

QUARTER 01
2025

RENEWABLE GENERATION REPORT



Public Utilities Commission of Sri Lanka

Jan 2025 - Mar 2025

Introduction:

This report offers comprehensive insights into the quarterly performance of renewable energy generation in Sri Lanka. The data and analysis presented herein aim to guide investment decisions within the country's electricity sector. The main focus is on Non-Conventional Renewable Energy (NCRE) sources, including Mini Hydro, Wind, Solar PV, Biomass, and Municipal Solid Waste.

Most solar PV systems tend to be either utility-scale installations with a capacity usually above 1 megawatt (MW) or rooftop PV typically below 1 MW. Residences may be limited to small systems usually up to 20 kilowatts (kW), while larger public, commercial, and industrial buildings may have systems with a capacity as large as 1 MW or even more. Land based wind power projects have been implemented so far while offshore wind projects are considered in the pipeline.

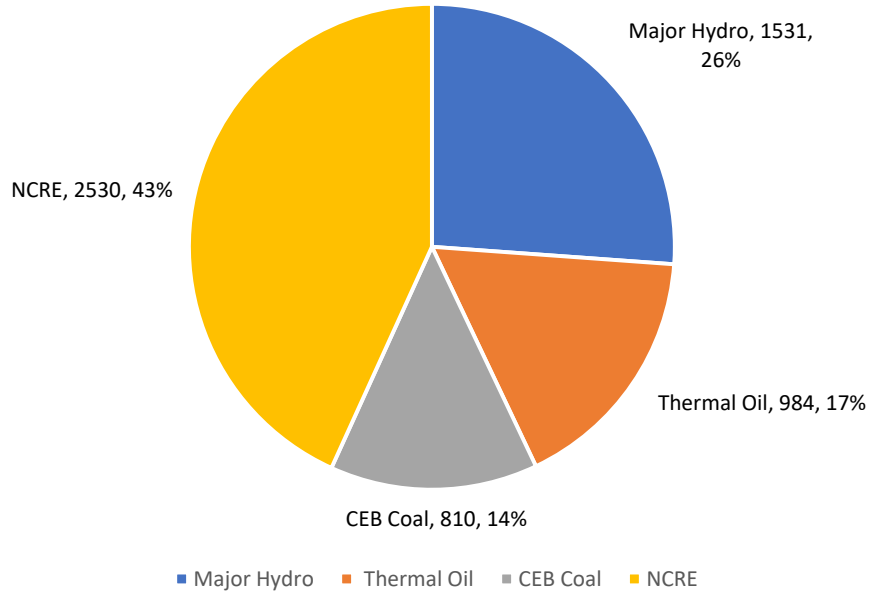
In 2019, the Minister of Power, Energy, and Business Development published the National Energy Policy & Strategies of Sri Lanka, prepared after reviewing and revising the National Energy Policy and Strategies of Sri Lanka published in the Gazette Extraordinary No. 1553/10 of 10.06.2008. The primary objective of the energy policy is to ensure energy security through supplies that are cleaner, secure, economical, and reliable, and to provide convenient, affordable energy services to support the socially equitable development of Sri Lanka.

Policy guidelines such as the 'General Policy Guidelines on the Electricity Industry' as required under Sri Lanka Electricity Act No. 20 of 2009 statutorily required to be issued for each sub-sector, are expected to be prepared and issued, based on this national energy policy.

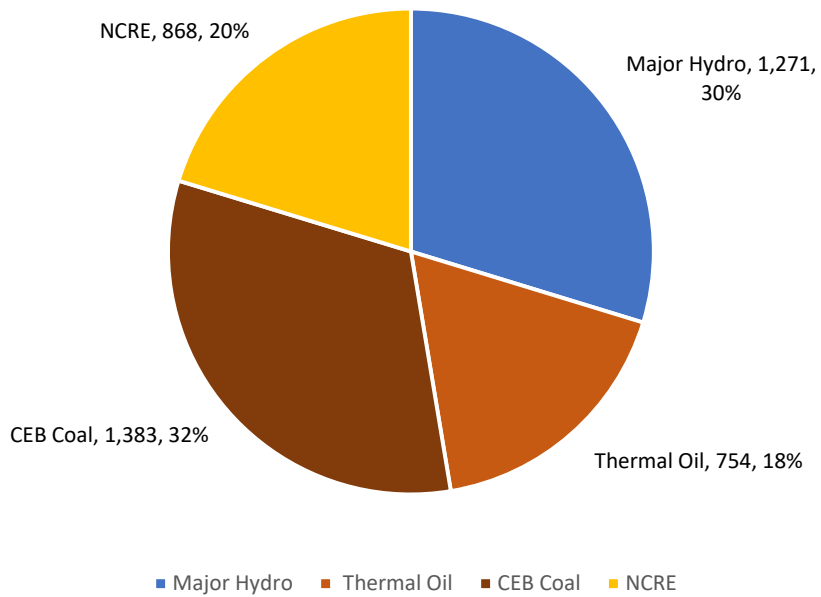
Sri Lanka's power sector development is carried out based on the Long-term generation expansion plan (LTGEP) prepared by the Transmission Licensee (ie. Ceylon Electricity Board (CEB)) and approved by the Public Utilities Commission of Sri Lanka (PUCSL). LTGEP is a rolling plan prepared in every two years incorporating the changes introduced by the varying economic and technical parameters used in the planning process.

**Target: To increase the renewable energy (RE) share
from 50% to 70% by 2030.**

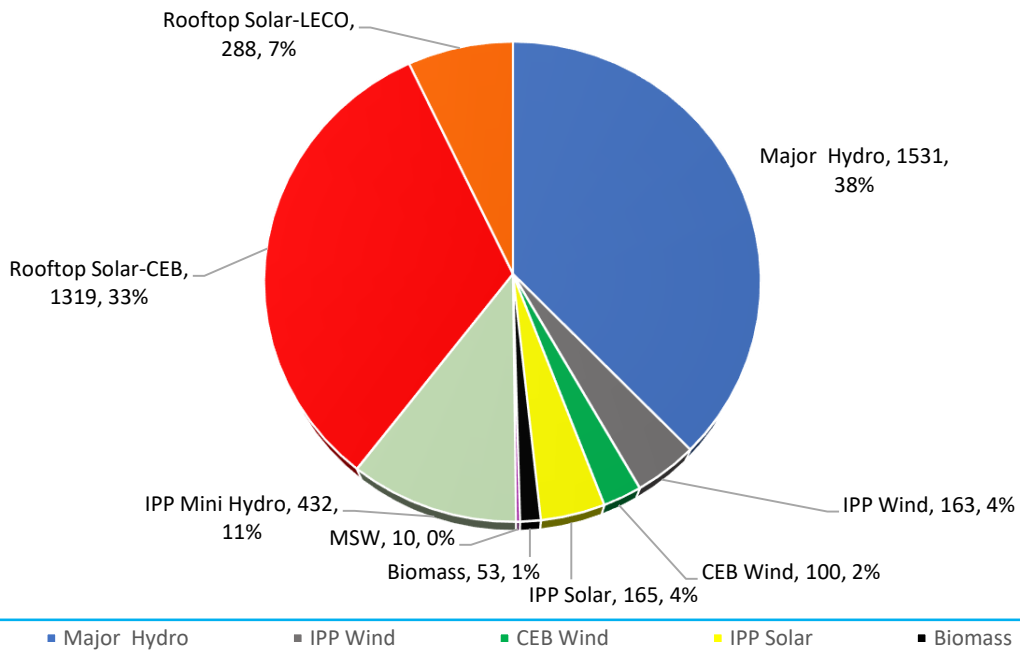
Installed Capacity (MW) by Source - as at 31.03.2025



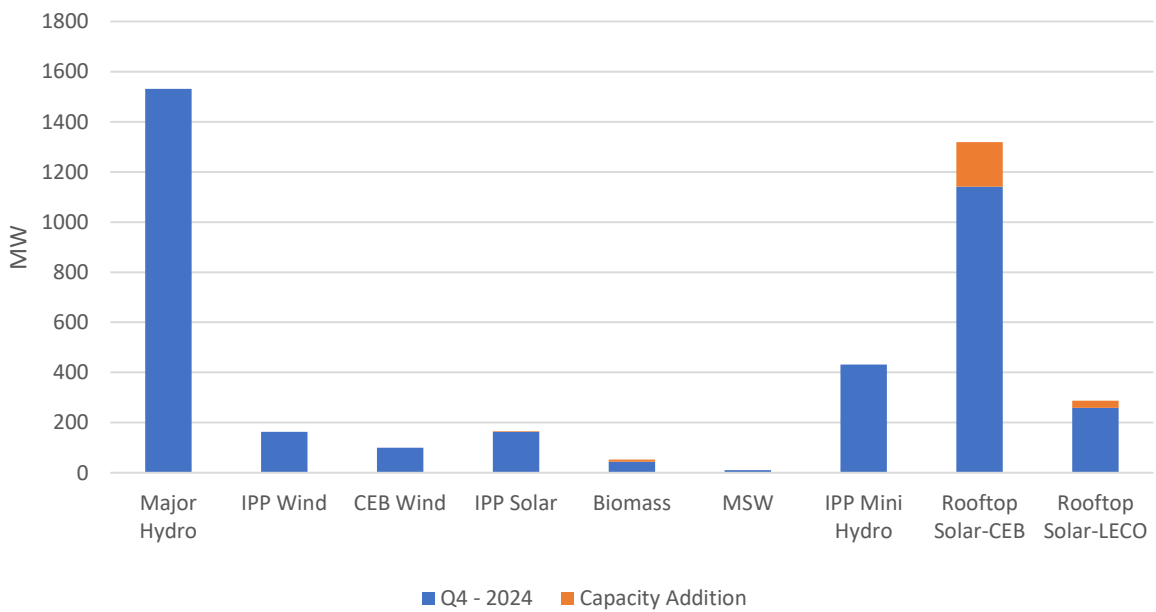
Generation by Source (GWh) - 1st Quarter 2025



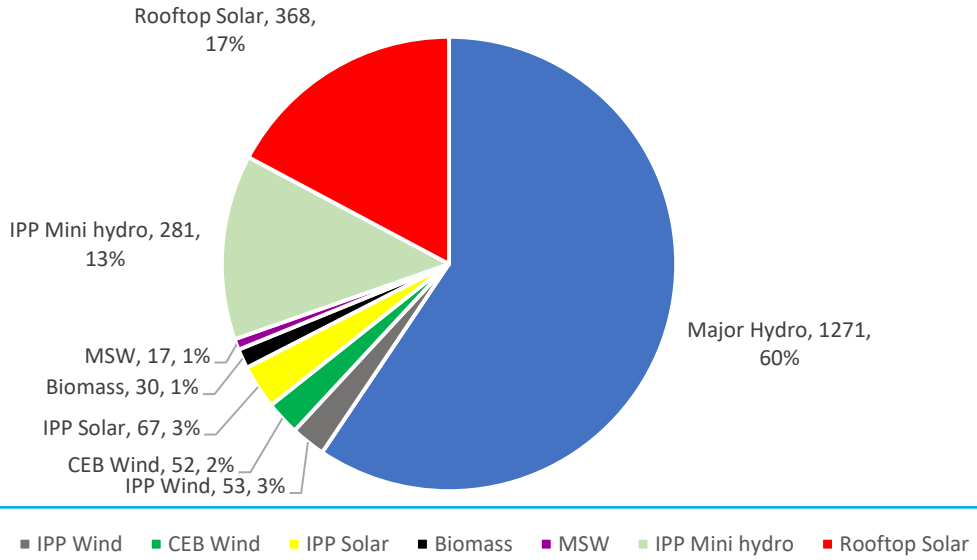
Renewable Energy Capacity (MW) as at 31.03.2025



