

A sustainable , future proof and visionary Energy Policy for Sri Lanka

Executive Summary

Having faced both destructive energy shortages and unprecedented and damaging increases in consumer tariff in the past two years, it is essential that Sri Lanka at least now arrive at a Sustainable Visionary , Future Energy Policy which is able to confidently face any future challenges. The advantage of leveraging on undoubted national renewable energy resources , already commercially proven to be technically, financially and environmentally feasible, be embraced as the only way forward to escape the decades long trap of fossil fuel and the BoP issues.

Sri Lanka has emerged from being a nation dependent of foreign sources for its energy needs at present and in the foreseeable, to become an energy rich nation with officially quantified resource potential ,far exceeding even future energy demand for many decades ahead.

This change is only possible by a paradigm shift in the way energy resources and supplies are viewed which accepts that

- The nation's energy resources belong to the people and the benefits of their utilization must primarily flow to the people.
- It is no longer true that the energy sector development need be the purview of the large scale entrepreneurs, either in the state or private sector requiring very large capital investments
- The recent developments in technology have obviated the need for centralized power generation needs and the distributed smaller scale generation is already proven to be more viable, economically, environmentally and socially, in the electricity sector and the adoption of EVs for transport coupled with own solar energy will enable the commuters to escape the clutches of fossil fuels for good. The economic and technological environment is already present and is gaining grounds daily. This must be recognized as an integral component of any future energy policy.
- **National Security is closely linked to national Energy Security. This can be guaranteed only by ensuring that the energy industry remains in control by the national entities both public and private**

Energy and Climate Change

Sri Lanka need not pay any specific attention to contribute positively to the Climate Change efforts, if the logical change to renewable energy is adopted as national policy. We can easily meet the commitments already made under the NDCs (Nationally Determined Commitments) submitted to the UNFCCC.

While detailed themes , strategies and action plans follow, the desired change can emerge on from policies listed below which embrace the earlier principles of peoples ownership of energy resources and the pathway for development has to be centered towards peoples development while ensuring access to the energy services and supplies at affordable prices.

Energy is not limited to electricity and must address the transport energy and industrial thermal energy , which also can be covered by these policies to be developed synergically and concurrently. These would necessary require urgent policies of

1. National Energy Policy to reach 80% Renewable Energy in the electricity sector by 2030
2. A firm national policy to ensure energy sector remains in control of Sri Lankan with necessary safeguards.
3. The target under the Suryabala Samgraamya to reach 1,000,000 of roof top solar by 2030
4. Ministry Directive to the CEB to develop a time targeted plan to reach 80% RE by 2030 with the mandate to achieve same in collaboration with the private sector
5. Development of Energy Plantation via plantation sector companies to ensure energy and fertilizer supplies to plantation factories and enhancing the profitability of plantation companies by becoming fuelwood suppliers via Gliricidia and Bamboo
6. Focused facilitation on development of Dendro power for rural economic development and increased source of firm energy to the national grid. A target of 1000 MW to be achieved by 2030
7. Implement the target of 20% light vehicle electrification by 2025 as proposed in the Gazette National Energy Policy dated Aug 2019. (Ref 8 Section 4.5 -5f, and Ref 1 Pg 57)
8. Impose the already decided on carbon tax on the basis of a levy per litre/kg on all fossil fuels including coal. Reserve the proceeds for development of RE projects only
9. Reinforce the implementation of Bus Lanes on all major roads
10. Adopt a policy of 100% EV by 2035 for light vehicles in line with the world trend of stopping manufacture of diesel and petrol carb by 2055
11. Developing a vibrant local industry to convert existing 3W and Light cars to EVs, to limit the demand on imported EVs.

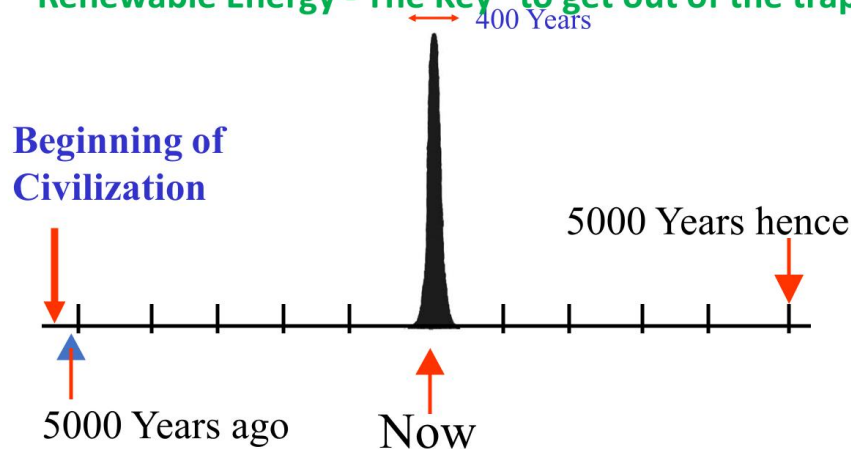
A sustainable , future proof and visionary Energy Policy for Sri Lanka

Having faced both destructive energy shortages and unprecedented and damaging increases in consumer tariff in the past two years, it is essential that Sri Lanka at least now arrive at a Sustainable Visionary , Future Energy Policy which is able to confidently face any future challenges. The advantage of leveraging on undoubted national renewable energy resources , already commercially proven to be technically, financially and environmentally feasible, should not be missed

Sri Lanka not having any proven fossil fuel resources have had to depend entirely on imported fossil fuels for transport fuels and an increasing share of power generation on fossil fuels including coal. This has hitherto kept Sri Lanka trapped in the Fossil Fuel trap , with grave impacts on the Economy, Balance of Payment and the Economy as clearly illustrated by the recent events.

