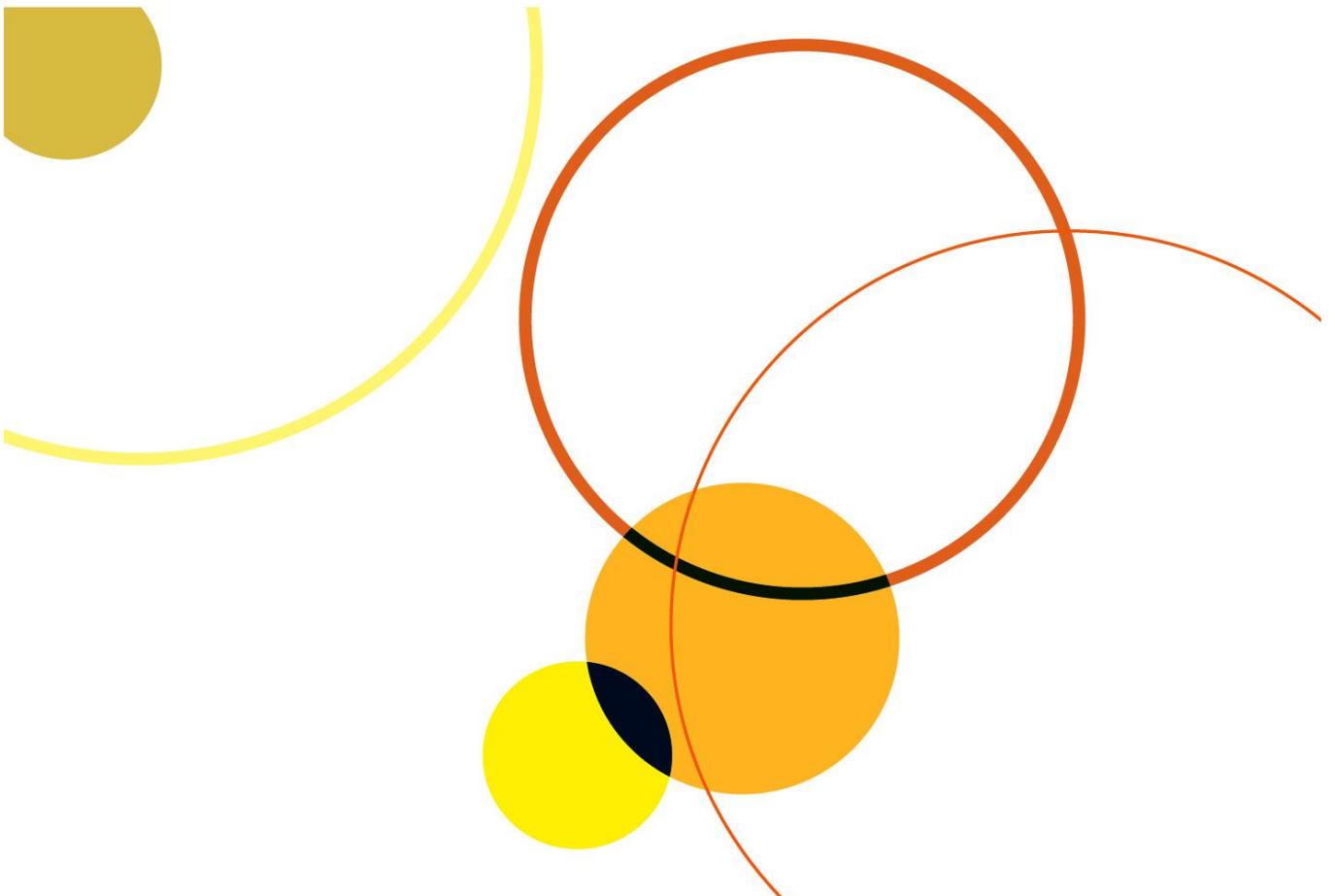

Solar mini grids

Business model brief - Bangladesh

February 2019



1 Summary

This brief summarises the current business model for solar mini-grids (SMG) in Bangladesh, and suggests short term improvements to enable more rapid market development. It synthesises the current state of the market and the most prevalent business model that has delivered SMG models to date. It then summarises lessons learned from experience and recommends improvements to the business models within the existing policy and regulatory framework. A separate investment case describes how these business models present opportunities to financial institutions, project investors, and public sector financiers (government, donors and DFIs).

