Sri Lanka
State of the Economy Report 2013

Chapter 7
Sustaining Power Sector Growth for Economic Development

by
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7. Sustaining Power Sector Growth for Economic Development

7.1 Introduction

Sri Lanka has recorded higher than average GDP growth rates in the range of 6-8 per cent in recent years, particularly in the years immediately after the end of the country's armed conflict in May 2009. Indeed, the GoSL has stated its intentions of pushing the economy from a lower middle income level to an upper middle income country through its medium to long term development efforts. This development drive has translated into a rapidly increasing demand for electricity that needs to be tackled by the power sector. Electricity demand in 2010 stood at 9,286 GWh and the projected demand for 2015 and 2020 are 12,941 GWh and 17,489 GWh respectively.[1]

> ***The lack of political will of successive governments remains the greatest hurdle for restructuring the power sector***

Sustaining an efficient and reliable power supply that meets the demands of an economy is crucial because of the direct causal link between electricity supply and economic growth, as evidenced by international literature. For instance, Wolde-Raufael (2006) establishes that there is a long run equilibrium between electricity supply and economic growth, and finds that electricity supply is linked to GDP growth in 12 of the 17 African countries in the study.[2] A similar study for four ASEAN countries has established that there is a bi-directional causality between electricity consumption and GDP growth in Thailand and Singapore.[3] Electricity supply directly stimulates the growth of productive segments of the economy such as industrial and commercial consumers, and can lead to overall economic growth through its impact on household activities, such as education of children.

Statistical evidence available for Sri Lanka suggests that current as well as past changes in electricity sup-

[1] CEB (2011), "Long Term Generation Expansion Plan 2011-2025," Ceylon Electricity Board, Colombo.

[2] Wolde-Raufael, Y., (2006), "Electricity Consumption and Economic Growth: A Time Series Experience for 17 African Countries," *Energy Policy*, Vol. 34, pp 1106-1114.

[3] Yoo. S. H., (2006), "The Causal Relationship between Electricity Consumption and Economic Growth in the ASEAN Countries," *Energy Policy*, Vol. 34, pp. 3573-3582.

ply have a significant impact on the country's growth outcomes.[4] This trend can be observed where the power demand exhibits a similar pattern as GDP growth in Sri Lanka. Clearly any attempt to accelerate growth will also require a growth in energy supply in order to sustain a targeted level of economic activity and income. The government's policy framework – "Mahinda Chinthana: Vision for the Future" – has set a GDP growth target of 8 per cent and above for Sri Lanka, which would require that the country's energy supply expands adequately in the coming years. Indeed, the power sector is estimated to require an annual addition of 100 MW to the grid to meet the annual demand of the country.[5]

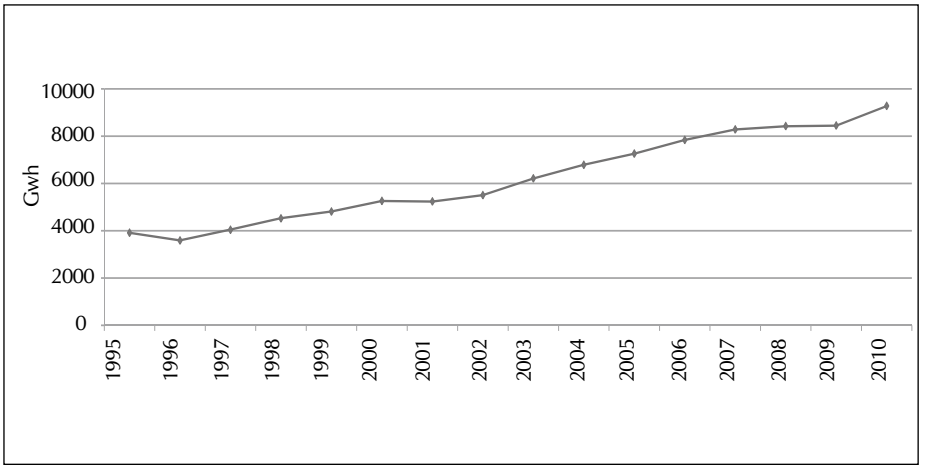
Given the significance of the power sector and its macroeconomic implications, this Chapter attempts to assess the current performance of the sector, and explore the issues plaguing the sector. Section 7.2 gives a snapshot of on-going policy issues in the power sector. Section 7.3 outlines the present status of the power sector, and Section 7.3 presents the recommendations and conclusions.

