CONFIDENTIAL.

MINISTRY OF POWER & RENEWABLE ENERGY

CABINET MEMORANDUM

Cabinet Memo No. [illegible]/2016/PE

Ministry Ref. No. PE/DEV/[illegible]

Implementation of a community based power generation program "Soorya Bala Sangramaya" (Battle for Solar energy) to purchase electricity generated by the electricity customers

1.0 Background

Generation of electricity through renewable energy sources has become a major concern for government as well as private sector investors. If the present consumption level of electricity in Sri Lanka 3,950 MW increases at a rate of 7% annually, it is needed to generate an additional 3,000 MW capacity by the year 2025. Accordingly, Ceylon Electricity Board has planned to generate a considerable amount of the new requirement of 3,000 MW through renewable energy sources. Government policy is to increase the existing 50% of the electricity generate through renewable energy sources to 60% by the year 2020 and to increase it further up to 70% by the year 2030 and to generate the total energy requirement through renewable and other indigenous energy resources by 2050. The expectation to make Sri Lanka an energy self-sufficient nation has been pointed out in the Energy development plan for 2015-2025 "A country Enriched with Energy – for a knowledge based economy"

Plans have been already prepared to diversify the energy sector of Sri Lanka by building more wind power plants, solar energy plants, and bio fuel plants. Accordingly, plans have been formulated to build wind power plants of 600 MW and solar power plants of 3,000 MW in the next ten years. The private sector has showed its special interest in generating electricity through solar energy. However only about 1.5 MW had been added to the Electricity grid through solar power up to now. In addition, about 30 MW is being received through the net metering system generated by rooftop Solar Panels. When the national electricity demand is concerned, that amount is insignificant.

According to the existing system, the time taken to get a license for solar and wind power plants is extremely high and it is reported that there is a difficult for the proper investors to get a license. Complains are there from the investors that these licenses are being reselling through agents. Therefore the ministry has decided to provide the opportunity through a competitive system with transparency. Meanwhile, the ministry has also planned to promote small scale solar power plants using rooftop Solar Panels in customer housing units.

2.0 "Soorya Bala Sangramaya" (Battle for Solar energy) Program

The proposed "Battle for Solar energy" is a community based solar electricity generation program introduced to integrate the solar electricity generated in houses/premises of electricity customers through rooftop solar panels to the national grid. The project operates in the following three manners. Any electricity customer can choose one option under mentioned. The maximum installed capacity will be limited to the contract demand of that particular customer. There will be a contract up to 20 years with the customers who join this program.

1. Existing Net Metering system: the customer generates electricity using solar panels fixed on their houses/premises and connected to the grid through net metering system. The consumer has to pay only for the net amount of electricity that he consumed. In this system, if that particular customer's production exceeds his consumption, he can bring forward the balance and consume it in the months forthcoming. No fee will be paid for the excess electricity produced. The customer will be given the choice of using the balance electricity within 10 year period. (Net Metering)

2. If the generated units of electricity using the solar panels fixed on their houses/premises are greater than the amount he consumed, the customer will be paid Rs.22.00 per unit during the first 07 years and from the 8th year he will be paid Rs. 15.50 per unit. If the consumption is greater than he generated, the consumer has to pay at the existing electricity tariff for the excess electricity consumed. (Net Accounting).

3. Getting paid for the amount of electricity generated using the solar panels fixed on their houses/premises. Unlike net metering method there is no linkage in-between the electricity consumption of the customer and the electricity generation. The customer has to pay for the electricity consumed according to the existing tariff. Electricity Board will pay for the total amount of electricity he generates. (Net Plus).

The existing net metering system is favourable for any electricity customer who is consuming more than 200 units per month. When considering the option 2 it is favourable for customers who consume more than 120 units per month. The option 3 will be favourable for any customer when analyzing the options. Hence it is practical to educate the customers about all the three options and allow them to select the suitable option freely according to their wish.

At present, many commercial banks in Sri Lanka are providing loan facilities to purchase net metering systems. These loans are being given in the basis of paying back in 5-7 years and 75% of the total amount of installation will be provided under these schemes. If a long term loan facility can be arranged under a concessionary interest rate all the above three options can be implemented affordably and the ministry is taking steps to formulate such a scheme.

The net metering system that implemented in 2010 for small scale solar power generation was not grew up as expected and it had become more popular among customers who had

high energy consumption. But studies reported that small solar power plants built on rooftops are highly beneficial. Economical, environmental and social benefits can be specially achieved through rooftop solar energy power plants as follows.