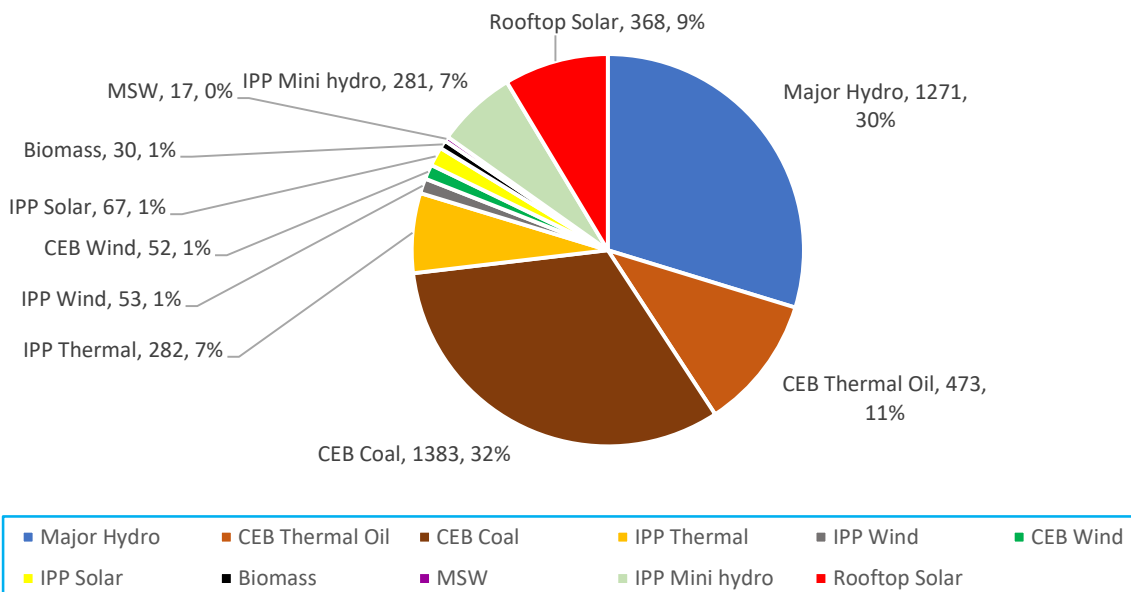
Capacity Addition by compared to 4th Quarter of 2024



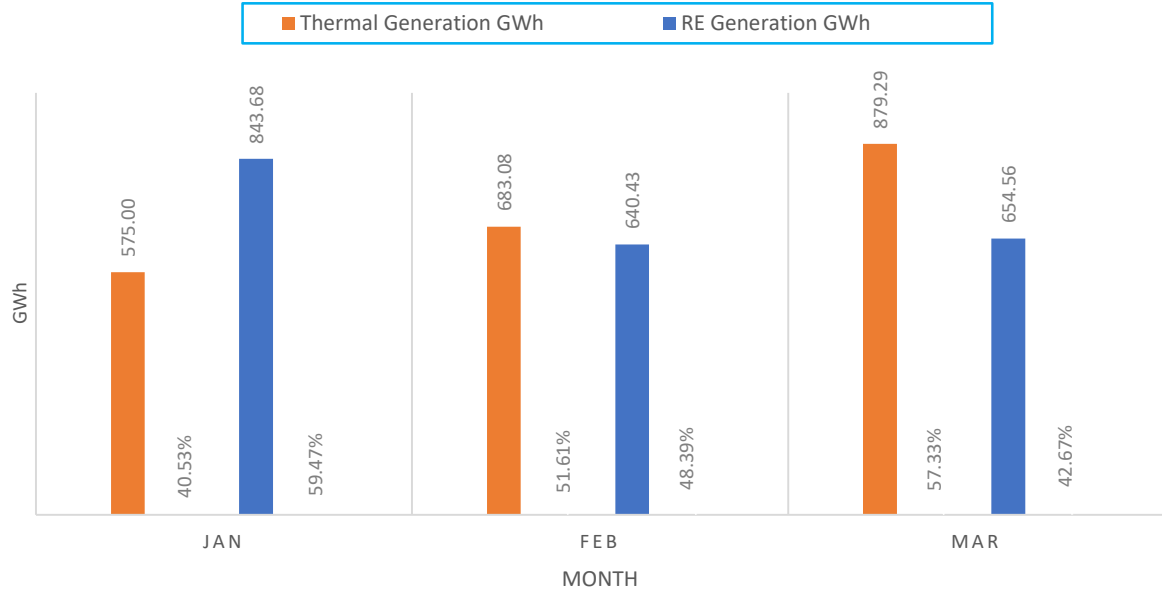
Annual Cumulative Renewable Generation (GWh) 01.01.2025 to 31.03.2025



