Ministry of Power and Energy
Performance Report - 2022

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බලශක්ති අංශය

01 පරිච්ඡේදය - බලශක්ති අංශය

02 පරිච්ඡේදය - ලංකා ඛනිජ තෙල් නීතිගත සංස්ථාව

03 පරිච්ඡේදය - ලංකා ඛනිජ තෙල් තොග ගබඩා පර්යන්ත සමාගම

04 පරිච්ඡේදය - ශ්‍රී ලංකා ඛනිජ තෙල් සංවර්ධන අධිකාරිය

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හැඳින්වීම

විදුලිබල හා බලශක්ති විෂයභාර අමාත්‍යාංශයට අදාළව 2023 වර්ෂයේ අයවැය කාරක සභා අවස්ථාව වෙනුවෙන් ඉදිරිපත් කරනු ලබන මෙම විෂය ක්ෂේත්‍රයට සම්බන්ධ ප්‍රගති වාර්තාවේ පළමු කොටසෙන් විදුලිබල ක්ෂේත්‍රයට අදාළ ප්‍රගතියද දෙවන කොටසෙන් බලශක්ති ක්ෂේත්‍රයට අදාළ ප්‍රගතියද පිළිබිඹු වේ.

2022 ජූලි මස 22 දිනැති ගැසට් පත්‍රය ප්‍රකාරව ස්ථාපිත කරන ලද විදුලිබල හා බලශක්ති අමාත්‍යාංශය විසින් රටේ පවතින අර්බුදකාරී තත්ත්වයන් මධ්‍යයේ වුවද ඒවා කළමනාකරණය කර ගනිමින් බලශක්ති සුරක්ෂිතතාවය තහවුරු කිරීම පිණිස කාර්යයන් රැසක් ක්‍රියාවට නංවන ලදී. ලංකා ඛනිජ තෙල් නීතිගත සංස්ථාව, ලංකා ඛනිජතෙල් තොග ගබඩා පර්යන්ත සමාගම සහ ඛනිජතෙල් සංවර්ධන අධිකාරියයන ආයතන සෘජුවම මෙම කාර්යයට දායකවේ.

විදේශසංචිත හිඟවීම, රුපියලේ අගය අඩුවීම මත උද්ධමනය ඉහළයාම, විදේශ ඉන්ධන වෙළඳපොළේ බොරතෙල් මිළ ඉහළයාම, රටේ ආර්ථික ස්ථායීබාවය නොමැතිවීම යනාදී සාධක හේතුවෙන්, ජනතාවට නිසිකලට අවශ්‍ය ඉන්ධන සැපයීමේ අභියෝගයට මෙම වසරේ මුල්භාගයේ සිටම අපඅමාත්‍යාංශය මුහුණදෙන ලදී. මේ හේතුවෙන් රටේ සියළුම ඉන්ධනහල් තුළ පෝලිම් නිර්මාණය විය. එමෙන්ම, විදුලිබල උත්පාදනය සඳහා ඉන්ධන ලබාදීමද අභියෝගාත්මක විය. ඒ හේතුවෙන් විදුලි අර්බුදයක්ද පැනනැගුනි. කෙසේවුවද රටේ පැවති ඉන්ධන තොග කළමනාකරණය කර ගනිමින් ජනතාවට අවශ්‍යඉන්ධන ලබා දීමේ දැඩි අවශ්‍යතාවය ඉටුකිරීමට පිළියමක් ලෙස QR කේතය හරහා ඉන්ධන අවසර පත්‍රයක් හඳුන්වාදුන් අතර, සලාක ක්‍රමයට නිශ්චිත ඉන්ධන ප්‍රමාණයක් වාහන හිමියන්ට ලබා ගැනීමේ පහසුකම එම ඔින්දැවිය. එමෙන්මපසු අවස්ථාවකදී, මෙරටට පැමිණෙන සංචාරකයින් සඳහා සංචාරක ඉන්ධන අවසර පත්‍රයක්ද හඳුන්වා දෙන ලදී.

එමෙන්ම මෙරට ඉන්ධන වෙළඳ පොළට, පෞද්ගලික ව්‍යාපාරිකයන්ටද පිවිසීමට අවස්ථාව උදාකර දෙන ලද අතර, මේ වනවිට එම කාර්යයයේ මූලික කටයුතු ඉටුවෙමින් පවතී. ඒ අනුව, දැනට මෙම ව්‍යාපාරයට පිවිසීම සම්බන්ධයෙන් ව්‍යාපාරිකයන්ගේ සුදුසුකම් කැඳවීමේ වටය අවසන්කර ඇත.

ඩොලර් සංචිත හිඟය, බලශක්ති ක්ෂේත්‍රයේමෙන්ම විදුලිබල ක්ෂේත්‍රයද සංවර්ධන ව්‍යාපෘති කෙරෙහි අහිතකර ලෙස බල පෑවේය. ඉන්ධන ගබඩා පහසුකම් හා නලමාර්ග සංවර්ධනය, නව පිරිපහදුවක් ඉදිකිරීමේ

Chapter 01

Power Sector

Introduction

After the devastating COVID 19 Pandemic spread across the country during the period of 2020 to 2021, the power sector of the country has experienced the worst power outages in over 25 years since January 2022 which crippled the production of industries, services, education etc. The Government was compelled to impose power cuts due to combination of several factors such as depletion of hydro reservoirs, intermittent shutdown of Ceylon Petroleum Corporation refinery, breakdown of generators together with an economic crisis as Sri Lanka's foreign reserves drop to a recorded lowest level. As the crisis deepened, several thermal power plants had to be shut down due to lack of fuel and long hours of power cuts were imposed daily on a rolling basis between 8 a.m. to 11 p.m. from first week of March, 2022 onwards.

The gradual supply of fuel to the Thermal power plants and the occurrence of seasonal rains from mid-June onwards ease the burden on power generation and the duration of daily power cuts was reduced accordingly. Despite these overwhelming challenges, the Ministry and Institutions coming under its purview are playing a crucial role in implementing the development projects and all necessary arrangements have been taken to keep the development projects on track by taking remedial measures to overcome the issues being faced by the projects due to recent economic crisis.

The Ministry is working hard on achieving the national policy targets on power sector, which are, achieving 70% electricity generated by renewable energy by 2030 and carbon neutrality in power generation by 2050. Accordingly, the Ministry has taken initiatives to double the present renewable energy capacity to meet the renewable energy requirement in 2030. Required plans such as Renewable Energy Development Master Action Plan (REDMAP), Long Term Generation Expansion Plan (LTGEP) 2023-2042, Long Term Transmission Development Plan are in the final stages to be published. National Policy towards increasing the share of renewables, the power transmission network of the country needs to be more flexible and will require higher capabilities far beyond the existing systems with monitoring, control and automation. The next biggest challenges are seeking finance and expertise to convert our transmission network into a renewable ready, stat of art, smart transmission system through the introduction of digitalization and automation.

1.1 Vision, Mission

Vision

A sustainably Developed Sri Lanka

Mission

Provide Quality, Reliable, Sustainable and Affordable Electricity for economic prosperity of the nation

1.2 Institutions Under the Purview of the Ministry (Power Sector)

CEB: Established by Act No.17 of 1969. It is empowered to generate electrical energy, transmit it and distribute same to all categories of consumers and to collect revenue as per the tariff approved by the Public Utilities Commission of Sri Lanka (PUCSL)

Lanka Electricity Company (Private) Limited (LECO): A subsidiary of CEB with shareholding of 54.84%, and with minority shareholding of the Treasury 43.56%, Urban Development Authority 0.79% and Local Authority 0.81%

LTL: A subsidiary of CEB with shareholding of 63%, with minority shareholding of its employees (37%)

Sri Lanka Sustainable Energy Authority (SLSEA): Established by Act No.35 of 2007

Sri Lanka Atomic Energy Regulatory Council: Established under the Sri Lanka Atomic Energy Act, No. 40 of 2014
Sri Lanka Atomic Energy Board: Established under Sri Lanka Atomic Energy Act, No.40 of 2014

Lanka Coal Company (Pvt). Ltd.: A subsidiary of CEB with shareholding of 60%, with minority shareholding by the

Treasury (20%), Sri Lanka Shipping Corporation (10%) and Sri Lanka Ports Authority (10%)

Sri Lanka Energies (Pvt) Ltd: A subsidiary of CEB with 100% shareholding.

2 Progress of the Power Sector – Jan - Aug 2022

2.1 Installed Capacity

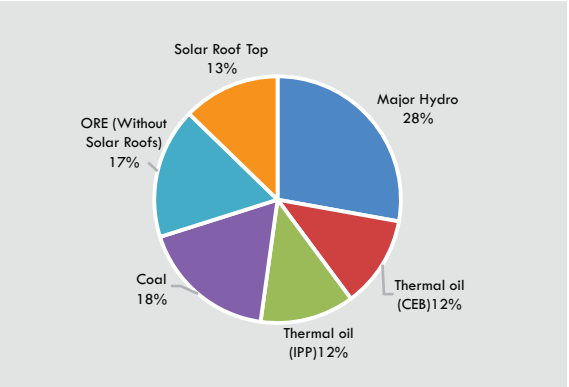
The current total installed capacity of the national power grid (September, 2022) is 5,024 MW, which consists of 58% renewable energy sources and 42% fossil fuels. Out of the fossil fuel portion, 18% consists with coal and 24% comes from thermal oils.

Major Hydro is the main source of renewable energy in the capacity mix, which has a share of 28%. Other renewable energy sources such as wind, Solar (Ground Mounted & Solar rooftops), Mini hydro, Biomass and municipal solid waste are also used in power generation and have 30% share of the capacity mix.

261 MW capacity was added to the national grid from January 2022 to September 2022 by renewable energy sources. 201 MW was added by Solar rooftops by 10,410 solar roof installations. 60 MW was added to the grid by the completion of 1MW solar ground mounted power plants.

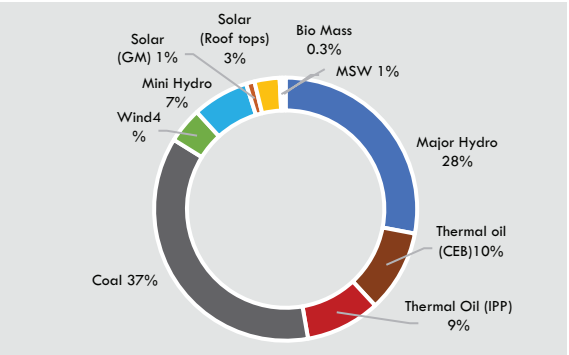
Energy Source		Capacity (MW)	No. of power plants
Thermal	Fuel oil (CEB)	604	9
	Fuel Oil (IPP)	621	3
	Coal	900	1
Total Thermal		2125	13
Renewable	Major Hydro	1,398	17
Other Renewable Energy (ORE)	Mini Hydro	429	214
	Wind	248	18
	Solar (GM)	131	77
	Dendro & Biomass	43.5	13
	M. solid waste	10	1
	Solar roof top	640	
ORE Total		1,501.50	323
Renewable Total		2,899.50	340
Total Installed capacity		5,024.50	353

Total Installed capacity (Sep-2022)

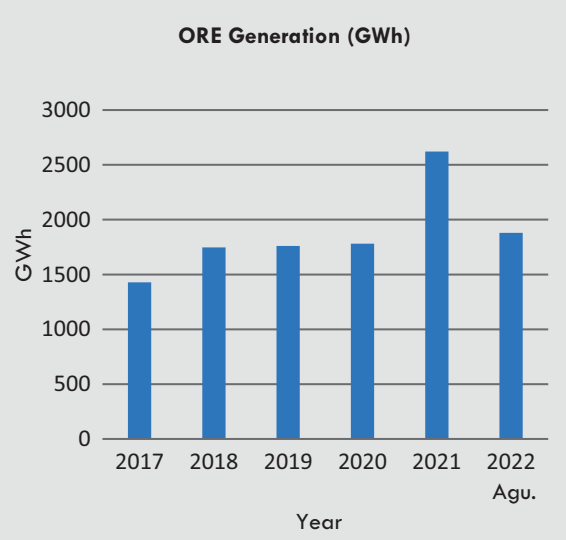


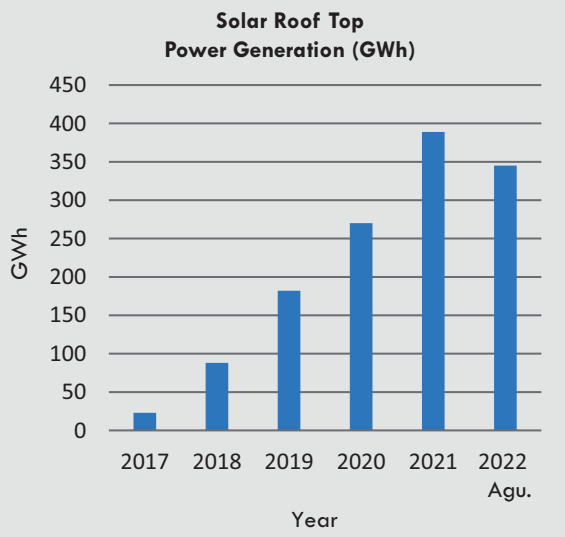
The total gross power generation from January to August 2022 was 11,199 GWh. During the period 44% of electricity share was generated by renewable energy sources. It consists of 28% major hydro, 7% mini hydro, 4% wind, 4% solar 1% municipal solid waste and 0.3% dendro/biomass. 56% of electricity in generation mix was came from fossil fuels that is coal and thermal oil.

Total Generation (Up to August 2022)



The electricity generation by Other Renewable Energy (ORE) sources have increased over past years. With the operations of 100 MW Thambapawani Wind Park, electricity generated by ORE has shown significant increase. The share of electricity generated by solar rooftops in ORE mix shows a gradual increase over the years after the introduction of solar roof top power generation programme in September 2016.



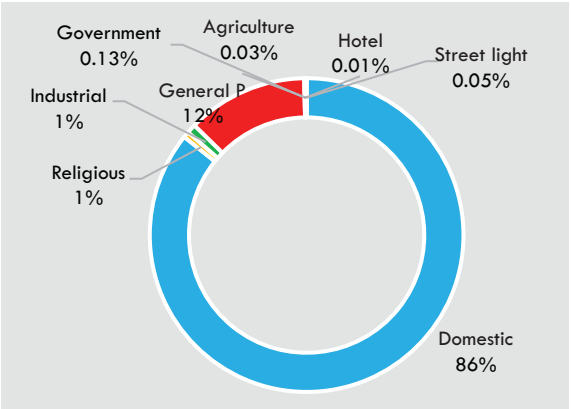


2.3 Electricity Demand and Consumer Growth

The electricity demand decreased by 0.1% during the first and second quarters of 2022. The maximum recorded electricity demand during this period was 2,709 MW against 2,802 MW by 2021. The electricity demand forecast based on the Long-Term Generation Expansion Plan 2022-2041 of CEB for 2022 is 17,705 GWh and forecasted Generation for 2023 is 19,238 GWh.

