

Country Assessment Report

Country/Region Name- Sri Lanka:

Sri Lanka is an island situated in the Indian Ocean, off the coast of Southern India. It has a population over 21 million and GDP of around \$89 billion, with a growth rate of 3.2%.

Economic structure and activity:

Sri Lanka has a mixed economic system, characterised by both state and private sector participation in production. It is transitioning from its traditional agriculturally based economy to more services and manufacturing oriented.

The service sector accounts for 56.83% of GDP, with wholesale and retail trade, telecommunications, banking and insurance receiving notable growth in recent years. The tourism sector is also booming, but annual performance is dependent upon the stability of the nation's politics. Industry contributes 26.99% to GDP, delivery mainly in areas such as cement, fabricated steel, ceramics, leather, textiles and liquor. Sri Lanka has vast mineral reserves, particularly graphite and gemstones such as sapphire ruby and topaz. The agricultural sector is shrinking in proportion to other sectors, accounting for 7.87% of GDP. Its main exports are rice, tea, rubber, oilseed crops and fruits.

(Statista 2018)

Top private companies with RE commitments:

Generation and demand: (e.g. type, MW, TWh)

In 2017, the total installed capacity was 4,180 MW:

- 42% (1,745 MW) was from hydro (both large hydro and small hydro)
- 51% (2,133 MW) from thermal
- 7% (303 MW) from other renewable sources such as wind, solar, and biomass.

Figure 1 demonstrates a gradual diversification from hydropower, which used to be responsible for almost 100% of Sri Lanka's generation fuel mix (see figure 2). Rapid growth in electricity demand and the over exhaustion of hydropower shaped Sri Lanka's transition to a predominantly hydrothermal power system.

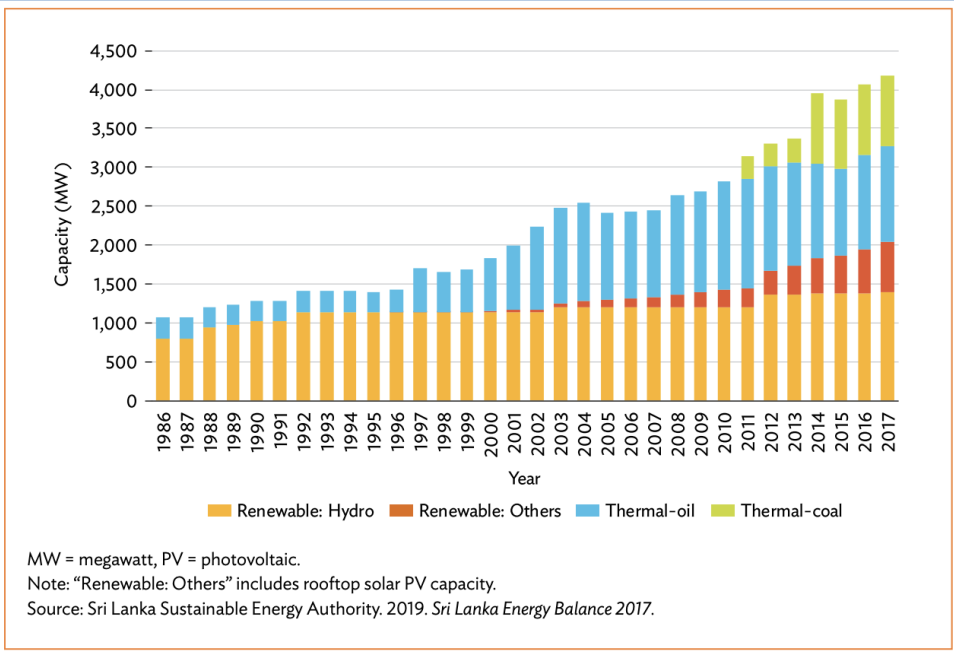


Figure 1. Installed capacity by source (1986-2017)

Figure 2 depicts Sri Lanka’s wide range of different energy resources harnessed to generate electricity. The deployment of coal-powered generators is rapidly increasing, whilst growth in renewable energies are much slower.

