USAID
FROM THE AMERICAN PEOPLE

SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY COOPERATION AND DEVELOPMENT (SARI/E)

MIDTERM EVALUATION REPORT

April 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by Management Systems International.

SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY COOPERATION AND DEVELOPMENT (SARI/E)

MIDTERM EVALUATION REPORT

Management Systems International
Corporate Offices
600 Water Street, SW
Washington, DC 20024

Contracted under RAN-M-00-04-00049-A-FY05-51

Pakistan Economic Growth Evaluation and Design (PEGED) Project

Prepared for USAID/Pakistan

CONTENTS

TABLES

FIGURES

PREFACE

The South Asia Regional Initiative for Energy (SARI/E) program was designed to promote technical and institutional frameworks for regional energy planning and infrastructure investment involving cross-border trade in energy. The idea was that promoting regional power exchanges and developing regional power transmission networks would help provide access to untapped energy resources and assure the reliability of energy supply and mutual support to the nations of South Asia.

The program works in Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The Pakistan activities of SARI/E fall under the Economic Growth portfolio of USAID/Pakistan, and began in 2004. The USAID Mission to Pakistan is currently evaluating its entire Economic Growth portfolio of eight projects. The Pakistan component of SARI/E is fairly small since Pakistan and Afghanistan were brought into the program in 2004, 4 years after the other six countries. The Government of Pakistan's contribution has been support to the regular operations of the organizations with which SARI/E has worked, such as the Water and Power Development Authority (WAPDA), the National Electric Power Regulatory Authority (NEPRA), and the Alternative Energy Development Board (AEDB).

The purpose of this evaluation is not only to provide a picture of what SARI/E has accomplished in Pakistan, but also to draw lessons learned from its experience for designing future programs. This evaluation comes at about the mid-point of the SARI/E program, and hence can greatly contribute to future directions for this effort. Although this review is limited to the Pakistan- specific activities, the evaluation touches upon the structures and results in other countries, since some activities are intrinsically tied together.

This mid-term evaluation provides a basis for guiding the continued implementation of SARI/E in Pakistan.

ACKNOWLEDGEMENTS

The evaluation team is grateful for the support provided by USAID/Pakistan in conducting this evaluation, and for providing the opportunity to evaluate this interesting and complex program. The astute insight provided by Amy Meyer, USAID/Pakistan's Director for the Economic Growth Office, was invaluable during the course of our work, both on the evaluation framework and on the energy specific focus areas. Also, the team very much appreciates the sharing of information by the SARI/E Program managers, both in Delhi and Pakistan. The SARI contractors were very helpful including Winrock, United States Energy Association (USEA), National Renewable Energy Laboratory (NREL) and PA Government Services Inc.

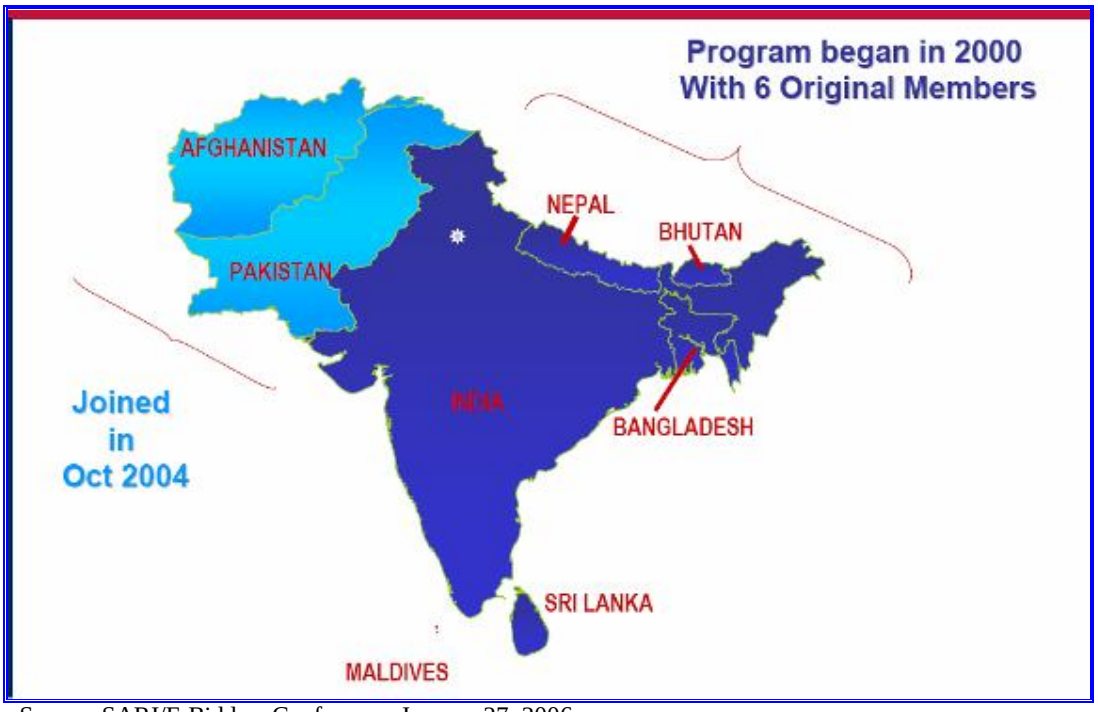
The Government of Pakistan officials interviewed by the evaluation team were very open and we are grateful for their giving so fully of their time. Their insight was critical to honing of conclusions and recommendations of this evaluation.

The team acknowledges Suhail Sattar and Shunila David of MSI/Pakistan for their good-spirited logistical support as well as Logan Clark of MSI/Washington who provided valuable assistance in research. We also acknowledge Rose Johnson, who provided exceptional editing support.

PROJECT SUMMARY

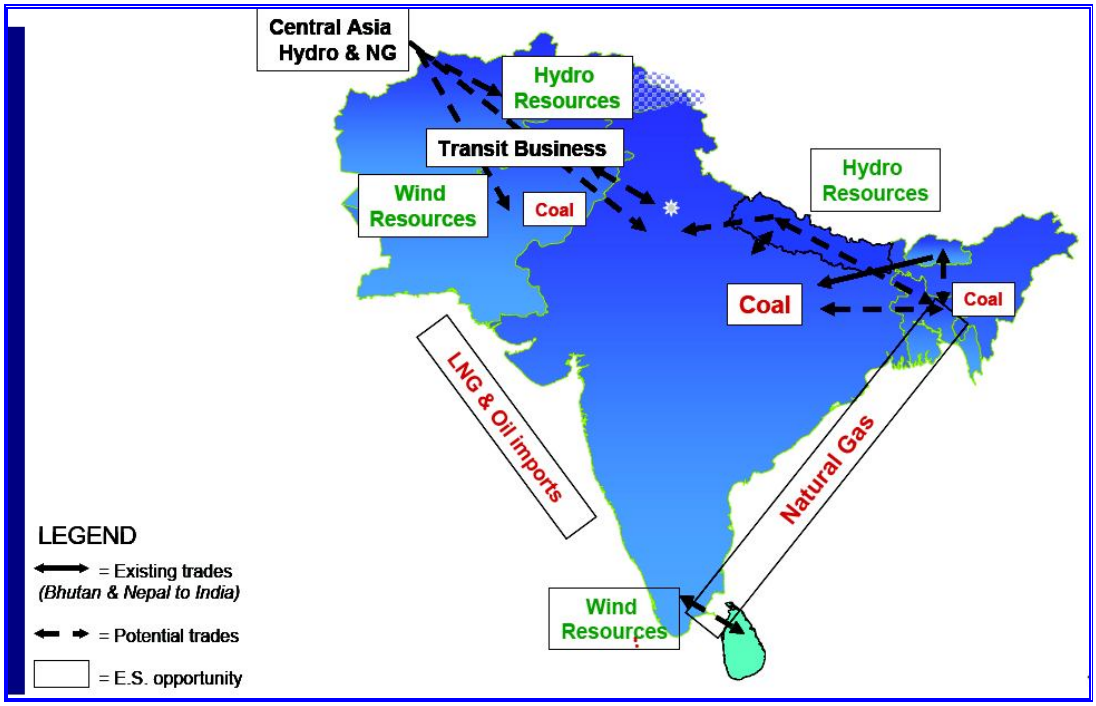
Project Name and Strategic Objectives (SO)	**South Asia Regional Initiative for Energy Cooperation and Development (SARI/E)** SO 6: Increased economic opportunities for the poor IR: no specific IRs addressed
Life of the Project (LOP)	11 years (2000 –2011)
Implementing Partners and Contract Numbers	**PA Government Services, Inc. (2007-present)** **(Associates in Pakistan: Haggler Bailey)** Contract No. 386-C-00-07-00033-00 Michael Ellis, Project Manager Michael.Ellis@paconsulting.com **United States Energy Association (USEA) (2000-present)** South Asia Regional Energy Partnership Program (SAREPP) 2 Contract No. 386-A-00-04-00195-00-USEA John Hammond, Program Manager jhammond@usea.org **National Energy Renewable Laboratory (NREL), Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy (2000-present)** Satellite-Derived Resource Assessment in Afghanistan & Pakistan in support of the United States Agency for International Development (USAID) South Asia Regional Initiative NREL subcontract # AEJ65517201 David Renné, Project Manager david_renne@nrel.gov **NEXANT (Contract completed) (2000-2006)** Contract No. 386-C-00-3-00135-00 Hugh McDermott, Senior Vice President hmcdermott@nexant.com **Winrock International (Contract completed) (2003-2006)** Small Grants Program – Grant Award No. 386-G-00-03-00080-00 Erin Schmaltze, Project Manager eschmalz@winrock.org
Budget	Total SARI/E budget region-wide: $65,000,000 Approximately $1,593,207 spent on Pakistan activities—estimate based upon incomplete data (USAID/Pakistan does not buy-in)

THE EIGHT SARI/ENERGY MEMBER COUNTRIES



Source: SARI/E Bidders Conference, January 27, 2006

MAP OF SOUTH ASIA ENERGY SUPPLY AREA



Source: SARI/E Advisory Board Meeting, Presentation, August 9, 2006

ACRONYMS

ADB	Asian Development Bank
AEDB	Alternate Energy Development Board
ANE/TS	USAID/Washington Asia Near East Bureau, Technical Support
BCR	Benefit Cost Ratio
BEFARe	Basic Education for Awareness, Reform & Empowerment
CRCP	Consumer Rights Commission of Pakistan
CVI	Consumer Voice Index, India
CTO	Cognizant Technical Officer
DISCO	Distribution Companies
FPCCI	Federation of Pakistan Chambers of Commerce & Industry
GENCO	Power Generation Company
GSP	Geological Survey of Pakistan
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HDIP	Hydrocarbon Development Institute of Pakistan
HESCO	Hyderabad Electric Supply Company
HOMER	Optimization Model for Distributed Power
HUBCO	Hub Power Company
IPs	Implementing Partners
IPPs	Independent Power Producers
IRP	Islamic Relief Pakistan
KESC	Karachi Electricity Supply Corporation
Kgoe	Kilograms of oil equivalent
KWh	Kilo watt hours
LESCO	Lahore Electric Supply Company
LNG	Liquefied Natural Gas
LUMS	Lahore University of Management Sciences
MOP&NR	Ministry of Petroleum and Natural Resources
MOWP	Ministry of Water and Power
Mtoe	Million tons of oil equivalent
MW	Mega Watt
MWh	Mega Watt Hour
NEPRA	National Electric Power Regulatory Authority
Nexant	US consulting firm with SARI/E capacity building contract
NIBF	National Institute of Banking and Finance
NPCL	Noida Power Company Limited
NREL	National Renewable Energy Laboratory, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy
NTDC	National Transmission and Dispatch Company
NUST	National University of Science and Technology
NPV	Net Present Value
PA	PA Government Services, Inc. -- US firm with SAR/E contract
Patkin	Village in District Kharan, Balochistan
PC	Planning Commission
PEGED	Pakistan Economic Growth Evaluation and Design
PEPCO	Pakistan Electric Power Company
PKRET	Pakistan Renewable Energy Technologies Ministry of Science and Technology
PMD	Pakistan Meteorological Department
PPIB	Private Power Infrastructure Board
PSQCA	Pakistan Standards and Quality Control Authority
PV	Solar Photovoltaic
RDM-A	Regional Development Mission-Asia
RE	Renewable Energy

REB	Rural Electrification Board, Bangladesh
RET	Renewable Energy Technologies
RFP	Request for Proposals
SAARC	South Asia Association for Regional Cooperation
SARI/E	South Asia Regional Initiative for Energy Cooperation and Development, sponsored by USAID
SENTER	SAARC Energy Center
SGC	Small Grants Component under the SARI Energy Program
SSGCL	Sui Southern Gas Company Limited
TNA	Training Needs Assessment
Toe	Tons of Oil Equivalent
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USEA	U.S. Energy Association
USG	United States Government
WAPDA	Pakistan Water & Power Development Authority, Lahore
WI	Winrock International

EXECUTIVE SUMMARY

Energy security—meeting energy demands through clean, sustainable, and reliable supplies at affordable prices—is rapidly becoming an issue for South Asian countries, which are experiencing rapid economic growth and a consequent increase in energy demand. Pakistan typifies the experience of the other countries in the region. Its 19,500 MW of generating capacity cannot meet the energy needs of its rapidly growing population and economy. If economic growth slows, hopes of alleviating the poverty that gnaws at so many Pakistanis fade.

In response to a looming energy crisis and opportunity for regional collaboration, the United States Agency for International Development (USAID) in 2000 initiated the South Asia Regional Initiative for Energy (SARI/E). The program initially included Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka; Pakistan and Afghanistan were added in 2004. SARI/Energy's goals include increased access to clean energy and regional energy trade and investment, thereby promoting regional energy security. Program activities include technical assistance, training, regional partnerships, small grants, and wind and solar mapping.

In 2007, USAID/Pakistan requested a midterm evaluation of SARI/E to assess overall performance of Sari/E in Pakistan and draw lessons learned for informing both ongoing project management and future project design.

What did the project accomplish in Pakistan?

SARI/E is regional project which has focused on resolving regional issues over the past 8 years. However, Pakistan has only been included since 2004, and thus SARI/E's accomplishments in Pakistan have been limited.

Activity[1]	Costs	Benefits	Benefit/cost ratio
Training	$360,000	Not calculable	N/A
Technical assistance	$1.19[2] million	Not calculable	N/A
Small Grants Program	$134, 207	$9,189[3]	6.8%

Nonetheless, because of SARI/E, approximately 36 households in a poverty-stricken village in Balochistan have electricity and easy access to clean water for the first time in their lives. They are able to irrigate, which may increase their incomes through more and better produce. School teachers in another remote village understand the importance of energy conservation and are delivering the message to their students. Pakistan's energy agencies have accurate wind and solar data they can use to develop renewable energy projects. SARI/E has even opened dialogue and cooperation on energy issues between Pakistan and India.

Despite SARI/E's progressive Gender statement[4], the project did not apply its own recommendations. More can be done to ensure that the project benefits Pakistani women and men equitably.

[1] Costs are based upon what little information we were able to obtain from the implementing partners. Most data was not broken out by country. Both the costs and the benefits include many assumptions; and the benefits do not include items such as knowledge gained, coordination enhanced, better health, increased incomes, etc. Therefore, the figures in this table are ***estimates at best***.
[2] TA does not include costs for the LNG Policy Framework, for which we do not have data
[3] Only the benefits for two of the five small grants were available—BEFARe and NUST. Benefits for the latter would be higher if health and education benefits could be quantified.
[4] See Annex

SARI/E's midterm evaluation made the following key conclusions:

Relevance	The SARI/E program design is logical and consistent with the energy needs of the South Asia Region as a whole. It partially addressed Pakistan's energy needs by providing wind and solar maps and small grants.
Effectiveness	SARI/E partially accomplished its objectives in Pakistan. It increased training and research capacities, increased awareness, spurred cooperative research on energy issues, introduced new technology, and developed some communication on energy issues between Pakistan and its neighbors.
Impact	If the learning, cooperation, and technological applications SARI/E introduced are maintained, the SARI/E interventions have the potential to improve energy supply, efficiency, and regulation in Pakistan.
Efficiency	The indicators to measure efficiency have not been established, and the necessary data have either not been collected during the project or were not provided to evaluators. A reliable analysis, therefore, cannot be done at this point.
Sustainability	The regional training center established, the work begun on introducing efficiency standards, and the awareness raising of conservation issues have the best prospects for sustainability.
Replication	Training and exchanges that focus on technology or models in other countries that would be relevant to the trainee country have solid replicability potential.
	Replicating the wind and solar maps could be useful in an environment with plenty of wind and sun and a need for the energy.
	The efficiency standards study, the solar lights and water pump project, and the conservation awareness project lend themselves to replication or scaling up.
Gender	Women made up 10% of SARI/E trainees. While the exact number of high level women energy officials is not known, the data we have suggest that there are few.
	Prime contractors have not ensured female representation within its partners, nor have they focused on women as any more than energy consumers.
Reporting	Most project reports are difficult to follow and lack indicators for readers to track progress. Reporting formats are inconsistent
Outreach & Communications	Media coverage of SARI/E activities in Pakistan has been uneven and it does not appear that major Pakistani media sources have highlighted SARI/E.
Coordination	The project did not coordinate effectively between the different SARI/E components, nor between SARI/E and other donors, civil society representatives, and other energy officials except at the most senior level.

Key Recommendations

1. To improve relevance, the SARI/E implementing partners should conduct an energy needs assessment for Pakistan to determine how those needs can be met within the regional framework.
2. SARI/E should provide ongoing assistance to ensure that the innovations it has introduced are understood, used, and sustained.
3. SARI/E should conduct a gender analysis and action plan that explores the numbers and roles of women and men in the energy sector in Pakistan to determine how the project can implement the gender statement provided in the original Sari/E RFP.

SUMMARY REPORT ON THE EVALUATION OF THE SARI/E PROGRAM IN PAKISTAN[5]

INTRODUCTION

Energy security—meeting energy demands through clean, sustainable, and reliable supplies at affordable prices—is rapidly becoming an issue for South Asian countries, which are experiencing rapid economic growth and a consequent increase in energy demand. Pakistan typifies the experience of the other countries in the region. Its 19,500 MW of generating capacity cannot meet the energy needs of its rapidly growing population and economy. If economic growth slows, hopes of alleviating the poverty that gnaws at so many Pakistanis fade.

In response to a looming energy crisis and opportunity for regional collaboration, the United States Agency for International Development (USAID) in 2000 initiated the South Asia Regional Initiative for Energy (SARI/E). The program initially included Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka; Pakistan and Afghanistan were added in 2004. Working in close partnership with USAID's bilateral energy programs in South Asia, SARI/Energy's goals include increased access to clean energy and regional energy trade and investment, thereby promoting regional energy security. Program activities include technical assistance, training, regional partnerships, small grants, and wind and solar mapping.

Development Problem

SARI/E is a regional initiative and has no Pakistan-specific problem statement. Project documents clearly articulate the perceived problem even though they do not encapsulate it in a single, concise statement.

The logic of the problem statement seems to be:

- Sustained rapid economic growth is a requirement for poverty alleviation in the region.
- Inadequate energy supplies constrain economic growth.
- Limited indigenous resources and a high dependence on expensive imported energy make the region's energy insecure.
- Regulatory structures and pricing systems inhibit private investment in the energy sector, limiting options for closing the energy gap between supply and demand.

USAID's Intervention in Response

The United States Agency for International Development's (USAID) South Asia Regional Initiative for Energy (SARI/E) started in 2000 with the objectives of promoting regional energy security by increasing access to clean energy and improving market structures to facilitate regional energy trade and investment.

Table 1 through Table 5 summarize individual components of the SARI/E program in terms of objectives and major activities in Pakistan.

[5] The full evaluation report is included in Annex 1.

TABLE 1: SARI/E OBJECTIVES AND ACTIVITIES UNDER PA CONSULTING (2007-PRESENT)

Objectives	Activities as stated in project documentation[6]
Project Goal: To improve energy security in South Asia through provision of assistance on improving market structures for enabling investment in and trade of clean energy, and in the spread of models, technologies and information on sustainable and clean uses of energy.	**Technical assistance and training** No activities as yet in Pakistan. First Year Workplan for SARI/Energy produced August 21, 2007. No quarterly report available.

TABLE 2: SARI/E OBJECTIVES AND ACTIVITIES UNDER US ENERGY AGENCY (USEA)

Objectives	Activities as stated in project documentation[7]
Project Goal: To create long-term relationships among key stakeholders and decision-makers in South Asia energy utilities, regulatory agencies, media and energy parliamentarians. The partnerships will also (1) assist South Asia stakeholders to learn from their U.S. counterparts about the value, approaches and importance of regional energy cooperation in providing affordable, reliable, and efficient energy supply; and (2) encourage development of policies, regulatory and investment infrastructure to encourage private sector investment.	**Regional energy partnerships: Regulation, Transmission, Media, Distribution Utilities, and Parliamentarians** Organized 16 overseas Executive and Peer Exchanges between 2005 and 2007 that included participants from Pakistan.

[6] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

[7] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

TABLE 3: SARI/E OBJECTIVES AND ACTIVITIES UNDER NATIONAL RENEWABLE ENERGY LABORATORY (NREL)

Objectives	Activities as stated in project documentation[8]
Project Goal: To provide Afghanistan and Pakistan with high quality wind and solar resource data, a Geospatial Toolkit (GsT) with a customized interface to HOMER, and the in-country capacity to interpret the results of the resource assessments and to use the tools effectively to prepare pre-feasibility studies for viable projects[9].	NREL developed high-resolution **wind and solar resource maps** and data products for Pakistan (captured in Geographic Information Systems (GIS) format and incorporated into a Geospatial Toolkit (GsT)). Within the GsT, the user can incorporate location-specific data directly into the Optimization Model for Distributed Power (HOMER).[10] This model uses the least-cost hybrid renewable power systems to meet electric-load requirements in the area. Have conducted workshops in HOMER and provided TA for the launch of the wind and solar maps conference.

TABLE 4: SARI/E OBJECTIVES AND ACTIVITIES UNDER NEXANT (THROUGH 2006)

Objectives	Activities as stated in project documentation[11]
Project Goal: To deliver technical assistance and training for SARI/E	**Technical assistance and training** ▪ Commissioned TA through the SAARC Energy Center (SENTER) to develop the "Strategic and Operational Plan" for the operations of the SENTER to initiate, coordinate and facilitate the design and implementation of SAARC energy initiatives. ▪ TA provided to write a Liquified Natural Gas (LNG) Policy Framework for Pakistan in conjunction with the Sui Southern Gas Company Limited (SSGCL) ▪ Regional Energy Security Study, including Pakistan country report ▪ "Introduction to Electricity Markets" training course and Executive Session in August 2006

[8] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006
[9] NREL Combined Work Plan for USAID SARI-Energy Program Continuation, prepared August 12, 2005.
[10] HOMER is a computer model that simplifies the task of evaluating design options for both off-grid and grid-connected power systems for remote, stand-alone, and distributed generation (DG) applications. HOMER's optimization and sensitivity analysis algorithms allow you to evaluate the economic and technical feasibility of a large number of technology options and to account for variation in technology costs and energy resource availability. HOMER models both conventional and renewable energy technologies.
[11] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

TABLE 5: SARI/E SMALL GRANTS AWARDED UNDER WINROCK INTERNATIONAL SMALL GRANTS PROGRAM

Objectives	Activities as stated in project documentation[12]
BEFARe (Capacity Building Initiatives on Energy Conservation in identified areas in the NWFP) Project Goal: Create awareness, train and build capacities of BEFARe school teachers and community representatives from the School Management Committees (SMCs) on energy conservation and efficient use of available resources	▪ Developed Training Manual on energy conservation ▪ Conducted an energy use survey in rural NWFP ▪ Conducted training on energy conservation issues including techniques on efficient usage of firewood, kerosene, dung, charcoal, coal, and LPG ▪ Trained 656 male and 344 female teachers on energy conservation techniques ▪ Trained 1,426 male and 672 female community members community members on energy conservation ▪ Developed model for training of trainers on energy conservation issues using teachers and community leaders
LESCO (Enhancement of training capacity of LESCO relating to rural electrification and prepare for implementation of community based rural electricity supply system in LESCO) Project Goal: Build the institutional capacity of the Regional Training Center, LESCO for imparting training to its employees and other stakeholders and take steps towards implementing a community based rural electricity supply system in LESCO area, learning from experience in other South Asian countries.	▪ Developed two curricula for rural electrification: One for before construction of a rural electrification network and one for after construction ▪ Prepared Policy and Institutional Framework Report for Community Based Rural Electrification System in Pakistan ▪ This training was imparted to the technical personnel including linesman and supervisory staff at Regional Training Centre (RTC), LESCO. ▪ Trained 28 linesmen and supervisory staff and community representative on implementation of community based rural electrification

[12] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

Objectives	Activities as stated in project documentation[12]
Lahore University of Management Sciences (LUMS) (Transiting the Electric Industry from Government Utilities to Private Entities: The Case of Pakistan) Project Goal: Build the institutional capacity of National Electric and Power Regulatory Authority of Pakistan (NEPRA) by imparting training to energy and associated sector specialists in issues attendant with privatization, regulatory reform and restructuring of the sector, with a view to promote the development of competitive markets.	▪ Four themes for training workshops identified: 1. Power Sector Restructuring and Regulation 2. Managing Regulatory Systems 3. Tariff Structure and Analysis 4. Consumer Advocacy in Regulation ▪ Course curriculum for these five-day workshops developed and modified to address specific market conditions, and level regulatory development prevalent in Pakistan. ▪ Planned workshop on Electricity Regulation and Electricity Tariff not done because faculty not available during project. ▪ Two working papers written: 1. Energy Trade in the South Asia Region 2. Energy Tariff Structure in Developing Countries
Lead: National University of Sciences & Technology (NUST) **Partner: Islamic Relief Pakistan (IRP) (Solar Water Pumping and Home Electrification in a Balochistan Village)** Project Goal: Conduct a pilot project that will provide solar water pumping and home electrification to 30 households in the Balochistan Province located in the south-west of Pakistan, the most under-developed and poorest area of Pakistan.	▪ Held community mobilization meetings to identify key energy problems and discuss the benefits of technology with community members ▪ Conducted site survey in three villages and data was collected. One village was selected for the project ▪ Civil works were carried out primarily by villagers under guidance from IRP and consisted of the following: preparation of well, construction of water storage and water distribution point, installation of PV panel frames, and erection of PV panels. ▪ Villagers were trained on use and maintenance. ▪ NUST set up a model for increased access to energy in the Balochistan province of Pakistan by introducing solar water pumping and solar lighting to a non-electrified village. ▪ This model can be replicated in surrounding villages. ▪ 47 households gained access to solar lighting and solar water pumping.

Objectives	Activities as stated in project documentation[12]
Lead: Voluntary Organization in Interest of Consumer Education (VOICE) Partner: Consumer Rights Commission of Pakistan (CRCP) (Choices on Energy Efficiency and Labeling in South Asia Project Goal: Identify issues and problems with respect to market presence, labeling, popularity, and test protocols for five selected electric home appliances through a survey of 500 retailers and 100 consumers/ users in 2 big/metro cities of Pakistan. Will disseminate results to important stakeholders in all South Asian countries.	▪ Conducted market survey of 500 retailers of 5 electric products in two big/metro cities in the partner country for the products: CFLs, Ballasts, Ceiling fans, Refrigerators and Air conditioners for collecting information about market presence of various brands their, popularity, prices, labeling, availability ▪ Surveyed 100 consumers/users (20 per product) to map the level of their knowledge and preferences particularly energy consumption/ efficiency ▪ Collected data on lab testing facilities of 5 products test protocols, standards, labeling etc. in the partner country. Collection of data on accreditation & scientific institutions associated with national/international standards of development ▪ VOICE used its experience from projects conducted in Rounds I and III to build the capacity of a counterpart organization in Pakistan to do similar energy efficiency testing. ▪ Recommendations to policy makers and manufacturers for 5 consumer products on efficiency standards and labeling in Pakistan established.

Purpose of the Evaluation

USAID/Pakistan asked the Pakistan Economic Growth Evaluation and Design (PEGED) team to evaluate all eight of the projects that comprised the Economic Growth (EG) portfolio. Because projects were at different stages, some evaluations were final and some were mid-term. The evaluation exercise had several purposes, including:

- Identifying opportunities for improving performance of ongoing projects;
- Extracting lessons learned that can help USAID and the contractor improve performance of future interventions;
- Providing input to the design of the new EG portfolio.

The SARI/E project is approximately 7 years into its 11-year life of project, and the Pakistan portion has been active for 3 years, with 4 left to go. The Pakistan portion, therefore, is approximately midway through implementation, with time yet to improve performance based on evaluation findings. The midterm evaluation will provide guidance for improving the project's performance in Pakistan during its remaining years.

USAID asked that the EG evaluations of all 8 projects to address ten specific questions, each with a number of sub-questions. These include six questions on overarching issues, four on cross-cutting issues, in addition to six project-specific questions. All questions are listed in the Annex. They fall under the categories of Relevance, Effectiveness, Impact, Efficiency, Sustainability, Replication, Gender, Reporting, Communications, and Coordination.

Evaluation Methodology

PEGED conducted the SARI/E Pakistan midterm evaluation from October 2007 to February 2008. The evaluators developed a Getting to Answers (GTA) matrix to determine how we would answer each of USAID/Pakistan's evaluation questions, including data sources, methods, and analysis. The GTA is a map of the evaluation process and methods, and is presented in Annex 5.

The evaluation team used a combination of qualitative and quantitative methodologies, including document review; semi-structured individual and group interviews with the client, key stakeholders, implementing partners, and project beneficiaries; field visits to small grants projects in Balochistan and Peshawar; and statistical analysis of project financial and impact data. A detailed list of the interviewees with contact information is presented in Annex 7.