The total number of electricity consumers in the country as at August 2022 is 7,514,153. Recorded electricity consumers in 2021 was 7,299,633. Accordingly, 214,520 new electricity connections were given during the period. It was observed that the number of new connections was high due to the free service connections provided under the "Deyata Eliya"programme conducted in 2021.

Tariff Category	No. of consumers
Domestic	6,444,370
Religious	45,687
Industrial	71,660
General P	936,040
Hotel	637
Government	9,752
Agriculture	2,308
Street light	3,699
	7,514,153



2.4 Electricity Generation Expansions

The demand for electricity is growing at a rate of about 5.5% per annum. In order to cater to this growing electricity demand, the ministry is implementing power generation projects as per the Government policies and Long-Term Generation Expansion Plan of CEB. The following electricity generation projects being implemented by the Ministry are in different implementation stages.

2.4.1 Renewable Power Generation

I Major Hydro

i. Broadland hydropower Project – 35MW

Electricity generation has been commenced by the power plant from the end of January 2022. From January to August 2022, 56 GWh of electricity units were generated by this project. The expected annual electricity generation of the project is 126 GWh. This is the first large scale hydropower plant that obtained Clean Development Mechanism (CDM) registration in Sri Lanka.

ii. Uma Oya Hydro Power Project – 120 MW

The Uma Oya Project is a multipurpose development implemented under the Ministry of Irrigation mainly to divert the 145 MCM of water to irrigate approximately 5,000 hectares of land in Hambanthota and Monaragala Districts and generate 290 GWh of electricity annually. The total estimated cost of the project is USD 530 Million. 98% of the project activities are completed. USD 12 Million is required for expatriate staff and equipment to make the power plant ready for test generation. As per the project plan, the power plant must be commissioned at end of 2022.

iii. Moragolla Hydro Power Project – 31 MW

Moragolla is the final hydropower project which is constructed on the Mahaweli river basin. This project site is located in the Ulapane area of the Kandy district. The expected annual energy generation of the project is 100 GWh. Total estimated cost of the project is USD 114 Million and financial assistance was given by the loan of Asian Development Bank (ADB). Project activities were affected by the COVID 19 impact and Ministry and CEB are working hard to complete the project within the stipulated time period. The current Physical progress of the project is 38%. It is expected to complete the project and generate electricity by November 30, 2023.

II Other renewable Energy (ORE)

I Solar Power

a. Solar Rooftop Programme – Soorya Bala Sangramaya

Solar rooftop programme was introduced in September 2016 to help different segments of the community to join renewable energy-based power generation with a support of a low interest loan scheme. In 2019, Asian Development Bank has funded USD 50 Million to the solar rooftop programme in order to install 5kW solar systems on rooftops of domestic and commercial establishments. This ADB Loan was fully utilized in 2021 by installing 71 MW. The Ministry has requested ADB another 80USD million to continue the programme as the second phase and it is under consideration. Currently around 640 MW has been added to the National grid by 44,022 number of solar rooftops. There are three solar rooftop programmes and the following are the progress of these three programmes as at September 2022.

Schemes	Consumers	Capacity (kW)
Net Metering	14,003	102,662
Net Accounting	26,997	236,806
Net plus	3,022	300,654
Total	**44022**	**640,122**

b. Small Scale Ground Mounted Solar Power Plants (70X1 MW)

Under this project, 20 MW was connected to the national grid by 20 power plants during the period of January to September 2022. The progress of the construction works of another 5 MW is 90% completed and expected to complete at the end of 2022.

c. 2X10 MW Solar Power Plants (Valachchena&Vavunatheu)

It was declared to open 10 MW Solar Power Plant in Vavunatheu on 11 October 2022. 10 MW Solar Power Plant in Valachchenais under construction and anticipated to complete the construction works at the end of 2022.

d. 1-10 MW Solar Power Plants (Total of 147 MW)

A total of 147 MW of solar power projects with 1-10 MW each were selected as private investments on 2nd March 2021 and tenders were awarded for projects having 109 MW. The provisional approval of SLSEA was issued for 88 MW. The 2MW project is under construction and expected to commence commercial operations at the end of 2022.

e. 100 MW Siyambalanduwa Solar Power Park

The Expression of Interest was called in August 2022 to select a suitable developer for the project. Upgrading works of the Madagama- Ampara Transmission line, which is needed for power evacuation of this project, have been commenced.

In addition to the above solar power projects 10 MW of solar plant in Mahiyangana is under construction.

II Wind Power

The following major renewable energy parks are expected to be implemented and initial activities have been commenced.

a. 286 MW Mannar Wind Park

The provisional approval for the development of 286 MW of wind capacity has been given to the Adani Green Energy (Pvt) Limited.

b. 100MW Mullikulam Wind Park

The project site of the park is located in the main land in Mannar. The CEB is in the process of implementing the project. 27 km long transmission line from the park to KalAaru and Wind collector substation at KalAaru will be constructed as associated transmission facilities. The total estimated cost of the project is USD 140 Million. An Expression of Interest was called in August 2022 to select a suitable developer for the project. The EIA with regard to this project is being conducted by the CEB and it is in the final stage.

c. 234 MW Wind Park in Pooneryne

The provisional approval was given to Adani Green Pvt. Limited to implement 234 MW Wind Park in Poonaryne area. The land acquisition has been started. The ESIA is being conducted as the first phase (100 MW) of this project by using ADB Grant finance and will be concluded in October 2022.

d. In addition to the above major Wind Power Parks, it is anticipated to construct 50 MW of wind power project by CEB as the additional project to 100 MW

Thambapawani Wind Power Park. The total estimated cost of the project is USD 70 million. Further, the following small-scale wind power plants with a total capacity of 60 MW (1-10 MW Each) is expected to be developed in Mannar (10 MW and 5 MW), Madampe (2X 5 MW) and Trincomalee (10 MW) by using private investment. Mannar projects are under construction and will be completed in December 2022.Trincomalee and Madampe projects are expected to complete in January 2023 and April 2023.

The Expression of Interest was called from private investors to build renewable energy projects above the capacity of 50MW under the Build Own and Operate basis (BOO). Under this programme, 17 Solar Projects and 3 Wind Power projects have been identified.

2.4.2 Thermal Energy Generation

I Liquid Natural Gas (LNG)

a. First LNG Power Plant (350 MW) in Kerawalapitiya, "Sobadanavi" Power Plant

The construction works of the power plant is on the way. Gas turbine required for open cycle operations is being installed in the plant and expected to has been commence operations of the Gas turbine in 2023. The project activities have been delayed due to the unavailability of the USD and high cost of the project,which was created as a result of the recent economic crisis. The Project Developer has requested tariff revision and the CEB is in the process of reviewing the tariff proposal.

b. Second LNG Power Plant (350 MW), Kerawalapitiya

CEB has completed the evaluation of the financial proposals to select suitable developer for the second LNG power plant and awaiting the Cabinet of Ministers Decision to award the Tender.

c. Deployment of the Natural Gas for the Power sector

There are three components under this project.

i. Deployment of Floating Storage Regasification Unit (FSRU) and Mooring System at offshore Kerawalapitiya (By CEB)
ii. Deployment of Gas Pipeline Network from FSRU to the power plants at Kerawalapitiya and Kelanitissa (by CPC).
iii. Supply of required quantities of LNG to the FSRU (by CEB)

Currently, the legal clearance is pending from the Attorney General for the Implementation Agreement of FSRU&M.

2.5 Electricity Transmission and Distribution Development

- The Transmission Network consisting of 799km of 220kV transmission lines and 2,361 km of 132kV lines. There are 79 Grid substations in the network and 134 primary substations. The entire operations of the transmission network are carried out by CEB.

  The Distribution Network consists of 33,138.27 km of 33kV lines, 2,448 km of 11 kV lines and 150,169 km of low voltage lines and 33,476 Distribution Grid Substations.

- With an objective of absorbing more energy generated through renewable sources efficiently into the power system, a small-scale Smart Grid pilot project with solar and battery storage technologies was constructed and completed by LECO in September 2022. The total estimated cost of the Project is USD 26 Million and ADB has provided the funds as a grant.

- During the period of 2022, the following transmission projects were completed -

1. Augmentation of Madampe and Dehiwala Grid Substations were completed and capacity was increased.
2. Construction of Biyagama Grid substation was completed and capacity was augmented.
3. Habarana to New Habarana grid substations were connected by constructing 3km 220 kV transmission line.
4. Constructions of New Habarana to Valachchena 100 km length Transmission line was completed.
5. Construction of New Habarana to Polonnaruwa 44 km length of transmission line was completed.
6. Augmentation of Kesbewa, Kaluthara new Anuradhapura GSS were completed.
7. Construction ofHambanthota Grid Substation was completed.

- Currently, technical and commercial losses of our power system have been reduced to 8.6% from 9%.

- The following transmission and distribution projects are being conducted during the period under evaluation.

	Name of the Project	Funding Agency	Total Estimated Cost (Rs.Mn)	Progress
1	Transmission Infrastructure Capacity enhancement			
1.1	Lot B1: Augmentation of New Anuradhapura Gs, and Construction of Kesbewa, Kluthara Old Anuradhapura GSS	French Development Agency (AFD)	2,737.97	100% Completed on 5 Feb. 2022
2	Green Power Development and Energy Efficiency Improvement Investment (Tranche 2)	ADB		
2.1	Hambantota 220 kV Development (P1) Lot A – Hambantota Grid Substation 220kV development		1,866	100% completed on 01 Feb. 2022
2.2	Lot B – New Polpitiya-Hambantota 220kV, 150km Transmission line	ADB	5,794	81% Expected completion on 18 Mar.2023
2.3	Lot B2 – A: Construction of Horana–Padukka 132 kV Transmission Line Project	AFD	592	29%
2.4	Lot B2 – B: Second Circuit Stringing of Habarana – Valachchenai 132 kV Transmission Line	AFD	502	100%
2.5	(P3) Lot A1: Construction of Colombo B GSS Single In & Out Connection from Colombo C –Kolonnawa 132kV 800mm2 Cable Augmentation at Colombo C and Kolonnawa Grid Substations	AFD	1,260.8	95% Completion on 31. Dec. 2022
2.6	Augmentation of Kotugoda, Kolonnawa, Padukka, Horana, Dehiwala and Madampe Grid Substation	ADB	2,308.27	97% Completion on 31. Dec.2022

2.7	Lot B: Construction of Biyagama 220/33kV GSS Augmentation of Biyagama Grid Substation	ADB	1,563.71	100% 31.Jan 2022
2.8	220kV Switching Station at Kerawalapitiya	ADB	2,910.4	42% 31 Dec. 2022
2.9	33 kV distribution Tower Lines and Gantries			
	Construction of 33 kV distribution Tower Lines	AFD	3,068	98% 07.11.2022
	Substation and Gantries	ADB	2,119	53% 31.052023
3	Supporting Electricity Supply Reliability Improvement Project	ADB		
3.1	Package 4: Construction of 300 km long 33kV tower lines and 13 no. of 33kV switching gantries	ADB	6,782	43% 5 July 2021 (project is delayed)
3.3	Lot A1: Installation of 100 MVAR BSC at Pannipitiya Grid Substation	ADB	1,103.5	89% 30 April 2022
3.3	Lot A2: Installation of Static Var System (SVS) at Biyagama Grid Substation	ADB	1,623.86	60% October 2022
3.4	Lot A3 Installation of Braker switch capacitors in Greater Colombo Grid Substation Replacement with new breaker switch capacitors in Thulhiriya GSS	ADB	1,763.4	10% 22 Dec.2023
4	National Transmission & Distribution Network Development	JICA	3,8135	98% JICA has stopped the disbursement.
5	Habarana–Veyangoda 220 kV Transmission Line	JICA		
5.1	New HabaranaVeyangoda 220 kV Transmission Line		17,561	98% JICA has stopped the disbursement
5.2	Construction of New Habarana 220/132/33 kV Switching Station and Augmentation of Veyangoda GSS		6,950	99% New Habarana GSS completed.

2.6 Climate Change Mitigation Activities

Nationally Determined Contributions (NDCs) -Power sector

Progress of the implementation of NDCs was reported and first Planning and Monitoring Committee meeting was conducted during the period. Power sector NDCs will result in a GHG emission reduction against BAU scenario of 25% in the electricity sector (5% unconditionally and 20% conditionally), equivalent to an estimated mitigation level of 9,819,000 MT unconditionally and 39,274,000 MT conditionally (total of 49,093,000 MT) of carbon dioxide equivalent during the period of 2021-2030. NDCs.

2.7 Research and Development Activities

USAID has committed USD 4.23 million for CEB, USD 3.6 million for SLSEA and USD 1.9 million to LECO under their grant financing

(Sri Lanka Energy Programme) for technical assistance to conduct selected Research and Development activities. The Programe period is 2022 to 2025.

3. Plans/Programmes for 2023

3.1 Electricity Generation

i. Hydro Power Generation

- Expected to commissioned 35 MW Uma Oya Hydro Power Plant.
- Expected to initiate 14MW (2X7 MW) Seethawaka Ganga Hydro Power Plant

II Solar Power generation

- 100MW Siyambalanduwa Solar Power Park
- 32 MW ground mounted Small Scale Solar Power Plants and 10 MW solar power plants are expected to be commissioned in 2023.
- Solar Power Projects under the USD 100 Million loan - Indian Line of Credit. Implementation of activities of this project will be carried out in 2023 and expected to implement 120 MW capacity by 2023.

III Wind Power Generation

- 5 MW and 10 MW Mannar Wind Power Plants – Constructions are expected to be commenced in 2023
- 10 MW Wind Power Plant – Trincomalee - Constructions works are expected to commence in 2023

IV The following Major Wind Projects are in the pipe line

- 286 MW Mannar Wind Park, -Provisional approval was given for the private Sector Developer (Adani Green Energy Limited)
- 100 MW Mannar-Mullikulum Wind Power Park – it is expected to complete the Environment and Social Impact Assessment in 2022.
- 234 MW Pooneryne Wind Park -First Phase – The provisional approval was given to the private Sector Developer (Adani Green Energy Limited). The land acquisition was commenced.