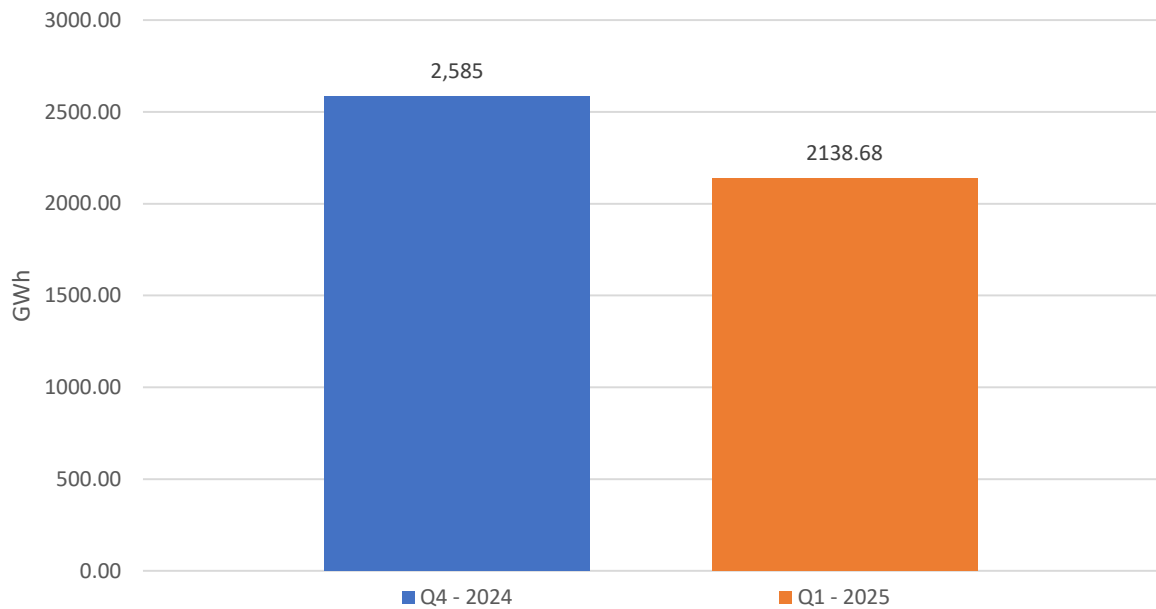
Generation Mix (GWh)- 1st Quarter 2025



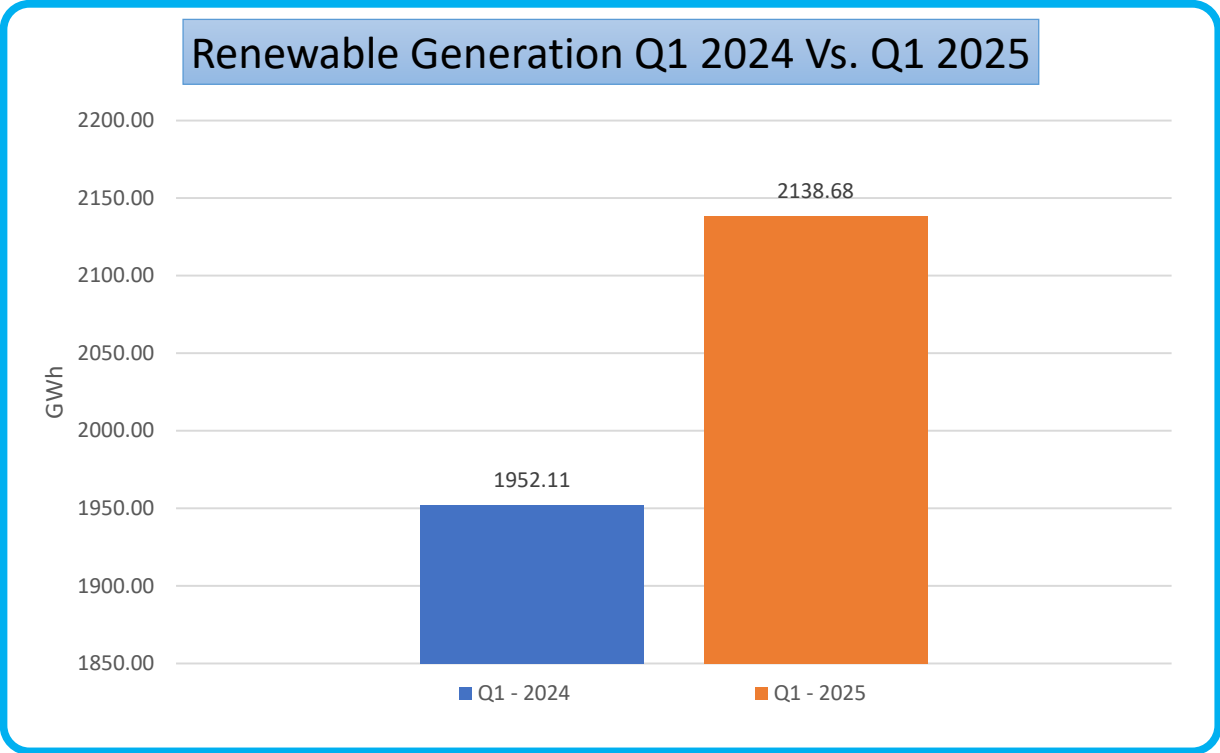
MONTHLY GENERATION COMPARISON -2025



Renewable Generation Q4 2024 Vs. Q1 2025



RE Generation in Q1 - 2025 decreased by 17.27% as compared to Q4 – 2024

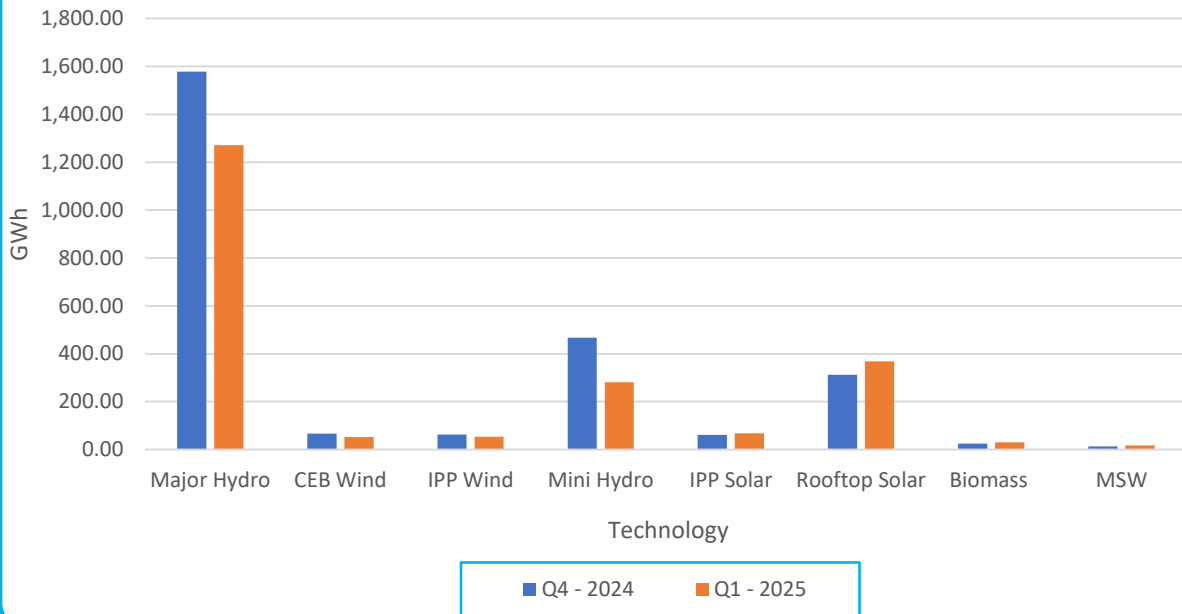


RE Generation in Q1 - 2025 increased by 9.56% as compared to Q1 – 2024

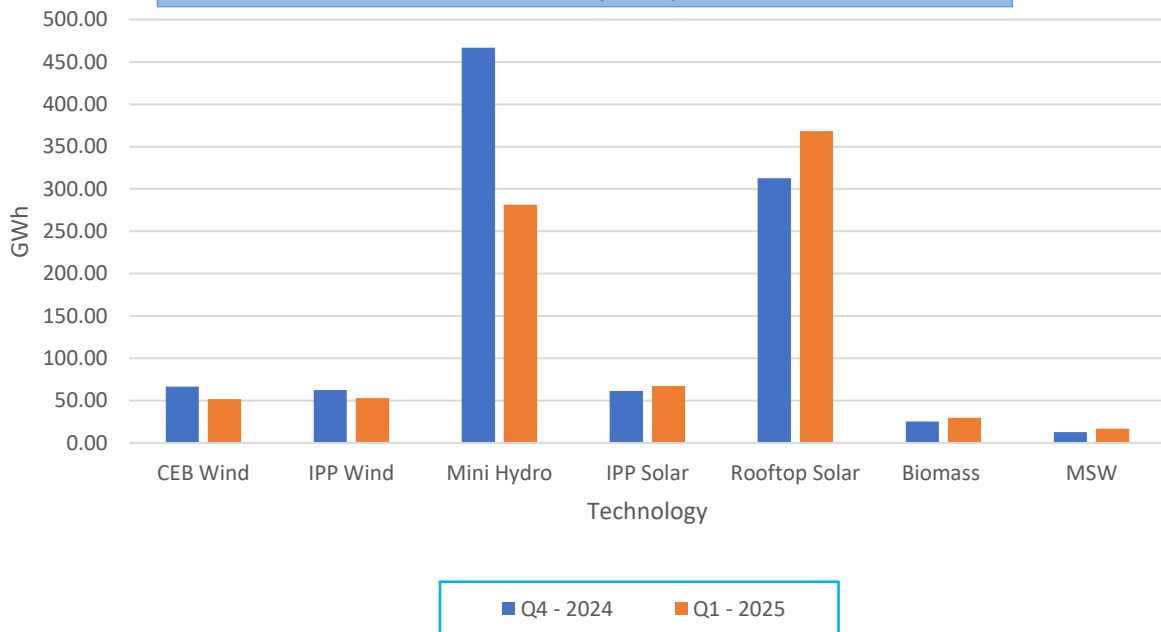
Renewable Generation (GWh) – 4th Quarter 2024 Vs 1st Quarter 2025

Technology	Q4 - 2024	Q1 - 2025	Deviation (%)
Major Hydro	1,577.69	1,271.02	-19%
CEB Wind	66.45	51.82	-22%
IPP Wind	62.32	52.80	-15%
Mini Hydro	466.79	281.49	-40%
IPP Solar	61.48	67.16	9%
Rooftop Solar	312.61	368.11	18%
Biomass	25.28	29.63	17%
MSW	12.85	16.67	30%

Comparison of RE Generation between Q4 2024 and Q1 2025
(with Major Hydro)



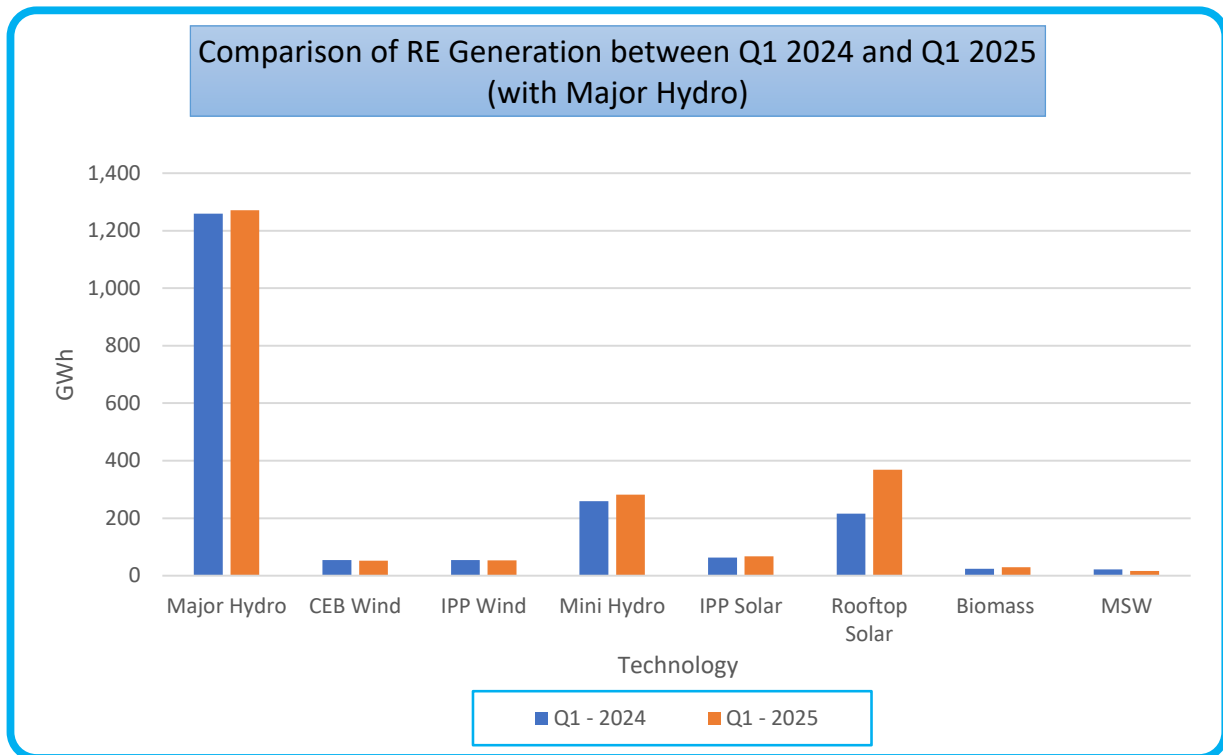
Comparison of RE Generation between Q4 2024 and Q1 2025
(without Major Hydro)



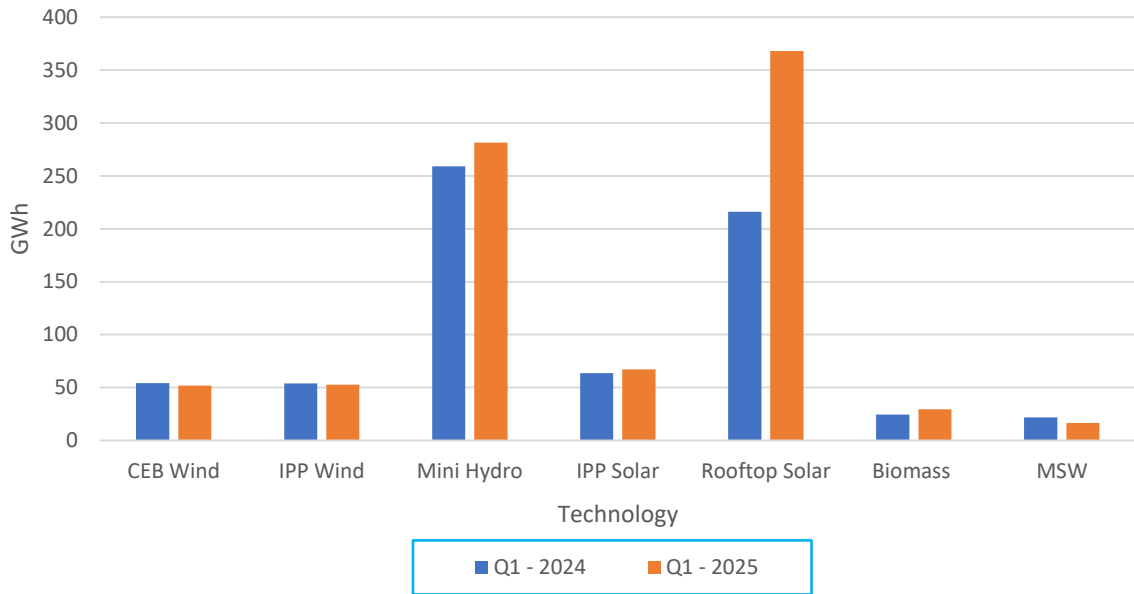
Renewable Generation Comparison

Renewable Generation (GWh) – 1st Quarter 2024 vs 1st Quarter 2025

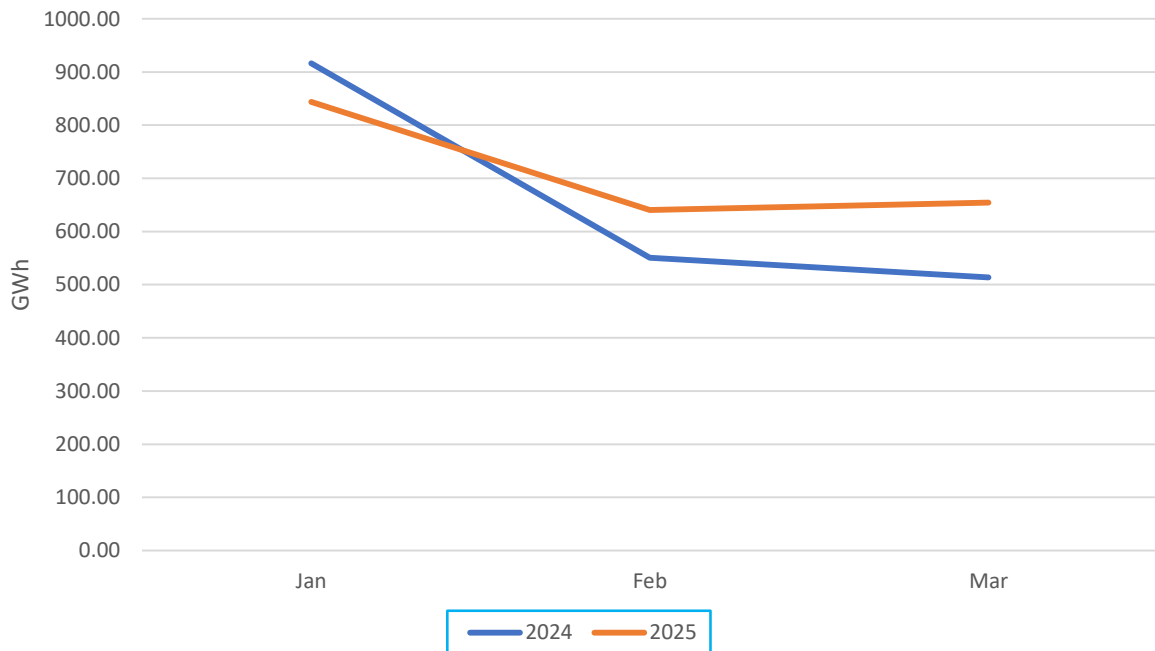
Technology	Q1 - 2024	Q1 - 2025	Deviation
Major Hydro	1,259	1,271	1%
CEB Wind	54	52	-5%
IPP Wind	54	53	-2%
Mini Hydro	259	281	9%
IPP Solar	64	67	6%
Rooftop Solar	216	368	70%
Biomass	24	30	22%
MSW	22	17	-24%