7.2 Policy Issues in the Power Sector[6]

As evident from Figure 7.1, Sri Lanka is seeing a rapid increase in the demand for electricity that can have a strong bearing on the country's medium to long term growth prospects. Demand for power exhibits a similar pattern as GDP growth in Sri Lanka (Figure 7.2).

However, despite the crucial role of the power sector, an efficient, reliable and affordable power supply in Sri Lanka has remained a mere aspiration, with the power sector functioning well below its optimum over a sustained period due to numerous reasons. Indeed, IPS (2008) highlighted the state of public enterprise reforms in Sri Lanka, analysing

Figure 7.1
Electricity Demand in Gigawatt Hours (GWh)



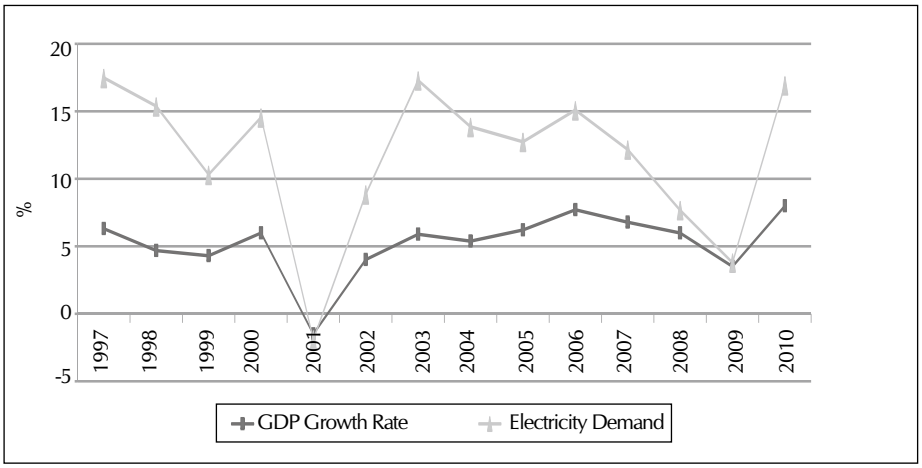
Source: CEB, "Long Term Generation Expansion Plan 2011 – 2025".

[4] Marimoto, R.C. and C. Hope (2001), "The Impact of Electricity Supply on Economic Growth in Sri Lanka," Research Papers in Management Studies, University of Cambridge, U.K.

[5] Wijayapala, A., (2013), "IPP Agreements, their Pricing Structure and other Thermal Power Plants," paper presented at "Workshop on Professional Approach to Electricity Costing and Tariffs," Sri Lanka Foundation Institute, May 22, 2013.

[6] This section draws on on-going research on the power sector at the IPS.

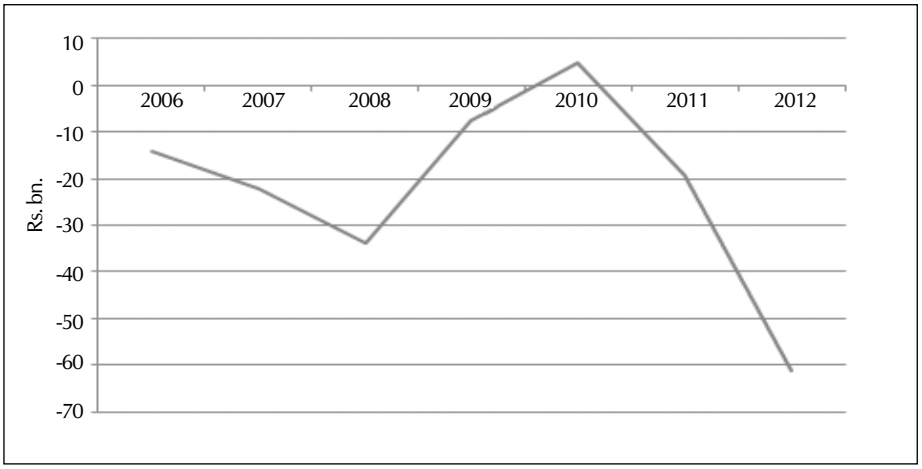
Figure 7.2
GDP Growth Rate and Electricity Demand in Sri Lanka



Source: Calculations based on CBSL, *Annual Report*, various years.

the reform process in relation to all the infrastructure providing SOEs, with a particular focus on the power sector.[7] The key issues highlighted are the mounting losses incurred by the CEB and its repercussions on other SOEs, such as the CPC. The discussion concludes by highlighting the urgent need to set the SOEs on a reform path and warns that the opportunity to set the sector back on course will be lost unless urgent action is taken. Other research studies have pointed out issues such as tariff manipula-

Figure 7.3
Financial Position of CEB



Sources: Ministry of Finance and Planning, *Annual Report 2011*; CBSL, *Annual Report 2012*.