IV Liquidized Natural Gas (LNG) Generation.

- First 300 MW, LNG Power Plant-Sobadanavi, Kerawalapitiya – Expected to complete the major construction and complete the plant by mid-2023.

V 130 MW Gas Turbine Power Plant – Kelanithissa

VI Energy Storage Solution (ESS) pilot project

5 MW/8MWh Battery ESS system will be installed in the Hambantota Grid substation as a pilot project under the grant financing (approx. USD 11.9 Million)of Republic of Korea.

3.2 Proposed Transmission& Distribution Developments

Following transmission and distribution development projects are expected to carry out in 2023 as per the plans.

	Project Name	Total Estimated Cost (Rs.Mn.)
1	Power System Reliability Strengthening Project (PSRSP)	
1.1	Construction of Kalawana and Negombo 132kV Grid substations Construction of Meerigama 220kV Switching station with grid substation, Augmentation of 132kV Matara grid substations	7,982
1.2	Construction of Matara-Hambantota 132kV transmission Line, Hambantota-Tissamaharama 132kV transmission line, 132kV Line Section from Homagama GSS to Horana-Padukka 132 line, 132kV Line Section from Baddegama GSS to Galle-Ambalangoda 132 line - 132kV UG Cable from Kelaniya Cable Gantry to Peliyagoda Grid substation	5,015
1.3	Construction of 132kV Thissamaharama, Baddegama, Homagama and Peliyagoda grid Substations	6,572
1.4	Construction of New Anuradhapura-New Habarana 220kV transmission line, Kukule-Kalawana 132kV line and 220kV line section from Mirigama GSS to Habarana-Veyangoda 220kV transmission line	2,991
2	Distribution System Reliability Strengthening Project (implemented by LECO)	10,000

Chapter 02
Ceylon Electricity Board

Introduction

Ceylon Electricity Board (CEB) is a state owned enterprise established by the Act No. 17 of 1969 dated November 1, 1969 and as amended by Act Nos. 31 of 1969, 29 of 1979, and 32 of 1988. Sri Lanka Electricity Act No. 20 of 2009 as amended by Act No. 31 of 2013 brought CEB under the regulatory purview of the Public Utilities Commission of Sri Lanka (PUCSL). CEB is empowered to generate, transmit and distribute electrical energy to all categories of consumers, to collect revenue as per a cost reflective end user tariff approved by the PUCSL and to perform its functions as provided under its Act and in accordance with the licenses issued by the PUCSL so to ensure that the total revenue of the Board is sufficient for all its activities.

Vision

Enrich Life through Power

Mission

To develop and maintain an efficient, coordinated and economical system of electricity supply to the whole of Sri Lanka, while adhering to our core values; Quality, Service to the Nation, Efficiency and Effectiveness, Commitment, Safety, Professionalism and Sustainability.

Goals

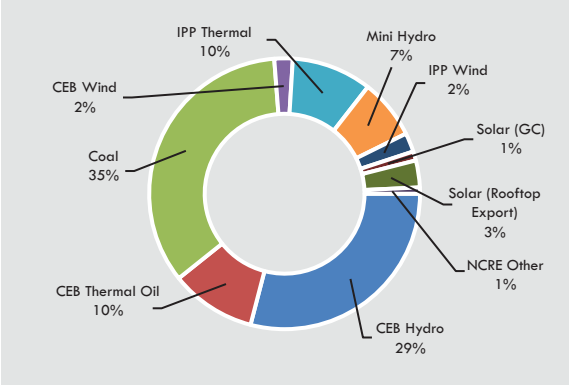
CEB recognizes eight goals for the Corporate Plan 2019-2023 by giving due consideration to the Sustainable Development Goals (SDG) issued by the United Nations. Following are the eight Goals formulated in order to realize the organization's long-term Vision and Mission.

- Making CEB Financially Stronger
- Enhancement of low cost energy generation
- Electricity to entire country at an affordable price
- High quality electricity supply and services to customers
- Stronger relationship with external stakeholders
- Enhanced employee engagement
- Operational excellence with state of art technology
- Optimizing integration of green energy

1. Overview of Electricity Supply

Electricity demand in the country during the last fifteen years has been growing at an average rate of about 4.8% per annum while peak demand has been growing at a rate of 3.1% per annum. The Net Generation in the year 2021 was recorded as 16,716 GWh and recorded 6.4% increase compared to that of 2020. Meanwhile the maximum demand was recorded as 2,802 MW in the year 2021 and recorded 3.1% increase compared to the previous year. The Net Generation and the Maximum Demand recorded for the last 8 months of the year 2022 was 10,745GWh and 2,709MW and this was3.27 % and 3.31% decrease with respect to the previous year.

CEB's annual expenditure on generation significantly varies with the amounts of electricity generated from thermal power plants of both CEB and Independent Power Producers (IPP). The generation mix reported for the first eight months of the year 2022 is depicted below.



1.1. Electricity Demand

During the first eight months of 2022, the demand for electricity was decreased by 2.1% while the maximum demand recorded during this period was 2,708.8 MW against 2,801.62 MW for last year. During this8 months' period 10,745GWh were generated and 9,854GWh were sold.

The total energy generated during this period(10,745GWh), of which 36% has come from Hydro generation (including mini

hydro). Coal power generation stood at 35%. Thermal Oil had contributed to 20% of total energy generation. Other renewable sources (excluding mini hydro) had a share of 10%. In comparison, by end August 2021, contribution from Hydro generation was 37%.

1.2. Electricity Demand Forecast for 2023

For year 2023 the electricity demand forecast based on draft CEB Long Term Generation Expansion Plan 2022-2046 is as follows:

Year	Demand		Generation		Peak
	(GWh)	Growth Rate (%)	(GWh)	Growth Rate (%)	(MW)
2023	17,705	5.8%	19,238	5.7%	3,117

1.3. Power Generation

The Generation Division of Ceylon Electricity Board is responsible for the operation and maintenance of Thermal and Hydro Power Plants owned by CEB. Generation Assets consist of 18 large Hydro Power Plants totaling to an installed capacity of 1,418 MW, one (01) 900 MW Coal-fired Power Plant, Thermal Power Plants with an installed capacity of 654 MW consisting of seven large oil-fired power plants with 604 MW and 50MW oil-fired plants of 1 MW each and 104 MW Mannar wind park.

CEB also operates few power plants in the isolated networks in surrounding islands of Jaffna Peninsula. Thus the total installed Capacity of CEB-owned Power Plants as at 31stAugust 2022 were 3,075 MW.

Generation details of CEB and Private Power Producers as at 31st August 2022 is given below.

For the eight months ended 31st August 2022; the total generation stood at 10,745GWh, of which 29% has come from major hydro generation, while the share of Coal power generation standing at 35%. Thermal Oil had contributed to 20% of total energy generation. Other renewable sources had a share of 17%. In comparison, contribution from major hydro for the same period during 2021 was 29%.

Description		Generation (GWh)
CEB	Hydro	3,122
	Thermal - Coal	3,707
	Thermal - Oil	1,098
	Wind	236
IPP	NCRE (Small Hydro)	768
	Thermal	1,028
	Wind	244
	Solar (Grid Connected)	117
	Solar (Rooftop -Export)	345
Dendro, Bio Mass & Municipal		80
TOTAL		**10,745**

1.4 Financial Challenges Faced

The prevailing macro-economic situation of the country has affected adversely to the power sector and CEB to the extend it never happened in the history. Under the severe difficulties, CEB able to revise the tariff from August 10, 2022. Though with the revised tariff, CEB has a forecasted loss for next financial year. The main financial challenges faced by CEB can be summarized as below,

- Rating down grading of country has affected for financing of power generation infrastructure.
- The shortage of forex liquidity in the market has hindered mandatory overhaul and maintenance of power plants and supply of electricity connections.
- Risk of procuring coal due to shortage of forex.
- Delay in commissioning of ongoing projects due to inflation and global crisis.
- Due to default vulnerability of People's Bank difficulty to pursue foreign purchases.
- Ongoing liquidity crisis in CEB leading to the default of commitments made by CEB.
- Rising Exchange Rates and Interest Rates.
- Coal prices and other commodity price escalation.

2. Present Power Crisis and Counter Measures

The power crisis situation experienced during the first eight months of the year 2022 is due to combination of several factors such as intermittent shutdown of CPC refinery, breakdown of generators, depletion of hydro reservoirsand etc. A detail analysis on the reasons and outcomes of the energy shortage issue and counter measures adopted to overcome future energy shortages are given below:

2.1 Depletion of Hydro Reservoirs

The Hydro storage at the beginning of the year 2022 was 867.2 GWh. However, due to limited thermal availability and unavailability of unit 3 of LVPS, it was unable to curtail Hydro generation and hydro storage had been depleted down to 315 GWh over the period until 1st of April, 2022. Thereafter some intermittent inflows were received in to the main reservoirs and at the end of the August, 2022, the Hydro storage reached the figure 955.7 GWh.

2.2 Major Plant Outages

Following plant outages were given during the period of January 2022 to August 2022 in order to carry out Major Overhaul works, Annual maintenance works and Breakdown Maintenance works in respective power plant.

Plant	Unit No	Unavailable Period due to Maintenance
Canyon	1	2022-01-02 to 2022-04-01
	2	2022-01-02 to 2022-03-31
Kukuleganga	1	2022-03-21 to 2022-03-24
	2	2022-03-07 to 2022-03-10
Upper Kotmale	1	2022-03-05 to 2022-03-21
	2	2022-03-28 to 2022-04-08
Kotmale	1	2022-04-18 to 2022-05-09
Kelanitissa Combined Cycle	ST	2022-05-13 to 2022-05-17
	GT & ST	2022-08-15 to 2022-08-19
Lakvijaya	1	2022-05-03 to 2022-05-23
	2	2022-06-18 to up to date
	3	2021-12-21 to 2022-01-31
Sojitz Kelanitissa		2022-01-26 to 2022-02-04
West Coast	GT 01	2021-12-22 to 2022-01-14

2.3 Electricity Demand

During the above period, day peak demand was around 2,150 MW while night peak demand was around 2,500 MW. With limited generation due to the major plant outages as mentioned above, it was unable to cater the night peak demand and with imposed manual load shedding night peak demand had been restricted to around 2,300 MW daily and energy requirement had been restricted to around 45 GWh.

2.4 Fuel Issue

Meanwhile following the intermittent CPC refinery shutdown, furnace oil supply for thermal plant operation has been regularly interrupted since December 2021. Following the refinery shutdown, Naphtha production for KCCP operation has been halted for the most part of the year. At the same time, diesel fired plant operation also has been severely affected due to unavailability of diesel stocks in the country. Accordingly, thermal plant generation has been significantly restricted due to this fuel supply restriction.

2.5 Imposed Load Shedding

With this fuel supply restrictions and thermal plant unavailability, CEB was compelled to impose manual load shedding since January 2022. Accordingly depending on the plant availability and the demand requirement, this load shedding has been extended even up to 13 hours per day. The detailed data of unserved energy resulted with this daily load shedding is attached as Annex II.

3 Progress of the Development Projects& Activities

Developments projects are being continued for both generation and transmission expansions and the progress/status of the projects (as given in the CEB Action Plan 2022, Q2 progress) as at 31st August 2022 is depicted in the tables below.

3.1 Hydro Power Development Projects

Name of project	Capacity	Cost (LKR Million)	Physical Progress as at 2022.08.31	Expected date of completion
Uma Oya Hydro Power Project	120 MW	105,700	98%	December 2022
Broadlands Hydro Power Project	35 MW	19,498	97%	August 2022
Moragolla Hydro Power Project	30.5 MW	18,553	37%	November 2023

3.2 LNG Development Projects

Name of project	Capacity	Cost (LKR Million)	Physical Progress as at 2022.08.31	Expected date of completion
"Deployment of Floating Storage and Regasification Unit (FSRU) and Mooring System"	N/A	N/A	43%	April 2025
Procurement of Liquified Natural Gas (LNG)	N/A	N/A	TOR for the consultancy services has been prepared. Procurement of consultancy service will be initiated after awarding the FSRU and Mooring infrastructure contract.	February 2024
Development of First 300MW LNG Combined Cycle Power plant facility at Kerawalapitiya	300 MW	N/A	2%	April 2024
Development of second 300MW LNG combined cycle power plant facility at Kerawalapitiya	300 MW	N/A		December 2024

3.3 NCRE Developments

Name of project	Capacity	Physical Progress as at 2022.08.31	Expected date of completion
Capacity Enhancement of Mannar Wind Power Project (Phase-1) with Additional 50 MW	50 MW (Minimum expected capacity)	Separate tender initiated by Mannar PMU.	-
Name of project	Capacity	Physical Progress as at 2022.08.31	Expected date of completion
Mannar (Wind) Phase II Extension- 100MW	100 MW	Feasibility study is being done by SLSEA. Land acquisition and CEA clearance activities are coordinated BY SLSEA.	2025
Mannar (Wind) Phase III - 100 MW	100 MW	Feasibility study is being done by PMU of MWPP. Can be connected to New Silavathura Collector SS via a 16km transmission line from Mannar GSS.	2026

10MW x 2 Nos Polonnaruwa and Vavunathivu Solar Plants	20MW	PPAs signed. Currently the Plants are under construction	2022 Q4
1MW x 60 Nos Solar Power Project	35MW	Completed	-
1MW x 90 Nos Solar Power Project	33MW	Commissioned: 33 MW Under construction: 35 MW	2022 Q4
150MW Solar Power Project in (1- 10)MW capacities	147MW	LOI issued & Pending signing the PPA: 147 MW	2023
60MW Wind Power Project in (1-10) MW capacities	35MW	Trinco WP Plant -Awarded & LOI signed , pending signing of PPA	2023
		Mannar WP Plant- Awarded & LOI signed), pending signing of PPA.	2023
		Madampe WP Plant - - Awarded & LOI signed), pending signing of PPA.	2024
Exotic Energy Technology Power Plant Project (Solar PV with Agriculture/ Farming)		Pending signing of PPA: 10 MW , Initiated the forfeiting of performance security	-
Pooneryn Solar/Wind Park Project	100MW	RFP is being prepared with IFC. Land acquisition, feasibility study including bird studies have already been initiated by SEA. Transmission line design and route survey completed.	2027
Syambalanduwa Solar Power Project	100MW	Tender Advertised on 22nd August 2022	2026
30MW Ground mounted/ floating Solar PV Power Plants tender (1-5MW)	30MW	Tender Advertised on 29th August 2022	2024
60MW Ground mounted/ floating Solar PV Power Plants tender (5MW scale)	60MW	RFPs have been prepared by the respective TEC and submitted the RFPs to CANC	2025
40MW Wind Power Plants tender (1-5MW scale)	40MW		2024
90MW Mini-hydro Power Program	90MW	Submitted documents on 08/01/2020 & awaiting cabinet approval to advertise	2027

CANC-Cabinet Appointed Negotiating Committee | CEA-Central Environment Authority | LOI-Letter of Intent | PPA-Power Purchase Agreement RFP-Request for Proposal | SLSEA-Sri Lanka Sustainable Energy Authority | TEC-Tender Evaluation Committee

3.4 Generation Expansion Projects

In addition to the generation developments give in Sections 3 , 4.2 and 4.3 , some generation capacity enhancement projects are carried out by the Generation Division. The Progress of these projects are depicted below.