Of the 22 SMG projects developed to date, the majority (20) have been financed by the Infrastructure Development Company Limited (IDCOL). This has provided an attractive mode of mobilising public and private finance in the early stage of market development, with a substantial grant portion and concessional loan, as shown in Figure 1. Commercial finance is also a viable option, and one project has been developed under a fully commercial financing structure, albeit at a smaller size of just 50 kWp. The right panel of Figure 1 shows the potential structure of a loan for solar mini-grids taking finance from a commercial bank, which in turn uses the Bank of Bangladesh’s dedicated refinancing for green products.

Figure 1. Financing structure using IDCOL or commercial bank capital

Financier	IDCOL	Commercial Bank
finance structure	<p>0% 20% 40% 60% 80% 100%</p> <p>■ grant (donor /DFI) ■ debt (financial institution) ■ equity (investor)</p>	<p>0% 20% 40% 60% 80% 100%</p> <p>■ debt (financial institution) ■ equity (investor)</p>
grant finance and sources	<p>Grant of 50% Financed by DFIs / donors: to date (DFID, KFW and GPOBA)</p>	<p>No grant component</p>
cost of debt	<p>6% Concessional loan for 30% of project, subsidised by DFIS (JICA and IDA)</p>	<p>9% Commercial rate of 12% reduced by Bangladesh Bank refinancing scheme</p>
pricing	<p>Price ceiling of c. 30 BDT per kWh Variable per customer up to ceiling</p>	<p>Variable pricing</p>
technical standards	<p>Specified component standards Technical standards set by cross-institutional standards committee</p>	<p>No restrictions on technical specification and import restrictions</p>
# projects to date	<p>20 Size: 100 kWp – 250 kWp</p>	<p>1 Size: 50 kWp</p>

Source: Vivid Economics

Section 2 provides an overview of the current size of the market, and the potential for market development in coming years.



Section 3 summarises the current business model for solar mini-grids in Bangladesh, outlining the different constituent parameters which could be altered to overcome barriers to market development. It sets out who the key stakeholders are to implement the current business models, and the options for finance and implementation within the existing policy and regulatory framework.

Section 4 describes possible evolutions in the business model to improve the bankability of projects based on recent experience in Bangladesh and lessons learned from international case studies. In particular, it recommends:

- identifying and ensuring a quick connection of key industrial and commercial customers to ensure stable and high demand, with a focus on day time consumption, through an anchor-business-customer approach; and
- conducting technical and financial modelling with clear sensitivity analysis around key parameters to ensure robust decision making by investors and financiers.



2 Overview of current business model

Of the 22 SMG sites currently operating in Bangladesh, the Infrastructure Development Company Limited (IDCOL) has financed 20 ranging from 100 kWp up to 250 kWp. These projects are developed to meet minimum technical standards defined by the Technical Standards Committee, and are built ready to be integrated with the main grid if that becomes necessary.

Uttara Bank has provided commercial finance for one SMG of 50kWp, developed by Angira. This is the first project of its kind which has been developed with no grant finance, and funded on commercial terms by the bank.

The Bangladesh Power Development Board (BPDB) has also implemented a 650 kWp SMG pilot, which was developed with grant funding. The capital costs of the project, at a remote area of Sullah, Sunamganj, was fully funded by BPDB under the Climate Change Trust Fund (CCTF) on turnkey Basis.¹ The operator then charges end users the same unit consumption tariff as that of the national grid.

IDCOL has ambitious plans to finance 200 SMGs by 2025. Achieving these ambitious targets will involve a process of iteration and improvement of the model to overcome barriers to implementation. Developing this pipeline of projects following a best practice business model, building on the project experience to date, and continuing to optimise the business model as the market evolves will be important to ensure the sector mobilises private sector investment.

¹ http://www.bpdb.gov.bd/bpdb/index.php?option=com_content&view=article&id=26



3 Overview of current business model

The typical model for delivery of SMG projects is to access finance from IDCOL, and charge customers a connection fee, fixed line fee, and a fee-per-unit of electricity consumed.

The remainder of this section describes the attributes of the business model in terms of:

- *technical and commercial aspects*, such as the typical size of projects, customers targeted, site selection etc. are described in [Section 3.1](#);
- *project finance*, centred on the role and terms of IDCOL finance or commercial bank finance, is discussed in [Section 3.2](#);
- *consumer pricing*, for customers connecting the SMG is set out in [Section 3.3](#);
- *broader environmental and social benefits*, which motivate the role of concessional finance supported by development partners, is introduced in [Section 3.4](#).

