participating communities while preserving the forest ecosystems. There are four components to the project: (i) institutional reforms of the charcoal value chain would support central and decentralized government, local government, as well as communities for a full implementation of the reform; (ii) the sustainable wood fuels supply management would finance technical assistance, logistical support, and equipment to central and decentralized forestry services, local collectives, including Community-Based Organizations and NGOs involved in forest, natural resource management, biodiversity, and environmental and social protection activities; and (iii) provide technical assistance, logistical means, and equipment for the DPHE and private entrepreneurs to support massive production and

249 http://web.worldbank.org/external/projects/main?projid=P125565&theSitePK=40941&piPK=51351143&pagePK=51351001&menuPK=51351213&Type=Overview

250 http://www.worldbank.org/projects/P120629/second-sustainable-participatory-energy-management-progede-ii?lang=en&tab=overview

dissemination of improved cookstoves and alternative wood fuel; and (iv) support government institutions and community organizations to scale up the program, hence the consultants will play a more catalytic, supportive, and advisory role.

- **2010 Renewable Energy Law**[251]
  - Sector: RE
  - Start Date: 2010
  - Agency: Ministry of RE, Ministry of Energy, Regulatory Commission for the Electricity Sector
  - Description: Purchase of materials and equipment for production of RE for domestic consumption are exempt from taxes, network operators are obliged to connect RE plants to the grid, Certificates of Origins will be issued to RE producers.
- **2009 Senegalese National Biogas Programme Phase I**[252]
  - Sector: Biogas
  - Start Date: 2009
  - Agency: Ministry of Energy
  - Description: First phase, 2009 to 2013, installs 8000 biodigesters to benefit from external funding from Agence Française de Développement and the Government of Senegal. Available are a CFA 240 grant to support investment, and subsidy covering 25% of total initial investment costs. Digesters will provide rural and urban households with sustainable energy for cooking and lighting, and biogas waste gas can be used as highly fertile organic manure.

SERBIA

- **Decree on Incentive Measures for Privileged Power Producers**[253]
  - Start Date: 2013
  - Agency: Ministry of Energy, Development and Environmental Protection
  - Description: Pursuant to the Article 59, paragraph 6 of the Energy Law ("RS Official Gazette", No. 57/11, 80/11 – corrigendum, 93/12 and 124/12) and pursuant to the Article 42, Paragraph 1 of the Law on Government ("RS Official Gazette", No. 55/05, 71/05 - corrigendum, 101/07, 65/08, 16/11, 68/12 – US and 72/12). Feed-in-Tariff time periods are 12 years, and are presented in the table below.

Feed-in-Tariff[254]					
Hydro	< 0.2 MW = EUR 0.124/kWh up to 10-30 MW = EUR 0.738/kWh.	Wind	EUR 0.092/kWh	Coal-Fired Cogeneration Plant	< 10 MW, EUR 0.0804/ kWh
Biomass	< 1 MW = EUR 0.1326/kWh, 1-10 MW = EUR (0.1382	Solar	< 0.03 MW = EUR 0.2066/kWh, Roof-Mounted 0.03-0.5	Gas-Fired Cogeneration Plant	< 10 MW, EUR 0.0889/ kWh

[251] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[252] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[253] Ibid.
[254] www.merz.gov.rs/sites/default/files/Decree%20on%20Incentive%20Measures%20for%20Privileged%20Power%20Producers.doc

Feed-in-Tariff[254]			
	– 0.56 x installed MW)/kWh, > 10 MW = EUR 0.0822/kWh		MW = EUR (0.20941 – 9.383 x installed MW)/ kWh, Ground-Mounted = EUR 0.1625/kWh.
Biogas	< 0.2 MW = EUR 0.1566/kWh, 0.2-1 MW = EUR (0.16498 – 4.188 x installed MW)/kWh, > 1 MW = EUR 0.1231/kWh	Geothermal	< 1 MW = EUR 0.0967/kWh, 1-5 MW = EUR (0.10358 – 0.688 x installed MW)/kWh, > 5 MW = EUR 0.0692/kWh
Landfill and Sewage Gas	EUR 0.0691/kWh	Waste-Fired Power Plant	EUR 0.0857/kWh

SEYCHELLES

- **2010 Grid-connected Rooftop Photovoltaic Systems project 2010-2014**[255]
  - Sector: Solar
  - Start Date: 2010 (through 2014)
  - Description: Conducts legal, regulatory and policy framework reform. Designs and implements financial mechanisms. Establishes a market supply chain for Solar PV, conducts technician training, and raises awareness. Focuses on small-scale producers that are grid-connected.
- **Tax Exemption for RE Equipment**[256]
  - Sector: RE
  - Start Date: 2010
  - Description: Amendment 3 to the 2010 Regulations of the Goods and Services Tax Act of 2001, Regulation 163F. Imported goods to be used in the conservation, generation, or production of renewable or environmentally friendly energy sources are exempt from goods and services tax. Sources are to be endorsed by the Seychelles Energy Commission.