3.5 Transmission Development Projects

Project	Package	"Estimated Cost (LKR Million)"	"Completion % as at 2022-08-31"	Expected date of completion
Greater Colombo Transmission and Loss Reduction Project	Construction of Second 220kV Cable from Kerawalapitiya to Colombo L	9,119	8%	April 2024
	Replacement of CT and Busbar Protection Scheme at Colombo E & F	122	98%	May 2022
	Colombo City Transmission Network Development Project - Phase 2	30,295	"Awaiting for fund commitment from ADB"	December 2024
Trincomalee Coal Power Development Project	Construction of Habarana - Veyangoda 220kV Transmission Line Project: Lot A - Substation	3,200	99%	May 2022
	Construction of Habarana - Veyangoda 220kV Transmission Line Project Lot B - Transmision Line	7,100	99%	March 2022
Green Power Dev. & Energy Eff. Imp Project-PMU 1	Package 1/Lot A: Hambanthota 220kV Development	1,866	100%	February 2022
	Packge 1/Lot B - New Polpitiya -Hambantota TL	5,794	88%	October 2022
	Package 2/Lot A - Construction of Nadukuda & augmentation of Mannar 220/33 kV GSS	2,698	100%	October 2022
	Package 2/Lot B2 A - Construction of Padukka-Horana 132kV TL	592	29%	December 2022
	Package 2/Lot B2 B - 2nd cct. stringing of Habarana-Valachchenai 132 kV TL	501.73	100%	January 2022
Green Power Dev. & Energy Eff. Imp Project-Tranche II: PMU 2	Package 3/Lot A1 - Construction of Colombo B GSS, Single In & Out connection from Colombo C-Kolonnawa 132kV 800sqmm Cable & Augmentation of Colombo C & Kolonnawa GSS	1,261	95%	September 2022
	Packge 3/Lot A2 - Augmentation of Kotugoda,Kolonnawa, Padukka, Horana, Dehiwala & Madampe GSS	2,316	97%	September 2022
	GDPEEIP: PMU 2:Package 8/Lot A - Augmentation of Nadukuda 220/33kV Grid Substation, Augmentation of Aniyakanda 132/33 kV Grid Substation and Augmentation of Chunnakam 132/33kV Grid Substation	1,466	Contract Agreement to be signed	December 2023
	GDPEEIP: PMU 2-Package 8/Lot B - Augmentation of Ambalangoda 132/33 kV Grid Substation, Augmentation of Pannala 132/33kV Grid Substation & Supply of 2 Spare Transformers of 132/33 kV 31.5 MVA	1,740	Site Surveying and Mobilization is in progress	December 2023

Green Power Dev. & Energy Eff. Imp Project-Tranche II: PMU 3	SESRIP: Package 7-Lot A2: Installation of Static Var System (SVS) at Biyagama Grid Substation	1,595	62%	October 2022
	SESRIP: Package 7-Lot A1: Installation of 100Mvar BSC at Pannipitiya Grid Substations	1,104	90%	April 2022
	Package 3/Lot B- Construction of Biyagama 220/33kV GSS and Augmentation of Biyagama Grid Substation	1,564	100%	January 2022
	SESRIP: Package 7-Lot A.3: Installation of 124Mvar Breaker Switched Capacitor Banks in Colombo City Grid Substations and Replacing the detuned Breaker Switched Capacitor Banks at Thulhiriya Grid Substation	1,763	Contract Agreement was signed on 30th March 2022.	December 2023
Green Power Dev. & Energy Eff. Imp Project-Tranche 1: Part II	Construction of Kappalturei GS and Augmentation of Kerawalapitiya, Katunayake and Trincomalee GSS	2,525	100%	January 2022
	Construction of Kesbewa and Kaluthara GSS and Augmentation of New Anuradhapura Old Anuradhapura GSS	2,738	100%	February 2022
	GDPEEIP: Tranche 2 - Package 9 : 220kV Switching Station at Kerawalapitiya	2,910	42%	August 2022
National Trans. & Dist. Net. Dev. & El Project	Package 1 - Construction of 400kV, 220kV and 132kV Transmission Lines	13,003	60%	June 2023
	Package 2 - Construction & Augmentation of Grid Substations	7,418	68%	July 2023
	Package 3- Construction of 220kV and 132kV Transmission Lines	12,000	60%	June 2023
	Package 4 -Construction of Primary Substations, Distribution Substions and Cables in Dehiwala, Mt. Lavina and Baththaramulla	4,880	41%	September 2023
Transmission Construction Projects Branch-TL Constructions	Installation of 100 MVAr Reactor at New Anuradhapura GS and 50 MVAr Reactors at Mannar GS	1,463	98%	April 2022
	Construction of Wagawatta Grid Substation	1,898	80%	August 2022
	Reconstruction of Medagama - Ampara 132kV Transmission Line	3,276	9%	January 2025
	Construction of Victoria – Rantembe 220kV Transmission line	1,400	5%	December 2024
	Construction of Poonaryn – Kilinochchi 220kV Transmission Line	3,450	8%	December 2025
	Augmentation of Athurugiriya - Kolonnawa 132kV Transmission Line	170	35%	June 2023
	Reconstruction of Kolonnawa - Pannipitiya 132kV Transmission Line	960	8%	June 2024

	Raising Heights of Kelanitissa - Kolonnawa 132kV Transmission line	702	8%	April 2023
	Raising heights of Biyagama - Pannipitiya 220kV Transmission Line	121	Funds yet to be received from RDA to commence the project.	February 2023
Transmission Construction Projects Branch- GS Constructions	Installation of 2x50MVAr Reactor at New Anuradhapura GS and 1x50MVAr Reactor at Mannar GS	1,463	98%	November 2022
	Construction of Wagawatta Grid Substation (2x45MVA T/F with DBB)	1,898	80%	December 2022
	Extension of Kelanitissa 132kV GIS	464	66%	December 2022
	Construction of Two Nos. of 220kV Double Busbars Transmission Line Bay at New Polpitiya Switching Station	291	97%	October 2022
	Kotugoda Augmantation Work	73	68%	May 2022
	Balangoda Augmantation Work	66	64%	June 2022
	Athurugiriya Augmantation Work	15	45%	March 2023
	Construction of Two 33kV Feeder Bays at Rathmalana Grid Substation	148	99%	March 2022
	Construction of 132kV Single Bus Bar Transmission Line Bay at Ampara GS	85	17%	January 2023
	Construction of 220kV GIS at Rantambe Switch Yard	2,809	Tendering Process.	December 2023
	Construction of one nos of 220kV 1 1/2 Breaker System Transmission Line Bay at Victoria Power Station	229	Tendering Process.	December 2023
	Construction of 132kV Switch Yard at Randeniya (Umaoya Hydro Power Project)	350	78%	December 2022
Transmission Projects	Clean Energy Absorption Transmission Project - PMU1 (CEATP - PMU1) : Pre-Implementation Activities (Land Acquisition, IEE Approvals for Line Routes, Line Rout Survey, Layout Design of GSS, etc.)	405	27%	December 2025
Power System Reliability Strengthening Project	Package 1 (Lot A) - Construction of Kalawana and Negombo 132/33kV Grid substations	3,638	Tendering Process.	November 2024
	Package 1 (Lot B) - Construction of Mirigama 220/33kV Grid Substation, 2 Nos. 220kV Line bays at New Anuradhapura Grid Substation, 2 Nos. 132kV Line bays at Hambantota Grid Substation and, Augmentation of Matara 132/33kV Grid Substation	4,655	Awaiting for ADB concurrence to open price bid.	July 2024

	Package 2 (Lot A) - Construction of 132kV DC Matara-Hambantota Transmission Line(77km), 132kV DC Hambantota-Tissamaharana Transmission Line(23km), 132kV DC from Horana-Padukka Transmission Line to Homagama Grid Substation (8km), 132kV DC from Ambalangoda-Galle Transmission Line to Baddegama Grid Substation(0.5km), Cable Termination Tower at Kelaniya for UG cable termination of Peliyagoda GSS	4,396	Awaiting loan finalization from ADB	May 2024
	Package 2 (Lot B) - Construction of 132kV XLPE Cu Underground Cable to Peliyagoda 132/22kV Grid Substation	200	Awaiting loan finalization from ADB	July 2023
	Package 3 - Construction of 132/33kV Tissamaharama, Baddegama, Homagama and Peliyagoda Grid Substations	2,045	Awaiting loan finalization from ADB	March 2023
	Package 4 - Construction of 220kV, DC New Anuradhapura-New Habarana Transmission Line (46km), 132kV Kukule-Kalawana Transmission Line, 220kV Transmission Line from New Habarana-Veyangoda Transmission Line to Mirigama Grid Substation (5km),	2,921	Awaiting loan finalization from ADB	April 2024

4 Development Programs for the Year 2023

4.1 Transmission Developments

In addition to the Transmission Development Projects mentioned in the Section 4.5, following ten grid substation augmentations have been identified for the year 2023 to absorb renewable energy based generation, and to improve system reliability. These projects are the process of obtaining board approvals and will be included for the transmission planning studies.

- Augmentation of Mannar 220/33kV Grid Substation by the addition of 1x45 MVA, 220/33kV Transformer with associated switchgear and civil works.
- Augmentation of Hambantota 220/132kV Grid Substation by the addition of 1x63 MVA, 220/33kV Transformer with associated switchgear and civil works.
- Augmentation of Mahiyanganaya 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.
- Augmentation of Polonnaruwa 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.
- Augmentation of Maho 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.

- Augmentation of Vavunathivu 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.
- Augmentation of Norochcholai 220/33kV Grid Substation by the addition of 1x75 MVA, 220/33kV Transformer with associated switchgear and civil works.
- Augmentation of Embilipitiya 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.
- Augmentation of Valachchenai 132/33kV GSS by the addition of 1x31.5 MVA, 132/33kV Transformer with associated switchgear and civil works.
- Augmentation of Nadukuda 220/33kV GSS by the addition of 1x63 MVA, 220/33kV Transformer.

Further following projects have been identified as uncommitted proposals for the year 2023 and will be confirmed after ongoing transmission planning studies.

Project	Components
Southern Renewable Energy Zone Development	Construction of Sooriyawewa 220kV GSS Construction of Sooriyawewa GSS _Dev_2 200kV GSS Augmentation of Hambantota 220kV GSS Construction of Hambantota GS Sooriyawewa GSS - Sooriyawewa GSS 2 220 kV Transmission line
East Renewable Energy Zone Development	Construction of Sampur 220/33 GSS Construction of Sampur to Kappalthurei 220kV transmission line ((initially operates in 132kV) Construction of Vallachena 132 /33 kV exsisting grid substation Augmentation Construction of Vavunathiv 132 /33 kV exsisting grid substation Augmentation
Northern Renewable Energy Zone Development	Transmission Back bone 400 kV Development from New Habarana-Vavuniya- Nothern NCRE Collector Construction of Nothern NCRE Switching Station
North Western Renewable Energy Zone Development	220 kV Transmission Line from Vavuniya to Mannar conductor upgrade Construction of Silawatura- Mannar Transmission development Construction of Mannar-2 220 kV collector sub station Construction of second Mannar - Vavuniya 220 kV Transmission line

4.2 Generation Developments

In addition to the Generation Development mentioned in the Sections 3 , 4.2 and 4.3 following developments are awaiting for funding.

- Implementation of pilot scale 20 MW/50 MWh Battery Energy Storage System
- Initial work for the implementation of 200 MW IC Engine Power Plant in 2026 as per draft LTGEP 2023-2042 (This is identified in approved LTGEP 2022-2041 as well)
- Renewable Energy Development as identified in approved LTGEP at the time. (Some projects are already committed and ongoing as depicted in the Section 4.3)
- Initiate work related to establishment of Renewable Energy Desk with Resource Forecasting System

Chapter 03

Lanka Electricity Company (Private) Limited

1 INTRODUCTION

Lanka Electricity Company (Private) Limited (LECO) was incorporatedin 1983 under the Companies Act no. 17 of 1982 and the Companies Act No 07of 2007 for the primary objective of distributing electricity in its franchised area in the prime economic zone of western coastal belt of Sri Lanka from Negombo to Galle. Subsequently by the Electricity Act No 20 of 2009, LECO was brought in to the regulatory domain of the Public Utilities Commission with the issue of a distribution license to the company.

2 PROGRESS OF THE DEVELOPMENT PROJECTS & ACTIVITIES IN 2022

The Company's achievement exhibits our performance and the commitment made towards the high quality of service to the stakeholders.

Projects and Progress

Operations

- Expansion and rehabilitation work in the distribution network based on the electricity demand of the customers and the requirement of enhancing supply reliability.
- Enhancement of the electricity supply efficiency to the continuous reduction of distribution losses
- Continues development in the reduction of electricity breakdowns and respective restoration time.
- Reduction of the processing time for customer requested services including new connections.

Developments

- In the plan to turn the company's electricity network into a smart network, smart devices such as smart meters, network monitoring equipment and automatic switches are being installed and so far about 50,000 smart energy meters and devices have been added to the system.
- The company's internal operations are automated and moving towards paperless office concept. E-billing services are introduced to customers by making use of remote meter readings and payments can also be made through the internet. All customer services are also open for internet based applications.
- Advanced Distribution Management system is introduced to automate the networks controls.
- All network assets of the company's electrical system have been acquired through GIS technology and thus the ability to effectively manage operations has been achieved.
- The Micro Grid project funded by the Asian Development Bank under the Green Power Development and Energy Efficiency Improvement Investment Project has been successfully completed.
- The Pilot Underground Cabling Project of Nugegoda has been completed as planned which converted the medium voltage

power grid of densely populated Nugegoda City Centre in to the underground network.

