CEYLON ELECTRICITY BOARD

Sectorial Crediting Program Under Carbon Partnership Frameworks for Renewables Energy Projects

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Capacity Mix and Energy Mix (2017)

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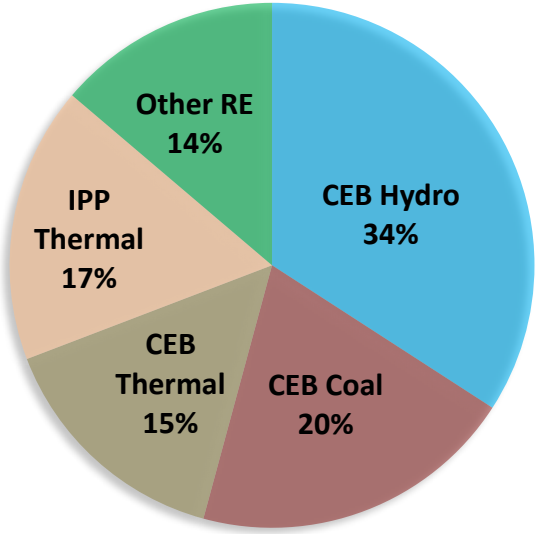
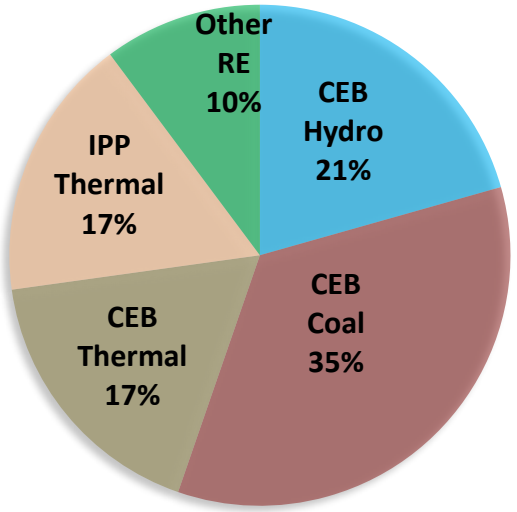
Capacity Share (%)



Energy Share (%)



	Other Renewable Energy Technology	No of Projects	Capacity (MW)
1	Mini Hydro Power	182	354.044
2	Biomass - Agricultural & Industrial Waste	4	13.08
3	Biomass - Dendro Power	6	13.02
4	Solar Power- Parks	8	51.36
5	Wind Power	15	128.45
Total		**213**	**560**
Solar Roof Tops as at June 2018			**150**

Renewable Energy- Present Status

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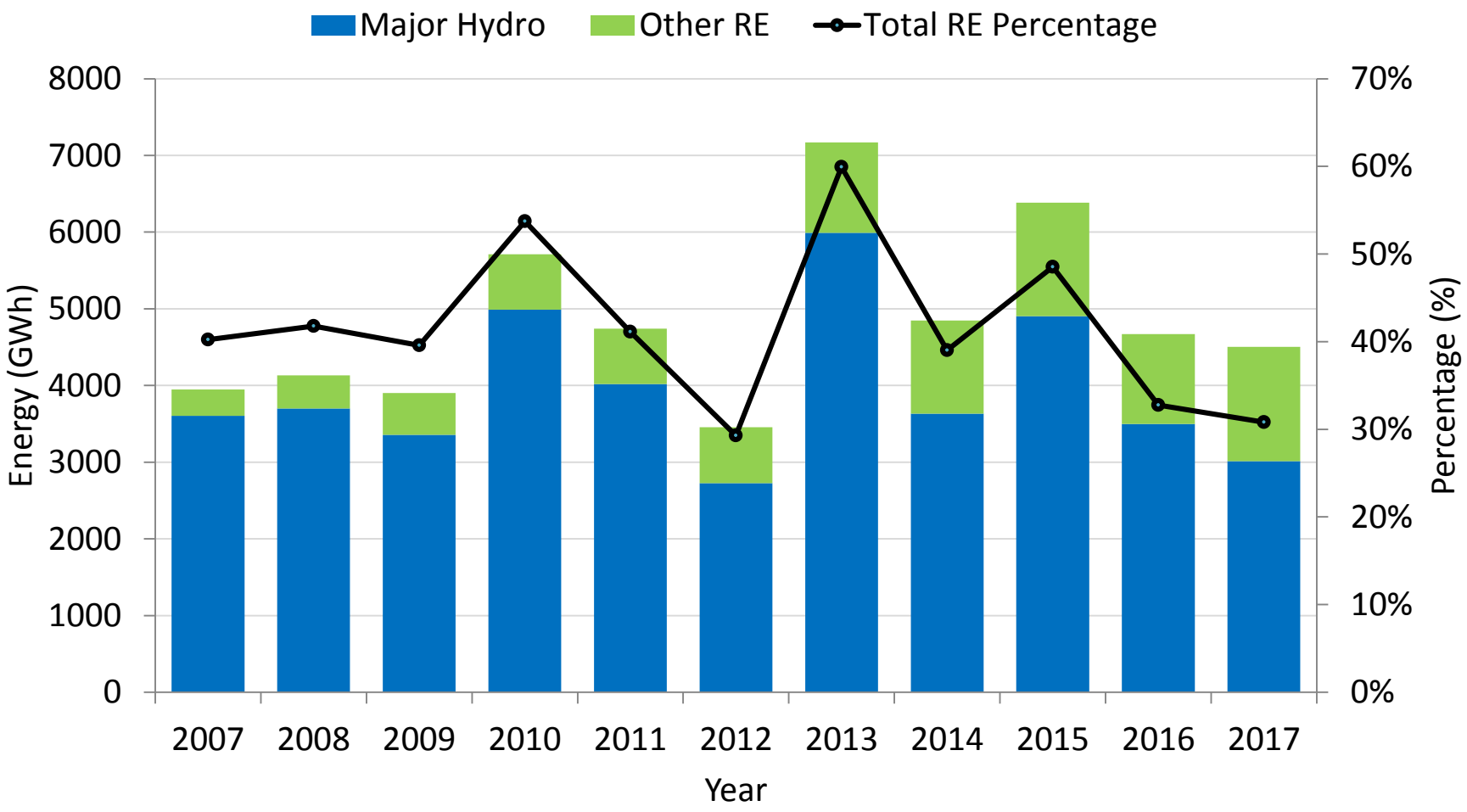
Renewable Energy Contribution