Mankind's use of fossil fuel

We too are trapped in the blip - Not wanting to get out ?
“ Renewable Energy - The Key to get out of the trap”



The world has recognized this trap and many countries have already embarked on a journey to shed the dependence on fossil fuels for energy.

Sri Lanka is fortunate that with the significant advances in commercially proven technologies and commercial circumstances , our own well documented substantial renewable energy resources have now reached the stage of practically and economically exploitable stage and the first steps have already been taken.

An Energy Rich Nation

Thus Sri Lanka has emerged from being a nation dependent of foreign sources for its energy needs at present and in the foreseeable future based on current policies and strategies, to become an energy rich nation with quantified resource potential ,far exceeding even future energy demand for many decades ahead.

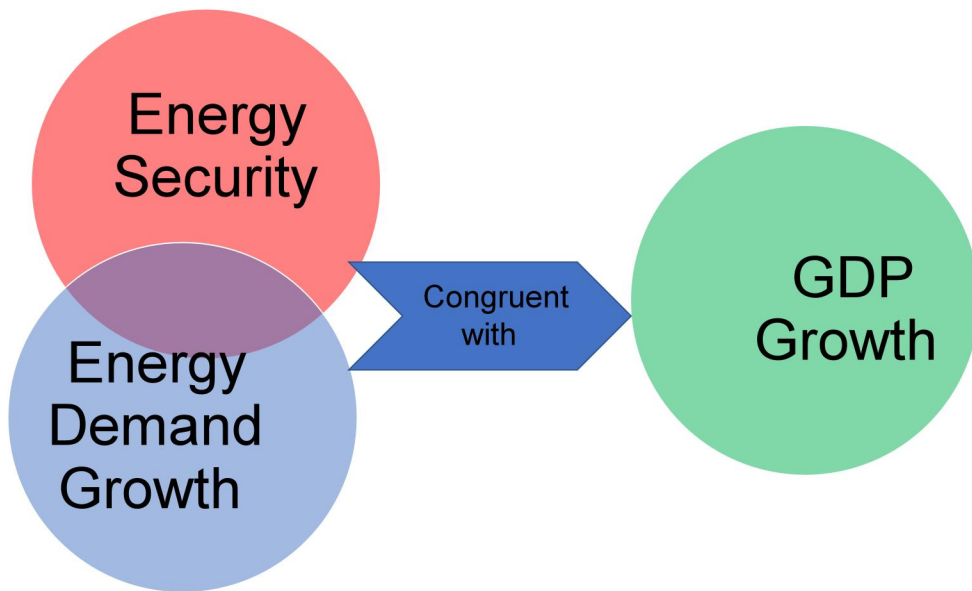
Achieving this status which is essential to both escape form the “Fossil Fuel Trap” and to leverage the exploitation of the indigenous natural energy resources for economic advancement, well beyond the mere sustainability of energy supplies for other sectors of economy, requires a visionary future energy policy and firm strategies. These changes are urgently needed to arrest the continued dependance on imported fossil fuels and the consequent drain of foreign exchange and the pressure on the Balance of Payments.

The concurrent and most significant benefits to the nation on many fronts by such visionary policies will be the driving force to encourage urgent action by any future administration as spelled out later on.

A Paradigm Shift on the Perceptions on Energy

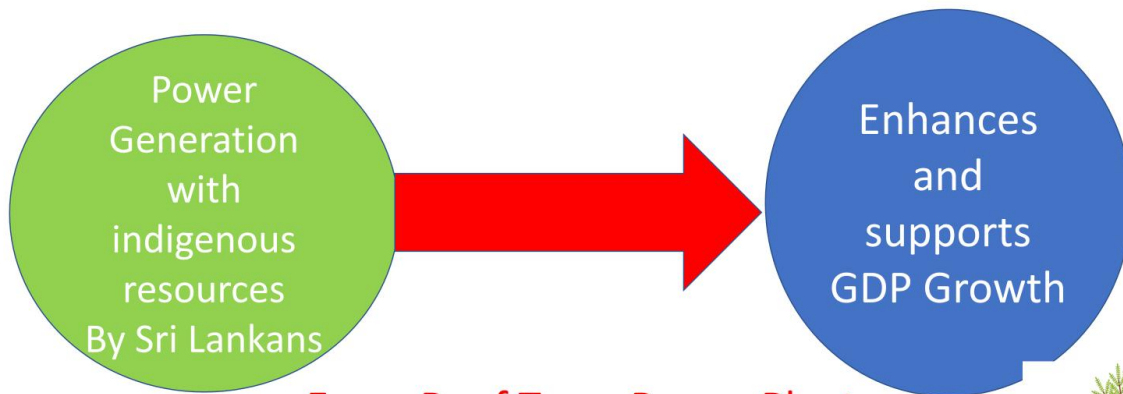
There is an urgent need to review the way the role that energy supplies are viewed at present in relation to its impact on the economic growth, society needs and the people by those entrusted with the planning, administration and management of the National Energy Supplies. This Paradigm Shift is illustrated by the two charts below on the current status and the desired change.