The evaluation team made its best effort to acquire quantitative data, but the information we received was incomplete and of uncertain quality. Our quantitative analysis, therefore, is based upon estimates and assumptions and may present a skewed picture of the actual impact and efficiency of the SARI/E project in Pakistan. We advise consumers of this evaluation to view the quantitative findings within the context of the rest of the findings in this report to draw more accurate conclusions about the project's performance.

FINDINGS AND CONCLUSIONS

Relevance: How well was the project focused on the needs of the beneficiaries?

The SARI/E program design is logical and consistent with the energy needs of the South Asia Region as a whole. In Pakistan, energy shortages are a large problem and little is being done to conserve energy and introduce renewable energy technology. Many areas of Pakistan, especially smaller villages, have no electricity at all. SARI/E partially addresses Pakistan's energy needs through the following:

- Wind and solar mapping provides data that can be used to develop solar and wind energy projects, which would provide increased access to clean energy in Pakistan, especially to off-grid villages. However, the data may not be used.
- The Strategic and Operational Plan for the SAARC Training Center designed a venue for research, training, and cooperation on energy issues in the South Asia region.
- Training raised awareness among energy officials and the media about energy issues and the importance of cross-border collaboration, especially with India.
- Three of the four small grants were designed to meet beneficiaries' needs—access to clean, renewable energy, energy conservation, and energy efficiency. A grant to the Lahore University Management Sciences (LUMS) was intended for capacity building for the National Electric Power Regulatory Authority, but NEPRA reportedly did not agree with it.

Some of the training events were not relevant to Pakistan's needs, according to event participants. For example, a visit to South Africa that focused on power-sharing was irrelevant as Pakistan is still struggling with power losses.

Effectiveness: Has the project accomplished its objectives?

The SARI/E implementing partners partially accomplished their objectives in Pakistan. They increased training and research capacities, increased awareness, spurred cooperative research on energy issues, introduced new technology to Pakistan, and developed some communication on energy issues between Pakistan and its neighbors, particularly India.

The SARI/E project's results are generally poorly documented and it is therefore impossible to say with certainty the degree to which partners attained their objectives. Taken as a whole, the Pakistan activities by themselves did not achieve the overall SARI/E objectives. They did, however, do the following:

Nexant

Nexant achieved two of its four planned results in Pakistan. It increased the capacity of regional training and research institutions to advocate and support regional energy cooperation by preparing a strategic and business operating plan for the South Asia Association for Regional Energy Cooperation's (SAARC) training center (SENTER). The SENTER Board approved the plan in October 2006 and SENTER is implementing it.

Nexant also established a regional framework to address common energy issues, especially through a Forum on Regional Harmonization of Energy Efficiency Standards, held in Mumbai June 23-24, 2005. Out of this forum came unanimous consensus on immediate formation of a permanent regional forum as a platform for discussing harmonization issues. Nexant also supported a Regional Energy Security Study, which USAID/Delhi said was "instrumental in the SAARC member countries adopting Energy

Security as a pillar for energy cooperation, and facilitated the creation of the SAARC Energy Center."13

Nexant was not successful at increasing analytical coverage of opportunities for regional energy cooperation; nor did it increase understanding of the linkages between competitiveness, industrial growth, and regional energy cooperation among leaders and associations in Pakistan. Neither has it achieved its objective of creating sustainable capacity to support analysis and advocacy for regional energy cooperation, which would help deliver reliable and affordable energy services for increased economic growth and to the underserved populations.

USEA

USEA has not yet attained its objective and intended results in Pakistan, but its workshops and exchange programs raised awareness and increased communication between officials at LESCO and NEPRA, and their counterparts in the region, especially India. Its activities also resulted in Pakistan's adoption of the load limiter switch concept from India, indicating that the cross-border communication is effective.

NREL

NREL has partially achieved its objective to provide Pakistan with high quality wind and solar resource data, a Geospatial Toolkit with a customized interface to HOMER, and the in-country capacity to interpret the results of the resource assessments and to use the tools effectively to prepare pre-feasibility studies for viable projects. NREL completed the wind and solar mapping and held a launch and trainings to introduce the maps, the Geospatial Toolkit, and HOMER to Pakistan officials. However, not all key stakeholders are comfortable using these resources.

Winrock

Winrock met three of its five intended results. It increased regional cooperation in the energy sector through a grant to CRCP (Pakistan) and VOICE (India) to conduct a survey of 500 retailers and 100 consumers in metro cities in both countries to identify market issues, labeling, popularity and test protocols for five major appliances.

Winrock also initiated proof-of-concept opportunities for innovative research ideas through the CRCP grant as well as through a grant to LUMS that resulted in two papers: *Trade in Energy in the South Asian Region,* and *Energy Pricing: Solutions for Developing Countries*.

Winrock increased regional access to energy through a grant to NUST and IRP, which conducted a pilot project to provide solar water pumping and home electrification in Balochistan.

Winrock achieved half of its objective through these activities: to spur cooperative research and outreach on challenges and opportunities for regional energy cooperation.

The company was not successful at increasing capacity building and engagement of local partners to influence policy, nor did it integrate key development issues in Pakistan. It did not achieve half of its objective, to build sustainable local capacity through training energy and sector specialists in regional energy cooperation.

Impact: To what extent has the project benefited the people of Pakistan?

This early in the program's history in Pakistan and in the absence of baseline data, it is impossible to determine SARI/E's impact on Pakistan, but we have made some educated inferences. If the learning, cooperation, and technological applications are maintained, the SARI/E interventions have the potential to improve energy supply, efficiency, regulation, and even health and rural incomes in Pakistan. Learning and cooperation are likely to be maintained in the short term at least. The technological applications (i.e., wind and solar mapping, solar power) are less certain.

Actual impact achieved to date comes from two of Winrock's small grants, as follows:

[13] USAID/Delhi Gender Analysis, 2006.

BEFARe's awareness-raising work on the importance of trees and the need for fuel conservation persuaded some villagers to stop cutting down trees and stealing firewood. Communities with which BEFARe worked said that they intend to continue teaching children and their neighbors about the importance of conservation.

NUST installed a solar water pump and lights in the Balochi village of Patkin. The villagers now sew and study at night and irrigate their fields for the first time. Women and children no longer travel long distances to fetch water.

Potential Impact of the Trainings

USEA's exchanges and trainings for energy officials did raise awareness of power issues, and NEPRA officials said the program is so good that they are willing to cost-share future regional visits and exchange programs with SARI/E. Therefore, we can infer that awareness will continue to be raised and hopefully improve NEPRA's management of electric power in Pakistan. NEPRA also obtained software for "Consumer Complaint Redressal Procedures" from a SARI/E-sponsored visit to a regulator in the United States. Once adopted to their needs, NEPRA hopes to use it to help WAPDA customers to file complaints and regulators to track the complaints and take action against the utility to enforce performance standards.

Potential Impact of the Solar and Wind Mapping

Pakistani policy makers can use the maps to demonstrate potential areas for development in Pakistan, and the government can use the information to encourage investment. Private sector developers can proceed with feasibility studies. The UNDP Wind Energy Project and the Alternate Energy Development Board have already begun testing locations suggested by the wind maps, which indicates they may be used. However, some energy officials are not convinced that the maps will be useful or feasible.

Potential Impact of the SAARC Training Center

The SENTER is not yet fully operational, but looks like it will in the short to medium term. If demand for regional energy cooperation continues, and it should given widespread energy problems, the SENTER could consolidate research, make it available to decision makers, and serve as a central coordination unit for energy.

LNG Policy

There will be no impact from SARI/E's assistance for conducting an LNG Policy for the Government of Pakistan. GoP officials were unhappy with the quality of the study and did their own.

Efficiency: How efficient has the project been in utilizing its resources to achieve results?

SARI/E did not conduct a training needs assessment, nor did it establish related indicators to measure the benefits of training for the organization and the individual. Project-related benefits, therefore, are difficult to determine. For all activities, the indicators to measure efficiency have not been established, and the necessary data was not collected during the course of the project. A reliable analysis, therefore, cannot be done at this point.

Sustainability: Are the activities and results likely to be sustained after the project is completed?

Sustainability of SARI/E's activities and results in Pakistan is uncertain.

The GoP has funds available for and interest in training, but needs an organization with overseas connections to coordinate the trips. The evaluators are uncertain about the content, quality, and availability of local training. It is unknown at this point whether the training participants will retain and apply the knowledge they have gained.

The SENTER will likely be sustainable; it needs to gain financial and technical self-sufficiency. If it does, then regional cooperation on energy should be sustained. It certainly has a dedicated staff and supporters.

Sustainability of the wind and solar maps is uncertain. The data is being used for further studies, but whether Pakistanis will continue to use the data depends upon the will of the Pakistani stakeholders, the studies' outcomes, and availability of technical assistance.

CRCP's efficiency standards work looks sustainable since CRCP remains committed to the issue and efficiency is all the more important with widespread power outages. BEFARe's awareness raising is sustainable because villagers appreciate the conservation training and seem committed to passing it on to children and their neighbors.

NUST's work in Patkin Village looks sustainable given the large demand for and appreciation of the electricity and its benefits. Villagers will, however, need to sort out how to pay for maintenance of the lights and solar pump. could be sustainable if resource and maintenance issues are sorted out.

It looks like the LUMS studies will continue, but the future of LESCO's Solar Village project is less certain since the first one failed.

Replication: To what extent can the activities and results of the project be replicated?

Taken together, the mix of activities implemented under SARI/E in Pakistan could be replicated in another situation in which regional cooperation would address the host country's needs, technology or knowledge exists outside the host country that could benefit it, and stakeholders are both committed to and capable of using the interventions to their best advantage.

The SENTER model could potentially be replicated, if a regional framework and cooperation exists to support it and make it relevant.

Training can always be replicated if a training organization and funds are available. Training and exchanges that focus on technology or models in other countries that would be relevant to the trainee country have solid replication potential.

Replicating the wind and solar maps could be useful in an environment with plenty of wind and sun and a need for the energy, though replication may depend upon availability of quality, local meteorological data and intensive technical assistance.

Small grants seem to work best when sufficient preparation has been done before a project begins. The small grant concept also needs sufficient local capacity to implement the grants. The CRCP and NUST projects lend themselves to replication, or scaling up, provided lessons learned from the past are applied to replication.

Solar Activity

In the case of the solar lights and water pump in Patkin, there is sufficient demand for such resources, but NUST's assumptions about the longevity and costs of equipment and maintenance did not match the villagers' experience. Therefore, any replication would need to take these lessons into account and modify the design accordingly.

Gender: To what extent has the project benefited women?

Targeting women in a sector and culture in which women do not lead is difficult. A single project cannot change years of cultural history. Women did not make up a significant proportion of SARI/E trainees, probably because the training targeted a level of officials that includes few (if any) women. While the exact number of high level women energy officials is not known, the data we have suggest that there are few. However, prime contractors have not ensured female representation within its partners, nor have they focused on women as any more than energy consumers. Since the SARI/E implementing partners do not appear to have given any significant thought to women's roles, more could be done. In fact only 10% of the trainees were female.

Reporting: Have the prime contractors and grantees reported on time and in a useful manner?

With the exception of the final reports for the small grants program, most reports are difficult to follow and lack indicators for readers to track progress. Report formats are not consistent and do not

disaggregate country-specific information, thereby possibly rendering them less useful to the managers at USAID/Pakistan. In addition, they are designed to report on overall project activities, rather than country-specific initiatives, making it cumbersome for someone interested in the Pakistan-specific activities to find information on them.

Outreach and Communications: How effective has the project been in getting its story out?

Media coverage of SARI/E activities in Pakistan has been uneven and it does not appear that major Pakistani media sources (e.g., Dawn, The Nation) have highlighted SARI/E events or accomplishments. As a regional program, SARI/E has eight countries in which to attract media attention and it is therefore possible that Pakistan, which joined SARI/E later than most and has not been involved in as many activities, has received a smaller share of PR attention. Without conducting a survey of media consumers and producers, it is not possible to know exactly how effective SARI/E's PR and media efforts have been.

Coordination: How effectively has the project coordinated with other parties?

The project did not coordinate effectively between the different SARI/E components active in Pakistan. In addition, coordination does not appear to exist between SARI/E and other donors, civil society representatives, and other energy officials except at the most senior level.

RECOMMENDATIONS

The recommendations below are based upon the findings and conclusions of this evaluation. Since this is a regional program, the majority of them are directed at the overall SARI/E program, but USAID/Pakistan could raise these recommendations with the regional office in Delhi and/or design its own programs, using these recommendations that address the deficiencies found in the SARI/E programming in Pakistan.

Relevance

- In future projects, USAID should conduct a thorough needs assessment of a country prior to deciding whether to include it in a regional intervention. For SARI/E, the implementing partners (IPs) should still conduct a needs assessment for Pakistan to determine how those needs can be met within the regional framework.
- SARI/E should support additional small grants, as they can effectively and immediately address beneficiary needs.
- USAID and IPs should plan to provide ongoing support if they introduce a new technology to a country, such as wind and solar maps and HOMER, as the country may have difficulty implementing it. The USAID-provided TA should also help the country to conduct a thorough cost/benefit analysis of such tools to promote their application. This recommendation applies to both SARI/E and future projects.

Effectiveness

- SARI/E should require IPs to track progress against their proposed results and performance indicators. Without such tracking, it is impossible to determine whether the project is doing what it intended or if it is heading off course.
- USEA and any other IP managing training should follow up with training and conference participants to determine whether and how they are using the information they gained.
- SARI/E should consider integrating its various activities (training, conferences, studies, TA, small grants) to increase the effectiveness of all. For example, the program could target technical assistance to training and exchange participants to help them use their new knowledge. Integrating SARI/E's components should also help the IPs to coordinate more closely.

Impact

- SARI/E should reinforce regional cooperation and learning with technical assistance and training to produce higher levels of expertise among the targeted organizations on select subjects. One of the IPs (probably PA Consulting) should analyze which subjects Pakistani participants have found particularly useful.
- NREL should provide additional TA and links to funding sources for GoP to ensure that the solar and wind maps are used.

Efficiency

SARI/E can increase efficiency by setting up indicators to measure quantitative impact and performance, as well as efficiency itself, and then identifying where adjustments can be made.

Sustainability

- SARI/E should assess the training capacity of local organizations to determine their ability to answer the Pakistan energy sector's needs. The program should conduct a training needs assessment for the energy sector.
- PA Consulting should help the SENTER to become independent through helping to identify funding sources, a permanent location, and staff.
- NUST should use lessons it learned from its experience in Patkin to scale up its project. SARI/E should provide support.

Replication

- SARI/E should survey the trainees to determine which subjects they found useful and where additional funding should focus.
- USAID could consider replicating SARI/E in other areas, but it should commit to providing sufficient TA to enable beneficiaries to apply expertise gained.
- Winrock should continue working with CRCP and BEFARe.
- Winrock should either fund the work grantees need to do to design viable projects or select only those grantees who have done sufficient preparatory work. Such work could include needs assessments, teaching methods/technology needed for their projects, and designing a realistic sustainability plan.
- Winrock should help NUST determine why its maintenance cost estimates were invalid before replicating its solar project, to help it to replicate the solar water pump and lights project

Gender

- SARI/E should conduct a gender analysis that explores the numbers and roles of women and men in the energy sector in Pakistan to determine how the project can promote an equitable distribution of resources.
- The analysis could include determining whether women attending technical schools in Pakistan are interested in energy. If so, the project could provide mentoring or training and include them in conferences and events to facilitate their professional careers in energy.
- SARI/E should consider offering training to women who are non-technical managers in energy organizations, if they are interested, to help them assume a larger role.
- SARI/E should consider working with parliamentarian Dr. Firdous Ashiq Awan to identify ways in which SARI/E could support policymaking regarding women's participation in the energy sector.

Reporting

SARI/E should consolidate reporting across contractors. A standardized reporting format that includes progress made in each result area according to performance indicators would provide easily accessible information on all activities. This information should help management make more informed decisions. Reports should present performance data for both the program overall and by country.

Public Relations/Media Coverage

- For different categories of stakeholders and media organizations, SARI/E and USAID/Pakistan could hold frequent conferences about the progress of the project and lessons learned.
- SARI/E could also distribute its newsletters to the broader Pakistan community, rather than focusing on USAID.
- Ideally, SARI/E should track its media coverage and the outcomes of its PR efforts by using existing media listenership/readership surveys and focus groups, and use this information to adjust its PR efforts.

Coordination

- SARI/E should establish a regional advisory committee, with terms of reference, that includes energy experts from government and the private sector. This committee could help coordinate brainstorming for technical ideas and increase regional ownership. It could also provide technical input to the SARI/E Advisory Board, which consists mainly of senior USAID staff.
- The country coordinator for SARI/E could be tasked with a deeper coordination role in Pakistan, including meeting with Pakistan SAR/E contractors for progress reviews and updates.
- USAID/Pakistan could examine the work of other donors in the energy sector, which helps identify its niche for a national-level program within the regional program. That way, the regional program is not acting in isolation.

LESSONS LEARNED

- Targeted overseas visits are helpful to encourage exchange of views, learn new techniques, and generate renewed enthusiasm in everyday tasks.
- Involvement of national stakeholders in project design and implementation can yield positive results. A common understanding is helpful at all levels, covering the top level of policy reform and restructuring right down to community-based programs. Furthermore, projects need to include stakeholder input right from the beginning in order to encourage ownership and commitment. This is very hard to establish later after the project's design and launch.
- SARI/E needs to keep in mind sensitivity toward the complex relationships in the region, such as between countries, for program development. That way, all stakeholders find the program equally empowering and productive.
- The inclusion of women and awareness of gender issues needs to be at the forefront of project management, including recruitment and training of USAID representatives and contractors, the design stage, implementation, monitoring and evaluation.
- Projects need a focal point of the government at the highest level. This success reveals commitment and visibility, which provides comfort to the donor community and other investors and ensures that the government will take the project seriously enough to follow up on objectives.
- Project design needs to include methods for ensuring sustainability after the conclusion of the project, and present the conditions under which that sustainability will be possible. The sustainability analysis needs to specify clearly that project closeout will be attained without donor dependence.

NEXT STEPS

This evaluation produced a number of specific recommendations for improving the performance of the SARI Energy project's activities in Pakistan and USAID's Economic Growth program. The evaluation will be useful only if USAID and its project partners learn from the recommendations and implement them. This chapter sets forth procedures for evaluating the recommendations and deciding how to address project and program deficiencies.

The recommendations cover issues at two different levels. Some relate to management and programmatic issues internal to USAID. Others are specific to project activities and the interaction between USAID and the project. A possible course of action for methodically processing the evaluation results for improved performance is:

Activity	Timeframe	Responsible person/office
Assign a person to review the recommendations of all eight evaluations and separate the recommendations into: (1) those that need to be handled internally within USAID, (2) those that need to be handled internally within EG, and (3) those that are project specific.	Immediately	USAID EG
Recommendations internal to USAID		
Convene a meeting within USAID to review the recommendations that need to be handled internally within USAID. Use the meeting to: • Decide which recommendations to address and which to ignore. • Discuss how to address the recommendations deemed important. • Identify an individual or office responsible for implementing each recommendation. • Establish a timeframe for implementation. • Determine a process for tracking progress on implementation of each recommendation.	Third priority after initial meeting	USAID
Reconvene every six months (in whatever groups are appropriate) to review progress on implementation.	Six month intervals	USAID
Recommendations specific to EG		
Convene a meeting within EG to review the recommendations that need to be handled within EG. Follow the procedures outlines above.	Second priority after initial meeting	EG
Reconvene every six months (in whatever groups are appropriate) to review progress on implementation.	Six month intervals	EG
Recommendations specific to the project		
Convene a meeting between USAID/Pakistan, USAID/Delhi, the SARI/E Country Coordinator for Pakistan, and PA Consulting to determine how to address the project-specific recommendations. In the meeting: • Decide which recommendations to address and which to ignore. Consider which can contribute to improving the Pakistan portion of SARI/E activities. • Determine how to implement the recommendations deemed important to address. • Establish a timeframe for implementation. • Define a process for tracking progress on implementation.	First priority after initial meeting	EG USAID/Delhi SARI/E Pakistan Coordinator PA Consulting
Reconvene every month (in whatever groups are appropriate, and likely by phone) to review progress on implementation.	One month intervals	EG USAID/Delhi SARI/E Pakistan Coordinator PA Consulting

ANNEX 1:

FULL EVALUATION REPORT ON THE SARI/E PROGRAM IN PAKISTAN

I. INTRODUCTION

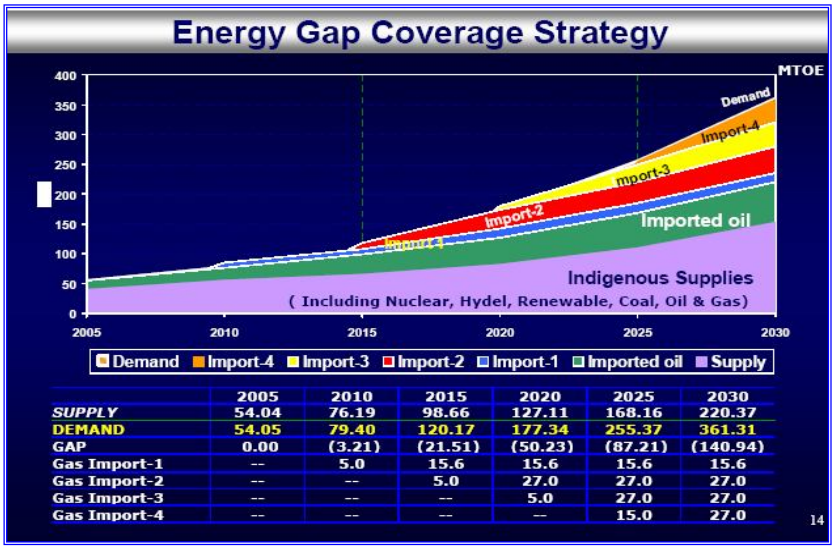
Energy security—meeting energy demands through clean, sustainable, and reliable supplies at affordable prices —is rapidly becoming an issue for the countries of South Asia, including Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan, and Sri Lanka. These countries are experiencing rapid economic growth (6% annually on average) and consequently a rapid increase in energy demand. Meanwhile, economic, institutional, and political conditions inhibit public and private investment in needed energy capacity, resulting in shortfalls of supply over demand. Petroleum dependence, coupled with limited domestic petroleum resources (collectively, the countries import over two-thirds of their hydrocarbon resources) and rising world prices, puts additional pressure on the region's vulnerable economies and threatens the economic growth so vital to improving livelihoods.

Pakistan typifies the experience of the other countries in the region. Its 19,500 MW of generating capacity (Parish, 2006) falls short of the energy needs of its rapidly growing population and economy. Combined transmission and distribution losses as high as 25% (David & Masud, 2007) exacerbate the problem. In spite of a large scale expansion plan, shortfalls of 1,500 to 2,000 MW in the summer of 2007 dictated scheduled outages (load shedding) throughout the country. Electricity shortages pose significant economic costs including reduced competitiveness as firms install and operate high-cost captive generating capacity, reduced productivity, and reduced investment.

As with other South Asian countries, Pakistan is highly dependent on imported petroleum. Government plans to cover the projected gap (Figure) between energy demand and supply call for substantial increases in imports of oil and natural gas (Planning Commission, Government of Pakistan, 2005). The high costs associated with this strategy threaten Pakistan's economic growth.

In this context, the South Asia Regional Initiative for Energy (SARI/E) promotes regional energy security by increasing access to clean energy through trade and investment. The eight partners in the initiative include Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka.

Figure 1: GoP's Energy Gap Coverage Strategy



	2005	2010	2015	2020	2025	2030
SUPPLY	54.04	76.19	98.66	127.11	168.16	220.37
DEMAND	54.05	79.40	120.17	177.34	255.37	361.31
GAP	0.00	(3.21)	(21.51)	(50.23)	(87.21)	(140.94)
Gas Import-1	--	5.0	15.6	15.6	15.6	15.6
Gas Import-2	--	--	5.0	27.0	27.0	27.0
Gas Import-3	--	--	--	5.0	27.0	27.0
Gas Import-4	--	--	--	--	15.0	27.0

Source: GoP, Medium Term Development Framework 2005-2010.

A regional approach has the potential to exploit each partner's strengths in supplies, technologies, or location to enhance energy security throughout the region. For example, the partner countries have significant indigenous resources, many of them renewable, which could enhance regional energy security if cooperation improves access and the dissemination of technology. Similarly, because of their location, Afghanistan and Pakistan serve as corridors to lower-priced resources in Central Asia that could contribute significantly to the region's energy security. Trade and investment linkages in the energy sector will more closely integrate regional economies, which may help improve political and economic stability.

II. THE DEVELOPMENT PROBLEM AND USAID'S RESPONSE

A. Problem Statement

SARI/E is a regional initiative and has no Pakistan-specific problem statement. Project documents clearly articulate the perceived problem even though they do not encapsulate it in a single, concise statement. The SOW for the original contractor (Nexant) describes a regional situation where only rapid

sustained economic growth will raise a significant number of households out of abject poverty. Regional energy insecurity (i.e., large gaps between supply and demand and a high dependency on expensive, non-renewable imported energy sources) represents a potential barrier to the desired growth. The energy sectors of partner countries share some common characteristics: poorly managed, publicly owned, and financially unsustainable energy sectors that inhibit private investment. Regional cooperation offers many potential advantages to exploit the unique supply or technology advantages of each member country to enhance energy security throughout the region and improve livelihoods.

The Statement of Work of the current contractor (PA Consulting) also emphasizes the structural deficiencies of the partner countries' energy sectors and the potential for cross-border trade and investment to contribute to regional energy needs and security.

The logic of the problem statement seems to be:

- Sustained rapid economic growth is a requirement for poverty alleviation in the region.
- Inadequate energy supplies constrain economic growth.
- Limited indigenous resources and a high dependence on expensive imported energy make the region's energy insecure.
- Regulatory structures and pricing systems inhibit private investment in the energy sector, limiting options for closing the energy gap between supply and demand.

B. USAID's Intervention in Response

The United States Agency for International Development's (USAID) South Asia Regional Initiative for Energy (SARI/E) started in 2000 with the objectives of promoting regional energy security by increasing access to clean energy and improving market structures to facilitate regional energy trade and investment. USAID intended for this project to complement other projects, and not serve as the main energy program for any mission or a replacement program. The program's interventions support technical assistance, training, regional partnerships, and wind and solar resource data.

In 2005, USAID established a SARI/E Advisory Board. The USAID/India Mission Director chairs the board and supervises the cognizant technical officer (CTO) for the contract. The CTO is based in India, and a USAID Country Coordinator is based in each country. Members include:

- USAID South Asian Mission Directors
- The Regional Development Mission-Asia (RDM-A) Director
- The USAID/Washington Asia Near East Bureau
- Technical Support (ANE/TS) Office Director
- The South Asia Office Director

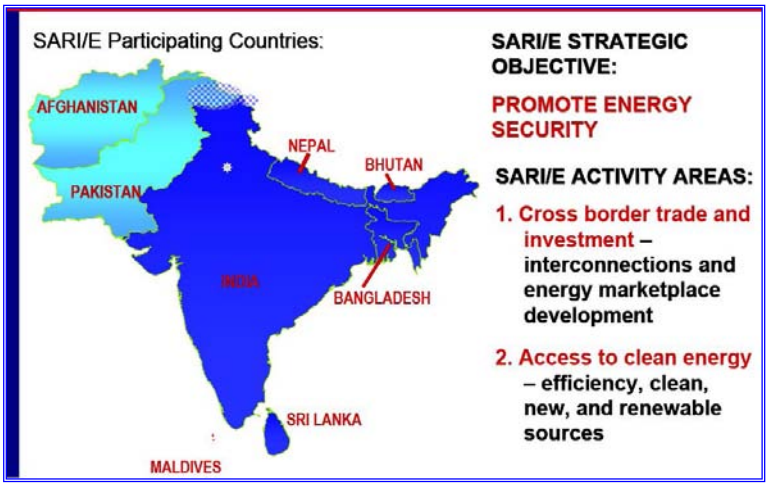
Figure presents the SARI/E program's strategic objective (the Results Framework is attached as Annex 2).

Pakistan Activities Under SARI/E

When SARI/E began, Pakistan had no USAID country program. Although SARI/E wanted to involve Pakistan, logistical and staff issues prevented doing so until three years later, in October 2004. There was also no USAID Mission in Pakistan when the program began. Given that the Pakistan activities are part of a larger whole, the evaluation touches upon relevant aspects of the entire Program.

A list of key stakeholders is included in Annex 16.

Figure 2: SARI/E Strategic Objective



Tables 1 through 5 summarize individual components of the SARI/E program in terms of objectives and major activities in Pakistan. This table facilitates evaluation of the program's effectiveness presented in the Effectiveness chapter. The SARI/E organizational chart presented in Annex 3 provides further details on contractors.

TABLE 1: SARI/E OBJECTIVES AND ACTIVITIES UNDER PA CONSULTING (2007-PRESENT)

Objectives	Activities as stated in project documentation[14]
Project Goal: To improve energy security in South Asia through provision of assistance on improving market structures for enabling investment in and trade of clean energy, and in the spread of models, technologies and information on sustainable and clean uses of energy.	**Technical assistance and training** No activities as yet in Pakistan. First Year Workplan for SARI/Energy produced August 21, 2007. No quarterly report available.

