

A Challenging and Visionary National Energy Policy - Desired Elements

It is welcome news that the National Energy Policy, which was drafted in 2005 and finally approved in 2006 is to be revised. This is an opportunity not to be missed to ensure that Sri Lanka adopts an appropriate and visionary energy policy, which takes into account the global realities of the energy scenario and be based on a vision beyond the proverbial “*Handimite Nuwana*”. The main reason why National Energy Policy is required is to provide a frame work on which, the particular actions by both the state agencies and other stake holders are planned properly in order that such actions are focused and directed in line with the policy which is in the greater national interest. Therefore it is essential that such a frame work in fashioned with a clear vision of the future. There should be no room for short sighted decision and activities, which can lead to undesirable results in the future, which will be costly and difficult to unravel and reduce the flexibility of the country to adapt to the changing internal or external circumstances and pressures in the future.

This consideration behoves the policy formulation to be done all the more carefully, with a long term perspective. While it may be impossible to predict the future with 100% accuracy, there is no reason why the emerging trends and the multitude of information and data available from a variety of sources, should not be used as a guide.

Sri Lanka has been subjected to such disastrous short sighted decision making examples of which are many. In particular with regard to the energy sector, two clear example stand out.

1. In the year 1995 Sri Lanka generated 95% of electricity from hydro resources. However, those in authority saw it fit opt for oil based electricity generation, which has deteriorated the contribution by the hydro resource to less than 50 % in recent years. it is not our Intention to dissect the reasons and circumstance which led to this sorry situation, but to highlight the need to fashion our future national energy planning to avoid just such ill considered decision making.
2. The second such inexplicable decision which may not be widely known or the ill effects of which are not appreciated, is the large subsidy given to industries using furnace oil, for their thermal energy generation. This decision, the origin of which is not clear, has resulted in a loss of more that Rs 7000 millions to the Ceylon Petroleum Cooperation

No doubt there is a need to support the industrial sector in a competitive environment, particularly due to increasing energy costs. But what has seemingly not been taken into account in that the present form of subsidy favours only a segment of the industry. There are many industries who are converting their oil fired furnaces and kilns to the use of bio mass, and these progressive and nationally responsible actions are being thwarted by the short sighted subsidy, which favours only the retrogressive industries.

The Essential Policy Elements

In this back ground and at the present juncture when a new National Energy Policy is being discussed, it is important to recognize the essential considerations on while such a policy should be based. The following are the most important aspects that cannot be ignored.

1. Energy is not limited to electricity.

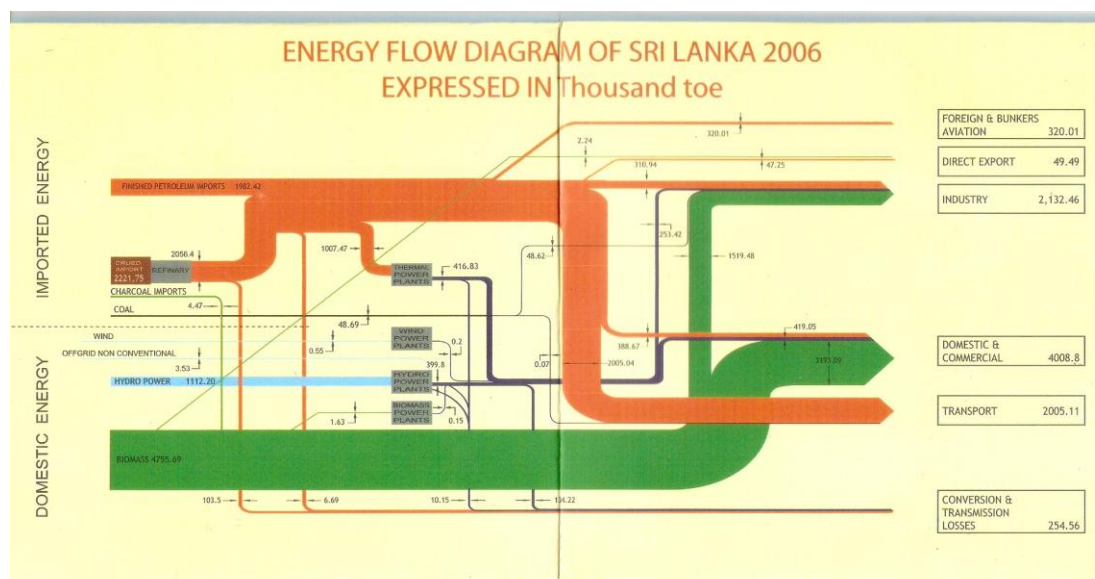
In fact electricity occupies only a minor fraction of the national energy pie, of less than 10% No doubt electricity is the most preferred and the highest form of energy .The policy document must formulate goals and targets and strategies to address all form of energy viz.