The Conventional Wisdom !!



A New Paradigm !!

The Energy Sector to be a Sri Lankan Industry



Every Roof Top a Power Plant
Every Garden an Energy Plantation
The Consumer to be a " Prosumer"

1/29/2024



Ref: Bio Energy Association of Sri Lanka

This change in paradigm entails the recognition of these very important issues

- The nation's energy resources belong to the people and the benefits of their utilization must primarily flow to the people.
- It is no longer true that the energy sector development need be the purview of the large scale entrepreneurs, either in the state or private sector requiring very large capital investments
- The recent developments in technology have obviated the need for centralized power generation needs and the distributed smaller scale generation is already proven to be more viable, economically, environmentally and socially, in the electricity sector and the adoption of EVs for transport coupled with own solar energy will enable the commuters to escape the clutches of fossil fuels for good. The economic and technological environment is already present and is gaining grounds daily. This must be recognized as an integral component of any future energy policy.
- **National Security is closely linked to national Energy Security. This can be guaranteed only by ensuring that the energy industry remains in control by the national entities both public and private**

The relevance of energy security on National Security.

National Security of a nation depends on the none dependence on external sources for the following

1. Food

2. Defense
3. Education
4. Health
5. Shelter
6. Energy

The fast changing lifestyles and other imperatives has made the non dependence on Energy to be perhaps the primary element to be targeted with its central role in ensuring the development of all other sectors. Energy is the universal currency world over. In Sri Lanka's context access to clean and affordable energy as stipulated in SDG 7 will be the main contributor and catalyst to the development of the other sectors of economy without exception. It is inevitable that with the rapid changes in technologies world over which sooner than later will have to be accepted and adopted by Sri Lanka , Electricity the most preferred form of energy, will gain dominance. While Sri Lanka is very advantageously placed to embrace this change, polices are urgently needed to elevate the present 12% share of electricity in the national energy mix rapidly.

Sri Lanka is presently woefully dependent on external resources to meet the demands of all these sectors, due to the continued lack of vision by the successive governments.

At least in case of the Energy Supplies and Services Sri Lanka is at the threshold of a positive change, at present in the Energy Sector (Not limited to Electricity) , where we can gain the status of none dependence in a relatively short time by the adoption of progressive polices. The recognition of both the extent of the indigenous renewable resources of energy that Mother Nature has bestowed on us and the firm policies and strategies to meet the energy demands in the near and long term, by Sri Lankan entrepreneurs is therefore essential.

The policy statements made by past administrations have proven to be mere rhetoric not adopted on the ground nor leveraged on the positive trends in the sector for the benefit of Sri Lankan people. Such policy manifestoes have been ust words and empty promises, as has been the unfortunate experience of the citizens of Sri Lanka in the past.

Energy and Climate Change

The increased recognition and awareness worldwide on the ever increasing threat of Climate Change the negative impacts of which are increasingly felt by Sri Lanka as well. Sri Lanka cannot expect to ignore its global responsibilities by continuing the use of fossil fuels which is the major contributor to the global warming. In addition in the present situation with Sri Lanka facing severe foreign exchange crisis and balance of payment problems, the severe drain of foreign exchange for the import of fossil fuels cannot be allowed to continue unchecked.

The importance of adequate and affordable supply of energy is imperative for the economic development does not need any elaboration. This is embodied in the **Sustainable Development Goal No 7 – Access to Clean Energy at Affordable Prices**. Sri Lanka has ratified the Sustainable Development Goals and out of the 17 SDGs, the SDG 7 if properly developed has a great influence on many of the other SDGs for Sri Lanka's under the present circumstances. It is urgent to recognize and adopt polices and strategies to gain from this reality. .

While Sri Lanka is yet categorized as a low emitter of carbon with less than 1 ton per capita against the global average of 19 tons per capita, Sri Lanka cannot ignore its international commitments to reduce emissions. It must be recognized that the adoption of indigenous renewable sources of energy which are essentially carbon neutral, has the dual advantage of being the most economically advantageous option, as well as the means of exceeding the international commitments .

As such Sri Lanka need not pay any specific attention to contribute positively to the Climate Change efforts if the logical change to renewable energy is adopted as national policy. We can easily meet the commitments already made under the NDCs (Nationally Determined Commitments) submitted to the UNFCCC.

