Note: The TOR describes consultant work to identify productive uses of mini-grid electricity and PV systems in proposed sites for the Bank Project. Based on the identified applications, business development services (BDS) assistance—both ICT and non-ICT based—are designed.

Terms of Reference
Identification of Productive Uses of Electricity and Design of Business Development Services

Background

<Brief description and objectives of Bank rural electrification project. Social-economic characteristics of unserved areas proposed to be electrified. Importance of introducing economic activities>

Objective of Assignment

The purpose of this consultant assignment is to identify new productive applications of electricity in the selected sites and develop appropriate business development services (BDS) to support the new and existing micro and small businesses. BDS refers to various forms of training, information, advisory, networking and other business support services.

Consultant Tasks

1 Identification of new productive applications

In concentrated communities using minigrids

Where electricity demand is mainly for lighting, identify new potential economic activities that will utilize electricity during off-peak periods (daytime) and enable the diesel plant to be operated continuously or reduce the “dump load” operation hours of a mini-hydro.

In sites where significant economic activities already exist, identify and quantify potential improvements or additions to the existing production processes which would be made possible by availability of electricity, with resulting increase in productivity and profits for the business (e.g., addition of refrigeration facility for a milk producer or a fish farm, small refrigeration or video for retailers or pulperías, bakeries and restaurants).

In dispersed communities using solar PV

Identify and quantify potential productive applications requiring small amounts of power (e.g. less than 2 HP) that could be met by PV or similar decentralized systems. These may include, for example: electric fencing for cattle, electric fan for solar fruit dryers,
water and air pumping for small fish farms, electric poultry incubators, power for crafts and artisan shops, small refrigerator or video for local stores, bakeries and restaurants, etc.

For the main identified new productive applications, make estimates of the:

a) technical specifications and cost estimates of the equipment required
b) total potential size of the market in the area. For example, for milk refrigeration, what total refrigeration capacity or number of refrigerators would be needed over the years?
c) financing requirements, sources and cost-sharing modalities. For activities needing microfinancing, identify follow-up tasks for microfinance expert.
d) potential for sustainable implementation. In particular, for productive applications connected to a minigrid, determine the maximum electricity tariff ($/kWh) that would make an investment in a process change viable.
e) The degree to which entrepreneurs in area would have the capacity to undertake the identified application, and identify the type of training and other technical assistance needed (this task may need significant assistance from the BDS expert)

2. Design of BDS

For each pilot site

a) Given the planned electrification solution, the existing business profile and the new identified productive applications estimated to be good business opportunities, prepare a low and high growth scenario for the creation of new MSBs in promising productive activities, or strengthening of existing ones over the coming 3 years, specifying in what business sectors they might arise and their expected electricity demand;

b) identify the range of BDS options—both ICT and non-ICT-based—appropriate for the pilot sites. In sites where there is concentrated economic activity in the area, particular attention may be given to the dominant sectors, and the consultant should consult and involve the relevant sector business association for their own knowledge, existing programs and recommendations. In sites where no dominant activity can be readily identifiable, particular attention may be given to the new and existing economic activities that have been estimated in the previous step of the analysis (see paragraph above (a)) to be a good business opportunity. Prepare an preliminary systems design and cost estimate for the option offering the most services variety and capacity with the least operating cost for each site (this will be followed up by a second phased detailed design and cost estimate). The ICT-based BDS assessment should be preceded by the preparation of e-readiness assessments for each pilot area to help determine the technical viability of various ICT-based BDS solutions (see separate TORs attached);
c) For ICT-based solutions, provide technical specifications, time use requirements of electricity (24/7 or partial time) and cost implications for powering
  - phone, fax and email communications,
  - internet
  - distance learning
  - computer workstations (PC, laptop and handheld options) and peripherals (networked scanner, printer)
  - facility lighting
For each equipment, specify power requirements and supply/maintenance limitations

d) Design an MSB promotion program appropriate for each site, which provides (1) profile information on a variety of businesses in which electricity is critical to their success, and (2) reference material on how to access the voucher program to be supported by the Project to share the cost of pre-commercial activities to prepare business plans and carry out business startup.

e) In the case specifically of the setting up of the battery charging business operation, specify the type of business development assistance that may be needed, including:
   i. Identification of the local operators
   ii. Assistance in preparation of business plans, including determination of appropriate charging and other fees
   iii. Assistance in establishing microfinancing for battery purchases by households
   iv. The BDS consultant will identify the detailed training and TA needs for operators in each site, as well as identify specific follow-up tasks for the microfinancing expert.

Consultants will visit and carry out above assessments in the 5 proposed priority sites for the offgrid project. They will work in close coordination with Government counterpart staff handling BDS and microfinance.

**Consultant requirement**

Three consultants—one for productive use identification, one for traditional BDS design, and one for ICT-based BDS—would be contracted. The expert for identifying productive uses of energy possess need not necessarily have a technical degree but must have actual experience in the promotion of new electricity access to small business.

The traditional BDS expert must have broad-based experience in different types of BDS in different sectors, in particular related to agro-businesses. The ICT-based BDS expert must have experience in the use and preferably management of online based BDS.

It is estimated that a total effort of 60 person-days would be required for the full assignment.
Timetable

Including travel to the pilot sites and preparation of the report, the work could be completed over a 1.5 to 2 month period.