ACTUAL AND FORECAST ENERGY/PEAK DEMAND

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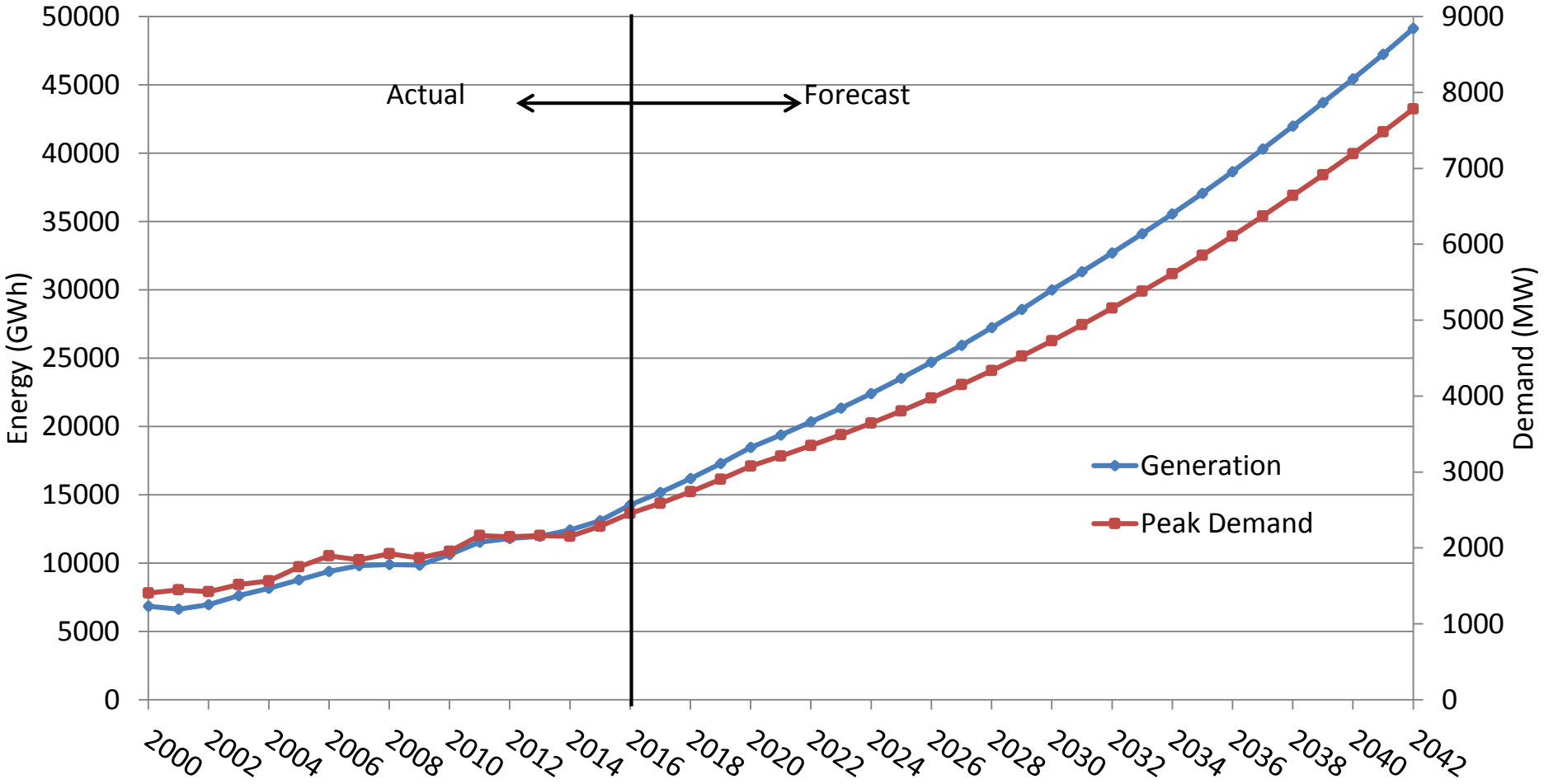
As per LTGEP 2018-2037



