INDIA

Project Brief

Scaling up Demand-side Energy Efficiency Sector Project

An electric vehicle charging station and (right) an installed smart meter

Energy efficiency and conservation are central to India's climate action including its international commitments to reduce the energy intensity of its economy by 33%-35% by 2030. Strong expansion of India's economy in the past two decades led to steady rise in annual carbon dioxide emissions from fuel combustion. India's energy mix, dominated by coal-based energy, largely contributes to the emissions.

To mitigate these impacts, India has made a strong push to renewable energy proposing to add 175 gigawatts (GW) generation capacity through renewables by 2022. At the same time, the government has made a strong push to promote energy efficiency through introduction of technology and innovations. This is intended to help reduce energy demand without jeopardizing growth and ensure more sustainable economic growth by reducing carbon emissions.

To harness the country's largely untapped potential for energy efficiency, the government launched National Mission for Enhanced Energy Efficiency, one of the eight missions on India's climate action, in 2010. A public service company, Energy Efficiency Services Limited (EESL), a joint venture of four public sector undertakings of ministry of power, was created in 2009 to lead the mission and pursue large scale energy efficiency focused investments.

ADB has been supporting EESL's endeavors to promote energy efficient products and services which includes a $200 million financing for the EESL's countrywide program for installing millions of energy-efficient LED lights in streets and homes and energy-efficient agricultural water pumps In November 2019, ADB approved a new project, Scaling Up Demand-side Energy Efficiency Sector Project with $250 million financing, to target upstream energy efficiency opportunities, including deployment of smart meters, distributed solar photovoltaic systems and e-vehicles in at least 15 states across India.

One of the project interventions is aligned to the EESL's national smart meter program targeting replacement of 250 million traditional meters with smart meters to improve billing and collection efficiencies. Another supports India's National Electric Mobility Mission Plan that aims to achieve 30% e-mobility by 2030.

Project Features:

Promote energy efficient technologies: The project will deploy energy efficient technologies in utility service areas across the country. This includes:

i) Installing 5 million smart meters to improve billing and collection efficiencies
ii) Deploying 160 megawatts distributed solar photovoltaic in rural agricultural areas to reduce technical losses
iii) Commissioning 10,000 e-vehicles and e-charging stations to improve transport efficiency, reduce fossil fuel consumption and improve energy security

Institutional Support:

i) Capacity building of power distribution and regulatory agencies to scale up energy-efficient technologies
ii) Raising end-user awareness of the benefits of using energy-efficient technologies

Gender mainstreaming: To train women commercial drivers; ensure 40% women participation in end-user energy efficiency awareness programs; training rural women in energy-efficient technologies to expand their existing businesses or start new business; and sensitize EESL project staff on gender issues.

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Innovation & ADB value-add

The project will help scale up demand-side energy efficiency technologies and promote new innovative business models - such as demand aggregation and bulk procurement for e-vehicles

Technical assistance grant will support project implementation by EESL through:
Mobilizing private sector participation in energy efficiency services; identifying new business opportunities and transferring knowledge about successful models, and a gender action plan

PROJECT AT A GLANCE

Cost and Financing:
ADB Ordinary Capital Resources, $250 million; Clean Technology Fund, $46 million; Technical Assistance, $2 million

Project approval date:
November 2019

Status of implementation:
Ongoing

Executing agency:
Energy Efficiency Services Limited (EESL)

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Installation of distributed solar photovoltaic systems supported by the project will reduce network losses, improve quality in the low-voltage electricity distribution network, and reduce the need for new centralized electricity generation plants.

Adoption of advanced proven energy-efficient technologies under the project will promote an estimated energy savings of 266 gigawatt hours annually and reduction in greenhouse gas emissions by 245,000 tons of carbon dioxide.

Smart meters will reduce commercial losses for distributor companies by improving billing and collection efficiencies. E-vehicles reduce overall energy consumption and street-level emissions, providing direct public health benefits. Distributed solar subprojects will provide clean daytime electricity supply for rural consumers, reducing upstream network losses and displacing coal-fired power generation.

While introducing technological innovations to promote energy efficiency, EESL is working on establishing new business models. To promote e-vehicles, EESL is pursuing a model of aggregating public sector demand for e-vehicles through bulk procurement. By establishing a substantial presence for e-vehicles and the supporting charging infrastructure, EESL hopes to provide impetus to domestic manufacturing that will improve affordability of e-vehicles in the Indian market. This could trigger an industrial and consumer switch to e-vehicles which would generate net environmental and economic benefits.

Awareness raising among end-users and capacity building of key government agencies' staff are key components of the project. Gender mainstreaming efforts will be promoted through provision of training to women commercial drivers, training rural women in energy-efficient technologies to expand their existing businesses or start new businesses besides sensitizing EESL project staff on gender issues.

Distributed solar photovoltaic system set up by EESL **All Photos courtesy EESL**

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