SUSTAINABLE ENERGY FOR ALL

INVESTMENT PROSPECTUS FRAMEWORK DOCUMENT

Facilitating the Bangladesh SE4ALL Investment Prospectus

February 24, 2014

Prepared by the Bureau of Energy Resources, U.S. Department of State

With support from the World Bank and the

United Nations Development Programme

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1. Overview

This document is a follow-up to the third SE4ALL mission to Bangladesh, which took place 21-26 November, 2013. The Aide Memoire from the first mission identified a key next step as the development of an Investment Prospectus for Bangladesh. This working document presents the current framework for developing an initial SE4ALL Investment Prospectus for Bangladesh. It was initially developed following the second mission and was reviewed during the third mission. This version includes comments and new information obtained at the working sessions held with leading public and private sector experts during the third mission.

The SE4ALL team desires a wide distribution of this document to public and private sector stakeholders in Bangladesh and requests that all interested proponents to submit preliminary information on investment opportunities that contribute to the SE4ALL goals of universal access, increased energy efficiency and expanded renewable energy use.

2. Background & Introduction

2.1. The SE4ALL Initiative

The SE4ALL initiative is Co-Chaired by UN Secretary General Ban Ki Moon and World Bank President Jim Kim. They lead an Advisory Board of distinguished individuals. Chad Holliday of Bank of America is the Chairman of the Executive Committee, and Kandeh Yumkella is the CEO of a Global Facilitation Team based in Vienna. Over 77 countries formally have requested to participate in the initiative, including Bangladesh.

The SE4ALL initiative aspires to meet three global objectives by 2030:

- Energy Access: ensure universal access to modern energy services, to include electricity and clean cooking facilities;
- Energy Efficiency: double the rate of increase in energy efficiency;
- Renewable Energy: double the share of renewable energy in the global energy mix.

2.2. Bangladesh Engagement to Date

As a partner in the SE4ALL initiative, the U.S. Department of State identified Bangladesh as a high opportunity country for its initial SE4ALL country action activities and organized a mission March 12-26, 2013 in collaboration with the UN and World Bank. Others who joined the mission team included the International Finance Corporation (IFC), the U.S. Agency for International Development (USAID) and the Asian Development Bank (ADB).

The first mission established an official dialogue between the SE4ALL partners, government, and private sector stakeholders in Bangladesh. The mission team reviewed current activities and identified promising areas for SE4ALL involvement. An Aide Memoire documented this information and identified priority areas and next steps for country action, including the need for an Investment Prospectus. As a follow-up to the mission, the SE4ALL team built upon the Rapid Assessment/Gap Analysis report, and

the information gathered during the mission to develop a preliminary Investment Framework for SE4ALL in Bangladesh.

The U.S. Department of State and World Bank led a second planning Mission in July 2013 that continued the dialogue with government and private sector stakeholders and discussed the preliminary Investment Framework for Bangladesh. The planning mission confirmed that the Investment Framework was largely on target, although some refinements were identified. The mission collected detailed information for a few projects that has allowed the team to assess their financial viability. As a follow-up to this mission, the SE4ALL team designed a process for developing the Investment Prospectus document, which is shown in Figure 1, and started the due diligence process for potential investments.

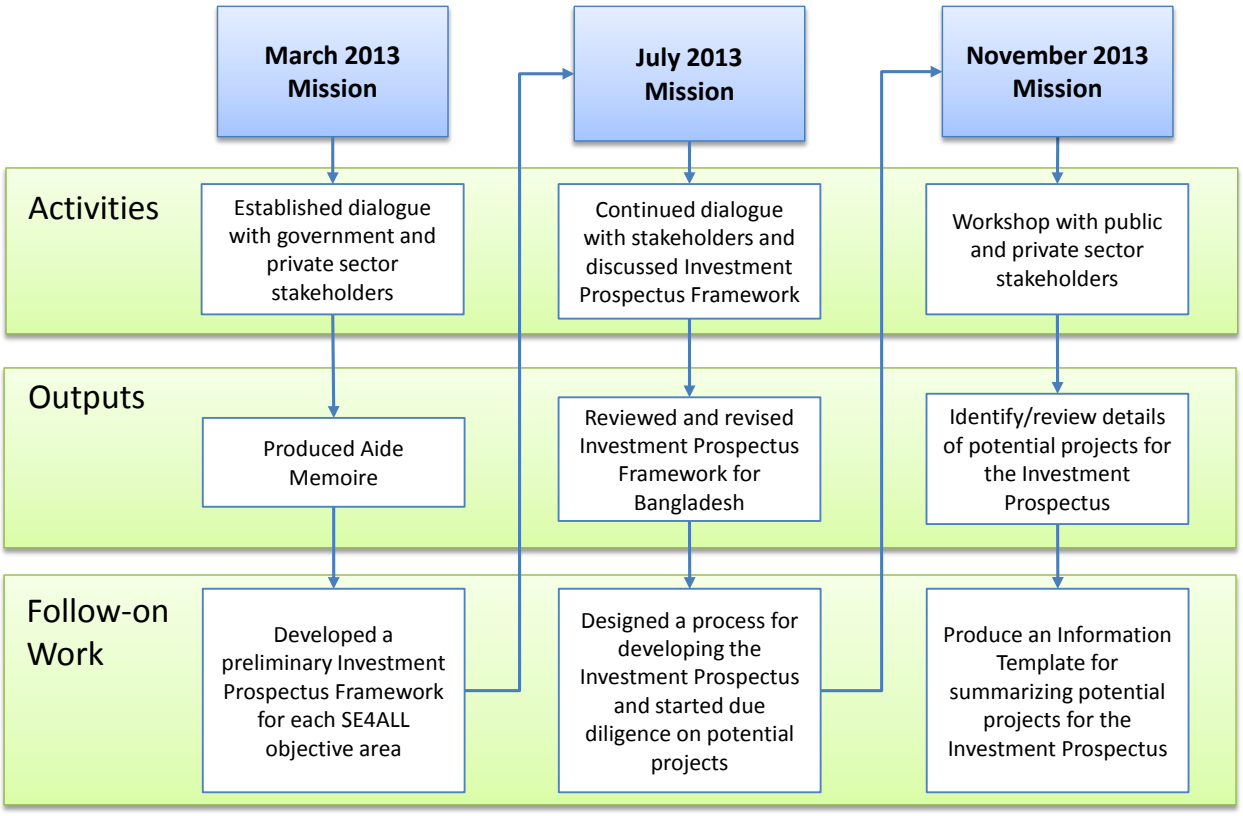

Figure 1: Outline to Date of the Process for Developing the Investment Prospectus

The third SE4ALL mission, which took place from 23 to 26 November 2013, conducted a series of working sessions with leading public and private sector stakeholders. The working sessions were organized according to four focal areas: Electricity Access, Clean Cooking Fuels, Energy Efficiency, and Renewable Energy. With Energy Efficiency further subdivided in to supply-side and demand-side projects, and Renewable Energy further subdivided into grid-connected and stand-alone systems.

