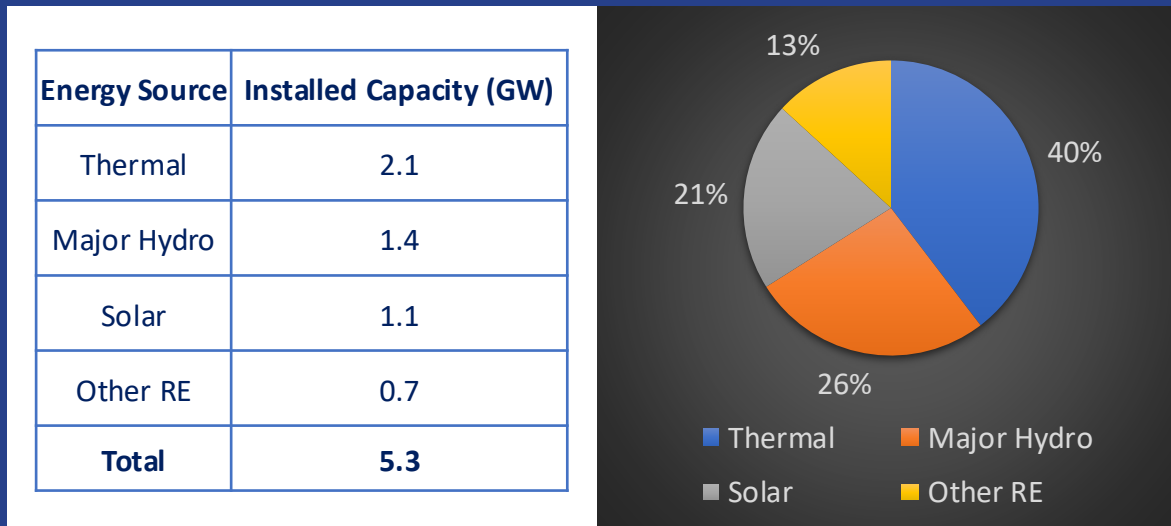


OFF-GRID POWER PROJECTS SRI LANKA

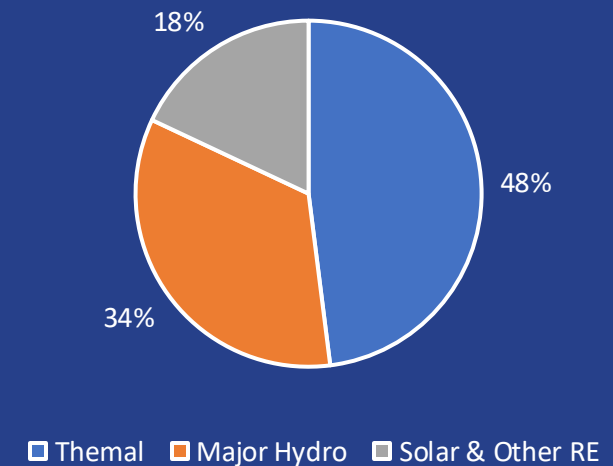


Overview of Sri Lanka's Energy Landscape

- Sri Lanka's energy mix includes approximately **60% renewable energy sources**, mainly hydro, solar and wind power.



- Contribution of each sources to the national demand



- Government's objective is to **achieve 70%** of power generation from renewable energy by 2030

- The **national electrification rate is about 99%**, but remote and rural areas still face challenges in reliable energy access.

Importance of Off-Grid Solutions

- ❑ Provide uninterrupted, high-quality power for power-sensitive industries, such as the glass industry.
- ❑ Provide energy to isolated communities where grid extension is not feasible.
- ❑ Increased resilience to natural disasters, reduction in reliance on imported fossil fuels, and promotion of sustainable development.



Off-Grid Projects in Sri Lanka

Objectives

Enhance energy access and reliability, reduce greenhouse gas emissions, and support local economic development.



