

Terms of Reference

Development of Sri Lanka's Policy Framework for Renewable Resource Based Electricity Generation

1. Introduction:

The Electricity Sector in Sri Lanka. Sri Lanka currently has a traditional state-owned, vertically integrated power utility – the Ceylon Electricity Board (CEB), established in 1969 – that operates under the Ministry of Power and Energy. It generates about 80% of the country's power supply through a mix of hydro and thermal power plants, transmits all generated power and distributes around 85% of this power at the retail level. The balance is distributed by government-owned distribution utility, Lanka Electricity Company Ltd., (LECO), established in 1983 under the Companies Act. A growing number of Independent Power Producers (IPPs) supply around 20% of the total power under Power Purchase Agreements (PPAs) signed with the CEB. The total installed capacity of the generation system is around 2,200 MW including 300 MW of hired emergency power plants. Total installed hydro capacity is 1,150 MW, which contributed 2,588 GWh in 2002, which is considered to be a dry year. The total generation in the year 2002 was 6,810 GWh.

The power sector in Sri Lanka was in crisis due to inadequate new power generation capacity additions and sub optimal usage of fuel sources for power generation. The problems manifested in the form of chronic power shortages that led to procurement of expensive emergency power generation capacity, structural financial deficits in the power sector and unsustainable tariffs that weaken the competitiveness of local industries.

Recognizing the magnitude of the crisis, the Government of Sri Lanka (GOSL) established the Energy Supply Committee (ESC) under a special legislative provision in March 2002. The ESC, chaired by the Secretary to the Ministry of Finance has seven other ex-officio senior public servants as members, is the apex decision making body on power generation capacity procurement and acts as the interim energy regulator pending the establishment of the regulatory body proper. The ESC is also overseeing and guiding the ongoing power sector reform process.

Electricity Reforms. GOSL has embarked on a power sector reform program that will redefine commercial relationships among the industry players, within the framework of a single-buyer model and independent regulation. The reform program would result in separate state-owned electricity generation, transmission and distribution entities. The commercial relationships among the industry players would take place within the framework of a single-buyer model with the transmission company (Transco) acting as an intermediary between the generation and the distribution companies. The distribution assets of CEB and LECO would be divided among the four new distribution companies that are to be set up under the reform process.

The Electricity Reform Act provides for the regulation of the generation, transmission and distribution of electricity. It also provides for the re-organization of the electricity industry by ensuring that the functions of CEB and LECO relating to the generation, transmission

(and bulk procurement), distribution and supply of electricity are clearly separated and discharged by separate companies incorporated for such purposes. The administration of the regulatory functions of the Electricity Reform Act is vested in the Public Utilities Commission of Sri Lanka (PUCSL).

Rural Electrification. The average rate of rural electrification of the country stands at around 47% whereas the rate for urban areas is above 80%, against a national rate of 64%. There are about 2 million households in the rural areas to be electrified today. This number will increase with the growing population. Therefore, it is expected that the total number of households to be electrified within the next five years will be approximately 1 million if one is to achieve 75% electrification target within that period.

Though the extension of the main electricity grid is the preferred option for unserved households, there are technical and financial limitations associated with this approach. It is estimated that only about 80% of the households in the country can be finally connected to the main grid due to these limitations. Even to achieve this level of electrification it will take about 10 years and very large investments. Therefore, while recognizing the superior benefits of having grid electricity, it is important to note that about 20% of the country's households can be rationally electrified only through off-grid systems. Even other rural areas may have to be electrified through off-grid systems during the transition period until the main grid penetrates into those areas in the future
(Please see Sri Lanka Rural Electrification Policy document attached).

Renewable Energy. Sri Lanka has a history of enabling local development of least cost renewable energy resources. It has more than 35 MW of grid connected renewable energy systems of which most are mini hydro systems. Nearly two hundred village based micro hydro systems and more than 35,000 solar systems for individual homes are also operating. It is estimated that more than fifty organizations with over 2,000 stakeholders are commercially involved in a rapidly growing renewable energy industry, which includes grid-connected, off-grid community and household based renewable energy systems. The stakeholders include micro-finance institutions, commercial and development banks, NGOs, project developers, consultants, and equipment suppliers.

As part of the Government's commitment to further accelerate the use of renewable energy systems as well as to integrate renewable energy within the energy sector, GOSL approved the joint World Bank and the Global Environment Facility (GEF) assisted Renewable Energy for Rural Economic Development (RERED) Project.

RERED Project. Through this project, GOSL, with the assistance of the World Bank and GEF, aims to foster rural economic development and improve the quality of life in rural areas by providing access to electricity, and expand the commercial provision of renewable energy. The executing agency of the RERED Project is the Ministry of Finance. Project co-ordination and management is the responsibility of the Administrative Unit (AU) set up within DFCC Bank.

