

The power crisis – a solution

We can convert the current power crisis, to the country's advantage, by conserving power, in such a way, that the conservation would continue, even after the rains come and the crisis recedes. This would be equivalent to the commissioning of a new power plant with a generating capacity equal to the saving.

The country's current power requirement is 1400 MW and the power available is 1200 MW. The shortfall is 200 MW. If the saving is at least equal to 200 MW, the short fall will be wiped out.

Calling on the consumer to give up using his lighting, even partially, will not achieve the desired result. A cursory look at your own residence will show why. This compels the government to impose increasingly unpopular power cuts, with adverse effects on the economy.

The table gives a comparison of a typical house when lit by Incandescent and by CFL bulbs. It can be seen that the load on the supply is reduced by 290.5 Watts (even with a 50% utilisation factor). The conversion of this house to CFL using current market prices is Rs. 1735. However, if the government purchases the bulbs at a wholesale discount of 15% and waives GST, the cost of the 10 bulbs in our example is Rs. 1310.89.

The average cost of a bulb is Rs. 131.09. It would be able to lower these costs further by importing the parts required and doing local assembly of the bulbs. This would provide employment as a spin off benefit. There are several local assembly plants in operation at present.

The load reduction on the National Grid, if 1.5 million houses are converted, is a staggering 435.75 MW (290.5×1.5). This is more than double the shortfall. It would save in just 3 hours of peak time, 1,307,250 kWh (or units) of energy per day. Even if the project is 50% successful, the country's generating capacity will still exceed the demand. (It is safe to assume the 1.5m metered con-

nections in view of the existence of 300,000 unmetered connections).

To convert the 1.5M households, 15 million bulbs are required at a cost of Rs: 1,966,333,333. By offering a subsidy of two bulbs for the price of one, the government can mobilise the public, the majority of who, I believe, will willingly support the project. The government will then need only half the above amount i.e. Rs: 983,166,666 (less than \$11M). This load reduction can be achieved within a few weeks, as against years, for a new power plant.

Compare this to the coal fired power plant with 900 MW generating capacity at a cost of \$1.2 billion or 80 MW Kukule Ganga at \$ 55.7 million or the 150 MW combined cycle power plant at Kalpitiya costing \$ 26 million.

Transmission losses of the CEB are estimated at 18 - 22%. This too, would be reduced, as the lighting load is a unity power factor load.

According to the government, the cost of generation is Rs. 10.00 per unit and it is sold at Rs: 4.00. Hence by converting these houses the CEB saves Rs. 7,843,500 per day in just three hours. The cost of the sub-

are such that even if the bulbs are given away, the country profits.

If factories and large institutions etc. are also converted (no subsidy required), a much larger power saving can be made. Tariff structure can be adjusted to encourage the reduction of reactive power loads. The use of florescent lighting without power factor correction capacitors (extinct now) should be banned. A higher tax on the import of incandescent bulbs and parts could also be imposed to discourage their use.

Let us appeal to all the civic-minded big businesses, to help the country in her hour of need, by converting to CFL lighting in their institutions. Not only would they be helping the country but they would be helping themselves (by way of a lower energy bill) as well.

It is estimated that by 2012, Sri Lanka will need a further 2500 MW of generating capacity. Let us do what we can, without waiting for the government to do everything. Convert your house, office and factory to CFL.

My residence was converted to CFL about 4 years ago. I have been reaping the benefits of a reduced power bill since then.

Comparison table for a typical house with ten lighting points.

	Tungsten	CFL	Cost
Porch	75	11	175.00
Verandah	60	9	170.00
Dining	75	11	175.00
Living	100	15	185.00
Kitchen	100	15	185.00
Bedroom 1	60	9	170.00
Bedroom 2	60	9	170.00
Toilet 1	40	7	165.00
Toilet 2	40	7	165.00
Back Garden	75	11	175.00
Total	685	104	1,735.00
Load at 50% utilisation	342.5	52 Watts	

sity would be recovered in 125 days by way of the CEB saving. An ROI of just 4 months.

The cost to the householder is Rs. 655.44. This could be added on to the electricity bill and recovered in two or three installments for low-income groups. In fact, the economics

The table was used for the calculations. However it is not necessary to convert the entirety of a house to CFL to obtain significant power savings. Judicious replacement of longer burning bulbs can achieve a considerable saving.

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