Each working session was designed to have the leading public and private sector stakeholders in each focus area review the preliminary list of potential projects or investment opportunities and to provide feedback regarding their cost, performance, and other parameters needed for an initial assessment of

their financial viability. The agenda for the working session is presented in Appendix A, the Summary and Action Items from the working sessions is provided in Appendix B, and the list of invited participants is provided in Appendix C.

2.3. Next Steps in the Process of Developing the Investment Prospectus

The SE4ALL team proposes to continue a collaborative process drawing upon input from public and private sector stakeholders for each SE4ALL objective area, as shown in Figure 2. As an immediate follow-on to the November mission, the SE4ALL team has prepared this updated Framework document to send to the broadest possible set of project proponents in Bangladesh to requests information on near-term investment opportunities that will contribute to the SE4ALL objectives.

Based upon that input, the SE4ALL team will develop a draft Investment Prospectus that will present preliminary financial assessments, a review of barriers and barrier mitigation, and potential support measures. The draft Investment Prospectus will be circulated to all SE4ALL participants for review and comment. A preliminary outline for the Investment Prospectus is presented in Appendix D.

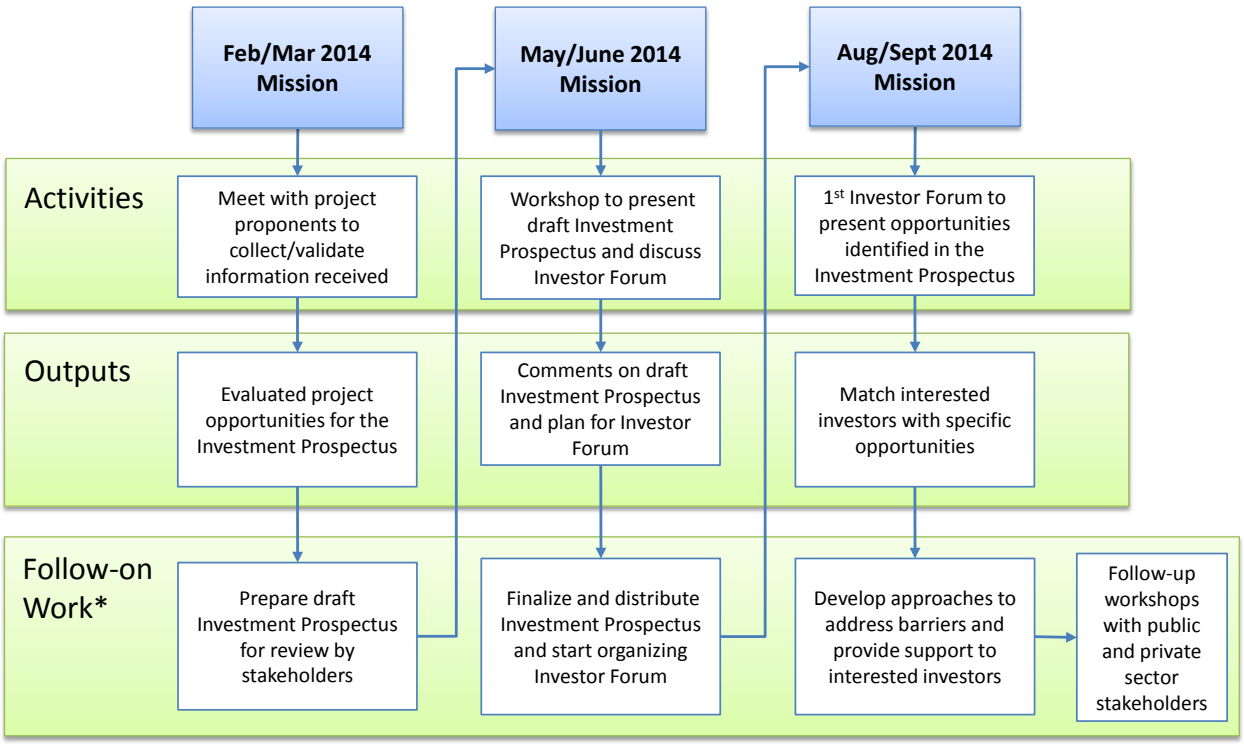

Figure 2: Outline of Next Steps in the Process for Developing the Investment Prospectus

Figure 2 indicates a next mission in February or March 2014 to review the draft Investment Prospectus, but that timing will be strongly dependent on the timeliness and quality of the investment prospects that are submitted by proponents in Bangladesh. This mission will follow-up on the submittals and will continue to seek out and examine potential project opportunities. The information gathered will be evaluated, organized and prepared as a draft Investment Prospectus, which would be reviewed with

Bangladeshi stakeholders during a mission planned for the May/June 2014 time frame. Based on the comments obtained during this mission, a final version of the first SE4ALL Investment prospectus will be prepared and sent to interested international and Bangladeshi investors. The SE4ALL team is already actively working to identify and hold discussions with potential investors, talking to government agencies about reducing barriers, and talking to agencies about financial de-risking mechanisms.

As SE4ALL is a long-term initiative, there will be a need for periodic follow-on Investor Forums, which are only hinted at in the figure as the September 2014 mission. At the Investment Forum, potential private sector investors, both international and domestic, will be invited to listen to presentations on the opportunities identified in the Investment Prospectus and open discussions with key public and private sector stakeholders in Bangladesh. Preparations for the Investment Forum will proceed in parallel with the review of the draft Investment Prospectus. The Forum date will be updated regularly to keep in-line with the progress of drafting and reviewing the Investment Prospectus. Proponents of potential projects and business opportunities will be able to present their specific proposals, and investors will be able to start their own assessment and due diligence processes. The GoB will also present their proposed plans and barrier removal activities.

