

PROMOTING CLEAN ENERGY BUSINESS MODELS IN SMALL AND MEDIUM ENTERPRISES

Sonya Fernandes

Regional Programme Manager
Renewable Energy and Energy Efficiency Partnership (REEEP)
REEEP South Asia Secretariat, Asia Energy Institute
Associate Fellow
The Energy and Resources Institute (TERI), TERI office, Goa, India
Tel: +832-2459306/2459328
E-mails: sonya.fernandes@reeep.org, sonya@teri.res.in

Abstract

Micro, small, and medium enterprises — constitute to almost 90% of the total industrial establishments in India — accounts for about 45% of the industrial production and 40% of the total exports in the manufacturing sector. It employs an estimated 59 million persons spread over 26 million enterprises. In terms of its contribution to India's GDP, it is expected to touch 10%. SMEs are also believed to be high polluters due to use of outdated technologies and/or lack of end-of-line pollution control systems¹. This paper through its case studies and examples will help us look at SMEs not only as a potential market for Renewable Energy Technology (RET) but also as developers/innovators/suppliers of RETs. The paper also outlines the linkages between SMEs and society as SMEs contribute significantly to the countries development, employment, and generate tax revenue. It looks at the possibilities of small enterprises acting as pilot testing units prior to larger deployments of renewable energy technologies/ideas/innovations.

Introduction

Small and medium enterprises (SMEs) are under tremendous pressure to increase productivity, maintain quality, and deliver within remarkable timeframes; at the same time, work alongside the rising cost of energy, material and other resources required for production, and remain competitive in the market². Hence, we need to take a step back to look at the complexity of challenges the sector faces. In order to successfully coax SME owners and operators to adopt renewable energy technologies, we need to have in place a very strong financial reasoning accompanied with suitable business models. The upside to this transition begins with the fact that SMEs globally account for majority of firms in an economy and represent

a significant share of employment³. Hence implications of changes in mindsets here could be reflected through-and-through the industry, its market and consumer base.

In the larger countries of Asia, SMEs (more or less) are viewed by big corporations (domestic and international) as an important source of local knowledge and market. This sector is also being viewed as a trendsetter of new technologies, know-hows or a testing center for new ideas, models or techniques. Hence the pressure to succeed here is quite high. An important observation in countries such as India is that the SME industry works best as a cluster, based on characteristics such as products/by-products/size/skill sets, etc. This is a complex web of human networks within networks where operat-

ing procedures are handed down the line through the years; rarely questioned or modified. These factors play a significant role while developing strategies or plans on the best way to approach the industry and make an impact.

In India, there have been projects looking at expanding the SMEs investment portfolio and incorporating additional financing mechanism to facilitate local finance (from the SMEs themselves) and enterprise development to jump start few RET projects in selected SMEs.

This paper identifies some such ideas, models and techniques that could be scaled up and replicated across regions.

Renewable energy tools and technologies

Most projects or initiatives start with understanding the capacity and will of the SMEs to pay and adopt RETs in their establishments along with the mindset related to trying out a new technology. In the Mediterranean region, organizations such as E-Cube SRI with the support from Renewable energy and Energy Efficiency Partnership (REEEP) have generated tools to enable SMEs to evaluate their own environmental performance and be able to use it to undertake cost/benefit analysis on investments in renewable energy. Most importantly, these tools are flexible and exportable to other branches of sustainable development spreading e-commerce style methods in the green economy⁴.

For countries such as India, the business strategy of integrating RET in an operational enterprise would be to focus on the growth plans, if any. Transition to renewable energy as against grid, diesel generators, or fossil fuels-based systems is still considered high risk-high capital investments and small enterprises are

¹ PRE-SMEs — Promoting Resource Efficiency in Small and Medium Sized Enterprises 2010 (P 11), UNEP Resource Kit, (Industrial handbook).

² PRE-SMEs — Promoting Resource Efficiency in Small and Medium Sized Enterprises 2010 (P 11), UNEP Resource Kit, (Industrial handbook).

³ Across 76 developed and developing countries, SMEs account, on average, for over 50% of manufacturing employment (Ayyagari *et al.*, 2007).

⁴ REEEP Project profile 2009/10 (P 30), Description of REEEP projects in North Africa.

most likely to steer away from the initial costs of installation. Here is where institutional investors and governments can play a crucial role through mechanisms such as risk guaranteed insurance packages, specialized loan schemes, SOPs such as tax breaks, attractive interest rates, etc.