The Renewable Energy Options of Sri Lanka



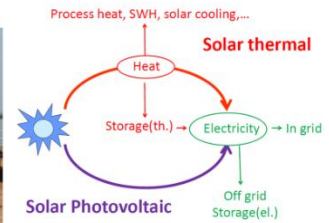
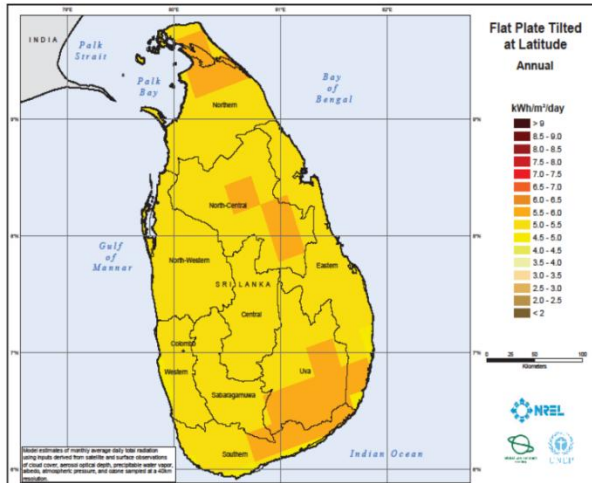
Mother Nature has endowed Sri Lanka with an abundance of Solar Energy.

The earth receives enough solar energy in one hour, adequate to meet the entire energy needs of the world for a year. In this equation Sri Lanka is placed in a most advantageous position being a tropical island with over 200 days of sunshine annually anywhere in the country, with a very high intensity of solar radiation as published in the documents of the Sustainable Energy Authority of 1700 kWh/m² over most of the country. (www.energy.gov.lk) Those who have opted to install roof top solar PV, can safely expect the generation to be 110 kWh/kW/month, averaged over the year including the cloudy and rainy days.

The two major sources of renewable energy, now that most of the hydro resources have been harnessed are Solar and Wind. The two charts below illustrate same.

What About Sri Lanka ?

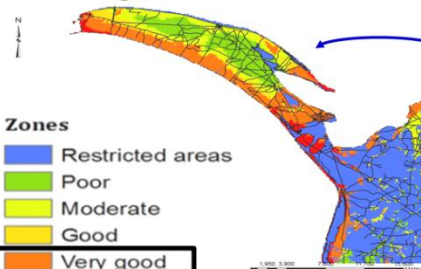
- Annual Electricity Demand 2020 15,000 GWh
- Solar Insolation @4.5 kWh/m²/day 106,762,500 GWh
- We have at least 7000 times our need to play with



WIND ENERGY RESOURCE

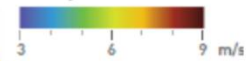
Resource Maps

Mannar Region



Classification	Extent (km ²)	Wind power potential (MW)
Excellent	13	65
Very good	59	295
Good	13	65
Moderate	41	205
Poor	42	210
Restricted	152	760
Total		360 MW

Spatial distribution of annual average Wind Speeds (m/s) at 80 m



Conservative potential 100,000 MW



Source: NREL 1997

The Sri Lanka Sustainable Energy Authority has confirmed this potential with the quantification of viable potential of ,

Sri Lanka has a bounty of nature of

- The On Shore and Off Shore wind Potential – 102,000 MW
- The Solar Potential - 106,000 MW
- We need only 10,000 MW to meet the domestic needs
- Let us target monetizing of only 25% of the excess

The yet to be formally and actively recognized resource and focused for development is the Dendro Energy already proven on the ground and a source of firm power with multitude of spin off benefits with a potential to add at least 2500 MW of firm power (as reported by ADB and JICA). This is equivalent to 12,500 MW of solar power or 7500 MW of wind power available 24/7 throughout the year.

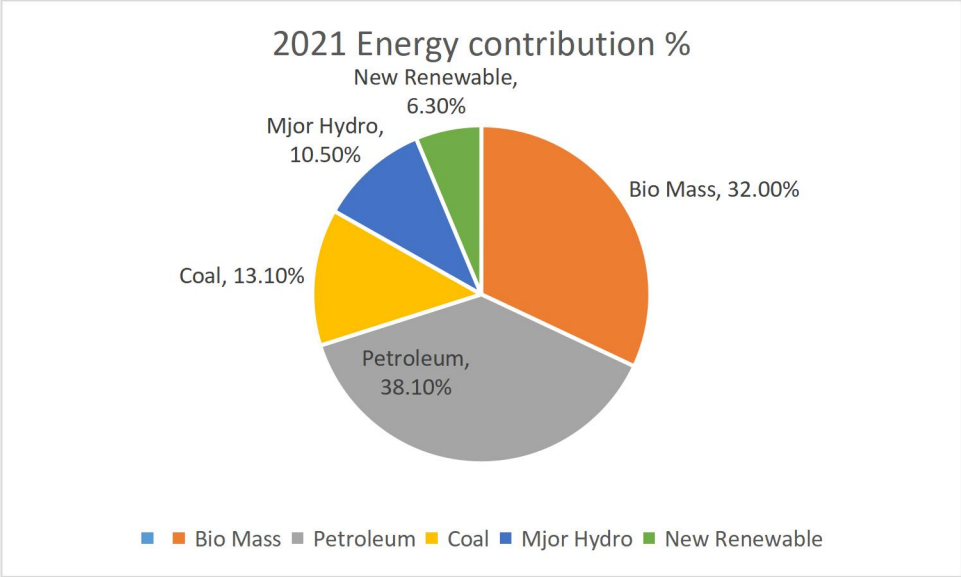
Demand Side Management – Nega Watts are far Cheaper than Mega Watts

