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BUILDING BETTER ENERGY FUTURES: NBI'S WORK IN SOUTH ASIA

South Asia's energy systems are rapidly transforming, but there is much work to be done to succeed in energy decarbonization while improving reliability, safety, and affordability.

The built environment can either hinder or enable and accelerate energy grid transformation. Building-grid integration is essential and becoming more critical every day. It is more economically feasible and far easier in terms of actual physical systems integration to absorb high levels of variable renewable energy (wind, solar) onto a grid whose buildings have a relatively high degree of demand flexibility and with time-oriented energy efficiency strategies implemented.

New Buildings Institute (NBI), a U.S.-based nonprofit organization, is bringing its GridOptimal metrics and utility program framework to South Asia. With the goal of decarbonizing electricity grid and promoting energy efficiency and resiliency in the region's buildings, NBI will work with government agencies, utility companies, and private sector leaders to develop and deliver India-specific metrics and analysis methodologies.

This project, supported by USAID under the South Asia Regional Energy Partnership (SAREP) Partnership Fund (SPF), will leverage NBI's extensive experience in the US to help accelerate the transformation of South Asia's building sector and create a more sustainable future.

This project's big-picture, long-term goal is to enable leading utilities and policymakers – at first in the Delhi region but subsequently nationwide and across South Asia – to accelerate the transformation and decarbonization of electricity grid through the deployment of buildings and associated behind-the-meter distributed energy resources as grid assets. The central objective of this project is to develop, deliver, and disseminate India-specific GridOptimal metrics and analysis methodologies to facilitate building-grid optimization by identifying critical behind-the-meter time-oriented energy efficiency and demand flexibility strategies in major building typologies and grid contexts.



PHOTO: NEW BUILDINGS INSTITUTE

NEW BUILDINGS INSTITUTE (NBI)

NBI-SPF project consists of four primary components that work together to contribute to the clean energy transition in South Asia:

- Regionally Customized GridOptimal Metrics Development: NBI will develop customized metrics for South Asia that consider the regional policy and utility landscape. The metrics will quantify the flexibility of a building through its design and operational measures to respond to grid needs.
- Grid and Building Data Collection, Organization, and Analysis: NBI will lead a team of experts to collect and organize a data library of critical data points on both sides of the meter (grid and building scale). This data library will be a critical resource for successfully deploying building-grid integration utility programs.
- Utility Program Framework Development: NBI will work directly with leading utilities in the Delhi region, including BSES Rajdhani and NDPL Tata Power DDL, to build on successes, failures, important lessons learned, and best practices in building grid integration program deployments. The goal is to advance utility programs in India and develop a program framework that can be used by other utilities in the region.
- Stakeholder Engagement: NBI will engage with government agencies, private sector leaders, and other stakeholders to gather local perspectives, identify critical areas for focus, gather data, document needs, and challenges, and ensure that project results are actionable. The goal is to ensure the successful adoption of the GridOptimal metrics and program framework.



PHOTO: NEW BUILDINGS INSTITUTE

NBI's SPF project aims to empower South Asian governments, utilities, and industry partners to achieve energy decarbonization and grid transformation. Building on the success of the GridOptimal® Buildings Initiative, NBI will work with Indian partners to adapt and apply the GridOptimal metrics and tools in the region.

To tailor the metrics to the unique needs of South Asia, the adaptation will involve adjustments to metric categories to align with regional policies and utilities, and the inclusion of relevant Indian grid system load and emissions data. Clear and consistent metrics play a crucial role in enabling scalable, high-impact energy system transformation outcomes. The metrics provide a way to quantify the flexibility of a building in responding to grid demands through its design and operational measures.



Grid Optimal Metrics Development for South Asia



Grid and Buildings Data Library



Advance Utility Program Framework



Stakeholder Engagement

"The big-picture goal of this project is to help accelerate the decarbonization of the electricity grid and improve resilience through building-scale strategies such as targeted efficiency, demand flexibility, and distributed energy resources."

Alexi Miller
Acting Director,
Building Innovation, NBI



At the conclusion of the NBI-SPF project, the following outcomes are expected:

- New building-grid integration metrics, data libraries, and analysis results will be available in South Asia.
- Based on the newly developed metrics and analysis results, a new utility program framework will be created that can be implemented by participating and other utilities in the region.
- The building-grid integration metrics, data libraries, and program framework will enable leading utilities and policymakers in the region to accelerate the transformation and decarbonization of electricity grid by deploying buildings and associated behind-the-meter distributed energy resources as grid assets.
- The new program framework will be vetted with key industry stakeholders, including designers, to help maximize its uptake and success.
- The project will lay the groundwork for improved building-grid integration outcomes across South Asia, leading to a more reliable, safe, and affordable energy system low in carbon emissions.

ABOUT SAREP PARTNERSHIP FUND (SPF)

The SAREP Partnership Fund (SPF) supports market-based transformative solutions to enable the clean energy transition, particularly by engaging the private sector, local organizations, and new, underutilized partners. It also harnesses innovative business models, solutions, technologies, resources, experiences, and networks of relationships that exist across stakeholders. SPF aims to expand and maximize the impact of USAID resources innovatively and sustainably through activities designed, owned, and implemented by grantees under the SAREP Program. SAREP is USAID's bilateral initiative with the Government of India.

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