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SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY COOPERATION AND DEVELOPMENT

REGIONAL ENERGY ACCESS NETWORK

August 2006

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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Acronyms

BESCOM	Bangalore Electricity Supply Company, Bangalore, India
CAI	Commonwealth Associates International
CBO	Community Based Organizations
CRED	Center for Rural Electrification Department, Kathmandu, Nepal
EF	Energy Forum, Colombo, Sri Lanka
GEB	Gujarat Electricity Board, India
GERC	Gujarat Electricity Regulatory Commission
GVP	Grama Vidyut Pratinidhi
IIM	Indian Institute of Management
IRMA	Institute for Rural Management, Anand (Gujarat), India
ISEC	Institute for Social and Economic Change, Bangalore, India
KV	Kilovolt
LESCO	Lahore Electricity Supply Company, Lahore, Pakistan
LOI	Letter of Intent
MGRURED	Mahatma Gandhi Regional Institute for Rural Energy & Development, Bangalore, India
NEA	Nepal Electricity Authority, Kathmandu, Nepal
NGO	Non-Governmental Organization
NRECA	National Rural Electric Cooperative Association, USA
PBS	Palli Bidyut Samithi, Bangladesh
PDB	Power Development Board, Bangladesh
PTA	Performance Trade Agreement
RE	Rural Energy
REAN	Regional Energy Access Network
REB	Rural Electrification Board, Bangladesh
RETN	Rural Energy Training Network
SAARC	South Asian Association for Regional Cooperation
SAREC	South Asia Regional Energy Coalition
SARI/E	South Asia Regional Initiative for Energy (USAID funded project)
SEBs	State Electricity Boards
USAID	United States Agency for International Development

Contents

Section	Pages
Section 1 Introduction	1-1
Section 2 RETN and the Foundation of REAN	2-1
Section 3 Overview of the Regional Energy Access Network	3-1
Section 4 Next Steps and Recommendations	4-1
Appendix A Rural Electricity Board (R.E.B) Dhaka	A-1
Appendix B Listing of REAN Members	B-1
Appendix C REAN by-laws	C-1
Appendix D Letter of Intent (Sample)	D-1
Appendix E Baseline Data Form (Sample)	E-1
Appendix F Renewable Energy Financing Options	F-1
Table	Pages
Table 2.1 Member Activities and Achievements	2-3
Table 4.1 Income	4-6
Table 4.2 Expenses	4-7
Table A-1 Dhaka PBS 1 Annual Performance Targets.....	A-4
Figure	Pages
Figure 3.1 REAN organization chart	3-2

The South Asia Regional Initiative for Energy Cooperation and Development (SARI/Energy) program was launched in 2000 with an objective to build mutually beneficial energy linkages among the countries of South Asia. The program is currently active in eight countries of South Asia, i.e. Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The program is supported by the United States Agency for International Development (USAID). SARI/Energy program contributions include: technical assistance and training; dissemination of good practices; exploring opportunities for the private sector; and, undertaking outreach and dissemination activities.

This final report summarizes the history, activities and achievements of the Regional Energy Access Network. The report also provides recommendations for future activities that may be undertaken by REAN, both with the support of USAID and as an independent institution. These recommendations should be viewed in the broader context of SARI/Energy's Strategic Objective (SO): *Promote Energy Security in South Asia* as well as Intermediate Result 1 (IR 1): *Increased Access to Diversified Clean Energy Supply*. Moreover, for the past year, SARI/E-related energy access activities have been guided by the following intention: to promote and demonstrate opportunities for investment in successful and sustainable energy supply and distribution models to marginalized communities. The success of the REAN effort may be measured against the degree to which it enables and helps to achieve these goals.

The following report provides background concerning the formation of REAN, a summary of its activities and achievements, an overview of the organization, and a review of recommendations for the future. In addition, the appendices provide extensive information concerning the Rural Electrification Board (REB) in Bangladesh, which served as a model for the network, and supporting documentation for REAN.

The Regional Energy Access Network (REAN), which was formally initiated in March 2006, is born out of the Rural Energy Training Network (RETN). The following section provides background concerning the purpose and history of the RETN.

In 2004, the SARI/Energy program proposed to conduct a feasibility study for a rural energy distribution training center. The goal of the center was to support regional training, information sharing and institutional capacity building in the area of rural electricity distribution. Funding for this feasibility study was provided under the SARI/Energy program and was led by Nexant, Inc. in conjunction with the Institute of International Education (IIE), which is a subcontractor to Nexant under SARI/E. The feasibility study was founded on the premise that the South Asian region does contain a number of successful models for both rural electrification services and for rural development outreach and capacity building. These models include rural electric cooperatives (RECs) that have proven to be effective in the delivery of electricity services to rural customers, as well as rural development programs that have demonstrated positive results with regional outreach and research. What was missing was a viable method for sharing and replicating lessons learned on successful rural energy distribution practices, through training and information dissemination, to other institutions and beneficiaries throughout the region.

The objective of this feasibility study was to evaluate the capacity for development and sustainable maintenance of a regional energy distribution training network under the SARI/Energy work program. Specifically, the feasibility study was designed to achieve the following objectives:

- Assess the capacity and commitment of selected candidate institutions in Bangladesh, India, Nepal and Sri Lanka to participate in and support this network on an ongoing basis
- Conduct a general review of training and information strengths and needs of these institutions
- Develop a framework for a participatory approach to developing and operating the network; one that is mutually beneficial to all the participating institutions and, as important, that helps these institutions better serve their unique constituencies
- Develop recommendations for implementation, including schedule and budget required

In summary form, the findings of the feasibility study were as follows:

1. **Training of Trainers** – The Study Team concluded that training of trainers (TOT) is the most cost- and time-effective way to build the capacity of participating institutions to actively support rural energy and electrification in their respective regions.

2. **Network Design** – The Study Team recommended the adoption of a regional network approach to training and information sharing as the most cost-effective way to spread the burden and benefits of participation.
3. **Incentivized Capacity Building** – To address a common problem with many training programs – the lack of any institutionalization of the information and skills learned by a few individuals in the course of training – the Team recommended a direct linkage between project funding and the implementation of lessons learned from TOT activities. Specifically, participating institutions were instructed to develop work plans to conduct demonstration projects or otherwise institutionalize lessons learned from the training. Approved work plans were funded under the SARI/E program. Tying implementation to funding provided added incentive that such implementation would occur.

An important element of the feasibility study was an assessment of the Rural Electrification Board (REB) in Bangladesh. REB is a successful USAID-funded rural electricity distribution cooperative that, over its 25+ year history, has managed to achieve very high revenue collection rates and low system line losses. Due to its success, REB was identified as a potential model for the management, training and implementation of other rural electrification pilot projects and capacity building efforts throughout South Asia. The feasibility study concluded, in addition to those recommendations listed above, that REB success is due in large measure to its robust and rigorous institutional training program. Over the course of its history, REB has developed materials and delivered training for literally every level of the organization, from senior management to line maintenance crew and from outside contractors to village level electricians and volunteer village advisors. REB has also developed an effective Performance Target Agreement (PTA) system that allows individual electricity distribution systems within the REB network to establish performance criteria and to be rewarded for meeting them. Both the training and PTA components are described in the general assessment of REB, attached as Appendix A.

Based on these findings and with the approval of USAID, RETN was formed in 2004. The basic objectives of RETN were to:

- Support sustainable rural electrification as a means to improve the social, economic and environmental well being of rural communities
- Improve the capacity of participating institutions to develop and deliver training and relevant information to rural energy customers and distribution utilities, using REB as an initial model and resource for these activities
- Raise awareness in both rural development institutions and distribution utilities of the need for ongoing, rigorous training as an integral component of any sustainable program for improved rural energy service delivery.

At the initial meeting of RETN in July of 2004, 6 member institutions signed an MOU committing themselves to the goals of the program. The members included

three development institutions and three distribution utilities throughout the region (a member listing is provided in Appendix B). During the next twelve months, one new member was added (Lahore Electricity Supply Company – LESCO – in Pakistan) and another was dropped due to lack of commitment and capacity to implement RETN goals and was replaced by another from the same location (Institute for Social and Economic Change – ISEC – Bangalore, India).