SOUTH AFRICA

- **South African-German Energy Program (SAGEN)**[257]
  - Sector: RE, EE
  - Agency: Department of Energy, South African National Energy Development Institute, South African Local Government Association, ESKOM
  - Financed by: BMZ
  - Duration: 2011-2014

[255] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[256] Ibid.
[257] http://www.giz.de/en/worldwide/17790.html

- Description: The SAGEN project develops and realizes initiatives to increase the country's EE and use of RE. SAGEN provides technical solutions for integrating RE into the grid and innovative models for establishing a strong market for energy services. The SAGEN supported programmes that promote renewable energy have so far led to contracts for 2,500 MW being awarded to private investors. This figure is expected to rise to 3,725 MW by 2016.

- **2009 Integrated Resource Plan for Electricity (IRP)**[258]
  - Sector: Solar
  - Start Date: 2011, Government Notice No. R. 400
  - Agency: Department of Energy
  - Description: Establishes a target of 1 million Solar Water Heaters installed by 2030.
- **2012 Regulations Regarding the Mandatory Blending of Bio-fuels with Petrol and Diesel**[259]
  - Sector: Biofuels
  - Start Date: 2012
  - Agency: Department of Energy
  - Description: Government Notice No. R. 671. Mandatory blending of 2-10% (by volume) bioethanol and 5% (by volume) diesel with petrol and diesel, respectively.
- **Eskom Solar Water Heating Rebate Programme … IEA database**[260]
  - Sector: Solar
  - Start Date: 2008
  - Organization: Eskom
  - Description: Funded by a tariff levied on consumer electricity bills by the National Energy Regulator of South Africa (NERSA). Solar Water Heater purchasers receive a direct rebate ranging from ZAR 1900 to 4900. No specific type restrictions on Solar Water Heaters, suppliers must be registered, must have a 5-year guarantee, must meet testing criteria by South African Bureau of Standards.
- **2009 (updated 2011) Renewable Energy Feed-in Tariff (REFIT)**[261]
  - Start Date: 2009 (updated 2011)
  - Agency: National Energy Regulator of South Africa (NERSA)
  - Description: National Energy Regulator Act, 2004 (No. 40 of 2004); Electricity Regulation Act, 2006 (No. 4 of 2006). 20 year PPA. In 2011, the Renewable Energy Independent Power Producer Programme or REIPPP[262] replaced REFIT. REIPP is a public procurement program and it requires the bidder to bid on the tariff. REFIT tariffs are presented in the table below.

Feed-in-Tariff[263][12]					
Wind	ZAR 1.25/kWh	CSP	ZAR 2.10/kWh	Solar PV	> 1 MW, ZAR 3.94/kWh
Hydro	ZAR 0.94/kWh, < 10 MW	CSP, Trough without	ZAR 3.14/kWh	Solid Biomass	ZAR 1.18/kWh

[258] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[259] Ibid.
[260] Ibid.
[261] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[262] http://www.ipprenewables.co.za/#index.php
[263] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

Feed-in-Tariff[263][12]					
		Storage			
Landfill Gas	ZAR 0.90/kWh	CSP, Tower with Storage	ZAR 2.31/kWh	Biogas	ZAR 0.96/kWh

SUDAN

- **Biofuel blend mandate: E5**[264]

TAJIKISTAN

- **Demonstration and Effective use of Alternative and Renewable Energy Sources (AES/RES) through Construction of 300 kWh Capacity Hydro Power Station (HPS-300 kWt) in Tusiyon Commune**[265]
  - Sector: Hydro
  - Agency: CBO Shohburhon
  - Financed by: UNDP-GEF Small Grants Programme
  - Budget: US$ 121,789
  - Duration: 2012-2013
  - Description: The project's primary objective is to provide the population of Tusiyon jamoat with about 400 households with electric power. The project included construction of the plant building, pipeline, plant equipment and water reservoir. As noted on the Small Grants Programme website, the project has successfully completed Phase 5 of the construction of the 300 kWh hydropower plant.