[7] IPS (2008), "Reforming the State Owned Enterprise Sector: The Political Economy Dilemma" in *Sri Lanka: State of the Economy 2008*, Institute of Policy Studies of Sri Lanka, Colombo.

tion for political-economy reasons, shortcomings in the tariff structure which affects competitive sectors of the economy, and compromising the independence of the regulator through political interference.[8]

7.3 Current Performance of the Power Sector

The status quo has scarcely improved in recent years, with the reported financial losses of the CEB increasing exponentially in 2012. Losses incurred by the CEB were estimated at Rs. 61.2 billion in 2012, compared to Rs. 19.3 billion in 2011 (Figure 7.3).

The bulk of the losses made by the (CPC), a key energy utility crucially linked to the power sector, are incurred by selling subsidized heavy fuel to the CEB and Independent Power Producers (IPPs). The CEB then defaults on its dues to CPC, owing to heavy losses incurred by selling under-priced electricity. Unpaid dues by the CEB to the CPC stood at Rs. 46 billion as at 2009.[9] Thus, the two energy SOEs are entangled in a vicious cycle of loss making.

Moreover, the impact of the losses of the CEB and the CPC on Sri Lanka's external payments position, as well as on public finances, are critical areas of concern. The CPC is the single largest importer, with import expenditures amounting to 6 per cent of GDP in 2010,[10] a large portion of which consists of fuel imports for power generation. Financial stress has led to many SOEs, especially the CEB and the CPC, resorting to borrowing from state-owned commercial banks that puts a strain on the country's financial sector. These continuing problems are well recognized and acknowledged. Sri Lanka's SBA with the IMF signed in July 2009, made reference to the need to address the country's fiscal imbalances through SOE reform, especially of the CEB and the CPC, and to rationalize electricity tariffs and fuel prices.[11] The GoSL too has highlighted the urgent need for reforming the energy utilities.[12]

7.3.1 Electricity Pricing

A major factor leading to the dismal performance of the power sector is the lack of cost reflective prices. Half-hearted attempts have been made to rationalize the tariff structure in the past. A roadmap for tariff rebalancing was introduced in 2011 which consisted of a gradual five year process, which would have allowed the power sector to breakeven by 2015. However, it was not continued after its initial exercise in January 2011, with the government intervening in the functions of the PUCSL in an attempt to deliver on its short term assurance of not increasing the tariffs.[13]

Such policies have led to ad hoc tariff revisions when the financial burden on the Treasury becomes too high. As a result of the recent price hike of petroleum products introduced in February 2012, the government had to impose a 25 to 40 per cent surcharge on electricity tariffs. More comprehensive revisions were implemented in April 2012, as the CEB admitted that its losses were too

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[8] IPS (2011), "Accessibility and Affordability in the Power Sector" in *Sri Lanka: State of the Economy 2011*, Institute of Policy Studies of Sri Lanka, Colombo; IPS (2012), "Reinforcing Growth with Better Institutions" in *Sri Lanka State of the Economy 2012*, Institute of Policy Studies of Sri Lanka, Colombo.

[9] Department of Public Enterprises (2010), *Performance Report 2010*, URL: http://www.treasury.gov.lk/depts/ped/reports/ performance/ 2010/ped-performanceReport2010.pdf (accessed on January 31, 2013).

[10] *Ibid.*

[11] IMF (2010), "Sri Lanka: Letter of Intent and Technical Memorandum of Understanding," URL: http://www.imf.org/external/ np/loi/2010/ lka/061910.pdf (Accessed on Feruary 7, 2013).

[12] CBSL (2011), *Annual Report 2011*, Central Bank of Sri Lanka, Colombo.

[13] IPS (2012), "Reinforcing Growth with Better Institutions" in *Sri Lanka: State of the Economy 2012*, Institute of Policy Studies of Sri Lanka, Colombo.

massive to be bailed out by the government. The CEB filed its estimated cost of electricity supply to be Rs. 268 million in early April 2013,[14] requesting the PUCSL to revise tariffs in order to recover the cost. The PUCSL approved all tariff revisions proposed by the CEB, despite oral and written comments against the revision at a public consultation held in April 2013. This led to an increase in domestic tariffs from 13 to 67 per cent, and peak industrial tariffs between 54 to 79 per cent. Religious establishments saw a tariff reduction of 10 to 49 per cent.