[14] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

TABLE 2: SARI/E OBJECTIVES AND ACTIVITIES UNDER US ENERGY AGENCY (USEA)

Objectives	Activities as stated in project documentation[15]
Project Goal: To create long-term relationships among key stakeholders and decision-makers in South Asia energy utilities, regulatory agencies, media and energy parliamentarians. The partnerships will also (1) assist South Asia stakeholders to learn from their U.S. counterparts about the value, approaches and importance of regional energy cooperation in providing affordable, reliable, and efficient energy supply; and (2) encourage development of policies, regulatory and investment infrastructure to encourage private sector investment.	**Regional energy partnerships: Regulation, Transmission, Media, Distribution Utilities, and Parliamentarians** Organized 16 overseas Executive and Peer Exchanges between 2005 and 2007 that included participants from Pakistan. These were in the following areas: - Analysis of successful cross border projects - Current status and development towards an EU electricity market - Overview of Canadian Electricity Markets - Introduction to Electricity Markets, Southern Africa Power Pool and ESCOM Power Pool - South Asia Forum on Infrastructure Regulation Workshop - South Asia regional energy policy - parliamentarians - South Asia Forum for Energy Journalists (SAFEJ) - South Asia Regional Transmission Partnership - SARI/E executive business meetings - Emerging Investment Opportunities in the South Asia Power Sector Conference - Developing Energy Markets Initiative Launch - South Asia Regional Distribution Utilities Partnership

TABLE 3: SARI/E OBJECTIVES AND ACTIVITIES UNDER NATIONAL RENEWABLE ENERGY LABORATORY (NREL)

Objectives	Activities as stated in project documentation[16]
Project Goal: To provide Afghanistan and Pakistan with high quality wind and solar resource data, a Geospatial Toolkit (GsT) with a customized interface to HOMER, and the in-country capacity to interpret the results of the resource assessments and to use the tools effectively to prepare pre-feasibility studies for viable projects[17].	NREL developed high-resolution **wind and solar resource maps** and data products for Pakistan (captured in Geographic Information Systems (GIS) format and incorporated into a Geospatial Toolkit (GsT)). Other key information includes transportation networks, transmission corridors, existing power facilities, load centers, terrain conditions, and land use. Also in the GsT, the user can incorporate location-specific data directly into the Optimization Model for Distributed Power (HOMER).[18] Developed by NREL, this model uses the least-cost hybrid renewable power systems to meet electric-load requirements in the area. Have conducted workshops in HOMER and provided TA for the launch of the wind and solar maps conference.

TABLE 4: SARI/E OBJECTIVES AND ACTIVITIES UNDER NEXANT (THROUGH 2006)

Objectives	Activities as stated in project documentation[19]

[15] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

[16] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

[17] NREL Combined Work Plan for USAID SARI-Energy Program Continuation, prepared August 12, 2005.

[18] HOMER is a computer model that simplifies the task of evaluating design options for both off-grid and grid-connected power systems for remote, stand-alone, and distributed generation (DG) applications. HOMER's optimization and sensitivity analysis algorithms allow you to evaluate the economic and technical feasibility of a large number of technology options and to account for variation in technology costs and energy resource availability. HOMER models both conventional and renewable energy technologies.

[19] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

Project Goal: To deliver technical assistance and training for SARI/E	**Technical assistance and training** ▪ Commissioned TA through the SAARC Energy Center (SENTER) to develop the "Strategic and Operational Plan" for the operations of the SENTER to initiate, coordinate and facilitate the design and implementation of SAARC energy initiatives. ▪ TA provided to write a Liquified Natural Gas (LNG) Policy Framework for Pakistan in conjunction with the Sui Southern Gas Company Limited (SSGCL) ▪ Regional Energy Security Study, including Pakistan country report ▪ "Introduction to Electricity Markets" training course and Executive Session in August 2006

TABLE 5: SARI/E SMALL GRANTS AWARDED UNDER WINROCK INTERNATIONAL SMALL GRANTS PROGRAM

Objectives	Activities as stated in project documentation[20]
BEFARe (Capacity Building Initiatives on Energy Conservation in identified areas in the NWFP) Project Goal: Create awareness, train and build capacities of BEFARe school teachers and community representatives from the School Management Committees (SMCs) on energy conservation and efficient use of available resources	▪ Developed Training Manual on energy conservation. ▪ Conducted an energy use survey in rural NWFP ▪ Conducted training on energy conservation issues including techniques on efficient usage of firewood, kerosene, dung, charcoal, coal, and LPG ▪ Trained 656 male and 344 female teachers on energy conservation techniques ▪ Trained 1,426 male and 672 female community members community members on energy conservation ▪ Developed model for training of trainers on energy conservation issues using teachers and community leaders
LESCO (Enhancement of training capacity of LESCO relating to rural electrification and prepare for implementation of community based rural electricity supply system in LESCO) Project Goal: Build the institutional capacity of the Regional Training Center, LESCO for imparting training to its employees and other stakeholders and take steps towards implementing a community based rural electricity supply system in LESCO area, learning from experience in other South Asian countries.	▪ Developed two curriculums for rural electrification: One for before construction of a rural electrification network and one for after construction ▪ Prepared Policy and Institutional Framework Report for Community Based Rural Electrification System in Pakistan ▪ Visited utility companies in Bangladesh, India, and Nepal ▪ Trained 24 participants from training center, operation and construction department. ▪ This training was imparted to the technical personnel including linesman and supervisory staff at Regional Training Centre (RTC), LESCO. ▪ Trained 28 linesmen and supervisory staff and community representative on implementation of community based rural electrification ▪ These pilot training programs can act as a model for instructing technical staff and communities on improving both access and quality of electricity distribution in rural areas.
Lahore University of Management Sciences (LUMS) (Transiting the Electric Industry from Government Utilities to Private Entities: The Case of Pakistan) Project Goal: Build the	▪ Four themes for training workshops identified: 5. Power Sector Restructuring and Regulation 6. Managing Regulatory Systems 7. Tariff Structure and Analysis 8. Consumer Advocacy in Regulation ▪ Course curriculum for these five-day workshops developed and modified to address specific market conditions, and level regulatory development prevalent in Pakistan.

[20] Progress Reports for implementers, SARI/E documents and website, Small Grants Program Final Report, Annex, 2006

Objectives	Activities as stated in project documentation[20]
institutional capacity of National Electric and Power Regulatory Authority of Pakistan (NEPRA) by imparting training to energy and associated sector specialists in issues attendant with privatization, regulatory reform and restructuring of the sector, with a view to promote the development of competitive markets.	▪ Planned workshop on Electricity Regulation and Electricity Tariff not done because faculty not available during project. ▪ Two working papers written: 3. Energy Trade in the South Asia Region 4. Energy Tariff Structure in Developing Countries
Lead: National University of Sciences & Technology (NUST) **Partner: Islamic Relief Pakistan (IRP) (Solar Water Pumping and Home Electrification in a Balochistan Village)** Project Goal: Conduct a pilot project that will provide solar water pumping and home electrification to 30 households in the Balochistan Province located in the south-west of Pakistan, the most under-developed and poorest area of Pakistan.	▪ Held community mobilization meetings to identify key energy problems and discuss the benefits of technology with community members ▪ Conducted site survey in three villages and data was collected. One village was selected for the project ▪ Civil works were carried out primarily by villagers under guidance from IRP and consisted of the following: preparation of well, construction of water storage and water distribution point, installation of PV panel frames, and erection of PV panels. ▪ Villagers were trained on use and maintenance. ▪ NUST set up a model for increased access to energy in the Balochistan province of Pakistan by introducing solar water pumping and solar lighting to a non-electrified village. ▪ This model can be replicated in surrounding villages. ▪ 47 households gained access to solar lighting and solar water pumping.
Lead: Voluntary Organization in Interest of Consumer Education (VOICE) Partner: Consumer Rights Commission of Pakistan (CRCP) (Choices on Energy Efficiency and Labeling in South Asia Project Goal: Identify issues and problems with respect to market presence, labeling, popularity, and test protocols for five selected electric home appliances through a survey of 500 retailers and 100 consumers/ users in 2 big/metro cities of Pakistan. Will disseminate results to important stakeholders in all South Asian countries.	▪ Conducted market survey of 500 retailers of 5 electric products in two big/metro cities in the partner country for the products: CFLs, Ballasts, Ceiling fans, Refrigerators and Air conditioners for collecting information about market presence of various brands their, popularity, prices, labeling, availability ▪ Surveyed 100 consumers/users (20 per product) to map the level of their knowledge and preferences particularly energy consumption/ efficiency ▪ Collected data on lab testing facilities of 5 products test protocols, standards, labeling etc. in the partner country. Collection of data on accreditation & scientific institutions associated with national/international standards of development ▪ VOICE used its experience from projects conducted in Rounds I and III to build the capacity of a counterpart organization in Pakistan to do similar energy efficiency testing. ▪ Recommendations to policy makers and manufacturers for 5 consumer products on efficiency standards and labeling in Pakistan established.

Annex 4 contains details on the training events the program has sponsored. USEA organized 16 of the 22 events as executive and peer exchanges. The Alternative Energy Development Board (AEDB), NREL, Nexant, and Winrock International arranged the remaining six events.

C. Purpose of the Evaluation

USAID/Pakistan asked the Pakistan Economic Growth Evaluation and Design (PEGED) team to evaluate all eight of the projects that comprised the Economic Growth (EG) portfolio. Because projects were at different stages, some evaluations were final and some were mid-term. The evaluation exercise had several purposes, including:

- Identifying opportunities for improving performance of ongoing projects;
- Extracting lessons learned that can help USAID and the contractor improve performance of future interventions;
- Providing input to the design of the new EG portfolio.

The SARI/E project is approximately 7 years into its 11-year life of project, and the Pakistan portion has been active for 3 years, with 4 left to go. The Pakistan portion, therefore, is approximately midway through implementation, with time yet to improve performance based on evaluation findings. The midterm evaluation will provide guidance for improving the project's performance in Pakistan during its remaining years.

USAID asked that the EG evaluations of all 8 projects to address ten specific questions, each with a number of sub-questions. These include six questions on overarching issues, four on cross-cutting issues, in addition to six project-specific questions as described below.

Overarching Issues

1. Relevance: How well was the project focused on the needs of the beneficiaries?
    a. Was the project well designed to address the needs of the beneficiaries?
    b. How well was the project adjusted to address the needs of the beneficiaries?
    c. To what extent did the design of the activity utilize participatory techniques?
    d. Was the activity designed to meet a felt need of a specific community, target audience, or influential stakeholder?
    e. Were stakeholders involved in a substantive way throughout the project life cycle?
    f. Was the targeting appropriate in hindsight?
2. Effectiveness: Has the project accomplished its objectives?
    a. How were the initial targets established for each activity?
    b. Were the targets realistic and appropriate?
    c. To what extent were the targets achieved?
    d. What are the lessons learned for setting targets in future activities in accordance with the requirements of USAID's Performance Monitoring Plan (PMP)?
3. Impact: To what extent has the project benefited the people of Pakistan?
    a. How has the program benefited the intended beneficiaries?
    b. What were the primary and secondary positive and negative impacts of the projects?
    c. How large have the impacts been or are likely to be?
    d. To what extent can the impacts be attributable to the project?
    e. How were the impacts distributed by region, sector and gender of the beneficiaries?
    f. Were any of these benefits or losses unexpected?
4. Efficiency: How efficient has the project been in utilizing its resources to achieve results?
    a. To the extent possible, what is the internal rate of return for this project, as calculated in a cost benefit analysis?
    b. How cost-effective has the project been?
    c. How do overhead and administrative costs for this activity compare to others across differing types of implementation mechanisms (e.g. Contract, Limited Scope Grant Agreement, Grant, Cooperative Agreement) and for the different types of implementing entities (e.g. local vs. international firms, non-profits vs. for-profits, etc)?
5. Sustainability: Are the activities and results likely to be sustained after the project is completed?
    a. Were the activities designed in a manner which focuses on their sustainability after project completion?
    b. Were the activities implemented in a manner which focuses on their sustainability after project completion?
    c. Was the initial timeframe for the activity realistic to achieve sustainable results?
    d. Were any of the activities fundamentally designed and implemented in a way which creates donor dependence?
    e. Is it reasonable to expect the project to achieve sustainability in the project life given internal and external factors?
6. Replication: To what extent can the activities and results of the project be replicated?
    a. Were the activities designed in a manner which focuses on their replication?
    b. Were the activities implemented in a manner which focuses on their replication?
    c. Can the activities be replicated in other areas with similar socio-economic features?
    d. Can the activities be replicated in dissimilar areas?
    e. To what quantified extent can the project be replicated?
    f. Cross-Cutting

Cross-Cutting Issues

7. Gender: To what extent has the project benefited women?
    a. To what extent has the project included women in its staff, partners, agents, etc.?
    b. To what extent has the project systemically targeted women in its activities?
    c. To what extent have project resources been used to benefit women?
    d. How effective has the project been in reaching women?
    e. What are the direct quantified benefits of the project for women?
8. Reporting: Have the prime contractors and grantees reported on time and in a useful manner?
    a. Have the partners fulfilled all of their reporting requirements?
    b. Were the reports useful to USAID staff?
    c. Were all branding guidelines followed?
    d. Were the reported results accurate and verifiable?
    e. How can the reporting requirements and formats be improved?
9. Public Relations/Media Coverage: How effective has the project been in getting its story out?
    a. Have the project's work plans contained public relations and media activities?
    b. Was the branding strategy clear?
    c. Has the project highlighted success stories?
    d. How active has the project been in public relations efforts in terms of events/activities – frequency, nature, profile, content and design, branding and participation?
    e. To what extent have they raised awareness of the activity among intended beneficiaries?
    f. To what extent has the project followed branding guidance?
    g. How can the impact of the public relations component of future programming be improved?
10. Coordination: How effectively has the project coordinated with other parties?
    a. How effectively has the project coordinated with the Government of Pakistan?
    b. How effectively has the project coordinated with other USG projects?
    c. How effectively has the project coordinated with other donors?
    d. How effectively has the project coordinated with other stakeholders?
    e. To what extent were synergies developed between the project and other individual USAID EG activities, other donor programs, and/or GOP initiatives?
    f. What concrete steps should be taken to improve coordination and maximize synergies in future activities?

Project Specific Questions

1. What has been or is likely to be the impact of the trainings?
2. What has been or is likely to be the impact of the solar and wind mapping?
3. What has been or is likely to be the impact of the SAARC Energy Center?
4. What has been or is likely to be the impact of the assistance for LNG policy?
5. What has been or is likely to be the impact of the solar water pumping and home electrification grant?
6. Have or can the results of the solar activity be replicated?

III. EVALUATION METHODOLOGY

PEGED conducted the SARI/E Pakistan midterm evaluation from October 2007 to February 2008. Field data collection occurred from October to December, with January and February reserved for analysis, writing and reviewing. Tables of the team members and their responsibilities and activities, and of the dates for different phases of the evaluation are found in Annex 17.

A. Evaluation Design

The evaluators developed a Getting to Answers (GTA) matrix to determine how we would answer each of USAID/Pakistan's evaluation questions, including data sources, methods, and analysis. The GTA is a map of the evaluation process and methods, and is presented in Annex 5.

B. Data Collection Methods

The evaluation team used a combination of qualitative and quantitative methodologies, including document review; semi-structured individual and group interviews with the client, key stakeholders, implementing partners, and project beneficiaries; field visits to small grants projects in Balochistan and Peshawar; and statistical analysis of project financial and impact data. Details are as follows:

- Collected and reviewed available documents for SARI/E, including workplans, progress reports, final reports, public relations materials, and other miscellaneous sources of information (a full list is provided in Annex 6: List of References).
- Interviewed key USAID staff, including our CTO, the Director of the Office of Economic Growth, and the SARI/E Country Coordinator for Pakistan.
- Interviewed individual experts in the energy sector (ADB, UNDP, and World Bank)
- Conducted both individual and group interviews of senior government officials (Prime Minister's Advisor for Energy, representatives of Water and Power Development Authority (WAPDA), National Electricity Pricing and Regulatory Authority (NEPRA), Private Sector Infrastructure Board (PPIB), Ministry of Water and Power (MoW&P), Pakistan Electric Power Company (PEPCO) and Alternative Energy Development Board (AEDB)). See Annex 7 for a list of those interviewed and their contact details.
- Conducted individual and group interviews with several participants from the exchange programs organized by SARI/E: Lahore Electric Supply Company (LESCO), NEPRA, WAPDA, MoW&P, and AEDB, among others.
- Interviewed grantees under the Small Grants Program.
- Visited Peshawar and Balochistan to interview the grantees and beneficiaries of the Small Grants Program, and view the projects' products.

The evaluation team used the GTA as a topical guide when interviewing stakeholders and beneficiaries, but did not cover every topic with every individual. Specific questions focused on experience with the project, such as:

- Have you heard of SARI/E? What are your general impressions of the project?
- What is your impression of the overseas visits you attended? Were SARI/E's activities helpful to you and your organization? Did they make a difference to you? In what way?
- Are there quantitative results of SARI/E's efforts which you could share with us?

As the data collection process progressed, we used information gained from document review and interviewees to inform questions to the next set of interviewees and document review.

A detailed list of the interviewees with contact information is presented in Annex 7.

C. Data Limitations

The evaluation team made its best effort to acquire quantitative data, but the information we received was incomplete and of uncertain quality. We did not receive other, key financial data, such as the overall SARI/E budget and the budgets of the prime contractors. Our quantitative analysis, therefore, is based upon estimates and assumptions and may present a skewed picture of the actual impact and efficiency of the SARI/E project in Pakistan. We advise consumers of this evaluation to view the quantitative findings within the context of the rest of the findings in this report to draw more accurate conclusions about the project's performance.

We received some key pieces of information (e.g., the USAID/Delhi gender analysis) in February, which necessitated report revision.

Because of limited time and the number and geographical coverage of SARI/E's activities in Pakistan, our sample sizes are relatively small. To adjust for this constraint, we used semi-structured interviews with targeted questions instead of structured interviews or surveys. The fact that the SARI/E project is based in Delhi limited our access to the regional SARI/E office and prime contractors. We were not able to obtain some of the pieces of information we requested.

Nonetheless, we have approached this evaluation without bias and we have been careful to draw conclusions and recommendations from the information we have, which, except for the quantitative data, we believe to be solid.

IV. FINDINGS AND CONCLUSIONS ON THE OVERARCHING QUESTIONS

A. Relevance: How well was the project focused on the needs of the beneficiaries?

Conclusions: The SARI/E program design is logical and consistent with the energy needs of the South Asia Region as a whole. It partially addresses Pakistan's energy needs through the following:

- Wind and solar mapping provides data that can be used to develop solar and wind energy projects, which would provide increased access to clean energy in Pakistan, especially to off-grid villages. However, the data may not be used.
- The Strategic and Operational Plan for the SAARC Training Center designed a venue for research, training, and cooperation on energy issues in the South Asia region.
- Training raised awareness among energy officials and the media about energy issues and the importance of cross-border collaboration, especially with India.
- Three of the four small grants were designed to meet beneficiaries' needs—access to clean, renewable energy, energy conservation, and energy efficiency.

Some of the training events were not relevant to Pakistan's needs.

This section identifies the beneficiaries whom SARI/E targeted and their needs, describes the project design and activities, and provides evidence of the degree to which the project focused on its beneficiaries through design and activities.

Beneficiaries

- SARI/E's intended beneficiaries are the entire population of the eight countries targeted by the Program.
- The immediate beneficiaries are those who receive training and the recipients of small grant interventions.

Beneficiaries' Needs[21]

- Poverty alleviation through economic growth;
- Private ownership and management of the energy sector and better governance leading to economic efficiency;
- Reduction in gap between unmet demand and supply;
- Domestic markets that provide proper signals to consumers, and have low losses and high rates of recovery;
- Proper market and pricing signals
- Reduce economic and environmental energy costs;
- Reestablishment of unused transmission links in Pakistan.

Energy shortages are a large problem in Pakistan and little is being done to conserve energy and introduce renewable energy technology. Many areas of Pakistan, especially smaller villages, have no electricity at all[22].

[21] As defined in NEXANT's scope of work (SOW) and PA Consulting's SOW. Nexant was the prime contractor for SARI/E from inception to 2006. PA Consulting took over in 2007.
[22] Project documents, SARI/E articles reviewed for this evaluation, interviews with energy officials

Project Design

Nexant's SOW states that it is to provide institutional technical assistance and capacity building to address the following areas:

- Distribution reform, focusing on rural energy supply;
- Regulatory reform and restructuring; and
- Energy efficiency, focusing on regional standards and labeling for appliances and lighting fixtures (less weight than the other two areas).

SARI/E has included the following main activities to accomplish its tasks:

- Technical assistance, training, studies, and pilot projects focused on renewable energy sources;
- Conferences and exchanges between energy officials in the member countries to increase energy cooperation and promote long-term relationships;
- Press releases, media spots, articles, and media training to increase public awareness of energy issues and program activities;
- Capacity building of energy agencies to introduce energy saving and regulation measures based upon best practices in other countries; and
- Small grants to foster innovation in energy technology and management.

PA Consulting's SOW instructs it to increase knowledge and capabilities to access clean energy; and to improve market structures to facilitate proper price signaling. The specific tasks it is to accomplish are the following:

1. Increase Access to Diversified Clean Energy Supply;

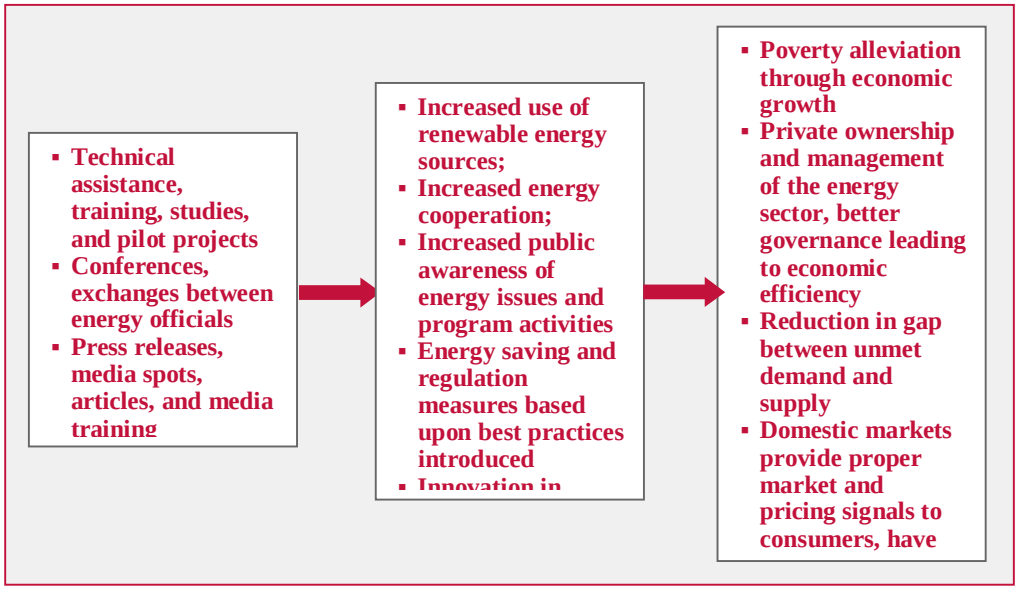
2. Increase Investment and Trade in Diversified, Clean Energy through opening of Market Structures; and

3. Overall Support Tasks.

PA Consulting is using a task order-based approach, which means that specific tasks are described with each task order issued. As of this evaluation, PA Consulting had not yet begun any tasks.

Addressing Beneficiaries' Needs

The following diagram illustrates how the program was designed to address beneficiaries' needs:



SARI/E was designed to address regional issues through regional cooperation and therefore targeted commonalities among member countries, rather than unique needs of any one member. According to Nexant's SOW, USAID/Washington intended to conduct a training needs assessment in 2003, which would not have involved Pakistan since it joined the program in October 2004. SARI/E documentation shows that USAID/Pakistan did not contribute any funds to the SARI/E program. According to the USAID/Pakistan Program Officer for SARI/E, they did not see a reason to buy in financially since most of the program's funding was coming from USAID/Washington to serve the needs of all program countries.

SARI/E Country Coordinator for Pakistan, Mr. Syed Farrukh Hussain, emphasized that as a regional program, SARI/E cannot focus on country-specific activities. Because SARI/E is not aligned with Pakistan's needs, Mr. Hussain said that he could not get matching funds for SARI/E activities.

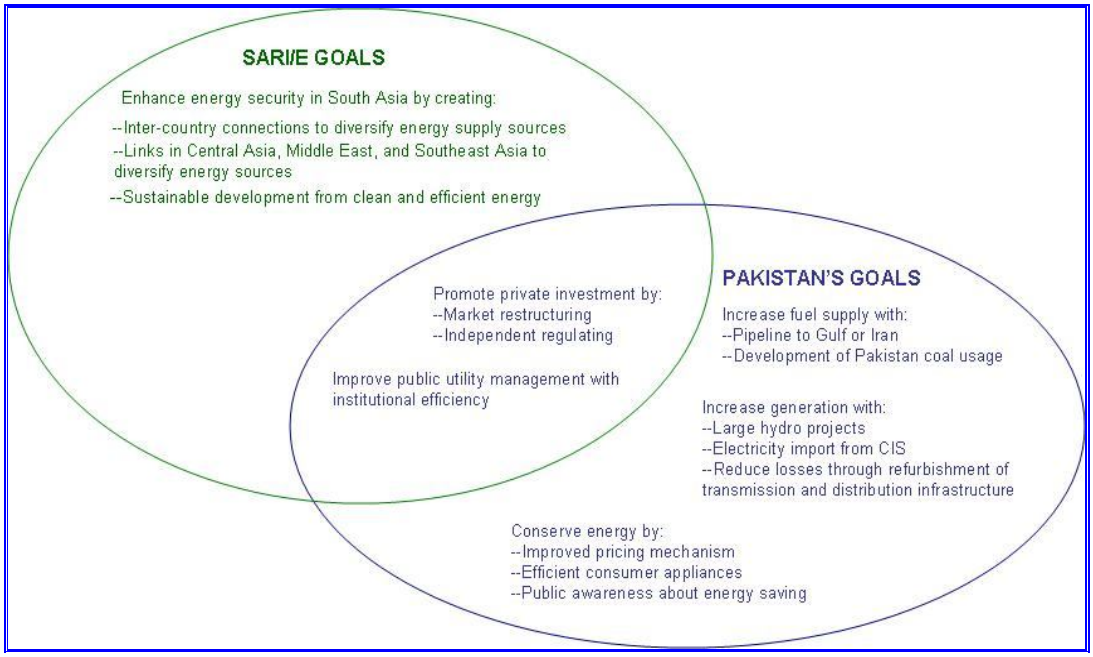
When Pakistan and Afghanistan were added to the program, Nexant had to identify common energy needs which it could address. Nexant's fiscal year 2005 implementation plan emphasizes its use of participatory measures to ensure that the program responds to stakeholder feedback, and it presented its approach to addressing the needs of Pakistan and Afghanistan at the semi-annual meeting held in October 2004. Nexant reportedly held follow-up meetings with USAID Mission staff and stakeholders from Pakistan and Afghanistan[23]. SARI/E directed NREL to implement a solar and wind-mapping activity specifically focused on Pakistan and Afghanistan.

According to NEPRA, HDIP, the Advisor to the Prime Minister on Energy, the former secretary for Water and Power, and the SARI/Country Coordinator for Pakistan, even though SARI/E helped develop decision makers who champion regional energy cooperation, increased knowledge about energy issues, and supported cross-border energy trade, the two entities' goals are not exactly the same[24]. The following figure illustrates how SARI/E and Pakistan's goals overlap yet differ.

[23] The evaluators do not have copies of Nexant's presentation, or documentation of the follow-up meetings. We therefore cannot verify whether these activities did, indeed, identify needs that were incorporated into the 2005 workplan.

[24] Acting Chairperson of NEPRA, 6 members of his management team, Director of HDIP, Advisor to the PM on Energy, former Secretary of Water and Power, SARI/E Pakistan Country Coordinator

FIGURE 3: SARI/E GOALS AND PAKISTAN ENERGY SECTOR GOALS[25]



When interviewed, beneficiaries gave mixed assessments of the degree to which SARI/E's activities meet their needs. SAARC Training Center said SARI/E responded to its needs, while the GoP was not satisfied with the LNG policy study SARI/E produced. Three interviewees, representing LESCO, the Ministry of Water and Power, and the Prime Minister's office, said training did not meet their needs. Seven representatives of NEPRA said their objectives were partially met through training. While the GoP requested the solar and wind mapping, NEPRA said it was not planning to use the HOMER software and LESCO told evaluators they need help with current, not future needs. Beneficiaries designed their own small grant projects, three of which clearly addressed grant beneficiaries' needs.

Technical Assistance:

- The SAARC Training Center had requested SARI/E's help to become established, as well as assistance with a SARI/E Regional Security Study. SARI/E completed both assignments.[26]
- SARI/E's LNG policy study, while requested by the Government of Pakistan (GoP), did not meet the GoP's standards and it ended up conducting the study itself[27].

Training:

- Three high-level energy officials interviewed did not find training topics relevant to Pakistan. For example, a visit to South Africa focused on power-sharing and Pakistan is still struggling with power losses[28].
- Seven NEPRA said that all of its objectives for SARI/E were partially achieved through exchange visits, conferences, and training[29]. Its chairman thought the training raised energy

[25] Developed from SAARC report 2003, SAARC operational plan, SARI/E presentations (advisory board meeting and bidder's meeting), discussions with GoP officials, and SARI RFP 2006. While the Nexant's SOW identifies restoring transmission lines, none of their quarterly reports identifies activities to do so.
[26] Mr. Hilal Raza, the Director General and Chief Executive of the Hydrocarbon Development Institute of Pakistan and the SAARC Energy Training Center (SENTER)
[27] SARI/E Pakistan Country Coordinator
[28] According to the LESCO Chairman, the ex-Secretary for the Ministry of Water and Power (MWP), and the Prime Minister's Advisor for Energy
[29] According to seven NEPRA senior officials

awareness and senior officials are now knowledgeable enough to discuss topics like energy trade with India[30].

