



Energy SME Program

Project Title: **Capacity Building among Small-Scale Off-Grid Energy Suppliers**

Region/Country:	Mongolia
Task Manager:	Salvador Rivera
Implementation Partner (if applicable):	NREC
Expected Dates for Start:	Nov 2006
Expected Dates for Completion:	Dec 2009

A brief summary of the project:

As a complement to the Renewable Energy and Access Project (REAP), this task will provide technical assistance (TA) to Mongolian private firms and newly created Soum Utilities, NREC, and central as well as decentralized Government in order to increase the role of renewable energy technologies in rural energy supply, strengthen and diversify off-grid energy supply chains, and increase rural access to modern energy. This will be achieved by pursuing the following action:

- (i) The ***Solar Home System (SHS) and Wind Turbine System (WTS) supply chain*** will be strengthened by assisting certified suppliers to set up support mechanisms at the soum center level.
- (ii) ***Soum Electricity Utilities*** will be created in rural Mongolia's villages (Soums) with improved management systems and operating hybrid diesel-renewable energy electricity generation systems. They are expected to initially have limited technical and financial capacity that will need to be strengthened by the provision of energy-specific TA and business development services (BDS) for the utilities as well as for local companies to start using electricity for their productive uses.



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I. Context

- 1.1. ***Energy access in rural Mongolia is low by any standard.*** Mongolia's harsh climatic and economic conditions make rural electrification especially challenging. There are some 190,000 herders without fixed location for their home for whom individual home electricity systems are the only feasible solution. In addition, it will be cost-prohibitive to connect some 60-80 isolated Soum centers of 300-400 households each to the national electricity network. A large number of rural Mongolians thus is deprived of electricity access, and this has been identified as a barrier for rural development.
- 1.2. ***Mongolia's new policies require solutions for the whole population in the near future.*** The Government is keenly aware that it can no longer avoid addressing rural development and related rural electrification issues. It pledged to provide reliable energy access for all inhabitants in the next 10 to 15 years. The extremely low rural population density, difficult topographic and climatic conditions cause rural communities to suffer from considerable isolation during part of the year. The provision of infrastructure services to rural areas is desirable but expensive and innovative off-grid technologies and supply schemes are required to match typical demand in a flexible and cost-effective manner.
- 1.3. ***MSME already play a role in service supply, but desperately need strengthening.*** These two distinct separate rural off-grid market segments are being serviced at a low level via micro and small enterprises (MSME). For the home systems for herders (solar and wind), certified suppliers currently develop the market mainly from Ulaanbaatar, and for the soum systems specific Soum Utilities are being created to operate the soum generators on a commercial basis. However, both types of MSME are fairly weak and several market barriers prevent them from increased service supplies.
- 1.4. ***The proposed project will directly address the barriers*** by strengthening existing energy service MSME which have been identified by NREC but are not yet covered by other ongoing access projects (ADB, World Bank, GTZ) – especially on the field of *PV and wind-based service supply and micro village grids.*



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II. Objectives and Activities

Objective	Activities	Deliverables	Impact indicators
Task 1: Strengthen SHS and wind Supply Chains	<ul style="list-style-type: none"> - training for certified suppliers and installers - seminars for local soum-based technicians - improve national testing and measurement capacity (labs and providers) - analyze and demonstrate potential of efficient appliances - provide BDS to certified suppliers on various levels of the SHS + WTS service supply chain, particularly by setting up service points in rural areas (e.g., sales, more appliances, field visits, repair and replacements, battery recycling, etc.) in order to diversify the market, strengthen small players and address bottlenecks in PV module and WT supply 	<ul style="list-style-type: none"> - training material - seminar evaluation - report on service mechanism for soum center MSME - analysis of supply chain before and after project 	<ul style="list-style-type: none"> - number of certified suppliers/MSME which have been strengthened - increased SHS sales - reduced SHS costs - improved after sales service infrastructure at soum centers - improved SHS quality (e.g. years till failure)
Task 2: TA for Small Scale Village Grid Suppliers	<ul style="list-style-type: none"> - Analysis of TA needs of Soum utilities to increase its performance and identify any policy or regulation measures hereto - Analysis of barriers for local MSME to start using or to increase electricity use - provide energy TA and BDS for soum utilities - provide energy TA and BDS for local MSME (including access to financing) 	<ul style="list-style-type: none"> - summary of proposals for MSME-friendly regulation - training manual for soum utility - brochure for soum-based MSME on electricity use - report on lessons village supply 	<ul style="list-style-type: none"> - soum utilities received TA - soum utilities operate better - service levels increased and/or off-grid energy lower costs - number of MSME now using electricity or greatly increased electricity use - proposals to complement regulation policy with MSME-specific solutions
Task 3: M&E and Dissemination	<ul style="list-style-type: none"> - Integrate M&E activities into REAP and disseminate beyond REAP project area - NREC to learn lessons and disseminate widely - user workshop / focus groups 	<ul style="list-style-type: none"> - national workshop - powerpoint presentation - publication(s) 	<ul style="list-style-type: none"> - M&E effective means for providing feedback and expansion - M&E results and lessons have been disseminated
Task 4: Supervision	<ul style="list-style-type: none"> - WB supervision of Tasks 1-3 	<ul style="list-style-type: none"> - brief final report with results and lessons 	<ul style="list-style-type: none"> - ESMAP-Section in Mission Aide Memoires, - Semi-annual reporting to ESMAP