Over the course of the next year, RETN hosted four training activities, which are listed below along with the host member institution.

- Training of Trainers in Rural Electric Cooperative Management and Training Practices – hosted by RETN member Rural Electrification Board, Dhaka, Bangladesh
- Management of Linemen Training for Rural Electricity Supply Systems – hosted by Nepal Electricity Authority, Kathmandu, Nepal
- Governance of Community Based Organizations In Rural Electricity – hosted by Institute of Rural Management Anand (IRMA), Anand, India
- Sustainable Off-grid Electricity Systems for Communities – hosted by Energy Forum, Colombo, Sri Lanka

RETN also supported, via training, funded work plans and ongoing guidance and information, the following member activities and achievements.

Table 2.1 Member Activities and Achievements

Member	SARI Role/Activities	Results/Impacts
Institute of Rural Management, Anand (IRMA)	Introduce to REB success; Funded IRMA's work plan to conduct rural energy training needs assessment; Supported management training curriculum and materials development based on REB model.	Facilitated creation of a distinct <i>Center for Rural Energy Studies</i> at IRMA and development of: 3-month "Rural Energy Management" Post Graduate course; guided PhD thesis work on rural energy management for a master's program from Tezpur University, Assam; Developed course on <i>Governance & Management of Community Based Organizations (CBO)</i> ; Developed standard training package for Utilities planning to engage in Community Based RE systems; Delivered training on basic management and accounting for CBOs to nascent Rural Energy Associations in Afghanistan; appointed member of Gujarat Electricity Regulatory Commission (GERC) for rural energy management issues
Sri Lanka Energy Forum (EF)	Introduce EF to REB training program; Assist EF to become service provider to CEB; Funded work plan to support follow-on activities to meet EF objectives and to	Ceylon Electricity Board/Sri Lanka appointed subcommittee to develop procedures for outsourcing distribution line construction and maintenance services with projected cost savings of 20%. EF undertook the study on contractors (officials engaged in construction and bill collection activities) and prepared a

Member	SARI Role/Activities	Results/Impacts
	develop a training curriculum for the program on 'Sustainable Off-grid rural electricity systems for communities.	policy for CEB for registration of contractors EF is slated to be contractor accrediting agency for CEB Based on the subject training curriculum that was developed, EF is currently working with Provincial Councils in Sri Lanka to conduct these programs and provide on-going assistance in the off-grid sector
Community Rural Electrification Department (CRED) of Nepal Electricity Authority (NEA)	Assist NEA to review and revise training and to develop new modules, based on REB model, in ' <i>Governance; Linemen training; and Use of Performance Target Agreements for CBOs</i>	Updated management and operation training curriculum was delivered to 120 CBO Board members, representing more than 275,000 rural population; Support expansion of well-managed, financially viable CBOs (CBO pays 20% of cost to be connected to grid; government pays 80%) to thousands of newly connected end users
Gujarat Urja Vikas Nigam Limited (GUVNL)/ Gujarat electricity Board (GEB)	Introduced GEB to REB approach to hot line maintenance; Via IRMA, supported Training Needs Assessment of GUVNL and other stakeholders to launch micro-distribution units at village level	GUVNL recently launched new training center that will introduce <i>Hot Line Maintenance Training Curriculum for Linemen</i> modeled on Rural Electrification Board (REB); introduced viable approach to developing village level micro-distribution units for managing improved RE services, which should significantly improve rural energy services.
Bangalore Electricity Supply Company (BESCOM)	Introduced to REB training models; training of contractors; and use of performance target agreements	Supported development of pilot program with selected rural Grama Panchayats (GPs) for meter reading and bill collection activities. Have introduced a Grama Vidyut Pratinidhi (GVP) scheme to contract with local villagers for billings and collections – program resulted in increase in collections in targeted areas from 67% to 86% in two years.

Finally, it is important to note that RETN has helped to instill an important shift among its member institutions and utilities to emphasize rigorous training at all levels of operation and, more fundamentally, to involve the end user (both consumers and the broader community) in efforts to improve quality of supply, management, maintenance and revenue collections. Thus, RETN has provided the basic foundation for establishing the Regional Energy Access Network (REAN) with a wider perspective and a sustainable mission for the South Asian region. This mission, as well as proposed next steps and longer term recommendations, are discussed in the following two sections.

Section 3

Overview of the Regional Energy Access Network (REAN)

The South Asian region, as a whole, has a poor record of delivering continuous, quality electricity and related services to marginalized communities, particularly in the rural sector. At the same time, community- and consumer-based approaches to clean energy access have a proven record of success in improving services, lowering system losses and increasing revenues. In short, models do exist throughout the region which demonstrate that by involving electricity end-users in the management, operations, maintenance, billings, collections, training and community outreach that are integral components of every electrification network, the performance of that network improves. In examples from Bangladesh, India, Nepal and Sri Lanka, revenue collection rates are frequently over **85%** while service quality and regularity have significantly improved. This success rate also has important implications for energy investment. Many communities in the rural and urban sectors remain marginalized because investors are reluctant to finance electrification programs that have historically poor rates of return. By incorporating community-based models into their infrastructure investment programs, governments, private companies and donor agencies should achieve the higher returns and improved service quality that is a prerequisite for sustained investment.

However, while successful, such models are not mainstreamed throughout South Asia. What is needed is a regional body of organizations and individuals that is committed to promoting this model throughout the region and is capable of providing the resources, information, expertise, training and, to the extent possible, funding assistance necessary to help realize the tangible benefits of community and consumer involvement. For this reason, the Regional Energy Access Network (REAN) was formed to solidify the gains of RETN and to sustain the commitment of its members in promoting community-based approaches to rural energy services.

The Regional Energy Access Network was formally launched in March, 2006 when the seven core members of RETN signed Letters of Intent at a gathering hosted by RETN-member Energy Forum in Sri Lanka. (The meeting was linked to a training program on Sustainable Off-Grid Electricity Systems for Communities, which was funded in part by the SARI/E Small Grants Program). The rationale in forming REAN was to extend the original RETN in terms of mission, membership, services, advocacy and demonstration projects. These elements are discussed briefly below.

Goal: The Regional Energy Access Network (REAN) looks to be a self-sustaining regional organization for promoting, developing and implementing community and consumer based approaches to sustainable clean energy access throughout South Asia. In addition, REAN looks to help its member institutions and utilities operating in marginalized communities with the following key, measurable objectives:

- Improve power quality and service to end users
- Lower system losses

- Increase revenue collections
- Increase governmental and utility support of rural energy management and services programs that involve end user communities (as a necessary supplement to rural distribution projects).

Mission: The members of REAN have endorsed the following mission statement:

To promote and facilitate development of sustainable energy access systems for marginal communities throughout South Asia and to become a Center of Excellence for community-based and consumer-participatory models for the supply, distribution and management of commercially viable, quality, clean energy to those communities.

Organization: At the initial launch of REAN, the members endorsed a set of by-laws, provided as Appendix C, and agreed to the following organization structure.