- Construction of the proposed LECO Head Office building complex at Narahenpita has been commenced.
- 24-hour cash and cheque payment collection facility has been enabled by introduction of self-payment centers with kiosk machines and the facility is being extended to all LECO Customer Service Centers.
- Establishment on Smart Meter Data Management Center to facilitate AMI and Smart Meter related products and services to enhance service quality, is nearing completion

3 FINANCIAL POSITION OF THE COMPANY

	2017	2018	2019	2020	2021	2022 Budget	2022 ACTUAL YTD - SEPT.
Consumers (Billed)	546,571	562,412	568,250	576,279	591,888	616,011	592,641
Sales GWh	1519	1,570	1,647	1,624	1,603	2,262	1,189
No. of employees	1,573	1,570	1,535	1,527	1,505	1,510	1,458
Consumers /Employee Ratio	347	358	370	377	393	408	406
Distribution Losses (11 Kv) %	2.7	2.27	1.61	1.34%	1.94%	3.99%	3.78%
Revenue Rs Mn	29,930	30,944	32,461	30,709	32,201	46,263	25,913
Profit from operations Rs Mn	946	779	543	1,543	4,360	415	1,484
Profit for the year Rs Mn	1,792	2,970	2,687	1,792	3,233	1,566	1,515
Total equity Rs Mn	29,115	31,756	33,537	34,792	38,409	39,975	40,049
Total Liabilities Rs Mn	11,476	12,348	13,960	12,630	14,059	13,025	12,518
Total assets Rs Mn	40,591	44,104	47,497	47,422	52,468	53,000	52,566

4 CHALLENGES FACED & STRATEGIES ADOPTED IN ADDRESSING SUCH CHALLENGES

- Due to the COVID-19 pandemic situation, the government granted payment concessions to the electricity consumers and as a result of this, LECO trade debt situation has increased significantly.Although the relevant grace periods have ended, the current economic recession has had a significant impact on the settlement of arrears of customers.From the end of 2021, an installment basis payment settlement scheme was introduced to settle the electricity account balances that could not be paid during the pandemic period, thereby giving customers the opportunity to settle the bill balances with minimum impact.The process of disconnection has been initiated for customers who continue to avoid installment payments and arrangements have been made to carry out the work taking into account the demands and needs of each customer.

- Due to restriction of imports of goods from 2021 and due to the ongoing foreign exchange crisis, the company's suppliers have been severely affected and many supplies have been disrupted. Due to the abnormal price fluctuations, some suppliers have stopped supplying goods and services and it has become a challenge to deal with it within the existing procurement framework. Due to this, some of the services provided to the customers have also been disrupted.
- Due to the electricity power cut from the first quarter of 2022, the displeasure of customers has been directed at the company, but the company is working to alleviate this situation by explaining the facts and improving the quality of other services.
- Actual sales were declined compared to the budgeted sales forecast due to prevailing economic conditions. However, the company has been able to control current overhead costs.

5 PROGRAMES & PROJECTS FOR 2023

- Recognize that the further increase the efficiency and effectiveness of the LECO's services is a major task and for that purposes, the Business Process Re-engineering process will continue to cover all sectors. Furthermore, a Performance Management System will be implemented to enhance the level of efficiency in the LECO.
- Research and development works will be continued in the implementation of the smart grid solution in enhancing the efficiency and customer services.
- Projects to strengthen the reliability of the power system will be continued. Among them, the project planned to be carried out under a loan cost of USD 50 million which expected to be financed by the Asian Development Bank is special and it is planned to complete within four years. It is anticipated to introduce 33kV as a distribution voltage of LECO and introduce direct 132/33 kV Grid Substations to source the LECO network to improve the reliability.
- The construction project works of the LECO Head Office is ongoing and it is planned to be completed in the year 2024.

Chapter 04

Sri Lanka Sustainable Energy Authority

1.0 Key objectives and activities of SLSEA

Sri Lanka Sustainable Energy Authority (SLSEA) is the government entity that implements the sustainable energy agenda of the country by developing all forms of renewable energy, improving energy efficiency across all sectors, formulating conducive policies, energy information management, and ensuring necessary investments in the sustainable energy sector. The power sector of Sri Lanka is presently facing many challenges, especially in relation to the supply of uninterrupted electricity for the entire country at affordable prices, and the severe adverse effects on the economy due to heavy dependence on imported fossil fuels for thermal power generation. In order to arrest this situation, the Government has set the following targets;

- 70% grid electricity generation using New Renewable Energy sources by 2030 as an alternative to imported fossil fuel.
- 30% reduction in total energy use in 2020 through the implementation of energy efficiency improvement and conservation (EEI&C) measures by 2030.

SLSEA has engaged several strategies to realize these targets while ensuring the energy security of the country.

- Increasing the use of all forms of renewable energy
- Improvement of energy efficiency and conservation across all energy value chains
- Formulation of policies and strategies to encourage the transition of the country's energy system from a fossil fuel base to a sustainable energy base
- Creation of a conducive climate for sustainable energy investments in the country
- Introduction and promotion of new sustainable energy technologies
- Engaging the public to adopt sustainable lifestyles, habitats, and neighbourhoods

2. Progress 2022

2.1 Current status of energy conservation in Sri Lanka and new measures introduced in 2022

2.1.1 Industrial & Service Sector Programs -ISS

2.1.1 Establishment of Energy Management Systems

The registered energy managers, auditors, and companies that are involved in energy management activities mainly in the industrial and commercial sectors have been given as follows.

(i) 237 Energy Managers
(ii) 24 Accredited Energy Auditors
(iii) 29 Energy Service Companies (ESCo)

Online awareness programme was conducted on energy efficiency improvement targeting the government institutions in North Western province. Capacity building programme on energy conservation and energy auditing was conducted for tea sector. Procurement

process was initiated to conduct another two capacity building programmes for tea factories in Up/mid and low country. A proposal was submitted to JICA to conduct awareness programmes targeting tea, retail and financial sectors which are funded by JICA, since these sectors are initially targeted by the energy benchmark regulation.

The **development of a web portal for reporting and analysis of energy consumption data** is in progress with the assistance of the USAID Sri Lanka Energy Programme (SLEP). Appointing of Energy Management Officers and **Energy data collection** from government institutions is continuedas **a regular activity.**

2.1.2 Energy Audits, Consultancy Services & Facilitation of Measurements

SLSEA assists industries and commercial and state sector institutes to solve their energy-related issues by providing consulting services, answering queries, and conducting energy audits. Energy audits were conducted for Sri Lanka Rupavahini Corporation and the Kurunegala hospital. Energy Audits at the postal department and the Sri DaladaMaligawa, Kandy is in progress.

2.2 Household, Agro& SME Sector Programs -SME

2.2.1 Energy Labelling Programme

Description	Progress
Minimum Energy Performance Standard for LED lamps	• MEPS labelling scheme is in full operation • Media content on MEPS label developed
Minimum Energy Performance Standard for LED Panels	• Preparation of published the standard as SLS 1740:2022.
Energy Labelling program for Water Pumps	• Energy performance standards for water pumps was completed and the initial work related to the procurement of a pump test facility was completed.
Energy Labelling program for Ceiling Fans	• Test facility established at SLSI became fully functional and the labelling scheme is in full operation
Energy Labelling program for Computers	• Voluntary program is in operation.
Energy Labelling program for refrigerators	• Voluntary labellingprogram is in operation. Three Companies joined the voluntary program.
Energy Labelling program for LED lamps	• Mandatory MEPS label became operational.
Room air-conditioners	• A grant for the establishment of an air-conditioner test facility was approved by the Korean Government and the establishment of the test facility for testing the performance of room AC is in progress.
Televisions, rice cookers and table/pedestal fans	• Preparation of energy performance standards for these appliances is in progress and tests have been performed to determine the respective benchmarks for the appliances. • Preparation of standards for pedestal and wall fans is in was completed.
Electric Motors	• Revision of the draft standards for electric motors was completed.

2.3 System&Planning Programs - SNP

2.3.1 Codes and Guidelines for Built Environment

Building Code has been published by SLSEA, and it is reviewed and updated at certain intervals to be on par with technology updates and enhanced compliance requirements. A New edition of the Building Code was completed. Training of Building Services Engineers and the staff of SLSEA on building simulation software.

2.4 Surveys & Research Programs - SNR

Surveys and research programmes forenergy efficiency improvement & conservation in the year 2022 are described below.

- Several investigations on policy gaps, barriers, and obstacles to EEI & RE Programmes in all sectors are in progress.
- Procurement of Hiring a Consultancy Service for the Survey on Chillers in Sri Lanka to prepare inventory, get the information of chiller population and quantify the overall saving potential of replacing with efficient units is in Progress. Evaluation of Technical Proposals completed.
- Survey on Analysis on Domestic Solar Rooftop Customer Behaviour-Preliminary Questionnaire is prepared and review in progress
- Pilot scale exchange program for old inefficient refrigerators with new efficient ones in the Western Province. –Meeting with vendors was held on 30/03/2022 to comments to develop a programme. Leaflet and guidelines are in the press.
- A program is being implemented to replace inefficient streetlamps in the Nugegoda Supermarket LECO area.

2.5 Policy & Advocacy Programs - POA

2.5.1 Energy Information Management

Sri Lanka Energy Balance 2019 was published and work has been initiated to compile the Sri Lanka Energy Balances of 2020 and 2021.

2.6 Outreach & Promotion Programs (ONP)

Several activities to engage the citizens and the student population of the country was carried out in 2022 under trying circumstances due to the pandemic situation. Some of the highlights are as follows:

- Production of a cartoon on wind energy for preschool children.
- Production and launch of a video presentation on energy-efficient cooking.
- Publication of the quarterly magazine Sanraksha in four volumes.
- Production and release of a video on tacit knowledge of Sustainable Energy
- Production and release of a video documentary on Solar Energy was released to lure school leavers to the solar industry
- Successfully conducted a webinar on wind energy on March 17, 2022.
- Inaugurated a Journalist Training Programme on Energy and Environment on June 07, 2022.
- Awareness programs were conducted on energy conservation for the following institutes

Bureau of Commissioner General of Rehabilitation Office, Battaramulla	February 17, 2022
Ministry of Mass Media, Colombo 05	February 21, 2022
Mas Holdings, Silhouette Factory, Biyagama	March 28, 2022

2.7 Resource Mobilisation Programs (RMD)

The World Bank and the Green Climate Fund initiated a line of credit worth USD108 million to improve the energy efficiency of commercial and industrial cooling facilities in both the public and private sectors. It is expected that the fund flow can begin in late 2022 to benefit the country. A Cabinet Memorandum for CESS was submitted in July 2022.

New renewable energy projects implemented in 2022

3.1 Renewable Energy Development Programs

3.1.1 Resource Development & Facilitation Programs -RDF

SLSEA undertakes the issuance of Energy Permits (EP) & Provisional Approvals (PA) for on-grid renewable energy projects. A summary of the project commissioned up to the end of July 2022 is given below:

Resource	PA issued (MW)	EP issued (MW)	Commissioned (MW)
Biomass	0	5	-
Mini Hydro	10	39.3	-
Solar Rooftop	0	0	181
Solar Ground Mounted	560	79.4	19
Wind	80	10	-
Solid Waste	10	2	-
Total	**660**	**135.7**	**200**

SLSEA and CEB jointly invited proposals from prospective Investors to develop Renewable Energy Generation projects of 50 MW or above from Renewable sources, preferably with the technology for storage at the end of December 2022. Out of hundreds of project proposals, Provisional approval has been granted to twenty-one projects. Despite the pandemic and economic crises, there are a number of projects progressing. However, there are a significant number of projects affected by the rupee depreciation as well as exorbitantly escalated bank interest rates.

3.2 Technology development & ResearchPrograms (RND)

3.2.1 Park development projects

3.2.1.1 Siyambalanduwa 100 MW Solar Power Project

The target of calling a Request for Proposals (RFP) for the Siyambalanduwa 100 MW solar power project, was accomplished in August 2022. the proposals will be evaluated for selecting a suitable developer of the project with SLSEA participation.

- The construction of access roads is in progress.
- A tree re-plantation program is in progress in collaboration with the Department of Forest Conservation
- A weather station was established and successful one-year data has been collected the for effective design of the power station.

3.2.1.2 Pooneryn RE Park Project

The Environmental and Social Impact Assessment is on the way. The site will realize a 233MW wind power capacity and 150MW solar power capacity development.A wind power capacity of 100 MW has been selected for the first phase of the project.

3.2.1.3 Mannar Phase II Wind Power Project Completed Feasibility study, drone survey, Birds and Bats study and, environmental Study and, land acquisition is going on.

3.3. Resource Mapping Programs - RMP

3.3.1 Identifying Renewable Energy Resources

Renewable Energy Park Identification

- Veravil Wind Project 200 MW Initial steps have been taken up to develop a 200MW wind power plant at Veraval and EIA studies were initiated.
- Karachchi Wind Project 100 MW Pre-feasibility report has been completed and planned to initiate the EIA process
- Following solar and wind parks were identified and initial site visits were completed.
- Karachchi Solar Project 100 MW, Ponnalei Wind Power Project 100 MW, Manthai West Wind Power Project 100 MW, Hambantota Solar Power Project 100 MW
- Verifying the identified resources with relevant stakeholders
- Identified land ownerships and Land Used status for the potential lands with Land Use Policy Planning Department
- Renewable Energy Development Master Action Plan (REDMAP) has been developed with the Ceylon Electricity Board (CEB) and RMA.
- Considering the Renewable Energy Resource Potential identified through the REDPLAN, REDMAP and the Projects received from the EoI process Renewable Energy Resource Potential Plan was developed for achieving 70% electricity generation using renewable energy by year 2030.

3.4 Renewable Energy Services Programs - RES

3.4.1 Soorya BalaSangramaya

total installed value up to now is 640 MW of solar rooftop systems. 468 Service Providers were registered with the SEA by March 2022. The created total employment opportunities in the industry was 8050 including 1250 Engineers, 3,200 technicians, and 3,600 non-technical officers by march 2022.

4. New renewable energy projects implemented in 2023

4.1 Resource Mapping Programs

Take necessary arrangements to fulfill the requirement of onsite measurements for proposed renewable energy parks in Veravil and Karachchi.Ponnalei wind power plant and Manthai west wind power plant.Initiate to revise the development of Renewable Energy Resource Development Plan for year 2024 – 2029.

4.2 Renewable Energy Servicers Programs

Construction of 135 MW Solar Power Plants in Sri Lanka – Indian Line of Credit,the Government of India has offered a credit line facility of USD 100 million through Indian Exim Bank for strengthening the solar power development in Sri Lanka. The program is expected to be launched in 2022 with a time span of 3 years.