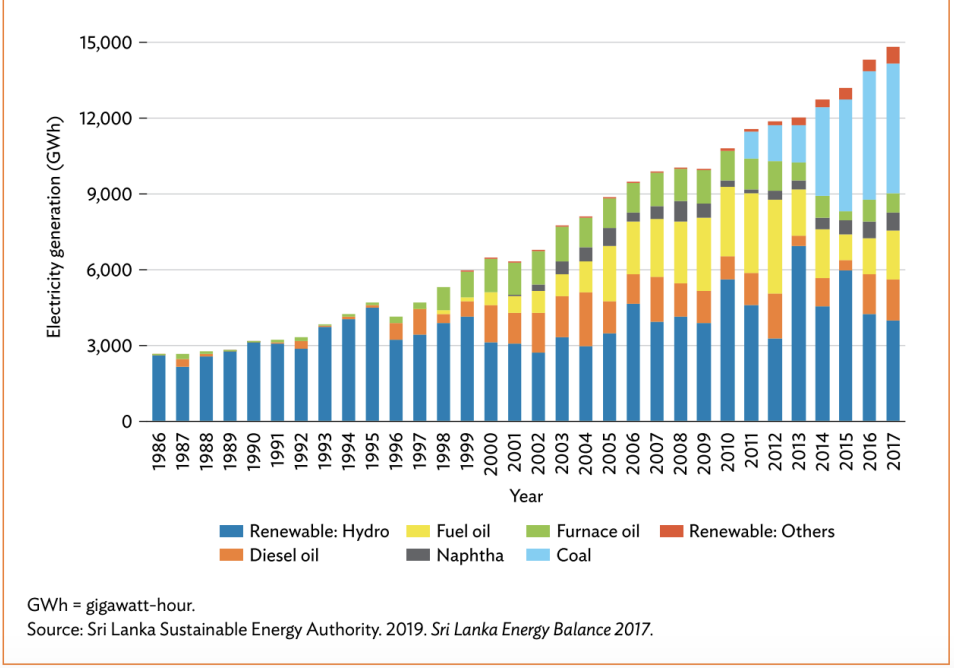


Figure 2. Generation fuel mix by source (1986-2017).

In 2017, the system peak demand excluding the contribution of some SPPs (small power producer) was 2,523 MW. It is forecasted to exceed 3,000 MW by 2020 and reach 4,800 MW by 2030.

(ADB 2019)

Electrical Interconnection and import/export:

At present, Sri Lanka has no cross-border electrical interconnections or involvement in energy, primarily because it is isolated from the larger Indian subcontinent. Talks and feasibility studies to implement an India-Sri Lanka interconnection are ongoing, but progress has been slow.

Market Structure:

Until the power sector reforms, Sri Lanka had a monopolistic, vertically integrated electricity utility known as CEB (Ceylon Electricity Board). CEB had responsibility over the generation, supply and distribution (excluding some cities) of electricity. From 1996, Sri Lanka’s power sector market structure evolved to allow private sector participation in the generation of electricity through IPPs and SPPs.

The Electricity Act No. 20 of 2009 (EA 2009) introduced a single-buyer model, whereby CEB became the designated single buyer and transmission service provider. CEB holds one generation license (to cover all power plants owned by CEB prior to EA 2009), one transmission and bulk supply license, and four distribution licenses. However, these six licensed entities embedded within CEB do not have an independent ownership structure and management. Figure 3 (see below) diagrammatically depicts Sri Lanka’s market structure.