The virtual power potential of Demand Side Management which effectively diminishes the demand for new additions to generation capacity, needs focused and urgent attention, with its advantage of instant contribution with minimal or zero costs. The studies already done by the Sustainable Energy Authority has already quantified the potential positive impact. Two immediate steps that can be taken are

- Replacement of all incandescent bulbs and CFL bulbs for general lighting by LED bulbs made available at reasonable costs
- Incentivize the replacement of present old and inefficient electric motors with energy efficient motors

The Economic and Financial Implications of Fossil Fuel Dependence

The energy sector presently made so dependent on imported fossil fuel both for electricity and transport mainly, has created grave negative impacts on the national economy. Sri Lanka spends over \$ 4000 Million annually for import of oil and coal at present. While the depressed oil prices in the past few years lowered this from the over \$ 6,000 Million spent in the early years of this decade, this would change adversely in the near future considering the very unsettled political conditions in the middle east. It is also necessary to recognize that the US \$ 6000 equated to only Rs 678 Billion in 2010, the current bill of US \$ 4,000 costs us Rs 728 Billion.

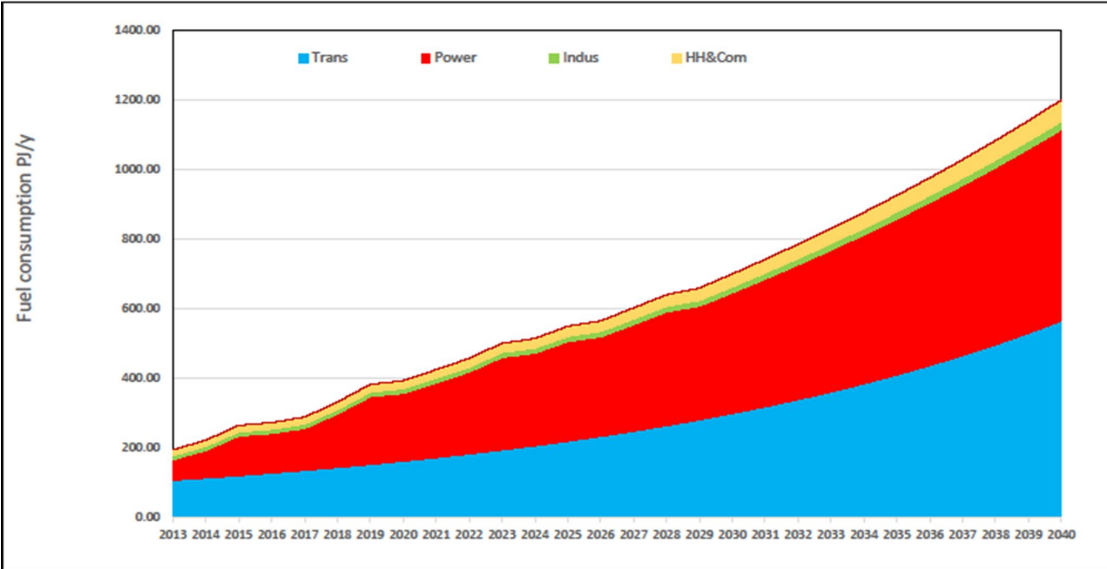


Energy is not Electricity Alone – The contribution to national energy mix in 2021

While some positive changes are happening in the electricity sector such as decision not to implement any more coal power plants, the transport sector which consumes over 75% of the imported fossil fuels have remained near 100% dependent on imported fossil fuels impacting greatly on the balance of payments and pressure on the parity rate.

The forecast for the future

Forecast Demand Growth till 2040



The present policies and strategies as depicted above will continue to plague the country with dependence on imported fossil fuels and the resultant negative consequences. The time is right and the opportunities are available to escape from the trap through electrification of the transport sector, both passenger vehicles and rail transport.

Of the other forms of energy illustrated in the chart above, the largest segment is occupied by the transport sector, which is totally dependent on imported fossil fuels. While the economic impact by this total dependence is not directly felt by the populace, the obvious negative impact on the balance of payments and the parity rate is evident. This has an immediate impact on all segments of the economy and the cost of living of all citizens.