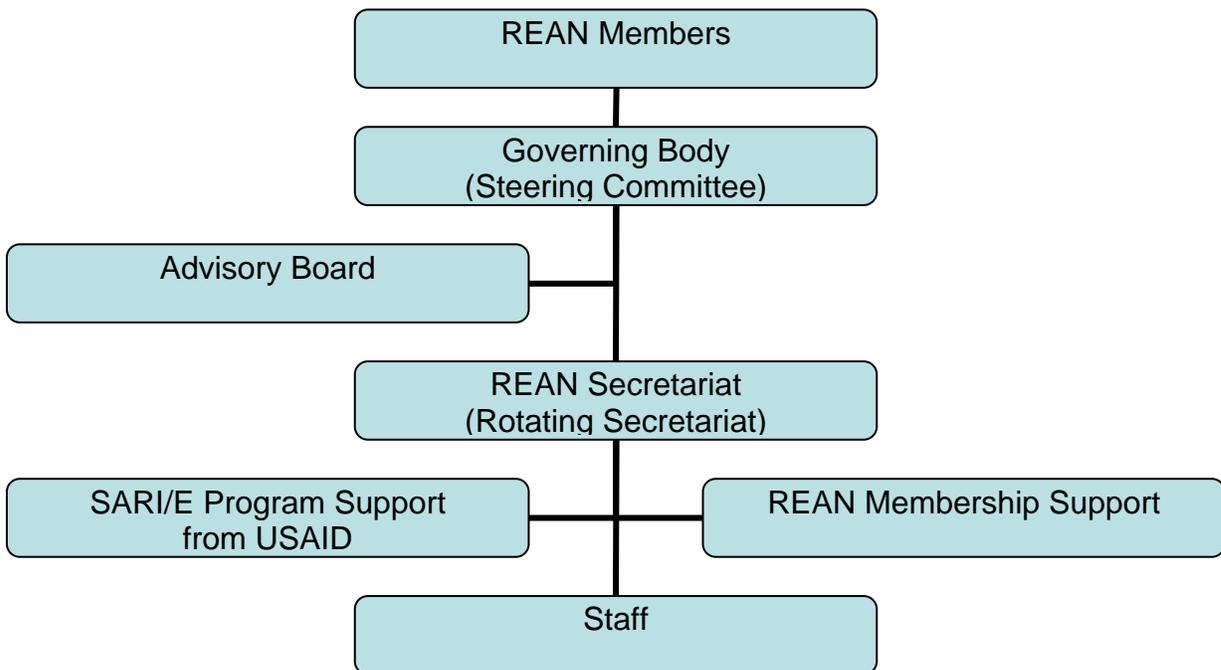


Figure 3.1: REAN Organization chart

Currently, REAN exists as an un-incorporated regional organization. It is governed by a Steering Committee of key members, which were selected by the REAN membership and include the founding members of the network. REAN is coordinated by a designated Secretariat. The Secretariat is hosted, initially, by IRMA, which will supply facilities and staff as an in-kind contribution to support the Network. Secretariat organizations may host the Network for a maximum of two years after which the Network Secretariat will shift to another institution as selected by the Steering Committee and following a process

defined in the organization by-laws. To date, the SARI/Energy program has provided start-up advisory, management and operations assistance as mutually determined and approved by REAN and USAID.

At the formative meeting of REAN in March 2006, the members endorsed a business plan and by laws. The business plan recommendations are incorporated into this report and the By Laws are provided separately as Appendix C. Also provided, in Appendix D, is a sample signed Letter of Intent from one of the REAN members.

Membership: REAN is open to institutions, organizations and other agencies, both government and private, as well as individuals, having interests in energy security issues in the region. Members pay an annual membership fee as determined and administered by the REAN Steering Committee in conjunction with USAID. REAN membership categories are listed below.

- Organization – includes any organization involved with energy access and renewable energy (such as non-profits, private companies, academic institutions, distribution and electricity supply utilities, energy cooperatives and associations, donor agencies, and regional associations) and is committed to promoting community based models for improved energy access
- Individual – any individual interested in promoting and developing sustainable energy supply and distribution models
- Affiliate (non-voting rights) – include government agencies and possibly donor agencies

With the organization established, the next questions concern how REAN is to expand membership and services and deliver on its potential. These issues are addressed in the next section.

REAN has the potential to become a viable regional resource for promoting and demonstrating sustainable approaches to increased energy access. At the formation of REAN in March, 2006, the members articulated the following goals for the organization:

- Facilitate the creation and development of effective community/consumer-based energy distributions systems and programs throughout South Asia
- Provide technical assistance, information resources and training support to improve the management and operations of energy supply and distribution systems providing power to vulnerable communities
- Promote government, donor agency and business policies, investment, funding and expansion of successful and sustainable energy access models that involve community participation

In addition, REAN adopted a number of targets at the operational, service and impact level for December 31, 2006: Those items that have been accomplished as of the writing of this report are indicate below with the following asterisk: ***

- **Operational**
 - Establish Network with signed Letter of Intent committing members to mission, rites, responsibilities and goals of the Network as defined by this business plan ***
 - Develop and endorse REAN by-laws ***
 - Form Steering Committee and identify host Secretariat. An interim REAN Director may also be selected. ***
 - Expand membership to a minimum of 10 institutions and/or individuals
 - Re-brand existing website and develop organizational marketing materials ***
 - Agree to plan to lower USAID financial support to become financially viable, without USAID support, by 2010
 - Agree to plan to increase non-USAID financial support, as % of total revenues, to **13%** of total income by September 30, 2007, and to **63%** of total income by September 30, 2010.
- **Services**
 - Facilitate the provision of a minimum of two competitive grants per year to REAN members to help them meet approved implementation projects (several basic grant proposals have been developed; these are referenced below)
 - Develop and provide member access to database and related resources to assist with design, development and implementation of effective community/consumer-based networks.

- Provide a minimum of two training programs to members in a year (and potentially to non-members on a fee-basis) in targeted technical areas. (one training was sponsored by IRMA in July 2006 with the focus on Governance of Community Based Systems).
- Provide curriculum support to academic and other training institutions
- **Impact**
 - Facilitate development of three sustainable energy access models, using community/consumer based principles
 - **25%** increase in number of customers served via REAN members, over current levels
 - Average **10%** improvement in revenue collection among those institutions facilitated by REAN members
 - Train 50 people in the management and operations of community-based organizations
 - Promote use of Performance Target Agreements with institutions and utilities involved with improving energy access to vulnerable communities with two such organizations adopting PTAs
 - Secure endorsement of 1 international, national, state or local (i.e. gram panchayat) governmental institution to support community-based approach to improved energy access to vulnerable communities
- **Services**

To help achieve the aforementioned goals and objectives, REAN will provide services to members and interested parties in the following areas:

- Development and improvement of community-based electricity associations via demonstration programs, funded projects and training activities
- Capacity building services to institutions and individuals to plan, develop and manage commercially and technically viable community-based energy services and projects
- Pool and share information and best practices on sustainable, community-based energy services and access for marginal communities
- Raise awareness, through research, outreach and advocacy concerning the financial, service quality and reliability advantages of community/consumer based approaches to energy access.

Next Steps and Recommendations

As stated, REAN has the potential to become an important force for the promotion and demonstration of successful models for sustainable energy access throughout the region. To achieve this potential, however, REAN must make an active commitment to

improving its outreach, communication and project implementation support capacity. To accomplish these objectives in the near term, the following recommendations are made:

- **Expand Membership:** REAN needs to actively expand its membership as per the guidelines indicated earlier. A list of prospective members has already been developed. REAN has indicated a goal of 10 new members by December 31, 2006.
 - 2-3 additional member institutions, with capacity to provide training and support to rural end users and distribution utilities
 - 5-10 electricity boards and/or regional distribution entities (including SEBs) as REAN affiliates
 - Selected affiliate NGOs and government agencies
 - Afghanistan observers and training beneficiaries
- **Baseline Data Resource:** REAN must begin collecting baseline data among its members and among the communities that it serves. Such baseline data is critical to demonstrating – to governments, donor agencies and communities – that consumer-based models to sustainable energy access do achieve measurable results. REAN has begun this process by disseminating a ‘baseline data report’ sheet to all members. A completed form from the Bangalore Electricity Supply Company (BESCOM) is provided in Appendix E
- **Information Dissemination:** REAN must improve its ability to collect and disseminate information, data and materials to facilitate the implementation of these models. The REAN website can serve as a starting point for this process. However, if REAN is to serve as a Center of Excellence for the promotion of community and consumer based models throughout the region, the network must actively engage in this activity.
- **Demonstration Projects:** REAN must focus more rigorously on demonstration projects with measurable results. With USAID approval, four REAN members prepared proposals or concepts for potential funding under the small grants component of the SARI/Energy program. In each case, the proposals were focused on pilot projects with measurable results. Such proposals should be encouraged and funded in subsequent years. In addition, REAN should approach other donor agencies as well as governmental organizations for funding for demonstration projects.
- **Renewable and Urban Energy:** Since inception, RETN has largely focused on rural distribution issues. This emphasis should continue. However, REAN should also expand capacity and support to two areas: renewable energy and urban access. As many rural villages are virtually inaccessible to the local grid, off-grid renewable energy solutions become necessary. REAN has already hosted one training program on off-grid community based solutions at which useful models for wind power, micro hydro, solar power and bio-mass solutions were described. This effort should continue – both with the collection and dissemination of relevant information and data and with the implementation of relevant demonstration projects. Second, as electricity access issues also affect urban areas, REAN should provide support in this

sector. Other than BESCO, utilities such as NDPL also have made important strides in this area and should be encouraged to join REAN.