TANZANIA

- **Tanzania: Mini-Grids Based on Small Hydropower Sources to Augment Rural Electrification**[266]
  - Sector: Hydro, Mini-Grids
  - Agency: UNIDO, Ministry of Energy and Minerals, Rural Energy Agency, Tanzania Electric Supply Company Limited (TANESCO), College of Engineering and Technology, Small Industry Development Organization (SIDO)
  - Financed By: GEF, REA, Andoya Hydro-Electric Power Company, MEM, CoET, Behindertenhilfe Neckar-Alb, UNIDO
  - Project Cost: US$ 13,128,500
  - Duration: 2011-2015
  - Description: The project aims to promote micro- and mini-hydropower based mini-grids for rural electrification with a target of 3.2 MW added capacity. The project will strengthen capacity of stakeholders to develop, implement, and maintain hydropower-based mini-grids. Technology knowledge will be transferred on local transformation of micro- and mini-hydropower plant equipment and viable business models. Lessons learned during implementation will be used as a tool in strengthening the national capacities of institutions,

[264] REN21. *Renewables 2013 – Global Status Report*. 2013

[265] https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=18029&Itemid=205

[266] http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Climate%20Change/Tanzania%20-%20(4004)%20-%20Mini-Grids%20Based%20on%20Small%20Hydropower%20Sources%20to%20Au/12-01-09%20ID4004%20-%20PIF%20revised.pdf

individual actors, and national policy interventions. Outputs will include feasibility studies, training sessions, demonstration projects, and business model development.

- **Backbone Transmission Investment Project**[267]
  - Sector: Distribution and Transmission
  - Agency: TANESCO
  - Financed by: AfDB, Republic of Korea Economic Development Cooperation Fund, EIB, IDA, JICA, Government of Tanzania
  - Budget: US$ 468.45 million
  - Duration: 2010-2015
  - Description: The project's objective is to increase availability, reliability, and quality of grid-based power supply in northern Tanzania. The main components are transmission line construction between the towns of Iringa and Shinyanga, and expansion of the associated substations at Iringa, Dodoma, Singida, and Shinyanga. TANESCO would also be provided with technical assistance related to engineering and safeguard supervision, and improving technical, legal, financial, and safeguards capacity in preparing and managing projects.
- **Tanzania Energy Development and Access Project (TEDAP), former Energizing Rural Transformation (ERT) Expansion**[268]
  - Sector: Solar, Distribution and Transmission
  - Start Date: 2008 (through 2012)
  - Financed By: GEF, SIDA, Government of Tanzania, World Bank, ESMAP SME Program, private sector
  - Project Cost: US$ 38,800,000
  - Agency: World Bank, Ministry of Energy and Minerals
  - Description: Seeks to improve TANESCO's transmission and distribution networks in urban areas and peripheries. Managed by Rural Electrification Agency, financed through the Rural Electrification Fund. Manages Sustainable Solar Market Development Project = supplies Solar PV to public institutions, households, and businesses in rural and remote areas. Gives grants to private sector investments, providing US$ 500/each mini-grid connection with a cap of 80% total investment cost; subsidies of US$ 1/Wp to power generators using renewable sources and to Solar PV projects; and grants for pre-investment studies. Technical support, maintenance, installation, supply for the Sustainable Solar Market Development Project.
- **2010 Electricity Rules**[269]
  - Sector: Mini-Grids
  - Start Date: 2010
  - Agency: Energy and Water Utilities Regulatory Authority (EWURA)
  - Description: This regulation sets feed-in-tariffs for: (i) Mini-Grids, Off-Grid, TZS 368.89/kWh; and (ii) Main Grid Connections for small power producers, TZS 132.36/kWh during dry season from August to November, TZS 99.27/kWh during wet season from January to July, standardized for the year 2010 = TZS 110.30/kWh.
- **EnDev 2 Tanzania**[270]
  - Sector: Solar, Improved Cookstoves
  - Agency: Ministry of Energy and Minerals, Netherlands Development Organization, GIZ

[267] http://www.worldbank.org/projects/P111598/tanzania-backbone-transmission-investment-project?lang=en
[268] www.thegef.org/gef/project_detail?projID=2903
[269] www.ewura.go.tz/pdf/public%20notices/SPPT_Public%20Notice_English%20version_12March2010.pdf
[270] http://endev.info/content/Tanzania

- Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
- Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
- Duration: 2012-2017
- Description: The Tanzania Improved Cook Stove Programme, which is a part of EnDev Tanzania, promotes the ceramic 'Matawi' stove for households and food vendors in the area around the second largest Tanzania city, Mwanza. EnDev also supports developing a Solar Pico-PV market in rural Mwanza with a focus on establishing a financial product within mainstream banking operations that is accessible to import – suppliers. EnDev provides a subsidy to aid in building a distribution chain for Pico-PV products. The targets for the TICS and solar programmes are to provide cookstoves to 45,000 people by 2014 and sales of PV products reaching about 182,000 within four years. EnDev provides targeted business development services for cookstove actors and assistance for solar import – suppliers and retailers on results-based financing.

THAILAND

- **Biofuel blend mandate: E5 and B5**[271]
- **2013 Feed-in tariff for distributed solar systems**[272]
  - Sector: RE
  - Start Date: 2013 for solar; 2007 (amended 2009) for wind, biomass, biogas, and waste-powered energy
  - Agency: National Energy Policy Committee; Ministry of Energy - Department of Alternative Energy Development and Efficiency
  - Description: 25 year period for solar, 10 years for wind, and 7 years for biomass, biogas, and waste-powered energy. Tariffs are presented in the table below.