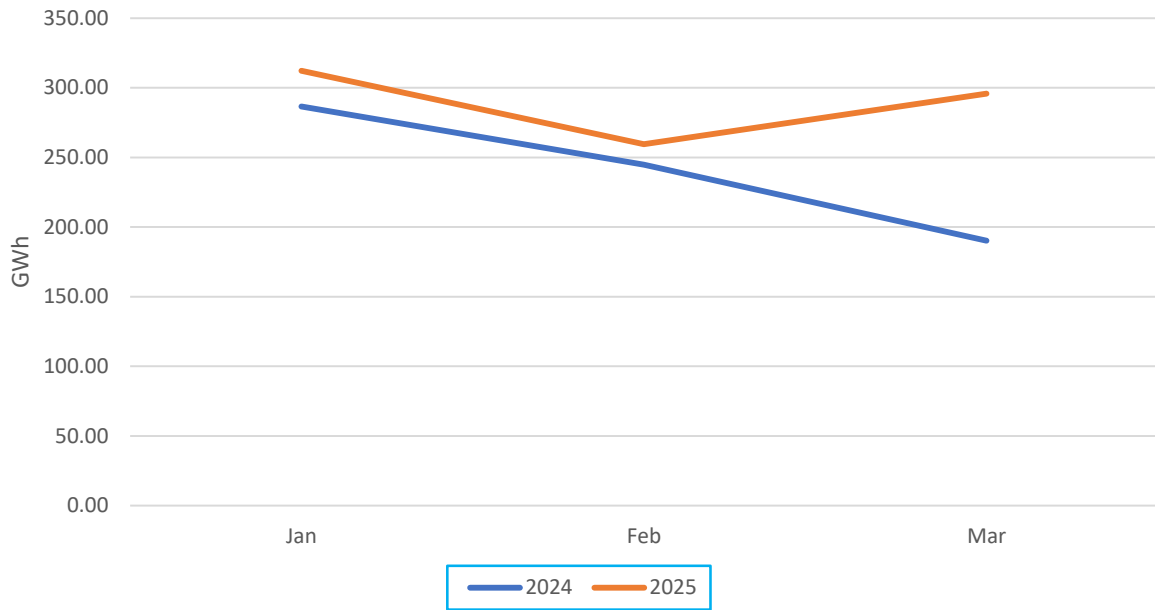
Comparison of RE Generation between Q1 2024 and Q1 2025 (without Major Hydro)



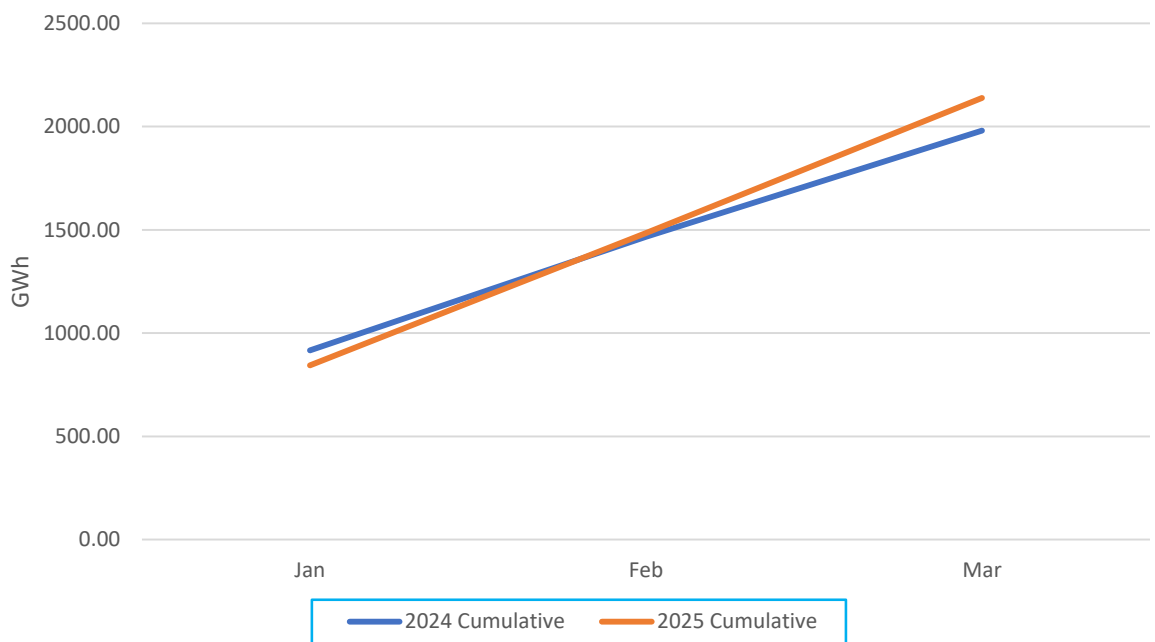
Monthly Renewable Energy Generation - 2024 vs 2025



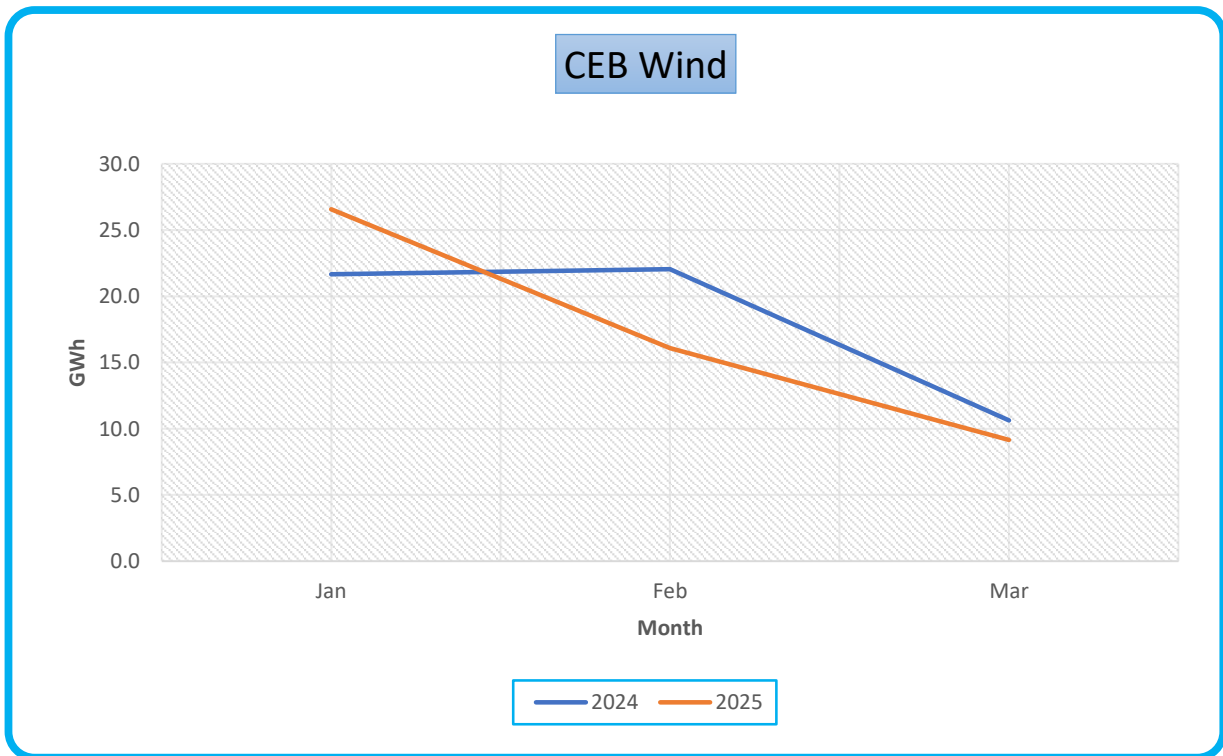
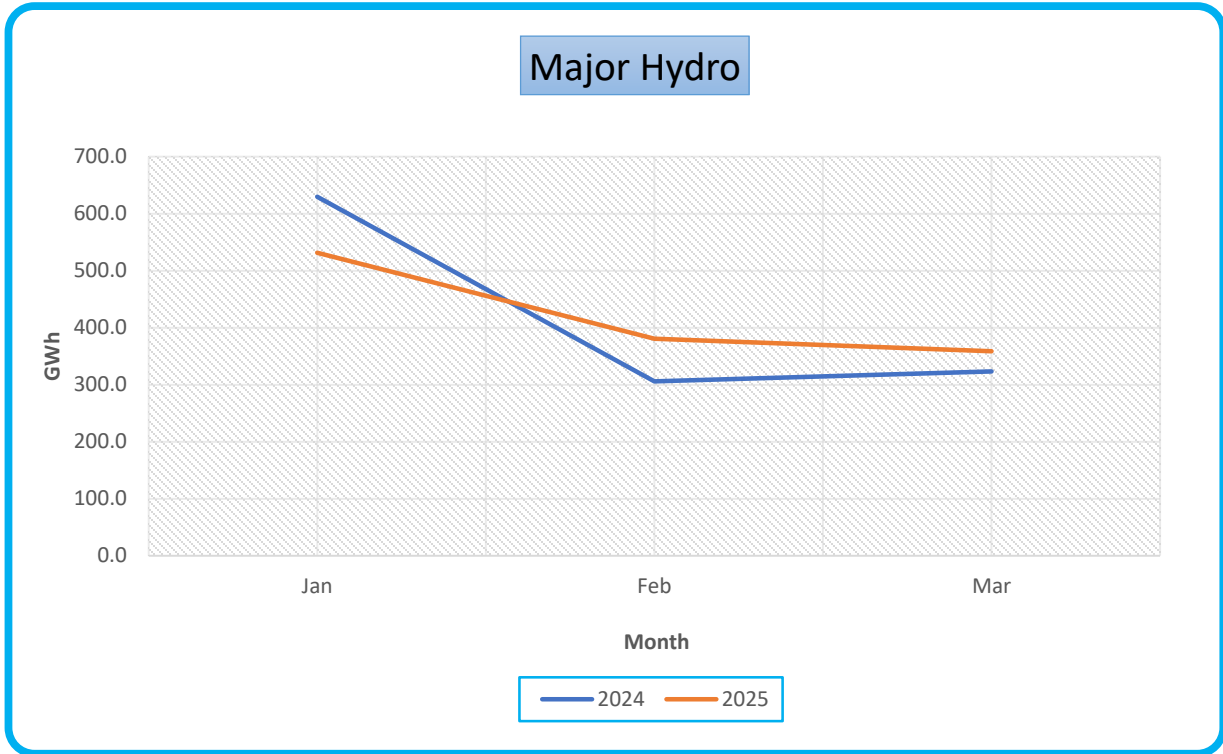
Monthly Renewable Energy Generation (without Major Hydro) - 2024 vs 2025



