“ENSURING AND EXPANDING ACCESS TO ENERGY”

THEME LEAD

Mr Ibrahim H Rehman
Director, Social Transformation, TERI

CO-CHAIR

Assaad Saab
Vice President, Electricite de France

INTRODUCTION

One-fifth of the world's population does not have access to electricity, rely on inefficient devices to convert energy from low-grade fuels such as kerosene to consumptive energy services such as lighting and space conditioning. Further, one in three persons uses archaic and traditional methods of cooking, using unprocessed biomass in devices that are inefficient and polluting. Most of these underserved live in the global South—South Asia and Sub-Saharan Africa. Approximately, 30 per cent of all underserved in cooking energy live in India. The impact on human health from household air pollution (HAP), a resultant of using these inefficient devices, results in almost 4 million premature deaths annually among children and adults from respiratory and cardiovascular diseases, and cancer (World Health Organization, 2014). Similarly, data pertaining to electricity access shows that 24 per cent of all underserved are Indians (International Energy Agency, 2014). India, the third largest economy[1] in the world still has 815 million people without access to modern energy sources for cooking and a sizeable 304 million people without access to reliable electricity. There is also an inherent regional disparity, with most of those without access to modern energy forms residing in rural areas (Census of India 2013), raising concerns regarding equity in human development. A concerted effort from diverse stakeholders is required to tackle this challenge through multi-dimensional solutions (Bazilian, *et al.* 2012). This, however, would be impossible without substantial investment from the private sector (Sustainable Energy for all 2012).

KEY QUESTIONS

Up scaling energy access through High Impact Opportunities such as TERI's Lighting a Billion Lives Programme

- Can corporates come together to light up and provide cooking energy solutions to 50 million households by 2019?
- How can we come up with multi-stakeholder engagements partnering public and private sector?
- How to come up with social enterprise based business models to deliver energy services to the poor?
- What are the steps required for creation of enterprise based value chain to deliver energy services to the poor?

INITIATIVES IN LIGHTING ENERGY

Over four decades after the establishment of Rural Electrification Corporation in 1969, a large number of government programmes

[1] According to the International Monetary Fund (IMF), as of 2014, the Indian economy is the eleventh-largest economy by market exchange rates, and the third-largest by purchasing power parity, or PPP

targeted at rural electrification under the umbrella of the 'Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)' have electrified over 100,000 villages since its initiation. However, based on census figures, almost 44 per cent of all households residing in rural India still do not have access to reliable electricity.

Grid-connected power is seen to have potential to provide electricity to only 30 per cent of rural areas, the rest of which will have to be fulfilled through off-grid and decentralized systems. Such approaches have the potential to go beyond infrastructure creation, and adopt a multi-pronged approach incorporating political, environmental, social, cultural, and economic contexts of the areas of implementation.

In the context of decentralized energy systems, several small-scale successes exist—Lighting a Billion Lives (LaBL, promoted by TERI), Lighting Asia (promoted by IFC), SPEED (promoted by Rockefeller foundation), Husk power (a social enterprise initiative), etc. However, in order to transform small-scale successes to a full-blown regime, several opportunities and challenges exist such as inclusive and participatory planning processes, better information flow, access to appropriate financial resources, and the need of a champion.

COOKING ENERGY

A large share of these households' energy expenditure, in case of the energy poor, is spent for cooking needs (Bhattacharyya 2006). Considering the poor penetration and low reliability of electricity in rural households, the narrow focus of Government of India on electrification alone has left large gaps in addressing the need for clean cooking.

Past programmes on providing cooking energy access, such as LPG provision, the National Project on Biogas Development, and the National Programme on Improved Chulhas have either targeted the middle- and higher-income households, or failed to promote a shift in the primary cooking technology used in rural households (Balachandra 2011).

The NBCI, 2011 (which aims to disseminate 2.4 million domestic stoves) has adopted a multi-pronged approach which focuses on technology development, development of proper testing protocols and, in the long-term, seeding the continuous use of improved cookstoves through a robust commercial value-chain, as opposed to past subsidy-driven dissemination models (MNRE 2013).

Today, a large portfolio of appropriate transition technology options exists for the end-users, e.g., multiple models of natural draft (ND) stoves and forced draft (FD) improved stoves (MNRE 2013) providing a significant gain against the traditional mud stove (Kar, *et al.*, 2012). In spite of various non-governmental (TERI, SEWA, etc.) and private sector actors (NDMI, Biolite, Envirofit, etc.) in the cookstoves market, the penetration of these improved stoves is still extremely low.

Most efforts for expanding rural energy access have been government-centric and have had limited success, due to resource constraints to meet the large population of the underserved. Evidently, the private sector investment would need to grow, primarily by leveraging funding from government and donor agencies, to establish and sustain a robust commercial value chain approach.

ROLE OF PRIVATE SECTOR

There exist various opportunities through which the private sector can positively contribute to the overall growth of the sector, ensuring sustainable energy to millions— not only a need of the hour, but also a moral responsibility. These opportunities lie in addressing the challenges plaguing the sector. Incidentally, these challenges are best summarized by various dimensions associated with definition of access—physical availability, acceptability, affordability, reliability, and quality of supply. The private sector can proactively contribute to each of these dimensions. Some possible interventions are mentioned below:

- Availability: Facilitate development of appropriate market value chains for CET which is well aligned with the business strategies of individual corporates; provide appropriate impact investments to catalyse manufacturing of clean energy technologies and institutionalization of market value chains; facilitate scale up of interventions, taking cognizance of existing business models and related infrastructure available with the private sector.
- Affordability: Facilitate access to end-user finance through various channels including commercial banks and MFI; CSR and grant support to reduce costs of clean energy technologies; support requisite R&D of technology developers and manufacturers to reduce costs.
- Reliability: Support development of appropriate skill base at the grass roots for regular maintenance and post-dissemination service; provide research support to manufacturers in order to encourage customization and contextualization of the technology to the extent possible; provide knowledge support to manufacturers and service providers associated with development and dissemination of CET to ensure standardization and quality assurance.
- Acceptability: Support large-scale awareness generation campaigns; support demonstration of appropriate technologies in immediate areas/ regions of influence.
- Environmentally benign: Encourage development of new technologies and products through appropriate platforms, for example, technology design competitions, research support through existing R&D labs available with the private sector.