Feed-in-Tariff[273]					
Solar, Roof-Top Mounted	0.10 kW = BHT 6.96/kWh, 10-250 kW = BHT 6.55/kWh, 250 kw – 1 MW = BHT 6.16/kWh	Biogas	< 1 MW = BHT 0.5/kWh, > 1 MW = BHT 0.30/kWh	Wind	< 50 kW = BHT 4.5/kWh, > 50 kW = BHT 3.5/kWh
Solar, Ground-Mounted	< 800 MW, BHT 9.75/kWh for years of operation 1-3, BHT 6.5/kWh for years 4-10, BHT 4.5/kWh for years 11-25	Waste, Landfill / Anaerobic Digestion	BHT 2.5/kWh		
Biomass	< 1 MW = BHT	Waste, Thermal	BHT 3.5/kWh		

[271] REN21. *Renewables 2013 – Global Status Report*. 2013
[272] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[273] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

0.5/kWh, > 1MW = BHT 0.30/kWh	Process

TUNISIA

- **Promotion of Renewable Energies and Energy Efficiency in Tunisia**[274]
  - Sector: RE, EE
  - Agency: Agence Nationale pour la Maîtrise de l'Energie, an agency of the Ministère de l'Industrie
  - Financed by: BMZ
  - Duration: 2003-2013
  - Description: The project supports the Tunisian Government in aligning its energy policy with its sustainable development strategy. It is also advising on how to create an enabling environment that promotes RE and EE. The project promotes RE and EE investments by providing technical advice to providers of energy technologies and services, data, performing outreach to energy consumers on how to use RE, save energy, and access funding instruments, and by training consulting engineers and others on RE and EE. A legal framework was established to increase the use of EE and RE using new government funding instruments, and over 3,500 new jobs have been created so far in the field of RE and EE. The project also supports project implementation and a key area is its support for implementation of Tunisia's Solar Plan (or Plan Solaire Tunisien).
- **2010 Tax exemptions for the import of renewable energy and energy efficiency equipment materials (Decree 2010/1521)**[275]12
  - Sector: RE, EE
  - Start Date: 2010
  - Agency: Ministry of Finance
  - Description: Raw materials and products for the manufacture of EE or RE equipment that are exempt from VAT and have reduced import duties.
- **Law 2009-7 on Energy Efficiency: Renewable Energy Provisions**[276]
  - Sector: EE
  - Start Date: 2009
  - Agency: Ministry of Industry, Energy and Small and Medium Enterprises
  - Description: STEG, the public utility is purchased, according to a PPA, and validated by the Regulatory Authority, energy produced from low energy-consuming technologies. The average annual price was DTN 92 millimes/kWh for RE-sourced electricity and DTN 72 millimes/kWh for co-generated electricity.
- **2009 Tunisian Solar Plan (PST) 2010-2016**[277]
  - Sector: Wind, Solar, EE
  - Start Date: 2010
  - Agency: Ministry of Industry, Energy and Small and Medium Enterprises
  - Description: PPP, supports 40 projects (e.g., PROSOL for Solar PV and Solar Water Heaters). Financed by National Fund for EE, STEG, private funding, and international cooperation funds.
- **PROSOL Tertiary: Incentives for Commercial Solar Water Heater**[278]

[274] http://www.giz.de/en/worldwide/19474.html
[275] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[276] Ibid.
[277] Ibid.

- Sector: Solar
- Start Date: 2007
- Description: The program builds off the success of the residential PROSOL program. Financed by the Italian Ministry of Environment, UNEP, and the Government of Tunisia up to 2009. It targets tertiary sector, hotels, public bath houses, private clinics, sports centers, restaurants, private university residences. It subsidizes up to 50% assessment costs up to TND 5,000; up to 20% investment costs in Solar Water Heaters up to TND 100/m2, and up to 10% also or TND 50/m2 by Government of Tunisia, 5% of investment costs for maintenance costs up to 4 years after the warranty, bonus of 2 points on top of interest rates received by commercial banks for loans awarded to hotels.

- **National EE Program 2008-2011: RE Provisions**[279][12]
  - Sector: RE
  - Start Date: 2008
  - Agency: Ministry of Industry, Energy and Small and Medium Enterprises
  - Description: Three sectors, water pumping and desalination, rural electrification and biogas production, are entitled to financial support for R&D and a 40% initial investment premium up to DTN 20,000. Biogas, large industrial and agricultural companies, grid-connected, entitled to a premium of 20% initial investment up to DTN 100,000. Income from CDM attributed to the National Fund for EE.
- **2009 Decree 2009/362 on Renewable Energy and Energy Efficiency Premiums**[280]
  - Sector: RE, EE
  - Start Date: 2009
  - Agency: Ministry of Industry, Energy and Small and Medium Enterprises
  - Description: Premiums are issued for RE/EE projects in the form of refunds: Solar Water Heater, TDN 200 for residential and small-scale Solar Water Heaters, 30% initial investment cost for Solar Water Heaters for industrial and service sectors; Biogas, 40% initial investment cost; Agricultural Sector Electricity Production, 40% initial investment cost; Solar PV, Buildings, 30% initial investment cost; and Cogeneration Facilities, 20% initial investment cost.