- Electricity for domestic, commercial, industrial use.
- Thermal energy for industrial use.
- Thermal energy for domestic and commercial use.
- Transport fuel.

Any policy which does not consider all there segments of energy use is bound to subject the country to difficulties in managing the future energy scenario.

The green band signifies the contribution by biomass and the green arrow on the right is the consumption for domestic cooking. The contribution of electricity is hardly noticeable.

Fig 1: Sri Lanka Energy Balance 2006



2. A long Term Perspective

Energy usage patterns and development of sources of energy does not happen overnight. Any attempts to change established patterns also cannot be done in a short time span, without undue disruption of economic and social life.

The natural disaster such as the recent Tsunami and earthquake in Japan have created so much disruption from which even a highly developed and rich nation as Japan is struggling to overcome. Similarly any decision to adopt , or change all facets of energy, sources, generation, usage and pricing, must necessarily take into consideration the possible long term impacts.

A case in point is the short sighted decision to adopt oil based power generation in Sri Lanka, which chose to ignore the various studies available even at those times, of the concept of “Peak Oil” and the unavoidable price escalations sooner or later. Unfortunately the same blinkered attitude is being promoted by those advocating more and more coal based power generation.

3. National Energy Security

This is an aspect which receives scant attention in Sri Lanka, due to the inability to appreciate the importance of retaining control over the sources of energy in a country. In today’s technology driven age, the day to day life of all citizens, however low their lifestyle is, energy plays an inescapable role. The fair access and sustainability of supplies of energy, is therefore is the right of all citizens. This when extended to national scale, should therefore be central to any national energy policy.

The Late Vidya Jothi Dr. Ray Wijewardena used to say that the country should be non dependant on (not necessarily 100% independent)

1. National Security
2. Energy
3. Education
4. Health

Thus maintaining a stance of non dependence on sources of energy for Sri Lanka is of the utmost importance.

An adjunct to this important requirement is naturally, the development of indigenous sources of energy. At least in the field of electrical power, Sri Lanka maintained an enviable record of over 95% contribution from indigenous sources till the late 1990’s. We have lost our way since then, and must assiduously pursue policies to regain such advantageous positions. Sri Lanka not having any proven fossil fuel resources has to accept the challenge of developing several sources of renewable energy. This is a blessing in disguise as well, as we would achieve not only energy security but will help Sri Lanka to retain its position as a low carbon footprint country. The numerous advantages of retaining this laudable achievement will be discussed later on.

4. Issues of Environment and Health

The fact that energy generation has environmental impacts to greater or lesser degree depending on the resources and technologies adopted is we known. Any new energy policy must give adequate attention and weightage to this aspect. The environmental issues will have a direct or indirect bearing on health as well. The current policy has no mention of these aspects at all. It must also be mentioned that some energy technologies could have positive environmental impacts as well.

5. The Basic Energy Needs of all Stake Holders

As quite rightly stated in the current energy policy, access to basic energy needs is the right of all citizens and providing same is the responsibility of the state. These needs have to cover all the energy needs, and in Sri Lanka's context cooking energy takes a major role as shown in the Energy Balance Chart shown above.

6. Available Sources of Energy

The most important ingredient of a National Energy Policy is the review of the available sources of energy, not for the next year or even the next ten years, but for a much longer time span, due to the long time lag and the difficulties of reversing any trends within a short time span.

In this regard the first priority has to be on the identification of viable indigenous resources. We must hasten to add that such viability has to be gauged not by the present state of play or the limited and blinkered vision of a few individuals, but by careful review of emerging technologies in the world and by exercise of courage and commitment of the likes of Eng D.W. Wimalasurendra and Dr. Ray Wijewardena.