3. Focal Areas for Investment

3.1. Information Request

For the purposes of the Investment Prospectus, the SE4ALL priority areas for Bangladesh have been organized into four categories, with the access category separated into electricity access and clean cooking access. The sections below summarize the preliminary types of projects or investment opportunities identified for each of the four focal areas, along with the main barriers to implementation and potential mitigation measures for that focal area.

Each section also provides a listing of the types of information requested from experts and project proponents. Most of the information requested requires a summary written description. In addition, interested stakeholders and project proponents are requested to provide financial data for potential investments that will be sufficient to allow the SE4ALL team to undertake a preliminary analysis.

The SE4ALL team will respect the confidentiality of any data submitted and will develop composite data to use in its cash flow analyses to protect the proponents' proprietary data. Please mark all such data accordingly, and the SE4ALL team will sign a Non-Disclosure Agreement with any proponents requesting such protection.

3.2. Electricity Access

There are two pathways to providing electricity access: grid extension and off-grid systems. Although grid extension is often the cheapest way to reach new consumers and increase access rates, there are critical barriers to grid extension:

- Power shortages over the existing grid, which limit the amount of electricity that can be provided through grid expansion,
- High cost of extending transmission lines, and
- Lack of financial feasibility to supply low density areas that are far from the grid.

At present existing demand in urban and peri-urban areas is not being met and the government has resorted to rental power. Even with increased tariffs to help offset more expensive supply, GOB subsidy to the sector stood at BDT63 billion (US$800 million) in FY12 up from BDT40 billion (US$550 million) in FY11. This was in addition to the subsidy to the petroleum sector to the tune of BDT90 billion **(**US$1.15 billion) in FY12, up from BDT40 billion (US$550 Million) in FY11. Given shortfalls in supply and the dispersed nature of rural settlements and the numerous rivers that crisscross the country making grid electrification in many areas difficult and expensive, the government has sought off-grid alternatives in remote areas and those in which grid extension is unviable as determined by a cost-benefit analysis of projected loads and consumer growth along new lines.

Off-grid systems—mini-grids or individual systems—are appropriate to supply populations living in areas far from the existing grid and/or with demand too small to justify the fixed cost of extending the grid, and Bangladesh has already achieved great success in this area, with over 2.2 million solar home systems already installed in off-grid rural households.

There is an opportunity to move beyond the current solar home systems, which serve the middle- to upper-income segment of rural households, into mini-grid systems (in a wide range of sizes) that could

capture lower- to middle-income households and serve more productive applications as well as institutions like schools and primary care facilities.

One of the critical constraints to development of these systems is access to reasonably priced finance for the scale-up from pilot to nation-wide dissemination. Seed capital and low interest credit will be needed.

A preliminary typology of alternative approaches to rural electrification in Bangladesh is provided in Figure 3.

