

RENEWABLE ENERGY LEGISLATION PROPOSAL FOR SRI LANKA

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1 INTRODUCTION

The total population of Sri Lanka is 21.3million and 90% of Sri Lankans have access to the grid electricity. The total installed capacity of the country was 3141MW in 2011 and 46.19% (1451 MW) of that was renewable. However the Sri Lanka has more renewable resources than current demand {(24,250MW onshore wind energy potential and minimum solar energy potential 10,147MW). These statistics suggest that by utilising only **4.91%** of available renewable energy (solar and wind) sources Sri Lanka can generate 100% of power from renewable energy. Further 100% of renewable energy production (5397MW) is also possible in year 2020 by utilizing **11.47%** of total solar and wind energy resources.

2 BASIC LAW: RENEWABLE ENERGY SOURCES ACT

The national energy policy of Sri Lanka-2006 should amend to develop 100% renewable energy based economy. The following energy policy elements are proposed.

E-1. RENEWABLE ENERGY RESOURCES ARE EXPLORED TO ENSURE ENERGY SECURITY OF THE COUNTRY BY PRODUCING 100 % RENEWABLE ENERGY

The current government policy elements {(1) Providing Basic Energy Needs (2) Ensuring Energy Security (4) Promoting Indigenous Resources} should be replaced by **one** (above) policy element.

Proposed national target changes

- According to the current national targets, 62% energy in 2015 is planned to produce by **imported** “oil (08%)” and “coal (54%)”. How can a country achieve energy security from imported “oil” and “coal”. Therefore national target should be 100% renewable by year 2021.

Implementing strategies

Time Frame	Strategy
Immediate	Stop future coal power plants expansions and replaced by wind power.
2012-Dec	Calculation of power production capacity of biomass/ agriculture and industrial waste (Specially Dendro***) and map the data
2013-Dec	The energy resource capacity map (Wind/solar) should be completed
2014-Mar	The renewable energy resource map should be freely available(with GPS coordinates)

***Dendro power is the generation of electricity from sustainably grown biomass (fuel wood). It is particularly well suited to tropical countries such as Sri Lanka.

Proposed National legal structure changes (To implement above strategic action)

- According to the ACT NO.35 of 2007, Sri Lanka sustainable energy authority (SEA) is responsible to collect necessary data and carry out renewable energy resource planning and assessment. Although SEA is responsible for collecting required data, there are several** government organizations and ministries responsible for providing relevant data to SEA. Their institutional policies should amend to facilitate SEA activities. More power should be given to SEA by amending the act NO.35 of 2007 to control the process of information gathering)

. **This includes Ministry of Agriculture (Agro forestry information) /Institute of post harvest technology, Ministry of Land and Land Development, ministry of forestry (Forest /Renewable forest/Marginal land plantation/Monoculture plantation), Local government bodies (information about biomass from residues and waste), ministry of industry and ministry of power and energy.

E-2. PRODUCE 100% ELECTRIFICATION FROM RENEWABLE ENERGY IN YEAR 2021

Proposed national targets

Time Frame	Target
2013-Dec	All the street lighting should be powered by energy generated from solar, biomass and waste in every municipal council area
2014-Dec (Onwards)	Close down 280MW capacity thermal power plants in each year (The basic criteria should be age of power purchase agreement with CEB
2014-Dec (Onwards)	Addition of Wind/Solar/biomass power plants capacity 500MW in each year (280MW to replace thermal power and 120MW to supply new demand)
2014-Dec (Onwards)	Save €. 152 million per year and increased up to €. 512 million in year 2020
2020-Dec	100% power generation from renewable energy.

Implementing strategies

Time Frame	Strategy
Immediate	The government should introduce “ environmental tax = (Rs4.00 per petroleum liter. This will generate € 160,115,200 per year and enough to invest 100MW wind power (The mean exchange rate €1 = Rs165.).

2014-Dec (Onwards)	Addition of 100MW of wind/solar/biomass renewable energy capacity by using environmental tax funds.
2014-Dec (Onwards)	Encourage independent power producers to reinstall their thermal power plants with renewable energy. (280MW per year).
2014-Dec (Onwards)	The next 120MW should be generated from new investments or otherwise by taking financial loan.

Proposed National legal structure changes (To implement above strategic action)

- According to the Sri Lanka Electricity Act of 2009, the sole entity of power production and distribution in Sri Lanka belongs to Ceylon electricity board. It is important to abolish this law and encourage private sector participation through renewable energy based energy production.
- The restriction given for Max: 25MW power production should be abolished for renewable energy based power production.

E-3. PROMOTING RENEWABLE ENERGY TECHNOLOGIES

Proposed national targets

- 2013-Dec: Improve the knowledge of local people (Level of known 100%) about renewable energy technology and its importance (To encourage them to easily accept renewable energy and its basically higher cost).
- Developed local technology in renewable energy sector

Implementing strategies

- 2012 Jan-New subject should be introduced to national school curriculum "Renewable energies and technology"-
- 2013-Jan-The National science foundation of Sri Lanka should allocate 40% fund for renewable sector development related activities from year 2013 to 2020.