3.1 Technical and commercial aspects

There typical size of SMG developed has varied by financing type (discussed further below), but broadly has corresponded to the following categories:

- *IDCOL has financed 20 projects between 100 kWp and 250 kWp*, typically connecting between 400 and 1,000 customers.
- *Uttara Bank has financed one project of 50 kWp*, developed by project sponsor Angira, and serving around 170 customers.
- *limited development of nano-grids of around 10 kWp to 20 kWp*, for example developed by InfraCo Asia and their local implementing partner Equicap Asia.

The main target market has been rural households in remote areas. Some business such as village shops have also been connected, and in some cases larger industrial and commercial (I&C) users such as rice mills, workshops, saw mills, welding mills, cold storage facilities, cottage industries have also been key customers particularly for day time load. Proximity to users is critical, and in most projects, they are located within a radius of 3 km.

In terms of site selection, IDCOL works with the Ministry of Power, Energy and Mineral Resources (MPEMR) to identify remote areas where grid expansion is not likely to occur in the near future. IDCOL only finances projects in these areas, where the grid is not expected to reach in the next decade. This has evolved from some challenges in the development of the first mini-grid projects, where the grid eventually arrived and subsequently eroded the customer base since the grid tariffs are much lower than those offered by mini-grid energy suppliers. Projects using commercial bank finance rely on project developers to approach the bank with a commercial proposition, including their own site identification.

There are a range of project developers and technology providers for mini-grids. To date, these are almost all local Bangladesh based companies who source finance locally. These include Rahimafrooz Renewable Energy Limited, Western Renewable Energy Ltd, Blue Marine Energy Ltd, and others as set out in the table below.



Table 1. Technical and commercial parameters of solar mini-grids in Bangladesh

Parameter	IDCOL finance	Commercial Bank finance
Typical size of the mini-grid	Most commonly around 250 kWp in capacity, but sometimes as small as 100 kWp. The number of connections varies between 400-1,000 per grid.	One project developed by Angira of just 50 KWp. A market of around 60 nano-grids developed by Equicap Asia.
Customer segment	Primarily targets rural households or village markets in remote areas, though some businesses (village shops, small entrepreneurs, schools, mosques, saw mills, rice mills, cold storages etc) are supplied.	Main target market has been small and medium businesses first, with households identified second.
Site selection	IDCOL works with the Ministry of Power, Energy and Mineral Resources to identify remote areas where grid expansion will not occur in the near future.	Identified by project developers
Sponsors and equipment suppliers	<p>Sponsors must run a competitive tender amongst suppliers for major pieces of equipment. They must also seek approval from IDCOL to change suppliers. Mini grids procured, designed and installed by Engineering, Procurement and Construction (EPC) contracts with developers, including:</p> <p>Sponsors: <i>Rahimafrooz Renewable Energy Limited ; Engreen Ltd., Shouro Bangla Ltd. ; Hydron Bangladesh (Pvt.) Ltd. ; Green Housing and Energy Ltd. ; GramerAlo ; Solar Electro Bangladesh Ltd.; Ava Development Society ; Parasol Energy Ltd. ; Super Star Renewable Energy Ltd. ; SolarGao Ltd ; Solar Electro Bangladesh Ltd.; VGL Solution Ltd. ; Uddipan Energy Ltd.; Brit Bangla Trade & Investment Ltd. (BBTIL) ; Envis Energy Ltd. ; Eastec Ltd. (EAL) ; Blue Marine Energy Ltd. ; Impressive GreenTech Ltd. (IGTL) ; Western Renewable Energy Ltd.; Intraco group</i></p> <p>Suppliers of Technologies and EPC: <i>Rahim Afrooz, Exelon Bangladesh Ltd, Scube Technologies Ltd., Energy Pac Ltd., Electro Solar Ltd., Confidence group etc.</i></p>	

3.2 Financing structures

There are two main alternatives to finance a mini-grid development project.

The first and most common option so far, is to work with IDCOL under a fixed financing structure and terms and conditions. This is attractive in that it currently comes with a 50% grant contribution from development finance institutions, and a further 30% concessional loan repaid over a 10 year period. However, it also comes with some technical requirements and policy requirements. For example, the unit price for sale of electricity is capped, and there tends to be a focus on connecting household customers, as this is an important motivation for public sector supporting finance. The terms of the IDCOL loans and description of the financiers for grants, debt, and equity are included in Table 2 below.