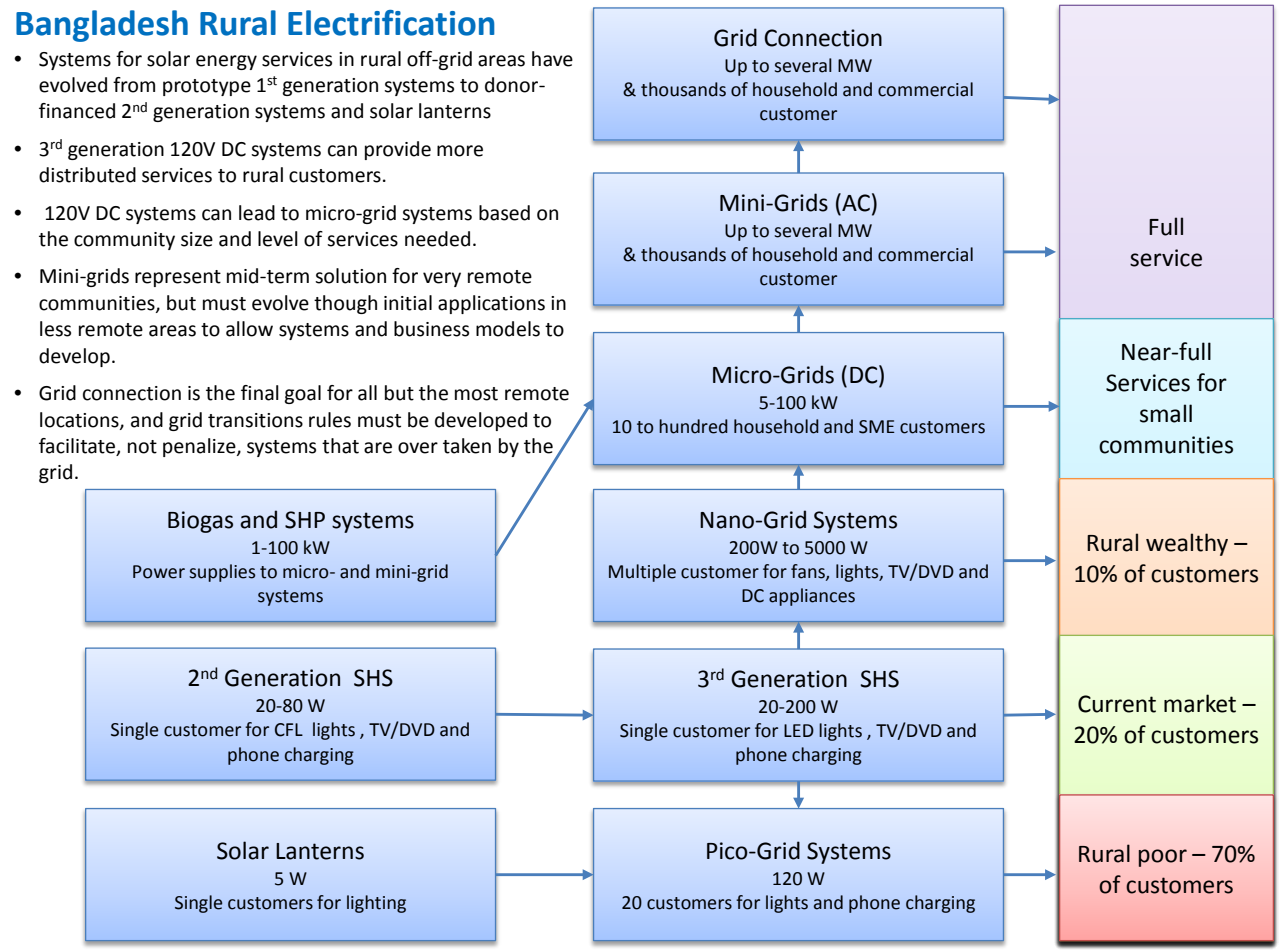

Figure 3: Alternative Approaches to Rural Electrification in Bangladesh

Systems for solar energy services in rural off-grid areas have evolved from 1st generation prototype solar home systems (SHS) to donor-financed 2nd generation systems and solar lanterns. Third generation 120V DC systems can provide distributed services to more rural customers both in lower income households through lower cost pico-grid systems and in higher income households through nano-grid systems that provide increased services (e.g., fans and refrigerators). The 120V DC systems can also be scaled-up to micro-grid systems based on the community size and level of services needed. Mini-grids represent mid-term solutions for larger, off-grid communities, but must evolve though initial applications in less remote areas to allow systems and business models to develop. Grid connection is

the final goal for all but the most remote locations, and grid transition rules must be developed to facilitate, not penalize, systems that are over taken by the grid. This could include developing mini-grid standards that make them grid ready, and having an exit or post grid connection strategy that properly compensates the private sector player if the grid comes. This will be important in spurring quality private sector investment, especially for the larger mini-grid opportunities.

The promising investment areas presently identified for electricity access focus on business approaches for providing off-grid solutions to rural customers – e.g., solar lanterns, solar home systems, solar water pumping, mini-grids (in a wide range of sizes from a few hundred watts to several MW), and tailored applications for off-grid health clinics, schools, public facilities and community centers. Prospects would be evaluated by a number of factors, including expected annual systems sales, customers served, strength of the business model, financial analysis, amount of investment needed, break-even point, market size, and affordability and social benefits. Table 1 provides an outline of the information being requested. Proponents are requested to complete the Investment Prospectus Standard Information Form accompanying this document.

Table 1: Data Collection Framework for Off-Grid Electricity Access Prospects

Dealer Information

- Number of Outlets currently being served
- Annual System Sales
- Average System Capacity

Business Opportunity Information (Provide a summary analysis or assessment)

- Market Size
- System Affordability
- Financial Analysis
- Investment Need
- Projected New or Expanded Access
- Development Status
- Implementation Barriers
- Benefits (social, health, environmental, security, etc.)

Based on data provided by stakeholders in Bangladesh, we have undertaken a preliminary financial analysis of SHS, pico-grid and nano-grid options. Table 2 provides a summary of the results of these analyses. Pico-grids systems are designed for lower income households and provide customers with two LED lights (one portable) and one mobile charging outlet. The initial cost is lower than kerosene lanterns and promises a lower monthly cost after the operator repays the initial loan. Note that for the solar PV based systems, the cost of power changes once the loan is repaid. This is simple for SHS customers, as they own the system. However, for the pico- and nano-grid customers, the cost to the operator goes down once the loan is repaid, and we have assumed that part of this reduction in cost will be passed along to the customers, who paid a portion of the investment cost through their connection fee, in the form of reduced rates.

Nano-grid systems are designed for higher income rural households that would like additional services beyond what a solar home system can provide. They are more expensive than a SHS, but can operate fans and other high efficiency DC appliances. These systems also have the potential for lower cost service after the operator repays the loan.

Table 2: Comparison of Options for Rural Off-Grid Households

Typical Household Monthly Payment (Taka)		
	1st 3 years	After year 3
Kerosene lamps	150	150
SHS Customer	387	0
Pico-grid customer	170	100
Nano-grid customer	500	250

3.3. Clean Cooking

There are two pathways for clean cooking fuel access: household based systems and community based systems. The key barriers to household based system, such as improved cook stoves (ICS), include:

- Capacity building of the private sector and NGOs to manufacture, distribute, install, and provide after-sales services for ICS on a commercially viable basis
- The need for working capital loans for distributors and fixed asset finance for local manufacturers
- The absence of quality standards and field testing of new stoves models
- Import barriers for key components
- Lack of public awareness of the benefits of clean cooking

The key barriers for community based systems, e.g., those developed in cooperation with poultry farms, include:

- High interest rates and collateral requirements imposed by local banks
- Lack of technical capacity of local banks to create “standard” loan products for various size systems

Critical near-term activities include:

- Establishing an ICS testing and certification center
- Establishing dealer/distributor financing products for building manufacturing lines and expanding distribution networks
- Lowering or eliminating import tariffs for improved or advanced cook stoves
- Creating a loan guarantee or other financing facility to reduce financing risks
- Creating a standard loan product for poultry farms and training bankers to lower transaction costs

Figure 4 provides a set of options for clean cooking access in Bangladesh. These options include improved cook stoves and household biogas systems, which are already entering the market.

Community biogas systems show promise, if financing and management issues can be resolved. Clean and advanced cook stoves offer reduced local air pollution emissions, and are likely to be a longer term evolution in the market place. LPG stoves are affordable only by higher income households, but would benefit if piped gas prices were less subsidized and distributions services were established.