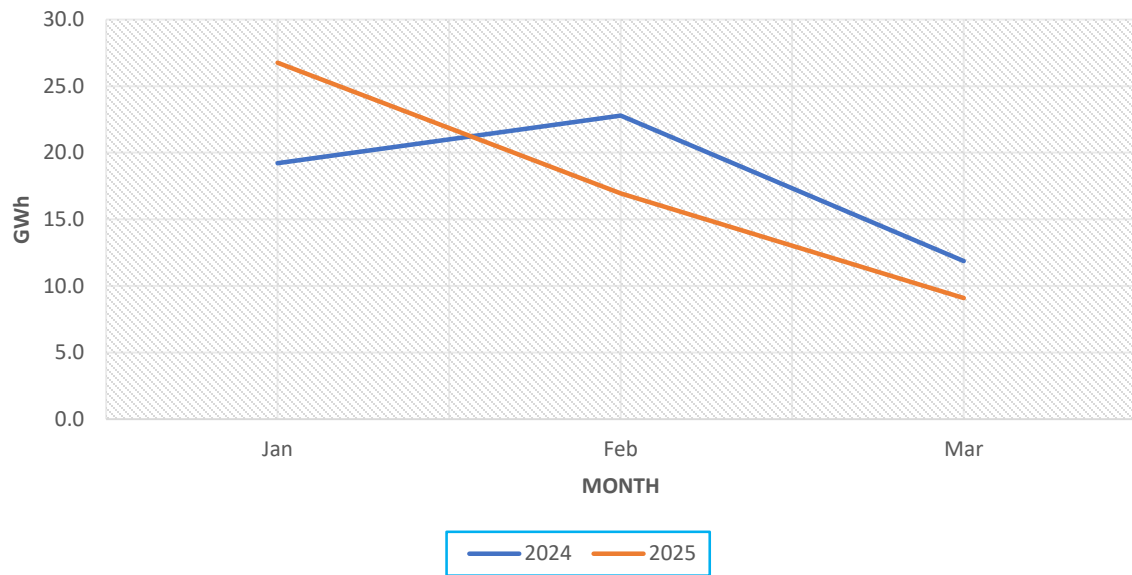
Monthly Cumulative RE Generation - 2024 vs 2025



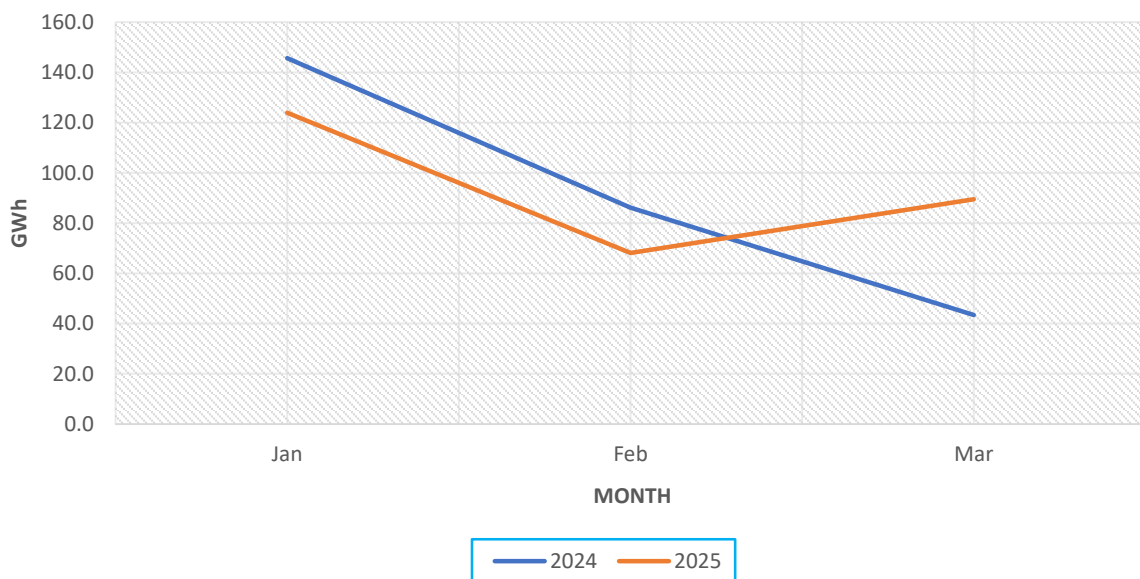
Monthly Variation of RE Generation - 2023 vs 2024 – Technology Wise