Estimation of avg. growth rate approx. 5 %

Future RE Capacity Additions

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Capacity Additions During the planning horizon of next 20 years:

As per the LTGEP 2018-2037

Major Hydro	**240 MW**
Other Renewable Energy (Wind, Solar, Mini Hydro and Biomass)	**2800 MW**
Pumped Storage Hydro	**600 MW**

Wind	Solar	Mini Hydro	Biomass
1200 MW	1300 MW	220 MW	100 MW

- Government has approved policy on,
  - Firm power capacity of 30% from natural gas, 30% from coal, 25% from hydro and 15% from other firm sources.
  - Integration of 2500 MW of ORE (mainly solar and wind) by 2030 contributing of 20% of total energy

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PROJECTED DEVELOPMENT OF OTHER RENEWABLE ENERGY

Year	Cumulative Mini hydro Capacity (MW)	Cumulative Wind Capacity (MW)	Cumulative Biomass Capacity (MW)	Cumulative Solar Capacity (MW)	Cumulative Total ORE Capacity (MW)	Annual Total ORE Generation (GWh)	Share of ORE from Total Generation %
2018	344	144	39	210	737	2103	13.0%
2019	359	194	44	305	902	2471	14.3%
2020	374	414	49	410	1246	3402	18.4%
2021	384	489	54	465	1392	3784	19.5%
2022	394	539	59	471	1463	4022	19.8%
2023	404	599	64	526	1592	4338	20.3%
2024	414	644	69	581	1708	4620	20.6%
2025	424	729	74	685	1912	5084	21.6%
2026	434	729	79	740	1982	5229	21.2%
2027	444	754	84	795	2076	5447	21.0%
2028	454	799	89	900	2242	5796	21.3%
2029	464	824	94	954	2336	6014	21.1%
2030	474	894	99	1009	2476	6365	21.2%
2031	484	929	104	1064	2580	6601	21.1%
2032	494	974	104	1119	2691	6844	20.9%
2033	504	1044	109	1173	2830	7193	21.1%
2034	514	1114	109	1229	2965	7509	21.1%
2035	524	1184	114	1283	3105	7860	21.2%
2036	534	1279	114	1338	3265	8252	21.4%
2037	544	1349	119	1442	3454	8670	21.5%