Moreover, the domestic consumer categories consuming more than 90 units saw a tariff reduction ranging from 11 to 33 per cent. This is counter intuitive to the objective of promoting energy efficiency and conservation "through financial and other incentives" as stated in Section 3.3 of the 'National Energy Policy and Strategies of Sri Lanka'.[15] Similarly, religious institutions were granted a subsidy in the range of 10 to 48 per cent. The negative impact of such a price reduction on the economy will be twofold. Firstly, this reduction will be cross subsidized by the productive consumer groups of the economy, such as households and industrial categories. Secondly, such low tariffs will defy the objectives of energy conservation as stated above.

This tariff change was approved by the PUCSL in April 2013, leading to numerous protests and strikes from various segments of society such as trade unions, civil society organizations, political parties, and industrialists. As a result, the government was compelled to announce relief measures for the household category. Accordingly, in May 2013, the PUCSL announced that it will revert to the system of Block Tariff, as opposed to the Volume Differentiated Tariff (VDT) system, and apply no changes to consumers using under 60 units of electricity. Although it was announced through the media that households consuming more than 60 units would receive minor relief measures, the final tariffs announced by the PUCSL indicated that tariffs for consumers utilizing upward of 60 units have been increased even beyond what was stated in the initial proposal,[16] perhaps in an attempt to recover the loss of revenue incurred as a result of subsidies granted to consumers utilizing less than 60 units.

Moreover, the tariff system continues with the controversial fuel adjustment charge (FAC). The FAC was initially imposed in the late 1990s to recover the expenditure on fuel used for generation during periods of droughts, and repealed when the drought was over. However, the FAC was imposed again in February 2012 following a fuel price hike, despite the fact that fuel-fired generation is no longer an emergency measure. Therefore, continuous imposition of the FAC cannot be justified. Instead, the government should focus on introducing a proper pricing mechanism, or continuing with the methodology introduced in 2011, rather than imposjng arbitrary surcharges.

Sri Lanka's electricity prices are higher than other South Asian countries in many consumer classes, and comparable to emerging economies (Table 7.1). This burden is especially felt by the commercial consumer category (general purpose) under which whole-

[14] PUCSL 2013), "The Commission to Go for Public Consultation on the Proposed Revision of Electricity Tariff for the Year 2013," URL: http://www.pucsl.gov.lk/english/news/the-commission-to-go-for-public-consultation-on-the-proposed-revision-of-electricity-tariff-for-the-year-2013/ (accessed on May 18, 2013).

[15] Ministry of Power and Energy (2008), "National Energy Policy and Strategies of Sri Lanka", Ministry of Power and Energy, Colombo.

[16] See tariffs announced on the official website of the PUCSL. URL: http://www.pucsl.gov.lk/english/industries/electricity/electricity-tariffscharges/

Table 7.1
Electricity Tariffs in Selected Countries

Customer	Class	Electricity Usage (kWh per month)	Maximum Demand (kW)	Average Unit Price in Equivalent LKR per kWh											
				Bangladesh	Kerala, India	Maharashtra, India	Tamil Nadu, India	Malaysia	Nepal	Pakistan	Philippines	Singapore	South Korea	Sri Lanka	Thailand	Hong Kong
Household	Small	30	0.167	5.52	4.36	2.82	2.98	8.91	7.13	12.67	14.81	26.72	8.10	4.75	8.36	14.45
	Medium	90	0.5	6.01	4.47	10.16	3.60	8.91	11.02	17.54	22.39	26.72	7.10	12.73	10.05	14.45
	Large	180	1	6.90	5.30	12.93	7.95	8.91	12.24	18.87	27.58	26.72	10.32	29.63	11.09	15.58
	Very Large	600	3.33	9.37	9.54	18.66	10.93	12.98	15.85	22.74	29.10	26.72	34.69	50.23	13.07	18.68
Commercial	Small	1,000	4	14.82	20.74	22.08	16.19	17.57	14.73	18.98	27.15	26.72	11.49	27.12	13.58	21.78
	Medium	58,000	232	11.35	15.17	31.71	18.34	16.98	14.53	23.56	25.12	26.72	12.92	28.83	12.85	20.75
	Large	600,000	2400	10.79	12.23	30.44	18.34	16.98	14.18	23.56	22.92	19.83	13.46	27.13	12.31	20.69
Industrial	Small	5,000	20	11.56	8.29	13.21	12.57	15.41	11.75	23.61	25.09	26.72	9.79	14.50	14.20	20.58
	Medium	65,000	260	9.87	9.80	19.35	15.42	15.90	11.36	23.47	25.11	27.83	11.04	17.86	12.85	20.65
	Large	270,000	1080	10.79	9.79	19.88	15.42	13.62	11.08	23.07	22.97	27.61	10.87	17.16	12.31	20.59
	Very Large	1,050,000	4200	9.46	9.46	19.88	15.42	12.82	9.97	23.07	23.55	19.31	12.89	17.16	12.31	20.48