Construction of Hybrid Renewable Energy System in Small Islands in Jaffna, Sri Lanka. This project is to generate electricity in three islands of Jaffna namely Analaitivu, Delft and Nainativu in Sri Lanka with hybrid power plants based on Photovoltaic, Wind Power, Diesel Generator and Lithium-Ion Storage batteries. Capacities of PV, wind and Diesel sources with the battery storage corresponding to the optimum generation mix have already been defined for each island and presented in the table below.

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

The Government of India (GOI) shall provide grant assistance of up to USD 11 million or tendered cost whichever is lower in the implementation of hybrid power plants.

1 MW Floating Solar Projects in KiriibbanWewa and Chandrika Wewa funding sources by Ministry of Trade, Industry & Energy in Korea has agreed to provide grant funding of approximately KRW 14.3 Billion and KRW 6.83 Billion for the implementation of the above projects.

5.0 Energy Management and conservation implemented in 2023

5.1 Industrial Services Sector (ISS) Programs

5.1.1 Establishment of Energy Management Systems

Awareness programmes will be conducted for financial and retail organizations. Regulation schedules for energy benchmarking of tea sector will be drafted. A web portal for energy benchmarking will be launched. Energy data collection and analysis will be continued for tea, financial and retail sectors. Regulation will be drafted to restructure the Energy Auditor scheme.

5.1.2 Energy Audits, Consultancy Services & Facilitation of Measurements

New measuring instruments will be purchased for SLSEA instrument bank. Instrument calibration, instrument hiring will be continued as regular activities. Energy audits and consultancy services will be conducted for government institutions as per the requests received from those institutions.

5.2 Surveys and Research (SNR)

Chiller Survey will be continued.

New Technology and Energy Chains

Efficient Refrigerator Replacement Programme will be continued.

Chapter 05
LTL Holdings (PVT) Ltd

1. Introduction:

LTL Holdings (PVT) Ltd, formerly known as the "Lanka Transformers Limited" is a public private partnership between the Ceylon Electricity Board and two entities, the ownership of which rests with the employees of LTL Holdings (PVT) Ltd.

Currently, the LTL Holdings is the largest independent power producer in Sri Lanka, providing over 300MW of power to the national grid through its subsidiaries.

Dividend Income from Foreign Subsidiaries – 2022

The dividend income earned from foreign investments during the year under review, amounts to a sum of almost USD 4Mnas per the details tabulated below:

1. Asiatic Electrical & Switchgear (PTE) Ltd, India. (INR 7.5 Mn)- Estd.	- USD.90,000.00
2. Bright International Power PTE Ltd, Singapore	- USD. Nil
3. Lakdhanavi Bangla Power Ltd, Bangladesh (BDT 63.5 Mn)	- USD. 667,552.22
4. Feni Lanka Power Ltd, Bangladesh (BDT 305.33 Mn)	- USD.3,207,203.90
5. Raj Lanka Power Ltd, Bangladesh	- USD. Nil…….
Total	**USD.3,964,756.12**

2. Challenges faced and strategies adopted to address such challenges during the period

a) The post Covid 19 Pandemic global recession worldwide had disturbed the productions/trading etc., to a considerable extent due to various restrictions enforced by the Government/ Ministry of Finance on imports & opening up of LCs owing to the depleted foreign currency situation in the country.

b) Lakdhanavi, to whom the contract for the construction of 350MW Combined Cycle Power Plant awarded, is unable to accelerate the progress of works as expected due to the lender consortium led by ADB for a debt facility of USD 130M has suspended the the process of debt financing of the Project indefinitely as the rating of the country dropped below the acceptable margin. Our attempts to arrange for a Bridge Loan of USD 95M (until ADB Loan is granted) is yet to be finalized. The orders were placed for the required machinery& equipment with the suppliers overseas, having opened the LCs against advance payments. The Machinery & Equipment Suppliers have declined accept letters of credit opened through Sri Lankan Banks, instead are demanding that such letters of credit be confirmed by foreign banks. The suppliers are also now demanding 100% upfront payment to commence manufacture of Machinery & Equipment, which conversely, is not allowed under the Import Regulations of Sri Lanka, prior to shipping.

The EPC Costs of the project, such as for Power Generating Units, Electrical & Mechanical Balance of plants/equipment, Civil construction, erection, installation, heavy equipment transport, engineering and supervision services, testing & commissioning, have increased considerably. Unprecedented increases in freight charges, transportation of

machinery/equipment, heavy bank charges on confirmed LCs and VAT local project expenses too have skyrocketed the project to a dizzy height.

In this context, several communications were addressed to the CEB, Ministry of Power, Ministry of Finance, Central Bank of Sri Lanka including issuing Force Majeure Notices to the CEB, citing the reasons for the delay in progress.

Under the present predicament, the Sobadhanavi 350MW RLNG operable Combined Cycle Power is very critical for the Power Sector as the First Phase is required to be commissioned by May 2023 adding 220MW, which would be increased to 350MW by May 2024. If this Power Plant is not commissioned as planned, the country would undoubtedly plunge into severe power shortage with extended power cut hours, resulting in severe setbacks in the development progress of the country in the offing.

Lakdhanavi Limited, being the Project Sponsor, intends to carry out financial transactions the machinery/equipment cost of the Project through UPAS (Usance LC payable at sight) LC facilities in order to reduce the IDC for the Project. Due to the continuous downgrading of the Sri Lanka's credit ratings by International Credit Rating Agencies, the Local Banks in Sri Lanka had faced severe scarcity for foreign currencies from last quarter of 2021, creating a loss of trust & confidence in Sri Lankan Banks among the International LC confirming Banks.

As explained hereabove, in the absence of the Project Financing from the ADB consortium, we are in the process of negotiating with the Local Banks to obtain a LKR based Long Term Project Loan with a tenor of 10 years, through a consortium of 5 or more banks, in concurrence with the Central Bank of Sri Lanka,

The Company has introduced various controls over the outgoings, eliminating expenses over the non-essentials. The management & staff have also volunteered to ease the wage bill, by allowing a salary reduction of 15% to 25% to be reimbursed once the liquidity crisis encountered by the company returns to normalcy.

3. Progress of the Development of Projects and activities of the Institution during the period (January 2022 to August 2022)

3.1 Operations and Maintenance of Power Plants

300MW Combined Cycle Yugadhanavi Power Plant at Kerawalapitiya

Annual Energy sale for the year 2022upto 31st August, is 711.456 GWh and achieved availability is 88.35 %. The annual availability target for the year 2023 has been based at 70%.

Despite various obstacles and shortage of HFO & Auto Diesel owing to the aftermath of the Covid 19 Pandemic and foreign exchange depletion in the country, the Plant has been in operation continuously without any interruption, keeping plant availability at 88.35%, against a target availability of 70%.

A major inspection of the Gas Turbine No 01 & 02 has been scheduled on a staggered-outperiod from December 2022 to September 2023, especially on Combustion and Hot Gas Path and may sometime vary depending on the plant operation.

3.2 Raj Lanka Power Plant,Natore, Bangladesh (RLPP)

Annual Energy sale of RLPP for the year 2022upto August is 193.325 GWh and achieved availability is 95.36%. The annual

availability target for the year 2023 has been based at above 95%.

3.3 Lakdhanavi Bangla Power Plant, Comilla, Bangladesh (LBPP)

Annual Energy sale of Lakdhanavi Bangla Power Plant for the year 2022upto 31st August is 193.501GWh and achieved availability is 87.83%. The annual availability target for the year 2023 has been based at above 90%.

3.4 Feni Lanka Power Plant, Feni, Bangladesh

Annual Energy sale for the year 2022 up to 31 August is 286.564 GWh and achieved availability 91.39%. The annual availability target for the year 2023 has been based at above 92.00%.

3.5 Pawandhanavi Wind Power Plant, Norochcholai

Annual Energy sale for the year 2022upto 31st August is 15.54 GWh and achieved Plant Factor is 26.4%. The annual availability target for the year 2023 has been based at 90.%. This plant was subject to the periodical maintenance service, during the year under review.

3.6 BelihulOya Mini hydro Power Plant

Annual Energy sale for the year 2022upto August is 6.3 GWh and achieved Plant Factor is 46.80 %. The annual availability target for the year 2023 has been based at 95.00%. The damage caused to the penstock and Penstock Trail of the plant dueto torrential rains/floods had been satisfactory repaired and the operations resumed at its full capacity.

3.7 Assupini Ella Mini hydro Power Plant

Annual Energy sale for the year 2022upto August is 8.21 GWh and achieved Plant Factor is 34.85%. The annual availability target for the year 2023 has been based at 95%.

3.8 10MW Makarigad Hydro Power (PVT) Ltd, Nepal

The required land for the construction of Power plant has been acquired from private owners and Government. 92% of the overall progress of the Project has been completed, including the Transmission lines.The final date of commissioning of this Power Plant has been scheduled for 15th December 2022. The Project carry a generating capacity of 10MW and will be able to produce saleable energy of 74 GWh annually. The shareholding structure of LTL Energy (PVT) Ltd, a fully owned subsidiary of LTL Holdings (PVT) Ltd:

3.9 350MW LNG Operable Combined Cycle Sobadhanavi Power Plant at Kerawalapitiya

open cycle of the plant was scheduled to start on 15th April 2023, the date was postponed to 15th November 2023 due to various restrictions enforced by the Government owing to depleted foreign exchange reserves followed by the aftermath of Covid 19 Pandemic situation in the country. All statutory approvals required for Project execution have been obtained and the preliminary constructions works commenced in parallel. The final approval of the BOI has been obtained on 06th September 2022. Application for generation licence has been submitted to the PUCSL.

The engineering activities related to Open Cycle have been accelerated and 90% of works completed ahead of schedule. The GT has already been shipped on 05/09/2022.

3.10 100MW Solar Power Project in Bangladesh

Negotiations are being carried out with several technically qualified Operating Members, who are interested in investing in the Project to explore the possibility of a joint venture partnership to undertake the project.

3.11 Manufacturing and Marketing of Transformers

The production recorded for the Period 01/01/2022 to 31/08/2022 are as follows:

		2022 Jan-Augt	2021 Jan-Augt.	20211 Jan-Decr.
a)	No. of Transformers supplied to CEB/ LECO	760	1,444 Nos.	2,162 Nos.
b)	No. of Transformers supplied Other Local customers	125	214 Nos.	175 Nos.
c)	No. of Transformers exported to other countries	-	801 Nos.	1,511 Nos.
Total Production		**885**	**2,459 Nos.**	**3,848 Nos.**

3.12 Galvanizing& Fabrication Plants at Sapugaskande

Production Details – Galvanizing Plant

PERIOD	2022 (Jan -Augt.)	2021 (Jan – Augt)	Variance
Production	In M/ Tonnes	In M/ Tonnes	In M/Tonnes
CEB	601	1,096	495
Inter Companies	2,270	2,706	436
Private Organizations	3,395	4,709	1,314
TOTAL	**6,266**	**8,511**	**2,245**

The production for the current year fell short of the corresponding period of the previous year by 2,245 M/Tonnes due to infra structural development works of the CEB and Private Organization have decreased considerably owing of lack of raw materials coupled with exorbitant prices.

3.13 ASIATICELECTRICAL & SWITCHGEAR PVT. LTD, NEW DELHI, INDIA

Asiatic Electrical & Switchgear (PVT) Ltd, India

LTL Holdings (PVT) Ltd has successfully acquired 99.06% of the stake of Asiatic Electrical & Switchgear (PVT) Ltd, a well reputed Indian Company in early 2017, which manufactures and supplies Electrical Switchgear and related power sector equipment after having made successful negotiations. This facility was much needed for company to strengthen and enhance its power sector engineering works globally. Asiatichas made steady progress during the period under review. For the Financial year 2021/22 , the recorded turnover was INR 632.8 million. During current financial year, company has already recorded INR 365.5 million till August 2022 and this trend is continued successfully.

4. Financial Position of the Institution

Performance of LTL Holdings Group of Companies during the Financial Year including Financial Highlights during January to August 2022

Tabulated below is a summary of the Financial Performance on major operations in comparison to the previous years are shown below:-

The Revenue of Power Generation has increased due to very high prices of LNG worldwide. Bangladesh Power Development Board (BPDB) has shifted its dependency from gas plants to HFO based power plants for power generation needs of the country. Hence, the plant factor for our power plants in

Bangladesh (Raj Lanka / Lakdhanavi Bangla/ Feni Lanka) has increased considerably.

Despite the economic crisis in the country, the gross profit generated during the period January to August 2022 recorded an increase of 57% over the corresponding period same date last year.

PERIOD	01 Jan '22 to 31 Aug '22	01 Jan '21 to 31 Aug.21	F/Year April'21 to 31 March' 22	F/Year April'20 to 31 March' 21
TURN OVER	**(Rs. Million)**	**(Rs. Million)**	**(Rs. Million)**	**(Rs. Million)**
Manufacturing & Misc. Services	8,868	7,070.	11,312	10,091
Power Generations	31,952	16,810.	28,817	10,875
TOTAL	**40,820**	**23,880.**	**40,129**	**20,965**
GROSS PROFIT				
Manufacturing & Misc. Services	3,104	2,536.	4,057	4,686
Power Generations	5,751	3,082.	5,284	5,221
TOTAL	**8,855**	**5,618.**	**9,341**	**9,907**

5. Programmes& Projects for 2023

Development offollowing Power Plant Projects

(i) 350MW LNG -I Combined Cycle Sobadhanavi Power Plant at Kerawalapitiya

(ii) 350MW LNG – II Combined Cycle Sobadhanavi Power Plant at Kerawalapitiya

(iii) Restructuring of the Ownership of LTL Holdings (PVT) Ltd& Lakdhanavi Ltd, by issuing New Shares

Restructuring of Shareholdings of Lakdhanavi Ltd

Restructuring of Shareholdings of LTL Holdings (Pvt) Ltd

(iv) Expansion of Manufacturing in Africa

In order to extend its manufacturing arm to international heights, LTLT proposes a brand-new transformer manufacturing facility in African region which can cater to the rising transformer demand in the region. Possibility of establishing a transformer factory in Tanzania or Uganda in collaboration with a company that refines copper is identified as a result of a discussion we had with a stakeholder in African region.

(v) Renewable Energy – Proposed Power Plan Projects in 2023

a) 100MW Solar Power Plant Project in Bangladesh

Lakdhanavi has identified an opportunity of a 100MW Solar Plant at Munshiganj District in Bangladesh with feasible land and interconnection facility. This IPP renewable power project, on a BOO basis is for 20 years of operation on a No Electricity No Payment basis.

b) 100MW Solar Power Plant Project in Cambodia

Extensive feasibly studies were carried out and proposals were made for the development of 100MW Solar Power Plant Project in Cambodia. Suitable land areas were identified, and negotiations are underway to explore the possibility acquiring the sites.