As per LTGEP 2018-2037

Promotion of Other Renewable Energy

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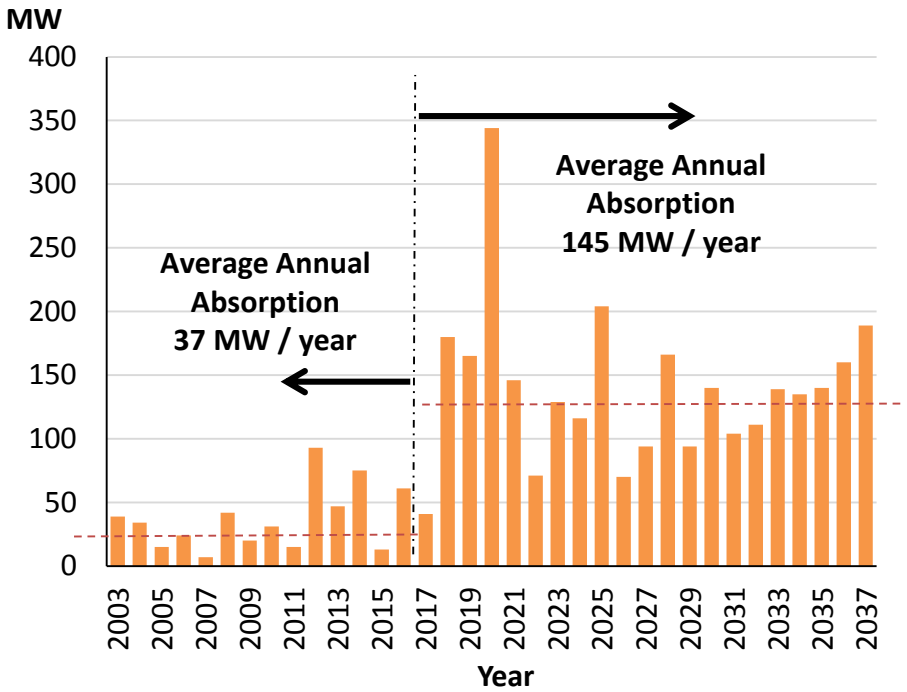
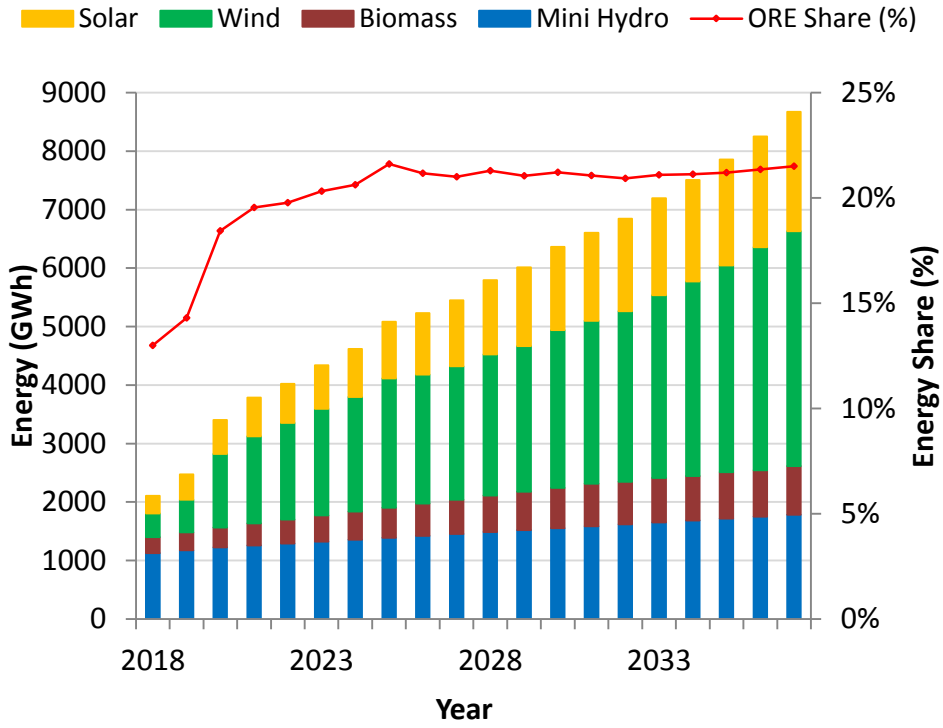
- Past 20 year ORE cumulative capacity addition : 558MW

- An aggressive renewable energy development is envisioned for next 20 years by maintaining optimum energy contribution from ORE power plants and planned to implement total cumulative capacity approximately 3400 MW





Investment of USD 141 million per year for RE projects need to be raised from year 2018 onwards (Ex Rate: 156 LKR/USD)