One of the RETs that have worked well in some SMEs is the Biomass gasification system for thermal applications. This application has been set up for micro and small enterprises such as silk reeling, textile dyeing, food processing, rubber and cardamom drying, and smelting etc. In other cases, such as in rural industries, the business model adopted by the project implementer, The Energy and Resources Institute (TERI), for instance, focuses on linking the technology with businesses that support livelihood in rural areas and through this introducing the avenue of livelihood generation for the local serv-

Energy generation through renewable energy sources can not only act as standalone electricity generating units but can also be efficiently integrated into the operations and production lines of industries.

ice provider for O&M of biomass gasifiers and biomass production and processing (Figure 1).

This has worked well with respect to decreasing the consumption of costly fuels such as kerosene and diesel and focusing on optimizing the usage of biomass gasifiers units through better maintenance. People have realized that the problem of energy accessibility for small

enterprise sector could be solved through the introduction of locally available biomass resources and the resulting savings is bargain.

TERI is now concentrating on accelerated dissemination of biomass gasifiers through identifying gaps and formulating strategies to redress them. In the process, they will also be addressing key business challenges for introduction of RETs in the SMEs which include:

- Financing of the Renewable energy technology (RET) installed at their units; and
- Building capacity to effectively integrate/operate/upgrade these systems and the general know-how related to it.

Business ideas for SMEs

In another REEEP supported project, the project implementer SELCO India has been successful in establishing links between energy services and income generation. This brings us to another approach, primarily, businesses growing on account of adopting RETs and SMEs investing in clean energy technologies as part of their business expansion plans.

In the state of Karnataka in India for instance, SELCO through cooperative financing by SEWA banks has provided five highly advanced models of sewing machines powered by solar-grid hybrid system working for five hours a day. The women now work uninterrupted leading to longer working hours and also save on electricity bills. The advanced model of sewing machine has also helped these women to be more creative in their sewing leading to better designs. The end user's income has increased by a minimum of INR 50 (approx. USD 1) per machine per day after these sewing machines were installed, excluding the savings in the electricity bills. Though the initial cost of the system seems to be high but the increased income enables the end user to repay the loan easily.

This case study opens a whole new avenue with respect to the application of RETs in the SMEs. Energy generation through renewable energy sources can not only act as standalone electricity generating units