Chapter 06
Lanka Coal Company (Pvt) Ltd

INTRODUCTION

Lanka Coal Company (Pvt.) Ltd (LCC), is a fully government owned business undertaking. The Company was incorporated solely for the purpose of import and supply of coal to the Lakvijaya Power Plant (LVPP) at Norochcholai, Which operates under Ceylon Electricity Board (CEB). Our Shareholders consist of following;

- Ceylon Electricity - 60%
- Treasury Department - 20%
- Ceylon Shipping Corporation - 10%
- Sri Lanka Ports Authority - 10%

LCC procuring 2.25 million tons of coal for the Norochcholai power plant for a season as an annual requirement of CEB. Due to the southwest monsoon season on the west coast, coal supply is limited to seven months from the month of September to the month of April next year. However, the power plant is operating throughout the year for continuous supply of coal to the national grid. Therefore, Coal storage to use in off-season is must.

Due to the nature of procurement and operation of the coal supply has always been spread over two calendar years. Accordingly, the procurement and action plan has derived and projected to meet the coal requirement. However, the both of the schedules are highly depend on the annual coal requirement, which is informed by the Power Plant Manager in June or July of each year.

Lanka Coal Company is also responsible for coal unloading / barge operation and coal insurance. Based on the cabinet decision, the coal unloading / barge operation is handling by CSC for the two seasons 2021-2022 and 2022-23.

In addition, for coal inspection, there is a triparty agreement among Lanka Coal Company, Ceylon electricity Board and the Service Provider. The service provider will be selected by the International Competitive bidding process.

PERFORMANCE OF LCC 2021

We were able to secure 100% of LVPP's coal requirements until the start of the next coal season on September 20, 2022, despite the difficult effort of managing supplies due to the country's current financial and economic challenges.

a. Progress of Coal Payment for previous coal Season 2021-22

The total balance payment scheduled for the previous supply season 2021-2022 is as follows.

Table No. 2 - Payment Summary Season 2021-22

Supplier	Total Payment Overdue and defaulted (USD million)	Total Payment Settled (USD million)	Total Balance to settle (USD million)
Swiss Singapore	50,889,871.47	38,866,090.90	12,023,780.57
Suek AG	40,398,218.66	28,584,450.92	11,813,767.74
			23,837,548.31

Supplier Total Payment Overdue and defaulted (USD million) Total Payment Settled (USD million) Total Balance to settle (USD million)

PROGRAMS FOR SEASON 2022- 2023

A. Coal Supply 2022-2023

The CEB coal requirement of 2.42 MMT ±10% for the season 2022-23 will be supplied by 40 shipments. The Term Tender LCC/21/TT/1 will be proved 19 shipments and two balance shipments will be provided from Spot Tender 28/5. The Spot Tender LCC/22- 23/ST/29/1 will invite 5 shipments to supply 300,000 MT and the rest of the 14 shipments will be supplied by either Spot Tenders or a Term Tender.

Coal supply Schedule for Season 2022-23

Procurement Method	Quantity MT ±10%	No of Shipments
Spot Tender 5, LCC/21-22/ST/28/5	120,000	02
The Term Tender, LCC/21/TT/1	1,140,000	19
Spot Tender – LCC/22-23/ST/29/1	300,000	05
Spot Tenders or Term Tender	840,000	14
Lakvijaya Power Plant requested quantity for 2022-23	2,420,000	40

A. Coal Transportation Up to the LVPP Jetty (freight + Lightering + Insurance)

I. Freight from the port of Loading to the Puttalam Anchorage

LCC will be called Coal Term Tender and the spot tenders on CFR basis to procure the quantity required by Ceylon Electricity Board from Mid May 2022.

II. Lightering / barge operation from mother vessel to barges and to the Jetty CEB

Lightering and barge operation is awarded to Ceylon Shipping cooperation to two seasons 2021/2 and 2022/23. Further, they have called a tender and selected a sub-contractor Shrijee Shipping India. The contract will be over end of the coal season 2022/23.

However, LCC is planning to do a tender to select a suitable barge service provider for the next season 2023/24 by calling a fresh international competitive bidding.

III. Marine Insurance for Coal Transportation

The insurance coverage for the cargo will be done locally by calling a tender from the companies who are listed under the Insurance Regulatory Commission of Sri Lanka (IRCSL). Peoples' Insurance PLC was awarded the insurance contact for two seasons 2021/22 and 2022/23. Accordingly, the contact will end at the end of the season 2022/23.

LCC will coal a fresh tender for the next season be for starting the next coal season 2023/24.

IV. The Independent Testing Agency for coal supply

For Draft Surveying, Sampling and Analysis of coal at the discharging Port will be done by an independent coal inspection agency who have the fully accreditation. This is a try party agreement in between LCC, CEB and Selected coal inspector. The coal inspection has awarded to COTECNA Inspection India for the three season from 2019/20, 2020/21 and 2021/2022.

B. Coal Payment Mechanism for Season 2022-2023

A particular method of payment has not been finalized for the season 2022- 2023. The summary of the fund requirement as is follows;

Summary of fund requirement for season 2022-2023

Tender	No of shipments	Fund Requirement	
		USD (million	LKR (billion)
Term Tender LCC/21/TT/1	19	370	136.00
Term Tender LCC/22/TT/1- with Six Month Credit	19	406	148.00
Spot Tender- LCC/22-23/ ST/28/5	2	54.00	20.00
ïïmQ¾K wruqo,a wjYH;djh	**40**	**830.00**	**304.00**

Chapter 07
Sri Lanka Atomic Energy Board

1. Objective of the Institute:

Promote, encourage peaceful applications of nuclear technology and utilize its benefits for socio-economic development of the country while ensuring safety, security and quality and
Provide radiation protection services to facilitate protection of workers, general public and environment from exposure to unwarranted ionizing radiation.

2. Physical Performance:

2.1 Radiation Protection and Technical Services Division

The main objective of this division includes providing a quality service according to internationally accepted safety standards to ensure the protection of general public, environment and radiation workers. Services are being provided by this division to ensure the radiation safety and security of nuclear applications of the Country in order to fulfil monitoring and technical requirements.

The number of services carried out during the year 2022 was 28.During the year 2022, calibration services were provided for 46 radiation monitoring equipment. In addition, the personal monitoring services were provided to protect more than 2,560 workers.

Division has generated an income of Rs. 18.05 Mn. during the year 2022. Also, the division has provided free-of-charge services of around Rs. 1.50 Mn. during the year.

2.2 Sri Lanka Gamma Centre

Sri Lanka Gamma Centre (SLGC) provides irradiation services mainly for sterilization of surgical gloves required for all the Government hospitals in Sri Lanka.

Sterilization of surgical gloves locally at the SLGC has saved a significant amount of foreign exchange to the country as the Government has stopped importation of sterilized surgical gloves to the health sector. From January to August 2022, 2530 cubic meters of products were irradiated at the SLGC and earned nearly Rs. 38 million while saving foreign exchange considerably.

2.3 National Centre for Non-Destructive Testing

The main objective of the National Centre for Non - Destructive Testing (NDT) is to maintain the minimum level of damage to products and constructions made by metal and non-metal and thereby improve the quality of such products and constructions in the country by using Non-Destructive Testing and other related technologies.

115 NDT inspection services were provided with a view of sustained reduction of defects in products, civil constructions, etc and hence reduction in emergency shutdowns in industrial components / assemblies / power plants etc.

Under this the following activities were carried out.

- Four (04) welders were tested and classified (as per ASME Boiler and Pressure Vessel Code, Section IX).
- Twenty (20) welders were qualified as per ASME Boiler and Pressure Vessel Code, Section IX.

The total generated income from NCNDT up to 31.08.2022 is Rs. 25 Mn.

2.4 Life Science Division-LSD

For the safety of consumers, the Life Science Divisionaims to provide an efficient and effective nuclear analysis service for regulatory purposes, through standardized laboratories in accordance with international standards, with a special focus on testing for contamination of imported milk powder due to radioactivity.

2249 samples of imported milk powder and 99 samples of exported tea and other products 20 samples of reference and proficiency testing samples were tested for radioactivity measurements using Gamma spectrometry. 132 samples were tested for detailed radio activity measurements in the same laboratory.

130 of various sample matrices of soil, mineral archaeological samples, gems, alloy etc., were analysed for multi elemental composition using X-Ray Fluorescence spectrometry, and 250 service and R & D samples for stable isotopes were analysed using Isotope Ratio Mass Spectrometry technique during the year 2022.

Radio-activity monitoring program was conducted for imported and locally produced milk powder in the local market. 27 imported and locally produced milk powder samples were tested randomly under this programme. Approximately Rs. 38.4 million of income was generated by analysing and report issuing for a total number of 2786 samples by the LDS laboratories up to 31-08-2022.

2.5 Industrial Applications Division-IAD

From January to August 2022, Isotope Hydrology program mainly focused on groundwater assessments in Colombo-Negombo coastal aquifer system to see the vulnerability to pollution of groundwater due to industrialization and urbanization. Also potential of the groundwater sources for future developments in Hambantota area is assessed. Furthermore, collection of baseline data to verify the origin of water sources in bottled water industry is being implemented. Under the Isotope Ecology programme, a verity of green chilli was planted in a greenhouse as a trial study to check the impact of controlled environment on the plant growth. This aim of the research is to find the optimum water requirement for agricultural crops.

Under the School Education Programme, Tamil translation of the SMART book; a web-based education module for secondary schools was completed. In addition to that a few school seminars on nuclear science and technology were conducted during the period from January to August 2022.

2.6 International Cooperation Division - ICD

Following progress has been achieved within the relevant time frame.

- Taking action to obtain equipment from the International Atomic Energy Agency for the Atomic Energy Board of Sri Lanka as well as other institutions using nuclear technology.
- Coordinating the activities relating to participate of 30 persons engaged in the nuclear field in foreign trainings, workshops etc. physically and many of officials participated in virtually events.

3. Financial Position of the Institution (up to 31.08.2022)

Division	Capital Grant	Recurrent Grant	Generated Income	Recurrent Expenses
LSD, IAD & RPTSD	50	48	57	110
SLGC			43	25.7
NCNDT			25	33.5
Total			125	169.2

4. Programmes planned to be implemented in the year 2023

In addition to the activities 2.1 to 2.6 above, the following new projects are being implemented with the aim of supporting the socio-economic development and poverty eradication in Sri Lanka by contributing to the Sustainable Development Goals.

4.1 Electricity Generation Sector:

Project on Nuclear Power Study and Planning for Electricity Generation in Sri Lanka.

- A policy decision has been taken to consider nuclear power as an option to meet the future energy demand of Sri Lanka and the Atomic Energy Authority (predecessor institution of Sri Lanka Atomic Energy Board-SLAEB) has been authorized to proceed with pre-feasibility study with technical assistance of IAEA.
- Accordingly, a Steering Committee and Nine (09) Working Groups have been appointed to study and report on key aspects on "Electricity Generation using Nuclear Power".

4.2 Health Sector:

Project on Establishment of Cyclotron Based Radiopharmaceutical Production Facility in Sri Lanka:

Activities were commenced by the Atomic Energy Board of Sri Lanka to install a cyclotron device which is used in manufacturing of radioactive drugs in Sri Lanka.

The project will be installed at the hospital premises belonged to theKotelawala Defense University located inWerahera as a joint venture between the Atomic Energy Board of Sri Lanka (SLAEB) and the Kotelawala Defense University (KDU). Cabinet approval has been obtained for this.

4.3 Food and Agriculture Sector:

Pilot Project on Geochemical Approach for Verification of the Origin of 'Ceylon Tea'

- Atomic Energy Board of Sri Lanka, the Tea Board of Sri Lanka and the Tea Research Institute have signed a tripartite agreement for a pilot project on the Geochemical Approach to confirm the origin of tea. The activities related to this project is currently moving forward successfully.

  Project on Establishment of a Multipurpose EB/X Ray Facility in Sri Lanka.

- At the moment 90% of the feasibility has been completed and concept has been accepted to precent in the International Meeting on Radiation Processing Symposium in November 2022 in Thailand.

4.4 Education Sector:

Education and Awareness Raising Programme on Nuclear Science and Technology

- Building cooperation with the Science Branch of the Ministry of Education and the Science Branch of the National Institute of Education.
- Revision of the matter and radiation lesson of the high-level physics stream together with the Ministry of Education.
- Training high school physics teachers on matter and radiation lesson.
- To train a group of science teacher training officers and teachers as resource persons for nuclear science and technology in the secondary education sector.
- Directing selected science and physics teachers and relevant science officers of the Ministry of Education and the National Institute of Education to international training workshops.
- Creation of the Sinhala section of the "Nuclear Science and Technology E-Course" on the E-Taxalawa website that secondary school students can study as a subject.
- Conducting preliminary discussions related to the 6th to 11th curriculum reform activities to be carried out.

Activities to be carried out in the year 2023:

- Creation of "Nuclear Science and Technology E-Course" in English and Tamil medium on E-Taxala website, which can be studied by secondary school students as extra subject.
- Implementation of awareness programs on "E-Course for Nuclear Science and Technology".
- Training for high school physics teachers on matter and radiation lesson.
- To regroup and educate trained science teacher training officers and teachers as resource persons for nuclear science and technology in the secondary education sector.
- Implementation of awareness programs for university students about the subject of nuclear science and technology and the Sri Lanka Atomic Energy Board.
- Obtaining the membership of the International Nuclear Science and Technology Academy (INSTA) run by the International Atomic Energy Agency.
- University awareness about International Nuclear Science and Technology Academy (INSTA).
- Creation of a Nuclear Science and Technology subject unit as an optional subject under the 6 to 11 curriculum reform activities to be carried out.
- Carrying out activities related to the zone project for secondary and tertiary education related to the subject of "Nuclear Science and Technology" implemented by the International Atomic Energy Agency.

