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Rural Electrification Funds: Sample Operational Documents and Resources

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Sample practical operational documents from around the globe are found below:

As this is a growing set of sample documents, further annotations and examples will be posted here on an ongoing basis.

If you have any suggestions, please contact us at ppp@worldbank.org.

Sample practical operational documents

To generate solutions for rural electrification in Africa, an innovative program, the [Africa Electrification Initiative \(AEI\)](#), created and sustained a living body of practical knowledge and a network of practitioners in the area of design and implementation of rural, peri-urban and urban on-grid and off-grid electrification programs.

Master Plans and Prospectuses for Seeking Donor Funding

Rwanda Prospectus—This "prospectus" goes beyond a typical national electrification master plan. It is designed to serve as planning document and more importantly as a "marketing" prospectus to persuade multilateral and bilateral donors to provide financial support to the Government of Rwanda's five year program to scale up electricity access. By providing detailed technical, financial and policy information in

one document, it facilitates the work of donors in justifying their support of Rwanda's electrification program to their governments or governing boards. [Prospectus for Rwanda Electricity Sector Access Programme—Volume I](#) (March 2009, Final Working Draft, 89 pages) and [Volume II, Technical Annex Containing Least Cost Master Plan](#), Castalia Strategic Advisors (March 2009, Final Working Draft, 34 pages)

Sample Laws, Legal and Regulatory Frameworks

Cambodia, REF Fund—This is the 2005 Cambodian law that establishes a Rural Electrification Fund to provide grants to lower the capital costs of projects designed to provide electricity services to previously unserved rural households and businesses. It describes the governance structure, functions and internal procedures of the fund. Similar funds or rural electrification agencies have now been established in more than 10 African countries. [Statute of the Rural Electrification Fund of the Kingdom of Cambodia](#) (November, 2005, PDF, 7 pages)

Tanzania, [Rural Energy Act](#) – Tanzania's Rural Energy Act is similar to the Cambodian law, but much more detailed. It establishes a Rural Electrification Board, Agency and Fund and describes in considerable detail the functions and relationships of these different entities. The Tanzanian law also provides more detail on sources of financing for the fund. In 2010, the World Bank initiated efforts to provide a line of credit that would provide easier access to longer term and lower cost loans to supplement the grants provided by the Rural Electrification Fund.

The performance of the African rural electrification funds and agencies has been evaluated in a study by the International Energy Agency in 2010, and presented in [Comparative Study on Rural Electrification Policies in Emerging Economies](#).

Regulatory Entities

Tanzania—EWURA, a suite of several documents developed by EWURA (the national electricity regulator of Tanzania) specifying the technical standards that must be satisfied and the studies that must be performed before a small power producer (a renewable generator or cogenerator exporting the energy associated with 10 MW or less of installed capacity) can get permission to connect to the main grid and sell electricity to the national utility. The goal of the document is to “standardize” the requirements and thereby reduce transaction costs for both parties. [Guidelines For Grid Interconnection of Small Power Projects in Tanzania \(Part A—Mandatory Requirements and Test Procedures](#) (38 pages), Part B—[Technical Guidelines](#) (33 pages), Part C—[Appendices- Studies To Be Conducted, Islanding and Protection](#) (44 pages) (March 2009, Working Draft For Public Consultation) (Short title: Interconnection Guidelines).

Tanzania—EWURA, a 2009 draft of the user's guide on the processes and approvals required for a grid connected SPP to sell electricity at wholesale or retail. (A final version of the user's guide is expected to be issued in 2010.) The Guidelines emphasize that the national utility's decision to connect an SPP to its grid can be made based only on technical criteria. The price for the power that the national utility will purchase from the SPP will be based on the regulator's annually updated estimate of the national utility's avoided cost. [Guidelines for Developers of Small Power Projects in Tanzania](#) (March 2009, Working Draft for Public Consultation, 53 pages) (Short title: Process Guidelines).

Vietnam—A regulation that spells out the rights and responsibilities of EVN (the Vietnamese national utility) and retail service providers (i.e., affiliated and non-affiliated entities that purchase electricity at wholesale and resell this electricity at retail to end use customers. Vietnam has had considerable success in expanding grid electrification through standardization of construction standards and standardized contracts between EVN and the retail service providers. The number of connected rural households grew from 14% in 1993 to 94.5% in 2008. A more detailed description of the Vietnamese electrification program can be found in the presentation at the June 2009 Maputo workshop of Mr. Hung Van Tien (Marjorie/Raluca: please provide the

URL). [Regulation on Organization and Operation of Electric Power Retail Service/Network](#) (Undated, 24 pages).

Rural Electrification Agencies and Funds

i. Information Packages For Investors

Bolivia

[SHS Medium Term Service Contracts - Teaser for Tender Package](#) (2004, 14 pages). A “teaser” document designed to interest international and domestic investors in competing for the right to install government subsidized solar home systems (SHS) on a mass basis in four defined geographic areas of Bolivia. Using a combination of “medium term service contracts” and capital subsidies, the program was designed to develop self-sustaining solar home systems in these regions. Unlike other earlier SHS programs in other countries, the Bolivian program placed heavy emphasis on independent monitoring of the performance of winning service providers.

ii. Operation Manuals

Cambodia

A detailed internal operations manual for the Cambodian Rural Electrification Fund. This builds on and “drills down” from the Cambodian Rural Electrification Fund law. Note the sample grant application forms for different types of applicants that are attached as appendices. The REF has a goal of disbursing 50,000 grants of US \$45 for each new household connection in rural areas. [Operational Manual For Rural Electrification Fund](#) (January 2007, 81 pages).