E-4. ADOPTING AN APPROPRIATE PRICING POLICY TO PROTECT INVESTORS AND CONSUMERS

Proposed national targets

- Eliminate the effect of fuel price variation for energy generation and create stabilised return for energy sector investments, Sri Lanka

Implementing strategies

- One of the main barriers in renewable energy sector development is fluctuation of fossil fuel prices. It is important to have a suitable pricing formula for protecting both

suppliers and consumers. When the fossil fuel pricing is decreasing, the government can keep fuel prices at constant and increase environmental tax.

- Sri Lanka has higher unit price for renewable energy but still low compare to EU countries. Therefore it is proposed to increase tariffs values for municipal waste, wind- local by 25%.Further to consider municipal waste, agricultural waste and biomass at same tariff level to encourage more waste utilization for power generation. Further wind-local wind and Photovoltaic at also at same tariff rage to encourage power generation from solar energy.

Technology	Current government feed-in tariffs		Proposed feed-in tariffs
	LKR/ kWh	Euro-Cuts/kWh	Euro-Cuts/kWh
Municipal waste	22.02	13.4322	16.79025
Biomass	20.7	12.627	16.79025
Other	20.7	12.627	12.627
Wind-Local	19.97	12.1817	15.22713
Wind	19.43	11.8523	15.22713
Biomass-Agriculture and industrial waste	14.53	8.8633	16.79025
Mini Hydro Local	13.32	8.1252	8.1252
Mini Hydro	13.04	7.9544	7.9544
Photovoltaic	20.7	12.627	15.78375

Proposed National legal structure changes (To implement above strategic action

- 10 years tax holiday period should given to for renewable energy based power generation investments. BOI Law No. 4 of 1978 ACT should amend.

E-5. IMPROVE ENERGY EFFICIENCY BY ENHANCING ENERGY SECTOR MANAGEMENT CAPACITY

Proposed national targets

- 2013-May: Improve the current “code of practices for energy efficient building” regulations by adding more information (given in the table)
- 2018 Dec :.Increase energy efficiency of local industry (Process) more than 85%
- 2018 Dec: Completion of building energy certification process for existing buildings.
- 2019 Dec: .Increase the local product recycling percentage up to 80%.
- 2020 Dec: Every home in the country should have “Home Energy Efficiency” codes certification

Area	Summary of Specification given	Information to be added
Lighting	Six basic rules for achieving energy efficiency is given	The building should design, to get minimum 40% of “day light from natural lighting”
	Automatic control areas are defined (to use time based or Photo electric sensors)	Minimum 50% of exterior lighting power should be generated by photovoltaic's
	Maximum Allowable Power for Illumination Systems has defined	
	maximum building exterior and grounds lighting power densities have defined	
Ventilation	Equipment standard rating values, maintenance procedure, off hour control	Minimum 30% of the building should be used natural ventilation**
Building Envelope	Allowable U factor values have defined	
Power Transmission	Minimum efficiencies (Ex Motor) and maximum losses for power have defined	

(**Typical Energy Usage Pattern In Sri Lanka=Air conditioning - 77.54%,lighting =15.97%,office equipment and others-4%,lift 2.17 % and water pumping 0.32%.

Implementing strategies

- 2012-Dec: Train all engineering managers in the country and improve energy management skills.
- 2013-March: Regulate “commercial Building codes” certification.
- 2013-May: Regulate that every home in the country should get “Home energy efficiency” certification by year 2020.

Proposed National legal structure changes (To implement above strategic action)

- Clause 36 (g) of Sri Lanka Sustainable Energy Authority Act 2007 should be added with given more power to SEA in the context of “Energy efficiency certification monitoring

3 PROPOSED CHANGES FOR NATIONAL TRANSPORT SECTOR

Proposed national targets

Time Frame	Target
2012-Dec	Euro 4
2014-Dec	Convert all two stroke vehicles (Motor cycles, three wheelers to electric vehicles
2015-Jan	Only allow to import electric motor cycles (year 2010 motorcycle registered amount was 2,100,832)
2015-Dec	Development of “special code of practices to each vehicle type by amending the current emission regulations and implement the system by year 2015 and based this introduce new fuel tax
2015-Dec	Transportation plans to 2020 include BRT system
2018-Dec	The total electric car usage should be increased up to 75% of total registered vehicle quantity by year 2025.
2018-Dec	Public transport usage should be increases up to 80 % within the commercial cities (Now 68%).
2018-Dec	Develop electric powered railway network by year and doubled the present capacity.

Implementing strategies

- The new emission certification system should be replaced by Introducing new certification based on developed vehicle codes
- Revise vehicle tax structures to encourage vehicle imports that are less polluting and special consideration should be given to increase electric vehicle usage.
- Encourage private sector participation for developing electric powered railway network by giving 15 years tax holiday period. .

Proposed National legal structure changes (To implement above strategic action)

- The emission standards are Gazette on effective from 1st of April 2008 should be replaced with specific codes to each vehicle type which is based on vehicle type. In this case all motor cycles and three wheelers will given millage allowance per year, if they are operated with fuels.
- Currently there is no information given for CO₂. But it is proposed to introduce 400 kg CO₂/MWh limit for CO₂
- . The emission standards Gazette on effective April 2008 should be amend