2. Objective of the Assignment:

In this emerging reform environment and the prospect of a rapidly growing renewable energy industry, the Government is keen to establish a policy framework that enables the sustained and rational growth of renewable energy services in Sri Lanka. The objective of the assignment is to develop a national policy framework for renewable resource based electricity generation that addresses the following key areas: (i) energy policy, (ii) regulation, (iii) legal issues and (iv) commercial issues including tariffs and subsidies.

The policy framework has to respond to the context created by the recurring power supply shortages, ongoing sector reforms, 2 million households without electricity and a rapidly growing renewable energy industry. Both the ESC and the CEB, as well as other stakeholders have identified several issues that need to be addressed to allow for sustained and rational development of renewable energy. For example, CEB has taken a view that embedded generation capacity should not exceed 15% of its minimum daily demand to maintain power and system stability and integrity. Doubts have been raised about the price competitiveness of the grid connected renewable energy systems under the current pricing regime of avoided cost tariffs. National policy guidance on these issues is limited and the ESC has therefore decided to undertake this study to serve as recommendations to the National Policy on Renewable Resource Based Electricity Generation.

3. Scope of Work:

To achieve the above objectives the consultant will address the following scope of work. This is an indicative list and the consultant should not be limited to these tasks, but the overall aim should be to provide meaningful and practical policy recommendations, which are strongly supported by data and analyses.

1. Investigate and briefly document: (i) barriers for renewable energy development especially electricity generation; (ii) policies that influence the renewable energy sector including the recently adopted Electricity Reform Act, the Rural Electrification Policy, Energy Efficiency Policy and other relevant policies, (iii) the nature and extent of and the key features of the renewable energy industry as part of the power sector in Sri Lanka, and (iv) relevant best practice policies in Sri Lanka from other sectors.
2. Acquire and briefly document the international best practice renewable energy policies and the underlying principles that drive these policies. This will include policies from China (mandatory share), Vietnam (programmatic approach), Uganda (private sector led and cross sectoral), Thailand (power purchase tariff with total capacity cap), Germany (tariff based subsidies), UK (non-fossil fuel obligation), India and/or other countries. These practices would be used to further fine-tune the renewable energy approach in Sri Lanka, and not to re-invent the wheel.
3. Prepare short discussion papers on the above-mentioned issues and brainstorm these with a group of main stakeholders. These include: both off-grid and

grid-connected small power producers, the Small Power Developers Association, Solar Industries Association, Village Hydro Developers Association, other renewable energy organizations (biomass, wind), financiers, AU of the RERED Project, CEB, Ministry of Power and Energy, Ministry of Environment and Natural Resources and other GOSL agencies, and international donor organizations. Summarise the inputs and draw conclusions for the next stage of work.

4. Assemble the data and analysis necessary to address the key issues that arise from the previous exercise. The issues are likely to include, but are not limited to: (i) standardized tariff setting methodology for selling of renewable electricity to the national grid including a possible capacity payment for systems with a high plant factor; (ii) integration of renewable energy systems in a reformed sector, in particular the off-grid village hydro systems and the renewable energy systems connected to the distribution grids; (iii) standardized arrangements to ensure optimum and rapid usage/development of hydro, wind and biomass sites; and (iv) legal and regulatory mechanisms to promote renewable energy off-grids such as inset franchising, separate licensing and interface aspects with existing utilities. Also, exit options for stranded assets and mechanisms for awarding concessions in current project areas to other groups such as the private sector or cooperatives.
5. Prepare transparent methodology for tariff setting and legal documentation for grid connected renewable energy systems. The consultant will review the current avoided cost methodology used for small power projects (< 10 MW)¹ and the bidding process adopted for the large-scale wind/hydro power projects.² The prior work shall include an analysis of the financial and economic viability of off-grid and decentralized generation and distribution based on both conventional and non-conventional resources. In particular, the consultants will analyse the different technical options available and the minimum requirements (in terms of distance to the grid, consumers mix and tariffs) for the different options to be economically and financially viable. Where the present tariffs do not cover costs, the consultants will estimate the amount of subsidy, which would be required to make the electrification financially viable.³ This analysis will be based on the experience so far accumulated in Sri Lanka in respect of on and off grid electrification programs.
6. The fundamental principles in carrying out the above analysis will be as follows: (i) economic least cost approach to ensure improved efficiency in the sector; (ii) financially lowest cost approach (for example: environmental benefits should not be addressed in the tariff but through other mechanisms;

¹ The Asia Alternative Energy Program (ASTAE) of the World Bank is currently conducting an international review of arrangements for sales of electricity from renewable energy to the national grid. Sri Lanka is one of the case studies, it is recommended that the consultant coordinates closely with this assignment.