- In most cases, the organization invited to send representatives on training trips and exchanges chose which of its representatives would go. In other cases, the SARI/E Country Coordinator invited specific individuals, always the top level of an organization because that is where things get done, policies are decided, and cross-border cooperation is achieved[31].
- The Country Coordinator selects media and private sector participants, sometimes with input from LESCO.

Solar and Wind Mapping

- This activity was initiated pursuant to a request from AEDB/GoP.
- The HOMER software is intended to help officials choose the best mix of renewable technology for off-grid electrification, a critical need in rural areas[32].
- Wind and solar map information can be used to encourage investment[33], and they identify potentially better sites for such projects. The maps have also corrected false data received from some sponsors. However, since HOMER maps have to be updated annually, NEPRA is not planning to use them[34].
- LESCO did not find the maps useful because it wants help with current, not future, issues.[35]

Small Grants Program

- LESCO was happy with the assistance Winrock provided on developing a proposal for a rural solar electricity project, but other grantees would have preferred more technical assistance[36].
- Energy is a large cost for households and improving supply or reducing demand is a poverty reduction factor[37]. SARI/E funded CRCP's survey of energy efficiency of householder appliances, which CRCP said would promote energy efficiency and accurate labeling.
- BEFARe addressed beneficiaries' needs by conducting a needs assessment survey for input into the Training Manual they produced for energy conservation and efficient use of available resources.[38]
- Winrock provided funding for LUMS to conduct capacity building for NEPRA, but according to the SARI/E Country Coordinator for Pakistan, NEPRA was not in agreement with it.
- NUST and IRP implemented a solar and wind energy project to bring electricity to off-grid villagers in Patkin for electric lights and a mechanized water pump. However, Patkin villagers told evaluators that they were expending precious resources to fix lights and batteries that broke down prematurely.

[30] according to the NEPRA acting chairman
[31] According to the SARI/E Country Coordinator for Pakistan
[32] The Country Coordinator for SARI/E in Pakistan
[33] Mr. Mukhtar Ahmed
[34] Mr. Rahim Khan, Acting Chairman of NEPRA, and three of his senior officials
[35] The Chairman, Chief Executive Officer, Chief Engineer/Operations Director, and a member of the Board of Directors of LESCO
[36] Islamic Relief, CRCP, and BEFARe
[37] The Secretary General and a research fellow at CRCP
[38] Final Report: Capacity Building Initiatives on Energy Conservation in Identified Areas of NWFP – Pakistan. Submitted by BEFARe, 2006.

B. Effectiveness: Has the project accomplished its objectives?

Conclusions: The SARI/E implementing partners partially accomplished their objectives in Pakistan. They increased training and research capacities, increased awareness, spurred cooperative research on energy issues, introduced new technology to Pakistan, and developed some communication on energy issues between Pakistan and its neighbors, particularly India.

- Nexant achieved two of its four planned results in Pakistan: Increased capacity of regional training and research institutions to advocate and support regional energy cooperation; and establishment of a regional framework to collaboratively address common energy issues such as power sector reforms, market for energy efficient appliances and access of electricity to underserved population segments.
- Nexant has not yet achieved its objective.
- USEA has not yet achieved any of its planned results or objective, but is making progress.
- NREL has partially achieved its objectives.
- Winrock met three of its intended results, as well as half of its objective.
- The projects' results are poorly documented and it is therefore impossible to say with certainty the degree to which partners attained their objectives.
- Taken as a whole, the Pakistan activities by themselves did not achieve the overall SARI/E objectives.

Evaluators need monitoring data to guide evaluation. Otherwise, the evaluation is a 'fishing expedition.' Evaluators have to look widely for any information that may be evidence of objectives achieved. Monitoring data, if of quality, help an evaluator determine project achievements compared to objectives, and determine additional avenues of questioning based upon that data. The result is an evaluation that is more efficient and accurate.

In SARI/E's case, the evaluators obtained objectives and results expected for each main contractor from their scopes of work. The team did not receive PMPs or indicator data. Nexant's quarterly reports reference a PMP Report as an attachment, but USAID/Delhi was not able to provide these attachments to the evaluators.

We present below the objectives and expected results for each of the SARI/E implementing partners. With the exception of the specific small grants implemented in Pakistan, the objectives and results are not specific to Pakistan; rather, they are meant to cover the SARI/E program as a whole.

SARI/E Primary Level

Nexant[39]

Objective: Create sustainable capacity to support analysis and advocacy for regional energy cooperation, which would help deliver reliable and affordable energy services for increased economic growth and to the underserved populations.

Results:

1. *Increased capacity of regional training and research institutions* to advocate and support regional energy cooperation
2. *Increased analytical coverage* of opportunities for regional energy cooperation *by regional media*
3. *Increased understanding* of the linkages between competitiveness, industrial growth and regional energy cooperation *among regional industry leaders and associations*
4. *Establishment of a regional framework* to collaboratively address common energy issues such as power sector reforms, market for energy efficient appliances and access of electricity to underserved population segments

[39] Nexant's objective and results are from its SOW. Activities are from Nexant's workplans and quarterly reports.

The activities implemented to accomplish these results and objectives in Pakistan are:

1) Studies: Regional Energy Security Study, which included a country report for Pakistan written by Dr. Hilal Raza: *Economic and Social Benefits Analysis of Power Trade between India and Pakistan*. Expected to increase understanding amongst policy makers of the benefits of regional cooperation on energy security, which will help them frame policies that promote regional energy security. Effectiveness:

- Addresses Result 1.
- According to USAID/Delhi's Gender Analysis of 2006, the energy security study was "instrumental in the SAARC member countries adopting Energy Security as a pillar for energy cooperation, and facilitated the creation of the SAARC Energy Center."

2) Combined strategic plan and business operating plan prepared for the SENTER in August 2006. Expected to be a fully operational center with strong mandate for conducting analytical studies. Effectiveness:

- Addresses Result 1 and contributes to the overall objective
- Plan approved by the SENTER Board in October 2006 and SENTER is following it. SENTER is not yet independent. Host countries each provide 1% of capital costs and 50% of operational costs. SENTER did initiate a study to examine failure of renewable energy projects in the region based upon experience with Vulnerable Communities Pilot Project in Pakistan.[40]

3) LNG Policy Framework for GoP. Expected to serve as example to other regional countries. Effectiveness:

- SARI/E consultant "did nothing" and Sui Southern Gas Company Limited (SSGCL) did the work itself using its own consultant. Resulting study went to board for approval.[41]
- SSGCL did use the skeleton of the framework produced by Nexant Vice President Graham Hartnell to produce the framework, which it is now following.[42]

4) Provided cost and technical operation information to Pakistan's National Electricity Regulatory Authority (NERA) on gas-fired, combined-cycle power plants. Expected that data would assist NERA in evaluating three combined-cycle plants that GoP tendered. Effectiveness:

- Does not directly address any NEXANT results.

5) Held Core South Asia Forum for Infrastructure Regulation, in Pakistan. Effectiveness:

- Addresses Result 4. Could address Result 3 if participants' understanding had been surveyed.
- Received "favorable participant feedback."[43]

6) Held Forum on Regional Harmonization of Energy Efficiency Standards in Mumbi, June 23-24, 2005. Representatives from Pakistan attended. Effectiveness:

- Addresses Result 4
- Unanimous consensus on immediate formation of a permanent regional forum as a platform for discussing harmonization issues.[44]

7) Organized visits to BESCOM and Noida Power Company Limited for LESCO officials, focusing on distribution and management practices of Indian utilities in rural electricity delivery services. LESCO expected to propose new activities that could be undertaken in Pakistan under SARI/E. Effectiveness:

- Partially addresses NEXANT's overall objective, or an early indication of it.
- LESCO, with proposal guidance from Winrock and funding from SARI/E, conducted Vulnerable Communities Pilot Project, a community-based pilot involving FATA Solar Schools to provide electricity for communities in the border region. Unfortunately, the project failed (see Impact).

[40] Mr. Hilal Raza
[41] Managing Director of LESCO, Munawar Baseer Ahmad
[42] SARI/E Country Coordinator for Pakistan
[43] Nexant quarterly report for second quarter, 2005
[44] Nexant quarterly report, second quarter, 2005

8) Held training workshop on Power Sector Tariffs and Ratemaking in Newly Formed Regulatory Bodies in the South Asian Region in Islamabad in association with NEPRA to review power sector tariff determination and ratemaking methodologies, Sept. 26-30, 2005. Effectiveness:

- Ministry of Water and Power recently issued Tariff Setting Guidelines that are inconsistent with NEPRA Act; NEPRA is required to follow them.[45]

Conclusions about Nexant's Work: By themselves, the Pakistan activities did not accomplish Nexant's objectives under the SARI/E program. Three of Nexant's nine activities involving Pakistan realized their intended results. One activity does not address any Nexant results and three activities failed contribute to results.

PA Consulting[46]

Objective: Promote energy security in South Asia.

Intermediate Results:

1. Increased Access to Diversified Clean Energy Supply
2. Harmonize Markets to Enable Regional Energy Trade

PA Consulting submitted its first year workplan in August 2007 and no quarterly reports were available during data collection. The workplan is vague because the contract is to be implemented on a task order basis, with each requested task falling under general activity areas. Without information on activities conducted and their results, it is not possible to assess the effectiveness of PA Consulting's work.

USEA[47]

Objective: Support the SARI/E intermediate objective, "effective policies and agreements implemented for cross- border cooperation on sustainable energy".

Results:

1. Establishment of *partnership* between South Asian energy institutions on one or many issues leading to increased use of clean energy resources in the region
2. *Policy or framework for cooperation* on one or more aspects of clean energy within South Asia based on U.S. principles

To reach these results and objective, USEA implemented exchange programs and training courses for representatives of South Asian energy utilities, regulatory agencies, media, and energy parliamentarians[48]. These programs and trainings are expected to create long-term relationships among stakeholders; assist them to learn from U.S. counterparts about the role of regional energy cooperation in providing an affordable, reliable, and efficient energy supply; and encourage development of policies, regulatory and investment infrastructure to encourage private sector investment. Effectiveness:

- Six Pakistani participants were asked whether they expected the subjects covered at the event to improve their organizations' practices. An average of 64% said that the subjects would improve practices.
- To the evaluators' knowledge, USEA did not follow up with participants to determine whether the events did, in fact, impact the participants' work.
- The Director of the SENTER said he kept in contact with people he met during the visits.
- One WAPDA official said he had tried to keep in contact with people he had met on the visits, but received no response.
- Two WAPDA officials said that the training SARI/E provides is useful, but any changes in the quality of the work of the people trained cannot be attributed to a particular activity. The training did not have a needs assessment.
- Four senior LESCO officials said they enjoyed seeing a load limiter switch in Delhi, which is important for Pakistan. "The issues in the region are similar and we need regional distribution."

[45] According to seven NEPRA officials.
[46] Objective and results are from PA Consulting's SOW.
[47] From USEA's SOW. Activities are from USEA's workplans and quarterly reports.
[48] Details on the training participants are included in the Annex.

LESCO has since, they said, designed load switches suitable for transformers and ordered additional switches.

- NEPRA officials represented 22% of overseas training participants. Their feedback is as follows:
  - » Mid-level participants sent to the U.S. likely did not learn much because the agenda was too compact (8 days coast to coast, 7 regulatory agencies visited).
  - » Top NEPRA officials had not previously been exposed to the idea of trade with India and now they talk about it.
  - » Because of the visits and conferences abroad, more decision makers and journalists "now understand the issues. This makes our job easier."
  - » Speaking at the Developing Energy Markets Initiative Launch in March 2006, NEPRA official Lt. General Saeed uz Zafar said that over the past year, regulators and power sector officials in South Asia shared their inhibitions through meeting each other. They exchanged views and are now consulting each other frequently and freely[49].
- After the USAID Mission in Pakistan closed in 1994, professionals in the power sector were isolated from developments in the rest of the world. SARI/E's regional seminars, workshops, and conferences "opened their minds and eyes" to new ideas.[50]

Conclusions about USEA's Work: USEA has not yet attained its objective and intended results in Pakistan, but it has raised awareness and increased communication between officials at LESCO and NEPRA, and their counterparts in the region, especially India. Its activities also resulted in Pakistan's adoption of the load limiter switch concept from India, indicating that the cross-border communication is effective.

NREL

NREL's work was designed specifically to address Pakistan and Afghanistan.

Objective: to provide Afghanistan and Pakistan with high quality wind and solar resource data, a Geospatial Toolkit (GsT) with a customized interface to HOMER, and the in-country capacity to interpret the results of the resource assessments and to use the tools effectively to prepare pre-feasibility studies for viable projects.[51]

1) Pakistan HOMER Training Workshop (June 25-26, 2007). Effectiveness:

- Twenty-nine of 36 participants said the workshop met their expectations; 9 said no. Twenty participants were not familiar with HOMER before the workshop; 14 somewhat familiar; 2 very familiar. Twenty-one participants said they were very familiar with HOMER after the workshop: 15 somewhat familiar; 0 not familiar. Several participants were concerned about HOMER's limitations. Three respondents rated their level of knowledge after the workshop as less than knowledgeable[52].

2) Rolled out solar and wind data products. Distributed CDs of information on wind and solar maps, HOMER; toolkits with solar, wind, geothermal data, GsT HOMER application, other energy-related data; files of solar and wind maps and copies of GsT. All materials included on NREL website[53]. Effectiveness:

- Received additional requests for copies of the CDs.
- Mr. Hilal Raza contended that claims made during the launch of the wind and solar maps are misleading because the intention was to project the potential for power generation into

[49] USEA Quarterly Report, January 1 to March 31, 2006.
[50] SARI/E Country Coordinator for Pakistan
[51] NREL combined Work Plan for USAID SARI-Energy Program Continuation; prepared August 12, 2005
[52] Synthesis of 36 participant evaluations completed at the end of the event, included in NREL's workshop report, July 5, 2007.
[53] From NREL Progress Report April 1-June 30, 2007.

megawatts. If these data were factual, then someone would have already invested in the technology.[54]
- WAPDA and the Ministry of Water and Power said they needed additional assistance before they could use the maps (see Impact for details).

3) Pakistan Renewable Energy for Rural Electrification Training Workshop (June 27-29, 2007): renewable energy for rural electrification using wind and solar maps, GsT, HOMER Effectiveness:
- NREL found that 14 of the 16 participants who completed the workshop evaluation form felt their knowledge of renewables was improved after the workshop. Participants' knowledge of HOMER increased more than their knowledge of renewables.

Conclusions about NREL's Work: NREL partially attained its objectives. It completed the wind and solar mapping and distributed the tools, but not all key stakeholders are comfortable using them.

Winrock[55]

Objective: Set up a regional grants program that will (a) *build sustainable local capacity* through training energy and associated sector specialists in various issues of regional energy cooperation; and (b) *spur cooperative research and outreach* on challenges and opportunities for regional energy cooperation.

Results:
1. Increase regional cooperation in the energy sector
2. Increase regional access to energy
3. Increase capacity building and engagement of local partners who can influence policy in regional cooperation
4. Initiate proof-of-concept opportunities for innovative research ideas
5. Integrate key development issues

Small grants given to achieve these results and objective are as follows:

1) Identify issues and problems with respect to market presence, labeling, popularity, and test protocols for CFLs, tube light ballasts, ceiling fans, refrigerators, and air conditioners in India and in Pakistan through a survey of 500 retailers and 100 consumers/ users in metro cities (Islamabad and Lahore for Pakistan), implemented by CRCP (Pakistan) and VOICE (India). Effectiveness:
- Addresses Results 1 and 4, and Objective b
- Mid-project meeting was held between the partners collaborating in the project. Because of visa restrictions, Indians could not visit Pakistan and CRCP could not go to India. They met in Nepal. Two CRCP representatives said they would have learned more from their Indian counterparts and regional cooperation would have benefited if the visa arrangements had been better.
- Disseminated results to other South Asian countries.

2) Conduct a pilot project to provide solar water pumping and home electrification to 30 households in Balochistan, the most under-developed and poorest area of Pakistan, implemented by NUST and IRP. Effectiveness:
- Addresses Result 2
- Solar tube lights and solar water pumps introduced to 47 households and approximately 250 people in Patkin village. Lighting used at night for study, sewing, etc.
- Villagers reported that lights strong enough for child to read 8-10 feet away[56], but are not sufficient for a house[57].

[54] Mr. Hilal Raza, Director General and Chief Executive of the Hydrocarbon Development Institute and the SENTER

[55] From SARI/Energy Small Grants Program Final Report. Prepared for USAID/New Delhi by Winrock International. October 3, 2006.

- Solar water pump: villagers said tank filled up fast (2 hours) and quality of work good. Before the pump, villagers used a hand pump and well top was open, leading to unhygienic water. Now top is covered[58].
- Some villagers have reverted to using kerosene.
- The villagers who refused the solar system at the beginning regretted it.

3) Trained 1,000 school teachers and 2098 community representatives from School Management Committees (SMCs) and Afghan refugees in NWFP and parts of FATA on energy conservation and efficient use of available resources, based on a needs assessment survey.[59] Implemented by BEFARe. Effectiveness:

- Does not directly address any Winrock results
- Prior to the training BEFARe provided, complaints of tree cutting at night and stealing fuel wood were common. After training on importance of trees and the need for fuel conservation, such activity was reduced.[60]

4) Trained NEPRA officials on privatization, regulatory reform and restructuring of the energy sector, with a view to promote the development of competitive markets. Implemented by LUMS. Effectiveness:

- One out of four training events took place[61]
- The NEPRA Chairman did not agree with the training (SARI/E Pakistan Country Coordinator)
- Project-supported research on energy issues resulted in working papers: *Trade in Energy in the South Asian Region*, and *Energy Pricing: Solutions for Developing Countries*. Addresses Objective b and Result 4.

5) Train the Regional Training Center, LESCO for training its employees and other stakeholders and take steps towards implementing a community-based rural electricity supply system in LESCO area, learning from experience in other South Asian countries

- Addresses Results 1 and 2
- LESCO developed 2 training programs on rural electrification, one for before construction/implementation of community-based system and one for after construction. Trained 24 people in first, 28 in second[62].
- LESCO implemented pilot community-based rural electrification system training for first time in Pakistan, based on lessons learned during visits to India, Bangladesh, Nepal. Called the Solar Village, in FATA. Effectiveness:
  - » Failed. Villagers were supposed to pool money to pay for maintenance and other related costs, but they did not.[63]
  - » Villagers did not have a stake in the project because the equipment was provided for free. May have purposely ensured that the project failed because they were told they would not be connected to the grid if they agreed to solar power.[64]
  - » BUT experience prompted SAARC to study why renewable projects do or do not work. (Mr. Hilal Raza)

---

[56] Monitoring and Evaluation Report—Solar Home Electrification and Water Pumping in Balochistan Village, attached as annex to NUST report, August 2006
[57] Interview with villagers
[58] Ibid.
[59] Final Report: Capacity Building Initiatives on Energy Conservation in Identified Areas of NWFP – Pakistan. Submitted by BEFAREe, 2006.
[60] Manager of Programming and Implementation at BEFARe, Mr. Fayyaz Ali Khan
[61] Evaluators asked Professor Wilson of LUMS which training did, in fact, take place, but received no reply.
[62] Singh, Sarbinder: SARI/Energy Small Grants: A New Beginning, USAID SARI/Energy Small Grants newsletter, Volume XII, September 2006.
[63] SAARC Technical Training Director
[64] Mr. Hilal Raza

Conclusions about Winrock's Work: Winrock met three of its intended results, as well as its objective to spur cooperative research on challenges and opportunities for regional energy cooperation. It did not meet its objective to build the capacity of energy professionals in regional energy cooperation. Winrock increased regional cooperation and spurred research through its grants to CRCP, BEFARe, and LESCO. It increased regional access to energy through the NUST/IRP activity. It initiated a proof-of-concept opportunity for an innovative research idea by LESCO, which unfortunately failed. Winrock did not increase the capacity of partners who can influence policy in regional cooperation, nor has it yet integrated key development issues.

C. Impact: To what extent has the project benefited the people of Pakistan?

Conclusions: This early in the program's history and in the absence of baseline, it is impossible to determine SARI/E's impact on Pakistan, but we have made some educated inferences. If the learning, cooperation, and technological applications are maintained, the SARI/E interventions have the potential to improve energy supply, efficiency, regulation, and even health and rural incomes in Pakistan. Actual impact achieved includes:

- BEFARe's awareness-raising work persuaded some villagers to stop cutting down trees and stealing firewood.
- Patkin villagers now sew and study at night and irrigate their fields for the first time. Women and children no longer travel long distances to fetch water.

Overall

Impact, by definition, is long-term in nature. The logic of program design is that inputs lead to outputs, which lead to outcomes, which lead to impacts[65]. While outputs and outcomes can be expected during the life of a project, impacts cannot be determined until after (sometimes well after) a project has been completed. Since the SARI/E Program is not yet finished and the kinds of impacts sought (e.g., new policies implemented, increased energy cooperation and trade, increased energy security, and use of renewable energy) take years to happen, it is impossible to assess impact at this point. This mid-term evaluation, therefore, focuses on outcomes as indicators of impact.

None of the SARI/E interventions in Pakistan produced baselines, and no monitoring data exists in the documentation provided to the evaluators. We have the overall results framework and indicators for the SARI/E Program, but with the exception of Winrock, we have not seen a PMP for any of the individual projects under the SARI/E program. In the absence of a rigorous, scientific study, it is not possible to say with certainty whether the effects described below are 100% attributable to the SARI/E interventions, but the evidence suggests that SARI/E contributed to the effects.

Energy Cooperation

Mr. Hilal Raza told evaluators that SARI/E's most important contribution in Pakistan is that it raised awareness among a group of decision makers in Pakistan of the potential of energy cooperation as a means to economic development and prosperity. Pakistan has extended the 500 kV transmission link to the boundaries of India, Afghanistan, Iran "and beyond" with SARI/E's assistance[66].

[65] "Outputs are the direct products of a project's activities (e.g., people trained, studies produced). Outcomes are the direct results of the outputs (e.g., awareness raised, cooperation increased). Impact is the effect of the outcomes and is usually long-term (e.g., policies implemented, trade increased).

[66] USEA's January 1 to March 31, 2006 quarterly report, quoting Lt. General Saeed uz Zafar at the Developing Energy Markets Initiative Launch in March 2006

USEA Exchanges and Training

NEPRA officials interviewed said their job is easier now that more people in Pakistan understand the issues (see Effectiveness section for details). They said the program is so good that they are willing to cost-share future regional visits and exchange programs with SARI/E.

NEPRA officials said they obtained software for "Consumer Complaint Redressal Procedures" from a regulator in the United States during one of the SARI/E-sponsored visits. They said it would have been difficult for them to develop the software themselves and hiring a consultant to do it would have been expensive. NEPRA is studying the program to adapt it for its own use. Currently, there is no program that enables WAPDA customers to file complaints or for a regulator to track those complaints and take action against the utility to enforce performance standards. The free software, they said, "has given us a head start."

None of the media representatives the evaluators interviewed reported on SARI/E, and evaluators did not find any direct impact from private sector attendance. The evaluators did not find evidence of parliamentarians' contributions to the energy sector[67].

NREL Wind and Solar Maps

Potential: Pakistani policy makers can use these maps to demonstrate potential areas for development in Pakistan. The government can use this information for encouraging investments, and private sector developers can proceed with feasibility studies.[68]

- The UNDP Wind Energy Project working in conjunction with the Alternate Energy Development Board (AEDB) began testing locations suggested by the wind maps[69].
- NEPRA officials told the evaluators that they have not yet talked to any donor about projects for wind and solar energy based upon the maps.
- WAPDA representatives told the evaluators that they need help to move forward with the maps because they need to integrate them with the national grid. They are also uncertain whether using the technology will ultimately be feasible.
- The maps generated interest to corroborate existing information of the Pakistan Meteorological Department, whose data the mapping exercise utilized[70].
- According to the World Bank energy expert, it is too expensive to supply energy to the grid. Instead, Pakistan can use alternative energy most effectively for off-grid areas.
- According to the former secretary of MoW&P, SARI/E needs to do field work for project development in this area.
- The Chairman and CEO of LESCO, the Chairman and Member of WAPDA, and the Managing Director of PEPCO had not heard of the solar and wind maps and are thus unlikely to use them.

Nexant Technical Assistance

The SENTER approved the operational plan Nexant produced and is implementing it[71]. However, the Center is not fully operational and needs regional staff. Presently, HDIP houses it.

Small Grants

All grantees emphasized to the evaluators the positive impact in terms of meeting their objectives and learning, and want the project to continue.

Actual Impact
Before the BEFARe training on the importance of trees and the need for fuel conservation, communities reported trees cut down at night or stolen fuel wood. Communities reported to BEFARe

[67] Evaluators asked Mr. Syed Farrukh Hussain if he had followed up with any of the training participants since he facilitated their attendance and maintains regular contact with them. He said the energy officials said they enjoyed the trips; he did not say anything about the parliamentarians.
[68] Syed Farrukh Hussain
[69] Ibid
[70] Director of the SAARC Energy Center
[71] Hydrocarbon Development Institute of Pakistan (HDIP)

that the awareness raised through the training has curtailed these undesirable behaviors, and they intend to continue teaching children and neighbors about the importance of conservation72.

The evaluator's visit to Patkin Village found that residents still use the solar water pump NUST introduced. The pump's location allows the community, especially women, to collect water from a close, neutral place, since their previous water source was located on someone's property. Surrounding villages use hand pumps or wind mills. The villagers told the evaluator that the water quality had been tested twice by IR and that it was potable. Since water is now available 24 hours per day, villagers are able to irrigate for the first time. They use the solar-powered lights to sew and study during the evenings.

Potential Impact
CRCP's survey determined that consumer preference was based on cost and not efficiency. Labeling data was insufficient and in some cases, inaccurate73. This information holds the potential to institute labeling standards, conduct consumer awareness campaigns, and eventually improve energy efficiency.

NUST estimates that elimination of kerosene fumes in Patkin will reduce respiratory disease and 16 tons of CO2 emissions will be saved annually.74 Assuming all goes well, the irrigation should bring more and better quality produce, which could increase the villagers' incomes.

The community-based rural electrification project LESCO conducted in FATA did not work75. The concept is that community members contribute money to purchase electrical equipment and maintain it, but the idea did not stick in the community with which LESCO worked. If LESCO can determine how to convince the community to adopt this model, the project could bring much needed resources to an impoverished area.

Unknown
The team is not fully clear on the outcome of the studies by Lahore University of Management Sciences (LUMS) for capacity building of NEPRA. Attempts to communicate with the person who was awarded the grant have not been successful. As indicated under effectiveness, only one training event took place and it appears that NEPRA was not happy with the idea. Four curricula were produced, but we do not know what will become of them.

D. Efficiency: How efficient has the project been in utilizing its resources to achieve results?

Conclusions: SARI/E did not conduct a training needs assessment, nor did it establish related indicators to measure the benefits of training for the organization and the individual. Project-related benefits, therefore, are difficult to determine. For all activities, the indicators to measure efficiency have not been established, and the necessary data was not collected during the course of the project. A reliable analysis, therefore, cannot be done at this point.

The computations for efficiency gains and losses are presented below. The evaluation team included detailed explanations in the subsequent paragraphs. The team did not include comparisons of overhead and administrative costs because the data was unavailable. Table 9 presents a summary of the results which are as follows:[76]

Training: WAPDA losses would need to decline by 0.012% to justify the cost of the training events, which totals around $365,000.

---

[72] BEFARe representative
[73] Secretary General and a research fellow at CRCP
[74] USAID SARI/Energy flyer and Winrock Compendium of Activities 2003-2006.
[75] LESCO's Technical Training Director
[76] The details for the computations are presented in the annexes: Annex 7 -- Operating Losses of WAPDA and Training Costs; Annex 8 – Wind and Solar Maps Activity Costing; Annex 9 – BEFARe costs and benefits and net present value; Annex 10 – Benefits and costs of the Patkin solar project; Annex 11 – Costs of the training programs.

Technical assistance: The team is unable to quantify gains or losses with the given information.

Small Grants: The BEFARE activity gives a positive benefit-to-cost ratio of 231%. This means that for every $100 spent, the return is $231. The assumption is that all people trained are now conserving energy and having savings from kerosene. The Patkin activity shows a benefit-to-cost ratio of only 4.2 %. This means that for every $100 spent, the benefit is only $4.2, which obviously is not large enough to cover the costs of the project. However, certain possible benefits from home lighting are not quantifiable, such as health and education, and same is true of having a water system that works the whole day.

TABLE 6. EFFICIENCY: QUANTITATIVE RESULTS

Category	Costs	Estimated savings for WAPDA	Net Present Value (NPV)	Benefit/cost ratio	Comments
1. Training	$360,000	0.012 %			
2. Technical assistance					
SAARC Energy Center	$90,000				Cannot determine efficiency gains or losses
Wind and Solar Maps	$1.1 million				Potential in Pakistan of 346,000 MW through wind energy alone
LNG Policy Framework					Not quantifiable
3. Small Grants Program: $134, 207 for Pakistan					
BEFARe	$29,883		$35, 547	231%	Assumption that entire group of trainees is now conserving fuel
Patkin	$22,915		($26,358)	4.2%	Not economically feasible when health and education benefits cannot be quantified
CRCP	$15,799				No t quantifiable
LUMS/NEPRA	$30,000				Not quantifiable
LESCO	$27,430				Not quantifiable

Source: Training costs are USEA progress reports and email communication with USEA and SARI/E country coordinator. These are an estimate and do not cover all training (due to unavailability of data) and the costs of administration by the contractors USEA, Nexant and Winrock.