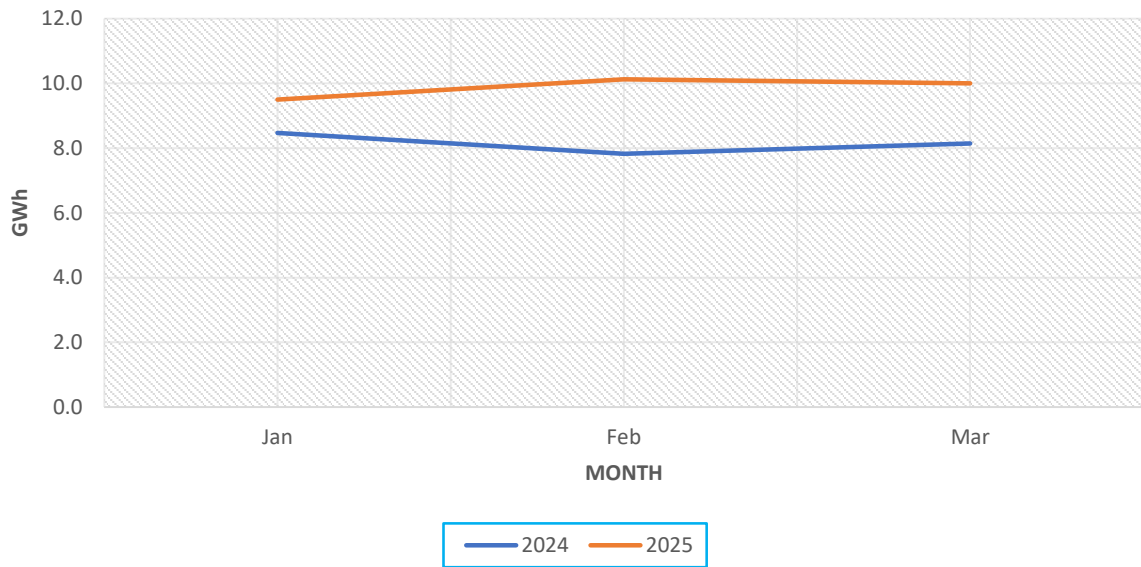
IPP Wind



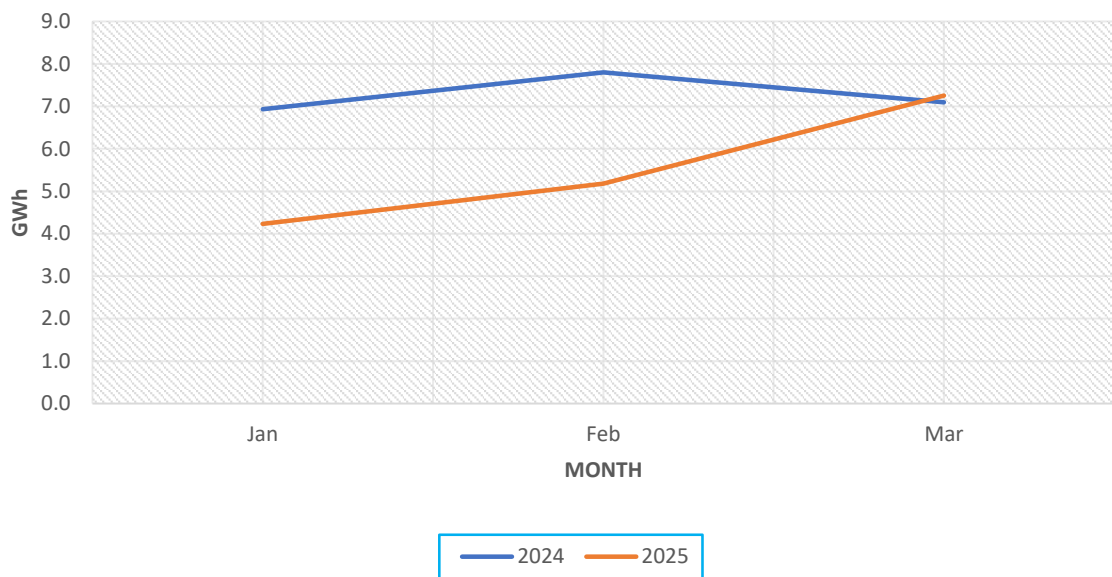
Mini Hydro



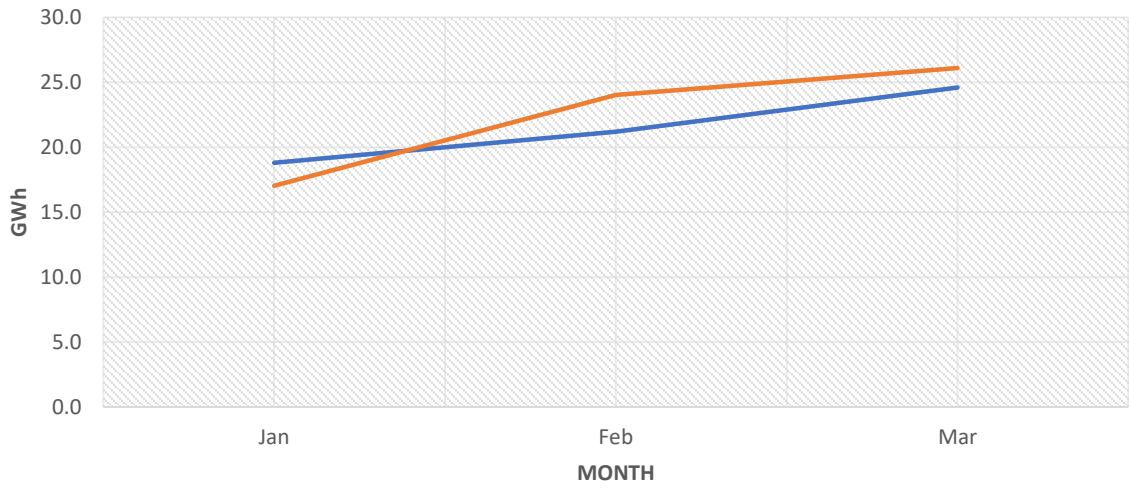
Biomass



MSW

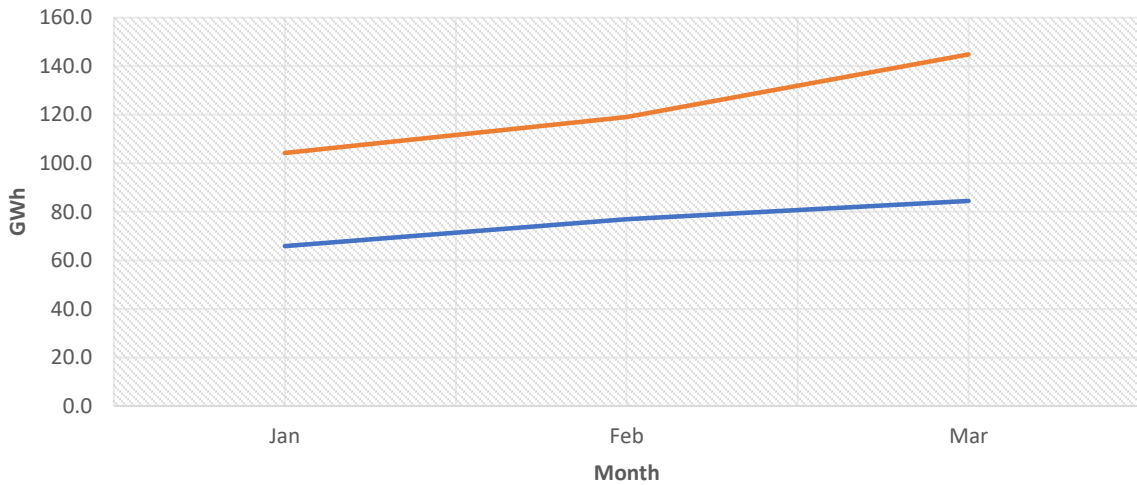


IPP Solar



— 2024 — 2025

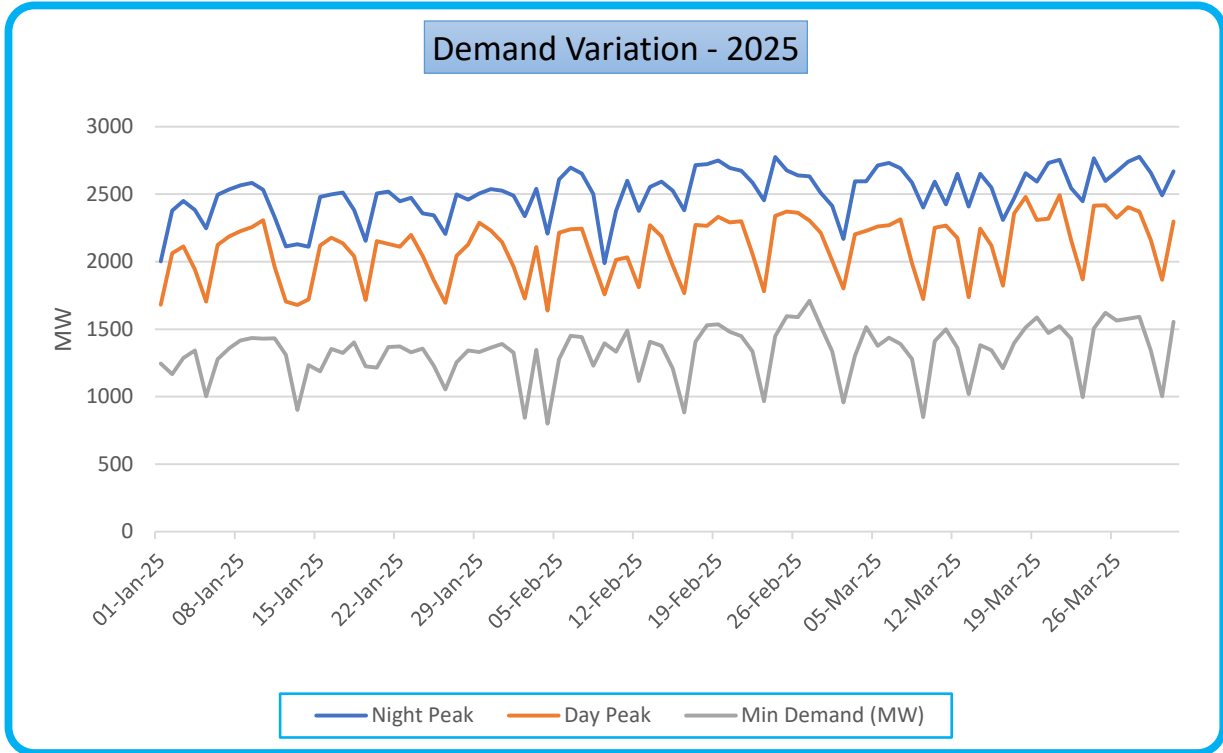
Rooftop Solar PV



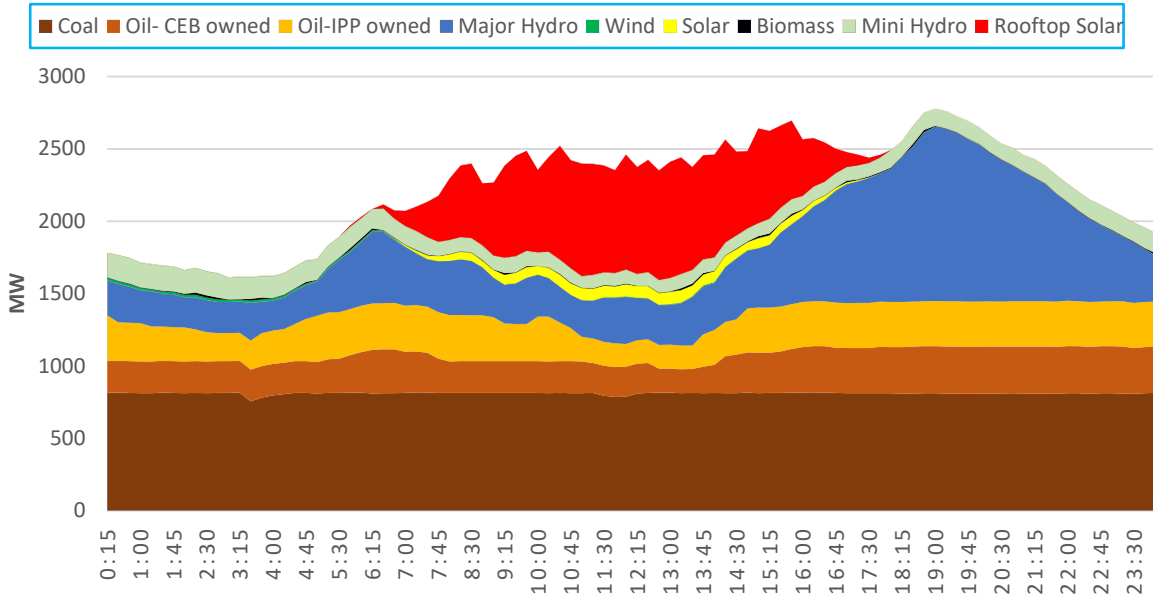
— 2024 — 2025

Source: CEB monthly Review Report

Daily Demand Variation

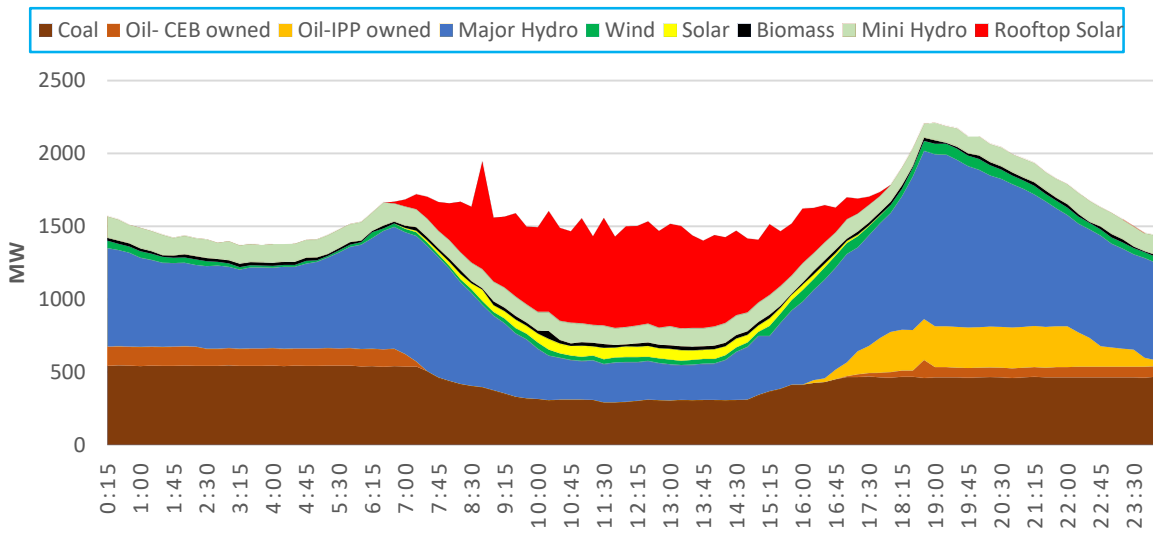


LOAD CURVE WITH THE HIGHEST DEMAND (ON 28-MARCH-2025)



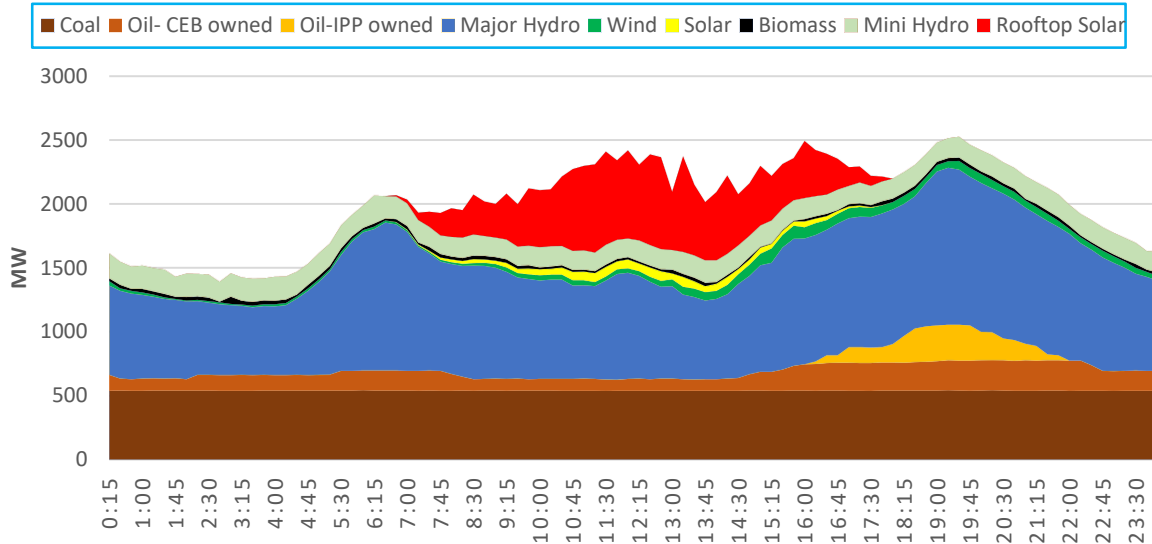
Note: Contribution from Rooftop Solar PV, IPP Solar (1MW), and Non-telemetered Mini Hydro is estimated based on the relevant actual generation and modelled in the generation profile

LOAD CURVE WITH THE RT SOLAR GENERATION AT THE DATE OF THE LOWEST DEMAND (ON 04-FEBRUARY-2025)



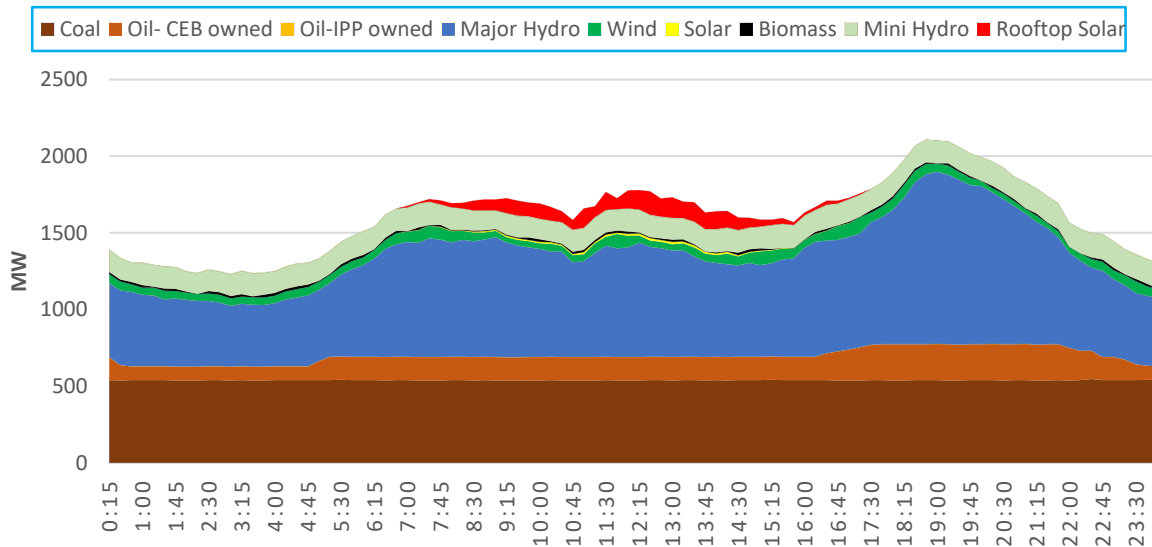
Note: Rooftop Solar PV, IPP Solar (1MW), and Non-telemetered Mini Hydro daily generation for Load Curves are calculated relative to actual monthly generations.