For additional information and resources visit [Cambodia’s Rural Electrification Fund](#).

iii. Pre-Investment Surveys

[Tanzani-Pre-Investment Survey For Sustainable Solar Market Packages Project](#) (Undated, 42 pages). A detailed interview guide for conducting a socio-economic survey of communities that could be candidates for community and household solar installations under a World Bank financed program. The survey is designed to provide information that would help in selecting communities that are more likely to be willing to pay for and benefit from the subsidized solar systems.

iv. Sample Terms of Reference (TORs) for Consultants

The first TOR is to hire a consultant to perform a post-installation validation of the village level economic benefits obtained from the installation of an off-grid mini-grid powered by a hydro/wind/biomass generator. The second TOR is to hire a chartered engineer to evaluate the safety, reliability and likely longevity of off-grid mini-grids that have received capital cost grants. It is anticipated that the on-site evaluations would take place 3 to 4 years after initial installation. The third TOR is to hire a consultant to perform an environmental assessment of off-grid mini-grids to evaluate compliance with the Government of Sri Lanka and World Bank requirements.

Sri Lanka

- [Village Hydro/Wind / Biomass Economic Benefits Verification](#) (2002, 2 pages)
- [Village Hydro/ Wind / Biomass Post-Installation Verification](#) (2002, 2 pages)

- [Post Completion Environmental Audit of Sub-Projects](#) (2002, 2 pages)

For more information, please visit Sri Lanka's [Rural Economic Development \(RERED\) Project](#)

v. Subsidy/Grant Applications and Agreements, Conditions of Service and Concessions

Sri Lanka

[Project Application Form](#) (October, 2005, 3 pages). A sample grant application for an off-grid community based mini-grid. The application requires information on the likely sources of funding (grants, loans and equity) as well as information on the likely economic effects of the project.

Mali

- This is a detailed annex to the concession document that allows a retail service provider to serve a specified community. It specifies minimum daily duration of the service and the requirement that voltage cannot fluctuate by more than 12% from the target level and frequency by more than 5 % from the target level. It also specifies the information that the concession holder must report to AMADER, the rural electrification agency in Mali. Article 21 specifies reporting requirements for the concession holder. Article 25 gives detailed formulas on how retail tariffs will be set. The tariff setting formula allows the concession holder to recover the costs of pre-financing the customer's connection costs. The overall effect is that AMADER (a rural energy agency) functions both as a grant giving agency and a de facto regulator. [AMADER-Cahier de Charges](#) (Undated, 15 pages, in French). [Technical Specifications to Concession Contract](#) (Unofficial English translation).
- The concession document which essentially constitutes a contract between AMADER and the holder of the concession. Like many contracts, it specifies force majeure conditions and a dispute resolution process. Article 6 spells out the operator's obligations relative maintenance and replacement. Article 15 describes the process by which a new operator may take over the concession at the end of the concession period and how the "outgoing operator" will be compensated. [AMADER Contrat d'autorisation](#) (Undated, 11 pages, in French). [Concession Contract](#) (Unofficial English translation).
- This agreement sets forth the rights and responsibilities of the concession operator and AMADER in financing a new project. Note the operator is allowed to provide cash or "in kind" contributions and must provide proof of these contributions within 60 days after the signing of the financing agreement. Article 3 provides a detailed description of when and how AMADER will provide its grants. AMADER agrees to disburse 25% of its total grant when the operator provides proof of its contribution. The remaining 75% is disbursed according to pre-determined "stages of work." [Convention de Financement](#) (Undated, 10 pages, in French). [Model Financing Agreement](#) (Unofficial English translation).

Connecting Entities

i. Contracts With Village Level Agents

Vietnam

A contract between EVN (the national utility) and local independent contractors who will provide meter reading, billing and minor repairs for retail customers. By using individuals from local communities to perform these services, EVN estimates that it saves 30 to 40% of what it would cost to provide the same services with one of its own employees. A typical service agent will be responsible for 30 to 100 households and will earn US \$30 to 120 per month.— [EVN: Contract with Service Agent](#) (2008, 12 pages).

ii. Technical Standards

Vietnam

[Principal Technical Standards For Electrical Materials and Construction Structures Part I](#) (MV and LV) (2006, 62 pages) and [Part II](#) (2006, 37 pages).

Peru

In Peru, technical and commercial quality of service standards are different in urban and rural areas. Quality of service standards are lower for isolated electricity service providers in rural areas. The rationale for setting lower standards of service in rural areas is that it is more difficult and costly to provide comparable service in rural areas at a price that would be avoidable to generally poorer rural customers. For example, the maximum allowed number of interruptions in urban concentrated areas is 12 while the comparable figure for rural dispersed areas is 40. [Normas Técnicas de Calidad de los Servicios Eléctricos Rurales](#), (in Spanish). [Quality of Service Standards for Grid Connected Rural Service Providers](#). (Unofficial English translation) (October 2008, 47 pages).

Further Reading

- [Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers](#), Technical Report of the Energy Sector Management Assistance Program (ESMAP), World Bank 2019.
- [From the Bottom Up: How Small Power Producers and Mini-Grids Can Deliver Electrification and Renewable Energy in Africa](#) by Bernard Tenenbaum, Chris Greacen, Tilak Siyambalapitiya and James Knuckles, World Bank 2014.

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- [Energy Licenses and Licensing Procedures](#)
- [Energy Agreements](#)
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- [Climate-Smart PPPs](#)

- [Managing Non-Technical Losses and Theft in Utility Contracts](#)
- [Gender & Energy Projects](#)
- [Further Reading on Energy and Power PPPs](#)

Additional Resources

- [Concessions Build-Operate-Transfer \(BOT\) and Design-Build-Operate \(DBO\) Projects](#)
- [Structuring Management, Operation and Maintenance Services](#)
- [Performance Contracts](#)
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Partner Resources



[Renewable Energy Project Resource Centre \(REPRC\)](#)

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