Training

The visits and capacity-building sessions varied from one day to five days. To quantify the impact, the evaluation team considered the following questions:

1. Did SARI/E conduct a training needs assessment of Pakistan's energy sector, and develop courses for the gaps? The team found no evidence of this, as recommended in the SARI/E mid-term evaluation.[77]
2. Did SARI/E complete a baseline done of gaps in knowledge, training, and information and assess whether the programs and visits met these gaps? The team found no evidence of this.
3. Did the training have clear objectives to meet participants' needs and to determine participant selection? The team found no evidence of this.
4. What is the experience of other organizations? Other organizations are not measuring training impacts quantitatively, such as the World Bank and the Asian Development Bank, and an evaluation of capacity building by the World Bank shows mixed results.[78]

[77] An assessment has been done for Afghanistan by SARI/E contractors.

The table in Annex 8 presents a methodology for analyzing the minimum improvement necessary to justify the cost of the training. The team assumed the absence of the participant did not have a negative affect on the organization during his/her absence. The calculations are based on information profit and loss information for the Water and Power Development Authority (WAPDA) for the last 3 years. The results show that the training costs for SARI/E of US$365,000 would be justified by a percentage decrease in operating losses of 0.012 percent for WAPDA.

For technical assistance and the small grants program, the evaluation team did not have quantitative data to measure actual efficiency, and instead focused on potential efficiency for the future.

Technical Assistance

Wind and solar mapping
Pakistan's current power generation installed capacity is about 20,000 MW. Potentially, the wind mapping alone can lead to about 340,000 MW, which could resolve the entire region's energy shortage issues.[79] The GOP's Vision 2030 envisions increasing power production to 162,000 megawatts (MW) by 2030. This needs an investment of about $140 billion. SARI/E needs to develop the feasibility of an actual project first, and the real cost per unit of wind generated electricity would probably be higher in Pakistan or at least until economies of scale set in. [80]

SAARC Energy Center (SENTER)
The energy center used a $90,000 technical assistance grant from SARI/E to develop a strategic and operational plan for the SENTER, including staffing requirements and budget. But without the staffing or being fully operational, the SENTER is not ready for the evaluation team to quantify the benefits.

Liquefied Natural Gas (LNG) Policy Framework
With unacceptable technical assistance, LNG was not successful in getting the GoP to approve this policy framework report.

Small Grants Program
The table shows both the absolute amount of grants for each country as well as the percentage out of the total for each individual country. Pakistan was the beneficiary of 19.2 % of the total grants awarded. The details of all the grants are provided in Annex 13.

TABLE 7. SMALL GRANTS PROGRAM – TOTAL GRANTS FOR ALL COUNTRIES

Country	Number of Grantees	Total Amount of Funding Awarded	Percentage of Total Awarded
India	17	$289,093	30.56%
Sri Lanka	7	$207,867	21.97%
Nepal	11	$166,134	17.56%
Pakistan	**5**	**$134,207**	**14.19%**
Bangladesh	6	$96,726	10.22%
Afghanistan	2	$49,951	5.28%
Bhutan	2	$2,000	0.21%
Maldives	0	$0	0.00%
Total	**51**	**$945,978**	**100.00%**

Source: Winrock, International, SARI/E Small Grants Final Report, 2006

[78] World Bank, Capacity Building in Africa: An OED Evaluation of World Bank Support. Washington, DC, 2005.
[79] The approximate price of installing 1 megawatt (MW) of power generation equioment is $1-1.5 million.
[80] The costs for the activity are presented in the following table:

Consumer Rights Commission of Pakistan (CRCP): Energy efficiency

Again, energy efficiency can yield very positive benefits. ENERCON, the organization that deals with energy efficiency, estimates that the potential for total energy conservation in Pakistan by sector is as follows:[81]

- Industry 25%
- Transport 20%
- Agriculture 20%
- Buildings 30%

E. Sustainability: Are the activities and results likely to be sustained after the project is completed?

Conclusions: Sustainability of SARI/E's activities and results in Pakistan is uncertain.

- The GoP has funds available for training, but needs an organization with overseas connections to coordinate the trips. The evaluators are uncertain about the content, quality, and availability of local training. It is unknown at this point whether the training participants will retain and apply the knowledge they have gained.
- The SENTER may or may not be sustainable; it needs to gain financial and technical self-sufficiency. If it does, then regional cooperation on energy should be sustained.
- Sustainability of the wind and solar maps is uncertain. The data is being used for further studies, but whether Pakistanis will continue to use the data depends upon the will of the Pakistani stakeholders, the studies' outcomes, and availability of technical assistance.
- CRCP's efficiency standards work looks sustainable, as does BEFARe's work.
- NUST's work could be sustainable if resource and maintenance issues are sorted out.
- It looks like the LUMS studies will continue, but the future of LESCO's Solar Village project is less certain.

Sustainability and impact are closely related. When evaluators talk about sustainability, they are often looking at sustainability of impact[82], though one can also examine sustainability of activities. Since it is too early to determine the impact of SARI/E's Pakistan interventions, this evaluation's sustainability discussion focuses on sustainability of activities and, in some cases, outcomes.

Training

- SARI/E did not design the training with sustainability as a factor, but Mr. Syed Hussain said training should be available locally.
- NEPRA officials told the evaluators that the program is so good that they are willing to cost-share future regional visits and exchange programs with SARI/E.

Technical Assistance

- SENTER's technical assistance depends on SAARC.
- SARI/E's TA contributed to sustaining regional cooperation in energy, according to the Director of the Center.
- The SSGCL completed the LNG policy study on its own, indicating it may have sufficient capacity to proceed.
- However, Mr. Hussain told the evaluators that this accomplishment was largely the result of the "dynamism" of one individual, rather than the strength of the institution, itself.

[81] Zafar Rehman, Energy Efficiency in Pakistan: a Presentation, ENERCON.
[82] USAID ADS Chapter 203, p. 46.

Wind and Solar Mapping

- In a related project to the wind and solar mapping activity, the Alternate Energy Development Board (AEDB) cooperated with the UNDP to start using the map data to identify feasible sites.
- However, no donor has yet come forward to design and finance projects for wind and solar energy based on the maps.
- The SENTER Director stated that the solar and wind maps are too theoretical and misleading because the study uses satellite imagery instead of ground-tested studies. A large area, he said, would need large solar panels, which are expensive.
- Nafees Ahmad Khan, Deputy Program Manager of the AEDB/UNDP's Wind Energy Project, told evaluators that micro-siting is needed for the wind map for any real investment to occur[83].
- The Chief Engineer of NTDC and WAPDA, and a power member of WAPDA said that they need help to move forward with the wind and solar maps.
- MWP, NEPRA, and the Pakistan Chamber of Commerce funded 80% of the launch of the maps, indicating some commitment to them.[84]

Small Grants

- CRCP officials told the evaluators that they will continue activities to educate customers on product efficiency and better standards.
- BEFARe used a training of trainers model to build sustainability. According to its final report, teachers trained have shared their knowledge with students and community members. BEFARe says it will incorporate the training topics into its own focal point trainings and provide refresher training to teachers. It plans to share results and lessons of its project with other organizations.
- LUMS intended to continue the research on energy trade and pricing it had begun with Winrock's support[85].
- Patkin villagers appreciate the solar-powered pump and lights, but they were not prepared to pay replacement and maintenance costs, particularly six months after installation. NUST estimates that the money they save on kerosene will be sufficient to cover all maintenance and replacement costs[86].

[83] Simply put, micro-siting examines the topography of the land in and around turbines to determine where they should be placed for maximum energy yield.
[84] Syed Farrukh Hussain
[85] According to Winrock Small Grants Compendium
[86] Based upon site visit and interviews with villagers, as well as NUST's final report. For details, please see Annex 14

F. Replication: To what extent can the activities and results of the project be replicated?

Conclusions: Taken together, the mix of activities implemented under SARI/E in Pakistan could be replicated in another situation in which regional cooperation would address the host country's needs, technology or knowledge exists outside the host country that could benefit it, and stakeholders are both committed to and capable of using the interventions to their best advantage.

- The SENTER model could potentially be replicated, if a regional framework and cooperation exists to support it and make it relevant.
- Training can always be replicated if a training organization and funds are available. Training and exchanges that focus on technology or models in other countries that would be relevant to the trainee country have solid replicability potential.
- Replicating the wind and solar maps could be useful in an environment with plenty of wind and sun and a need for the energy, though replication may depend upon availability of quality, local meteorological data and intensive technical assistance.
- Small grants seem to work best when sufficient preparation has been done before a project begins. The small grant concept also needs sufficient local capacity to implement the grants. The CRCP and NUST projects lend themselves to replication, or scaling up, provided lessons learned from the past are applied to replication.

The findings below are extracted from evidence provided in the sections above, especially relevance, effectiveness, and impact. In general, it should be remembered that SARI/E is a regional program with many different activities and implementing partners focused on the energy needs of South Asia. Therefore, its activities may not be applicable to other countries or even regions.

Technical Assistance

- The SAARC Energy Training Center is a unique organization supporting a regional initiative and itself supported by a regional organization (SAARC). The SENTER did say that the support was helpful.

Training

- Training generally depends upon funding and an organization capable of either providing it or organizing it using relationships with training providers. SARI/E implementing partners are large organizations that have the necessary connections and SARI/E provided sufficient funds.
- In Pakistan's case, the GoP has sufficient funds ($500,000) for future visits abroad, though it has asked SARI/E to do the placement[87].
- NEPRA officials reportedly gained awareness of the importance of regional energy cooperation, as well as complaint redressal software. Other trainees (e.g., LESCO) were not so enthusiastic.
- Visa issues are a consideration for overseas training. In SARI/E's case, Indians had difficulty obtaining Pakistani visas and Pakistanis had difficulty obtaining Indian visas.

Wind and Solar Maps

- It is unclear whether the GoP or the private sector has the ability do develop wind and solar activity using the maps.[88]
- It is expensive to supply wind energy to the grid. It is suitable for remote areas, but not the grid.[89]
- Whether the maps will be used to develop projects is not yet known.
- The maps used data from Pakistan's Meteorological Department, suggesting the data were of acceptable quality.

[87] NEPRA officials
[88] Syed Farrukh Hussain and stakeholders interviewed
[89] Rashid Aziz, World Bank

- Pakistan needs alternative sources of energy, particularly to reach remote areas that currently have no electricity at all. Most areas of the country have abundant sunshine and open areas.

Small Grants

- Two (BEFARe and CRCP) of the five grantees realized their objectives. BEFARe conducted an energy use survey to inform its training and implemented a training of trainers approach. VOICE/CRCP received a series of small grants. The Pakistan market survey built upon VOICE's experience in India.
- NUST partially attained its objectives. Villagers appreciated the easy access to fresh water and bright lights that do not produce fumes as kerosene does. However, NUST's assumptions about the longevity and costs of the equipment and maintenance did not match the villagers' experience.
- The only grantee (LESCO) that received SARI/E guidance did not realize a successful project, since villagers did not pool funds as they were instructed to do.
- The evaluators were not able to obtain sufficient information from LUMS to determine what they did and what the results were.

V. FINDINGS AND CONCLUSIONS ON THE CROSS CUTTING QUESTIONS

A. Gender: To what extent has the project benefited women?

Conclusions: Women did not make up a significant proportion of SARI/E trainees (10% or 6 out of 60), probably because the training targeted a level of officials that includes few (if any) women. Prime contractors have not ensured female representation within its partners, nor have they focused on women as any more than energy consumers. Nonetheless, since the SARI/E implementing partners do not appear to have given any significant thought to women's roles, more could be done.

Overall

The RFP (March 2006) for the overall management and coordination of the SARI/E program in Pakistan includes a full-page Gender Statement (see Annex 14) as an attachment. Highlights include the following:

- "SARI/Energy Contractor will promote the notion of women as managers and entrepreneurs rather than only beneficiaries of energy services."
- "SARI/Energy Contractor will further ensure representation of women with in its partner organizations and implementing partners."
- "SARI/Energy will undertake a detailed gender analysis specific to its thematic areas as the activities are detailed out. The analysis will feed into the design, implementation and monitoring of the various multiple program activities. The program will measure the socio-economic impact of its interventions on the poor and women."

Neither Nexant's nor PA Consulting's Scope of Work contains any reference to gender considerations or gender equity. PA Consulting's first year work plan does not mention any consideration of gender concerns. The evaluators have not seen any gender analyses by PA Consulting, though the company has not yet begun any activities.

The SARI/Energy Results Framework, included as Attachment 8, contains one indicator related to gender: Training provided to people (males/females) related to physical infrastructure. This indicator is actually one of the USAID Common Indicators, and not specific to SARI/E. It is also the only indicator related to gender mentioned in PA Consulting's First Year Workplan (August 21, 2007). PA Consulting's proposed target for this indicator for FY 2008 is 20 women and 80 men. The evaluators have not seen indicators for Nexant's work, but there were no results specific to women listed in its workplan or reports.

The SARI/E Country Coordinator for Pakistan said there had never been any mention or demand for a specific focus on women within SARI/E. Gender was not a part of any scope or workplan and can only be addressed if USAID/Pakistan has an agreement with USAID/India. The SARI/E program already has too many foci, he said, and includes no instructions regarding gender issues.

Although the former CTO for SARI/E was a woman, there are no female country coordinators, nor any other senior women working for SARI/E at the USAID level. There were 1-2 women working for the contractors, such as for Winrock.

Training
According to Syed Farrukh Hussain, the SARI/E Representative in Pakistan, the energy sector includes very few senior managers who are women, which has made it difficult to target them for training events. The Gender Analysis referenced above confirms Mr. Hussain's view: "the principal target audience for the [training] activities is key players/actors in the energy sector. Such organizations tend to be dominated by male persons." The only effort SARI/E has made to encourage female participation in these events, the Analysis says, is that it observed International Ladies' Day by "honoring the nine Afghan women participants of the SARI/E-sponsored English Language training course."

Five Pakistani women participated in SARI/E training programs, and, the woman Parliamentary Secretary for Energy participated twice. According to the USAID/India Gender Analysis, USEA encouraged women's participation in its events, which resulted in 7 women out of a total of 60 people (11.67%) participating in "partnership activities" in fiscal year 2006.

Technical assistance
No women sit on the board at the SAARC Energy Center, according to the Director of the SENTER, nor does the SENTER have any policy for including women.

Small Grants Component
Winrock implemented some gender-based programs (e.g., Gender-sensitive, community-based Solar PV Program Model), but none in Pakistan.[90] Winrock's final report highlights BEFARe's project, which trained 344 female teachers and 672 female community members out of 3098 teachers and community members, which works out to be 33% (see Table 8 below).

The Basic Education for Awareness, Reform & Empowerment (BEFARe) activity trained teachers and community members as follows.[91] The evaluation team was unable to determine if the teachers trained were a subset of the total community members trained.

TABLE 8: BEFARE TRAINEES

Trainees	Total men and women	Women
Community members plus	3,098	672
Teachers		344

The Consumer Rights Commission of Pakistan (CRCP) has no specific requirement or statement regarding women.

NUST's small grant provided a solar energy pump, which Winrock says eliminates the need for women to travel far to fetch water.[92] Prior to the pump, Patkin Village had two sweet water wells, both privately owned. One owner occasionally allowed public access to his well. Generally, women had to travel long distances to get water. NUST's project introduced a pump and well in middle of the village[93].

We feel confident and happy that we have participated in these training programs…. We can now save on cooking fuel as well as time by employing the conservation techniques we have learned.
—Comments by women community member beneficiaries of the BEFARe project, as captured in Winrock's SARI/E Small Grants Compendium 2003-2006

[90] SARI/E Small Grants Program Final Report. Prepared by Winrock International for USAID/New Delhi. October 3, 2006.
[91] Small Grants Program Final Report, p.19.
[92] SARI/E Small Grants Program: A Compendium of Activities 2003-2006. Prepared by Winrock International.

CRCP's study on energy pricing, labeling, and consumer preferences, is designed to all energy consumers.

B. Reporting: Have the prime contractors and grantees reported on time and in a useful manner?

Conclusions: With the exception of the final reports for the small grants program, most reports are difficult to follow and lack indicators for readers to track progress. Report formats are not consistent and do not disaggregate country-specific information, thereby possibly rendering them less useful to the managers at USAID/Pakistan. In addition, they are designed to report on overall project activities, rather than country-specific initiatives, making it cumbersome for someone interested in the Pakistan-specific activities to find information on them.

Most reporting requirements were fulfilled, although the evaluation team included exceptions in the table below. The evaluation team did not have access to all documentation. Reports for all the SARI/E contractors provide information by activity, rather than by country. According to the SARI/E Country Coordinator for Pakistan, all project reports are sent directly to USAID/Delhi; the USAID/Pakistan Mission has no role in reporting. Table 9 presents a summary of the documentation and its status.

TABLE 9: DOCUMENTATION FOR SARI/ENERGY

SARI/E Segment	Contractor	Documentation status per those received by evaluation team
Technical Assistance	PA Government Services, Inc.	Only the First Year Work Plan produced as yet, in August 2007. The workplan is fairly general and the contractor stated that further details would be developed based on specific task orders. No gender analysis has been undertaken although this was a part of the Request for Proposals (RFP) that applies to PA.
Technical Assistance	Nexant	Final Progress Report n.a.
Small Grants Program	Winrock International	Complete
Regional Energy Partnerships	U.S. Energy Association (USEA)	Midterm Progress Report n.a. Final Progress Report n.a.
Wind and Solar Data	National Renewable Energy Laboratory (NREL)	Quarterly Progress Reports for 1st and 2nd Quarters, 2005 n.a. Midterm Report n.a.
Budgets	All	n.a.
Original RFF	All	n.a.

Source: MSI evaluation team inspection of work plans, progress reports and other documentation

Nexant's 2005 Work Plan, the first fiscal year in which the Program began work in Pakistan, details activities by type (logistics support for workshops, analytical studies, media training, etc.). The 2006 work plan describes activities by SARI/E's Strategic Objective and Intermediate Results, and includes indicators for sub-intermediate results that are not named. It also includes expected results for each main activity. The quarterly reports for 2006 describe progress by CLIN. While the 2005 reports reference a project PMP which USAID approved, and a PMP Report to accompany each quarterly report, none were provided to the Evaluation Team. The 2006 quarterly reports do not mention a PMP Report, nor do they include outcome information.

[93] NUST Final Report.

Nexant's quarterly reports are organized in a consistent format for 2005, and another format for 2006. The reports provide progress information on each activity, though the 2006 reports are much less detailed. The 2005 reports are predominantly narrative, while the 2006 reports are mostly bullet points. The difference is not entirely surprising, since 2006 activities were mainly focused on close-out. PA Consulting took the SARI/E reins in 2007.

PA Consulting's First Year Workplan was completed in August 2007, and their first quarterly report was not available to the evaluation team. The Workplan is 13 pages (attachments were not provided to the evaluation team), mentions Pakistan as one of the eight SARI/E countries, and that Hagler Bailey is the subcontractor in charge of the Pakistan work. Unlike the Nexant approach, PA Consulting operates on a task order basis, and therefore it is difficult to determine precisely what SARI/E will do in the coming years.

USEA's 2006 reports list intermediate results, indicators, and units of measure for which they are responsible, but include no actual indicator data. The two 2007 quarterly reports the team received (April 1-June 30 and July 1-September 30) do not include PMP information. Quarterly reports from both years focus on events held, subjects discussed and materials provided, number and identity of participants, and some participant feedback on what they would like to do with the information they gained (see Effectiveness section).

NREL provided brief (approximately 6 pages) reports on progress made on their activities. No monitoring data are included, and there is no reference to a PMP or indicators.

Winrock's reports are lengthy, covering all of the small grants activities, but well written and well organized. All grantees were required to include results data in their final reports, which they did, reflecting different levels of familiarity with M&E. Some "results" or outcomes were actually outputs, for example. Winrock provided the evaluation team with its PMP, but there is no indicator data in any of the reports provided to us. Winrock also prepared a compendium of all activities across the region, which provides a wealth of output and some outcome data on each project.[94]

C. Outreach and Communications: How effective has the project been in getting its story out?

Conclusions: Media coverage of SARI/E activities in Pakistan has been spotty and it does not appear that major Pakistani media sources (e.g., Dawn, The Nation) have highlighted SARI/E events or accomplishments. As a regional program, SARI/E has eight countries in which to attract media attention and it is therefore possible that Pakistan, which joined SARI/E later than most and has not been involved in as many activities, has received a smaller share of PR attention. Without conducting a survey of media consumers and producers, it is not possible to know exactly how effective SARI/E's PR and media efforts have been.

The SARI/E website, consulted on February 23, 2008, includes 5 press releases and 64 news articles featuring SARI/E. Some articles are from national newspapers and others are USAID- or USEA-produced flyers, web articles, and other documents. The articles date back to 2003 and the most recent article was from November 2007. Pakistan is mentioned in eight news articles overall and is represented in 23% of the 29 2005-2007 news articles. Pakistan is not featured in any of the press releases. Four of the articles are from Pakistani news sources; two from Business Recorded online; and one each from The News International and the Daily Times.

Training: SARI/E newsletters mentioned the training events, but the team is unsure of the circulation of these newsletters. The team did not find evidence of public media coverage, nor did the training events themselves receive media coverage. The media does cover energy issues in the daily newspapers, but the team cannot determine if those articles are written by SARI/E training participants.

Technical assistance: According to the SAARC Energy Training Center director, he prepared a regional energy study from which people are "cutting and pasting," which indicates the study is well regarded. This regard facilitates good public relations, he said.

[94] Winrock. Compendium of Activities. Small Grants Component. The report is well presented although all the conclusions drawn about successes may not be completely factual.

Nexant held a briefing on SARI/E with Ayesha Haroon, editor of The Nation, in the second quarter of 2005.

Wind and Solar Mapping
The project promoted the wind and solar maps study and received a turnout of 150 people for the launch in June 2007. Many senior people attended the launch, according to participant lists, and those whom the evaluators interviewed said they remembered the launch. However, Mr. Mukhtar Ahmed said that except for the solar and wind mapping, he was "not aware of anything else that SARI has done." Nexant also has a brief story on its website featuring the Wind and Solar Maps for Pakistan, Afghanistan, and Sri Lanka (http://www.sari-energy.org/PageFiles/What_We_Do/wwd_solarWindResource.asp).

Small Grants Component
SARI/E newsletters, which are published on the SARI/E website, mention the small grants program and Winrock published newsletters about the program on its website. A distribution list was not available.

VOICE/CRCP's project report was circulated to more than 400 professionals and organizations[95].

D. Coordination: How effectively has the project coordinated with other parties?

Conclusions: The project did not coordinate effectively between the different SARI/E components active in Pakistan. In addition, coordination does not appear to exist between SARI/E and other donors, civil society representatives, and other energy officials except at the most senior level.

The team found no evidence of SARI/E coordination with other donors, though the training program coordinates with GoP agencies, especially NEPRA. The team received this information from NEPRA officials other mid-level and senior level officials we interviewed regarding their knowledge about SARI/E. The SARI/E Pakistan coordinator lacks contact with personnel other than at the most senior level, such as the Chairman or the Secretary of the particular government organization. The team found no evidence of coordination with other civil society actors other than the media representatives who went on the executive exchanges. Finally, there is little evidence that the contractors for the different components of SARI/E are coordinating with each other programmatically.

VI. SUMMARY OF CONCLUSIONS

Relevance
The SARI/E program design is logical and consistent with the energy needs of the South Asia Region as a whole. It partially addressed Pakistan's energy needs. However, Pakistan may not use the wind and solar maps because of technical and economic considerations. Small grants directly addressed beneficiaries' needs, but the grantees needed more technical assistance to make their projects work. Some of the training events were not relevant to Pakistan's needs.

Effectiveness
The SARI/E implementing partners partially accomplished their objectives in Pakistan. They increased training and research capacities, increased awareness, spurred cooperative research on energy issues, introduced new technology, and developed some communication on energy issues between Pakistan and its neighbors. One small grant brought 24-hour water access to a Balochi village, allowing irrigation for the first time. The projects' results, however, are poorly documented and it is therefore impossible to say with certainty the degree to which partners attained their objectives. Taken as a whole, the Pakistan activities by themselves did not achieve the overall SARI/E objectives.

Impact
This early in the program's history and in the absence of baseline, it is impossible to determine SARI/E's impact on Pakistan, but we have made some educated inferences. If the learning, cooperation, and technological applications are maintained, the SARI/E interventions have the potential to improve

[95] Winrock's Small Grants Compendium 2003-2006

energy supply, efficiency, regulation, and even health and rural incomes in Pakistan. Actual impact achieved includes:

- BEFARe's awareness-raising work persuaded some villagers to stop cutting down trees and stealing firewood.
- Patkin villagers now sew and study at night and irrigate their fields for the first time. Women and children no longer travel long distances to fetch water.

Efficiency

SARI/E did not conduct a training needs assessment, nor did it establish related indicators to measure the impact of training on the organization and the individual. Results, therefore, are difficult to determine. For all activities, the indicators to measure quantitative impacts and efficiency have not been established, and the necessary data was not collected during the course of the project. A reliable analysis, therefore, cannot be done at this point.

Sustainability

Sustainability of SARI/E's activities and results in Pakistan is uncertain.

- The GoP has funds available for training, but needs an organization with overseas connections to coordinate the trips. The evaluators are uncertain about the content, quality, and availability of local training. It is unknown at this point whether the training participants will retain and apply the knowledge they have gained.
- The SENTER may or may not be sustainable; it needs to gain financial and technical self-sufficiency. If it does, then regional cooperation on energy should be sustained.
- Sustainability of the wind and solar maps is uncertain. The data is being used for further studies, but whether Pakistanis will continue to use the data depends upon the will of the Pakistani stakeholders, the studies' outcomes, and availability of technical assistance.
- CRCP's efficiency standards work looks sustainable, as does BEFARe's work.
- NUST's work could be sustainable if resource and maintenance issues are sorted out.
- It looks like the LUMS studies will continue, but the future of LESCO's Solar Village project is less certain.

Replication

Taken together, the mix of activities implemented under SARI/E in Pakistan could be replicated in another situation in which regional cooperation would address the host country's needs, technology or knowledge exists outside the host country that could benefit it, and stakeholders are both committed to and capable of using the interventions to their best advantage.

- The SENTER model could potentially be replicated, if a regional framework and cooperation exists to support it and make it relevant.
- Training can always be replicated if a training organization and funds are available. Training and exchanges that focus on technology or models in other countries that would be relevant to the trainee country have solid replicability potential.
- Replicating the wind and solar maps could be useful in an environment with plenty of wind and sun and a need for the energy, though replication may depend upon availability of quality, local meteorological data and intensive technical assistance.
- Small grants seem to work best when sufficient preparation has been done before a project begins. The small grant concept also needs sufficient local capacity to implement the grants. The CRCP and NUST projects lend themselves to replication, or scaling up, provided lessons learned from the past are applied to replication.

Gender

Women did not make up a significant proportion of SARI/E trainees, probably because the training targeted a level of officials that includes few (if any) women. Prime contractors have not ensured female representation within its partners, nor have they focused on women as any more than energy consumers. Nonetheless, since the SARI/E implementing partners do not appear to have given any significant thought to women's roles, more could be done.

Reporting

With the exception of the final reports for the small grants program, most reports are difficult to follow and lack indicators for readers to track progress. Report formats are not consistent and do not

disaggregate country-specific information, thereby possibly rendering them less useful to the managers at USAID/Pakistan. In addition, they are designed to report on overall project activities, rather than country-specific initiatives, making it cumbersome for someone interested in the Pakistan-specific activities to find information on them.

Outreach and Communications

Media coverage of SARI/E activities in Pakistan has been spotty and it does not appear that major Pakistani media sources have highlighted SARI/E events or accomplishments. As a regional program, SARI/E has eight countries in which to attract media attention and it is therefore possible that Pakistan, which joined SARI/E later than most and has not been involved in as many activities, has received a smaller share of PR attention. Without conducting a survey of media consumers and producers, it is not possible to know exactly how effective SARI/E's PR and media efforts have been.

Coordination

The project did not coordinate effectively between the different SARI/E components active in Pakistan. In addition, coordination does not appear to exist between SARI/E and other donors, civil society representatives, and other energy officials except at the most senior level.

VII. RECOMMENDATIONS

The recommendations below are based upon the findings and conclusions of this evaluation. Since this is a regional program, the majority of them are directed at the overall SARI/E program, but USAID/Pakistan could raise these recommendations with the regional office in Delhi and/or design its own programs, using these recommendations that address the deficiencies found in the SARI/E programming in Pakistan.

Relevance

- In future projects, USAID should conduct a thorough needs assessment of a country prior to deciding whether to include it in a regional intervention. For SARI/E, the implementing partners (IPs) should still conduct a needs assessment for Pakistan to determine how those needs can be met within the regional framework.
- SARI/E should support additional small grants, as they can effectively and immediately address beneficiary needs.
- USAID and IPs should plan to provide ongoing support if they introduce a new technology to a country, such as wind and solar maps and HOMER, as the country may have difficulty implementing it. The USAID-provided TA should also help the country to conduct a thorough cost/benefit analysis of such tools to promote their application. This recommendation applies to both SARI/E and future projects.

Effectiveness

- SARI/E should require IPs to track progress against their proposed results and performance indicators. Without such tracking, it is impossible to determine whether the project is doing what it intended or if it is heading off course.
- USEA and any other IP managing training should follow up with training and conference participants to determine whether and how they are using the information they gained.
- SARI/E should consider integrating its various activities (training, conferences, studies, TA, small grants) to increase the effectiveness of all. For example, the program could target technical assistance to training and exchange participants to help them use their new knowledge. Integrating SARI/E's components should also help the IPs to coordinate more closely.

Impact

- SARI/E should reinforce regional cooperation and learning with technical assistance and training to produce higher levels of expertise among the targeted organizations on select subjects. One of the IPs (probably PA Consulting) should analyze which subjects Pakistani participants have found particularly useful.
- NREL should provide additional TA and links to funding sources for GoP to ensure that the solar and wind maps are used.