- **Donor Agency Resource:** REAN needs to become an active resource to help achieve USAID and other donor agency development goals in the region. One REAN member, IRMA, has already participated in a USAID-funded training activity in Afghanistan, in which IRMA provided basic management and accounting training to two nascent rural energy associations in that country. To the extent that REAN can develop training materials and capacity, it can serve as a valuable resource to improving rural energy access throughout South Asia. As one example, BESCO has already indicated willingness to provide training support to LESCO (Lahore Electricity Supply Company) in Pakistan. This kind of activity should be actively encouraged in the future.
- **Incorporation:** REAN should take steps toward incorporation as a Society. By becoming a Society, REAN can solicit outside funding from donor agencies and governmental organizations. This is a critical step toward self-sustainability. The Society would likely be incorporated in a single South Asian country, but would have a rotating Secretariat to be located in other countries throughout South Asia. See REAN By-Laws for proposed organizational framework in Appendix C.
- **Bank Account:** REAN should establish a bank account in order to deposit REAN membership fees. The account should be completely transparent to the REAN governing body and to REAN members as a whole. The account should also have designated signature authorizations necessary to ensure trust and efficiency in the collection and allocation of REAN funds.
- **Outside Funding:** REAN actively solicit funding for selected activities, including training and demonstration projects, from donor agencies. It is recognized that REAN may need SARI/Energy assistance in developing these proposals. It is hoped that REAN can access funds that might otherwise be unavailable to individual member organizations and would then allocate such funding back to the members on a small grant basis for demonstration projects, training, research, etc.
- **Advocacy:** REAN can play an important role as an advocate for increased donor agency and governmental funding of successful community and consumer based models for improved rural energy supply and distribution. The REAN membership is very interested in developing this role. REAN membership has proposed developing a concept paper or white paper that synthesizes lessons learned and best practices from its work in the field of community and consumer based approaches to improved energy access. Such a paper could form the foundation for an effective advocacy program to encourage greater funding and policy support for these models.
- **Bill of Rights and Responsibilities:** REAN has begun to develop a Bill of Right and Responsibilities for energy consumers. REAN members will actively engage in the creation of a document that synthesizes lessons learned in this area. It is hoped that this document will serve as an important marketing tool for the network – to be posted at member facilities, to be disseminated to all stakeholders involved with community and consumer based approaches, and as a key branding device for REAN when approaching donor and governmental agencies for funding or as part of the network’s advocacy campaign.

In addition to the above, REAN should explore the development of the following support services:

- **Private Sector Investment Support:** Explore institutional and commercial options to attract private investment in community electrification and energy delivery management. REAN (as a whole or via individual members) may be able to play a role in the creation and/or hosting of a guarantee facility. A guarantee facility, modeled on the success of the Sustainable Guarantee Facility for energy projects in Sri Lanka, could focus on support of renewable energy projects or viable management approaches to improved energy access. As banks are more likely to fund projects with tangible assets, the proposed guarantee facility may have more success in serving as a financial guarantor for renewable energy projects that utilize proven management models as developed by the REAN members. Appendix F provides a brief summary of a range of financing options for renewable energy projects.
- **Energy Access Fund:** Assess creation of a “Community Energy Access Fund” to serve as a possible financial base for promoting community-based models for improved energy access. The fund could be seeded by donor agency support. The fund would seek to leverage counterpart funding and in-kind organizational support to develop demonstration projects. USAID may consider issuing Small Grants on this basis.

As part of the REAN business plan, which was endorsed by the founding members, the following budget was prepared. This budget is prepared here as a reference and, it is understood, may be modified based on future funding and programmatic priorities.

BUDGET

REAN seeks to expand membership and services that will position the network for financial self-sustainability by 2010. A healthy membership base built through valued services and advocacy work will provide a platform for growth as well as a revenue base to finance network operations. REAN plans to finance growth towards sustainability through cash flow and budget management in close coordination with the SARI/Energy Program. REAN recognizes that this means the coalition will have to grow more slowly than the management team might like, but that no unreasonable assessment of current members or borrowing is necessary.

In developing the budget for REAN, the organization has made the following assumptions:

- SARI/Energy Support – Initial funding from USAID will be required to cover basic operations, limited marketing and outreach, selected training activities, and small grants funding for demonstration programs and projects. REAN will receive such financial support in the following forms: SARI/E staff time (via contracted implementation organization) to support start-up operations; communications

support; website support and development and population of resource base; financial support for training activities in the future; travel expense support as necessary; and limited project demonstration funding awarded on a competitive small grants basis.

- Annual membership fees – Nominal membership fee for members, with differentiated funding for different member categories (institutions, private sector, individual) will be defined and administered by the REAN Steering Committee. REAN members have already indicated a willingness to pay \$50 per year.
- In-kind Member Support – The REAN Secretariat will agree to host the REAN and to provide facility and staff support, initially, on an in-kind basis for a limited period of time (1-2 years), after which point the host will switch locations. It is recognized that, to achieve its mission and objectives, REAN will likely need to generate sufficient income to pay permanent and/or part-time staff for its services.
- Charges for Services – REAN will charge non-members for such services as training activities and selected resources and information that are critical to establishing and operating viable community-based energy services groups.
- Development Agency and Private Sector Funding – REAN will solicit financial support and grant funding from selected donor agencies and private companies. REAN will need to be a legal entity in order to do this.

Table 4.1 INCOME

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Association Dues (1)	\$500.00	\$1,500.00	\$3,000.00	\$5,000.00	\$8,000.00
Corporate Funding	\$0.00	\$5,000.00	\$9,000.00	\$12,000.00	\$15,000.00
Donor Agency Funding	\$0.00	\$10,000.00	\$20,000.00	\$30,000.00	\$30,000.00
Network Activities – paid for by public	\$0.00	\$5,000.00	\$10,000.00	\$20,000.00	\$30,000.00
INCOME	\$500.00	\$21,500.00	\$42,000.00	\$67,000.00	\$83,000.00
Proposed USAID Support (2)	\$140,000.00	\$140,000.00	\$100,000.00	\$100,000.00	\$60,000.00
NET INCOME	\$140,500.00	\$161,500.00	\$142,000.00	\$167,000.00	\$143,000.00
In-kind Contributions (3)	TBD	TBD	TBD	TBD	TBD
TOTAL					

- 1) # members at \$50 per year; corporate members may be at a higher rate
- 2) This includes the following: SARI/E staff support time, project demonstration ‘grant’ funding, communications and marketing support, and website support
- 3) Members should identify their proposed level of in-kind contribution for the next 3 years (IRMA, for example, would include cost of hosting Network for 1-2 years)

Table 4.2 EXPENSES

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Network Administrative Support	\$0.00	\$10,000.00	\$16,000.00	\$20,000.00	\$25,000.00
Project Implementation Grants	\$0.00	\$0.00	\$10,000.00	\$20,000.00	\$20,000.00
Website development and hosting	\$0.00	\$0.00	\$1,500.00	\$1,500.00	\$1,500.00
Marketing and Communications	\$0.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Training	\$0.00	\$5,000.00	\$10,000.00	\$15,000.00	\$20,000.00
Advocacy	\$0.00	\$1,000.00	\$1,000.00	\$2,000.00	\$5,000.00
EXPENSES	\$0.00	\$21,000.00	\$43,500.00	\$63,500.00	\$76,500.00
Proposed USAID-Covered Expenses	\$140,000.00	\$140,000.00	\$100,000.00	\$100,000.00	\$60,000.00
NET EXPENSES	\$140,000.00	\$161,000.00	\$143,500.00	\$163,500.00	\$136,500.00

Table 4.3 DEFICIT/SURPLUS

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2009
Deficit/Surplus	\$500.00	\$500.00	(\$1,500.00)	\$3,500.00	\$6,500.00

Conclusion

After a year of existence, REAN has become a viable platform for changing the framework of rural electrification, both among the member institutions and, potentially, throughout the South Asian region. REAN members are now believers in the need to supplement distribution projects with community based systems for improved management and customer service, backed by rigorous REB-style training. The question is how best to use this platform to achieve USAID rural energy objectives. It seems clear that this transformation in approach must be a regional effort, for real change will only come as South Asian countries learn from the successes and lessons learned of other South Asian nations. As such, REAN can be an important complement to USAID bi-lateral programs, as a conduit for regional training and information sharing, as a coordinator for selected pilot projects within a common framework, and as a potential advocate for regional and country-specific RE policy, reform and development efforts.