Environmental Aspect

Comparison of CO2 Emissions from Fuel Combustion

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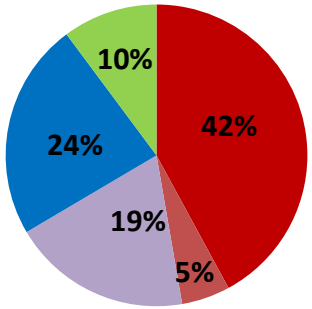
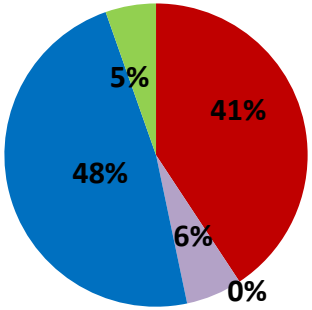
Country	kg CO_2/2010 US$ of GDP	kg CO_2/2010 US$ of GDP Adjusted to PPP	Tons of CO_2 per Capita	Total CO_2 Emissions (Million tons)
Sri Lanka	0.23	0.08	0.81	16.7
Pakistan	0.67	0.17	0.74	137.4
India	0.92	0.29	1.56	2019.7
Indonesia	0.46	0.17	1.72	436.5
Thailand	0.64	0.24	3.6	243.5
China	1.08	0.53	6.66	9134.9
France	0.10	0.17	4.32	285.7
Japan	0.21	0.27	9.35	1188.6
Germany	0.20	0.21	8.93	723.3
Switzerland	0.06	0.09	4.61	37.7
USA	0.32	0.32	16.22	5176.2
Brazil	0.20	0.16	2.31	476
Australia	0.26	0.36	15.81	373.8
World	0.44	0.32	4.47	32381

IEA CO2 Emissions from Fuel Combustion (2016 Edition)- 2014 data



World



Sri Lanka

- Electricity and heat production
- Other energy ind. own use
- Manufacturing industries and construction
- Transport
- Other sectors

Total CO_2 Emissions (Million tons) from Electricity – Actual and Predicted in Scenarios

	2014	2025	2030	2037
No Future Coal	6.79	5.05	7.68	12.08
Coal Limited 1800 MW	6.79	6.41	10.72	17.05
Base Case	6.79	7.41	11.32	19.25
Reference	6.79	9.33	13.55	24.20