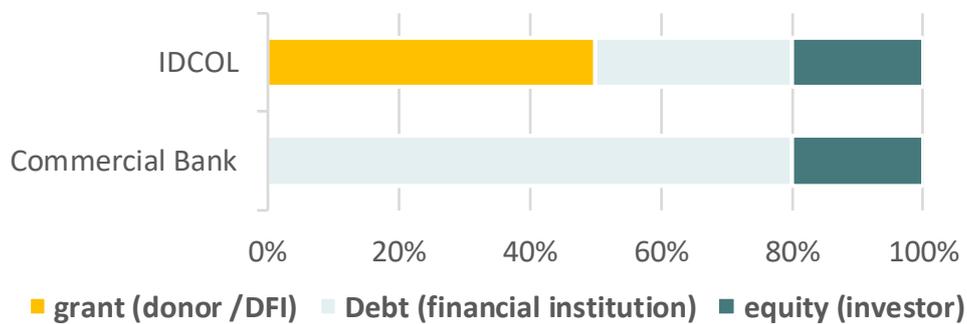
The second is to raise capital from a commercial bank, which may make use of the Bank of Bangladesh's refinancing scheme managed by its Sustainable Finance Department. The typical commercial lending rate is currently around 12% to 14%. To reduce the cost of finance for green products, the Bank of Bangladesh



offers two refinancing schemes. One is for conventional commercial banks and another for Sharia-compliant based banks. The general terms of conditions for the two schemes are set out in the bullets below:

- interest rate for SMG projects is the Bank rate (i.e. 5% since 2003) plus up to 4%. If the loan is issued through microfinance institutions, the premium is capped at 2%. For Sharia loans, the minimum of the Bangladesh Bank rate and the Mudaraba Savings Profit Rate is used (typically 5% to 6%).
- tenor of the loan is eight years, with a nine month grace period.
- maximum refinancing ceiling of BDT 100 million, only for projects above 1,000 kWp.

Figure 2. The typical finance structure is a 50% grant with concessional loan from IDCOL, although investment can also be made through commercial banks



Source: Vivid Economics

Risk is borne by the project sponsor, who must meet the financier's (i.e. IDCOL or commercial bank) repayment schedule and terms. Cost overruns, or delays in revenue generation will affect the balance sheet for the project developer. IDCOL typically requires either 100% collateral for the loan – and typically from a trusted long term client – or a bank guarantee for the full amount of the loan, so does not take any risk on the soft loan provided.

The current investment cost for a mini-grid of around 250 kWp is just over USD 1 million. This is if a project meets the technical standards and requirements required to receive finance from IDCOL. However, these costs may be substantially lower using capital from commercial banks and not needing to meet the technical requirements developed by the technical standards committee and adopted by IDCOL.

Table 2. Financial parameters for solar mini-grids in Bangladesh

Parameter	IDCOL finance	Commercial Bank finance
Estimated total project cost	4.5 USD per Wp (e.g. USD 1.12m for a 250 kWp mini grid)	4.4 USD per Wp (i.e. 220,000 USD for a 50 kWp mini grid)
Structure of financing (equity debt grant)	50% grant, 30% concessional loan, 20% equity	55% loan using Bank of Bangladesh refinancing scheme, 45% equity