TURKEY

- **Biofuel blend mandate: E2**[281]
- **2011 Renewable Energy Law**[282]
  - Start Date: 2011
  - Agency: Ministry of Energy
  - Description: The Feed-in-Tariff is valid for a 10-year period of time. Producers benefit from a 85% discount on transmission costs for 10 years. Bonus payments for locally manufactured hardware components. Tariffs are presented below.

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[278] Ibid.
[279] Ibid.
[280] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[281] REN21. *Renewables 2013 – Global Status Report*. 2013
[282] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy

Feed-in-Tariff[283][12]			
Wind	US$ 0.073/kWh, local bonus is US$ 0.006-0.013	Biomass	US$ 0.133/kWh, local bonus is US$ 0.004-0.020
Hydro	US$ 0.073/kWh, local bonus is US$ 0.010-0.013	Biogas	US$ 0.133/kWh, local bonus is US$ 0.004-0.020
Geothermal	US$ 0.105/kWh, local bonus is US$ 0.070-0.013	Solar PV	600 MW cap, US$ 0.133/kWh, local bonus is US$ 0.006-0.035

UGANDA

- **Uganda Energy for Rural Transformation IPF Phase2 - Additional Financing[284]**
  - Sector: Distribution and Transmission
  - Agency: Ministry of Energy and Mineral Development
  - Financed by: GEF, GPOBA, KfW, and the Government of Uganda
  - Budget: US$ 12 million
  - Start Date: 2013
  - Description: The objective of the project is to increase access to energy and Information and Communication Technologies in rural Uganda. These objectives will be achieved by greater investments. The additional financing would help finance the costs associated with meeting the financing gap and achieving the scale up of the on-grid connection target of the Original Project (ERT-2) from 109,000 households to 120,000 households.
- **EnDev 2 Uganda[285]**
  - Sector: Distribution and Transmission, Solar, Hydro, Improved Cookstoves
  - Agency: Ministry of Energy and Mineral Development (MEMD), Uganda Rural Electrification Agency
  - Financed by: Dutch Ministry of Foreign Affairs, Norway Ministry of Foreign Affairs, BMZ, AusAID, DFID, SDC
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2009-2017
  - Description: EnDev provides methodological, technical, and financial support in energy policy, promoting biomass technologies, and rural electrification and EE. Support includes helping communities to select suitable sites for micro-hydropower plants, cookstove research and development and quality control, training stove artisans in rural areas, and promoting an improved charcoal value chain. For grid extension activities, EnDev helps develop vocational training for solar technicians, training of trainers for energy audits, and develops awareness campaigns.
- **Promotion of Renewable Energy and Energy Efficiency Program (PREEEP)[286]**

[283] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012

[284] http://www.worldbank.org/projects/P133005/uganda-energy-rural-transformation-ipf-phase2-additional-financing?lang=en

[285] http://endev.info/content/Uganda

[286] http://www.giz.de/en/worldwide/19268.html

- Sector: RE, EE
- Agency: MEMD
- Financed by: BMZ, BMU, Dutch Government
- Duration: 1999-2014
- Description: The programme offers support in developing skills, resources and capacities in the fields of energy policy, disseminating modern biomass energy technologies, promoting EE, and rural electrification. This work includes capacity development activities for MEMD, for stakeholders at national and district levels, and for selected community-based energy suppliers. Partners and other stakeholders, such as local authorities, non-governmental organizations and private companies, are receiving assistance to design and put in place customized strategies. These activities aim to improve products and services and teach people living in Uganda's rural areas about conserving energy. So far, the programme has saved about 256,000 tons of firewood each year by using efficient cooking technologies, more than 120 social institutions (e.g., schools, health centers) have gained access to electricity by being connected to either the national electricity grid or off-grid solar PV systems, and over 2,800 households and small and medium-sized enterprises have been able to purchase a solar system that generates enough power to light a house, recharge mobile telephones, and power a radio or television. In addition, the programme has undertaken EE audits at 286 businesses and institutions.