Commitment of Sri Lanka to COP 21

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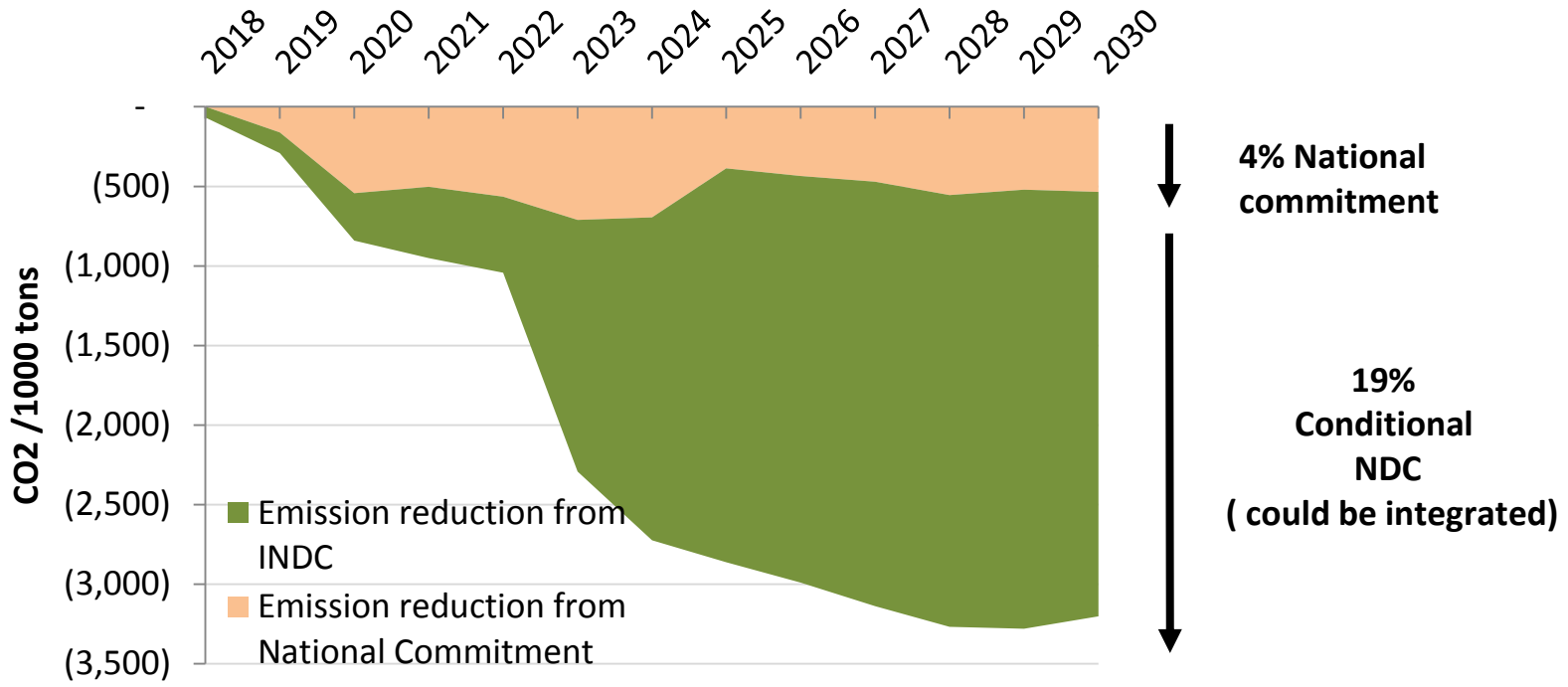
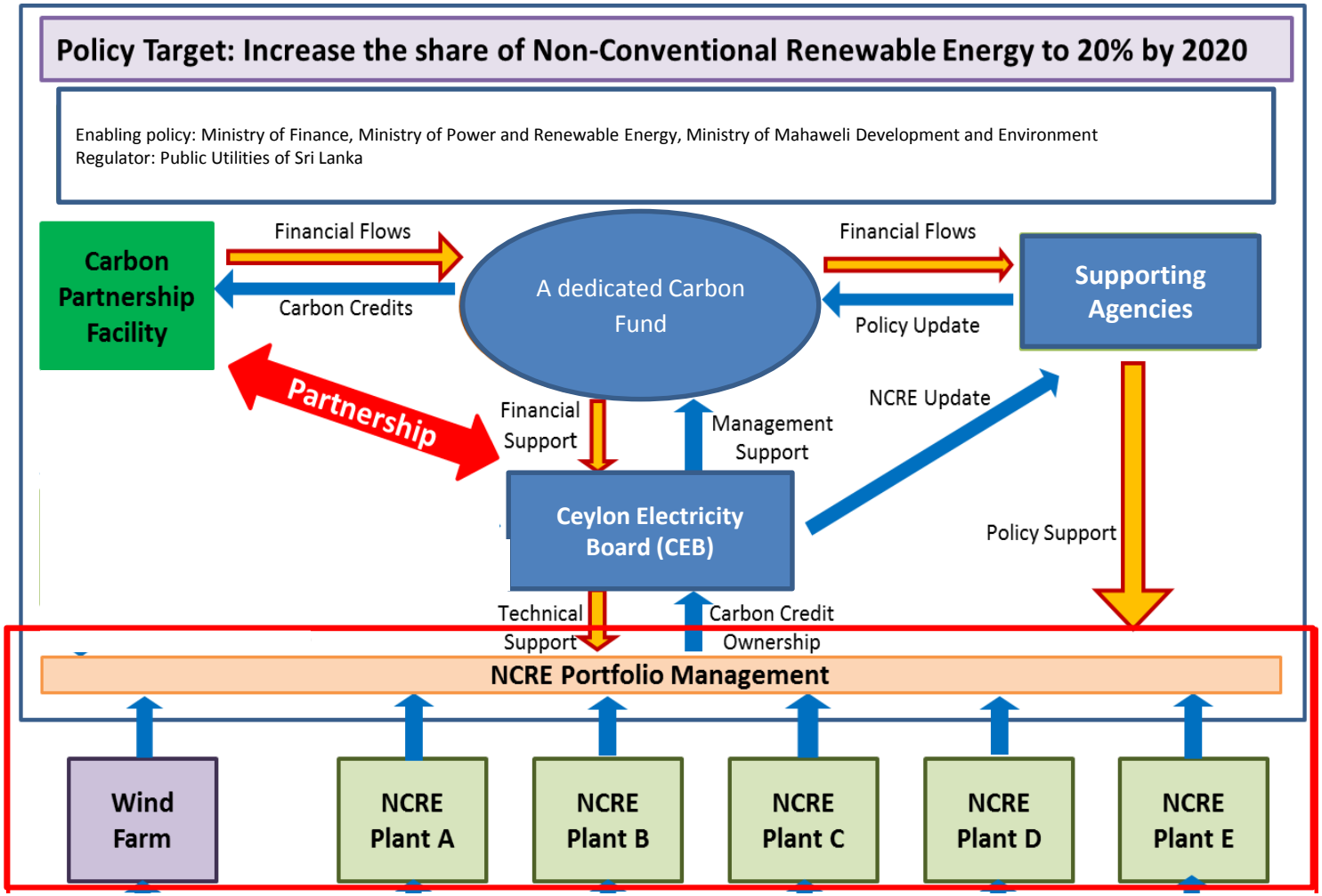
- Nationally Determined Contributions submitted to UNFCC
- Sri Lanka expects to reduce 20% GHG emission in energy sector by 2030 against the Business-As-Usual scenario as unconditionally 4% and conditionally 16%.
- Already Incorporated in preparation of LTGEP 2018-2037