Appendix A Rural Electricity Board (R.E.B) Dhaka

The following review of REB is excerpted from the feasibility study for RETN as originally submitted to USAID in the spring of 2004.

Historical Background

Power development in Bangladesh was marginal up to 1960. Under the direction of a government electricity directorate, generating capacity was only 20 MW, comprised mostly of captive units with no transmission system and with distribution systems confined to major cities and ports. A new directorate called the Water & Power Development directorate was formed in 1960 with the responsibility to create new generation, transmission and distribution facilities in the entire country as well as operations and maintenance. Under this directorate, generation capacity steadily increased to 420 MW with power demand around 220 MW by 1970. As a result of the Liberation movement and subsequent war there was no growth in the power sector until 1975.

After the country's liberation, the Bangladesh government decided to develop an intensive program of rural electrification and a separate Power Development Board (PDB) was established to generate and supply power. Eventually, unbundling of the Power Development Board was accomplished by creating a separate company for transmission called GRIDCO and two distribution companies known as DESA and DESCO, which provides urban distribution in Dhaka City. Generation is now provided by PDB and by a few Independent Power Producers as well as by a separate power generating company that has been formed to meet the power requirement of PBS. Regulatory Board has also been formed recently. To improve rural electricity distribution, the National Rural Electric Cooperative Association (NRECA) and Commonwealth Associates International (CAI) conducted a feasibility study funded by USAID. Based on their recommendation, a Rural Electricity Board (REB) was established by the end of 1976 by presidential ordinance.

REB Structure and Operations

REB's goal was to electrify the un-reached rural areas of Bangladesh by adopting the Rural Electric Cooperative (REC) model that was successful in the rural United States – a true symbol of grass root democracy where every electricity user is a member of the cooperative. These cooperatives called, Palli Bidyut Samithis in Bangladesh (PBS), had the primary task of distributing power in rural areas and was responsible for planning, construction, operation and maintenance of 33 & 11 KV network and low voltage distribution system up to consumer premises, as well as for new connections, revenue collection and other related services.

The PBS structure currently consists of 500-600 village electricity cooperatives, which are owned and managed by elected directors and local advisors under the concept of “one meter one vote.” According to PBS by-laws, defaulting consumers lose their membership rights. The central Rural Electricity Board served as an overall supervisory

organization providing engineering, procurement, management, financial support and on lending of capital at **3%** interest for development of new infrastructure.

The present installed generating capacity of 4680 MW comprises of 3420 MW from Bangladesh Power Development Board with another 1260 MW coming from the IPPs. The firm capacity is 3750 MW with shortage of power in summer months resulting in load shedding to PBS's. The power is distributed through 400, 230 and 132 kV transmission lines with grid sub-stations of 9845 MVA. The total consumer base including Dhaka City is 6.5 million. The following table provides information for REB as a whole and the Dhaka PBS 1 that was visited by the Study Team.

	REB	Dhaka PBS 1
Number of PBS formed	67	
Number of Thanas Included	424	
Number of villages Electrified	36340(60%)	744(out of 1128)
Number of 33 kv sub-stations	280	18
Revenue collection Efficiency	99.39%	98.06%
Consumer connection	4.2 million	1.71 lakhs
Average system losses	16.51 %	9.66%
Average Accounts Receivable	2.55 months	1.63
Area in Sq.Km:		1412
Population /Those having Access (,000)		1585/1150
Directors/Village Advisers		13/3
Energy sold Fy2003 (in MU)		46.16
Revenue (million Takas)		168
Revenue per K.M of line		Tk 5.33 lakhs
Date of formation		12/1978

REB supplies power at 33kv to the PBS's, which collectively operate and maintain the 33 and 11kv/ LT systems. New 33 kv lines and substations are constructed by REB and are subsequently transferred to PBS. Funding of rural electrification is generally provided by foreign donors and the Government of Bangladesh (GOB) passes these funds to REB at **2% p.a.** interest rate (**0.75%** with an 8 year grace period). Repayment is generally made in 50 semi-annual installments with exchange risk borne by GOB. These funds are given to the PBS entities at **3% p.a.** interest rate with 5-year grace period, with other terms frequently the same as those provided for REB borrowings.

The PBS Board/chief executive makes policy, operational and administrative decisions concerning the distribution of power in an assigned area. Each PBS is managed by its own engineering, finance, and general service wings at their respective headquarters office, with separate zonal and area offices. Each PBS covers about 5-10 thanas with 1500-2500 kilometers of line and from 20,000 to 100,000 consumers.

Electrification is provided by the construction of a backbone system into a carefully selected area from which every village can be given power. Lateral networks are later developed based on area revenue projections and the annual budget. All new system expansions are planned based on projected revenues and return on investment. Typically,

each PBS will contract with a private consulting service for system design, engineering and supervision of construction. The consultants work as an integral part of the PBS and are guided in their work by technical standards developed by NRECA. These consultants maintain system data, conduct load flow/loss estimation studies, prepare estimates and specifications, tender quantities, and supervise the work after the PBS awards work to trained contractors. Consultants generally act as the technical arm of the PBS, serving as a kind of honest broker, and plan network expansions based on revenue returns and estimated loss savings.

Proposals for new tariffs and tariff changes are prepared by the PBS and are implemented only after approval of REB and GOB. Tariff rates may differ from PBS to PBS based on consumer mix, capital investment needed for new connections, operational efficiency, etc. Monthly balance sheets are prepared using uniform accounting practices. On the revenue collection side of the equation, it is interesting to note that billings and cash-related office work is reserved for women. As for meter reading, all meter readers are engaged on a maximum four-year contract and are removed after this period, or earlier if their performance is deemed unsatisfactory.

Performance audits are based on mutually agreed annual performance targets, which are negotiated between REB and the PBS. These system losses, accounts receivable, revenue per K.M of line, outages per consumer, etc. A typical performance target and level of achievement for the Dhaka-1 PBS is provided in the figure below. Note that each performance target is assigned a relative weight, which is also negotiated, and determines the overall performance score for the PBS. REB will award annual bonuses to PBS staff based on their ability to achieve or exceed these performance targets.

PBS has implemented a number of loss reduction strategies, which have been highly successful in keeping line losses to an average of 16.5%. These loss reduction strategies include

- **Administrative Measures:** Meter readers are maintained on a limited contract basis to avoid collusion; customers are educated to prevent theft; area inspection occurs both day and in night; and strong disciplinary action is enforced on meter readings that are found to be in error.
- **Technical Measures:** Economic loading of lines, load balancing, low loss optimal size transformers, improved power factor & voltage using capacitors, all 1-phase and 3-phase meters are of high quality, regular monitoring of field performance of meters, electronic meters for High voltage consumers, and use of voltage regulators.
- **Maintenance Measures:** Use of Hot line maintenance (work on lines without de-energizing the lines) in the 33KV and 11 kV/low voltage networks helps to reduce down time; also, extensive use of Auto-reclosures in rural networks to localize faults – both of these practices are generally not seen in Indian SEB maintained networks,.

The Study Team learned that of the 67 PBSs, about 10 are making reasonable margins. Another 45 are able to balance expenditures against income on a relatively consistent basis, while the remaining PBSs do not meet expenses either because they were only

recently formed or their consumer mix is not favorable. However, all PBSs have system losses well under control and recoveries are in the range of **98 - 99 %**, with consistent quality power supply to rural areas. The transformer failure rate in the Dhaka PBS 1 was said to be **3%**, which is much better than many urban areas in the sub-continent, let alone in rural areas that typically experience a transformer failure rate of **20%-25%**.