- **Energy for Rural Transformation APL-2**[287]
  - Sector: Distribution and Transmission, Solar
  - Agency: Ministries of Local Government, Finance, Planning, and Economic Development
  - Financed by: IDA, Government of Uganda, Unidentified
  - Budget: US$ 105 million
  - Duration: 2009-2016
  - Description: The project seeks to increase access to energy and information and communication technology in rural Uganda. There are three components to the project: (i) financing extension of the distribution network, installation of independent distribution systems, small scale RE generation plants, household and institutional solar PV systems, and related technical assistance and training. It will also capitalize the credit support facility, and provide cost-shared assistance to private sponsors seeking financial closure on rural energy investments; (ii) finance is provided for internet broadband extension to rural areas, information centers, cell phone charging stations, and computer equipment; and (iii) financing solar PV energy packages for rural schools, health clinics, and water facilities. This component also supports the project coordination unit, assessment of poverty impacts by the Ministry of Finance, Planning, and Economic Development, as well as outreach activities by the Ministry of Local Government.
- **Electricity Sector Development Project**[288]
  - Sector: Distribution and Transmission
  - Agency: Uganda Electricity Transmission Company Ltd (UETCL), MEMD
  - Financed by: IDA, Government of Uganda
  - Budget: US$ 153.2 million
  - Duration: 2011-2017

[287] http://www.worldbank.org/projects/P112334/uganda-energy-rural-transformation-apl-2?lang=en
[288] http://www.worldbank.org/projects/P119737/electricity-sector-development-project?lang=en

- Description: The project was designed to improve the reliability of and increase the access to electricity supply in the southwest region of Uganda through three support lines: construction of 137 km of transmission lines and related substation construction, upgrades, and resettlement of displaced persons; technical assistance to UETCL; and community support projects in areas affected by the transmission line construction, and capacity building at MEMD.

- **Solar Power Subsidy**[289]
  - Sector: Solar
  - Start Date: 2007
  - Description: 45% subsidy on solar power equipment through MFIs as cash payout or as a loan offset. MFIs get direct subsidies, line of credit, or credit guarantees. Financed by Rural Electrification Fund, World Bank Credit Fund, UNDP, and MFIs.
- **Renewable Energy Feed-in-Tariff**[290]
  - Start Date: 2011 (amended 2012)
  - Agency: Uganda Electricity Regulatory Authority
  - Description: Tariffs are presented below and follow a 20-year period of time.

Feed-in-Tariff[291]			
Wind	US$ 0.124/kWh, cap 100-150 MW between 2013 and 2016	Biomass	US$ 0.103/kWh, cap 25-50 MW between 2013-2016
Geothermal	US$ 0.077/kWh, cap 50-75 MW between 2013 and 2016	Bagasse	US$ 0.081/kWh, cap 75-120 MW between 2013-2016
Landfill Gas	US$ 0.089/kWh, cap 20-50 MW between 2013 and 2016	Hydro	500 kW – 1 MW = US$ 0.109/kWh, 1-9 MW = linear tariff, 9-20 MW = US$ 0.079/kWh, cap 2-5.5 MW for small size up to 180 MW for large size between 2013-2016

UKRAINE

- **VAT and Customs Duties Exemptions**[292]
  - Sector: RE
  - Start Date: 2008
  - Description: Decree of the Cabinet of Ministers, 14 May 2008, "On importing onto the customs territory of Ukraine of energy-conserving materials, equipment and spare parts." Excise duties and VAT exemption until end-2019 for the import of equipment for RE generating equipment provided that similar goods are not manufactured in Ukraine.
- **Green Tariff**[293][294]
  - Start Date: 2009 (amended 2013)

[289] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[290] Ibid.
[291] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[292] Ibid.
[293] Ibid.

- Agency: National Commission for State Energy Regulation
- Description: Bulletin of the Verkhovna Rada of Ukraine (BVR), 2009, N 13, st.155; Amendments adjusting Green Tariff System Approved to the Electricity Law (Law No. 10183). Tariffs are presented in the table below.

Feed-in-Tariff[294]			
Wind	< 600 kW = EUR 45.2 to 64.6/kWh through 2029, 600 kW to 2000 kW = EUR 52.8 to 75.4/kWh through 2029, > 2000 kW = EUR 79.2 to 113.1/kWh through 2029	Solar, Ground-Mounted	EUR 237.5 to 465.3/kWh
Biomass	EUR 86.7 to 123.9/kWh through 2029	Solar, Roof-Mounted	> 100 kW = EUR 244.3 to 445.9/kWh through 2029, < 100 kW = EUR 251 to 426.5/kWh through 2029
Biogas	EUR 86.7 to 123.9/kWh through 2029	Hydro	EUR 116.3 to 193.9/kWh through 2029 for micro plants, EUR 108.6 to 155.1/kWh for mini plants, and EUR 81.4 to 116.3 for small plants

UNITED ARAB EMIRATES

- **Overseas Renewable Energy Development Assistance Programme**[295]
  - Sector: RE
  - Start Date: 2009 (amended 2012)
  - Agency: Ministry of Foreign Affairs, Abu Dhabi Fund for Development, Crown Prince's Court, Masdar
  - Description: Financed by IRENA, Pacific Fund. Budget = US$ 400 million. RE development assistance programme. The Government of UAE set aside US$ 350 million in soft loans for RE projects (generation and transmission) in developing countries that are members of IRENA. Disburses US$ 50 million/year in loans, application process managed by IRENA.