Chapter 08

Sri Lanka Atomic Energy Regulatory Council

1. Introduction

1.1 Establishment of Sri Lanka Atomic Energy Regulatory Council

Sri Lanka Atomic Energy Regulatory Council (Council) was established on the 1st of January 2015 under the Sri Lanka Atomic Energy ActNo. 40 of 2014.Council presently functions under the State Ministry of Powerand Energy. As per the provisions of the Act, the Sri Lanka Atomic Energy Regulatory Council is mandated for;

(a) Regulation of practices and sources involving ionizing radiation by implementing licensing, inspection and import & export control programmes for protection of public, radiation workers, patients and the environment

(b) Ensuring the safety & security ofradiation sources

(c) Taking enfacement actionsforviolati onsofprovisionsoftheActand licensing conditions

(d) Taking actions to fulfil the obligations of Sri Lanka on agreements signed by Sri Lanka on safety, security and safeguards related to nuclear applications

1.2 Objectives of the Council

The main objectives of the Council are;

(a) Protection of persons and the environment against risks associated with exposure to ionizing radiation and for the safety and security of the sources and facilities

(b) Ensuring the physical protection of radiation sources, nuclear materials and other radioactive material and ensuring the security of facilities that use such material

(c) Ensuring compliance with international standards and obligations in the field of nuclear energy, in accordance with international agreements that Sri Lanka has entered into

2. Progress achievedfrom 1st January to 31st August,2022

2.1. Regulatory activities

No	Activity	Target for 2022	Target till 31st August	Progress till 31st August	Progress Percentage
01	Issuing licences including processing of applications	190	25	49	196%
	Receiving licence applications were increased after subsiding of Covid pandemic situation in the country. Renewal licences will be mainly issued from October to December each year and annual target can be achieved				
	Issuance of extension to the interim license issued	450	450	258	----
	Interim licences are issued when a licenc cannot be issued in the respective year due to non-payment of licence fee. Most of the licence fee have been paid before 31st December of the respective year (2021).				

02.	Issuing regulatory certificates for food samples tested for radioactive contamination	900	600	597	99.5%
	Issuing certificates are depending on number of samples tested which also depend on the number of imports of milk food consignments				
03.	Regulatory Inspection of radiation facilities	230	170	137	80.6%
	Planned inspections were postponed due to fuel crisis prevailed in the country and only priority inspections were conducted in Hospitals. Rest of inspections are planned in Quarter 04, 2022 & 2023				
04.	Import / export approvals for radioactive materials and irradiating apparatus	520	350	423	120%
	Request for Import/ Export approvals were increased in January-February				
05	Approval of plans of irradiation facilities	100	61	66	103 %
06	Conducting National Training Course on subject specific areas on Radiation Protection in accordance with established training manual (for operators of the machines and Radiation Protection Officers)	Preparation of 5 training manuals and obtaining approvals from the Board Training of 125 persons (Radiation Protection Officers and Operators)	Preparation of 5 training manuals and obtaining approvals from the Board Training of 100 persons	5 training manuals were prepared and approval were obtained from the Board	100% 72%
	One training course was postponed due to travel restriction and planned in September.The 5th training will be scheduled in October				
07	Conducting training course for stakeholders identified in the national nuclear or radiological emergency management plan and training of emergency response group of the council	Conducting the training course for 30 stakeholders and training for 4 emergency response teams of the Council	Conducting the training course for 30 stakeholders Training for 4 emergency response teams of the Council	Stakeholder training could not be done Training for emergency group of the Council was completed.	- 100%
	Stakeholder training were postponed due to non-availability of the IAEA experts due to travel restrictions. Planning to conduct training in 04th Quarter for 30 participants				
08.	Approvals for transport of high activity radioactive material on request and Supervision of transport of high activity radioactive sources	Supervision of 3 Transport of high activity sources	Supervision of 01 transport	01 transport was supervised from Colombo port to Biyagama Export Processing Zone	100%

09.	Finalization of Regulations on Ionizing Radiation Protection and Safety of Radiation Sources incorporating amendments recommended by the IAEA	Finalization of the Ionizing Radiation Protection and Safety of Radiation Sources incorporating amendments recommended by the IAEA and obtaining approval of the Board	Finalization of the Ionizing Radiation Protection and Safety of Radiation Sources incorporating radioactive discharge levels	Radioactive discharge levels are prepared to meet Sri Lanka situation using IAEA guidance levels	75%
10	Radioactive Waste Management Policy	Finalization of the draft and Board approval. Submission to the Ministry for distribution to stakeholders for views	Finalization of the draft and Board approval.	Final draft was prepared and board approval was obtained	75%
	To be submitted to the Ministry for distribution to stakeholders for views				
11	Establishment of management system to comply with Government regulations and their implementation	(i)Preparation and implementation of Citizen Client Charter for the Council (ii) Preparation and implementation of Human resource development plan for the Council (iii) Preparation and implementation of plan for achieving sustainable development goals for the Council, and their implementation	(i)Preparation and implementation of Citizen Client Charter for the Council (ii) Preparation and implementation of Human resource development plan for the Council (iii) Preparation and implementation of plan for achieving sustainable development goals for the Council,	Prepared all 3 documents and reviewed by the DG with teams appointed for drafting and approval of the Board was obtained for implementation	75%
12.	Maintenance of the national seal source registry	Entering of data and keep update the registry	Entering of data and keep update the registry	Information available updated	100%
13.	Maintenance of a registry of sources in the Regulatory Authority Information System (RAIS)	Keep updating authority information to the RAIS	Keep updating Authority information to the RAIS	Information available updated	100%
14.	Training of newly recruited Scientific Officers on licencing of facilities and conducting safety and security inspections	On the job training	On the job training	New Scientific Officers are being given on the job training under the supervision of 4 Deputy Directors.	100%
15.	Publication of information of licenced facilities in the WEB	Keep updating the licence users	Keep updating the licence users	Information available updated	100%

2.2. Ongoing bi-lateral programme

(a) The Council is engaged with the Global Material Security (GMS) programme of the Department of Energy of the United States of America (USDOE) to provide security for high activity radioactive sources used in the country and with the technical assistance of the GMS Programme, the Council is coordinating with stakeholders for installation and implementation of physical security systems at facilities which use high radioactivity sources in order to ensure security of these sources. The USDOE in August,2022 approved a maintenance contract for maintenance of physical security systems at 12 facilities where high activity radioactive sources are used and connection of all security system at 12 high activity radioactive source sites to Central Monitoring Station located at STF training college, Katukurunda.

(b) The Council is participating International Atomic Energy Agency Technical Cooperationproject "Strengthening of preparedness and response to nuclear or radiological emergencies. Under this project the Council has taken steps to train scientific staff, obtaining necessary instruments for emergency response and preparedness and expert missions to prepare necessary emergency preparedness and response documents.

3. Financial position

Recurrent	
Government contribution for 2022	Rs. 49,000,000.00
Expected Income for 2022	Rs. 19,140,000.00
Opening balance as at 1-1-2022	Rs. 12,197,000.00
Total Budget	Rs. 80,197,000.00
Income and expenditure (Based on information as at 31-08-2022)	
Income as at 31-08-2022	Rs. 21,688,000.00
Opening balance	Rs. 12,197,000.00
Total income	Rs. 33,885,000.00
Expenditure as at 31-08-2022	
Government contribution	Rs.12,857,000.00
Borne from the income	Rs.27,662,000.00
Total expenditure	**Rs.40,519,000.00**
Capital	
Revised Capital allocation	Rs. 6,370,000.00
Expenditure as at 31-08-2022	Rs. 1,022,000.00
Balance as at 31-08-2022	Rs. 5,348,000.00

4. Key programmes for 2023

4.1. Regulatory activities

Programme	Activities to be performed for 2023
1. Preparation of regulations, rules, policies& procedures	1.1. Obtaining approval of the Legal Draftsman Department for the draft Regulations on Ionizing Radiation Protection and Safety of Radiation Sources and translation to Sinhala and Tamil languages and publication in the Government Gazette. 1.2. Publication of Regulations on Security of Radioactive Sources in the Government gazette and submit to the Parliament for its approval. 1.3. Obtain approvals for Rule on the criteria for the qualifications of radiation workers from the Legal Draftsman Department and translation in to Sinhala and Tamil. 1.4. Implementation of inspection procedure by Authorized Inspectors 1.5. Submission of draft National policy for radioactive waste management to the Ministry forobtaining theapproval of Cabinet of Ministers.
2. Licencing & inspections of radiationsources and irradiation facilities	2.1. No. of licences planned to be issued(new& renewal) - 400 2.2. No.of extensions for interim licences - 70 2.3. No of inspections planned to be conducted - 220
3. National training course on radiation protection	3.1. Conducting national training courses for operators and radiation protection officers of the licenced facilities in medical and industrial fields -40 Radiation Protection Officers and 80 operators of the machines 3.2. Conducting trainings for response teams & committeesappointedas per the requirements of NationalNuclear or Radiological Emergency Management Plan
4. Granting approvals & issuing certificates	4.1. Granting approvals of import/export of radioactive materials & irradiating apparatus. No. of approvals estimated to be given - 480 4.2. Issuing certificates for food testing No. of certificates estimated to be issued - 800 4.3. Granting approvals for the irradiation facility plans. No. of approvals estimated to be given - 80
5. Online licencing & approval system	Establishment of online licencing & approval System and use it for licensing of 30 selected facilities and impot and export approvals.
6. Maintenance of database & Source registry	6.1. Maintenance of database of licencees, inspections and other relevant information. 6.2. Maintenance of National Registry of Radiation Sources
7. Publication of information of licenced facilities in the WEB	Up to date information of all licenced facilitiesin the Council's WEB for public information to identify suitable places for obtaining services.
8. Approval and supervision of transport of high activity radioactive materials	Granting approvals for transport of high activity radioactive materials on request & supervision of transportations

4.2. Implementation of IAEA TC Project activities

Technical corporation Project SRL9013 "Strengthening of preparedness and response to nuclear or radiological emergencies" were submitted to the IAEA for 2022-2023 project cycle and following out comes will be achieved through this project

a. Under the above project, Council planned to train several officers from the

council, first responding organizations and technical organizations through fellowships, Scientific Visits and national trainings and exercises.

b. Acquire necessary equipment to conduct emergency exercises and to respond real emergencies. Personnel protective equipment, measuring equipment, training equipment and decontamination equipment will be received through this project.

c. New Early Warning Detector System will be established-This system will be compatible with International Radiation Monitoring Information System (IRMIS) data sharing platform and will help to receive early warning during nuclear disaster.

Expert mission for preparation of "National action plan for training and exercise manual", and standard training syllabuses for conducting national training and exercises are planned during this year. Some Scientific Visits and Fellowship trainings are expected during this year for the applications submitted in 2022.

Chapter 09

Sri Lanka Energies (Pvt) Ltd

Introduction

Sri Lanka Energies (Pvt) Ltd is a company incorporated in 1st quarter 2011 and operates as a 100% owned subsidiary of Ceylon Electricity Board.

SLE is with a vision of **Development of Renewable Energy,** among the other objectives of **Associated Transmission Asset Development, Manpower Resource Provision and Procurement.**

Performance 2022 and Programs for 2023

A. Kumbalgamuwa Mini Hydro Power Plant

Using the leakage water more than 20 years from Samanalawewa Reservoir Sri Lanka Energies (Pvt) Ltd has constructed **Kumbalgamuwa Mini Hydro Power Plant.**

The Commissioning of 1.2MW Francis Turbine in Kumbalgamuwa Mini Hydro Power Plant was completed on 2016 February 19 and connected to the national grid.

Plant Summary (upto Sep 2022)		
Installed Capacity	1.3	MW
Cumulative Energy Generated	39.12	GWH
Cum Income	693.27	mn LKR
Capital Investment by CEB	115	mn LKR
Period of operation	6.6(6Yrsand 7Months)	Yrs

B. Managing the Manpower Required by CEB

The Company provides the services of 126 skill and unskilled human services to CEB as requested by the mother company.

At the beginning the company handled nearly 3000 number of manpower services to CEB.

C. Meter Enclosure Manufacturing Plant.

The construction of the Plastic Single Phase Meter enclosure Manufacturing factory was started on 05th of September 2016 in order to fulfill the requirement of Plastic Meter Enclosures of Ceylon Electricity Board and Lanka Electricity Company (Pvt) Ltd.

Completing the construction and machine installation, the factory was declared opened on 05th of September 2017. An annual requirement of 250,000 meter enclosures will be manufactured and supplied to the Ceylon Electricity Board and Lanka Electricity Company (Pvt) Ltd by this factory.

The factory is running its capacity to fulfill the entire Meter Enclosure requirement of CEB and LECO by now.

D. Development of Daduruoya Mini Hydro Power Plant

Successfully commissioned the 1.3MW power plant in January 2021 at the irrigation release of Daduruoya reservoir at Katuwannawa Area. The Generator with Kaplan Turbine is expected to deliver an annual energy, worth Rs. 80mn LKR.

Plant Summary (upto Sep 2022)		
Installed Capacity	1.3	MW
Cumulative Energy Generated	9.35	GWH
Cum Income	163.05	mn LKR
Period of operation	1.6(1Yr and 7Months)	Yrs

E. Upper Samanalawewa Mini Hydro Power Plant

According to the study done by SLE there is a water head from the point of leakage to the existing Kumbalgamuwa weir at 28m height. a 600kw plant with 4.8GWh annual energy plant can be constructed from this water head.

This energy is wasted for more than 21 years without utilizing any productive use.

SLE did a detailed feasibility study in constructing a power plant as stated above without doing any disturbance to the existing leakage point or the surrounding area with Civil Engineering experts.

Project Summary		
Plant Capacity	700	kW
Expected Energy per Year	4.8	GWH
Exp Annual Income	86	mn LKR
Annual Income in terms of Emergency Power (Rs 35 / KWh)	171.84	mn LKR
Estimated project Cost	227	mn LKR

F. Scrap Aluminum Recycling Project

The factory construction has been started and the procurement of machineries being done. in Sep 2023 the factory will be in operation. All Aluminum scrap Conductors (AAC) removed from CEB are going to be recycled in this factory in order to manufacture Aluminum Rods which can be later used for manufacturing of Aerial Bundle Cables (ABC). The processed Aluminum Rods will be sent back to CEB at a negotiated price.

In the present context this recycling project offers a very high value to the environment and saves more than 4mn US $ annually. Also as per the calculations done the output of this project serves one third of the annual Aluminum requirement of Ceylon Electricity Board.

At present collection of Scrap Aluminum from CEB depot has been started and stored temporarily at Galigamuwa Factory premises. The proposed manufacturing plant is under planning and proposed to develop it on land at Galgamuwa.

G. Seethawaka Hydro Power Plant

Seethawaka hydro project is going to be constructed as two cascaded Mini Hydro Plants with the capacity of 7MW each. The expected annual energy is about 40GWH. Provisional approvals have been issued for two plants by SEA, Electro mechanical equipment have been tendered and it is expected to use Green Bonds as the capital investment. It is expected to commission both the plants before June 2024.