Efficiency

- SARI/E can increase efficiency by setting up indicators to measure quantitative impact and performance, as well as efficiency itself, and then identifying where adjustments can be made.

Sustainability

- SARI/E should assess the training capacity of local organizations to determine their ability to answer the Pakistan energy sector's needs. The program should conduct a training needs assessment for the energy sector.
- PA Consulting should help the SENTER to become independent through helping to identify funding sources, a permanent location, and staff.
- NUST should use lessons it learned from its experience in Patkin to scale up its project. SARI/E should provide support.

Replication

- SARI/E should survey the trainees to determine which subjects they found useful and where additional funding should focus.
- USAID could consider replicating SARI/E in other areas, but it should commit to providing sufficient TA to enable beneficiaries to apply expertise gained.
- Winrock should continue working with CRCP and BEFARe.
- Winrock should either fund the work grantees need to do to design viable projects or select only those grantees who have done sufficient preparatory work. Such work could include needs assessments, teaching methods/technology needed for their projects, and designing a realistic sustainability plan.
- Winrock should help NUST determine why its maintenance cost estimates were invalid before replicating its solar project, to help it to replicate the solar water pump and lights project

Gender

- SARI/E should conduct a gender analysis that explores the numbers and roles of women and men in the energy sector in Pakistan to determine how the project can promote an equitable distribution of resources..
- The analysis could include determining whether women attending technical schools in Pakistan are interested in energy. If so, the project could provide mentoring or training and include them in conferences and events to facilitate their professional careers in energy.
- SARI/E should consider offering training to women who are non-technical managers in energy organizations, if they are interested, to help them assume a larger role.
- SARI/E should consider working with parliamentarian Dr. Firdous Ashiq Awan to identify ways in which SARI/E could support policymaking regarding women's participation in the energy sector.

Reporting

SARI/E should consolidate reporting across contractors. A standardized reporting format that includes progress made in each result area according to performance indicators would provide easily accessible information on all activities. This information should help management make more informed decisions. Reports should present performance data for both the program overall and by country.

Outreach and Communications

- For different categories of stakeholders and media organizations, SARI/E and USAID/Pakistan could hold frequent conferences about the progress of the project and lessons learned.
- SARI/E could also distribute its newsletters to the broader Pakistan community, rather than focusing on USAID.
- Ideally, SARI/E should track its media coverage and the outcomes of its PR efforts by using existing media listenership/readership surveys and focus groups, and use this information to adjust its PR efforts.

Coordination

- SARI/E should establish a regional advisory committee, with terms of reference, that includes energy experts from government and the private sector. This committee could help coordinate brainstorming for technical ideas and increase regional ownership. It could also provide technical input to the SARI/E Advisory Board, which consists mainly of senior USAID staff.
- The country coordinator for SARI/E could be tasked with a deeper coordination role in Pakistan, including meeting with Pakistan SAR/E contractors for progress reviews and updates.
- USAID/Pakistan could examine the work of other donors in the energy sector, which helps identify its niche for a national-level program within the regional program. That way, the regional program is not acting in isolation.

VIII. LESSONS LEARNED

- Targeted overseas visits are helpful to encourage exchange of views, learn new techniques, and generate renewed enthusiasm in everyday tasks.

- Involvement of national stakeholders in project design and implementation can yield positive results. A common understanding is helpful at all levels, covering the top level of policy reform and restructuring right down to community-based programs. Furthermore, projects need to include stakeholder input right from the beginning in order to encourage ownership and commitment. This is very hard to establish later after the project's design and launch.

- SARI/E needs to keep in mind sensitivity toward the complex relationships in the region, such as between countries, for program development. That way, all stakeholders find the program equally empowering and productive.

- The inclusion of women and awareness of gender issues needs to be at the forefront of project management, including recruitment and training of USAID representatives and contractors, the design stage, implementation, monitoring and evaluation.

- Projects must be a focal point of the government at the highest level. This success reveals commitment and visibility, which provides comfort to the donor community and other investors and ensures that the government will take the project seriously enough to follow up on objectives.

- Project design needs to include methods for ensuring sustainability after the conclusion of the project, and present the conditions under which that sustainability will be possible. The sustainability analysis needs to specify clearly that project closeout will be attained without donor dependence.

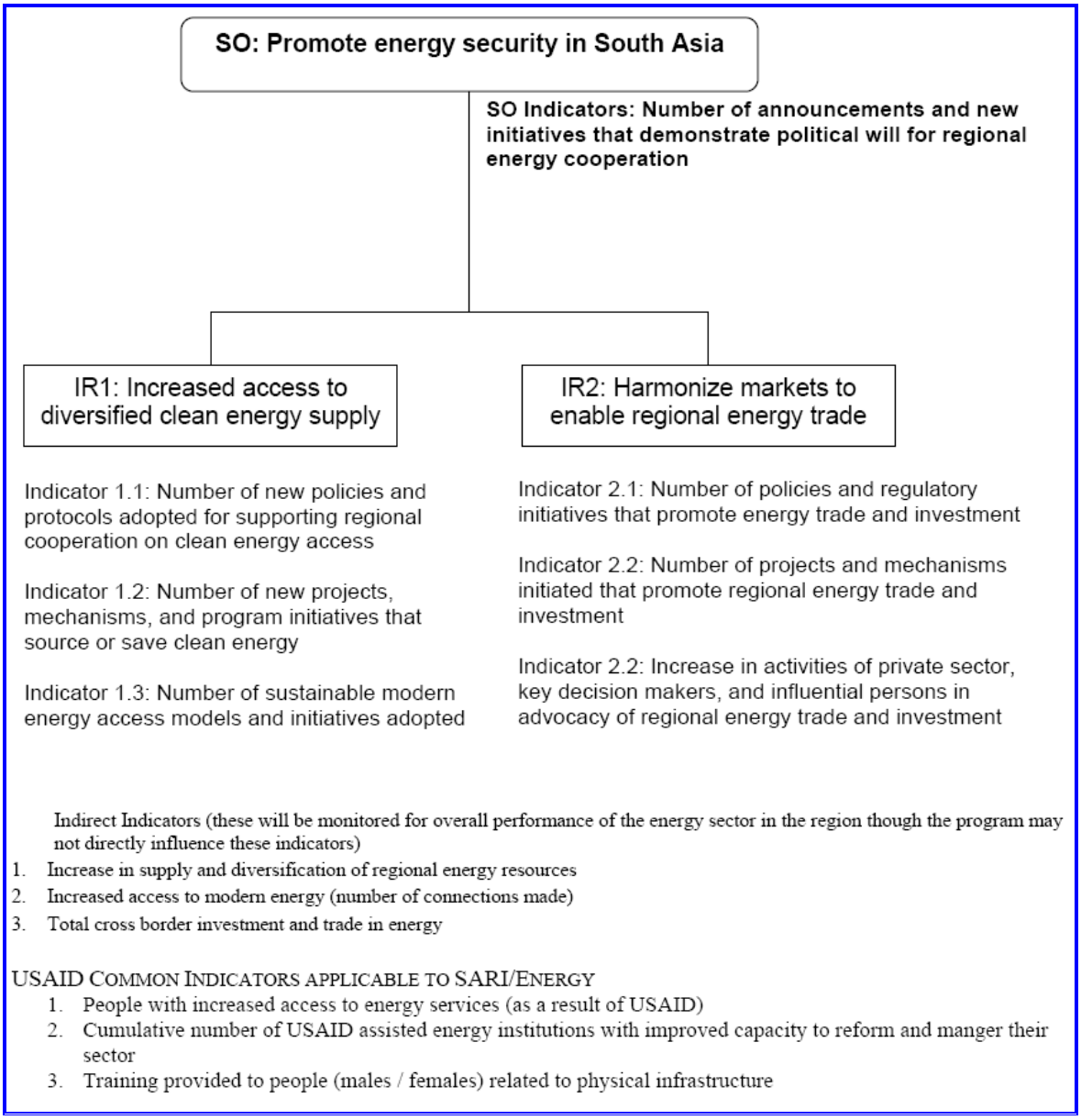
IX. NEXT STEPS

This evaluation produced a number of specific recommendations for improving the performance of the SARI Energy project's activities in Pakistan and USAID's Economic Growth program. The evaluation will be useful only if USAID and its project partners learn from the recommendations and implement them. This chapter sets forth procedures for evaluating the recommendations and deciding how to address project and program deficiencies.

The recommendations cover issues at two different levels. Some relate to management and programmatic issues internal to USAID. Others are specific to project activities and the interaction between USAID and the project. A possible course of action for methodically processing the evaluation results for improved performance is:

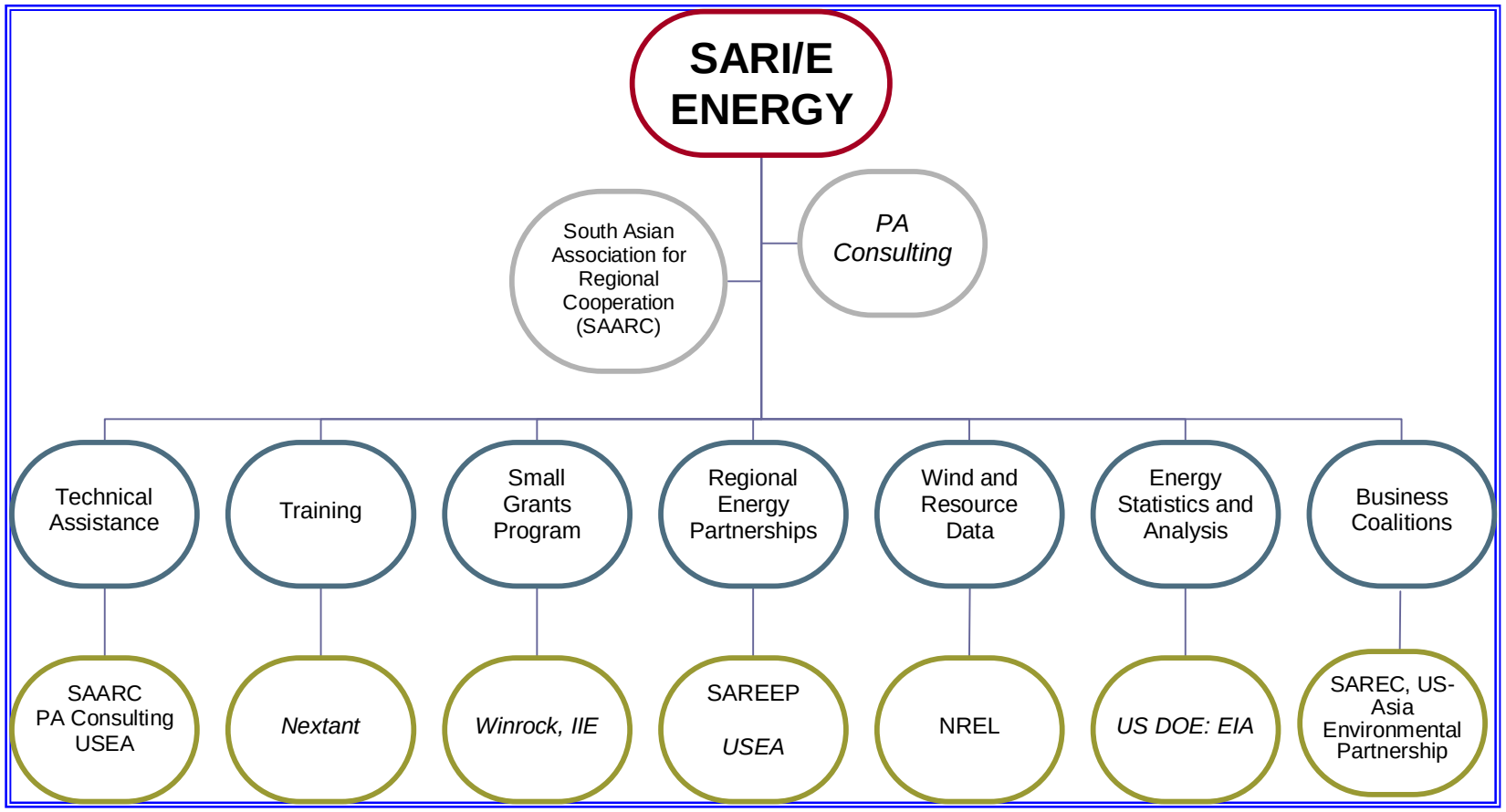
Activity	Timeframe	Responsible person/office
Assign a person to review the recommendations of all eight evaluations and separate the recommendations into: (1) those that need to be handled internally within USAID, (2) those that need to be handled internally within EG, and (3) those that are project specific.	Immediately	USAID EG
Recommendations internal to USAID		
Convene a meeting within USAID to review the recommendations that need to be handled internally within USAID. Use the meeting to: • Decide which recommendations to address and which to ignore. • Discuss how to address the recommendations deemed important. • Identify an individual or office responsible for implementing each recommendation. • Establish a timeframe for implementation. • Determine a process for tracking progress on implementation of each recommendation.	Third priority after initial meeting	USAID
Reconvene every six months (in whatever groups are appropriate) to review progress on implementation.	Six month intervals	USAID
Recommendations specific to EG		
Convene a meeting within EG to review the recommendations that need to be handled within EG. Follow the procedures outlines above.	Second priority after initial meeting	EG
Reconvene every six months (in whatever groups are appropriate) to review progress on implementation.	Six month intervals	EG
Recommendations specific to the project		
Convene a meeting between USAID/Pakistan, USAID/Delhi, the SARI/E Country Coordinator for Pakistan, and PA Consulting to determine how to address the project-specific recommendations. In the meeting: • Decide which recommendations to address and which to ignore. Consider which can contribute to improving the Pakistan portion of SARI/E activities. • Determine how to implement the recommendations deemed important to address. • Establish a timeframe for implementation. • Define a process for tracking progress on implementation.	First priority after initial meeting	EG USAID/Delhi SARI/E Pakistan Coordinator PA Consulting
Reconvene every month (in whatever groups are appropriate, and likely by phone) to review progress on implementation.	One month intervals	EG USAID/Delhi SARI/E Pakistan Coordinator PA Consulting

ANNEX 2: SARI/E RESULTS FRAMEWORK 2006



Source: USAID/Delhi. SARI/E, Solicitation, Offer and Award document. Solicitation (RFP) NO. 386-06-006, March 14, 2006.

ANNEX 3. SARI/ENERGY ORGANIZATIONAL CHART



ANNEX 4: DETAILS OF CAPACITY BUILDING SESSIONS UNDER USAID'S SARI/ENERGY PROGRAM

Overview:

- AEDB reps were not invited for any visits despite the objective of SARI/E to support renewable energy.
- Three participants attended two events: the NEPRA chairman, the LESCO chairman, and parliamentarian Dr. Firdous Ashiq Awan.
- Combined, the media and private sector representatives are a third of the participants.
- Parliamentarians made up 10% of participants.

Participants by Organization[96]

Organization	Total participants	% of total participants
Basic Education for Awareness, Reform and Empowerment (BEFARe)	1	1.67%
Board of Investment (BoI)	1	1.67%
Hyderabad Electric Supply Company (HESCO)	1	1.67%
Karachi Electric Supply Corporation (KESC)	1	1.67%
Lahore Electric Supply Company (LESCO)	4	6.67%
Media Representatives	11	18.33%
Members of the National Assembly[1]	4	6.67%
Members of the Senate	2	3.33%
Ministry of Water and Power (MoW&P)	5	8.33%
National Electricity Pricing Regulatory Authority (NEPRA) [2]	13	21.67%
National Transmission and Dispatch Company (NTDC)	3	5.00%
National University of Science and Technology (NUST)	1	1.67%
Prime Minister's Secretariat – PM's Energy Advisor]	1	1.67%
Private Power Infrastructure Board (PPIB)	1	1.67%
Private Sector[3]	9	15.00%
Water and Power Development Authority (WAPDA)	2	3.33%
Total	**60**	**100%**

[1] The same woman parliamentarian attended two overseas events: Dr. Firdous Ashiq Awan
[2] The NEPRA chairman went overseas twice. Once consultant also traveled overseas.
[3] Syed Ywar Ali was included in capacity building events both as the chairman of LESCO (South Africa) and as a private sector representative (India)

[96] This table contains information only on USEA-implemented training events. Other training events are included under the respective implementing partner's analysis in this section.

Purpose and Relevance Listing of Programs and Events

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
Pakistan Events						
2007 July 27-29 NREL and AEDB (Islamabad)	Workshop for HOMER training	40	1	AEDB = 13 PMD = 3 NEPRA = 2 UET = 3 ARL = 2 PCRET = 3 QESCO = 1 Private = 14	The roll-out event was to present the final versions of the NREL wind and solar maps and GeoSpatial Toolkit to Pakistan wind power stakeholders and a high-level Afghan delegation.	Relevant in terms of attendance since most attendees were technical specialists. The possible impact was that (1) Over forty energy professionals from both the public and private sector can begin to use HOMER for analysis of their projects, and (2) Staff of the Alternative Energy Development Board strengthen their knowledge of HOMER. However, the evaluation showed that the software is not really being used.
2007 June 25-26 NREL (Islamabad)	Launch of the Wind and Solar Maps for Afghanistan and Pakistan	145	5	Not compiled. The number of participants is based on info provided by the SARI/E CC.	The roll-out event was to present the final versions of the NREL wind and solar maps and GeoSpatial Toolkit to Pakistan wind power stakeholders and a high-level Afghan delegation.	The people invited were the entire Chamber of Commerce members, a total of 1258 invitees, which seems irrelevant, as well as donors and govt representatives. The final list of participants was about 150 according to the SARI/E Country Coordinator. The event raised awareness about SARI/E activities.
2006 Sep 11-15 NREL, AEDB and PMD (NIBF, Islamabad)	Pakistan Renewable Energy for Renewable Electrificatio n Workshop	20	0	NEPRA=2 AEDB=13 PMD=5	Participants spent two days learning about renewable energy technologies and their application for renewable energy, and three days in hands-on training in HOMER, NREL's micropower optimization model. Participants can use HOMER to evaluate technology options for the 400 pilot projects currently under development at the AEDB, and to asses the wind power potential at sites that are part of the PMD's Wind Measurement Program.	NREL defined the criteria for participant selection, and identification by SAR/E Country Coordinator. The participants were relevant. The impact was minimal since HOMER is not being utilized.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2006 August 24 Nexant (Islamabad)	Executive Session: Introduction to Electricity Markets	19	0	PC (Energy)=2 MoW&P=1 0 (PPIB)=2 NEPRA=1 BoI=1 HDIP=1 AEDB=1 PM Sec=1	Briefing on the training session (see below) as well as introduction to electricity markets. Introduction by PMs advisor for energy and NEPRA Chairman.	Relevant in terms of attendance. Impact hard to determine other than awareness raising about SARI/E.
2006 August 22-23 Nexant (Islamabad)	Training Course: Introduction to Electricity Markets	55	1	NTDC=7 WAPDA=6 JPCL=4 NEPRA=4 MoW&P=4 PC=1 PPIB=4 MEPCO=4 HESCO=3 PESCO=4 QESCO=5 LESCO=2 GEPCO=2 FESCO=2 IESCO=2 GENCO-III=1 BoI=1	• Current Status of the Electricity Sector in the Country • What are Electricity Markets? • Electricity Market Fundamentals • Key Entities in Market Operations • Market Governance and the Role of Regulators and Market Monitors • Market Business Procedures • Market Forecasting and Planning • Markets Case Study	Relevant in terms of attendance. Impact okay since awareness raising about SARI/E, and about electricity markets.
Total local events		279	7	286		

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
Overseas Events						
2007 Oct 29–Nov 3 USEA (Bhutan)	Analysis of a Successful Cross Border Power Project: The Bhutan-India Experience	**3**	**0**	MoW&P=1 NEPRA=1 WAPDA=1	Knowledge & documentation on: • Financing strategies for cross border electricity projects • Contracting mechanisms for cross border electricity projects • Policies, procedures, organizational structures and practices potentially applicable to other parts of South Asia	Relevant in terms of participation. Impact difficult to determine.
2007 May 28–Jun 2 USEA (Leipzig and Cologne, Germany)	Executive Peer Exchange: Current Status and Development towards an EU Electricity Market: Highlights of the Western and Southeast European Electricity Markets	*2*	*0*	NEPRA=2	The purpose was for SARI/Energy executives to be able to apply numerous lessons-learned provided by the market players of Germany, Romania and Bulgaria along with the lessons shared by their other South Asian peers, to further energy security and give new investors confidence in the power sectors in South Asia. The delegates were taught fundamental techniques for managing an expanding energy market; lessons on how utilities can operate in the trade of electricity without operating in the formal market; the potential impact of TSOs in influencing the market; along with lessons in power trading strategies, pricing, and regulatory monitoring.	One participant was a Member which was relevant – the other was a consultant. Hence the impact would have been reduced.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2007 May 14-19 USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*2*	*0*	Members of National Assembly=2	• Through the course of the five-day exchange, the delegates from Afghanistan, Pakistan and Sri Lanka had extensive opportunity to exchange information on their energy policy, the role of policymakers in shaping the future of the energy sector in South Asia, and in the mutual goals of energy security amongst their countries. Through meetings with US lobbyists, utilities, policymakers, and regulatory agencies, the delegates were able to better compare the numerous issues shared between South Asia and the U.S., and develop strategies on energy market issues to expand energy security in the South Asian region.	Rai Azizullah Khan, standing committee on scientific and technological research and Pir Mohammad Shah Khagga, standing committee on production. So, relevant in terms of participants. Impact in terms of awareness raising, discussion with representatives of other countries.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2007 Mar 20-21 USEA (New Delhi, India)	Emerging Investment Opportunities in the South Asia Power Sector Conference	**14**	**0**	NEPRA=1 MoW&P=1 PM sec=1 Media=3 PrivateSector=8	• 218 delegates from the eight SARI/Energy countries, along with a number of Central Asia, Southeast Asia, Western Europe and the U.S. attended, comprising generation, transmission, and distribution utilities, including end-users, traders, and government representatives and regulators, investors, developers, donors, and government. • Speakers highlighted recent power sector investment successes in the region and promoted a number of new potential projects that could attract foreign investment. The audience contained a number of potential investors and developers. • One-on-one meetings were provided between a number of individuals, including South Asian utilities and investors. • On March 22nd there was a USG Roundtable on South and Central Asia Regional Energy Initiatives and USG Programs. Attendees include the US State Department, the US Department of Energy, USAID, US Trade & Development Agency, and representatives from embassies of Pakistan, Kazakhstan, India, and Afghanistan.	Relevant

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2006 Nov 6-10 USEA (Toronto, Ontario, and Calgary, Alberta, Canada)	Executive Peer Exchange: Overview of Canadian Electricity Markets	*2*	*0*	HESCO=1 MoW&P=1	• North Delhi Power Limited (NDPL) and Pakistan expressed interest in implementing an air conditioning turn-off program modeled off the one used by Toronto Hydro-Electric System Ltd. for residential and commercial load control during peak demand times. • Hyderabad Electric Supply Co. (Pakistan) invited Toronto Hydro-Electric System Ltd., the Alberta Electric System Operator (AESO), and the Alberta Department of Energy to Pakistan to share their experiences in market operation	Relevant in terms of participation. However, impact limited since only one official went from a power distribution company and one from the Ministry of Water and Power.
2006 Aug 14 -16 USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*1*	*1*	Senator from FATA and MNA	• Delegates from Pakistan and Afghanistan gave a detailed presentation of the energy sector of South Asia to over 40 U.S. energy industry and government representatives. • Legislators from Afghanistan and Pakistan had an unprecedented opportunity to meet and discuss energy policies that would benefit both countries. • The legislators obtained a briefing and documents on implementing decentralized, small-scale generation to meet the needs of rural populations. • The legislators discussed policy options for rural electrification.	Senator Hafiz Abdul Malik Qadri, Chairman, Senate Committee on Water and Power and MNA Dr. Firdous Ashiq Awan, Member standing committee on housing and works, and standing committee on industries. Both relevant. She went on both executive exchanges for SA Regional Energy Policy, and hence impact should have been greater.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2006 June 26-30 USEA (Johannesburg, South Africa)	Executive Peer Exchange: Introduction to Electricity Markets, Southern Africa Power Pool and ESCOM Power Pool	**4**	**0**	LESCO=1 NEPRA=2 MoW&P=1	• SAPP's shared experiences with the South Asians provided them with a comprehensive model for the future establishment of a power pool in South Asia. • Lahore Electric Supply Company (LESCO) is collaborating with Eskom to assist in power generation using Pakistan's coal reserves (195 m tons). • Afghanistan, India, Nepal, Pakistan and Sri Lanka expressed interest in using the lessons of integrated resource planning and demand-side management to assist with their generation and transmission planning.	Event contents not relevant at present time according to 1 participant – might be relevant in say a decade. Impact minimal.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2006 Mar 21 – 22 USEA (India)	Developing Energy Markets Initiative Launch	**2**	**0**	BoI=1 NEPRA=1	• The launch of the Developing Energy Markets Initiative was held in New Delhi, India, March 21-22, 2006. 83 delegates attended from Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka, along with the United States, Norway, South Africa, and West Africa. Delegates expressed enthusiasm for a concentration on furthering energy market structures in their countries. • Key speakers included the Deputy Minister of Power and Water of Afghanistan, Secretaries from India and Pakistan, and Additional Secretaries from Sri Lanka and Bangladesh.	Participants seem relevant, but impact would be limited.
2005 Dec 14-16 USEA (Kathmandu, Nepal)	Executive Exchange: South Asia Regional Energy Transmission Partnership	**3**	**0**	NTDC=3	For the first time in the four years of the transmission partnership, all the participants agreed there are no major technical impediments to a regional grid.	Relevant

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	**Women**			
2005 Dec 4-5 USEA (Dhaka, Bangladesh)	SARI/Energy Executive Business Meeting	**1**	**2**	NEPRA=2 KESC=1	• The Karachi Electric Supply Corporation plans to recommend the implementation of an Alternative Dispute Resolution into their regulatory agency's program to lesson the outstanding case load and to lessen the costs incurred by the utilities, customers and regulatory agency as a result of the currently used method of trials and litigation. • India shared their procedures for staff selection and their role as advisers to the central government with the Nepal. • The Federal Energy Regulatory Commission shared their recommendations on dispute resolution with the delegates for use in their own regulatory agencies.	Relevant
2005 Nov 16-18 USEA (New Delhi, India)	Executive Exchange for South Asian Media: South Asia Forum for Energy Journalists (SAFEJ)	**4**	**0**	Media=4	• 22 journalists from 19 different organizations were provided training to improve the quality of their reporting and to discuss energy markets, privatization, and customer service.	One participant each from: Daily Times, Nation, Nawa-i-Waqt and Associated Press of Pakistan.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	**Women**			
2005 Sep 19-23 USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*1*	*1*	Senator=1 MNA=1	• This meeting served as the launching of the Regional Energy Policy Partnership. • Legislators from India and Pakistan discussed plans to hold bilateral site visits to their fast growing compressed natural gas transportation facilities and to discuss their retail pricing for electric power. • The legislators obtained a briefing and documents on implementing customer for choice electric service and the Maryland legislation for setting a target of 7½% renewable energy in their supply, as models in their countries.	Senator Mohammad Ali Brohi, Chairmna, Senate Committee on Housing, Works and the Environment, and MNA Dr. Firdous Ashiq Awan, Member, standing committees on housing and works, and on production.
2005 Aug 1-3 USEA (Bangkok, Thailand)	Executive Business Trip: South Asia Regional Distribution Utilities Partnership	**3**	**0**	MoW&P=2 PPIB=1	• The final meeting of the SARI/Energy Distribution Utilities Partnership. • Pakistan Ministry of Water & Power executives expressed interest in signing onto the MOU, signed in March 2002 by the SARI/Energy distribution utilities. • Participants expressed interest in continuation of the SARI/Energy Distribution Utilities Partnership, as progress in utility methods is the basis for energy sector development.	Relevant in terms of participants.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
2005 Jul 26-28 USEA (Dhaka, Bangladesh)	Executive Exchange for South Asian Media: South Asia Forum for Energy Journalists (SAFEJ)	**4**	**0**	Media=4	• 45 journalists from 43 different organizations shared experiences and resources about national and regional cooperation, developing web resources and writing winning energy stories • Based on suggestions from journalists, USEA developed a national and regional journalism award for the best published and broadcast energy articles. The awards program will encourage the dissemination of energy-related public information in the region by encouraging the writing of energy stories and recognize quality and in-depth reporting. • Delegates met with the Editorial Director for Asia of Platts Publications (the world's largest publisher of energy information) to discuss professional journalism standards, confidentiality, checking accuracy of information, and gaining trust of news sources.	Media representatives from: Business Recorder, News/Newsline, Dawn, and Daily Jang.