DHAKA PALLI BIDYUT SAMITY-1
Palashbari, savar, Dhaka.
Performance Target For Group-1
Financial Year (2002-2003)

SL No.	Particulars		Weight Factor	Target 2002-2003	Acheivement 2002-2003
1	System Loss	L.B.	24	9.68%	9.66%
2	Accounts Receivable	L.B.	20	1.65	1.63
3	Accounts Payable	L.B.	2	1.00	1.00
4	Debt Service coverage	H.B.	2	11.18	8.33
5	Plant Revenue Ratio	L.B.	0	2.25	3.35
6	Equity Status	H.B.	0	76.52	74.76
7	Recovery of Amount Written off				
		H.B.	3	5%	5.07%
8	Payment of debt Service	H.B.	8	47932	48466743
9	Annual load Factor	H.B.	4	65%	65.56%
10	Revenue/ KM. of Line	H.B.	7	514	533
11	Total Cost of Providing Electric Service/ Exp./K.H.(Ex.PC & DEPR. Int. & Pro. Uncoll. Amt.) (TK.)	L.B.	6	23.00	22.90
12	Percentage of Total Connected Consumer Billed.	H.B.	2	100%	100.61%
13	Annual Growth in Consumers	H.B.	5	145000	153736
14	RATIO OF SERVICE IN PLACE AND CONSUMER CONNECTION	H.B.	3	97.99%	98.08%
15	Ratio Of Connected & Staked Consumer (STD 90%)	H B	2	99.11%	96.31%
16	Inspection of Distribution Line	H.B.	2	750	947
17	Maintanance of Distribution Lines	H.B.	3	750	943
18	Preventive Maintanance of Transformer & O.C.R (No)	H.B.	2	625	662
19	Repair of Damaged Transformer & O.C.R.(No.)	H.B.	3	550	550
20	Consumer Hours outage	L.B.	0	22	22.722
21	RATIO OF DISCONNECTED (OVER 90 DAYES) AND DISCONNECTABLE(OVER 90 DAYS) CONSUMER.	H.B.	2	52%	62.37%
			100		

Table A-1 Dhaka PBS 1 Annual Performance Targets

In general, the REB system compares very favorably with rural systems in India. According to "The "Distribution Committee Report for INDIA" headed by A.K.Basu loss levels in India average **40%-50%** compared to **16.5%** in the rural power network in Bangladesh. In addition, revenue recovery averages only **20%-30%** in many rural areas in India, which is far below that for Bangladesh. The Bangladesh experience has clearly

shown that well managed small rural distribution companies can have excellent operating performance records, particularly when compared to the large Indian State Electricity Boards (SEB) in the following areas:

- Low distribution loss
- Reliable & quality power supply
- Low transformer failure rates
- 98-99% revenue recovery
- Better consumer service
- Reduced consumer outage hours

All these factors have helped to reduce the subsidy burden on the government and to provide better economic conditions in rural areas. In assessing REB and in identifying areas for training and research by the proposed regional network, the Study Team articulated the following success factors that have contributed to REB's high operational efficiency:

- High Engineering & Construction Standards developed by NRECA and implemented through consultants who are also trained along with construction contractors for good field implementation
- Rigid Material Specifications and an excellent system for capturing feed back from the field and integrating this into future specifications
- Concerted effort to reduce System losses
- Top priority for maintenance of the distribution system and high quality training to all technical personnel, including Linesman, Technicians, Engineers, etc covering Hot line maintenance.
- Efforts to reduce customer outage hours, using high construction standards, regular maintenance, use of auto-reclosures, etc.
- Local involvement through customer training, training to local PBS Directors, and training to female village advisors,
- Strong emphasis on revenue collection, load growth through power use program, training to village electricians, etc.
- Prevention of collusion of meter readers and under billing due to their short tenure

Whole System is non-political and is supported by all parties.

The visit clearly indicated that intensive and regular training to all stakeholders in the power distribution sector – including policy makers, PBS Directors, village electricians, consultants, contractors, linemen, engineers, and others – was one of the key reasons for better performance. **“Training” is the most important critical success factor for the improved operating performance of PBS's.**

Training in REB/PBS: The Training Directorate is headed by a Director (Training) presently located in REB head quarters in Dhaka where training of all director-level,

managerial and finance staff is conducted. All technical training is done in the Training center located in Savar close to Dhaka where a 4-storied building houses the training wing in three floors with separate hostel and training area for pole erection, conductor stringing, fixing of insulators/accessories, etc. As one example of the rigorous training provided by REB, linemen receive training at three levels of three weeks' duration covering:

- Level-1: Basic Theory, material identification, ropes/rigging knots, pole climbing .
- Level-2: Review of level-1 training, line construction, meter installation, transformer installation, etc.
- Level-3: O& M of lines and sub-stations

For linemen, a pass mark for each test is **70%** for theory and **75%** for practical. Trainees are selected for each area after public advertisement. A public list of available positions is prepared and candidates are called for training based on the requirement of each PBS. A person older than 22 years is not called for training from the list and minimum age is 18 years. Level-4 training is provided for technicians and includes basic electrical engineering. Successful completion of training is a necessary requirement for promotion at each level. A 6-month training course is given to 6-8 selected linemen from each PBS with focus on Hot line working. The technical training center also trains engineers, contractor personnel and village electricians. A training of trainers program is conducted for PBS Trainers so that they, in turn, can train village advisers in the proper use of electricity, safety, and prevention/reporting of theft. This is normally a one week course. PBS also train village electricians in house wiring and how to ensure that schedule rates are fixed for wiring on per point basis so that prospective consumers are not cheated. All trainers are from the various wings of REB, such as Procurement specialist or field staff, and these people are paid a nominal honorarium. In addition, all trainers are evaluated by trainees and, if necessary, are given assistance to improve their training abilities. Extensive training course material has been developed by NRECA/REB.

Appendix B

Listing of REAN Members

No.	Country	Name	Title	Organization	Address
1	Nepal	Mr. Pandey RC	Director	NEA/CRED	Community Rural Electrification Department (CRED) Office of Rural Electrification Nepal Electricity Authority (NEA) Durbar marg, Kathmandu, Nepal
2	India	Dr Rajasekhar D	Professor & Head	ISEC	Center for Decentralization & Development (CDD) Institute for Social & Economic Change Nagarabhavi PO Bangalore 560072, India
3	India	Dr. Haribandhu Panda	Professor	IRMA	Office: Room No. 127 Institute of Rural Management (IRMA) PO Box: 60, Anand Gujarat 388 001, India
4	Pakistan	Mr. Saqib Jamal	Dy Manager RTC	LESCO	Lahore Electricity Supply Company Lahore, Pakistan
5	India	Mr. Sathyaprema Kumar BN	Communication & Reforms Coordinating Officer (CRCO)	BESCOM	Bangalore Electricity Supply Company KR Circle, Bangalore 560 001, India
6	Sri Lanka	Mr. Bandula Chandrasekhara	Programs Coordinator	Energy Forum	245, Polhengoda Road, Kirulapone, Colombo 05 Colombo, Sri Lanka
7	Bangladesh	Mr. Abdul Rahim	Director (Training)	REB	Rural electrification Board Nikunja -2 Khilkhet Dhaka 1229, Bangladesh

By-Laws**For****Regional Energy Access Network****1. Status of the Network**

Regional Energy Access Network is currently an unincorporated membership network of organizations from the SAARC member countries dedicated to fulfilling the following mission:

To promote and facilitate development of sustainable energy access systems for marginal communities throughout South Asia and to become a Center of Excellence for community based and consumer-participatory models for the supply, distribution and management of commercially viable, quality, clean energy to those communities.

The Network currently receives support from the USAID South Asia Regional Initiative for Energy (SARI/E) Program. The intention of the Network membership is to form an incorporated membership society with a governing body and rotating secretariat capable of fulfilling the mission of the organization on a sustainable basis.

