

Cross Border Electricity Trade and Development of Power sector in Sri Lanka

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Energy Sector of Sri Lanka

• Sri Lanka at a Glance

□ Country Data

Population	20.3 Million
No. of HHs	5.1 Million
Per Capita income	2,900 US\$

□ Energy Sector

Main Sources of Energy:

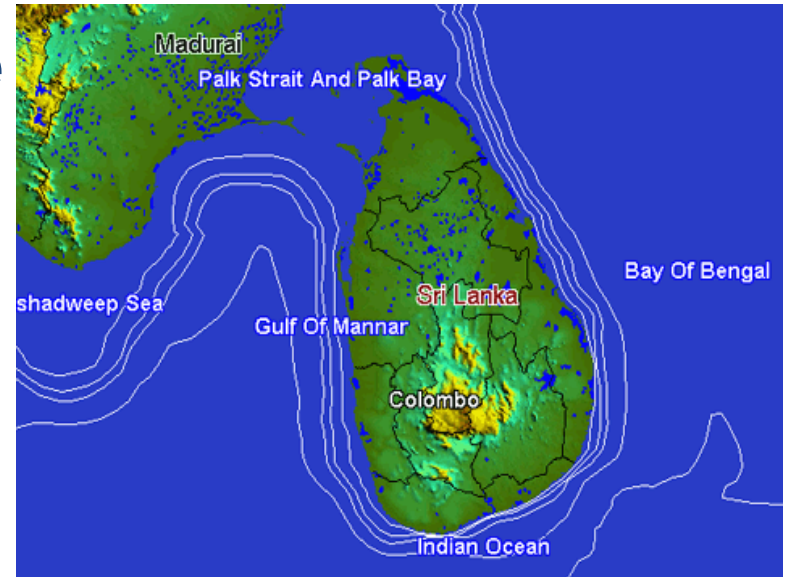
Biomass, Petroleum, Coal, Large hydro, Other REs (Small hydro, wind, solar)

Total Energy Supply: 10,432 TOE

Total Energy Consumption: 8,850 TOE

□ Electricity Sector

Total Installed Capacity:	3600 MW
Peak Load:	2100 MW
Gross Generation:	12,000 GWh
HH Electrification:	95%
Per Capita Electricity Consumption	515 kWh