I. Small scale solar power plants on rooftops are important to the balance of the electricity system as they are scattered throughout the island.
II. Since the generation occurs closer to the point of consumption, the transmission and distribution losses are minimal.
III. Small scale entrepreneurs also can join the electricity production which has been limited to the large scale power generation companies.
IV. When the customers of electricity have become the producers, their economy will be developed
V. Since the small scale electricity generation system is scattered across the island, it positively affect the security of the electricity supply.
VI. As the sun light is freely available, the foreign exchange spend on fossil fuels will be reduced.
VII. Inequality of income distribution of the country will be reduced since a large number of people are being able to get an additional income being producers of electricity.
VIII. Ability to add 200 MW to the grid by 2020 and add another 800 MW by 2025.
IX. Ability to reduce Carbon Dioxide (CO2) emission from thermal power plants to 1,50,000 MT
X. Every customer who joins this scheme is able to receive a monthly income about Rs.300/= for the first 7 years after paying the bill and interest. Also Rs.2500/= monthly from the 8^{th} to 20^{th} year.
XI. Ability to generate a large number of direct and indirect jobs with the awakening occurred in this field.

Any electricity customer has to pay back the loan within the first 7 years after the initial investment made for the purchase of solar panels to fix on the roof tops. Hence it is proposed to pay a higher rate for a unit of electricity during the first 7 years. For the period 8-20 years, it is proposed to purchase a unit at a price offering a reasonable benefit for the customer for their investment. The proposed rate of payment is as follows.

	Project period (Years)	Payment per a unit of Electricity (Rs)
Tier I	1-7	22.00/kWh
Tier II	8-20	15.50/kWh

(2.1 Chart)

If a customer fix a solar panel of 1kW on his rooftop, he will be able to generate about 115-120 units of electricity per month. According to the proposed rate of payment, he would be able to get an income about Rs.2500-2700/= monthly. If the customer had taken a loan facility for this project, he has to pay about Rs. 2200/= monthly if the loan period is 07 years

and the interest rate is 13%. According to the proposed payment plan, the consumers will be able to retain about Rs.300 per month after paying off loan instalment, interest, and the cost of electricity consumption. If the loan scheme is more concessionary, the income level of the customer will be increased.

After paying off the loan instalments in 07 years, they will be able to get about Rs.2500 - 2700/- monthly as a net income for a further period up to 20 years.

Considering all the benefits, the ministry has decided to introduce 1,000,000 Rooftop Solar units during the next 10 years as a national program. The objective of this program is to create electricity producers at least 20% from the total electricity customer base. At present, the generation of solar power at domestic level is confined only among high income and upper middle class people. The reason behind that is the non-payment for the excess electricity customers feed to the network. Hence it is difficult to attract low income electricity consumers for the existing scheme. The objective of the ministry is to introduce at least 20% to low income families from the 1,000,000 solar power plants expected to be installed under this program. Subsequently about 200,000 low income families will become producers of electricity.

It is expected to produce 200 MW by the year 2020 from the proposed project and increase it up to 1000 MW by the year 2025.

3.0 Proposals

To implement the above project I will forward the following proposals to the cabinet for approval.

I. To execute the programme of installing solar power plants on rooftops as a national program under the leadership of Honourable President and the directions of Honourable Prime Minister.

II. To introduce the following scheme to integrate all electricity customers including low income families towards the program.
   a. To continue the existing net metering system. No payment will be made for the excess electricity produced. But the excess electricity can carry forward to use for their consumption requirements in the future.
   b. To make a payment for the electricity customers who produce excess electricity at a rate of Rs.22/- per unit during the first 07 years and Rs.15.50 for the period of 8-15 year.
   c. Electricity producers using rooftop solar panels will be paid Rs.22/- per unit during the first 07 years and Rs.15.50 per unit for the period 08-20 years. Unlike in the net metering system, the electricity production and the consumption are independent. Accordingly customers have to pay for their consumption according to the tariff of that time and the electricity board will pay for the units of electricity produced under the above tariff.

III. Setting up roof top power plants as much as possible on government buildings as a government policy.

IV. Provision of the maximum cooperation for this program from all government establishments.

4.0 Approval

Considering the environmental, economical and social benefits of the program "Soorya Bala Sangramaya" (Battle for Solar energy) installing roof top solar panels, I am requesting Cabinet of Ministers approval to implement the proposal mentioned in the paragraph 3.0

Ranjith Siyambalapitiya
Minister of Power & Renewable Energy

Ministry of Power & Renewable Energy
No. 72
Ananda Coomaraswamy Mawatha
Colombo 07

04th August, 2016