Proposed themes for a Future Energy Policy and Strategies

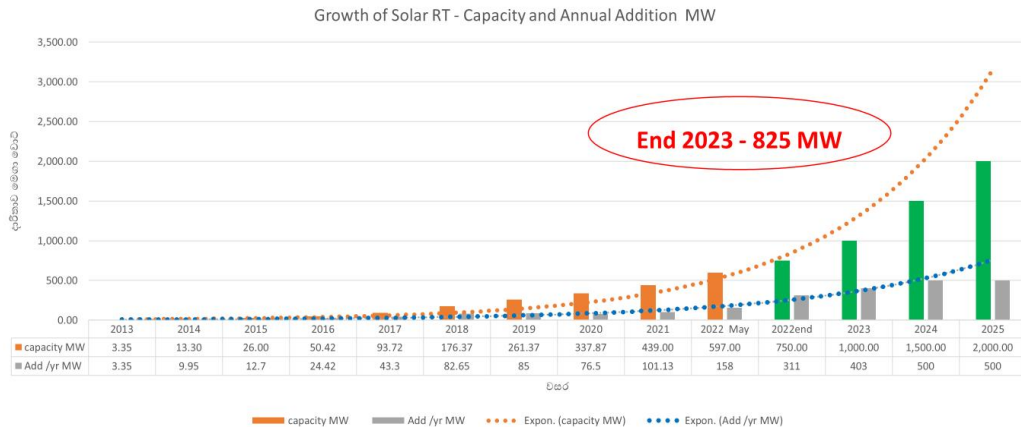
- Energy is not only electricity, which at present provides only 10-12 % of the primary energy demand. Therefore a holistic energy policy covering all forms of energy demand and supply shall be developed with high emphasis of maximizing the use of indigenous resources
- The double advantage of decarbonizing the energy sector, the primary contributor to the ever increasing climate change impacts, even in the local scene, and the economic advantages to be gained by weaning away from imported energy resources, the target of achieving 100 % RE at least by year 2040 should be pursued aggressively with challenging intermediate targets.
- Although Natural Gas has a relatively less negative impact on the environment and has greater flexibility of usage, which could have made it an attractive choice to be integrated to the national energy mix, there is complete lack of clarity as to how the natural gas is to be procured. In addition the widespread use of even imported LNG requires a complex infrastructure which cannot be put in place for many years and at great expense. The promise of natural gas from Mannar still remains elusive due to the world gas price dynamics and there is no indication of it being commercially exploited for many years to come. Thus much deeper and unbiased evaluation of the pros and cons of adopting Natural Gas as a viable component of the energy mix with long term viability is required.
- In particular it would be fool hardy for Sri Lanka to think of using Natural Gas as a replacement of petrol and diesel in transport. This is particularly so due to the lack of any certainty of the source of supply as well as the lack of infrastructure. On the other hand, why continue the use of the Internal Combustion engine with an overall efficiency of less than 20% when an electric vehicle operates at near 90% efficiency in addition to many other advantages.
- No more coal power plants will be planned or implemented. However The Norochcholai coal power plant should be made 100% compliant with the environmental and other regulations within one year and should be managed to provide the maximum return on the heavy expenditure already incurred. Unless steps are taken to introduce renewable fuels like Bio Mass or natural gas from Mannar, it should be allowed to be decommissioned as early as possible.
- Surya Bala Sangraamaya on roof top Solar PV should be strengthened with the achievement of the initial target of 1000 MW by 2024 and expanded to reach the One Million Households by 2030. Incentivized tariff system should be introduced to encourage householders to add storage batteries to enhance the utility of the systems in to the night time peak hours. For this purpose the present punitive duties and other levies imposed on deep cycle batteries need to be relaxed.

- Solar Parks of capacity over 5 MW to benefit from economies of scale and to encourage local investors should be encouraged by fast track approvals and support from the utilities and transparent and pragmatic tender procedures and quick awards. Additional tariff systems should be introduced to add adequately sized battery storage systems. The use of the substantial number of irrigation tanks and lagoon for floating solar PV parks is a natural option for the expansion of the utilization of the solar energy resource that the mother nature has bestowed on Sri Lanka. This would also eliminate the objections for use of lands for large scale solar parks. The necessary technologies are already available and the added advantages of floating solar PV are well recognized.
- Ensure the development of 1000 MW of dendro power by providing access to lands for energy plantations by the developers and facilitate the monetizing of the value of Gliricidia leaves as a fodder and fertilizer. This would maximize the overall benefits to encourage the expansion of planting by householders and small farmers, creating a vibrant rural economy linked to energy. Each 10 MW dendro power plant will infuse Rs. 1,000,000,000 annually to the rural economy by the sale of fuelwood alone
- The transport sector totally dependent on imported oil is a severe drain on foreign exchange. Therefore rapid conversion to electric vehicles is to be undertaken with removal of all import duties and other levies on electric vehicles. A target of 25% of all new registrations by 2025 and 50% by 2030 to be set for both privately owned vehicles and public transport vehicles
- A concurrent local industry for the conversion of existing fleet of three wheelers and private vehicles should be facilitated which will generate high tech employment opportunities.
- The already planned electrification of the railway from Veyangoda to Panadura should be implemented urgently as a Sri Lankan project. The Institution of Engineers have performed a detailed study on the viability of this proposal. The scope of electrification to be expanded to other segments of the railway after due study
- Challenging targets to be set for demand side management of all forms of energy, with incentives provided for achieving a target of 20% savings by 2025 on electricity. All new building approvals to meet the mandatory energy efficiency targets set by the SLSEA
- The role of the PUCSL as the regulator for electricity petroleum and water to be strengthened by providing total independence and mandatory compliance by the responsive utilities and other service providers
- The achievement of the targets for decarbonization and integration of RE to the national grid should be the responsibility of the Utility and the SLSEA. The mandate for removal of barriers and harnessing the support of private sector investors and developers should be given to the utility with the SLSEA performing the role of facilitation they are mandated to do.
- The investments of private sector for all forms of energy investments will be attracted by totally transparent tender systems and transparently predetermined feed in tariff system, where applicable for projects up to 10 MW capacity under the regulations of the SLSEA, and needed to reach early maturity of an indigenous energy industry
- The Concept of “ProSumers” where the consumers themselves will also be power producers should be encouraged in order that the energy industry is democratized not limited to a small number of large investors local or foreign