Major Off-Grid Projects

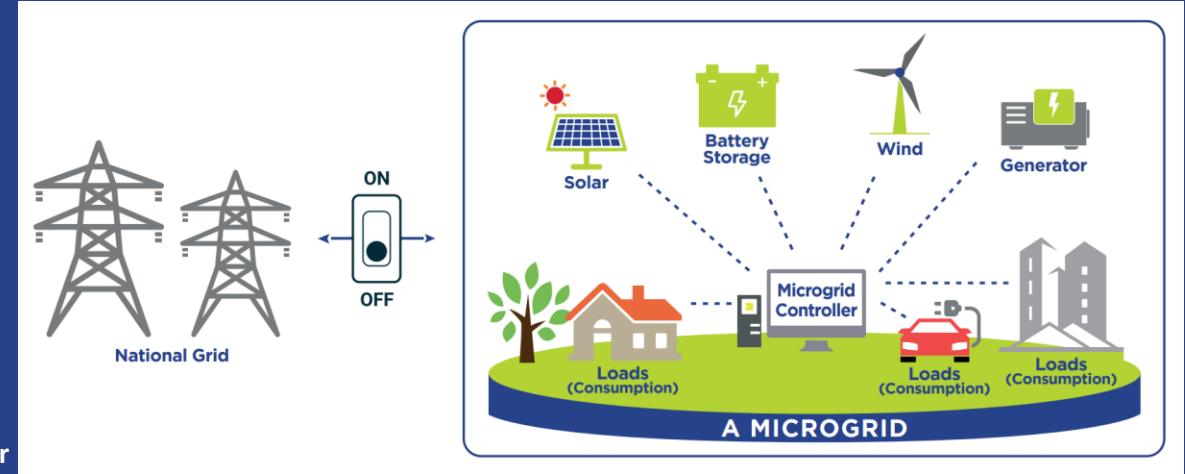
- Microgrid project at University of Moratuwa – Completed**
- Hybrid power projects on three islands off the Jaffna peninsula - Ongoing**
- Projects focusing on solar home systems and community-based solar projects**

Major Projects

Microgrid project at University of Moratuwa

Sri Lanka's first grid-tied renewable energy microgrid project

- Client : Lanka Electricity Company
- Funded by : ADB
- Designed & Installed by : Dimo & Dhybrid GmbH
- System specifications : Solar – 375kW, Battery System - 400 kWh, Generator - 700kVA
- Completion : 2022
- Results and Impact : Reduced energy costs for the university, improved reliability of power supply, educational opportunities for students.



Major Projects

Microgrid Project at University of Moratuwa



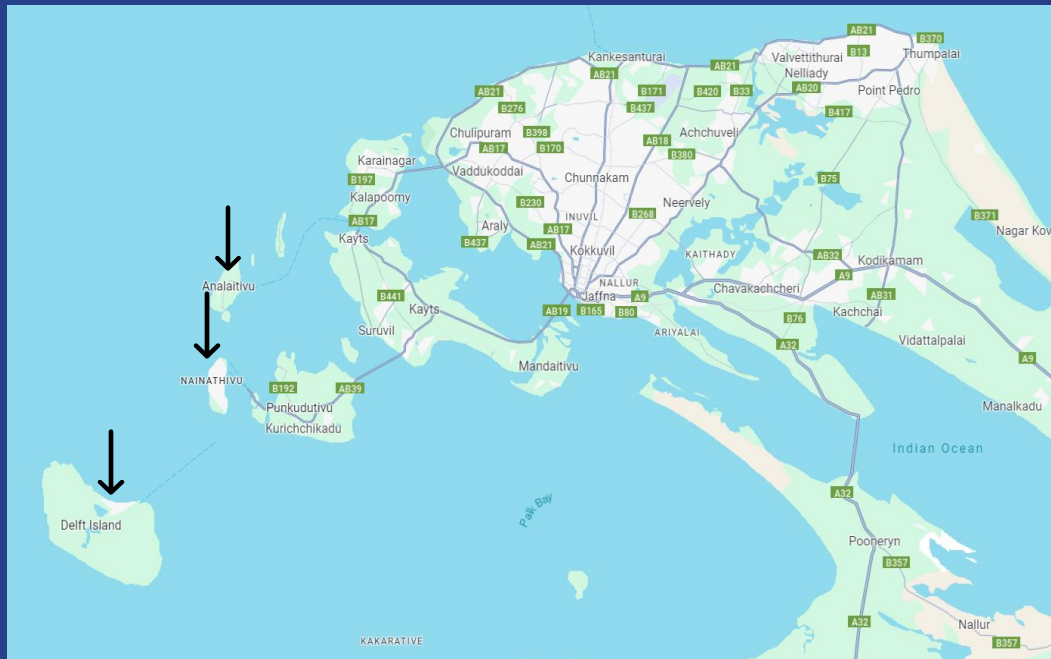
Major Projects

Hybrid power projects on three islands off the Jaffna peninsula - Ongoing

- **Funded by** : Government of India (USD 12Mn)
- **Designed & Installed by** : U-Solar Clean Energy Solutions
- **System specifications** :

Island	Diesel Generators	PV Generation	Wind Generation	Battery Storage
Nainativu	300kW+500kW	700kW	200kW	1000kWh (550kW)
Analativu	150kW+300kW	300kW	80kW	550kWh(275kW)
Delft	300kW+500kW	700kW	250kW	800kWh(650kW)

- **Results and Impact** : Electrify isolated islands, improved reliability of power supply



Projects focusing on solar home systems and community-based solar projects

Thousands of small-scale off-grid systems have been installed across the country



Challenges Faced

Financial Challenges

- High initial costs of off-grid technologies, need for subsidies and financial incentives to make projects viable.