Parameter	IDCOL finance	Commercial Bank finance
Financiers	<p>Grants are provided by DFIs such as DFID, USAID, GPOCA, and KFW, and are implemented through the IDCOL financing structure.</p> <p>Soft loans are available through IDCOL, which are subsidised by DFIs, in particular JICA and IDA (WB).</p> <p>Equity investment by sponsors (i.e. private entrepreneurs).</p>	<p>Commercial banks offer green credit lines for about 52 products – to date only one small mini-grid project has used finance from a commercial bank.</p> <p>Bank of Bangladesh offers a refinancing scheme to commercial banks to bring down the cost of commercial loans for green products from about 12% to about 9%.</p> <p>Equity investment by sponsors (i.e. private entrepreneurs).</p>
Terms of loan	<p>10 year loan, with 2 year grace period and 8 year repayment period. Concessional interest rate of 6% per annum (compared to 10-14% market rate).</p>	<p>Bank of Bangladesh loan tenor is maximum 8 years with 9 month grace period.</p> <p>Commercial banks typically lend for 5 years, up to a maximum of 10 years</p>
Financing requirements	<p>100% collateral or full bank guarantee required from sponsors.</p> <p>Sponsors must also have prior experience in implementing small to medium scale projects in any sector, have a clean banking credit history, and demonstrate capability to operate and maintain SMG projects in rural settings. They must provide monthly reports outlining number of customers, area of coverage, revenue collection and any event of default.</p> <p>If the sponsoring entity is a joint venture involving a foreign company, the local party must own at least 51% of the shares of the joint venture.</p>	<p>Typically, 100% collateral or full bank guarantee required from sponsors.</p> <p>Trusted long term customers (based on discussions with Uttara Bank and One Bank Ltd who work closely with trusted clients when entering new technology sectors)</p>
Over budget expenses	<p>Any costs over the anticipated budget in the implementation contract with IDCOL must be borne by the sponsor.</p>	<p>Over budget expenses borne by the sponsor</p>
Ownership of asset	Sponsor owns asset	
Asset life	20 years	
After sales services and maintenance	EPC warranty for 5 years	No specified norm

3.3 Product and pricing

Under the IDCOL financing structure, power is sold on a per-unit basis at a maximum price, which is currently around 30 BDT per kWh. This was established as a result of pre-investment modelling for the first mini-grid sites as the tariff at which sponsors could expect a return on equity of around 13% to 15%, the



same equity IRR on which IDCOL investments are currently modelled. In principle, operators can request an increase in the tariff every five years, although in practice this has not yet happened, as the market is still very young. This tariff cap is expected to fall over time as some elements of technology costs come down and the market becomes more established.

There is also typically a connection fee for customers, and monthly service charge. The monthly service charge ranges between BDT 100-150, and the one-time connection fee is approximately 5,600 BDT.

For projects using commercial finance there is no restriction on tariff setting. Nano-grids and the Angira 50 KWp project have set flexible tariffs depending on customer type (e.g. business or household).

Table 3. Pricing structures and revenue generation for solar mini-grids in Bangladesh

Parameter	IDCOL finance tariff structures
Product for end users	Sponsor provides electricity to rural households and businesses.
Structure of end user tariffs	Maximum unit tariff of 32 BDT (0.40 USD) per kWh set by IDCOL (calculated to provide 13-15% return on equity for sponsors). However, most SMGs charge 30 BDT (0.38 USD) per kWh. Most SMG operators can request an increase in the tariff every 5 years, some can request an increase every 2 years. However, no operators have requested an increase in tariffs (as of 2017) so as not to lower demand. This is probably reflects the embryonic nature of the market. There is a monthly service charge of BDT 100-150, and a one time connection fee of approximately 5,600 BDT ² .
Revenue collection	Sponsor takes collection risk from customers, with payment typically via prepaid meters.
Interactions with the main grid	Currently a standalone system. Connection to national grid is technically feasible, and the 2013 Solar Guidelines provide for an output purchase agreement if the national grid is expanded to the area 5 (or more, but within the life of the asset) years after completion of the SMG project. The tariff paid to SMG operators will be negotiated when the grid is expanded, but will aim to deliver 15% return to the SMG operator. No off grid SMGs have been connected to the grid as of 2018. The 5 year threshold is intended to discourage operators from setting up SMGs in areas where the grid might be expanded in the near future.

3.4 Socioeconomic and environmental benefits

Solar mini-grids have the potential to make an important contribution to achieving the targets for renewable energy set out in the nationally determined contributions (NDC). Typically, a mini-grid will reduce greenhouse gas emissions by 0.67 tonnes of CO₂ per MWh of electricity generated compared to grid-based electricity generation, and 0.75 tonnes to CO₂ per MWh of electricity generated compared to

² A one time connection fee of USD 67 (approximately 5,600 BDT) was in place for the first SMG project in Bangladesh (on the Sandwip island, established in 2009)
Aziz, S., Chowdhury, S. A., & Groh, S. (2016). The Success of Solar Diesel Minigrids in Bangladesh: A Case Study of Sandwip Island. *Energy Procedia*, 103(April), 316–321



diesel generator use.³ For the 20 IDCOL mini-grids currently in operation, this equates to approximately 107 thousand tCO₂ (compared to the grid) in their predicated lifetime of 20 years.