Sri Lanka is blessed with ample resources of indigenous energy potential, which have the double advantage of being renewable and carbon neutral, waiting to be exploited. What is lacking is the courage to accept this reality, created largely due to misinformation by those whose voice is heard in the policy making levels. This potential will be discussed in detail in a separate article.

7. Linkages to other segments of the Economy and Livelihoods

The possibility that the development of the energy resources as well as the energy industry can be important economic activities for the country is a factor that must be considered in the energy policy. The fact that we have depended on imported energy for the majority of the energy needs which are in the limelight, is the cause for overlooking this important factor. This naturally brings in the requirement to bring in other segments of the public and private institutions, who can contribute positively, into the policy making process.

8. The Cost of Energy Resources and Foreign Exchange Requirements

Sri Lanka depends on imports for many basic needs and in recent times the import of fossil fuels have eaten up a proportion of our export earnings. In fact the point at which all our export earnings from the primary agricultural products Tea, Rubber and Coconuts, could not fund the fuel imports is long past. As such the choices made for the future must not aggravate this situation any further.

Deficiencies of The Current National Energy Policy

There is no argument that the development of the current energy policy has been a major step forward and that it identifies very important and essential aspects of Sri Lanka energy scene. What is required now is to remove the mismatch seen between the introductory chapters of the policy document which deals with policy imperatives and the coverage by the segments on goals, and the targets and strategies, outlined in the later chapters. Also the experience of the past six years have highlighted the fact that this document has not served as a national policy accepted by all sectors, particularly the other ministries and departments outside the Ministry of Power and Energy. One is led to wonder if even the institutions under the Minister of Power Energy have accepted this as the governing document, to plan their strategies and actions.

The Specific Targets, Milestones and Institutional Responsibilities listed in the document suffers greatly from lack of any relevance the broader aspects of energy and almost a 100% focus on electricity. There is only a passing reference to fuel switching from petroleum and on oil and gas exploration. The specific targets have been set only for the power generation and this has obviously been done to reinforce the preconceived decision to promote coal power as the third energy resource. This highly questionable decision, specifically entrenched in the current National Energy Policy, has been reached on the basis of an erroneous notion that the coal prices in the world are stable and will remain low, and are not linked to the price of oil and gas.

All other qualitative strategies without any quantified targets, also deal mainly with electricity supplies and do not suggest any tangible goals and targets for other segments of energy, and do not assign the responsibility of addressing even the spelled out initiatives to any government agency. The specified targets are at complete variance with stated policy objectives viz:

2.4 Promoting Indigenous Resources

- ***Indigenous energy resources will be developed to the optimum levels to minimize dependence on non-indigenous resources, subject to resolving economic , environmental and social constraints.***

Oil to Coal: From the Frying Pan into the Fire

The “National Energy Policy and Strategies of Sri Lanka” of October 2006, which is essentially an “Electricity Policy” document, is heavily biased towards coal based electricity generation. The reason for this bias is that at the time of formulating this policy, Sri Lanka was heavily depending on oil for the generation of significant amount of electricity needs of the country. Moreover, oil prices have been steadily increasing. On the other hand, at that time, coal prices were slightly declining over the years.