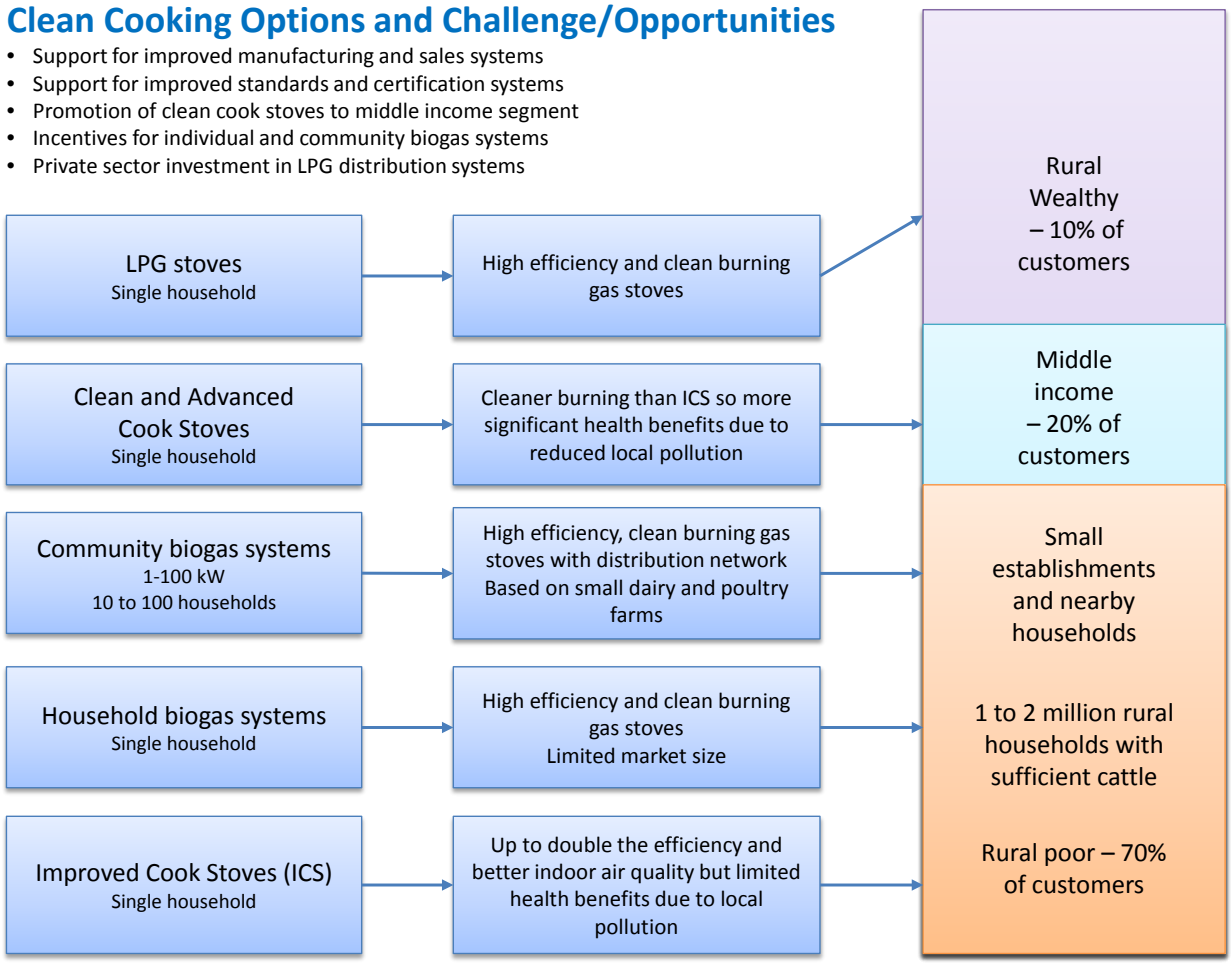

Figure 4: Preliminary Options for Clean Cooking Access in Bangladesh

Promising investment areas can include improved biomass cook stoves, household and community biogas systems, and LPG stoves. Prospects would be evaluated by a number of factors, as shown in Table 3, including expected annual sales, customers served, financing needs, business model strength, affordability, and health benefits. Proponents are requested to complete the Investment Prospectus Standard Information Form accompanying this document.

Table 3: Data Collection Framework for Clean Cooking Fuels Prospects

Dealer Information

- Number of Outlets currently being served
- Annual System Sales
- Average System Size

Business Opportunity Information (Provide a summary analysis or assessment)

- Market Size
- System Affordability
- Financial Analysis
- Investment Need
- Projected New or Expanded Access
- Development Status
- Implementation Barriers
- Benefits (social, health, environmental, security, etc.)

3.4. Energy Efficiency

There is a wide variety of energy efficiency projects that can be of interest to SE4ALL. Promising investment areas include power plant upgrades, T&D system efficiency improvements, street lighting projects, industrial efficiency improvements for a number of industries, cogeneration projects, and building efficiency upgrades.

The general barriers to energy efficiency projects include:

- Subsidized pricing of fossil fuels reduce the economic incentive for energy efficiency
- Lack of modernized building codes
- Insufficient standards and labeling for energy efficient appliances and equipment
- Lack of capacity of local financial intermediaries to analyze payback periods on energy efficiency investments

For the power sector, rehabilitation, repowering or replacement of old and inefficient power plants is often limited by their age, small size, and remote location. For the brick industry, there are inadequate incentives and regulations and a lack of financing and institutional support. For rice husk par boilers, barriers include high interest rates and collateral requirements imposed by financial institutions and the lack of technical capacity at local banks to create “standard” loan products for various size systems.

Figure 5 characterizes the energy efficiency challenges and opportunities in Bangladesh. Supply-side options include efficiency improvements in existing power plants through upgrades or rehabilitation of boilers and other equipment, cogeneration opportunities within the 2200 MW of industry captive power plants, and conversions of existing plant from simple cycle to combined cycle. However, the latter may not be a significant near-term option during the current power shortage period. On the demand side, LED street lighting projects could be attractive in areas where municipalities have to pay their electricity bills. Efficient steel mill furnaces are a new area that IFC is pursuing.

Energy Efficiency Challenges and Opportunities

- Support adoption of the new National Building Code
- Launch an Energy Star Labeling program. A regulation must be passed for proper implementation of this program.
- Pass a mandatory requirement for energy audits to be conducted by an Accredited Energy Auditor.
- Promote cost-recovery tariffs for electricity and natural gas
- Create standard loan products to lower transactions costs