Model for Institutional Arrangements for Carbon Financing



: Proposed Framework Boundary : Outside Boundary, but Closely Monitored : Financial Flow from the Program

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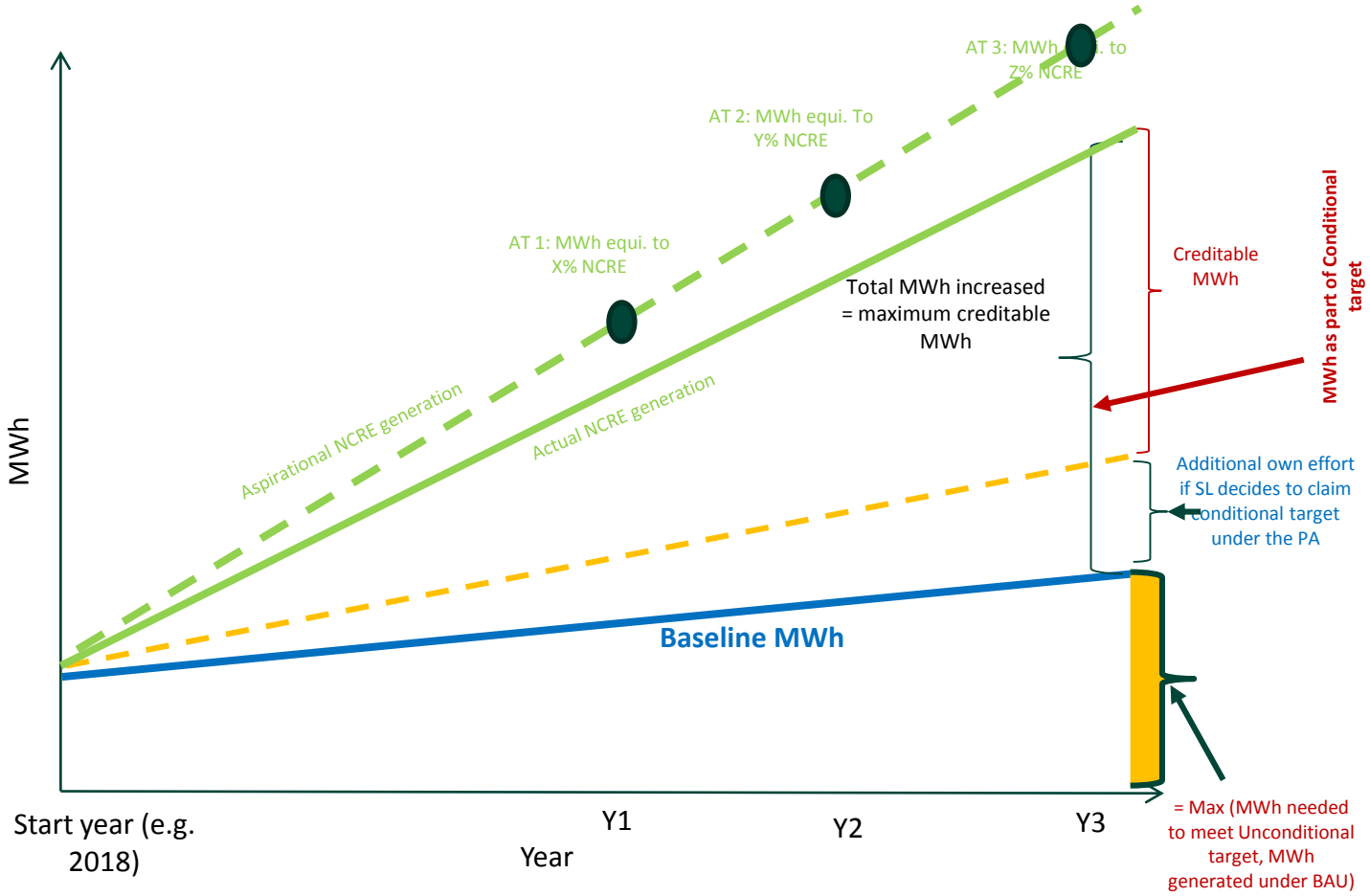
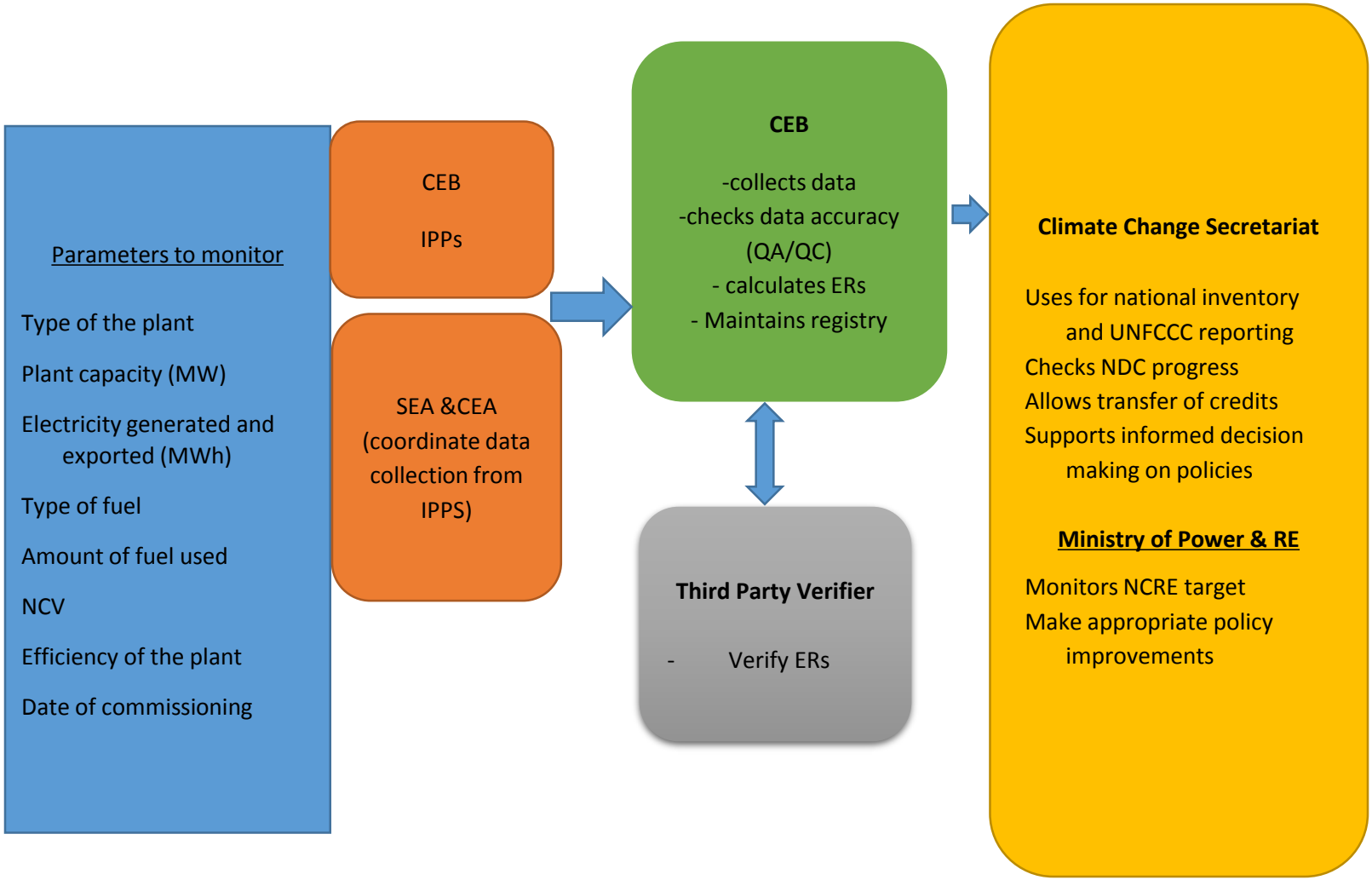
Crediting Approach for the Proposed Program



MRV(Monitoring, Reporting, Verification) Arrangement



Role of Carbon Finance

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- Development of tools and technological measures related to grid integration and technology promotion
  - Implementation of day ahead, hourly basis and accurate Wind and Solar PV energy forecasting system
  - 24 hour (round the clock), renewable energy desk has to be set up and output from each renewable energy sources have to be monitored (if existing plants are not equipped with communication facilities, measures have to be taken for establishing them)
- Development of new and innovative business models
  - Enabling policy environment and developing viable business models for solar and wind
  - De-risk the energy infrastructure projects and reduce cost
- Deploy measures to implement Demand Side Management activities
- Support to increase ambition level of NDC
  - Translate Sri Lanka's NDC 2030 goals into annual targets to facilitate tracking progress
- Capacity building for,
  - Market readiness
  - Collecting GHG emission data and support monitoring, reporting and verification of GHG emissions
  - Scaling up of mitigation activities

THANK YOU

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