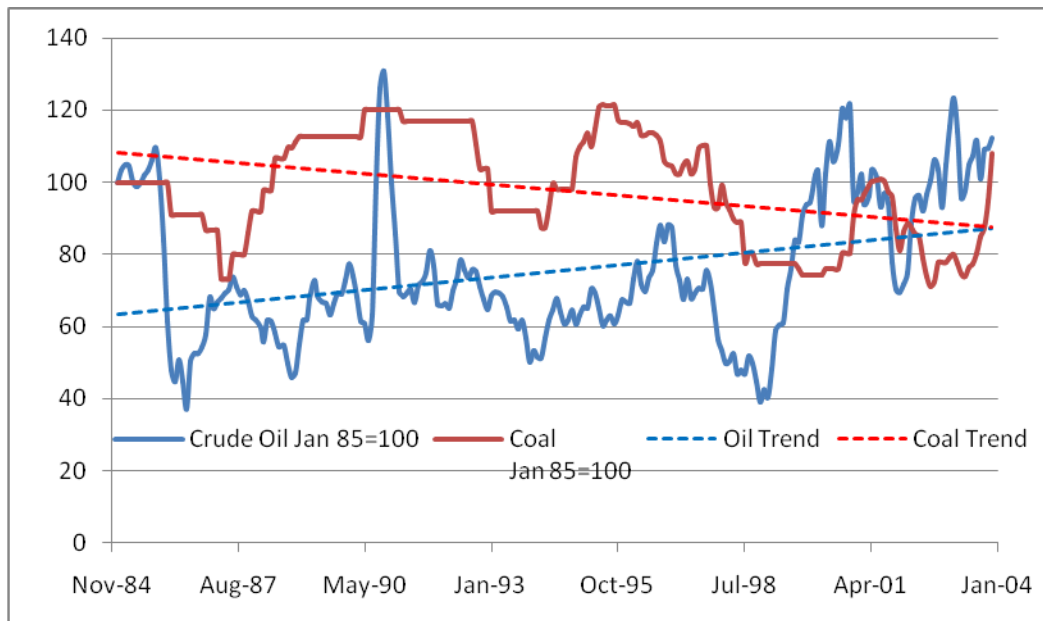


Fig. 2: Coal and Oil Prices: 1985 – 2003

In fact, the above mentioned policy under Section 3.2 Energy Security, specifically gives the following guidelines:

“Fuel diversity in electricity generation will be ensured through diversifying into generation technologies that do not use oil or fuels of which the price is indexed to oil prices.”

Based on the values in Fig. 3 above, there was some financial justification for changing from oil based generation to coal based generation at that time.

However, the situation quickly changed in the period after 2004. Until about 2004, coal has been mostly used by countries with large national coal reserves such as USA, UK, China, India, Australia etc. Only few countries such as Japan and South Korea imported coal from another country. From 2004 onwards countries such as China and India decided to import coal to meet the massive energy demand. This has changed the situation dramatically.

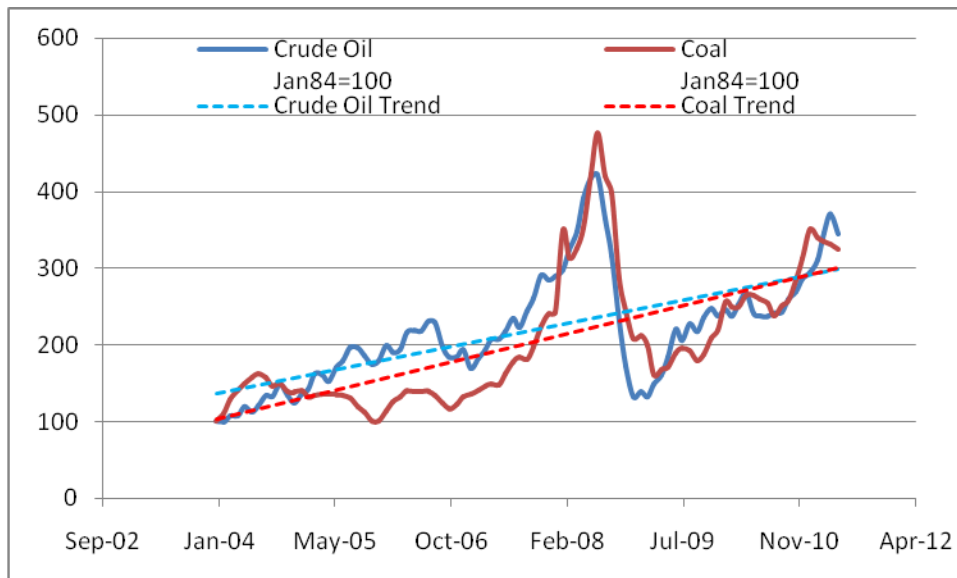


Fig 3: Coal and Oil Prices: 2004-2011

Source : World Bank Data on Commodity Prices

The price of coal is very much linked to that of oil. Also the only reason that may have supported the dependence on coal, based on low price, has also evaporated with the coal prices tripling over the past six years. Therefore the present plans to develop several coal based power plants are patently against the current energy policy which specifically states