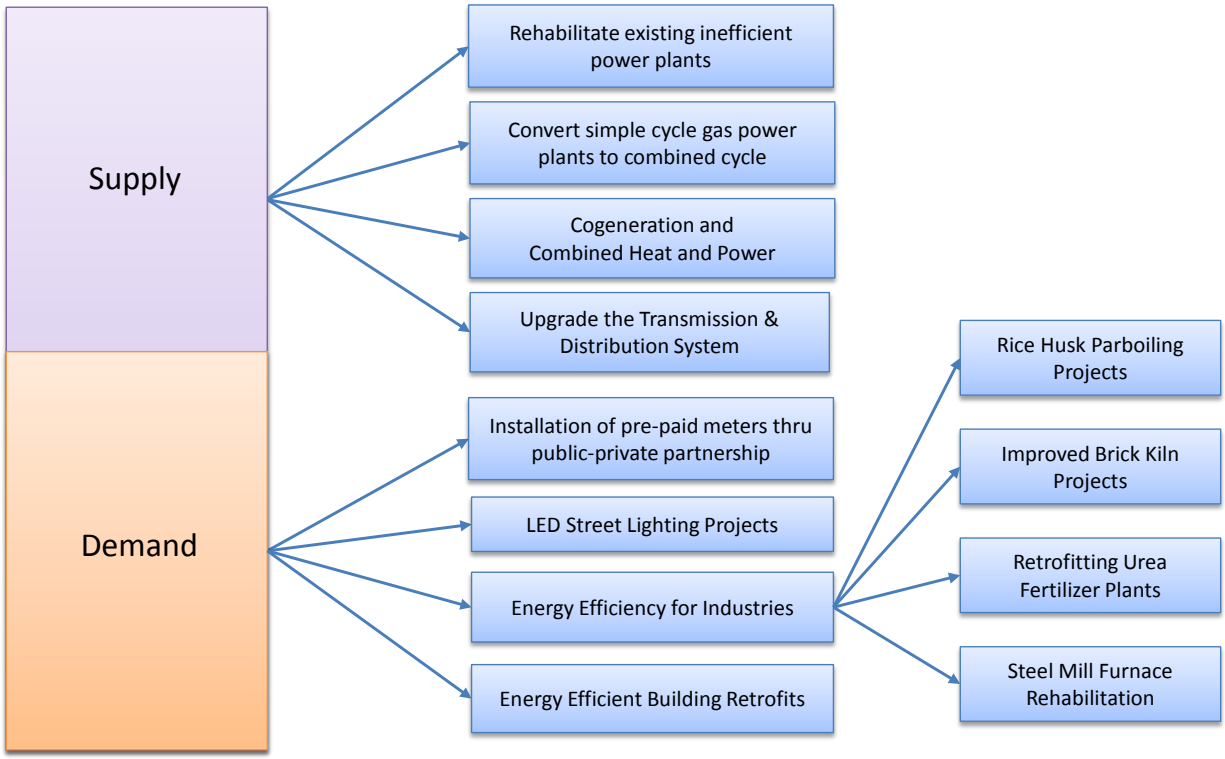

Figure 5: Preliminary Options for Energy Efficiency Prospects

The evaluation of promising investment prospects includes a number of factors, as shown in Table 4, such as technical and financial viability, market demand and potential for follow-on projects. Proponents are requested to complete the Investment Prospectus Standard Information Form accompanying this document.

Table 4: Data Collection Framework for Energy Efficiency Prospects

Proponent Information

- Name/Location
- Experience in Bangladesh
- Experience in EE Project Development

Project Information (Provide a summary analysis or assessment)

- Location
- Size
- Investment Need
- Status and Level of Definition Available
- Financing Approach and Financial Analysis

- Return on Investment or Payback Period
- Implementation Barriers
- Potential for Follow-on Projects
- Benefits (social, health, environmental, security, etc.)

3.5. Renewable Energy

This focal area addresses both grid-connected and off-grid renewable energy projects and does not include systems only for households, as these are addressed in the Electricity Access focal area. With regard to the SE4ALL objective of measuring total renewable energy contribution, projects in both the energy access area that use renewable energy and in the grid-connected and distributed renewable energy focal area will be counted. However, for the purposes of identifying, screening, and evaluating potential renewable energy projects, the focus on grid-connected and distributed projects, as defined above, is appropriate as the criteria and issues for these types of projects are quite different from the issues associated with off-grid access for households.

General barriers to grid-connected renewable energy projects include subsidized pricing of electricity, which reduces the economic incentive for renewable energy, and lack of capacity of local financial intermediaries to appropriately analyze risk and payback periods of various technologies and lack of public awareness. Specifically for grid-connected electricity generation by renewables, barriers include the absence of a feed-in tariff and the affordability of tariff increases to the population. Additional barriers include the lack of site-specific wind resource assessments – especially along the southern coast, where the resource appears to be suitable, and where grid extension is unlikely.

Figure 6 characterizes the challenges and opportunities for this focal area. Promising investment areas can include grid-connected solar, wind, and biomass (including municipal solid waste) projects, urban solar rooftop systems, and solar irrigation.

Prospects would be evaluated by a number of factors, as shown in
Table 5, including expected annual capacity installed, customers served, financing needs, economic viability, potential to supply value-added industries, market barriers, and social benefits. Proponents are requested to complete the Investment Prospectus Standard Information Form accompanying this document.

Renewable Energy Challenges and Opportunities

- Continue electricity price reforms
- Develop a net-metering law for distributed, grid-connected systems
- Development a feed-in tariff for each type of renewable technology - including a mechanism to cover incremental costs
- Create risking-lowering finance mechanisms, e.g., interest rate buy-downs, loan guarantees, etc.

