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ENERGY EFFICIENCY

BUILDINGS | BUILDING-GRID OPTIMIZATION |
COOLING | APPLIANCES | INDUSTRIES

Unlocking energy efficiency potential
for Net Zero Energy Transition



Strategy



Implementation



Monitoring



Financing



Capacity Building



CONTEXT

Energy Efficiency: The Cornerstone of Net Zero Transition

The electricity demand in the South Asia region has consistently grown by more than five percent annually, with projections suggesting it will more than double by 2050. Meeting this need will require transformation of the existing energy system. Considering energy efficiency is the “first fuel” for countries on their net zero journey, the “Global Renewables and Energy Efficiency Pledge” requires countries to “double the global average annual rate of energy efficiency improvements from around 2% to over 4% every year until 2030.” India is on the path to reduce emission intensity of its economy by 45% by 2030. As per IEA’s Sustainable Development Scenario, energy efficiency has the potential to abate 40% of the emissions by 2040.

KEY INTERVENTIONS

- Energy Efficient **building** design, construction and retrofit
- Scaling-up low carbon comfort **cooling** solutions
- Utility demand response & flexibility through **Grid-Interactive** net zero buildings
- Energy efficiency standards and labeling of **appliances**
- Benchmarking and sector-specific plan for energy efficiency in **industries**



COOLING



Heatwaves for countries in South Asia are 30 times more likely now, than 100 years ago. Over the next three decades the cooling demand is set to soar causing significant implications for electricity grids, GHG emissions, and urban heat islands. Energy efficient cooling will play an important role to achieve net zero emissions.

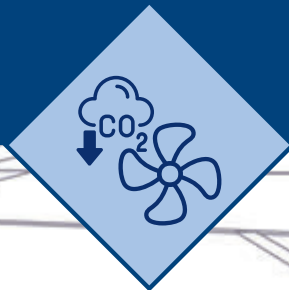
01



Scaling Adoption of Super-Efficient Cooling Solutions

- Super-efficient air-conditioner program with EESL
- Chiller Energy Efficiency program with EESL

02



Low Carbon Comfort Cooling Collective (LC4)

- Institutional framework & set-up
- Pilot Implementation
- Business models for replication
- Measurement & Verification
- Training & Consumer Engagement

03



Innovative Cooling Pilots

- District cooling at NTPC townships
- Hybrid cooling at Indian Railways

Energy Efficiency for Indian Railways' Buildings and Infrastructure

- Energy Efficiency Policy & Action Plan
- Retrofits for 2,500+ Buildings.
- SuperECBC Compliance for all New Buildings
- BEE Shunya / Shunya+ labeled buildings
- Procurement of Energy Efficient Appliances
- Integrated Energy Monitoring.

Scaling Adoption of Energy Efficiency with EESL.

- Vision and Strategy 2030 for unlocking energy efficiency potential
- Design and Implementation of programs for buildings and cities
- Innovative Business and Financing Models
- Urjaveer initiative to enhance community participation

BUILDINGS

04



06



05



07



Continued Support to High Energy Performance Buildings

- Nalanda University Net Zero Energy Campus
- TSREDCO Grid-Interactive Net Zero Energy Building

Knowledge Dissemination and Capacity Building

- Web portal on Net Zero Energy Buildings
- Knowledge webinars on NZEBs and buildings-grid integration - Zero-In Dialogues
- Study tours

Energy Efficiency for NTPCs' Townships & Offices

- Net Zero Energy transformation plan for NTPC townships and offices
- Facilitating Net Zero township certification

Integrating Energy Efficiency in Bhutan and Maldives Buildings

- Energy Efficiency Building Code for Bhutan
- Energy Efficiency Retrofits of Existing Buildings in Bhutan
- Energy Efficiency guidelines for Existing Schools in Maldives



09

08

10



Building-Grid Optimization

- Development of GridOptimal Metrics for utilities in India
- Business models for demand response and flexibility services

BUILDING - GRID OPTIMIZATION

Buildings account for ~40% of energy-related emissions. As per IEA, meeting the goals of the Paris Agreement will require buildings to improve energy intensity by 30-50% per sqm. Integrating energy efficiency and enabling demand flexibility for buildings is key for decarbonization.

INDUSTRY & APPLIANCES

Appliance Standards and Labeling Program for Bhutan and Maldives

- Development and Roll-out of standards and labeling program of energy efficient appliances for Government of Bhutan
- Strengthening and Expanding Maldives Standard and Labeling Program for Maldives

Energy Efficiency for Industries of Bangladesh

- Institutional Framework
- Benchmark specific-energy consumption
- Sector-specific implementation plan
- National Energy Efficiency and Conservation Data Repository
- Capacity Building



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KEY ACHIEVEMENTS

Indian Railways
EE Policy
& Action Plan
adopted

Tender for
EE Audit of
>1150
IR Buildings

SuperECBC in
04
New Station
Tenders

Regional
workshop on
Green Public
Procurement
conducted

Tenders for
20,000
Super-efficient
AC

Net Zero
Certification for
64
Indian Railway
Buildings

900+
Indian Railway Officials
trained

LC⁴
launched

” Energy Efficiency Services Limited (EESL) is at the forefront of energy efficiency interventions in India. I am delighted to announce that the new strategy of EESL is completely aligned with the visionary goal of the Government of India—to transform India into a net-zero country by 2070.



MoU between USAID and EESL signed at the Industry Consultation on “Super-Efficient Cooling: Enabling India’s Net Zero Transition”



Nalanda University Net Zero Energy Campus

Partners

- Indian Railways (IR)
- Energy Efficiency Services Limited (EESL)
- NTPC Ltd.
- National Smart Grid Mission (NSGM)
- Nalanda University
- Telangana State Renewable Energy Development Corporation Limited (TSREDCO)
- Dakshin Haryana BijliVitrان Nigam (DHBVN)
- Madhya Pradesh Poorv Kshetra VidyutVitaran Company Ltd (MPPKVCL)
- Bhutan Department of Energy
- Bangladesh Sustainable and Renewable Energy Development Authority (SREDA)
- Maldives Ministry of Climate Change, Environment & Energy (MCCEE)

About SAREP

The South Asia Regional Energy Partnership (SAREP), a flagship program to advance objectives of the U.S. Government's Clean Asia Enhancing Development and Growth through Energy (Clean EDGE), is a five-year initiative (2021-26) that aims to improve access to affordable, secure, reliable, and sustainable energy across six South Asian countries—Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka—in line with these countries' climate and clean energy priorities.



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