Technical Challenges

- Integration with Existing Infrastructure
- Technical Expertise



Future Plans & Opportunities Cont..

Long term generation expansion plan of CEB (2023-2042)

LONG TERM GENERATION EXPANSION PLAN 2023-2042

Ceylon Electricity Board



ACHIEVING 70% SHARE FROM RENEWABLE ENERGY



Approximately **500 MW** of Solar PV and **150 MW** of Wind capacity additions are expected annually.

By 2042, the following cumulative capacities are proposed:

Solar PV - **10,739 MW**
Wind - **3,573 MW**
Hydro - **2,271 MW**
Biomass - **380 MW**

ENERGY STORAGE AS A KEY ENABLER



1,400 MW Pumped Hydro Storage development by 2032

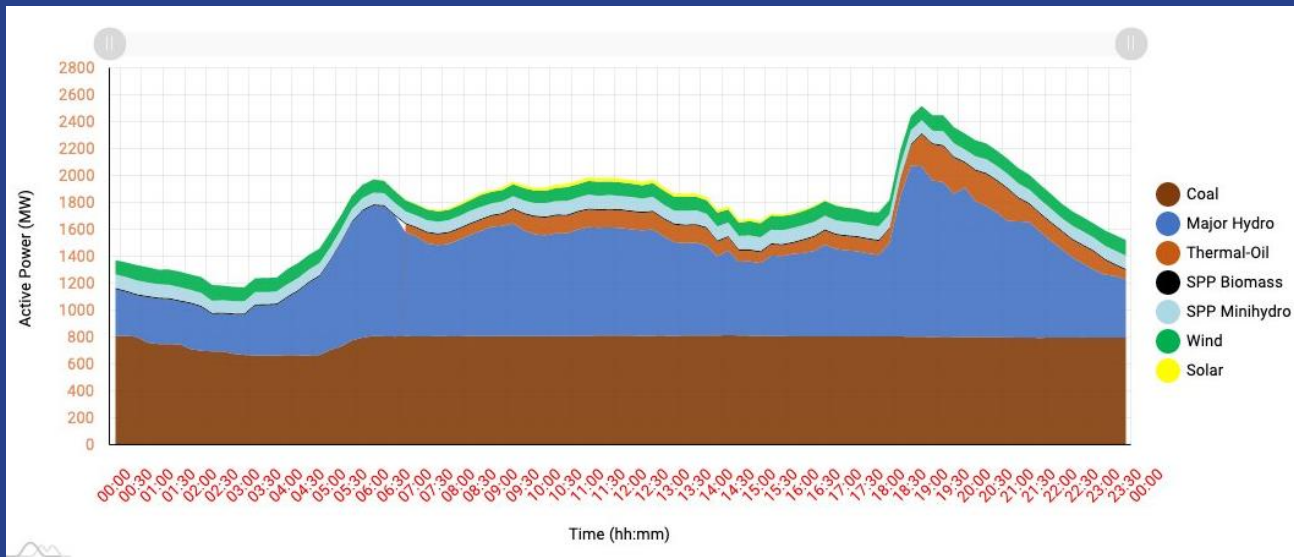
3,365 MW Battery Energy Storage development by 2042

To be used for energy shifting, frequency regulation and other ancillary services.

Future Plans & Opportunities Cont..

Demand Shifting

Sri Lanka faces its highest energy demands in the evening when solar power, a major renewable source, isn't available. To meet these peak demands, utility companies currently rely on costly fossil fuel power plants. Collaborating internationally, systems can be developed to store solar energy generated during the day when it's cheaper and use it during peak times in the evening. This approach would significantly reduce the country's fuel costs and environmental impact. International partnerships can provide the funding, technology, and expertise needed to implement these solutions, making Sri Lanka's energy supply more reliable and sustainable.



Future Plans & Opportunities

Investment opportunities introduced by the government for grid connected power plants

The government has announced a Feed-In Tariff for ground-mounted solar energy, accompanied by a transparent process for obtaining project approvals. Both local and foreign investors can enter into a 20-year agreement with the utility company.

Current Feed-In Tariff Rates

Tier 1 : Year 1-8	Tier 2 : Year 9-15	Tier 3 : Year 16-20
€ 0.11/kWh	€ 0.064/kWh	€ 0.049/kWh

Estimated Investment for a 5MWAC Ground Mounted Solar Power Plant - € 3Mn



Q&A

THANK YOU