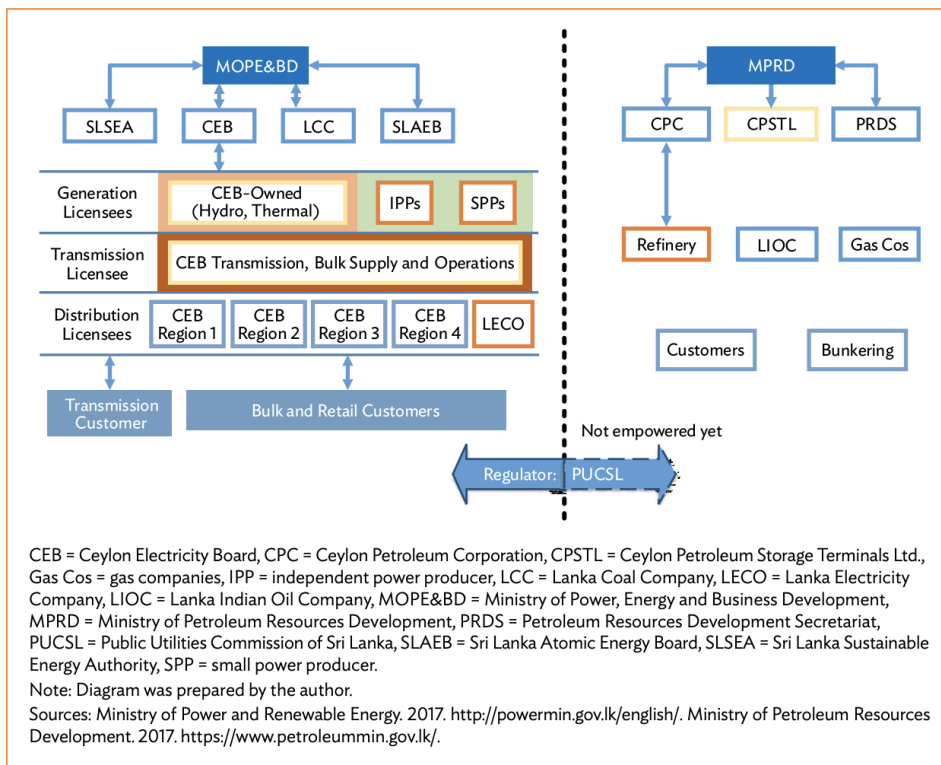


Figure 3. Market structure diagram for the power sector (ADB 2019).

Responsible Government Department: (include key contacts)

Ministry of Power and Energy (MPE) is the main government body for energy-related matters. It is responsible for developing policies, programs and projects, as well as monitoring and evaluating energy and power sectors regard to the subjects of power and renewable energy across Sri Lanka.

Public Utilities Commission of Sri Lanka (PUCSL) is a multisector supervisory body, which regulates the physical infrastructure of electricity and water provision across the country.

Ceylon Electricity Board (CEB) is the fully integrated generation, transmission and customer supply focused power company operating as a quasi-private/public entity. Its objectives are: (i) assist in the formulation of national energy policy; (ii) identify, conserve, and manage all renewable energy resources and appropriate conversion technologies, conversion, and utilization norms and practices; (iii) promote the development of renewable energy projects through private investment; and (iv) conduct research on the development of indigenous resources

Lanka Electric Company (LECO) is a private limited liability company which purchases bulk power from CEB to serve 565,000 customers in townships along the western coastal belt between Negombo and Galle. The CEB and the Ministry of Finance are the major shareholders of LECO, while the other shareholders are mainly state entities.

Sri Lanka Sustainable Energy Authority (SLESA) promotes and facilitates renewable energy and energy efficiency technologies in Sri Lanka. The Authority currently functions under the purview of the Ministry of Environment and Natural Resources.

(ADB 2019)

Existing/Planned Energy Legislation: (is there a CPO)

Sri Lanka Electricity Act passed in xxxx and includes des all regulations for the generation, transmission, distribution, supply and use of electricity in Sri Lanka. Is published as a part of the Gazette of the Democratic Socialist Republic of Sri Lanka by the parliament of the Democratic Socialist Republic of Sri Lanka.