2. Goals and Objectives

The goals and objectives for which the Network is established are as follows:

- Facilitate the formation, development and improvement of effective energy supply and distribution systems and programs throughout South Asia that incorporate community and consumer participation
- Provide technical assistance, information resources, training support and other services to improve the management and operations of energy supply and distribution systems that utilize local participatory models to provide power to vulnerable communities
- Promote government, donor agency and business policies, investment, funding and expansion of successful and sustainable energy access models that involve community participation

3. Membership

The membership of the Network is open to organizations and individuals that support the goals and objectives of the Network. The following membership categories are defined by the Network:

- Organization – includes organization involved with energy access and renewable energy (such as non-profits, private companies, academic institutions, distribution and electricity supply utilities, energy cooperatives and associations, donor agencies, and regional associations) and is committed to promoting community based models for improved energy access
- Individual – any individual interested in promoting and developing sustainable energy supply and distribution models, with the concurrence of the governing body of the Network
- Affiliate (non-voting rights) – include government agencies and donor agencies

Other organizational categories and types may be added with the agreement of the governing body of the Network.

Any organization or individual fulfilling the criteria for becoming a member can become a member of the Network and is subject to payment of Annual Membership Fee as determined by the governing body of the Network. Each organization can assign one representative as member and at least one alternate member, all of whom are committed to at least 1 year of active support for REAN's activities. However, one organization will have one voting right only.

Patron Member: The Governing Body will have power to admit without any application or annual fee, any person as a Patron member. A Patron member will not be liable to pay annual membership fee but will be subject to all responsibilities and duties of any member of the REAN, with the exception that a Patron member will not have voting rights in the REAN.

3.1 Termination of membership: The Governing Body shall have the power to expel a member from the Network on anyone of the following grounds:

- in case a member organization is dissolved or adjudged insolvent or the partners are convicted of offence involving moral turpitude
- in case of individual, on his or her death
- non-payment of annual subscription continuously for two years
- on written resignation
- if the organization or the individual ceases to fulfill the membership criteria as defined above
- if in the opinion of the Governing Body a member has acted or is acting in contravention to the rules of the Network or is injurious or detrimental to the interest of the organization, such member may be expelled by the Governing Body by a resolution passed by 2/3rd majority of the votes of the Governing Body.

An agency or an institution shall not cease to be member by reason only of a change in the constitution occasioned by the resignation, retirement or death of the proprietor, partner or director of the institution provided the business is continued in the conventional name in which such institution was elected as a member.

3.2 Appeal of membership: All the appeals should be preferred to the Governing Body of the Society. The decision of the General Body shall be final. The reason for rejection of appeal shall be communicated to the member concerned in writing.

3.3 Rights and privileges of members: Every member of the Network shall have voting rights as described in Article 4 hereunder. Members shall have the following rights and privileges:

- Members shall be entitled to participate in meetings and other lawful gatherings called or arranged by the Network upon invitation from the Network.
- Members shall have the right to inspect the books of accounts, minutes of proceedings of the General meetings and the register of members of the Network on any working day during business hours by giving reasonable notice.
- Members shall be bound by the Rules and Regulations and / or By Laws, which may be framed from time to time.
- Members shall support the goals and objectives of the Network.
- Members shall participate in the election of members of the Governing Body of the above Network as hereinafter prescribed.

3.4 Voting rights: At the General Body Meeting of the Network, every member shall be entitled to be represented by or to vote through its authorized representative. No member shall be entitled to vote at any General Body Meeting of the Network unless all subscriptions or other amount due from such member to the Network have been paid before the date of the meeting.

4. Governance

4.1 General Body: All the Members of the Network will constitute the General Body. There shall be an annual general meeting once in every financial year. Members may participate and vote via electronic means, including conference call and/or email, if they are unable to attend.

4.2 Functions of the General Body: To consider any business brought forward by the Governing Body, including amendments to these By Laws. Every question submitted to the General Body shall be decided by a majority of members present and voting at such meeting. No less than 15 days notice shall be given to the members before the date of general body meeting, enclosing the agenda specifying the date, time and place. However, a General Body meeting may be called at shorter notice with the consent of members holding not less than **50%** voting power.

4.3 Governing Body: The initial and the first Governing Body, prior to incorporation of the Network, shall be known as the Steering Committee. The

Steering Committee shall consist such Network members, including representatives of Network member organizations or individual members, who are nominated and selected by the Network membership. The Steering Committee shall consist of not less than 5 and not more than 15 members and shall include at least one member from each member country. The Steering committee shall have the exclusive right to accept or reject any membership based on conditions that will be laid out and accepted by the Steering Committee.

4.4 Election: The General Body at its annual meetings will elect the members of the governing body subject to the stipulation as mentioned above. Any member may be eligible to be appointed as a member of the Governing Body provided he has been a member of the Network as a founding member or for a continuous period of two years. Nominations for the General Body are made by the general body in such manner as determined initially by the founding members of the Network and subsequently as determined by the Governing Body, with subsequent approval by the General Body.

4.5 Term of office of Governing Body/Steering committee: The members of the Governing Body shall hold the office for two years, but shall be eligible for re-election. Each term shall be for two years and election shall be held every two years. Members may serve on the Governing Body for a maximum of two consecutive terms, but may serve again after an absence from the Governing Body for a minimum of two consecutive terms. Efforts will be made to retain 2/3rds membership of the Governing Body at each change in term..

4.6 Composition of Governing Body/steering committee: The Governing Body/steering committee will be comprised of a Chairman, a General Secretary, a Treasurer and such other members who would be designated as Directors subject to the maximum limit as prescribed hereinabove. The Chairman, General Secretary and the Treasurer shall be nominated and elected by the Governing Body, with immediate notification to the General Body. Other such offices of the Governing Body may be proposed by the members of the Governing Body and approved by 60% or more of the Governing Body.

4.7 Power & Duties of the Office Bearers:

Chairman:

- The Chairman shall supervise all works and activities done by other office bearers of the association.
- The Chairman will be the head of the Governing Body and preside over the meetings of the General Body and the Governing Body.
- He will have the right of casting of vote in case of tie.

General Secretary:

- To conduct correspondence on behalf of the Network with the approval of the Governing Body and to record the proceedings of meetings.
- To summon and attend the meetings of the General Body. To call ordinary General Meeting if desired on written request.

- To maintain register of members
- To record elections and other decisions that may be recorded by the vote of the members
- To perform all such duties as are incidental to office and may be assigned responsibilities over and above those falling under the purview of the General Secretary under the overall supervision, direction and control of the General Secretary

Treasurer:

- The Treasurer shall cause to keep account of all the receipts, expenditures & properties of the association and shall furnish necessary information to the Governing Body.
- The Treasurer shall co-sign for all financial deposits and expenditures with a minimum of one additional signatory from among the Governing Body

4.8 Advisory Board: The Governing Body may choose to form an Advisory Body. The Advisory Body would include any organization, including donor agencies, or individuals that are committed to the mission, goals and objectives of the Network. Nomination and selection to the Advisory Board must be approved by the Governing Body. The role of the Advisory Board would be limited to an advisory capacity only.

4.9 General Power & Duties of the Governing Body: Subject to the provision of these rules and Regulations, the Governing body shall administer and manage all the affairs of the Network

- The governing body shall have general oversight in regard to all matters relating to the management and organization of the Network. In addition to the powers and authorities conferred by these By Laws or otherwise conferred upon them, they may exercise all such powers and do all such acts and things as may be exercised or done by the Network in the general body meeting
- Without prejudice to the general powers conferred by the last preceding clause and other powers conferred by these presents it is hereby declared that the Governing Body shall have the following powers:
 - The governing body may appoint on such terms with or without remuneration a Director for the Network. The Director must be a member of the Network and may be a member of the Governing Body of the Network. The Director in turn has responsibility for appointing with or without remuneration Managers, Officers, Clerks and other officials, caretakers and servants as he or she may deem expedient for any of the purposes connected with these presents and may at any time remove any such manager, official clerk, caretaker or servant
 - At their discretion, to employ and pay any agent to transact business on behalf of the Network.