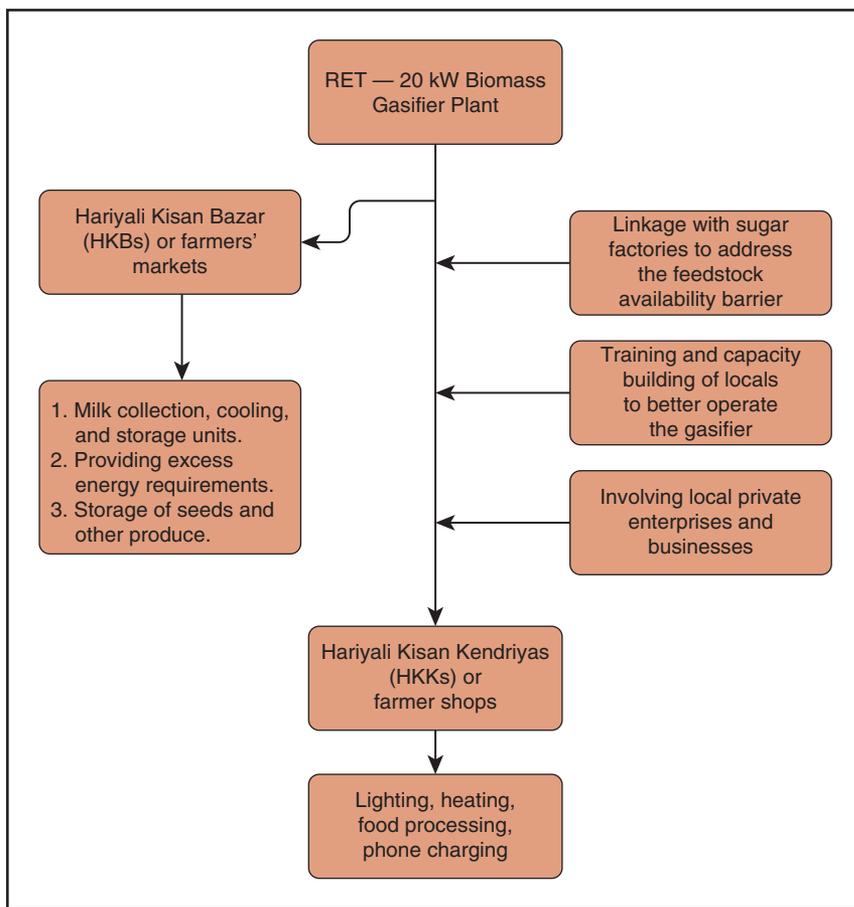


Figure 1: An outline of business plan and financial mechanism for rural distributed generation based on biomass case study to encourage the adoption of RETs in the state of Uttar Pradesh — Dalkia Energy Services

but can also be efficiently integrated into the operations and production lines of industries.

There are approximately 400 HKB/HKK outlets in North India and this business model is being implemented in several of these outlets.

In several instances, renewable energy technologies have also acted as a backbone in developing new SMEs and fueling their growth. There have been instances where the new business opportunities and entrepreneurs have emerged especially in rural areas on account of RETs. For example, agriculture, which is a mainstay of Indian economy experiences several challenges, one being storage of perishable food. Some projects have been undertaken by organizations such as TERI in India and Pak Ujala (Pvt.) Ltd. in Pakistan addressing this issue to dem-

onstrate the viability and efficacy of an innovative renewable energy system that provides electrification and food storage refrigeration for typical off-grid rural communities in developing countries. In case of the project implemented by TERI, the system will be powered by a biomass gasifier run gas engine to produce electricity and the waste heat from the gas engine would be used to run a chiller which will provide cooling in a cold storage. The project is expected to help store 15 tonnes of horticulture produce and also electrify 200 households. Pak Ujala (Pvt.) Ltd. has already started creating solar energy cold chains in order to promote entrepreneurship and boost the economical cycle so as to improve the standard of living within the country. They have made this possible by allying with the highest rated micro-finance

banks of Pakistan who will make the solar cooling technology available to everyone on an affordable micro-finance plan, thus providing a production loan rather than a consumption loan.

Conclusion

Some European countries have witnessed SMEs emerge as potential providers of RE and energy efficient (EE) technologies⁵. Similarly, the aforementioned case studies and examples prove that SMEs in Asia can also act as trendsetters, and even change drivers when it comes to RETs. But for RE technology developers and implementers, constituents such as assessing the market potential, designing suitable financial tools and developing business strategies taking into the account of the cluster dynamics might just be the makers or breakers in this sector. ■

⁵Osterkorn. M., Presentation on "Fast tracking Energy conservation in MSMEs", 2011, Delhi Sustainable Development Summit, 2011.

New version of RETScreen available including Clean Energy Policy Toolkit

An important upgrade to the RETScreen Software, was recently released. RETScreen Suite integrates the RETScreen 4 clean energy project analysis software and the RETScreen Plus energy management software, and incorporates the Global benchmark database and Clean Energy Policy Toolkit that were funded under REEEP's Programme. With nearly 340,000 users in every country and territory of the world, the RETScreen software has a significant and growing influence on clean energy markets globally.

RETScreen International is advising users to install this substantially improved version of the software. Apart from the Global benchmark database and Clean Energy Policy Toolkit, other key features include:

- Interactive Bing Map for climate database;
- 13 new energy resource maps;
- 875 new products added to product database;
- Multivariable regression analysis option; and
- Reference temperature optimization tool.

RETScreen is a free-of-charge piece of decision support software made available by the Government of Canada to help evaluate the viability of renewable energy and energy efficiency projects. It analyzes the energy production and savings, costs, emission reductions, financial viability and risk for projects associated with various types of renewable-energy and energy-efficient technologies (RETs). The software currently has over 300,000 users in 222 countries and territories.

For more information, contact:

Renewable Energy and Energy Efficiency Partnership (REEEP)

Wagramerstrasse 5 (Vienna International Centre)

A-1400 Vienna, Austria

Tel: +43-1-26026-3425;

Fax: +43-1-21346-3425

E-mail: info@reeep.org;

Web: <http://www.reeep.org>