Wider socio-economic benefits include job creation in new industries, increased income and labour force participation and an increase in educational and health outcomes from access to clean energy. There is little evidence quantifying the magnitude of these effects given the relative nascency of the technology. Further research, particularly into job creation and productivity, could generate valuable evidence the will accentuate the importance of disseminating this technology.

Table 4. Summary of socioeconomic and environmental benefits of solar mini-grids in Bangladesh

Parameter	Description
Integration of local participants, and training of users	SMGs create jobs directly (operation and maintenance of grid) and indirectly (electrification facilitates new enterprises like mobile charging stations, rice or flour mills, cold storage facilities, computer centres etc). Most mini-grids use locally manufactured batteries, which improves capacity of manufacturers. Sponsor and IDCOL work with consumers on improving energy efficiency.
Environmental benefits	Environmental benefits are not explicitly monetised, but solar power generation could reduce GHG emissions by up to 0.75 tCO ₂ per MWh of electricity produced. (compared to the alternative of diesel generation in off-grid areas).
Socio-economic benefits	Benefits of rural electrification include increased income and labour force participation, better educational outcomes and longer time spent on study, and a decrease in women's time spent on household chores. A World Bank study estimates the benefits of universal electrification in Bangladesh could be quantified at 2.3 billion USD a year.

³The grid emissions factor in Bangladesh is 0.67 tonnes of CO₂ per MWh. Diesel generates 2.68 kg of CO₂ equivalent per litre, and diesel generators consume approximately 280 litres of diesel per MWh (as per financial model of a mini-grid supplier). Bangladesh Department of Environment. (2013). Grid Emission Factor (GEF) of Bangladesh. Retrieved from [http://www.doe.gov.bd/site/notices/059ddf35-53d3-49a7-8ce6-175320cd59f1/Grid-Emission-Factor\(GEF\)-of-Bangladesh](http://www.doe.gov.bd/site/notices/059ddf35-53d3-49a7-8ce6-175320cd59f1/Grid-Emission-Factor(GEF)-of-Bangladesh)
Greenhouse Gas Protocol. (2017). Stationary Combustion Emission Factors. Retrieved from <https://ghgprotocol.org/calculation-tools>



4 Suggested adjustments to improve the business model

While the current business models have been successful in attracting initial investment in 21 SMG sites, there are some limitations to the current business model in developing the market at scale. The following paragraphs set out two recommendations to improve the business model with relatively low implementation effort. The intention of both of these recommendations is to provide a higher and/or more stable rate of return to investors.

The recommendations included below were generated from a combination of national and international research. This included a review of international experience in developing commercial business models for solar mini-grids, and stakeholder interviews with project developers and policy makers in Bangladesh over three in-country visits across July, October and November 2018. Meetings were held with:

- investors such as e.g. Solar Electro, Solar Gao, Rahimafrooz;
- financial institutions such as IDCOL, One Bank Ltd, Uttara Bank, BIFFL and Bangladesh Bank;
- development partners and development finance institutions such as ADB, DFID, GIZ; and
- national policy makers including SREDA, MoEFCC, MoPEMR, Power Division, BERC.

A separate set of more involved measures to mobilise investment, requiring more substantial policy or regulatory change are developed in a separate implementation roadmap.

Business model adjustment #1: Adopt an Anchor-Business-Customer (ABC) approach to site selection and project development

Rationale: Structuring the site selection and customer acquisition strategy around anchor business customers with more day load profile provides an attractive option by providing greater revenue certainty and stability. It would entail securing commitment from a key industrial customer, such as a saw mill or cold storage, and/or a number of small and medium size enterprises. Such customers tend to have stable electricity demand needs and may represent a stable long term consumer from the grid, easier to retain. Households are then connected as a third priority to reach the full capacity of the SMG, depending on capacity. However, it may conflict with socioeconomic objectives to target connection of low income households as the priority customer group, in which case it could be combined with policy measures to incentivise connection of household customers.

Source: The ABC model has been successfully used to improve project finance for mini-grids in India. It was also raised by project developers as a means of both managing the ratio of day:night loads, and as a way of ensuring customer acquisition in the early years.



Barrier addressed: Demand projections and customer acquisition have in some cases been very different from pre-investment modelling. Identifying an anchor customer would support a larger proportion of stable demand earlier on, and could be supported by then targeting further business customers, and finally small enterprises and households. This would make the business model less dependent on acquiring a large number of household customers quickly





Implementation feasibility: The focus of customer acquisition could be shifted relatively quickly. However, identifying the key industrial consumers who could form the anchor clients may require further studies. Furthermore, anchors may have access to alternative sources of energy (diesel, their own off grid generation).