LOAD CURVE WITH THE RT SOLAR GENERATION AT THE DATE OF HIGHEST SOLAR GENERATION (ON 14-MARCH-2025)

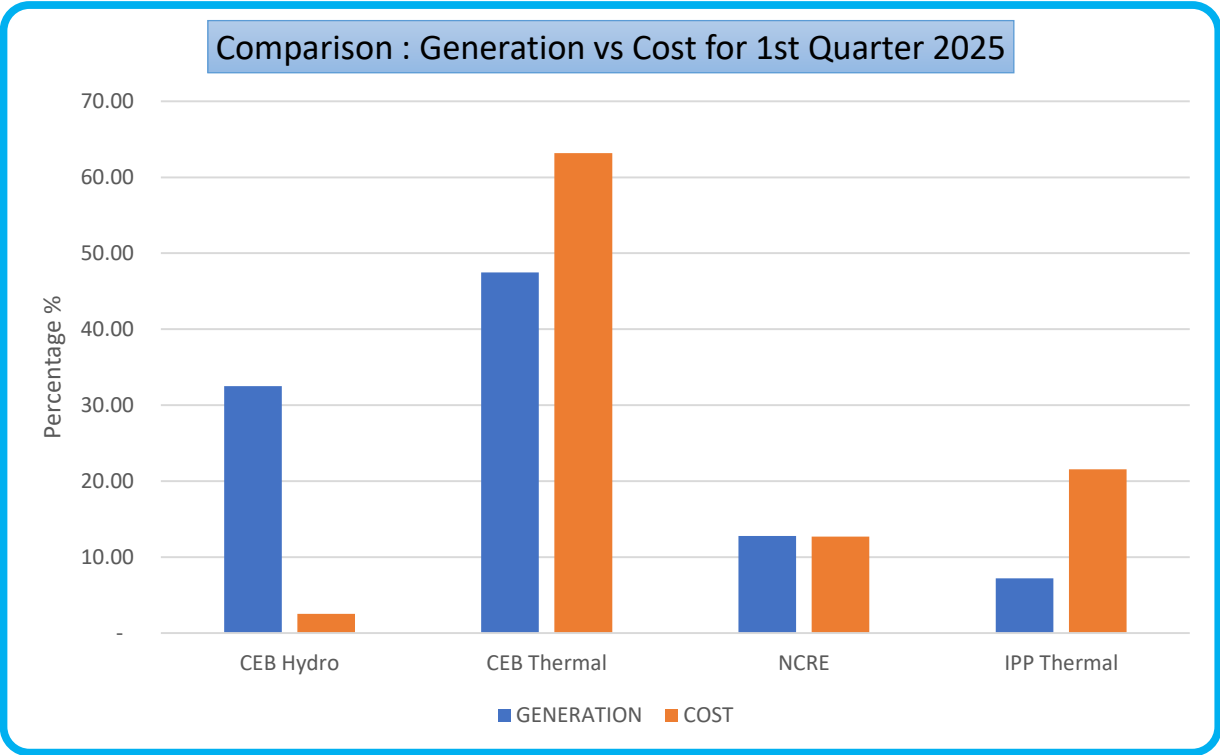
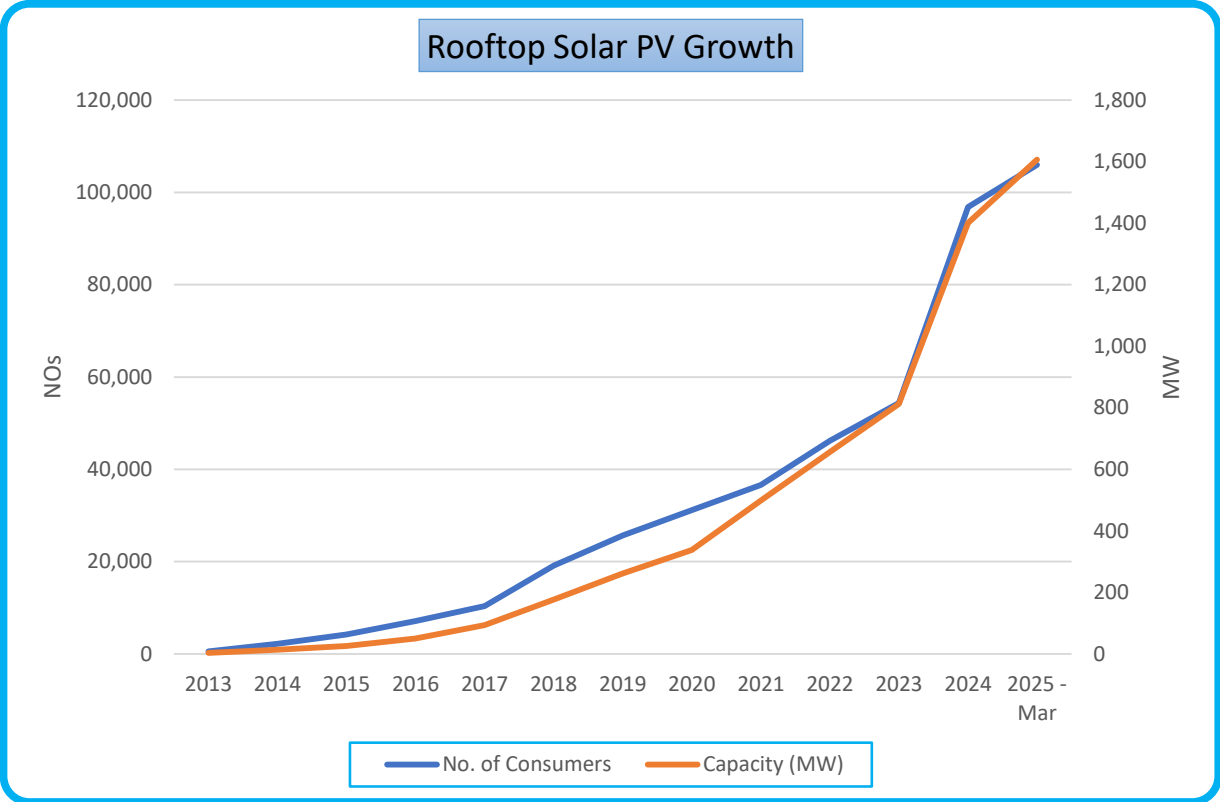


Note: Rooftop Solar PV, IPP Solar (1MW), and Non-telemetered Mini Hydro daily generation for Load Curves are calculated relative to actual monthly generations.

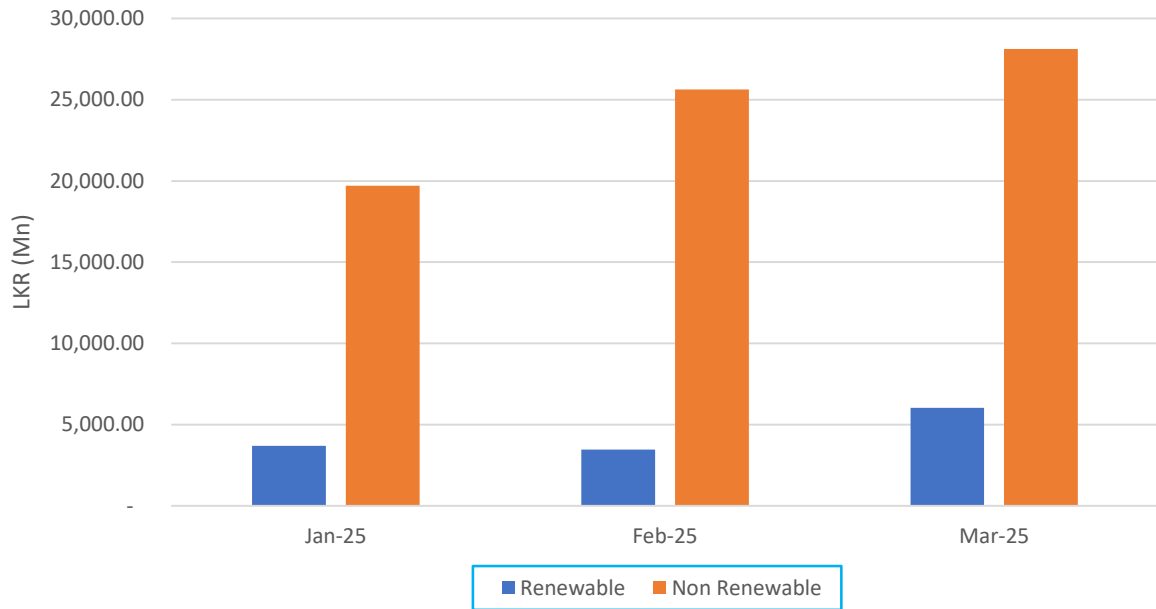
LOAD CURVE WITH THE RT SOLAR GENERATION AT THE DATE WITH THE LOWEST SOLAR GENERATION (ON 14-JANUARY-2025)



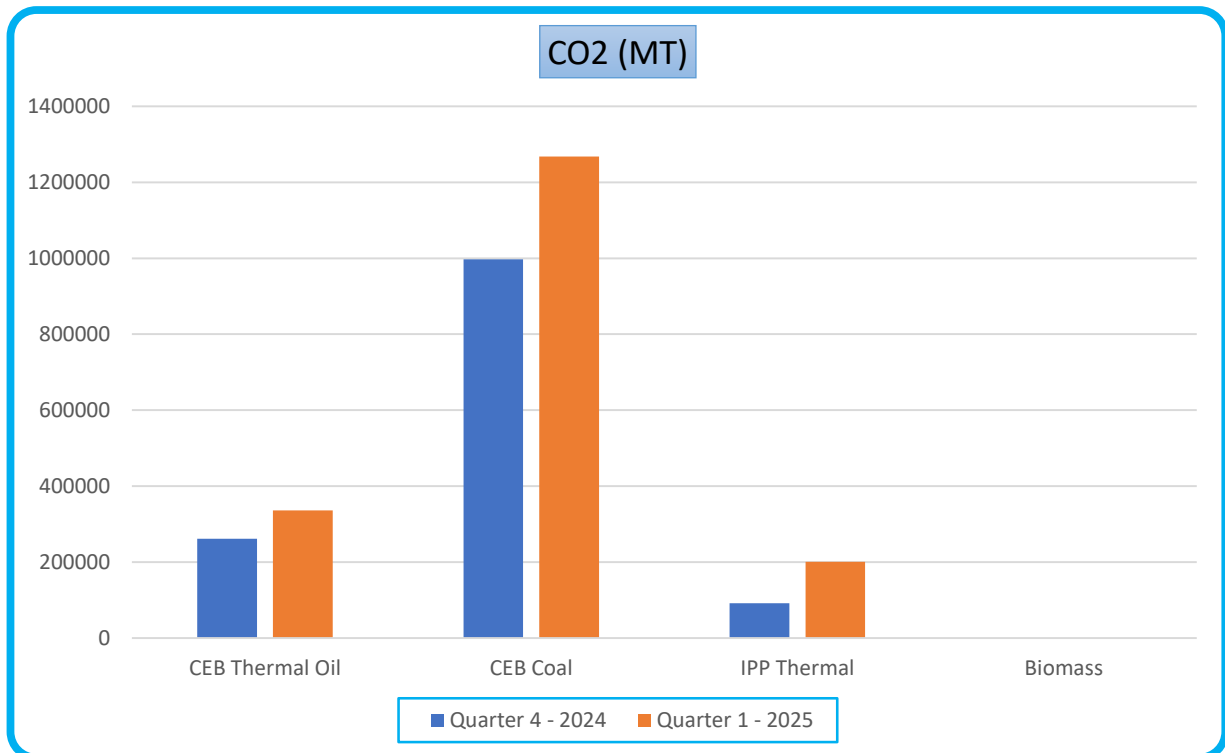
v Note: Rooftop Solar PV, IPP Solar (1MW), and Non-telemetered Mini Hydro daily generation for Load Curves are calculated relative to actual monthly generations.