- To set membership fees, to collect such fees and to deposit any and all Network-related revenues in a financial institution as selected and approved by a majority of the Governing Body.
- To enter into agreements for cooperation and coordination with other institutes founded for cognate objects
- Power to determine expenditure guidelines for the Network and to authorize specific expenditures as may be undertaken by the Network. Actual expenditures from Network controlled accounts require the written approval (signature or email) of the Chairman, Treasurer and Director of the Network. If the Chairman and Director are the same persons, written approval of a third member of the Governing Body will be required. The Network or any member of the Network may not commit to expenditures of any amount of which the Network does not have a full ownership claim.
- To do all such things as may be necessary, incidental or conducive to the attainment of all or any of the objectives of Network

4.8 Quorum and Notice of the meeting: The meetings of the Governing Body shall be held as and when necessary for which 7 days clear notice will be required, though the meeting could be called at shorter notice provided that all the attendee members do not object to such shorter notice. The quorum for the meeting shall be a majority of the total numbers of members in the governing body. Governing Body members may attend meetings in person or via conference call provided there is some level of confirmation of actual attendance.

4.9 Chapters: The Network may form Chapters at member countries or Region or Zonal levels. Chapters will attend to the local matters of the country, Region or Zone, as the case may be and will report to the Governing Body. The Office bearers of each Chapter shall at least have a President and a Secretary and other members as may be required, who shall be appointed / nominated by the Governing Body from amongst the members of the General Body from that country, region or zone.

5. Sources of income and utilization of funds:

5.1 Sources of income: Sources of income shall be determined by the Governing Body and shall include, but may not be limited to, the following:

- Membership fee
- Fees for services, such as training activities and other services
- Revenues from sale of publications, data sets or other information
- Donations, grants, special contributions and/or contracts from donor agencies, private institutions or other such agencies
- Private company sponsorship or return from advertisements or other such private sector payment

- 5.2 Bank Account Management:** The Bank account of the Network shall be operated jointly by at least two members who shall be decided by the governing body from time to time.
- 5.3 Financial year:** The financial year of the Network shall start from the 1st day of January to 31st day of December each year
- 5.4 Audit:** Prior to each annual General Meeting an auditor shall be appointed to audit the accounts of the Network. Governing Body may fill casual Vacancy in the office of auditor.

LETTER OF INTENT**For support of the****REGIONAL ENERGY ACCESS NETWORK**

This letter of intent is to certify our status as a founding member of the Regional Energy Access Network (REAN), which was formed with the support of the USAID South Asia Regional Initiative for Energy (SARI/Energy) Program, and to indicate our ongoing support of the Network. We hereby indicate our commitment to fulfilling the following mission of this Network:

To promote and facilitate development of sustainable energy access systems for marginal communities throughout south asia and to become a Center of Excellence for community-based and consumer-participatory based models for the supply, distribution and management of commercially viable, quality, clean energy to those communities.

We also hereby endorse the organizational structure and goals embodied in the by-laws and Business Plan for the Network and agree to help expand the Network as a healthy, viable, credible and ethical regional membership institution. In so doing, we assume the following responsibilities:

1. To support the formation, governing structure, policies and continuing operations of the Network
2. To facilitate wherever possible the delivery of Network services, including training, materials, information resources and databases, communications and outreach activities, demonstration projects and other services of a true regional Center of Excellence for community-based and consumer-participatory based approaches to improved energy access
3. To support wherever possible the achievement of Performance Target Agreements as agreed to by the Network leadership
4. To support wherever possible activities aimed at improving the financial health of the Network and to helping the Network become a financially self-sustaining organization
5. To fulfill all other rights and responsibilities associated with being a full organizational member of the Network

As a founding member, we strongly believe in the mission and purpose of the Network and commit to participating as an active member in helping the Network achieve its institutional goals and objectives.

Signed,

Appendix E

Sample Baseline Data Form (from BESCOM)

REAN Member Profile April 2006

Organizational Information	
Name of Organization:	BANGALORE ELECTRICITY SUPPLY COMPANY LIMITED (BESCOM)
Type of Organization:	ELECTRICITY DISTRIBUTION COMPANY / UTILITY
Description of Program(s) that Support or Involve Participatory Approach to Improved Energy Access:	<u>OR</u> GRAMA VIDYUTH PRATHINIDIS (GVPs) MICRO FEEDER FRANCHISEE (MFF)

Institutional Data	
Number of Consumers Supported via Participatory Models	142 MILLION CUSTOMERS
Number of People Trained in Participatory Approach	928
Number of Participatory Models Developed	ONE
Number of Studies on Participatory Models	-
Other Relevant Info (Identify)	-

Utility Data			
Number of Customers	5.5 MILLION	% of Customers Using or Benefiting from Participatory Model*	26%
Revenue Collection Rate (in rural areas)	67%	% Collection Rate in Rural Areas with Participatory Model	87%
Line Losses	22%	% Line Losses with Participatory Model	-
Supply Hours Per Day in Rural Areas	8	Average Supply Hours with Participatory Model	TBD

* A participatory model is defined as whenever the electricity customer or end user participates in the management, billings, collections and/or maintenance of the electricity service they receive – examples include cooperatives, community or community-based organizations, or localized service contracting.

Appendix F Renewable Energy Financing Options

Project finance Options for Renewable Energy Projects

Source: UNCTAD

Lease-Purchase scheme for small hydropower plants in Cambodia. On the basis of a feasibility study, local entrepreneurs negotiated a power purchase agreement with the national utility Electricite de Cambodge (EdC) and signed a lease-purchase agreement for the hydropower plant; both would come into operation only once the plant has actually been constructed. On the basis of these two agreements, the entrepreneur could then obtain short-term construction loans from local banks and equipment suppliers - in other words, until the plant is constructed, the entrepreneur takes all the risks. However, once the plant is operational, the lease-purchase agreement becomes operational: EdC buys the plant from the entrepreneur for the total of his construction loans, which can then be reimbursed. EdC leases back the plant to the entrepreneur and deducts the payments due for the lease from the electricity payments it makes under the PPA.

Special Purpose Vehicle (SPV) to take out the loan to finance the project. Effectively the loan is on the books of the project (SPV) and not the project-promoting company. It is off-balance sheet finance, not corporate finance, which has benefits for both the project developer and the financiers." Once the project has been constructed and is deemed operational (which is normally after a number of months of test operations) the financiers have no recourse to the project sponsors but depend entirely on the project itself as a source of repayment. The source of debt service (interest and principal) is primarily the cash flow from the project and financiers will try to gain as much control as possible over this flow. Thus security of the fuel supply agreement and reliability of the cash flow projections assume critical importance. One example for a fairly large renewable energy project is that arranged for an Israeli firm, specialized in geothermal energy, which started in 2004 with the construction of a geothermal power plant in Guatemala. In order to finance the project, the company set up a special purpose project company, with contract obligations backed by a Government trust fund.

Energy Performance Contracting Energy Performance Contracting is a turnkey engineering and general contracting service (just like a standard EPC contract), but with the special characteristic that the engineering contractors are paid on a performance basis rather than on the basis of a flat fee or a cost-plus basis. The performance is reflected in the savings made throughout the life of the project as compared to a "baseline" scenario. In a way, the engineering contractor guarantees that these savings are indeed made; if they are not, he is paid much less than originally anticipated.

Receivables-based financing A receivables-based financing structure focuses on leveraging contractual obligations within the value chain. Receivables from the power purchaser or receivables from other partners in the chain can be used either as security or for directly meeting the financial obligations related to the renewable energy project. In Zambia and Zimbabwe, dams were used for irrigation and for generating hydropower. Banks were unwilling to provide the required longer-term funding. But local pension funds were interested, because it was possible to structure a scheme under which they received offshore hard-currency receivables. In each case, the production of the dam's customers

(the farmers) was assigned to the dam's financiers (the pension funds). The farmers produced horticultural crops thanks to the dam, and these crops were sold under a long-term contract with overseas customers (supermarket stores in the United Kingdom). Receivables-based financing can also be used to stimulate the production of biofuels. For example, in India, there are several projects to replace diesel by bio-diesel, produced from a vegetable oilseed called jatropha. One company, Southern Online Technologies, active in the state of Andhra Pradesh, funded a jatropha-processing plant and the campaign finance for several smallholder jatropha plantations on the back of receivables.

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