Some of the above proposals can be implemented immediately under the prevailing laws and regulations. For example the Surya Bala Sangraamaya has contributed over 850 MW of additional

energy to the grid in a short period and can easily attain the set targets well ahead of time targets set. It has the greatest advantage of total investment by the private sector with no burden on the state treasury. However a firm long term national energy policy , not limited to electricity is an urgent and essential need to ensure that the other proposals too can be implemented in the short to medium term

The low hanging fruit – Roof Top Solar PV



Specific Policies and Strategies to be adopted

Financing the policies and Strategies

In line with the prime need to ensure that the energy industry remains under the control of Sri Lankan entrepreneurs, the development required should be financed as far as possible through the local banking sector. The often repeated lament that a large foreign investments are required to enable the expansion of the renewable energy contribution is largely based on the misconception of continuing the myth of large scale centralized generation facilities. This is no longer true and the very nature of our sources of renewable energy lends themselves admirably for distributed generation in scales easily financed by the local entrepreneurs and banking sector and obviates the need for expensive long transmission lines proposed. Such distributed generation will be done closer to the load centers and thus avoid the unnecessary transmission losses , while utilizing existing transmission and distribution infra structure , perhaps with low cost improvements.

Any collaboration with foreign investors while welcome must be on terms acceptable to Sri Lanka without in any way compromising the status of national control of the energy sector. Under no circumstances should renewable energy be purchased for foreign currencies. This

would tantamount to our having to buy our own solar and wind power paying foreign exchange. The tariff shall be paid in rupees, and the investment and profits gained may be repatriated under the existing BOI approved methodologies. It is best to allow the private sector developers to seek such foreign assistance.

Immediate Policy Changes Proposed

1. Declare a firm policy of reaching 80% Renewable Energy in the electricity sector by 2030 as per Original Policy Statement in the parliament. This requires that there can be no more fossil fuel based projects to be implemented.
2. Make this policy mandatory to be followed by all ministries, departments and agencies and instruct the CEB to immediately make this provision in their LTEGP with specific year by year milestones to be achieved.
3. The onus of ensuring the upgrading of the grid to absorb all the RE projects currently approved by the ministry and intimated to the CEB as well as the targeted roof top Solar PV under the Surya Bala Sangraamaya, and solar parks for which RFPs have been issued, to be with the CEB and to be officially communicated as a directive
4. Accept and act upon the recommendations of the Cabinet Memo No 36/2005 declaring Gliricidia as the fourth plantation crop , in order that the energy sector becomes a peoples industry with multiple benefits to the rural economy.
5. Identify clearly the R E projects that the CEB can handle with a declared and competitive cost of generation, on the same basis as the IPPs without any subsidies
6. All other projects to be facilitated for implementation by the private sector, by competitive tender where practical or through the NCRE system via the SLSEA for projects up to 10 MW capacity.
7. Considering the large extents of suitable water bodies available, all future Solar Parks to be Floating Solar PV, other than projects already approved for which adequate lands have been identified and secured.
8. No more fossil fuel based power plants to be planned or installed as this would defeat the goal of 80% RE target by 2030
9. It is very unlikely that a terminal for the import of LNG can be set up in time to operate the 300 MW plant already nearing completion, and it is totally unacceptable now to operate the plant with diesel in the interim as currently proposed. Unless Natural Gas from Mannar can be developed, cancel all other projects planned for use of imported LNG.
10. Make it mandatory for a joint program to be executed between the CEB and the Dept of Irrigation and Mahaweli Authority, to ensure that the water releases from the multipurpose reservoirs are done in a manner such that no water is released without concurrent power generation. The water release to be made during the peak times as far as practicable.
11. Initiate proposals to construct floating solar projects on the Hydro reservoirs leveraging on the grid infrastructure already available, thus saving the water for use during the peak hours only
12. Collaborate with the Ministry of Transport and declare an early target to reach 100% electrification of transport.
13. Implement the target of 20% light vehicle electrification by 2022 as proposed in the Gazette National Energy Policy dated Aug 2019. (Ref 8 Section 4.5 -5f, and Ref 1 Pg 57)

14. The development of EV charging stations with the collaboration of the private sector to install country wide charging stations powered by Solar to be incorporated in the CEBs LTEGP and implemented with year by year targets.
15. Remove the current punitive import duties and other charges at point of import of EVs and Storage batteries and recover any loss of income by increasing the duties on petrol and diesel vehicles.
16. Impose a carbon tax per liter/kg on all fossil fuels including coal. Reserve the proceeds for development of RE projects only. A punitive tax to be imposed on petrol to discourage the use of private petrol vehicles and attract them to use public transport
17. Implement urgently the much discussed proposal to import 200 busses operating on electricity with planned expansion to increase the fleet.