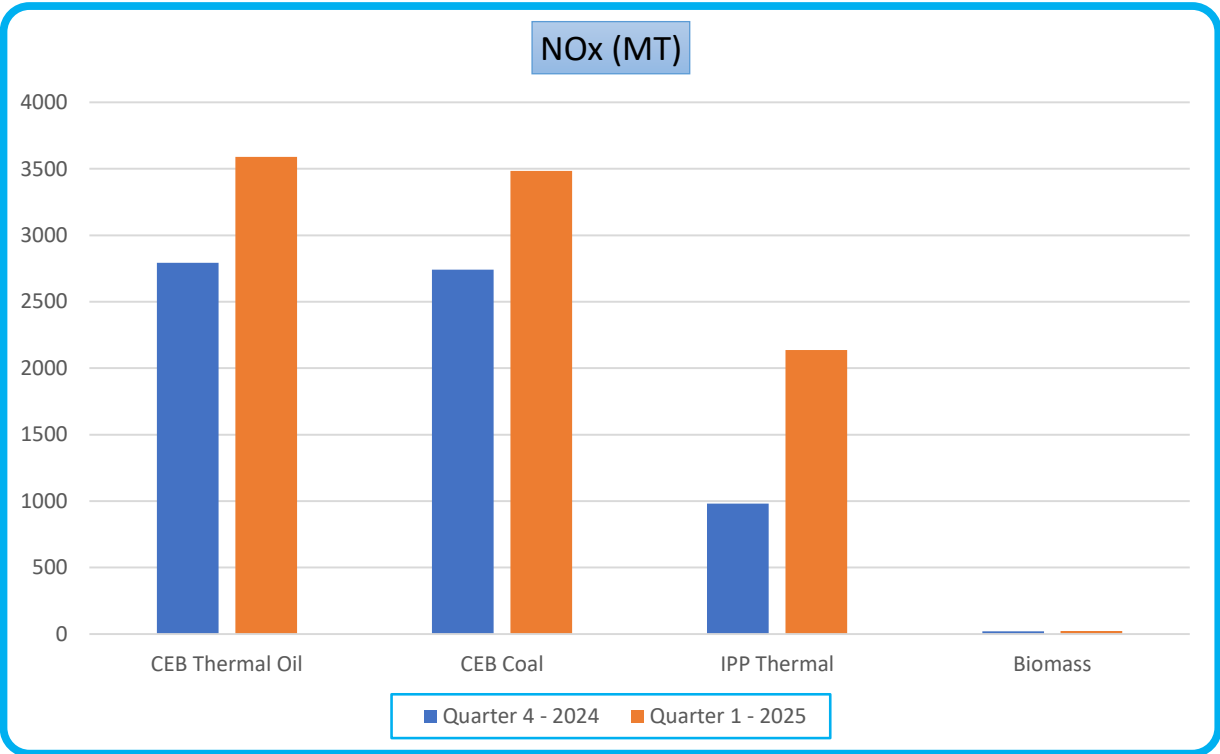
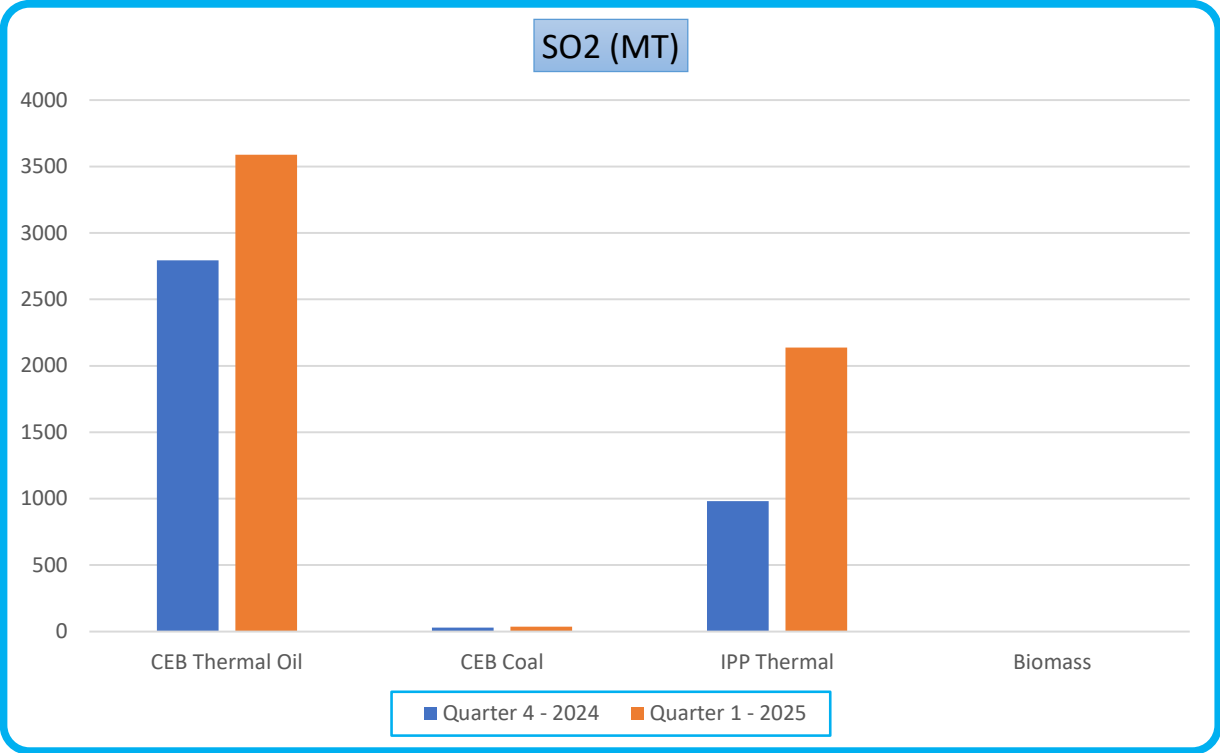


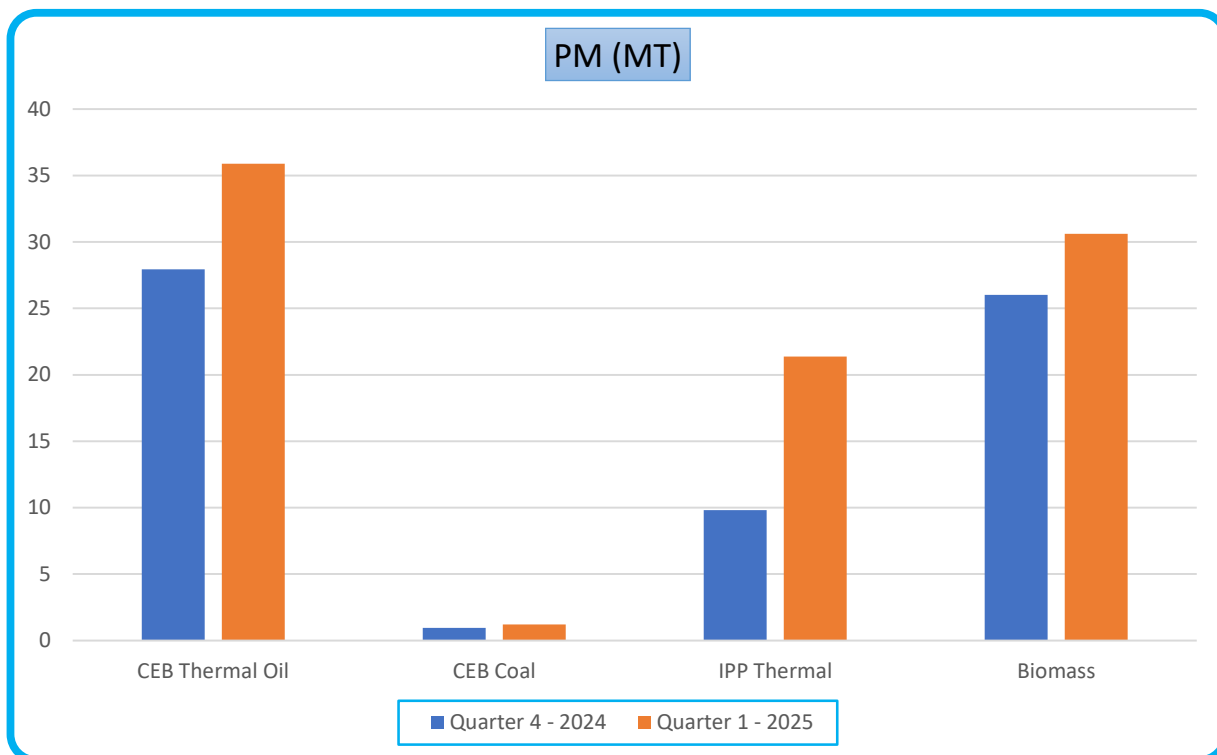
Generation Cost Comparison between RE and Non RE in 1st Quarter of 2025



Generation Source wise Emission Q4 2024 vs Q1 2025







Source: Estimated based on actual generation

Proposed Capacity Additions & Retirements in 2025 according to LTGEP 2023 -2042			
Proposed Capacity Additions	Capacity	Proposed Retirements	Capacity
Distribution Connected Embedded Solar	165 MW	CEB Barge Power Plant	62 MW
Grid Connected Partially Facilitated Solar	80 MW		
Grid Connected Fully Facilitated Solar	260 MW		
Solar with BESS	100 MW		
Wind (Mannar)	100 MW		
Wind	100 MW		
Mini Hydro	25 MW		
Biomass	20 MW		
Steam Turbine of Second NG Combined Cycle Plant (Kerawalapitiya)	115 MW		

Generation Licensees - 2025

Generation License details can be found via the following

Link: <https://www.pucsl.gov.lk/electricity/licensee/list-of-licensees/>

Renewable Generation Power Plants in Sri Lanka

Locations of the Renewable Power plants can be found via the following link.

<https://www.pucsl.gov.lk/electricity/quality/environment-and-renewable-energy/>

Electricity Dispatch Data Dashboard

Electricity Dispatch Data can be found via the following link.

<https://gendata.pucsl.gov.lk/home>