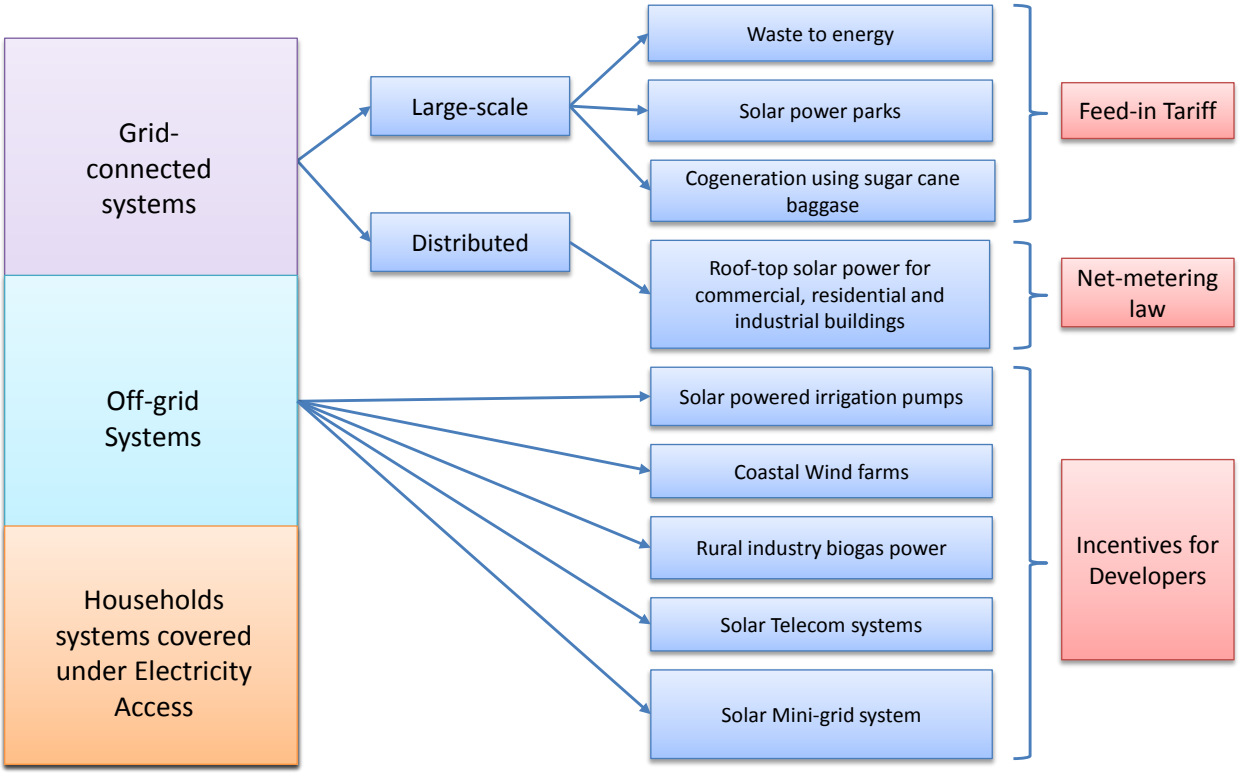

Figure 6: Preliminary Options for Renewable Energy in Bangladesh

Table 5: Data Collection Framework for Clean Cooking Fuels Prospects

Proponent Information

- Name/Location
- Experience in Bangladesh
- Experience in RE Project Development

Project Information (Provide a summary analysis or assessment)

- Location
- Capacity
- Investment
- Status and Level of Definition Available
- Financing Approach and Financial Analysis
- Return on Investment or Payback Period
- Implementation Barriers
- Potential for Follow-on Projects
- Benefits (social, health, environmental, security, etc.)

Appendix A: Agenda for November 2013 Mission Working Sessions

The working sessions were designed to bring together the leading public and private sector stakeholders in each focus area to discuss details of the identified potential projects or investment opportunities and to provide feedback regarding their cost, performance, and other parameters needed for an initial assessment of their financial viability. The schedule for the working sessions was November 24 to 26, and Table 6 presents the agendas for each working session.

Table 6: Preliminary Workshop Plan

SE4ALL Investment Planning Workshop			
	November 24: Working Sessions 1 & 2	**November 25: Working Sessions 3 & 4**	**November 26: Working Sessions 5 & 6**
	Electricity Access	**Renewable Energy – Grid-connected**	**Energy Efficiency – Supply**
9:00-9:15	Introductions and Objectives	Introductions and Objectives	Introductions and Objectives
9:15-10:45	Structured Discussion	Structured Discussion	Structured Discussion
10:45-11:00	Coffee/Tea	Coffee/Tea	Coffee/Tea
11:00-12:15	Open Discussion	Open Discussion	Open Discussion
12:15-12:30	Summary and Action Items	Summary and Action Items	Summary and Action Items
12:30-2:00	Break	Break	Break
	Clean Cooking Fuels	**Renewable Energy – Distributed systems**	**Energy Efficiency – Demand**
2:00-2:15	Introductions and Objectives	Introductions and Objectives	Introductions and Objectives
2:15-3:45	Structured Discussion	Structured Discussion	Structured Discussion
3:45-4:00	Coffee/Tea	Coffee/Tea	Coffee/Tea
4:00-5:15	Open Discussion	Open Discussion	Open Discussion
5:15-5:30	Summary and Action Items	Summary and Action Items	Summary and Action Items

Appendix B: Working Session Summaries and Action Items

Purpose and Objectives

- Continue the process of developing an Investment Prospectus for Bangladesh.
- Gather input and advice from key stakeholders and sector experts on the:
    - Proposed process for developing the *Investment Prospectus.*
    - Preliminary list of investment opportunities types for each focal area.
    - Obstacles faced by interesting near term project types and business models.
- Begin the process of soliciting project data that will allow an initial level of financial analysis to be conducted by the SE4ALL team.

The workshop was organized as a series of six working sessions held over a three-day period. In total, approximately 40 stakeholders and sector experts participated in the working sessions. In addition, Ambassador Mozena hosted the SE4ALL core team at his residence to discuss the outcomes of the workshop and next steps.

Working Session Summaries

Electricity Access

- Rural Electrification Board grid extension works in principle, but cannot currently expand because of the lack of generating capacity.
- Diesel generator market works, and is the default power source in off-grid areas, but it is expensive due to the high cost of fuel delivered to remote areas.
- Solar Home System market is currently working, but it has limitations on the level of services it provides and requires significant investment in building up end customer distribution and after-sales service networks.
- New business models look to empower local entrepreneurs to operate very small DC grids (a few hundred watts to a few kilowatts) and channel financing to these entrepreneurs.
- IDCOL financing continues to be a requirement, but primarily for the low collateral requirements.

Clean Cooking Fuels

- The biggest barriers to Improved Cook Stoves are lack of awareness and cultural ties to traditional cooking habits.
- Household biogas systems work, but their market potential is shrinking as rural households move away from raising cattle.
- Community biogas systems are in the demonstration phase and significant management challenges exist.
- There has not been a comprehensive survey of rural cooking fuels since the 1980s; there is a need for a new, large-scale survey.
- The biggest barrier to LPG (for urban areas) is the low price of piped natural gas.

Renewable Energy – Grid-connected

- Bangladesh Power Development Board has circulated an RFP for a 30 MW solar PV project, and a follow-on 60 MW project is also planned.
- The Catalyzing Clean Energy Bangladesh project has NREL starting wind resource monitoring at 9 sites over Bangladesh.
- Net metering may not be sufficient to incentivize grid-connected roof-top solar, as the subsidized tariff is quite low.
- A clear-cut policy for grid-connected renewable energy is needed.

- Overall risks to investors are perceived to be high.

Renewable Energy – Distributed systems

- Solar lantern market barriers continue to exist: quality (mostly with the battery life), cost, distribution network, and high import duties for LED lights.
- The telecom tower power supply market is developing well (200 package systems to replace diesel installed in last 6 months), but community add-on potential seen as very limited.
- Rice husk power generation is also a promising project type, but the best applications and business models have not yet emerged. This project type could benefit from a feed-in tariff (for mini-grids) and access to soft financing.
- Solar irrigation proponents have focused on making solar pumping cost-effective against diesel pumping by finding attractive off-season applications, such as drinking water pumping or battery charging.
- The auto-rickshaw battery charging market is new opportunity for solar that is just emerging.
- Large-scale solar mini-grids provide many productive uses, but a clear government policy is needed on what governs a mini-grid connection to the grid, when it arrives.