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	**Women**			
2005 Jun 13-16 USEA (New Delhi, and Mumbai, India)	Executive Exchange: South Asia Regional Transmission Partnership	**3**	**0**	LESCO=1 NEPRA=1 WPPO/WAPDA=1	• India and Bangladesh shared their transmission grid codes with Pakistan, who is currently reviewing its grid code • Participants agreed to discuss specific interconnections and ways to maintain acceptable frequencies on their systems. • Bangladesh, Bhutan, Nepal, and Pakistan are considering bilateral generation projects with new interconnections to further integrate the region.	Relevant
2005 Apr 18-22 USEA (Washington, DC and Columbus, Ohio)	SARI/Energy Executive Business Meeting	*3*	*0*	NEPRA=3	• The Nepal Electricity Tariff Fixation Committee and the Pakistan National Electric Power Regulatory Authority agreed to make plans to hold future bilateral exchanges to share best practices. • South Asia regulators agreed on the need for greater accountability from their utilities, better education of consumers and utilities, improved enforcement and establishment of standards to fight the problems facing their region. • At the request of the Bhutan Electricity Authority, the Public Utilities Commission of Ohio and the Pennsylvania Public Utility Commission are sharing information on design of regulatory structure, statutory powers and mission statements.	Relevant

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Purpose of event	Relevance and Impact
		Men	Women			
SMALL GRANTS PROGRAM						
2006 Aug 29-30 WI (Kathmandu, Nepal)	Round V Regional Grantees Meeting	**4**	**0**	BEFARe=1 NUST=1 LESCO=2	The primary objective of the Regional Grantees Meeting was for each grantee to present the findings and outcomes with a view to reaching agreement on workable models to increase regional energy cooperation and trade.	Not present were: Consumer Rights Commission of Pakistan (CRCP), NEPRA or IRP. One expat present from LUMS who developed studies for NEPRA.
Total Participants		335	11	346	**Women/Total**	3.18%
Local		279	7	286		2.45%
Overseas		56	4	60		6.67%

ANNEX 5: GETTING TO ANSWERS MATRIX FOR SARI/E

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Relevance: How well was the project focused on the needs of the beneficiaries?					
Describe the motivation for initiating the project. (who, why, where, for/to whom)	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
Was the activity designed to meet a felt need of a specific community, target audience, or influential stakeholder? Has your participation in one or more SARI activities increased your awareness of the benefits of linking energy activities in the SARI region? How?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
Was the project well designed to address the needs of the beneficiaries?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
To what extent did the design of the activity utilize participatory techniques?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
How well was the project adjusted to address the needs of the beneficiaries? Are the original hypotheses on which the program was based still valid? Does the program take advantage of opportunities in regional security and greater energy cooperation?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Was the targeting appropriate in hindsight?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
How well did the project design incorporate the views of all relevant stakeholders?	Scale (5 point)	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Aggregate scale
Were stakeholders involved in a substantive way throughout the project life cycle?	Scale (5 point)	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Aggregate scale
Has stakeholder input led to changes in implementation? Provide examples. Do you discuss SARI and other regional energy issues with your colleagues?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – document concrete examples of instances where stakeholder input guided implementation
Effectiveness: Has the project accomplished its objectives?					
What were the stated objectives and targets? And how were initial targets established for Pakistan?	Descriptive	Document review	Project planning documents		Tabulate objectives and targets
Were the targets realistic? Appropriate? And to what extent were the targets achieved?	Descriptive	Document review	Project planning documents		Tabulate objectives and targets
What are the lessons learned for setting targets in future activities in accordance with the requirements of USAID's Performance Monitoring Plan (PMP)?	Descriptive	Document review and interviews	Project planning documents		Tabulate objectives and targets

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Has your participation in one or more SARI activities improved your abilities to carry out your responsibilities? How? Is knowledge acquired from SARI activities being disseminated within your organization? How?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
Has your participation in one or more SARI activities resulted in new on-going professional relationships between yourself and officials/executives in other SARI countries? Specifics?	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
How widely and in what ways have training materials and programs been distributed? *(by materials, region)* As a consequence of SARI activities, what materials, ideas or procedures did you acquire or learn about that you plan to use or recommend for use in your organization? Cd-roms?	Comparison	Document review Interviews	• Review of training materials • Interviews with project staff		Distribution of training materials by location and type of material
Have any of the training materials and programs been specifically targeted to women? *(by type and region)*	Comparison	Document/material review Interviews	Review of promotional material		Number and proportion of materials that have been targeted to women.
How many stakeholders have been exposed to training materials and programs? *(by type, region, and gender)*		Document review Surveys			Document or estimate number and percent of stakeholders exposed to training or programs

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
What was the impact on the stakeholder of training materials or programs? *(by region and gender)* Has your position changed since your first participation in a SARI event? Have your responsibilities changed?	Comparison of before and after the training for those trained (skills, job responsibilities, etc.), their organizations and operations (changes and likely effects).	Survey structure interviews	• Those trained and their bosses • Energy experts	Random sample of those trained and their bosses, stratified by type of training and organization Expertise of the knowledgeable persons	Simple tabulation and estimation of the range of potential economic benefits
To date, have the program management structure and the adopted implementing tools (contracts, cooperative agreements and USG inter-agency vehicles) been effective in ensuring maximum coordination of activities under SARI/Energy so as to avoid duplication of effort? Are there gaps in coordination that potentially hinder the achievement of results or which fail to take advantage of synergies among individual activities? (e.g., are training and technical assistance activities coordinated and sequenced so that they benefit from each other?)	Descriptive	Interviews	• Interviews with USAID • Interviews with stakeholders • Interviews with key informants		Content analysis – look for examples of identifying a need, stakeholder input into design, participatory approach
Efficiency: How efficient has the project been in utilizing its resources to achieve results?					
What are the costs associated with the project	Total costs associated with SARI/E activities	Document review or request from bank	Information needed from project management staff/COPs		Input to cost benefit analysis

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
What was USAIDs contribution to project costs *(by quarter and region)*	Total USAID financial support by quarter and region	Document review or contractor/USAID records	Review of project financial documents		Input to cost benefit analysis Break down by (1) ex-pat labor based in US, (2) ODCs (if any) spent in US, (3) ex-pat labor in Pakistan, (4) local labor, (5) outputs and activities, (6) ODCs
What are the monetary benefits of the project? *(by quarter, region, and gender)*	Documents and interviews	Previous evaluation and any contractor information	Impact analysis – see questions to assess impacts in impacts section		Input to cost benefit analysis
To the extent possible, what is the internal rate of return for this project, as calculated in a cost benefit analysis?	Documents and interviews	Previous evaluation and any contractor information	Impact analysis – see questions to assess impacts in impacts section		Input to cost benefit analysis
How cost-effective has the project been?	Documents and interviews	Previous evaluation and any contractor information	Impact analysis – see questions to assess impacts in impacts section		Input to cost benefit analysis
How do overhead and administrative costs for this activity compare to others across differing types of implementation mechanisms (e.g. Contract, Limited Scope Grant Agreement, Grant, Cooperative Agreement) and for the different types of implementing entities (e.g. local vs. international firms, non-profits vs. for-profits, etc)?	Documents and interviews	Previous evaluation and any contractor information	Impact analysis – see questions to assess impacts in impacts section		Input to cost benefit analysis

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
What are the estimates of benefits from training for the individuals trained, their organizations and for the energy sector	Importance, relevance and impact of the training.	Structured interviews	• Those trained and their bosses • Energy experts		
What are estimates of the benefits of the mapping exercise, creating the SAARC Energy Center and LNG assistance	Importance and relevance and long term benefits.	Structured interviews	Energy experts		
What are estimates of the benefits of the solar pilot project	Importance and relevance and long term benefits.	Structured interviews	Project records or a simple survey of involved households will allow the quantification of impacts		
Are results achieved under SARI/Energy being produced at an acceptable cost compared with alternative approaches accomplishing the same objectives? What alternative approaches exist which could achieve results at greater efficiency and what mechanisms can be recommended for implementing the alternative approaches?	Importance and relevance and long term benefits.	Structured interviews	Energy experts		
Impact: To what extent has the project benefited the people of Pakistan?					
What are annual budgets for SARI/E, regional and for Pakistan, and what does USAID/Pakistan provide?	Cost breakdown for each country	Interviews, documents, contractors			

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
What has been or is likely to be the impact of the solar and wind mapping? What is the likely economic impact of the wind and solar maps? Are maps in a form that will be useful to policy makers and private sector developers? Has sufficient training been done on their use? Who is likely to use them and for what?	Comparison of the present to what is likely to happen in terms of production of energy and impact on households.	Structured interviews	Energy experts	Expertise	Simple tabulations and estimation of the range of potential economic benefits
What has been or is likely to be the impact of the SAARC Energy Center? Will it be realized? When?	Comparison of the present to what is likely to happen in the energy industry.	Structured interviews	Energy experts	Expertise	Simple tabulations and estimation of the range of potential economic benefits
What has been or likely to be the impact of the assistance provided on the National policy framework for LNG?	Comparison of the before and after the assistance in the LNG arena.	Structured interviews	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
What has been or is likely to be the impact of the solar water pumping and home electrification grant?	Comparison of the past to the present or what is likely to happen in terms of household standard of living and incomes	Structured interviews Survey	• Involved project personnel • Beneficiary households	Key project personnel Random sample of beneficiary households	Simple tabulations and estimation of the range of potential economic benefits
What were the primary and secondary positive and negative impacts of the projects?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
How large has the impacts been or are likely to be?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
To what extent can the impacts be attributable to the project?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
How were the impacts distributed by region, sector and gender of the beneficiaries?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
Were any of these benefits or losses unexpected?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
To what extent have SARI/Energy activities supported or complemented activities sponsored by other donor partners, such as the World Bank and the ADB in South Asia?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	
Have systems been established internally for tracking, monitoring, and reporting on results attributable to SARI/Energy activities and do these systems utilize independently verifiable information.	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	
Sustainability: Are the activities and results likely to be sustained after the project is completed?					
Were the activities designed in a manner which focuses on their sustainability after project completion?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
Have or can the results of the solar activity be replicated?	Descriptive	Structured interviews	Those involved and energy experts	Expertise	Synthesis
Was the initial timeframe for the activity realistic to achieve sustainable results?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits
Were any of the activities fundamentally designed and implemented in a way which creates donor dependence?	Comparison of the before and after situation	Structured interviews. Existing documents	Those involved and energy experts	Key project personnel and expertise of the knowledgeable persons	Simple tabulations and estimation of the range of potential economic benefits

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Is project financially sustainable? Why or why not?	Descriptive	Interviews	Key informant interviews		Narrative with content analysis to identify common reasons
Are the results and impact of SARI/Energy activities sustainable in terms of creating institutional capacity and filling gaps on behalf of the programs key beneficiaries? What evidence has there been of host countries taking ownership of the SARI/Energy program, including promoting the networks and forums and advocating the best practices developed and disseminated under SARI/Energy? Based on results to date, are these activities likely to engender sustainable development impacts after USAID funding has stopped?	Descriptive	Interviews Documentation	Key informant interviews		
Replication: To what extent can the activities and results of the project be replicated?					
Were the activities designed in a manner which focuses on their replication?	Descriptive	Interviews	Interviews with stakeholders		Narrative with content analysis to identify common challenges
Can the activities be replicated in other areas with similar socio-economic features? In dissimilar areas?	Descriptive	Interviews	Interviews with stakeholders		Narrative with content analysis to identify common challenges
To what quantified extent can the project be replicated?	Descriptive	Interviews	Interviews with bank managers		Narrative with content analysis to identify common constraints
Gender: To what extent has the project benefited women?					
What were the gender considerations in the design of the several components of SARI/E?	Descriptive	Interviews	Interviews with stakeholders including SARI/E/CTO		Narrative with content analysis to identify common challenges

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
How effective has the project been in creating women beneficiaries?	Numbers of women beneficiaries	Collected in impacts section			Described in impacts section
To what extent has the project included women in its staff, partners, agents, etc.?	Descriptive	Interviews	Interviews with stakeholders		Narrative with content analysis to identify common challenges
How effective has the project been in reaching women?	Descriptive	Interviews	Interviews with stakeholders		Narrative with content analysis to identify common challenges
What is the direct benefit that each program has had on women based on quantitative analysis of available data?	With and without comparison	Collected in impacts section			Described in impacts section
How could SARI/E be more effective in reaching and serving women entrepreneurs in FATA?	Descriptive	Interviews	• Interviews with stakeholders • Interviews with key informants		Narrative with content analysis to identify common responses
Reporting: Have the prime contractors and grantees fulfilled all of their reporting requirements in an accurate, comprehensive and timely manner?					
Have the partners fulfilled all of their reporting requirements?	Comparison	Document review Interview	• Project reports • USAID		Percent of reporting requirements fulfilled
How useful is the format of reports been to you (USAID staff)? How can the reporting requirement and format be improved?	Scale And Descriptive	Interview	• Interviews with project staff • Interviews with USAID		Narrative with content analysis to identify common concerns
Have all branding guidelines been followed?	Yes/no	Document review Interview	• Project reports • USAID		Yes/no with descriptive detail
Are the reported results accurate and verifiable?	Yes/no	Document review Interview	• Project reports • USAID		Yes/no with descriptive detail
Do project reports highlights any impact on women, and if so how?					
Public Relations/Media Coverage: How effective has the project been in getting its story out?					

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Describe the project's public relations and media coverage outputs. (e.g., number of news stories published, number of press events held, etc.)	Numeric	Document review Interview	• Project documents • Project staff		Frequencies of different types of public relations and media activities
To what extent have they raised awareness of SARI/E?	Comparison	Document review	Public awareness survey		Percent increase in awareness of SARI/E
How effectively has the project highlighted success stories?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Percent increase in awareness of SARI/E
How effective were the project's public relations events/activities in terms of frequency, nature, profile, content and design, branding and participation?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Percent increase in awareness of SARI/E
How can the impact of the public relations component of future programming be improved?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Percent increase in awareness of SARI/E
What would make future public relations activities more effective?	Descriptive	Interview	• Project staff • Implementing partners • USAID media personnel		
What steps were taken to highlight women's energy needs in the media relationship under the project?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Percent increase in awareness of SARI/E
Coordination: How effectively has the project coordinated with other parties?					
How effectively has the project coordinated with the Government of Pakistan?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Narrative with content analysis to identify common issues
How effectively has the project coordinated with other USG projects?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Narrative with content analysis to identify common issues

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
How effectively has the project coordinated with other donors?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Narrative with content analysis to identify common issues
How effectively has the project coordinated with other stakeholders?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Narrative with content analysis to identify common issues
To what extent were synergies developed between the project and other individual USAID EG activities, other donor programs and/or GOP initiatives?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	Narrative with content analysis to identify common issues
What concrete steps should be taken to improve coordination and maximize synergies in future activities?	Comparison of the before and after situation	Structured interviews. Existing documents	• Those involved and energy experts • Published sources	Key project personnel and expertise of the knowledgeable persons	
Management: How effective has been USAID's oversight of the project?					
How would you describe USAIDs oversight of SARI/I activities?	Scale	Interviews	• Implementing partners • USAID		Scale
In your experience, are there ways oversight could be improved?	Descriptive	Interviews	• Implementing partners • USAID		Narrative with content analysis to identify common issues
How clear and consistent was the guidance received from USAID?	Scale	Interviews	Implementing partners		Scale
How could the clarity and consistency of guidance be improved?	Descriptive	Interviews	Implementing partners		Narrative with content analysis to identify common issues
How could USAID management have affected the project's benefits for women?	Descriptive	Interviews	Implementing partners		Narrative with content analysis to identify common issues
How well have implementing partners followed guidance provided by USAID?	Scale	Interviews	Implementing partners		Scale

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
How have USAID's bureaucratic, management and security systems helped or hindered project implementation?	Descriptive	Interviews	Implementing partners		Narrative with content analysis to identify common issues
How can management techniques be improved given the reality of limited human resources and frequent staff turnover	Descriptive	Interviews	Implementing partners USAID		Narrative with content analysis to identify common issues
Future Program Design Questions					
What are the key issues that need to be addressed in Pakistan's energy sector? How would you address these key issues?	Descriptive with contacts	Interview	Interview	NA	NA
What are cost-effective methods to provide energy to off-grid customers and communities?	Descriptive with contacts	Interview	Interview	NA	NA
What are the key issues for women in terms of a lack of available energy sources? How would you address some of these issues facing women?	Descriptive with contacts	Interview	Interview	NA	NA
What are the key issues for children in terms of a lack of available energy sources? How would you address some of these issues facing children?	Descriptive with contacts	Interview	Interview	NA	NA
What would you change in future SARI activities?	Descriptive with contacts	Interview	Interview	NA	NA
Are you aware of any institutional linkages between SARI countries related to energy? Do you believe that there is a need for new linkages?	Descriptive with contacts	Interview	Interview	NA	NA

Evaluation Questions	Type of Answer or Evidence Needed	Method of Data Collection	Data Source	Selection Criteria	Data Analysis Methods
Do you believe that more benefits can be obtained for Pakistan from regional cooperation than can be obtained from bilateral relations? What should/could be done to advance regional cooperation?	Descriptive with contacts	Interview	Interview	NA	NA
In Pakistan are there norms or precedents that are missing in order to facilitate regional cooperation?	Descriptive with contacts	Interview	Interview	NA	NA
Who are some key private sector individuals / organizations in the energy sector?	Descriptive with contacts	Interview	Interview	NA	NA
Who are some key NGO individuals / organizations in the energy sector?	Descriptive with contacts	Interview	Interview	NA	

ANNEX 6: LIST OF REFERENCES

1. Alternate Energy Development Board (AEDB) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). September 2006. Power Sector Situation in Pakistan. Islamabad.

2. Ahmed, Mukhtar. February 19, 2007. Pakistan's Energy Strategy and its Role in South Asia (Presentation).

3. Ahmed, Mukhtar. June 26, 2007. Energy Conservation and Renewable Energy: Policy Approach and Priorities. A presentation at the Renewable Energy Symposium.

4. Asian Development Bank. April 2006. Proposed Loan Federally Administered Tribal Areas Rural Development Project. Report R70-06. Islamabad.

5. Basic Education for Awareness, Reform & Empowerment (BEFARe). Capacity Building Initiatives for Energy Conservation in Identified Areas of the North Western Frontier Province (NWFP). For SARI/E Small Grants Program.

6. Cecelski, Elizabeth. May 2004. Re-Thinking Gender and Energy: Old and New Directions. ENERGIA/EASE Discussion Paper.

7. De Terra, Niels, et al. January 2003. Mid-Term Evaluation of the South Asia Regional Initiative / Energy (SARI/Energy) Program. Chechi and Company for USAID.

8. Eagly, Alice H. and Carli, Linda L. September 2007. Leadership. Harvard Business Review.

9. Economist.com. Finance and Economics. April 2006. "A Guide to Womenomics."

10. Energy Information Administration. December 2006. Pakistan Country Analysis Brief. www.eia.doe.gov

11. Gloekler, Aalya and Janet Seeley. 2006. Gender and AKRSP – Mainstreamed or Sidelined? sidelined?' in Geof Wood, Sumaira Sagheer and Abdul Malik (ed.) *Lessons Learned in Development in Pakistan: Twenty years of the Aga Khan Rural Support Programme* Oxford University Press.

12. Government of Pakistan, Planning and Development Division. April 2005. "National Energy Needs – Presentation to the Pakistan Development Forum." Islamabad.

13. Government of Pakistan. Ministry of Science and Technology. Pakistan Council of Renewable Energy Technologies. October 2007. An Introduction. PCRET, Islamabad.

14. Government of Pakistan. Ministry of Water and Power. 2006. Policy for Development of Renewable Energy for Power Generation: Small Hydro, Wind and Solar Technologies. Islamabad.

15. Kazmi, Saeed. April 2007. "Improving the Lifestyle of Villagers in Remote Areas of Federally Administered Tribal Areas (FATA) of Pakistan by Using Renewable Energy." By HEC, Ministry of Science and Technology and USAID.

16. Kazmi, Saeed. August 2006. Solar Water Pumping and Home Electrification in a Baluchistan, Pakistan, Village. For SARI/E Small Grants Programs. For USAID under SARI/E by the National University of Science and Technology (NUST) Consulting.

17. Lahore Electric Supply Company Limited (LESCO). "Enhancement of training capacity of LESCO relating for rural electrification and prepare for implementation of community based rural

electricity supply system in LESCO." SARI/E Small Grants Program. Regional Training Center, LESCO, Lahore.

18. Management Systems International. October 2007. Report on Design Methodology for Pakistan Economic Growth Evaluation and Design (PEGED). Washington, DC.

19. Management Systems International. September 2007. Report on Evaluation Methodology for Pakistan Economic Growth Evaluation and Design (PEGED). Washington, DC.

20. National Electric Power Regulatory Authority (NEPRA). 2005. "Brief report on South Asia regional regulation partnership executive business meeting in Washington DC."

21. Nexant, Inc. SARI/E. August 2006. South Asia Association for Regional Cooperation (SAARC) Energy Center: Strategic and Operational Plans.

22. Nexant. Apr 1 – Jun 30, 2005. SARI/E Quarterly Report #7.

23. Nexant. Jan 1 – Mar 31, 2005. SARI/E Quarterly Report #6.

24. Nexant. January 2006. Workplan 2005/2006.

25. Nexant. January 25, 2005. SARI/Energy Work Plan 2005.

26. Nexant. Jul 1 – Sep 30, 2005. SARI/E Quarterly Report #8.

27. Nexant. Oct 1- Dec 31, 2004. SARI/E Quarterly Report #5.

28. National Renewable Energy Laboratory (NREL). August 12, 2005. Combined Work Plan for USAID SARI/Energy Continuation.

29. NREL. February 1, 2005. Progress Report: Oct 1-Dec 31, 2004 for SARI/Energy.

30. NREL. February 1, 2006. Progress Report: Oct 1-Dec 31, 2005 for SARI/Energy.

31. NREL. January 24, 2007. Progress Report: Oct 1-Dec 31, 2006 for SARI/Energy.

32. NREL. July 19, 2006. Progress Report Apr 1 through Jun 30, 2007 for SARI/Energy.

33. NREL. July 25, 2007. Progress Report: Apr 1-Jun 30, 2006 for SARI/Energy.

34. NREL. May 2, 2007. Progress Report Jan 1 through Mar 31, 2007 for SARI/Energy.

35. NREL. October 24, 2006. Progress Report July 1 through September 30, 2007 for SARI/Energy.

36. National University of Science and Technology (NUST) Consulting. November 2005. Proposal for Solar Water Pumping and Home Electrification in a Balochistan Village.

37. PA Government services Inc. August 21, 2007. SARI/E. First Year Work Plan.

38. Parish, David. January 2006. Evaluation of the Power Sector Operations in Pakistan. A report to the Operations Evaluation Department of the Asian Development Bank. Working paper for the Country Assistance Program Evaluation for Pakistan.

39. Ratterman, Walt. November 2006. "Pakistan – Federally Administered Tribal Areas (FATA) Area Solar Pumping Project Implementation Stage." National University of Sciences and Technology (NUST). Islamabad.

40. Raza, Hilal. Autumn 2005. Regional Energy Security for South Asia: Pakistan Country Report. Islamabad.

41. South Asia Association for Regional Cooperation (SAARC) Energy Center. 2007. Proposed Projects under Program Cost Budget for 2008.Islamabad.

42. SARI/E. October 2003. A Strategy and Road Map for Regional Harmonization of Energy Performance Testing Protocols in South Asia: Final Recommendations of the Regional Training Center.

43. SARI/Energy. August 9, 2006. Advisory Board Meeting.

44. U.S. Energy Association. Apr 1 – Jun 30, 2006. SARI/E. Quarterly Report. South Asia Regional Energy Partnership Program II (SAREPP 2).

45. U.S. Energy Association. October 26, 2004. Work Plan FY 2005. South Asia Regional Energy Partnership Program II (SAREPP 2).

46. U.S. Energy Association. October 31, 2005. Implementation Plan for FY 2006. South Asia Regional Energy Partnership Program II (SAREPP 2).

47. UNDP. December 2004. Gender and Energy for Sustainable Development: A Toolkit and Resource Guide. New York.

48. USAID. SARI/Energy. www.sari-energy.org

49. USAID/Delhi. March 14, 2006. SARI/E, Solicitation, Offer and Award document. Solicitation (RFP) NO. 386-06-006.

50. Wadhwa, H and Mazhar Siraj. Joint Research Study on Promoting Informed Consumer Choices on Energy Efficiency and Labeling in South Asia. For SARI/E Small Grants Programs.

51. Wilson, Joseph. September 2006. Capacity Building to Support Regulatory Reforms/ National Electric Power Regulatory Authority (NEPRA) in Pakistan (Final Report). For SARI/E Small Grants Programs. Lahore University of Management Sciences.

52. Winrock International. August 2006. SARI/E Small Grants Program: Report on Round V Regional Grantees Meeting held in Kathmandu, Nepal.

53. Winrock International. August 2006. SARI/E Small Grants Program: Evaluation Form for Research and Outreach Projects.

54. Winrock International. July 2003. SARI/E Small Grants Program: Sub-Contracts Manual.

55. Winrock International. October 2006. SARI/E Small Grants Program: Final Report. Prepared for USAID/New Delhi.

56. Winrock International. October 2006. SARI/E Small Grants Program: Summary Table.

57. Winrock International. September 2004. SARI/E Small Grants Program: Research and Outreach Projects RFP Information and Application Form..

58. Winrock International. September 2006. SARI/E Small Grants Program: A Compendium of Activities (2003-2006). For USAID/India.

59. World Bank. Independent Evaluation Group. 2006. New Renewable Energy: A Review of the World Bank's Assistance. Washington, DC.

60. World Bank. Operations Evaluation Department. Summer 2002. The Next Ascent: An Evaluation of the Aga Khan Rural Support Program. Washington, DC.

61. World Bank. Pakistan Country Gender Assessment 2005. Bridging the Gender Gap: Opportunities and Challenges. Islamabad.

ANNEX 7: LIST OF CONTACTS

Summary of Persons Interviewed

Organization	Senior	Mid to senior level	Community	Month
NGOs/Community[97]				
BEFARe (Peshawar)	1			Nov 07
CRCP	1	1		Nov 07
Islamic Relief NGO		2		Nov 07
NUST Consulting	1			Oct 07
Patkin Village			3	Dec 07
Winrock	1			Oct 07
Total NGO/Community	**4**	**3**	**3**	
Government				
AEDB	1	1		
HDIP	1			Oct 07
LESCO	3	2		Oct 07
MoW&P (former secretary)	1			Oct 07
NEPRA	1	6		
PCRET	1			Oct 07
PEPCO	1	1		Oct 07
PMs Advisor	1			Nov 07
PPIB		2		Nov 07
WAPDA	2	1		Oct 07
Total Government	**12**	**13**		
Donors				
ADB		1		Oct 07
UNDP		1		Nov 07
USAID	1	3		Oct 07
World Bank	1			Oct 07
Total Donors	**2**	**4**		

[97] The LUMS regulatory work with NEPRA could not be evaluated except through the documentation available. Professor Wilson of LUMS, who undertook the work, did not respond to several email requests from the evaluation team, for further information.