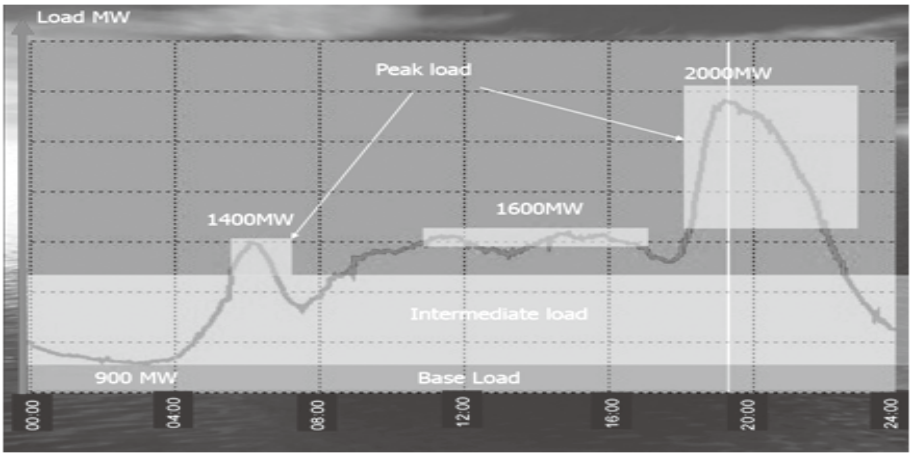
Notes: 1. Electricity use and maximum demand have been defined for typical customers. Thus, the average prices calculated reflect the price if each typical customer is located in different countries. Analysis is based on published tariffs. Whether the tariffs are cost-reflective or not and whether the utilities are profitable or loss making, has not been considered.
2. Sales taxes such as VAT are not included. Fuel surcharges, if any, are included. For Maharashtra and Kerala, Electricity Duty is included.
3. These are based on published tariffs. Special concessions given to identified customers or within special economic zones are not included.
4. Optional tariffs (such as time-of-use, TOU) are not included. When TOU tariffs are mandatory, a flat load profile has been assumed.
5. Unity power factor is assumed, where relevant.
6. Prices updated as of 1th June 2013.

Source: Prepared by W.M.K.S. Wijesundara/T. Siyambalapitiya.

sale and retail trade is classified – a sector which constitutes 23 per cent of GDP.[17] According to the PUCSL subsidy analysis for 2013, general purpose consumers provide cross subsidies worth Rs. 14.7 billion.[18] A part of it also goes to subsidize non-productive categories, such as the religious category.

Productive sectors other than general purpose consumers have agitated against the increased tariffs. Tourism, a targeted growth sector of the government, will be severely affected as hotel purpose consumers with round-the-clock operations will see an increase of tariffs between 42 to 46 per cent for peak demand alone. Most establishments shifted non-essential processes to off-peak hours when Time of Use (TOU) tariffs were first introduced in 2011, and find it difficult to make further adjustments.[19] The industrial sector is forecast to have a cost increase of 20 to 30 per cent,[20] which will severely affect the growth of exports and domestically traded goods. Sri Lanka's weakening merchandise exports sector is expected to be further hit by electricity tariffs, eroding the country's export competitiveness in international markets.

Figure 7.4
Average Daily Load Profile of Sri Lanka



Source: Weerasinghe, L., (2013), presentation at the "Workshop on Professional Approach to Electricity Costing and Tariffs," Sri Lanka Foundation Institute, May 22, 2013.

[17] CBSL (2012), *Annual Report 2012*, Central Bank of Sri Lanka, Colombo.

[18] PUCSL (2013), "Consultation Document on Proposed Electricity Tariff Revision 2013," URL:http://www.pucsl.gov.lk/english/wp-content/uploads/2013/03/Tariff-Proposal-2013-03-07-Final.pdf (Accessed on March 22, 2013).

[19] *Daily FT* (2013), "Tourism Industry Fumes over New Electricity Tariff," URL: http://www.ft.lk/2013/04/08/tourism-industry-fumes-over-new-electricity-tariff/ (Accessed on May 18, 2013).