3.2 Ensuring Energy Security

- *Fuel diversity in electricity generation will be ensured through diversifying into generation technologies that do not use “oil or fuels of which the price is indexed to oil prices”*

Therefore, by continuing to follow a pro-coal policy, which was justified under a totally different situation, is a mistake. In fact we should follow a more relevant guideline specified in the Policy Document in the same Section 3.2: **Energy Security: “The use of biomass will be promoted by elevating its status to a modern, convenient energy source.”**

Development of indigenous energy resources, which is the inescapable and most practical choice Sri Lanka has to ensure some measure of energy security, is closely linked to the activities of a multitude of other Ministries and state and private institutions. Of these the Ministries of Agriculture, Mahaweli, Lands, Environment and Ministry of Transport are paramount. There have been no inputs at all from these institutions to the process of formulating current energy policy and it is essential that this mistake is not repeated.

The importance of biomass has been recognized by a cabinet decision relating to Gliricidia about the same time the energy policy was developed, under the initiatives of the Ministry of Plantation Industries. But this important decision has not received any recognition in the formulation of the energy policy.

It is not too late to implement the wide ranging proposal made under this Cabinet decision of June 2005, including the establishment of an institution to promote the development of biomass resources.

Even though the focus of the strategies and targets has been on electricity, there has been no attempt to consider the possible additional and parallel gains that could have been made by the correct approach, in the areas of

- Employment generation
- Agricultural development
- Rural economic development
- Environmental enhancement

to name a few.

On the other hand there has also been no mention of the considerable negative effects of the use of coal power in the areas of environment and health.

Targets for Energy

While quantified and time bound targets have been assigned only for the power generation, there is no justification for even these targets which are listed. These commit the country to more and more imports, particularly coal, and the targets for the NCRE segment is hardly challenging. Considering that the contribution by NCRE, even at the time of policy formulation, was already at 3.5%, only by the addition of mini hydro, developed by the private sector pioneers without the benefit of a National Energy Policy and even active resistance by some authorities, a 10% target by 2015 is laughable. (It is already over 6% by year 2010)

Adequate Stakeholder Participation

Since energy is every citizen's right, the process of policy formulation must necessarily provide for adequate stakeholder participation. Hitherto what is claimed as stakeholder participation, particularly in the case of the process of formulating the last national energy policy, fell far short of this essential requirement. Primarily because the accent was mainly on electricity, it made only passing reference to petroleum fuels and the architects of the policy, deemed it adequate to invite only those connected to the electricity industry to the so called stakeholder consultation meetings. A meeting of a few dozen people in a five star hotel, conducted in English, can hardly be called a nationwide stakeholder consultation, required on a matter of national importance.

Even at this limited consultation, it was apparent that rather than a free consultation with a view to adopting any useful suggestions from those assembled, it was more a case of presenting what had already been decided and documented as the National Energy Policy. It is doubtful if even a comma has been changed in this document as a result of the stakeholder meetings.

It is our earnest hope that the present revision, which has come in after six years, will provide for a much more acceptable form of stakeholder consultation, prior to arriving at any conclusions. Those charged with the task of drawing up the revised policy document must have the open minds and the humility to accept any viable suggestions from a much wider segment of the populace, truly representative of the stakeholders in the energy sector.

In this regard the PUCSL has set a valuable example by calling for wide representation through media advertisements and giving adequate time for public comments for the Review of NCRE Tariff Structure in November 2010.

Where does it leave us?

Contrary to the myopic attitudes that have been propagated in the past few decades, there is no dearth of indigenous energy sources in Sri Lanka. While some sources may require further research and development, there are many which can be harnessed with very little effort immediately. A case in point is the mini hydro sector. At the time the pioneers of this now vibrant industry devoted their entire wealth, knowledge and time, there were many who scoffed at the idea and sadly created many obstacles to prevent its development. The indigenous energy potential will be discussed in detail in a separate article.

How much Does it Cost ?

The favourite and often repeated argument against the development of indigenous resources is the misplaced idea that they would cost more than the use of imported fossil fuels, mainly coal. Before examining the validity of this argument, it will be worthwhile to make the comparison of the sources of The chart below shows the relative cost of using different fuels for generation of the equivalent of 10,000 kCal , which is the approximate energy content of a litre of oil.