III. Implementation Arrangement

The project will be implemented by the existing PIU of the World Bank's REAP project (Renewable Energy and Rural Electricity Access Project) allowing synergies and increased cost-efficiency. The project will be presented to the Board in December, 2006 and the PIU has just started up to further prepare for the project launch. The Government has recently created NREC to implement its off-grid, renewable, and rural electricity access program, and a mainstreamed M&E process will be useful to accelerate universal access in the country. In this way, it is



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guaranteed that the resulting lessons learnt as well as further dissemination will be directly taken up by the Government in the implementation of its strategy. The results of the capacity building as well as tools described in the table above (II), such as MSME demand assessments, desktop studies, focus groups and working clinics as well as the knowledge and expertise that NREC already has of the off-grid energy sector and its bottlenecks will assure that TA will be used appropriately. Innovative mechanisms such as matching grant schemes, first-come first-serve competition and quality-cost-based competition will be applied to increase TA efficiency. The experienced Task Team (see below) and local PIU will assure efficient donor coordination in Mongolia.

IV. Sustainability & Risks

The main risks are: (i) country political stability, recent political crisis, and the Government's wish to provide universal electricity access at all costs; (ii) generic rural economic development level and ability to pay for services; (iii) new providers may not have the capacity to enter the risky off-grid markets.

These risks are mitigated to the extent possible by: (i) working mainly with local businesses that consider the country risk not a limiting factor for market entry. In addition, GOM is co financing REAP to a large extent and it is not expected that GOM could provide further funds to even accelerate access; (ii) working with two off-grid technologies only that already demonstrated their potential in Mongolia; and (iii) using a well working local PIU and a World Bank Task Team with outstanding experienced in Mongolia and internationally renowned expertise in off-grid energy.

Sustainability of results is guaranteed to the extend possible: (i) implementation together with NREC will allow for results to be taken up directly by GOM for universal access strategy; (ii) REAP and GOM universal access strategy will secure the medium-term and long-term funding needed for scale-up of results; (iii) focusing on technologies and solutions adapted to the local markets have high potential for national replication; (iv) GOM approach and existing studies almost guarantee financial and social viability of service schemes (e.g. cost recovery).

V. Team Composition

Task Team World Bank

- Salvador Rivera (TTL)
- Feng Liu (Energy Economist)
- (Beijing or UB -based Energy/Infrastructure Specialist)

Task Team NREC

- Dr. Enebish (Director)
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VI. Performance Monitoring Indicators

As described above, the proposed project will directly and significantly contribute to the following Objectives/Verifiable Indicators (OVIs) of the DFID/ESMAP Energy SME Program:

- Increased % of poor people, communities and enterprises with sustainable access to affordable modern energy services **in Mongolia**
- Increased number of viable SMEs in energy service delivery **in Mongolia**
- Increase in the number of decentralized governments capable of contracting SMEs for the delivery of decentralized energy services → **via increased capacity of Soum utilities**
- **No significant measurable impact is expected towards** “Volume of private sector financing in energy rises above historical trends in countries of focused activity”, as the sectors in question currently have a very small overall volume.
- Number of proposals by local MSMEs increases **for targeted off-grid technologies in Mongolia**
- Delivery of one yearly workshop involving users **in Mongolia**
- Organizing a virtual group with donors active in the country to coordinate action for SME development in the energy and infrastructure sector
- Several OVIs of Components 1-3