[20] Ceylon Chamber of Commerce (2013), "The CCC Urges the CEB to Give Priority to Implementation of PUCSL Directions on Electricity Tariffs," URL: http://www.chamber.lk/news-a-events/284-statement-.html (Accessed on May 18, 2013).

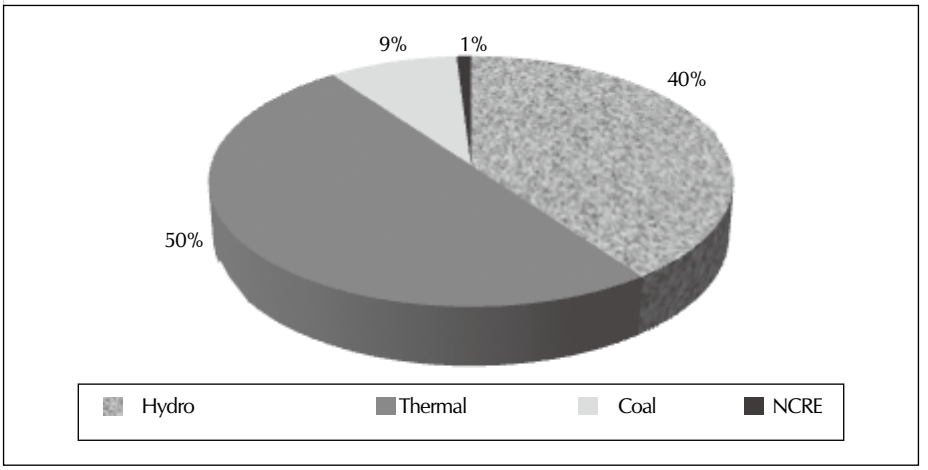
7.3.2 Planning for Power

High tariffs in the country are widely criticised, being the result of successive governments having failed to implement long term generation expansion plans as scheduled. While hydro power is the cheapest power source in Sri Lanka, it is vulnerable to weather conditions. Coal-fired thermal generation is the second cheapest option, and fuel-fired thermal is the most expensive power source. Sri Lanka was scheduled to have commissioned its first coal power plant in 2005, which would have reduced more expensive purchases from IPPs by about 60 per cent compared to 2005 levels. This, however, was not commissioned on time and the IPPs have negotiated power purchase agreements with the government to sell power at higher prices than the price at which the CEB distributes it to the consumers, rendering fuel-fired thermal power the most expensive source of generation.

Thermal generation is employed to cater to the peak demand in the country. The average daily load curve of Sri Lanka indicates a sharp increase in demand during the peak hours starting from 6 p.m. in the evening, and drops by 10 p.m. (Figure 7.4). Power supply to match this demand is generated by oil fired thermal power plants. Demand side management strategies can help reduce the extra cost incurred by supply of power at peak hours.

Also, Sri Lanka has to urgently address the diversification of its generation mix. The generation mix was dominated by oil in 2011 (Figure 7.5).

Figure 7.5
Generation Mix in 2011



Source: CEB, *Statistical Digest 2011*.

Table 7.2
Generation Expansion Plan 2011-2025: Base Case Capacity Additions

Year	Capacity Additions (MW)				
	Medium Term Diesel	Gas Turbines	Coal	Hydro	Total
2011	-	-	315	-	315
2012	-	75	-	150	225
2013	44	35	-	-	79
2014	-	-	630	-	630
2015	-	-	-	204	204
2016	-	-	-	-	0
2017	-	-	500	-	500
2018	-	-	250	-	250
2019	-	-	250	-	250
2020	-	-	-	-	0
2021	-	-	600	-	600
2022	-	-	300	-	300
2023	-	-	-	-	0
2024	-	-	600	-	600
2025	-	-	300	-	300
Total	**44**	**110**	**3745**	**354**	**4253**

Source: CEB, "Generation Expansion Plan 2011-2025."

Hydro capacity in Sri Lanka has been utilized almost fully, with planned additions to the grid amounting to only 354 MW. According to the CEB, the future grid will mainly be dominated by coal additions (Table 7.2). Although this can circumvent the unfavourable impact generated from oil price volatilities, coal prices have shown greater volatility in the recent past.[21]

Therefore, it would be prudent to look for other alternatives in generation expansion. It is noteworthy that non-conventional renewable additions do not feature in the generation expansion plan, at least at the base case level. However, Sri Lanka has a vast potential to utilize renewable energy for power generation (Box 7.1).