² The consultant will work closely with the PUC and the chief tariff officer at CEB or its successor entities.

³ The input on subsidy requirements of different technology options will be important for government in making public policy choices.

and considering capacity payments where appropriate); (ii) simple and standardized approach to ensure that the overhead cost for these relatively small transactions remain low; (iv) transparency to allow all participants to check and cross-check the calculations, (this could be done by defining the formula, the input data and (web) location where input data could be acquired. It also includes a clear direction on how, when and where the tariff is being published).

7. If the proposed methodology is felt not to be appropriate for projects larger than 10 MW, the consultant will on the same principles outlined above propose a second methodology. For these projects, the consultant should closely coordinate the efforts with the consultants working on the framework development for the PUCSL.
8. For (both) methodologies, the consultant will outline the procedural process with the necessary clearances to be obtained and the role and responsibilities of the key (government) organizations, utilities and the PUCSL.
9. Forward recommendations for the establishment of an Information Centre to function as a focal point for the dissemination of technical and financial information related to the development of renewable resource based electricity generation.
10. Prepare a draft power purchase agreement for grid connected renewable energy systems, which could be submitted to the PUCSL for consideration and suggestion on enforcing expiration of un-utilized Letters of Intent (LOIs); Suggest an approach to allow carbon financing to supplement the revenue stream for both the Government and the private sector.
11. Conduct consultative workshops (beginning with the discussion papers for tasks 1 to 3) to regularly and frequently convey, discuss and build consensus as key pieces of work are completed.
12. Using the analyses and conclusions from prior steps, assess and evaluate the available options related to the transparent provision of subsidies to increase connection of villages and electricity access by consumers, including the establishment of a fund. The consultant will analyse the institutional requirements for developing these options with reference to Sri Lankan programs and other examples worldwide. The subsidy mechanisms and levels will take account of both grid and off-grid electricity provision and also by generation options.
13. Prepare recommendations for a draft policy statement on renewable resource based electricity generation, which clearly expresses the overall objective of the policy, targets, roles and responsibilities, key principles, tariff, funding and subsidy mechanisms, and core areas for near term improvement and action (which are supported by the documented issues). The draft will be discussed with the key stakeholders as outlined above.

14. Prepare final report incorporating comments provided, with all documents produced and a brief analysis of likely risks in implementing the policy.

4. Team:

A team of about three members each having 8 to 10 years relevant experience in the fields of energy policy, regulation, legal issues, and commercial issues including tariffs and subsidies is envisaged.

Consultants are encouraged to associate with local counterparts where appropriate, particularly in respect of legal issues.

The consultant may propose staff members to undertake more than one specialisation listed in Clause Reference 5.3 (iii) of the Data Sheet. In such a situation the staff member will be evaluated separately for each specialisation. Qualifications and competence of key staff for the assignment will be an important factor in the technical evaluation of shortlisted firms.

5. Deliverables:

The consultant will deliver the following:

1. Draft Inception report with targets and detailed plan of time bound actions and first analysis of the renewable energy industry and the relevant policies.
2. Final Inception report with targets and detailed plan of time bound actions and first analysis of the renewable energy industry and the relevant policies.
3. Discussion papers, presentations, handouts and background information on; critical analysis of Sri Lankan Renewable Energy Landscape, and assessment of the international policy and regulatory regimes, for the consultative workshop, as necessary.
4. Consultative workshop on deliverable 3 above.
5. Brief report containing conclusions from the consultative workshop on deliverable 4 above.
6. Analyses of economic and financial aspects of costs, tariffs and subsidies, including recommended provisions for Power Purchase Agreements and methodology of tariff calculations and draft report on transparent tariff setting procedure including development of transparent subsidy mechanism.
7. Draft report on legal and regulatory issues related to renewable resource based electricity generation in Sri Lanka
8. Consultative workshop on deliverables 6 and 7 above.

9. Final report on transparent tariff setting procedure including development of transparent subsidy mechanism containing conclusions from workshop on deliverable 8 above.
10. Final report on legal and regulatory issues related to renewable resource based electricity generation in Sri Lanka containing conclusions from workshop on deliverable 8 above.
11. A training workshop on tariff setting procedures.
12. Draft policy document on renewable resource based electricity generation with targets and detailed plan of time bound actions
13. Consultative workshop on deliverable 12 above.
14. Proposal for the establishment of the Information Centre on renewable resource based electricity generation.
15. Final policy document on renewable resource based electricity generation and final report with targets and detailed implementation plan with time-bound actions containing conclusions from workshop on deliverable 13 above.