Specific Activities to be undertaken

A. Electricity Sector Immediate Steps

1. Take urgent action to accelerate the roof top solar PV systems under the Surya Bala Sangraamaya so that the dependence on even the currently installed fossil fuel power generation is minimized. The initial exchange required for the import of capital equipment will be more than offset by the saving of the import of equivalent amount of fuels. The encouragement of 16 hour generation capacity by adding limited battery storage with enhanced tariff to be paid for exports during the peak hours will further enhance this benefit.
2. The target of 1000 MW of Roof top solar by 2024 to be ensured
3. Plan for all water releases from the irrigation reservoirs to be done with concurrent power generation where power plants are installed
4. Make use of the focused attention on Home Gardens to encourage and facilitate the concurrent planting of Gliricidia and other short rotation coppicing trees. This does not require either capital or new lands. However it will create the essential resource for the dendro power generation which has a multitude of benefits as well as being a firm source of power.
5. Install power plants at all major irrigation reservoir outlets as practiced at Uda Walwe and Inginiyagala . A detailed evaluation of the potential to be carried out to be incorporated to the future generation plans.
6. To overcome the problem of land use install all future solar parks on suitable reservoirs and lagoons selected for their year round water level and convenient access to grid infra structure

B. Thermal Energy Sector

1. Achieve a contribution of 90% by biomass for thermal energy in industries by promoting and facilitation of Gliricidia and other sustainably grown fuelwood which are already available albeit not in the formal supply chains.

2. Encourage all tea factories to be self-sufficient on electricity and thermal energy using roof top solar PV and Gliricidia/Caliandra plantations . The bought leaf factories to convert their leaf suppliers to be fuel wood suppliers as well.
3. Recognize the synergy between agriculture and energy with sustainably grown fuel wood as exemplified in the Cabinet Memo 36/2005, and promote the plantation of Gliricidia and other sustainably grown species as an integral component of the present promotional program for home gardens
4. Remove restrictions on transport of Bamboo to enhance the fuelwood supply for energy

C. Transport Sector

1. All major highways and roads and associated facilities to be made favoring public transport rather than the present private vehicle bias. The bus lanes to be reserved on 24 hour basis . A concurrent levy on private cars entering the municipal areas to be instituted to promote the changeover.
2. Ban import of any more petrol and diesel driven busses, cars and three wheelers and Motor Cycles
3. Move towards electrification of transport commencing with the target of 20% of light vehicles by 2025 as per the current National Energy Policy Announce a target year for 100% electrification. Commence with the electrification of Three wheelers and two wheelers
4. Electrify the railways with the present plan for the Veyangoda Panadura section expedited. Other sections to be brought in as early as feasible
5. Promote and facilitate the conversion of three wheelers and private cars to electricity. This has been practically proven.

D. Demand Side Management

Institute an aggressive Demand Side Management (DSM) program for all sectors on both electricity, thermal energy and fuel by

- a. Distribution of LED bulbs in exchange of incandescent bulbs and CFL bulbs to all domestic consumers at a discounted price. The present market prices do not encourage the change over, particularly to the low end consumers who are heavily subsidized and contribute mostly to the peak hour demand
- b. Promote achieving proven efficient energy intensity both electricity and thermal energy by all sectors as calculated by the SLSEA. To be a voluntary exercise initially to be made mandatory within two years, with punitive taxes for none compliance
- c. Impose a carbon tax on all supplies of fossil fuels to discourage the use of high fuel consuming transport vehicles and power generation and direct the proceeds to a fund to promote electrification of transport including charging stations for EVs. A significantly higher tax to be imposed on petrol vehicles to encourage transfer to the modes of public transport.

While many of these actions can be taken with immediate effect, the empowerment of relevant sections to adopt the many progressive policy initiatives already taken would be an added encouragement for decisive action. Some of these policies are listed below.

12. National Policy Framework (www.treasury.gov.lk) to reach 80% Renewable Energy in the electricity sector by 2030
13. The target under the Suryabala Samgrahya to reach 1,000,000 of roof top solar by 2030
14. Ministry Directive to the CEB to proceed with identified Renewable Energy Projects
15. Recommendations of the Cabinet Memo No 35/2005 declaring Gliricidia as the fourth plantation crop.
16. Focused facilitation on development of Dendro power
17. Implement the target of 20% light vehicle electrification by 2025 as proposed in the Gazette National Energy Policy dated Aug 2019. (Ref 8 Section 4.5 -5f, and Ref 1 Pg 57)
18. Impose the already decided on carbon tax on the basis of a levy per litre/kg on all fossil fuels including coal. Reserve the proceeds for development of RE projects only
19. Reinforce the implementation of Bus Lanes on all major roads

Eng parakrama Jayasinghe

E Mail" parajayasinghe@gmail.com