Unlocking finance: Stable demand would result in less risky investment and provide a clear minimum return. This can then be supplemented by seeking additional customers (i.e. other businesses or households) to generate profit margin. Higher profits could then be generated by further customer acquisition, so base revenue is less risky and there is a higher upside potential for profits if customer acquisition is then stronger than expected

Business model adjustment #2: Carry out clear sensitivity and scenario analysis for new sites, identifying key risk parameters

Rationale: Improving the standard pre-investment modelling tools used to assess the investment potential would provide greater reassurance to project developers and financiers. This should form a core part of due diligence carried out jointly by the financier and the investor to align on expectations and pre-agreed contractual arrangements before initiating a project.

Source: Investors consistently identified a lack of robust understanding of the sensitivities around returns as a major barrier to successful project finance. Many had made an initial investment without fully understanding the key risks to financial success, and had worked with existing models in cooperation with financiers.



Barrier addressed: there have been large differences between the technical and financial modelling analysis undertaken pre-investment, and the outturn results. This is eroding confidence in the market, and trust in the cashflows expected from potential new projects



Implementation feasibility: Clear sensitivity and modelling would receive good buy in from project developers and financiers. It could quickly become best practice with a clear template for implementation. It could be owned by SREDA or IDCOL and provided as part of a technical assistance facility to project developers



Unlocking finance: A deeper understanding of project risks would help inform better investment decisions, and enhance management of identified and quantified risk factors



Annex: List of Key Sources for Solar Energy Projects

Institution	Role	Relevant personnel and Contact information
1. Power Division	Policy maker for Power Sector, renewable energy generation and energy efficiency. Oversees all activities related to power generation, transmission and distribution, incentive mechanisms and R&D	Mohammad Alauddin, Joint secretary (Renewable Energy) Biddut Bhaban, Power Development Board, Abdul Gani Road, Dhaka Tel: 02-9574406 Email: mohammad_alauddin4124@hotmail.com
2. Sustainable Renewable Energy Development Authority (SREDA)	Coordinates, conducts R&D on renewable energy and energy efficiency and mobilizes investment for renewable energy projects	Siddique Zobair, Additional Secretary, Energy Efficiency & Conservation IEB Building (9 & 10 th floor) Ramna, Dhaka-1000 Tel: +8802-55110340/+88-02-55110335 Ext -130 Email: siddique.zobair@gmail.com
3. Infrastructure Development Company Limited (IDCOL)	Promotes, develops and finances infrastructure including renewable energy, and energy efficient projects	Farzana Rahman (Senior Vice President and Unit Head (Investment Renewable Energy) UTC Building, 16th Floor, 8 Panthapath, Kawran Bazar, Dhaka-1215, Bangladesh Tel. 88-02- 9102171-8/261 Email: frahman@idcol.org
4. Bangladesh Bank	Central bank and apex regulatory body for the country's monetary and financial system, finances renewable energy projects	Qazi Mutmainna Tahmida (Joint Director, Sustainable Finance Department) Motijheel, Dhaka Bangladesh Tel: 88-02-55665001-20 Email: qm.tahmida@bb.org.bd
5. Bangladesh Agricultural Development Corporation (BADC)	Promotes agriculture development, including financing of solar irrigation pump projects	Md. Shah Alam Siddiqui (Chief Engineer) Krishi Bhaban 49-51, Dilkusha Commercial Area Dhaka-1000 Tel: 9556080-7 E-mail: info@badc.gov.bd
6. Bangladesh Rural Electrification Board (BREB)	Distributes electricity to rural communities, shareholder of solar energy and, contracts, finances and sets up solar energy projects	Sayed Mahbubur Rahman, Director (Technical) Head Office, Nikunja-2, Khilkhet, Dhaka-1229 Tel: 88-02-8916424-28 Email: rebdirpp@gmail.com
7. Bangladesh Infrastructure Finance Fund Limited (BIFFL)	This Non-Banking Financial Institution issues bonds and debt instruments and equity offerings for infrastructure projects	S. M. Farmanul Islam, Executive and CEO, Borak Unique Heights, Level-3, 117 Kazi Nazrul Islam Avenue, Eskaton Garden, Dhaka Tel: +880-2-8333238-9Email: ceo@biffl.org



Federal Ministry
for the Environment, Nature Conservation
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