Energy Efficiency – Supply

- The ministry has just finalized the Energy Efficiency Action Plan.
- Bangladesh has 2200 MW of captive power, and many of these may be well suited for cogeneration.
- Boiler (and other equipment) efficiency improvements in existing power plants are an attractive near-term opportunity.
- Power plant conversions from simple cycle to combined cycle must move slowly because the government can't afford to have too many existing plants shutdown during this power shortage period.
- A long-term energy strategy is needed.
- Eleven percent of gas goes to the domestic sector, and much of this inefficient (non-metered) usage could be shifted to LPG.

Energy Efficiency – Demand

- The best technology for clean and efficient brick kilns has not yet been settled. A few more years of development were considered necessary to establish commercial viability.
- The new Sustainable and Renewable Energy Development Agency is planning a Sustainable Energy Finance Center to capture the knowledge generated by the various donor programs and build the capacity of service providers in this area.
- LED street lighting projects may soon become attractive as more distribution companies move from public to private sector operation, must become cost-effective, and place pressure on municipalities to pay their bills.
- Efficient steel mill furnaces are a new area that IFC is pursuing. Four systems were demonstrated, and then replicated in 21 other mills.
- SREDA plans to develop industry sector benchmarks and industries with energy use above the benchmark will have to make improvements or pay a penalty.

Summary and Action Items for the SE4ALL Team

Several potentially attractive and appropriate SE4ALL project and business opportunities were discussed and confirmed by the session experts. However, the initiative must reach out to a broader set of potential developers and prospects. The following is a combined set of action items from all the sessions.

1. Prepare a letter summarizing the SE4ALL Investment Prospectus opportunities and provide information on how to get a copy of the framework document and prospect information template.
2. Use this letter to reach-out to potential prospects through contacts with the government, donors, NGOs, and local business/trade associations (Bangladesh Solar and Renewable Energy Association, the Dhaka, Bangladesh and local American Chambers of Commerce, and others) to help spread awareness for and gain further engagement in the SE4ALL opportunity.
3. Create a database of project prospects using current contact information and any additional information gained through the Government of Bangladesh, donors, NGOs, and local business/trade associations. Use this list to provide information updates on SE4ALL activities to interested prospects.
4. Establish contact with the USAID-sponsored Private Financing Advisory Network to see what synergies exist.
5. Develop a local group of 10 to 12 experts to review the barriers currently identified for each focal area along with the proposed barrier removal activities.
6. Examine potential for a long-term public-private fund that could help channel funds for building public awareness and other needed market support activities for clean cooking fuels.
7. Examine the potential for energy efficiency improvements in existing power plants to be financed as energy performance contracts.
8. The sessions identified the need for an information portal for SE4ALL in general and for Bangladesh in particular. It was suggested that the Bangladesh SE4ALL team speak with the Global Facilitation Team to discuss our process for developing the Investment Prospectus and the need for coordination and guidelines on a web site and other social media tools.

Mission Team and Partners

Molly Ward – State Department, Bureau of Energy Resources
Elizabeth Wallace – State Department Finance Consultant
Pat DeLaquil – State Department SE4ALL Consultant
Venkat Ramana Putti – World Bank
Sandeep Kohli – World Bank
Sarwat Choudury – UNDP, Dhaka
Sher Khan – USAID, Dhaka
Chandrasekar Govindarajalu – IFC, Dhaka
Toby Glucksman – Embassy Dhaka
Sarah Flewelling – Embassy Dhaka

Appendix C: Working Session Participants

Government of Bangladesh	Email address	Status
1. Monowar Islam, Power Secretary	secypower@gmail.com	Attended
2. Md. Mozammel Haque Khan, Energy Secretary	c/o sefaul.alam@yahoo.com	Sent delegate
3. Muhammad Ziaur Rahman, Joint Secretary	zia2045@gmail.com	Did not attend
4. Tapash Kumar Roy Director, Sustainable and Renewable Energy Development Authority	taposk_roy@yahoo.com	Sent delegate
5. Md. Emdadul Haque, BERC	emdadulhaque48@yahoo.com	Did not attend

SE4ALL Bangladesh Team	Email address	Status
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Electricity Access (Nov 24 – Session 1)	Email address	Status
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Clean Cooking Fuels (Nov 24 – Session 2)	Email address	Status
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Renewable Energy - Grid-connected (Nov 25 – Session 3)	Email address	Status
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Renewable Energy – Distributed systems (Nov 25 – Session 4)	Email address	Status
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	Cooperative		
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Appendix D: Outline of SE4ALL Investment Prospectus for Bangladesh

1. **Executive Summary**
2. **Background & Introduction**
   - 2.1. The SE4ALL Initiative
   - 2.2. Bangladesh Engagement
   - 2.3. The Investment Prospectus
3. **Bangladesh Today**
   - 3.1. Current Energy System
   - 3.2. Goals and Gaps
   - 3.3. Energy Sector Stakeholder Activities
4. **Near-term Investment Opportunities**
   - 4.1. Electricity Access
   - 4.2. Clean Cooking
   - 4.3. Energy Efficiency
   - 4.4. Renewable Energy
5. **Cross-cutting Issues**
   - 5.1. Efficiency through mobile connectivity
   - 5.2. Local technology solutions
6. **Support Activities**
   - 6.1. Barrier mitigation
   - 6.2. Investor support opportunities
7. **Near-term SE4ALL Benefits**
   - 7.1. Economic Development
   - 7.2. Poverty Reduction & Improved Health
   - 7.3. Increased Access to Education
   - 7.4. National Security

Appendix 1: Key Energy Sector Stakeholders

- Government of Bangladesh
- Donors
- Private Sector
- NGOs and Academia

Appendix 2: Government National Strategy

- 6th Five year Plan
- Power Sector Master Plan

Appendix 3: Programs by International Donor, Finance Institutions, and NGOs

- World Bank
- Asian Development Bank
- USAID
- UNDP
- GIZ
- Private Sector
- Non-Governmental Organizations