[21] CEB (2011), "Long Term Generation Expansion Plan", Ceylon Electricity Board, Colombo.

Box 7.1
Renewable Energy for Power Generation

As stated in the 'National Energy Policy and Strategies' of 2008, the government seeks to obtain 10 per cent grid electricity from non-conventional renewable energy (NCRE) sources by 2015. The government policy framework – 'Mahinda Chinthana: Vision for the Future' – sets a target of 20 per cent by 2020. According to the CEB, the contribution of renewable energy to the grid according to the definition of NCRE stood at 6.3 per cent in 2011. This included solar, dendro, biomass and wind, and mini-hydro.

Around 80 per cent of NCRE generation consists of mini-hydro generation provided through numerous rural electrification schemes (RESs). A total of 219 RESs were completed by 2011 under the supervision of the CEB, and another 24 schemes in former conflict zones. However, the contribution from dendro, solar and wind remain minimal. As at end 2011, there were no dendro plants operating, and installed capacity for solar and wind in the grid was 1.4 MW and 33 MW, respectively.

There have been few comprehensive studies which assess resources for power generation potential in Sri Lanka. The National Renewable Energy Laboratory (NREL) of the US has conducted a potential assessment study on Sri Lanka and the Maldives. It indicates that Sri Lanka has fairly viable solar potential, and extremely good wind conditions. Accordingly, the Global Horizontal Radiation (GHR) in Sri Lanka varies from 4.5 to 6.0 kWh/m^2day, and the total wind power potential of the country at 50m hub height to be 55,850 MW shows good moderate to excellent wind resources. This is under the conventional assumption of an installed capacity of 5 MW per square kilometre. Technological advances have allowed this capacity density to be relaxed. A study currently being carried out by the IPS estimates the capacity density to be 6.3 MW, which allows the above estimate to be refined to around 70,000 MW of power.

Micro-siting exercises and resource mapping with higher resolutions are needed to arrive at an exact number for NCRE potential from various sources, but there is undeniably a vast potential to be tapped and used for the cheap supply of electricity. However, technological limitations of the grid investment shortages have hindered the development of NCRE in Sri Lanka.

The Sri Lanka Sustainable Energy Authority (SLSEA) and CEB are currently conducting resource assessment studies in biomass and wind, as well as a feasibility study to employ pumped storage systems in order to absorb wind power into the grid.

Sources: SLSEA (2011), "Sri Lanka Energy Balance 2011," Sri Lanka Sustainable Authority, Colombo; CEB (2011), "Long Term Generation Expansion Plan," Ceylon Electricity Board, Colombo.

7.3.3 Reforming the Power Sector

Financial mishandling and inefficiency within the CEB are also often cited as reasons for the deteriorating performance of the power sector. Over 65 out of 275 oral and written comments made on the 'Public Consultation Document on Tariff Revisions 2013' have requested for reduction of wastage and corruption, and increased accountability of the CEB.[22] The consultation also sheds light on

[22] PUCSL (2013), "Summary Report on the Public Consultation, Public Utilities Commission of Sri Lanka", URL: http://www.pucsl.gov. lk/english/wp-content/uploads/2013/04/Summary-Report-Public-Consultation-08-04-2013.pdf (Accessed on April 26, 2013).

the fact that the Kerawalapitiya power plant was negotiated at high prices, rather than commissioned through a competitive bidding process. A positive outcome of the said consultation was that it led the PUCSL to impose several conditions on the CEB, including greater financial accountability, and efficiency monitoring at CEB power plants.[23]

Similar controversies have surfaced about the inefficient manner in which the CEB negotiated the Sampur coal power plant, with India trying to back out from the agreement. Further, the CEB has been subject to chronic overstaffing similar to other SOEs,[24] and numerous proposals at the consultation highlighted the urgent need to rationalize the salary and benefit structure of CEB employees, along with a performance based evaluation.[25] The unique position of the CEB as a key utility provider has left significant power in the hands of certain factions within the CEB. These factions have proven to successfully resist interference in the operations of the CEB, as has been evidenced by the introduction of a new CEB Act being withdrawn in 2008 owing to protests from trade union members, which consist of only 10 per cent of employees.[26] Thus urgent and comprehensive reforms are necessary to address the highlighted issues in the electricity industry.