URUGUAY

- **2012 Solar Thermal Energy Plan**[296]
  - Sector: Solar
  - Start Date: 2012
  - Agency: Ministry of Industry, Energy and Mining, UTE (electric utility), BHU (mortgage bank), Regulatory Agency for Energy and Water Services (URSEA)
  - Description: Executive Branch Decree N° 50/012. Solar Thermal for residences to heat water and decrease electricity consumption. BHU gives credit lines with preferential interest rates. Customers acquire the thermal panels on their own from a private company.
- **Tax Exemption for RE**[297]

[294] www.iea.org/media/pams/Ukraine_GreenTariffratesafter01April2013.xlsx
[295] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[296] Ibid.

- Sector: RE
- Start Date: 2012
- Agency: Ministry of Industry, Energy and Mining (Secretary of Energy), Ministry of Economy and Finance
- Description: Executive Branch Decree N° 2/012. Tax exemption for the clean technologies sector

- **Biofuel blend mandate: E5 by 2015, and B5**[298]
- **2010 Biomass Feed-in Tariff**[299]
  - Start Date: 2010
  - Agency: Ministry of Industry, Energy and Mining (Secretary of Energy), Ministry of Economy and Finance
  - Description: Executive Branch Decree N° 367/010. In advance of setting Feed-in-Tariffs, the electric utility (UTE) doesn't need to issue a public bid for acquiring biomass energy, limited to < 20 MW, the contract term is up to 20 years, and biomass generators are exonerated from fee payments for use of the distribution and transmission grid.

VIETNAM

- **EnDev 2 Viet Nam**[300]
  - Sector: Biogas
  - Agency: Ministry of Agriculture and Rural Development
  - Budget: The worldwide EnDev 2 budget is EUR 185.8 million; individual country budgets are not available
  - Duration: 2013-2017
  - Description: EnDev will implement a Result Based Finance mechanism through SNV and the National Biogas Programme in the domestic biogas sector in Vietnam. The RBF intervention is aimed at facilitating sector transformation, away from subsidies, and towards a more market-driven domestic biogas sector in Vietnam. Through this, the project aims to further reduce dependency on external financing and government support, through empowerment of the private sector. The project consists of several components aiming at acceleration of market growth by increasing Small-scale Biogas Plants deliveries by biogas mason enterprises, both those currently supported by the programme as well as non-donor supported digesters in the commercial market.
- **Distribution Efficiency Project**[301]
  - Sector: Distribution and Transmission
  - Agency: Vietnam Electricity (EVN), Ministry of Industry and Trade, Electricity Regulatory Authority of Vietnam (ERAV)
  - Financed by: AusAID, IDA, Government of Vietnam, Clean Technology Fund
  - Budget: US$ 800 million
  - Duration: 2012-2018
  - Description: The project seeks to improve the performance of Vietnam's power corporations in providing quality and reliable electricity services through distribution

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[297] Ibid.
[298] REN21. *Renewables 2013 – Global Status Report*. 2013
[299] UNEP. *Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries*. 2012
[300] http://endev.info/content/Vietnam
[301] http://www.worldbank.org/projects/P125996/distribution-efficiency-project?lang=en

network expansion and reinforcement, introduction of smart grid technologies in distribution. Technical assistance and capacity building is also provided to the ERAV Authority to improve efficiency in electricity tariffs, incorporate smart grid technologies and RE in the grid and distribution codes, and project management, monitoring and evaluation.

- **Rural Distribution Project**[302]
  - Sector: Distribution and Transmission
  - Agency: EVN
  - Financed by: AusAID, IDA, Government of Vietnam
  - Budget: US$ 206.28 million
  - Duration: 2008-2013
  - Description: This project improves the reliability and quality of medium voltage service to targeted retail electricity distribution systems. This includes rehabilitating and strengthening rural distribution networks in 15 provinces in the north, 11 in the central, and 20 in the south. Hai Phong City, Hai Duong province, and Dong Nai province will also receive rural distribution network rehabilitation and strengthening. Power companies will receive capacity building as well.
- **Rural Energy II - Additional Financing**[303]
  - Sector: Distribution and Transmission
  - Agency: Ministry of Industry and Trade, EVN
  - Financed by: IDA, Government of Vietnam, Local Communities
  - Budget: US$ 250.6 million
  - Start Date: 2009
  - Description: The objective of the Additional financing for Second Rural Energy Project is to improve access to good quality, affordable electricity services to rural communities in an efficient and sustainable manner, and to support Vietnam's efforts towards socioeconomic development. The additional credit for this project helps finance the costs associated with electrification of about 532 communes or about 550,000 households that will receive access to good quality, affordable electricity.
- **2011 National Power Development Plan**[304]
  - Sector: Wind
  - Start Date: 2011
  - Description: The Government of Vietnam fixed the price the ENV pays for wind energy purchases at VND 1,614/kWh, ENV is entitled to a subsidy of VND 207/kWh of purchased wind power. Wind developers exempt from import duties on equipment and from corporation taxes.
- **Biofuel blend mandate: E5**[305]