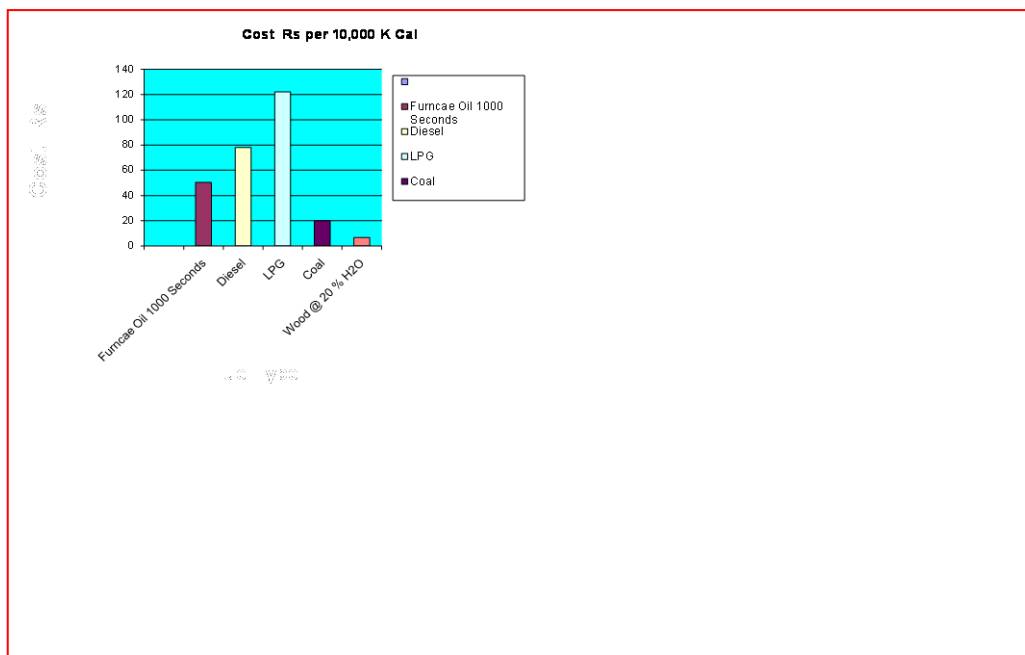


Fig 4: Relative Costs of Different Fuels

Thus even with the 50% subsidy enjoyed by industries, the cost of fuel wood is 50% of the cost of the cheapest oil sold by the Petroleum Corporation. It is no surprise that 72 % of industrial thermal energy is derived from biomass. However, Sri Lanka spends more than \$ 200 million annually to import petroleum products for the generation of heat alone. Sadly the authorities are unable to understand this reality and continue to subsidize the furnace oil sold to the industries. The Ceylon Petroleum Corporation thereby suffers a loss of Rs 7000 Million annually. This is mainly due to the lack of a National Energy Policy which is owned and adopted by all sectors of the government and the public.

The issues related to cost of power generation are more clouded. This is mainly because the comparisons are made without using a common base line.

A fair comparison of cost of generation must be done on a common base which takes into account all the factors not limited to the direct costs of machinery and fuel.

At the time the new NCRE tariff structure was announced in 2007 there were clear pronouncements by those who were instrumental in formulating, both the current national energy policy and the NCRE tariff, declaring that the cost of renewable sources are more favourable than that of oil. With the faster rise of the price of coal this would be true now even in case of coal.

An examination of the movement of the price of fossil fuels and the NCRE tariff since 2007 will illustrate this situation clearly.

Table 1: Price movement of Fossil Fuels and NCRE Tariff

Year	Price of Coal (FOB Australia) \$/ton	Price of Oil Avg for the year \$/bbl	NCRE Tariff- Starting Tariff Rs /kWh		
			Biomass	Mini Hydro	Wind
2007	60	71			
2008	65	97	13.57	13.15	20.80
2009	80	42	16.88	15.73	24.99
2010	100	60	17.97	14.57	20.81
2011	120	118	?	?	?