Installed Capacities by Source

Hydro	1,357 MW
Thermal	1,938 MW
NRE	314 MW

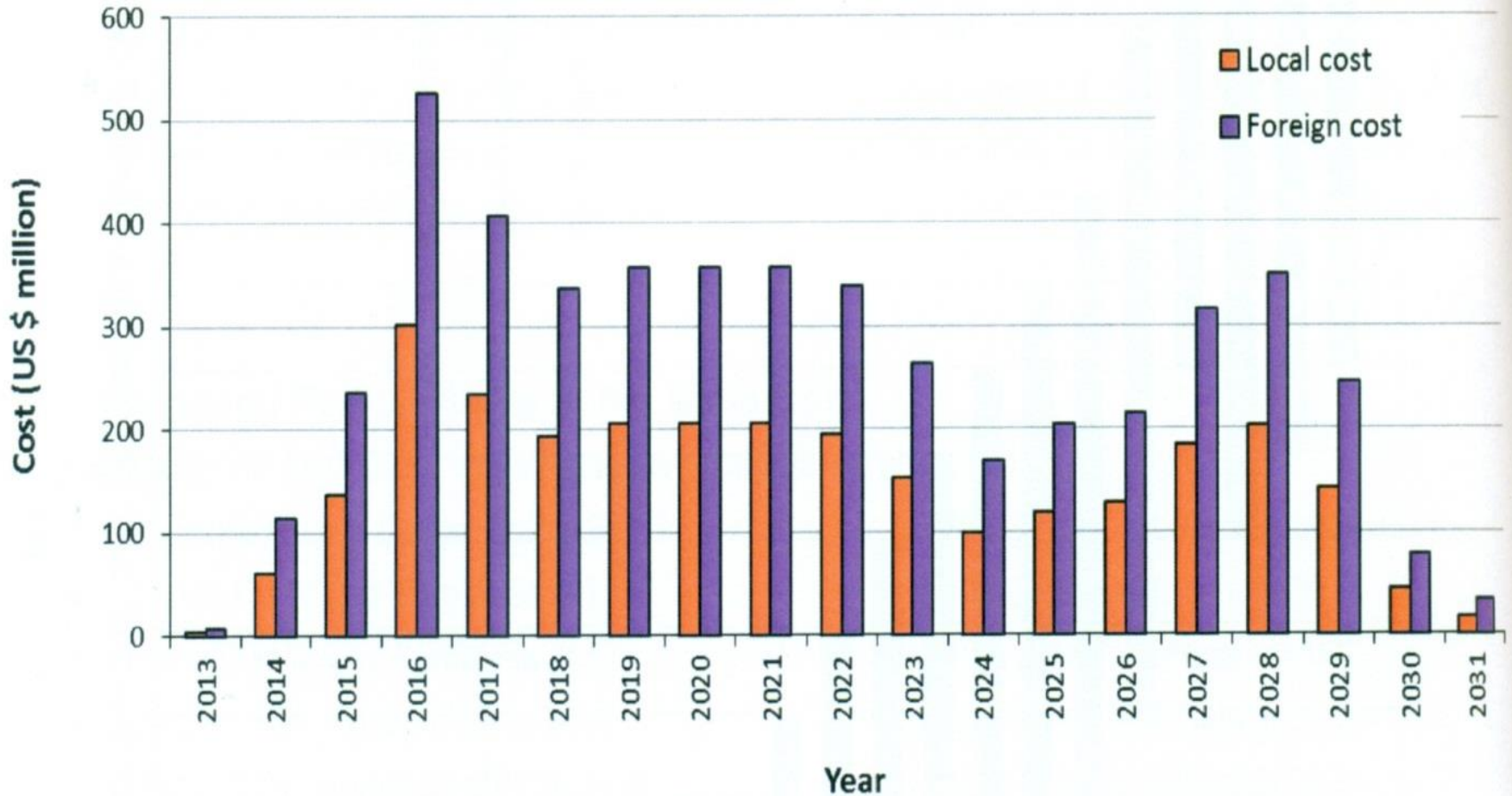
Elect. Generation by Source

Hydro	35%
Thermal	55%
New RE	10%

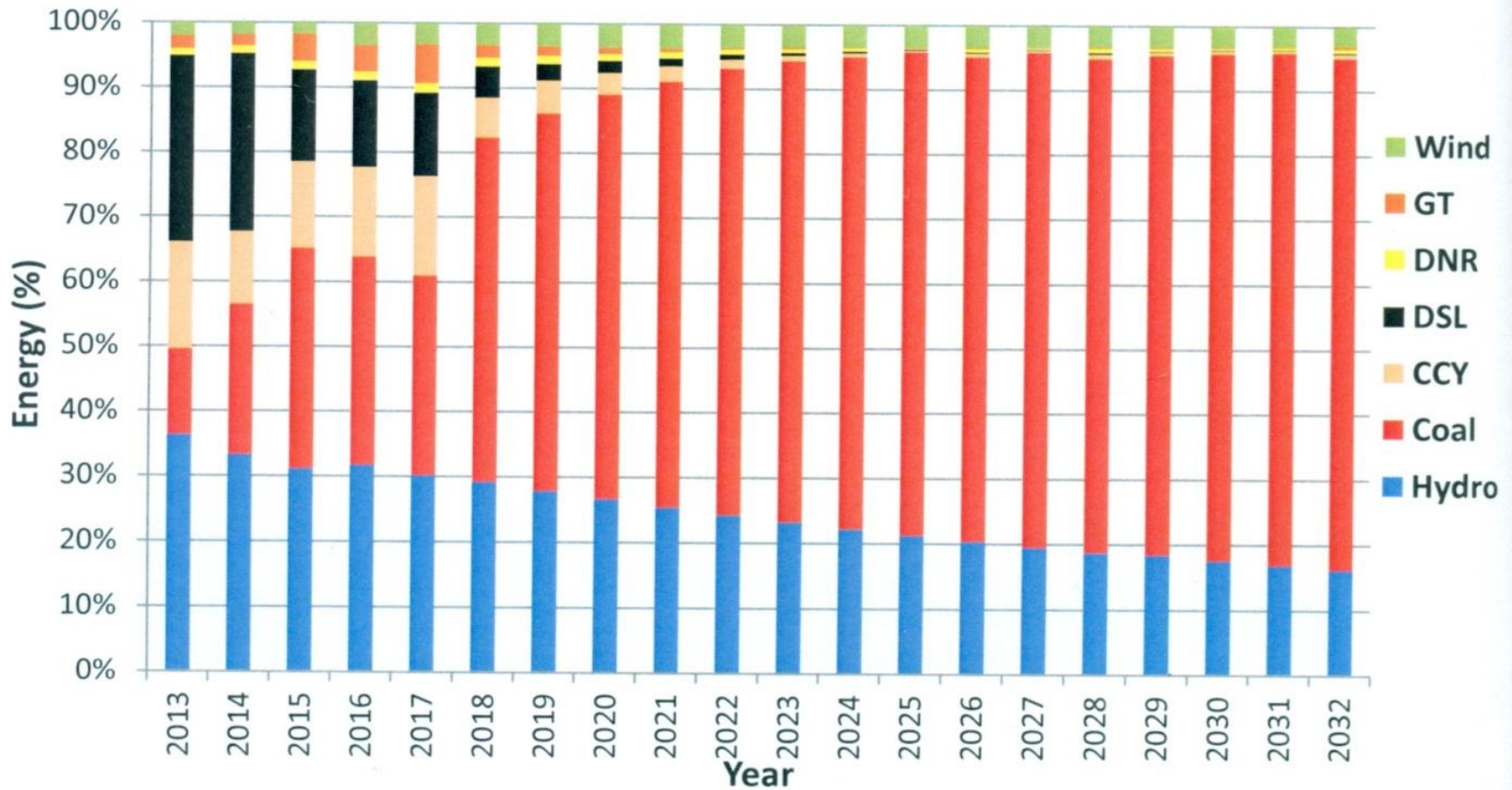
Generation Expansion Plan 2013–2032 Base Case Capacity Additions

Year	Peak Demand (MW)	Capacity Addition (MW)					LOLP (%)	
		Medium Term Diesel	Gas Turbine	Coal	Major Hydro	NCRE		Total
2013	2451					73	73	1.155
2014	2692	44		300		27	371	0.819
2015	2894		180	300		26	506	1.103
2016	3017				155	116	271	0.854
2017	3193		105			27	132	1.320
2018	3383			750	27	45	822	0.133
2019	3556			250		38	288	0.183
2020	3731			300		41	341	0.106
2021	3920			300		36	336	0.067
2022	4125			300		27	327	0.048
2023	4287			300		23	323	0.134
2024	4499			300		25	325	0.102
2025	4717			300		39	339	0.099
2026	4948					26	26	0.346
2027	5187			300		25	325	0.310
2028	5369					26	26	0.804
2029	5625			300	49	16	365	0.633
2030	5893			300		26	326	0.654
2031	6171			300		26	326	0.697
2032	6461		75			26	101	1.469
Total		44	360	4600	231	714	5949	

Required investment for Base case 2013-2032



Percentage share of Energy Mix over next 20 years in base case



Key Features of the Legal &Regulatory Frameworks in Sri Lanka

- Unbundling of Utilities –No
- Energy Regulator-PUCSL for electricity and Petroleum
- Private sector is in petroleum distribution and in electricity generation
- Regional energy trade recognized as a measure for enhancing energy security

Ongoing Activities

± 400kV HVDC line from Madurai to Anuradhapura

Part-I (Land Route - Indian Territory)

