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## INTERNATIONAL CONFERENCE

# INCLUSIVE ENERGY TRANSITIONS IN SOUTHEAST ASIA AND BEYOND

### Cross-Regional Learning from South Asia

**10–12 February 2026 • Jakarta, Indonesia**

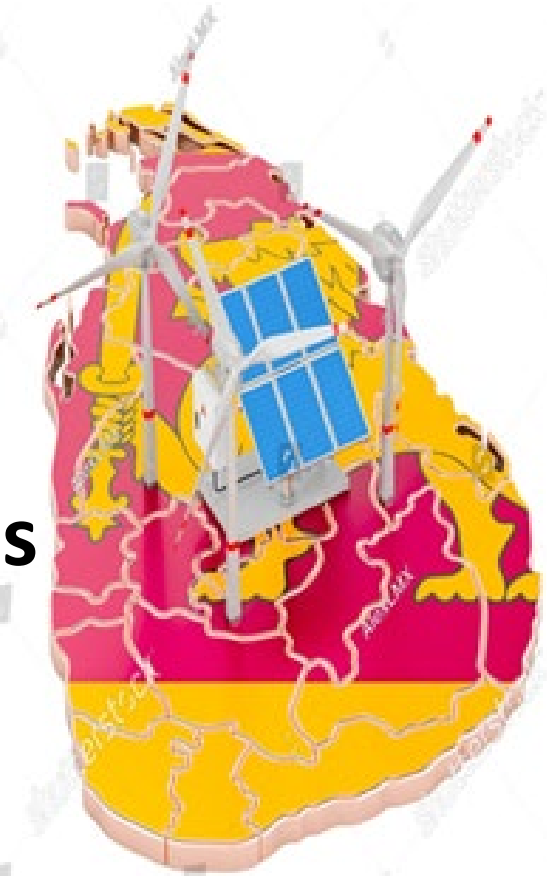


In collaboration with UNOPS, The University of Melbourne, NOSSAL INSTITUTE

Certified by IEEE SA STANDARDS ASSOCIATION, IEEE SSIT SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

# AI Fostering Prosumer Participation in Sri Lanka

- Prosumers Participation in the Sri Lankan Context
- Understanding the Role of Artificial Intelligence (AI)
- Sri Lanka Micro AI initiatives & Micro Grid Concept
- Challenges and Opportunities in AI initiatives



# Prosumer Participation in Sri Lankan Context

- Prosumers generate & consume electricity and export the rest to the Grid
- Roof top Solar  Account Categories

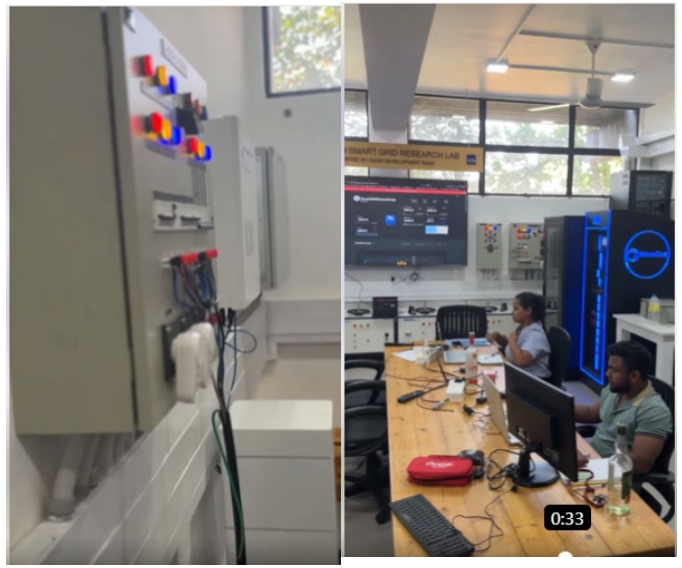
| | | |
|---|---|---|
| Net Metering | Self-consumption users | Energy credits, no cash |
| Net Accounting | Moderate surplus | Paid for excess energy |
| Net Plus | Full export | All generation sold |
| Net Plus Plus | Large rooftops / investors | Beyond contract demand |

- Active participation includes energy export, demand response, and optimized usage.  (BES, EVs)

# Why AI is Needed

- Variable solar & Wind generation
- Peak demand challenges
- Grid Congestion, Reverse Power Flow & Voltage issues
- Real-Time Grid Stability Management
- Efficient Use of Energy Storage Systems
- Integration of Distributed Energy Resources

# Sri Lanka's AI & Microgrid Initiatives




## AI-Intergrartion on NCRE Frame Work on Utility

CEBAssist App, developed by CEB Engineers, is used to integrate the NCRE generation in to Daily Load Forecasting in CEB

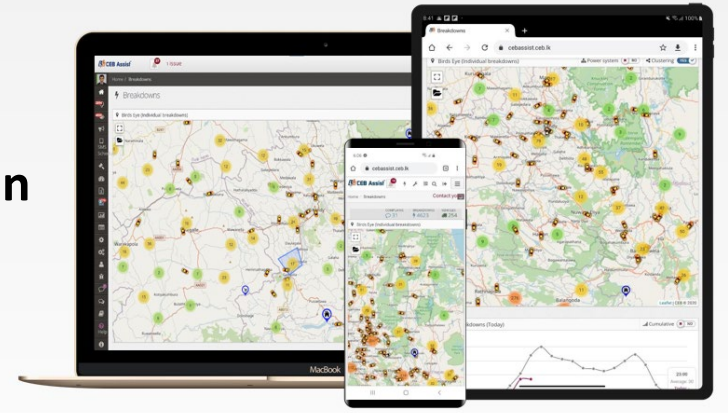
## AI-Enabled Microgrid Projects

AI for renewable microgrid forecasting & control aims to integrate distributed energy resources more reliably and enable consumer participation

Example
Micro Grid projects at Moratuwa/ Rajarata Universities
Combines solar, wind, and battery storage with AI forecasting & optimization — reducing fossil fuel dependency.

## AR-Mini AI Mini-Grids (Rural)

AI optimizes demand/supply and increases renewable use, strengthening community energy access.



CEB Assist Solutions

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இலங்கை மின்சார சபை
CEYLON ELECTRICITY BOARD

# Challenges & Future Directions

## Key Challenges

- Regulatory & grid integration hurdles
- Costs & equity in AI access/utilities
- Limited large-scale AI adoption so far nationally

## Future Opportunities

- AI-powered Virtual Power Plants (VPPs)
- Peer-to-peer energy trading among prosumers
- Policy support to scale prosumer programs

## Conclusion

AI is a transformative tool for enabling prosumer participation in Sri Lanka — boosting renewable integration, empowering citizens, and supporting a sustainable energy future.

# Ongoing Initiatives

1. **AI Micro grid Pilot Project in Sri Lanka**

   AI based framework to manage rooftop solar in the low- voltage network. To enhance hosting capacity, involving residents in the planning, operations and benefit sharing and strengthening the local energy resilience during grid outages.

   - AI framework for microgrids- via smart system architecture for real time monitoring, optimizing generation, dispatch and demand response.
   - AI based network management – communication between inverters, smart meters and utilize the 400kWh BESS.
   - Lifeline power market.

2. **Virtual Net Metering Project**

   Utility-driven model where 30-35 MWp rooftop solar PV is installed on public buildings, generating excess energy credited to a "Social Compensation Electricity Pool."

   - Allows virtual offsetting: Energy generated remotely reduces bills for non-solar users (e.g., SMEs without roofs), unlike traditional net metering tied to on-site generation
   - Upgrades/digitalizes CEB/LECO distribution networks.

# THANK YOU!

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