#	Last name	First name	Designation	Organization	Address	Cell phone	Telephone	Fax	Email
Balochistan									
1	Ahmad	Munir	School Teacher	Patkin Village, District Kharan, Balochistan	c/o Islamic Relief, 6-A, Park Road, F-8/2, Islamabad		051-111-237-237	051-226-0938	sultan@islamic-relief.org.pk Sultan Mohammad (Technical Advisor)
2	Hassan	Mohammad	Resident	Patkin Village, District Kharan, Balochistan	c/o Islamic Relief, 6-A, Park Road, F-8/2, Islamabad		051-111-237-237	051-226-0938	sultan@islamic-relief.org.pk Sultan Mohammad (Technical Advisor)
3	Moham mad	Haji Dost	Village Elder	Patkin Village, District Kharan, Balochistan	c/o Islamic Relief, 6-A, Park Road, F-8/2, Islamabad		051-111-237-237	051-226-0938	sultan@islamic-relief.org.pk Sultan Mohammad (Technical Advisor)
4	Khan	Sarfraz	Admin Officer	Islamic Relief	6-A, Park Road, F-8/2, Islamabad		051-111-237-237	051-226-0938	sultan@islamic-relief.org.pk Sultan Mohammad (Technical Advisor)
5	Sasoli	Malik M	Field Engineer	Islamic Relief	6-A, Park Road, F-8/2, Islamabad		051-111-237-237	051-226-0938	sultan@islamic-relief.org.pk Sultan Mohammad (Technical Advisor)
Islamabad									
6	Khan	Nafees Ahmad	Deputy Program Manager	AEDB/UNDP Wind Energy Project	2 Main Nazimuddin Road, F10/4, Islamabad	0300-9808858			dedicatedengineer@gmail.com
7	Uddin	Qamar	Director	Alternative Energy Development Board (AEDB)	339-B Prime Minister's Secretariat, Islamabad	0333-5159944	051-9201172	051-9205790	q_uddin@yahoo.com
8	Kazmi	Syed Mustansar Ali	Technical Coordinator	Alternative Energy Development Board (AEDB)	339-B Prime Minister's Secretariat, Islamabad	0300-512-4939	051-9207602 & 051-9205792	051-9205790	mustansarali@aedb.org
9	Aleem	Asad	Programs Officer	Asian Development Bank Pakistan Resident Mission(ADB PRM)	OPF Building, Shahrahe Jhamuriat		051-282 5011-16 and 051-298-7300	051 282 3324 & 051- 227 4718	aaleem@adb.org

#	Last name	First name	Designation	Organization	Address	Cell phone	Telephone	Fax	Email
10	Kazmi	Saeed	Registrar / Acting Chairman EM Department	CASE University	Sir Syed Memorial Building, 19 Ataturk Avenue, G-5/1, Islamabad	0321-517 2258	051-2871700-2 ext 324	051-2871703	saeed.kazmi@case.edu.pk skazmi_re@yahoo.com
11	Hafeez	Mian Abrar	Secretary General	Consumer Rights Commission of Pakistan (CRCP)	13, Street 1, G-6/3, Islamabad		111 739 739		sg@crcp.org.pk
12	Siraj	Mazhar	Research Fellow	Consumer Rights Commission of Pakistan (CRCP)	13, Street 1, G-6/3, Islamabad		111 739 739		msiraj@crcp.org.pk & main@crcp.org.pk
13	Mahmood	Ashfaq	Former Secretary Water and Power	GOP	13th Floor, Shaheed e Millat Secretariat, Blue Area, Islamabad		051-9202350	051-9202347	secretary@moya.gov.pk
14	Raza	Hilal	Director General & Chief Eexecutive	Hydrobarbon Development Institute of Pakistan and SAARC Energy Center	18, St 6, H-9/1, Islamabad		051 925 8301-2	051-925-8310	hilal.raza@saarcenergy.org hdip@apollo.net.pk
15	Baloch	Imtiaz Hussain	Deputy Director (Licensing)	National Electric Power Regulatory Authority (NEPRA)	OPF Building		051-9296527		ihussain@nepra.org.pk
16	Bhinder	Wasim Anwar	Deputy Director (Legal)	National Electric Power Regulatory Authority (NEPRA)	OPF Building		051-9206533		wanwarbhinder@yahoo.com
17	Mirza	Mahjoob Ahmad	Registrar	National Electric Power Regulatory Authority (NEPRA)	OPF Building		051-9206500		mahjoob@nepra.org.pk
18	Sheikh	Muneer	Director General (Chairman's Office)	National Electric Power Regulatory Authority (NEPRA)	OPF Building, Islamabad		051-9217673		Sh.muneer@gmail.com
19	Zaman	Naseeb	Director (Finance and HR)	National Electric Power Regulatory Authority (NEPRA)	OPF Building		051-9205091 ext 308	051-9217651	nzaman@nepra.org.pk

#	Last name	First name	Designation	Organization	Address	Cell phone	Telephone	Fax	Email
20	Zia	Amer	Director (Consumer Affairs and Coordination)	National Electric Power Regulatory Authority (NEPRA)	OPF Building, Islamabad		051-9205294 & 051-9207200	051-9210215	amer@nepra.org.pk
21	Khan	Abdul Rahim	Acting Chairman / Member	National Electric Power Regulatory Authority (NEPRA)	OPF Building		051-9210209 051-9207200	051-9210215	rahimak2007@yahoo.com
22	Akhtar	Dr Parvez	Director General	Pakistan Council of Renewable Energy Technologies (PKRET), Min of S&T, GOP	No. 25, H-9, Islamabad	0300-9502383	051-9258228	051-9258229	akhterp_dr@yahoo.com & shamsi@isb.comsats.net.pk & akhterp_dr@pcret.gov.pk
23	Ahmed	Mukhtar	Advisor to the Prime Minister on Energy	Prime Minister's Secretariat, GOP	Prime Minister's Secretariat (Public), Islamabad		051-9202964 & 051-9008530	051-9202974	mukhtarea@yahoo.com
24	Mirza	Shah Jahan	Director Finance and Policy	Private Power and Infrastructure Board (PPIB)	50 Nazimuddin Road, F-7/4, Islamabad		051-9217126 051-9205421 051 9201848	051-9215723 051-9217735	shahjahan@ppib.gov.pk
25	Zuberi	N.A.	Director (Projects)	Private Power and Infrastructure Board (PPIB)	50 Nazimuddin Road, F-7/4, Islamabad		051-9202354 051-9205421 051 9201848	051-9215723 051-9217735	zuberi@ppib.gov.pk zuberippib@yahoo.com
26	Hussain	Syed Farrukh	Country Coordinator - SARI Energy Programs	USAID/Delhi	3, Street 25, F-8/2, Islamabad	0300-850-4119	051-285-1484	051-285-7145	sfhussain@dsl.net.pk
27	Meyer	Amy	Director – Office of Economic Growth	USAID/Pakistan	Diplomatic Enclave, Islamabad				ameyer@usaid.gov
28	Orend	Zack	Advisor -- Office of Economic Growth	USAID/Pakistan	Diplomatic Enclave, Islamabad				zorend@usaid.gov
29	Pandey	Bikash Raj	Country Representative	Winrock International					bikashpan@gmail.com

#	Last name	First name	Designation	Organization	Address	Cell phone	Telephone	Fax	Email
30	Aziz	Rashid	Senior Energy Specialist	World Bank	20-A Shahrahe Jhamuriat, G-5/1, Islamabad		051-9090221	051-2279641-6	raziz@worldbank.org
Lahore									
31	Ali	Syed Yawar	Chairman	Lahore Electric Supply Company (LESCO)	Nestle Pakistan, 308 Upper Mall, Lahore		042-578 9308 & 042- 575 -7082 ext 2013	042-5789303-04	syawarali@gmail.com
32	Arain	M. Akram	Chief Executive Officer	Lahore Electric Supply Company (LESCO)	LESCO, 22-A Queens Road, Lahore		042-6308707, 042-6308401	042-6308723	ceo@lesco.gov.pk
33	Ghafoor	Ch. Abdul	Chief Engineer/Operations Director	Lahore Electric Supply Company (LESCO)	LESCO, 22-A Queens Road, Lahore	0300-810 2774	042-920-1808		
34	Jamal	Saqib	Deputy Manager/ Head of Training	Lahore Electric Supply Company (LESCO)	220 KV Bund Road Grid Station, Sabzazar, Lahore		042-7833281	042-7833281	saqibjamall@yahoo.com
35	Saeed	Khalid	Member, Board of Directors	Lahore Electric Supply Company (LESCO)	LESCO, 22-A Queens Road, Lahore		042-6308707, 042-6308401	042-6308723	
36	Ahmad	Munawar Baseer	Managing Director	Pakistan Electric Power Company (PEPCO)	WAPDA House, Shahrahe Quaid e Azam, Lahore		042-920 2140	042-920 2402	
37	Raza	Arshad	Senior General Manager (Tech and Planning)	Pakistan Electric Power Company (PEPCO)	WAPDA House, Shahrahe Quaid e Azam, Lahore	0300 4770797	042-9202211 X 2745		arshad.raza@gmail.com
38	Ahmad	Fazal	Member (Power)	Water and Power Development Authority (WAPDA)	WAPDA House, Shahrahe Quaid e Azam, Lahore				
39	Hameed	Dr Abdul	Chief Engineer	Water and Power Development Authority (WAPDA)	WAPDA House, Shahrahe Quaid e Azam, Lahore	0300-488 7063	042-9202604	042-9202545	hameed.akhund@gmail.com & hakhund@yahoo.com
40	Durrani	Shakil	Chairman	Water and Power Development Authority (WAPDA)	WAPDA House, Shahrahe Quaid e Azam, Lahore		042 920 2222 PA Sarfraz	042 920 2505	

#	Last name	First name	Designation	Organization	Address	Cell phone	Telephone	Fax	Email
Peshawar									
41	Noor	Zahid	Chief Engineer	USAID/Peshawar	USAID/Peshawar		091 526-8841		noorsz@usaid.gov

ANNEX 8: DECREASE IN OPERATING LOSSES FOR WAPDA TO JUSTIFY TRAINING EXPENSES UNDER SARI/E

Revenue , cost and profit				
Billion rupees	**2004**	**2005**	**2006**	
Revenue from sale of electricity		136	172	
Cost of electricity		113	147	
Profit		*23*	*25*	
Operating cost		12	13	
Operating profit		*11*	*12*	
Billion kwh				
Production	80.8	85.6	83.6	
Consumption / sale	57.5	61.3	67.6	
Loss	23.3	24.3	16	
Average sale price	172/67.6 = Rs. 2.54 per unit			
Statistics division data				
Production (billion units)	83.6	88.4	96.5	
Consumption/sale	59.3	63.3	70.2	
Loss	24.3	25.1	26.3	
Say – average:				
Production	82	86.5	95	
Sale	58	62	68.5	
Loss	24	24.5	26.5	
Losses (%)	**29.27%**	**28.32%**	**27.89%**	
For "magnitude of impact" purpose, we can use:				
Billion units produced a year	100			
Lost in delivery	25%			
Sold 75% or 75 billion at Rs. /unit	2.5			
Units x price	250			
Less loss	62.5			
Revenue (total sold - loss)	187.5			
Or				
		PKR billion	US$ million	EX rate
If reduction in loss in Rs Billion	1%	2.5	40.78	61.3
If increase in sales in Rs billion	1%	2	32.63	
Therefore, $420,000 spent on training is $365,000/$3,000,000,000 % = 0.012 % of revenue.				
The $420,000 spent on Peer Exchange and Seminars and Conferences in Pakistan for training of professionals from WAPDA (managers producing and selling the power) and for training of the professionals from NEPRA (responsible for bringing efficiency to the sector) will be paid back if this training can reduce losses by or increase sales by 0.012 %				
Source: MSI Computations				

ANNEX 9: WIND AND SOLAR MAPS ACTIVITY COSTING

Total Activity cost for Pakistan		=	$1.05 million
Activity 1. Wind mapping:	Labor	=	$200,000
	Modeling	=	$175,000
	Travel	=	$15,000
	Total	=	$390,000
Activity 2. Solar Mapping:	Labor	=	$17,500
	Modeling	=	$75,000
	Travel	=	Included above
	Total	=	$92,500
Activity 3. GIS and GsT:	Labor	=	$150,000
	Modeling	=	$5,000
	Travel	=	$12000
	Total	=	$167,000
Activity 4. Inst. Cap. Bldg:	Labor	=	$125,000
	Modeling	=	$
	Travel	=	$26500
	Total	=	$151,500
Activity 5. Project Manag.	Labor	=	$65,000
	Modeling	=	$50,000
	Travel	=	$20,500
	Total	=	$135,500
Project total for Pakistan	Labor	=	$557,500
	Modeling	=	$317,500
	Travel	=	$71,500
	Total	=	$946,500

Note: About 10 percent remains unspent to date.

Source: National Renewable Energy Laboratory (NREL) Budgetary Information

ANNEX 10: BEFARE COSTS AND BENEFITS AND NET PRESENT VALUE (NPV)

Average family size	12
Average monthly income	PKR 7000, out of which
Fuel cost 37%	PKR 2100
Wood use for cooking	40%
Gas use for cooking	55%
Wood use for heating	58%
Cylinder gas for heating	30%
More awareness from energy conservation training	78%
Fuel costs slashed by 65%	PKR 1365
Training of BEFARe teachers	1000
Training of community members	2098
Total trainees	3098
Fuel cost savings per household x total trainees	3098 x 1365 = PKR 4.23 m
In US$	$68,985
Discount rate = r	10 %
NPV is (68985 – 29883)/(1+r)	**US$ 35,547**
Benefit / Cost Ratio (BCR) discounted	(62714 / 27166)*100 = **231%**

Source: BEFARe and MSI computations

ANNEX 11: BENEFITS AND COSTS OF THE PATKIN SOLAR PROJECT FOR A SIX YEAR STREAM IN US$

Years	1	2	3	4	5	6	Total
Costs							
Solar lights and panels	8987						
Solar water pump	3231				3231		
Tube lights	0	1.6	1.6	1.6	1.6	1.6	
Battery			32.8		32.8		
NUST and IRP salaries and travel	15779						
Total costs	27997	1.6	34.4	1.6	3265.4	1.6	
Total costs discounted	25451.82	1.322314	25.84523	1.092822	2027.556	0.903158	27508.54
Benefits							
Kerosene	7.34	7.34	7.34	7.34	7.34	7.34	
# of households	36	36	36	36	36	36	
Kerosene saved for all households	264.24	264.24	264.24	264.24	264.24	264.24	
Total benefits discounted	240.2182	218.3802	198.5274	180.4795	164.0723	149.1566	1150.83
Discount rate r	10%	10%	10%	10%	10%	10%	
(1+r)n where n is 0, 1, 2….5	1.10	1.21	1.33	1.46	1.61	1.77	
Benefit - cost or NPV							**26357.70**
Benefit/cost							**4.18%**

Source: NUST Consulting data, and MSI evaluation team computations

ANNEX 12: COST OF CAPACITY BUILDING SESSIONS UNDER USAID'S SARI/ENERGY PROGRAM

SARI/E Capacity Building Programs

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Overseas or Local	Total Cost for Pakistan Participants US$	Cost Share for Pakistan Participants US$	Average cost per participant	Average cost per local	Average cost per regional	Average cost per out of region	Total Costs
		Men	Women									
Pakistan Events												
2007. July 27-29 -- NREL and AEDB (Islamabad Club, Islamabad)	Workshop for HOMER training	40	1	AEDB = 13 PMD = 3 NEPRA = 2 UET = 3 ARL = 2 PCRET = 3 QESCO = 1 Private = 14	Local	$50,000						
2007. June 25-26 -- NREL (Marriott Hotel, Islamabad)	Launch of the Wind and Solar Maps for Afghanistan and Pakistan	145	5	Not compiled. The number of participants is based on info provided by the SARI/E CC.	Local	$50,000						
2006. Sep 11-15 --NREL, AEDB and PMD (NIBF, Islamabad)	Pakistan Renewable Energy for Renewable Electrification Workshop	20	0	NEPRA=2 AEDB=13 PMD=5	Local							
2006. August 24 -- Nexant (Serena Hotel, Islamabad)	Executive Session: Introduction to Electricity Markets	19	0	PC (Energy)=2 MoW&P=10 (PPIB)=2 NEPRA=1 BoI=1 HDIP=1 AEDB=1 PM Sec=1	Local	$25,000						

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Overseas or Local	Total Cost for Pakistan Participants US$	Cost Share for Pakistan Participants US$	Average cost per participant	Average cost per local	Average cost per regional	Average cost per out of region	Total Costs
		Men	**Women**									
2006. August 22-23 -- Nexant (Serena Hotel, Islamabad)	Training Course: Introduction to Electricity Markets	55	1	NTDC=7 WAPDA=6 JPCL=4 NEPRA=4 MoW&P=4 PC=1 PPIB=4 MEPCO=4 HESCO=3 PESCO=4 QESCO=5 LESCO=2 GEPCO=2 FESCO=2 IESCO=2 GENCO-III=1 BoI=1	Local	$50,000						
		279	7	286		$175,000	$0	$611.89	612			
Overseas Events												
2007. Oct 29 – Nov 3 -- USEA (Bhutan)	Analysis of a Successful Cross Border Power Project: The Bhutan-India Experience	**3**	**0**	MoW&P=1 NEPRA=1 WAPDA=1	Overseas	$6,500	$15,000	$5,000		5,000		
2007. May 28 – June 2 -- USEA (Leipzig and Cologne, Germany)	Executive Peer Exchange: Current Status and Development towards an EU Electricity Market: Highlights of the Western and Southeast European Electricity Markets	*2*	*0*	NEPRA=2	Overseas	$10,769	$6,077	$5,385			5,385	

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Overseas or Local	Total Cost for Pakistan Participants US$	Cost Share for Pakistan Participants US$	Average cost per participant	Average cost per local	Average cost per regional	Average cost per out of region	Total Costs
		Men	Women									
2007. May 14-19 -- USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*2*	*0*	Members of National Assembly=2	Overseas	$25,000	$11,813	$12,500			12,500	
2007. Mar 20 -21 -- USEA (New Delhi, India)	Emerging Investment Opportunities in the South Asia Power Sector Conference	**14**	**0**	NEPRA=1 MoW&P=1 PM sec=1 Media=3 PrivateSector=8	Overseas	$6,241	$2,093	$446		446		
2006. November 6-10 -- USEA Toronto, Ontario, and Calgary, Alberta, Canada	Executive Peer Exchange: Overview of Canadian Electricity Markets	*2*	*0*	HESCO=1 MoW&P=1	Overseas	$18,000	$4,133	$9,000			9,000	
2006. August 14 -16 -- USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*1*	*1*	Senator from FATA and MNA	Overseas	$25,000	$6,875	$12,500			12,500	
2006. June 26-30 -- USEA (Johannesburg, South Africa)	Executive Peer Exchange: Introduction to Electricity Markets, Southern Africa Power Pool and ESCOM Power Pool	*4*	*0*	LESCO=1 NEPRA=2 MoW&P=1	Overseas	$19,040	$8,000	$4,760			4,760	
2006. Mar 21 - 22 -- USEA (India)	Developing Energy Markets Initiative Launch	**2**	**0**	BoI=1 NEPRA=1	Overseas	Not paid for by USEA	Not paid for by USEA					

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Overseas or Local	Total Cost for Pakistan Participants US$	Cost Share for Pakistan Participants US$	Average cost per participant	Average cost per local	Average cost per regional	Average cost per out of region	Total Costs
		Men	Women									
2005. December 14-16 -- USEA (Kathmandu, Nepal)	Executive Exchange: South Asia Regional Energy Transmission Partnership	**3**	**0**	NTDC=3	Overseas	$5,556	$2,417	$1,852		1,852		
2005. December 4-5 -- USEA Dhaka, Bangladesh	SARI/Energy Executive Business Meeting	**1**	**2**	NEPRA=2 KESC=1	Overseas	$6,250	$2,703	$2,083		2,083		
2005. November 16-18 -- USEA (New Delhi, India)	Executive Exchange for South Asian Media: South Asia Forum for Energy Journalists (SAFEJ)	**4**	**0**	Media=4	Overseas	$9,090	$5,091	$2,273		2,273		
2005. September 19-23 -- USEA (Washington, DC)	Executive Exchange: South Asia Regional Energy Policy	*1*	*1*	Senator=1 MNA=1	Overseas	$20,000	$5,050	$10,000			10,000	
2005. August 1-3 -- USEA (Bangkok, Thailand)	Executive Business Trip: South Asia Regional Distribution Utilities Partnership	**3**	**0**	MoW&P=2 PPIB=1	Overseas	$7,500	$3,027	$2,500		2,500		
2005. July 26-28 -- USEA (Dhaka, Bangladesh)	Executive Exchange for South Asian Media: South Asia Forum for Energy Journalists (SAFEJ)	**4**	**0**	Media=4	Overseas	$8,333	$4,444	$2,083		2,083		

Date, Organization and Venue	Program	Number of Pakistan Participants		Category of Participant	Overseas or Local	Total Cost for Pakistan Participants US$	Cost Share for Pakistan Participants US$	Average cost per participant	Average cost per local	Average cost per regional	Average cost per out of region	Total Costs
		Men	**Women**									
2005. June13-16 -- USEA (New Delhi, and Mumbai, India)	Executive Exchange: South Asia Regional Transmission Partnership	**3**	**0**	LESCO=1 NEPRA=1 WPPO/WAPDA=1	Overseas	$8,333	$3,375	$2,778		2,778		
2005. April 18-22 -- USEA (Washington, DC and Columbus, Ohio)	SARI/Energy Executive Business Meeting	*3*	*0*	NEPRA=3	Overseas	$12,500	$9,281	$4,167			4,167	
SMALL GRANTS PROGRAM												
2006. August 29-30 -- WI (Kathmandu, Nepal)	Round V Regional Grantees Meeting	**4**	**0**	BEFARe=1 NUST=1 LESCO=2	Overseas							
Total Participants		335	11	346		$363,112	$89,379	**Total**	612	19,015	58,311	
Local		279	7	286		$175,000	$0	**# events**	1	8	7	
Overseas		56	4	60		$188,112	$89,379	**Average**	$612	$2,377	$8,330	
								# of participants	286	43	17	
								Total cost	$175,000	$102,203	$141,613	**$418,816**

ANNEX 13: SMALL GRANTS PROGRAM – REGIONAL GRANTS

SMALL GRANTS PROGRAM -- Small (Sub) Grantees Amount

Organization	Country	Amount	Total	Afghanistan	Bangladesh	Bhutan	India	Nepal	Pakistan	Sri Lanka
Round 1										
CII	India	$13,095					$13,095			
IPPAN	Nepal	$6,850						$6,850		
HLF	Nepal	$17,210						$17,210		
Sewalanka	Sri Lanka	$2,400								$2,400
Tarayana	Bhutan	$2,000				$2,000				
IWMI	India	$11,725					$11,725			
BUP	Bangladesh	$6,775			$6,775					
VOICE	India	$10,997					$10,997			
SLEMA	Sri Lanka	$7,499								$7,499
ITDG Sri Lanka	Sri Lanka	$17,898								$17,898
IIDS	Nepal	$20,329						$20,329		
TERI	India	$20,609					$20,609			
BUP	Bangladesh	$19,261			$19,261					
SLEMA (TIPS)	Sri Lanka	$25,219								$25,219
BUET	Bangladesh	$32,000			$32,000					
SchEMS	Nepal	$30,000						$30,000		
ASCI	India	$30,000					$30,000			
Subtotal		**$273,867**	$273,867							
Round 2										
Development Alternatives	India	$10,849					$10,849			
CEN	Nepal	$4,589						$4,589		
FECS	Sri Lanka	$4,589								$4,589
IPPAN	Nepal	$13,111						$13,111		
CII	India	$5,922					$5,922			
EMC	India	$18,955					$18,955			
ITDG	Sri Lanka	$11,508								$11,508
ITDG	Sri Lanka	$4,658								$4,658
InWEA	India	$4,298					$4,298			

Organization	Country	Amount	Total	Afghanistan	Bangladesh	Bhutan	India	Nepal	Pakistan	Sri Lanka
Prayas	India	$20,700					$20,700			
ITDG	Sri Lanka	$4,300								$4,300
SEEDS	India	$14,700								$14,700
CEE	India	$16,650					$16,650			
SLEES	Sri Lanka	$6,960								$6,960
Energy Forum	Sri Lanka	$19,449								$19,449
SEJ	Nepal	$19,705						$19,705		
Univ. of Colombo	Sri Lanka	$2,100								$2,100
TARA	India	$2,930					$2,930			
Jahangirnagar	Bangladesh	$1,850			$1,850					
SLEMA	Sri Lanka	$19,365								$19,365
ISED	India	$20,000					$20,000			
Subtotal		**$227,188**	$227,188							
Round 3										
HLF	Nepal	$20,400						$20,400		
Sewalanka	Sri Lanka	$12,150								$12,150
VOICE	India	$19,594					$19,594			
SLEMA	Sri Lanka	$8,615								$8,615
Energy Forum	Sri Lanka	$36,284								$36,284
CRT/N	Nepal	$20,370						$20,370		
AIWC	India	$15,392					$15,392			
IDEB	India	$8,620					$8,620			
IDEI	India	$15,919					$15,919			
Grameen Shakti	Bangladesh	$24,750			$24,750					
Subtotal		**$182,094**	$182,094							
Round 4										
Energy Forum	Sri Lanka	$29,990								$29,990
IRMA	India	$30,000					$30,000			
SEEN	Nepal	$17,742						$17,742		
Subtotal		**$77,732**	$77,732							
Round 5										
BEFARe	Pakistan	$29,883							$29,883	
KPU	Afghanistan	$14,991		$14,991						
Lahore Electric Supply	Pakistan	$27,430							$27,430	

Organization	Country	Amount	Total	Afghanistan	Bangladesh	Bhutan	India	Nepal	Pakistan	Sri Lanka
Company (LESCO)										
Lahore University of Management Sciences (LUMS)	Pakistan	$30,000							$30,000	
National University of Science and Technology (NUST)	Pakistan	$18,835							$18,835	
Islamic Relief Pakistan (IRP)	Pakistan	$4,080							$4,080	
VOICE	India	$10,387.50					$10,387.50			
Consumer Rights Commission of Pakistan (CRCP)	Pakistan	$15,799							$15,799	
Subtotal		**$151,406**	$151,406							
TOTAL		**912,287**	912,287	14,991	84,636	2,000	286,643	170,306	126,027	227,684
Percentage out of the total				1.64%	9.28%	0.22%	31.42%	18.67%	13.81%	24.96%

Source: USAID/Delhi, SARI/E RFP, 2006

ANNEX 14: GENDER STATEMENT

Access to energy and efficient energy services lie at the heart of any strategies to alter or mitigate the gender, caste or class based division of labor and its consequent social and physical impact. Women and men are interested in the transformative potential of energy in improving their quality of life and as an essential resource for productive, sustainable livelihoods.

South Asia, home to nearly half of the world's poor, has high illiteracy rates for women. Deeply entrenched patriarchal structures and values play a major role in shaping women and men's roles within the family and community. Women's subordinated status denies them equal opportunities and control over resources. Women's struggle for survival starts before birth as evident by the adverse child sex ratio where boys significantly outnumber girls.

SARI/Energy focuses on regional approaches to meet South Asia's energy security needs through increased trade, investment and access to clean energy. It works in eight countries in the region. The contractor will ensure that appropriate gender analysis is applied to all activities.

While the responsibility of household energy supplies and services remains largely with women, access to modern energy sources such as clean fuels and electricity affects both women and men differently depending on the energy applications they are involved in. Yet most energy policies assume that energy per-se will benefit women and men equally. A gender perspective on energy production is important because the same energy service may have different social and economic outcomes for women and men.

The limited analysis on gender-energy-poverty nexus has focused mainly on availability of biomass fuel for rural women. There is also a need to better understand the relationship between gender and modern energy services. SARI/Energy provides the opportunity to understand the linkages through appropriate action research and identify and evolve best approaches to provide low cost efficient energy to poor women and men in rural and urban areas.

Privatization and commercialization are the two routes being promoted globally and in the region to improve efficiency and reduce costs. These approaches bring with them concerns such as how the private sector will respond to the differential needs and demands of poor women and men; what will be their access to energy sources; how diversified will these sources be and whether there will be innovative financing that must be addressed while these strategies are being designed. South Asia has seen an emergence of strong women's groups especially in rural areas. The opening up of the market offers a potential to engage women's groups in managing energy services. SARI/Energy Contractor will promote the notion of women as managers and entrepreneurs rather than only beneficiaries of energy services.

The energy sector is perceived to be male dominated. Within many of the partner organizations there may be a limited perspective on understanding the relationship between energy-gender-quality of life. SARI/Energy Contractor will ensure that the training and capacity building opportunities mainstream programs and materials on differential needs and access of women and men to energy sources. In addition, the programs will have equal participation of women officers, to the extent possible. SARI/Energy Contractor will further ensure representation of women with in its partner organizations and implementing partners.

SARI/Energy will undertake a detailed gender analysis specific to its thematic areas as the activities are detailed out. The analysis will feed into the design, implementation and monitoring of the various multiple program activities. The program will measure the socio-economic impact of its interventions on the poor and women.

ANNEX 15: PATKIN VILLAGE STORY

According to NUST's final report, their project is now in the community's hands. Equipment requires either no or low maintenance. PV panels (most expensive part) typically last 30 years and do not require maintenance. Solar water pump is maintenance free and the manufacturer says it should last 4 years. The motor is expected to last 6 years or more. Tube-lights are expected to last a year but they cost about Rs 100. Batteries will need to be replaced after 18-24 months. Villagers are expected to save Rs 450 per month per household in kerosene oil costs. If they save Rs 250/month, NUST estimates it will be enough to replace batteries after 18-24 months, tube lights after a year, and the pump after 2 years. Villagers agreed to this.

However, evaluators found that the Patkin pump had broken down[98]. Villagers said they had called NUST, who told them to oil it, but it still did not work. Finally, they took it to a mechanic who fixed it, telling the villagers that the "bushes" had worn out. Fixing the pump cost the villagers Rs 2000 (initial estimate) to Rs 5000 (villager's estimation). A village elder ended up paying most of the cost to fix the pump, even though he had asked for contributions.

Villagers told the evaluator that two solar-powered lights are not enough to serve an entire household. Although the lights had initially lasted all night, six months later, they work barely an hour or two in the evening. They were told that the battery was bad. They tried using a car battery, but it would not charge. They were told that the PV panel was too small to charge a larger capacity battery. NUST had thought the batteries would last 18 to 24 months. Villagers told the evaluator that the grantee had suggested that they contribute Rs 100 per month for replacing the battery, but no one felt the need to pay.

Villagers did say that the light from the kerosene lamps they used to use was not as good, but the lamps could be carried about to light any room in the house. Some had reverted to using the lamps anyway.

Villagers told the evaluator that since the lights were imported, they could not be replaced and since the battery was not imported, it was inferior in quality.

[98] Site visit to Patkin and interviews with villagers

ANNEX 16: SARI/E STAKEHOLDERS

Key Energy Sector Stakeholders

Official Organizations

AEDB	Alternate Energy Development Board
DISCO	Distribution Companies
GENCO	Power Generation Company
HDIP	Hydrocarbon Development Institute of Pakistan
HESCO	Hyderabad Electric Supply Company
HUBCO	Hub Power Company
KESC	Karachi Electricity Supply Corporation
LESCO	Lahore Electric Supply Company
MOP&NR	Ministry of Petroleum and Natural Resources
MOWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NTDC	National Transmission and Dispatch Company
NUST	National University of Science and Technology
PC	Planning Commission
PEPCO	Pakistan Electric Power Company
PKRET	Pakistan Renewable Energy Technologies
PMD	Pakistan Meteorological Department
PPIB	Private Power Infrastructure Board
SENTER	SAARC Energy Center
SSGCL	Sui Southern Gas Company Limited
WAPDA	Pakistan Water & Power Development Authority

Other Organizations

BEFARe	Basic Education for Awareness, Reform & Empowerment
CRCP	Consumer Rights Commission of Pakistan
FPCCI	Federation of Pakistan Chambers of Commerce & Industry
IPPs	Independent Power Producers
IRP	Islamic Relief Pakistan
LUMS	Lahore University of Management Sciences
SENTER	South Asia Association for Regional Cooperation (SAARC) Energy Center

Community Members -- Direct beneficiaries

ANNEX 17: EVALUATION TEAM, DATES

Evaluation Team

Team member	Designation	Responsibilities/Activities
Sarah Tirmazi	Team leader	Development of evaluation approach, GTA, meetings arranged, meetings participation (Islamabad and Lahore), drafting of evaluation reports, development and delivery of presentations on SARI/E
Mian Shahid Ahmad	Energy Expert	Meetings participation (Islamabad, Lahore, Peshawar and Patkin, Balochistan), drafting parts of evaluation report, comments on report, expert advise on energy sector
Paul Deuster	COP, PEGED	Advise and guidance to team, comments on drafts of evaluation reports

Evaluation activity dates and places

Activity	Time period	Place
Development of Getting to Answers Matrix	October 15-31, 2007	Islamabad
Interviews with SARI/E participants, implementers, stakeholders, and energy experts	October-November 2007	Islamabad, Lahore
Interviews – contd. Site visit to Patkin Village	December 2007	Peshawar, Balochistan
Data analysis and report writing	January-February 2008	Islamabad