- Madurai to Indian Sea Coast near Dhanuskody HVDC overhead line
175km
- HVDC Terminal at Madurai

Part-II (Sea Route)

- India Sea Coast Dhanuskody to Sri Lankan Sea coast Thalaimannar
HVDC Submarine Cable 120km-The length of the sea route has been
reduced up to 45 km to make the project feasible

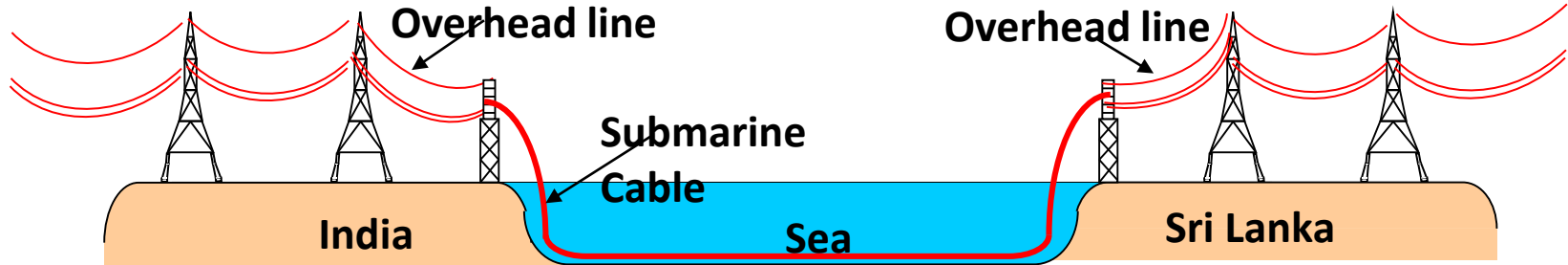
Part-III (Land Route - Sri Lankan Territory)

- Sri Lankan Sea Coast Thalaimannar to Anuradhapura HVDC overhead
line 140km
- HVDC Terminal at Anuradhapura

India –Sri Lanka Electricity Trade

- The quantum of power envisaged for exchange is 500MW initially and enhanced to 1000MW
- CEB and Power Grid Corporation of India are the executing agencies for the study
- POWERGRID agreed to provide the revised cost estimates to CEB to carry out the economic and financial analysis.
- The feasibility report will be finalized on receipt of the revised cost estimates from POWERGRID
- ADB has already agreed to provide Technical Assistance to prepare the detailed engineering designs for the cable project.

Proposed Interconnection Option



Transmission System in Submarine Cable

Two cables will be laid in two trenches 10m apart at a depth of 2m below seabed.

Quantum of Power Exchange

2015 onwards - 500 MW
2020 onwards - 1000 MW

Areas To be considered

- Regulatory framework gaps
- Cross Border Infrastructure
- Trade and Investment Cooperation
- Monetary and Financial Cooperation

- **legal and regulatory framework**

- The Transmission and Bulk Supply license held by CEB is required to be amended
- Dispute resolution in the Sri Lanka Electricity Act requires to be further strengthened,
- CEB Act has to be amended to enable the functions of trader
- limitation for private sector participation in regional energy trade-
Lack of policy ,regulatory clarity in cross boarder dealings etc.

Infra structure related issues

- energy loss attributed to power transfers between India (southern region) and Sri Lanka (Anuradhapura) amounting to at least 6%
- In order to improve the viability of the project, reduction of investment is essential
- Open access in Transmission

- Trade related issues and concerns
 - The India Sri Lanka Free Trade Agreement does not mention electricity in any of its lists, but Sri Lanka Customs specifies a preferential duty rate for electrical energy trade

Monetary and Financing Issues

- Energy sector utilities are Publicly owned-CEB
It has no financial performance quality to provide substantial levels of self financing for new energy sector projects-due to cost recovery constraints
- Lack of sufficient amount of complementary financing and financial guarantee instruments-to soften the terms of project financing.

Thanking you