National Energy Policy and Strategies (NEPS) of Sri Lanka - established in 2008 and centred around sustainable technologies, in accordance with Goal 7 of the Sustainable Development Goals. The policies aware multifaceted and designed to provide basic energy needs; enhance energy security; promote the development of indigenous energy resources; adopt an appropriate pricing model; enhancing quality of electrical supply and protect the environment from future power infrastructure deployment.

Sri Lanka Sustainable Energy Authority Act No. 35 – passed in 2007 to mandate the implementation of policy for renewable energy, energy efficiency and conservation. The promotion of renewable energy projects through private investment is key aspect of SLSEA activity.

(Singh 2017; ADB 2019)

Environmental Legislation for RE:

Feed-in Tariff (FiT) first introduced in 1990 for renewable energy power plants with capacities of up to 10 W. A revised FiT system was later introduced in 2010 for wind, mini hydro, biomass, municipal solid waste to energy and waste heat recovery technologies. Tariffs are Country Authorisation version 0.1 Page 5/6 based on the cost and type of technology and applicable for a 20 year period. The flat tariff involves a fixed price which will not increase during the 20 year period. The three-tier system has fixed rates for the years 1-8, 9-15 and 16-20, as well as scalable fuel rates (where applicable) and operations and maintenance rates. Feed in tariffs have existed for small scale RE generation for many years. In 2016, as part of the Soorya Bala Sangramaya ('Battle for Solar') feed in tariffs for commercial and domestic solar generation were introduced covering NET metering, NET accounting and NET Plus generation. These schemes intend to add an additional 200MW to the national grid by 2020 and a further 800MW by 2025.

Existing/Planned Certificate Systems: (purpose, extent)

There is no existing or planned certificate system.

RE market potential:

Nearly all hydropower potential has been exhausted. Large scale generators operate across Sri Lanka's two main rivers- the Mahaweli and Kelani , where 1,370 MW of large hydro and 20.5 MW of small hydro have been developed by the CEB. 247 MW of planned hydropower plants are in various stages of development by CEB.

Solar exposure is generously available across most of the country, which is suitably positioned across the equatorial belt. Average solar irradiation varies between 4.5 kWh/m² /day and 6.0 kWh/m² /day across the country. Delays in policy enactments and technical constraints have both hampered early installment of solar PV. By mid 2017 there were eight small-scale solar power plants with an overall installed capacity of 51.36 MW developed under the country's SPP program. Technical potential for electricity generated from solar power is estimated to be 6,000 MW.

Rooftop solar PV systems became increasingly popular with the introduction of the net-metering system in 2010 and the government-initiated "Battle for Solar Energy" program in September 2016. There were 93.7 MW of rooftop solar PV systems connected to the national grid by end 2017, and the total grid-connected solar PV capacity is targeted to reach 200 MW by 2020. Wind. In 2003, the National Renewable Energy Laboratory assisted Sri Lanka in developing its Wind Resource Map.

The country also possesses rich wind energy resources, which are most abundant in the north western coastal area and central highlands. Sri Lanka has an estimated technical potential of 5,600 MW. Outside of the existing and committed fleet of power generators, there are dozens of uncommitted projects, which aim to harness Sri Lanka's non-hydro renewable resources (ADB 2019).