YEMEN

- **Rural Energy Access Project**[306]
  - Sector: Solar, Distribution and Transmission
  - Agency: Ministry of Electricity, Public Electricity Corporation
  - Financed by: IDA, AfDB, Islamic Development Bank – Al Aqsa Fund,

[302] http://www.worldbank.org/projects/P099211/rural-distribution-project?lang=en
[303] http://www.worldbank.org/projects/P113495/rural-energy-ii-additional-financing?lang=en&tab=overview
[304] IEA/IRENA Database of RE policies and programmes, www.iea.org/policiesandmeasures/renewableenergy
[305] REN21. *Renewables 2013 – Global Status Report*. 2013
[306] http://www.worldbank.org/projects/P092211/ry-rural-energy-access?lang=en&tab=overview

German Development Service, Government of Yemen, Unidentified
  - Budget: US$ 117.1 million
  - Duration: 2009-2017
  - Description: The Rural Energy Access Project for the Republic of Yemen: (i) improves electricity access of rural populations in the selected project area in a financially sustainable manner; and (ii) demonstrates the feasibility of increasing the access to electricity for rural households in off-grid areas through the implementation of solar home systems. With the restructuring, the bulk tariff rate by PEC will substantially increase but will remain below PEC's current cost of supply. The consumer tariff level, by covering operating costs, will ensure the financial sustainability of the rural electricity service providers.

ZAMBIA

- **Additional Financing for Zambia Increased Access to Electricity Services Project (IAES)** [307]
  - Sector: Hydro, Solar, Distribution and Transmission
  - Agency: Ministry of Energy and Water Development, Zambia Electricity Supply Corporation Ltd (ZESCO)
  - Financed by: IDA, Government of Zambia
  - Budget: US$ 22 million
  - Start Date: 2010
  - Description: The restructuring and additional financing would improve the implementation of the project and scale up the overall project outcomes by: (i) introducing an integrated approach for more efficient roll-out of grid intensification activities; (ii) expanding the mini-hydro development options under the on-going IAES project to include support for the replacement of existing diesel mini-grids with mini-hydro generation plants by ZESCO; (iii) adjusting the Sustainable Solar Market Package (SSMP) arrangements to increase implementation speed; and (iv) providing financing for additional project activities to: (a) mitigate the imminent risks of failure at two key bulk supply points which could potentially interrupt electricity supply to major parts of Lusaka and Livingstone; and (b) establish a connection fee subsidy scheme for connecting about 30,000 low income households to the grid in peri-urban and rural areas.
- **E10 and B5**

ZIMBABWE

- **Biofuel blend mandate: E5 to be raised to E10 and E15**[308]10

GLOBAL

- **Leveraging Pro-Poor Public-Private-Partnerships (5Ps) for rural development - Widening access to energy services for rural poor in Asia and the Pacific**[309]
  - Sector: RE, EE
  - Agency: United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
  - Financed by: IFAD

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[307] http://www.worldbank.org/projects/P121325/additional-financing-zambia-increased-access-electricity-services-project?lang=en

[308] REN21. *Renewables 2013 – Global Status Report*. 2013

[309] http://www.ifad.org/gbdocs/lot/2010/e/EB-2010-LOT-G-4-Rev-1.pdf

- Budget: US$ 1.35 million
- Duration: 2011-2015
- Countries: Bangladesh, Nepal, Lao PDR, China, and Indonesia
- Description: 5Ps empowers people in rural communities to attain a higher standard of living through better access to energy services by harnessing pro-poor public-private partnerships and increased financial resources from private sector investment and international carbon markets. Regional activities include policy studies, policy dialogue and capacity building and, at the national and local level, specific training programs and demonstration projects followed by knowledge dissemination. Objectives include creating an environment conducive to the private sector and entrepreneurs for value creation while considering similar investments in the future, and increasing the use of locally available RE resources, where possible, to orient energy systems for rural community development onto a sustainable path. International carbon markets will be investigated to help facilitate the transformation of agricultural wastes and other rural-related carbon and methane emissions into viable energy resources and services. This task will develop and implement three 5P demonstration projects (one in each: Bangladesh, Nepal, Lao PDR).