Source. WB Commodity Prices

Thus while the price of coal has increased several fold from 2007 prices, the tariff for NCRE has been raised only by 32% for biomass, 10% for hydro and none for Wind. It must also be realized that at 2007 tariff levels there was no interest in establishment of biomass based power plants and therefore the change in tariff for this technology has to be viewed only as a correction to be cost reflective in line with the philosophy for the NCRE tariff regime, and not an increase.

Externalities

In addition to the direct costs of different energy options, there is also the need to take into account the many additional impacts, both positive and negative, that the particular mode of power generation would create. Considering the nationwide and large scale operations that are unavoidable, such impacts can be substantial and therefore cannot be ignored. These are termed “Externalities.” In addition to the well understood and recognized effect on the environment, there are substantial impacts on public health, social aspects and other related areas, which are less well understood or appreciated. While quantification of and contribution to the cost of generation due these factors are difficult, at least a qualitative assessment of these impacts must be made when choosing amongst the different options.

Global Environmental Issues

Sri Lanka, at present can boast a very low carbon foot print, particularly in the power generation field. This is fast changing and we will reach the acceptable limit per capita as dictated by the UN Inter Governmental Panel for Climate Change (IPCC) for the 450 scenario (atmospheric CO₂ concentration of 450 ppm, to limit the global warming to 2 deg by year 2050), if all the currently planned coal power plants are implemented disregarding all the adverse effects described above. While such a level of emissions will not bring Sri Lanka under any obligations stipulated by any of the existing treaties, it will be fool hardy to imagine that the developed countries will stand by and allow us to go on increasing our carbon emissions, while they are being forced to drastically reduce theirs by as much as 80% from the 1990 levels to meet the IPCC 450 scenario.

There are clear indications that they will impose various non tariff barriers to our export products in the coming years, linked to the carbon foot print, whether we are below the internationally accepted limits or not. One such demand is already in place by the EU demanding that Sri Lankan Airways reduces its carbon foot print by 15% and Sri Lanka is still way below the stipulated emission levels.

Moreover, keeping a low carbon foot print gives our exports a strategic advantage over other countries, who continue to use fossil fuels, may be because they do possess such fuels indigenously. This is certainly applicable to our tea industry and other food products. This is one more reason that the NEP cannot be determined only by those in the energy sector alone, based on narrow considerations of convenience, and a tendency to hang on to pre conceived ideas, in spite of the changing global realities.

The Way Forward

In conclusion, the deliberations for a new National Energy Policy must take into account

1. All segments of energy, energy sector developers and users
2. Maximizing the utilization of indigenous energy sources, both current and those that can be developed in the short and medium term.
3. A vision for the development of energy sources in the long term

4. The participation of all stake holders, consumers of all types of energy, potential developers of energy sources, entrepreneurs in the energy industry, academics and researchers who can overcome the barriers for the maximizing the use of indigenous sources, all ministries and state agencies who can contribute to the development of indigenous sources and also benefit by such development in their own spheres of responsibility, and all state agencies involved in the energy sector, including CEB, LECO, PUCSL, SEA, CPC etc.
5. Recognize and internalize “Externalities” both positive and negative in the decision making process
6. Adopt a long term horizon and not be pushed in to decisions which cannot be reversed without extensive economic and financial costs to the country
7. Give adequate weightage to maintain National Energy Security
8. Accept that as per current policy NCRE development is the purview of the private sector. The NEP needs to encourage and facilitate such investments.
9. The Sustainable Energy Authority has the mandate to develop the NCRE and they have to be given both challenging targets of level of NCRE contribution and also the due assistance to implement all the provisions in the SEA act to achieve these targets.
10. The removal of negative policy implements such as subsidies on imported fossil fuels
11. A greater emphasis on energy efficiency and conservation with mandatory targets for all significant users of all types of energy applying both the “Carrot and the Stick”

A National Energy Policy affects all of us to a large or small degree and it is the right of every citizen to ensure the development of a correct and pragmatic policy instrument. We would like to invite all interested individuals and institutions to enter into a dialog on this subject and also actively participate in any public stake holder meetings, which we hope would be done in a proper manner. Information on the indigenous sources of energy and other related details can be obtained by visiting our website www.bioenergysrilanka.lk or the web site of the Sustainable Energy Authority www.energy.gov.lk or by contacting us directly by email on bioenergyasl@gmail.com

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