No.	Power Plant	Capacity (MW)
Hydropower Plants (Existing)		
1	Canyon	60
2	Wimalasurendra	50
3	New Laxapana	116
4	Old Laxapana	53.5
5	Polpitiya	75
6	Kotmale	201
7	Victoria	210
8	Randenigala	122
9	Rantambe	49
10	Ukuwela	37
11	Bowetenna	40
12	Samanalawewa	120
13	Udawalawe	6
14	Inginiyagala	11.25
15	Nilambe	3.2
16	Kukule	75
17	Upper Kotmale	150
Hydropower Plants (Committed)		
18	Broadlands	35
19	Uma Oya	122
20	Moragolla	30.2
Hydropower Plants (Candidate)		
21	Gin Ganga	20
22	Thalpitigala	15
23	Moragahakanda	25
24	Seethawaka	20
Other Renewable (Committed)		
25	Mannar Wind Park	100
Thermal Power Plants		
A	Lakvijaya Coal Power Plant	900
B	Kelanithissa PP, Sojitz PP	523
C	Sapugaskanda PP, Asia Power	211
D	Uthuru Janani	27
E	CEB Barge Mounted Plant	60
F	West Coast PP	300
G	Northern Power	38
H	Ace Power Embilipitiya	100

Source: Ceylon Electricity Board. 2017. *Long-Term Generation Expansion Plan, 2018–2037*. http://www.pucsl.gov.lk/english/wp-content/uploads/2017/05/LTGEP_2018-2037.pdf.

Figure 4. Existing and committed power generators as of 2017 (ADB 2019).

Market risks and challenges:

Sri Lanka’s biggest challenge in the power sector is its electrical isolation. Going forward, sharing reserves, spinning capacity and tangible power exchange will become increasingly necessary. The Indian power grid would enable greater stability for Sri Lanka, as well as Indian bottlenecks’ in the southernmost part of the country.

Extent of Engagement with Government: (brief summary of any contact already made with the national government regarding certification in general and I-REC)

No formal engagement with the government has been conducted yet regarding I-REC. It is expected that the local issuer would be either the Sri Lankan Climate Change Secretariat (CCS) or the Sustainable Energy Authority (SEA). CCS was established in 2008 to act as the national focal point to the UNFCCC. The Secretariat is responsible for addressing climate change issues at the national level, including developing relevant policies and programs; liaising with sectoral agencies to identify priorities and implementation mechanisms; and monitoring impacts of national climate responses. The SEA, on the other hand, was established in 2007 to help recognize energy

reduction across the energy sector by scaling up renewable energy capacity, promoting energy efficiency and ensuring cost-effective energy delivery and data management.

Expected response from Government:

The response from the Sri Lankan Government is predicted to be supportive. Any market-based mechanisms to support the take up of (and recognition for using) renewable energy are likely to be encouraged. Indeed, at a national level, renewable energy attribute tracking systems will form part of market-based mechanisms for Sri Lanka's national carbon reduction strategy. Further, the government is likely to facilitate any increase in demand for local RE certificates within key industries such as tea, textiles hotel / tourism. For example, in the apparel industry, demand may be facilitated by supply chain renewable energy commitments made by leading western apparel and textile brands (such as Nike, etc). In parallel, hotel resorts and tourist destinations may utilize local RE certificates to demonstrate good environmental stewardship to international guests. It is important to clarify that no formal engagement with the government has been conducted so far

Current Environmental Reporting in Energy:

There is currently little or no ongoing environmental reporting required in the energy and power generation sector. Installations (both renewable and non renewable) are approved by the Central Environmental Authority and granted an 'Environmental Protection License'. Ongoing environmental monitoring during operation is not required.

Any other Relevant Information:

World Bank 'Partnership for Market Readiness' (PMR): In Q4 2017, Sri Lanka will formally submit a proposal to the World Bank donor funded PMR programme to support the development of innovative climate mitigation measures including, possibly, the establishment of renewable attribute scheme like an I-REC. The programme will begin in March 2018 and will provide funding to engage relevant stakeholders and explore the feasibility / utility of such a mechanism. Emissions Factors: There is currently no official national grid emissions factor available for public use in Sri Lanka. The IEA global electricity emission factors may not be suitable for this purpose. There are emission factors (operating, build & combined margins) compiled by the Sri Lanka Sustainable Energy Authority to account for renewable energy projects or energy saving projects connected to the grid.

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Preparation Date	22/09/2017