Sri Lanka's power sector has seen a few reform attempts but they have been sparse and halting. The Lanka Electricity Company (LECO) was established in 1982 as an attempt to diversify distribution, but remains a fully government owned company. The attempt at unbundling the power sector in 1996 has resulted in IPPs entering generation, but has failed to create competition in power generation. The IPPs are currently guaranteed all-inclusive prices over and above the average selling price as per the power purchase agreements (PPAs), rendering power generation merely a hybrid supply market.[27] All SOEs, including the CEB and the CPC, submitted business plans in 2004 to the Strategic Enterprise Management Agency (SEMA), which was established to improve the commercial viability of SOEs. The SEMA failed in its objective owing to the weak governance and accountability structures, and the failure to structure its incentives by factoring in the political economy dimension of reform.[28]

The lack of political will remains the greatest hurdle for restructuring the power sector. As pointed out above, successive governments have backtracked on key policy requirements, such as implementing generation expansion plans and cost reflective price mechanisms, and introducing timely institutional and regulatory reforms, that have seen success in other countries similar to Sri Lanka (Box 7.2).

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[23] PUCSL (2013), "Recommendations Pertaining to the Consultation on Proposed Electricity Tariff 2013", press release dated April 17, 2013.

[24] IPS (2008), "Reforming the State Owned Enterprise Sector: The Political Economy Dilemma" in *Sri Lanka: State of the Economy 2008*, Institute of Policy Studies of Sri Lanka, Colombo.

[25] PUCSL (2013), "Recommendations Pertaining to the Consultation on Proposed Electricity Tariff 2013", press release dated April 17, 2013.

[26] IPS (2008), "Reforming the State Owned Enterprise Sector: The Political Economy Dilemma" in *Sri Lanka: State of the Economy 2008*, Institute of Policy Studies of Sri Lanka, Colombo.

[27] See for instance SJ Associates (2001), "World Bank Impact Study of Infrastructure Privatization in Sri Lanka", mimeo; Bhattacharyya, S.C., (2006), "Power Sector Reform in South Asia: Why Slow and Limited So Far?", *Energy Policy*, Vol. 35, pp. 317-332; ADB (2005), "Asian Development Outlook 2005", Retrieved on February 7, 2013 from http://www.adb.org/sites/default/files/pub/2005/ado2005.pdf

[28] IPS (2008), "Reforming the State Owned Enterprise Sector: The Political Economy Dilemma" in *Sri Lanka: State of the Economy 2008,* Institute of Policy Studies of Sri Lanka, Colombo.

Box 7.2
International Reform Experience of Energy Utilities

Countries in the South Asian region have made various attempts at reforming the power sectors in their respective countries. Bangladesh allowed the entry of IPPs in 1992, and foreign investors in 1996, which enabled the country to attract foreign investment of 1200 MW capacity. Establishing an independent regulator for Bangladesh was in the pipeline since 1993, but was granted legislative approval only in 2003. However, the regulatory commission was not fully functional until 2006. Pakistan's regulator, legally established in 1997, also underperformed owing to frequent changes in management. On the other hand, Nepal attempted to reform its power sector by vertically integrating the numerous state-owned power entities by enacting the Nepal Electricity Authority Act in 1985, and allowing private and foreign participation through the 'Hydropower Development Policy' in 1992. However, the hydropower potential of the country still remains largely untapped despite these reforms. IPP entrance was facilitated in India in 1991, and vertical unbundling was carried out in 1995 with the single buyer model. Both these attempts did not deliver the expected results. The sector was bifurcated in 1998 into ownership and regulation. The Electricity Act of 2003 features measures such as bifurcating system and operation and transmission activities, de-licensing generation, and allowing multiple transmission and distribution licensing.

Other developing countries have employed various reform strategies depending on their socio-economic needs. China introduced IPPs in 2002 by decoupling generation and system operation, and facilitated greater competition by splitting the power SOE into independent generation companies and two separate grid systems. China has undergone multiple tariff revisions to facilitate the development needs of the country, with each revision being implemented with stakeholder consultation and consensus. On the other hand, reform efforts by African economies to establish competition in wholesale generation has resulted in hybrid generation markets consisting of SOEs and IPPs with little or no competition, a situation similar to Sri Lanka. A case study of four African nations, namely, Ghana, Cˆote d'Ivoire, Morocco, and Tunisia, show that this model has not been able to guarantee sufficient capacity and timely power delivery. A more successful reform model was implemented by South Africa in reforming the state-run power utility, Eskom, which was restructured in the 1980s. Instead of resorting to traditional methods of unbundling and creating competition, the reforms aimed at improving financial performance and governance through corporatization, shareholder contracts, independent regulation, improved governance, and management.

Examples for other international reform models include the EU model and the Chilean model of reform, widely adopted in Europe and Latin America, respectively. The European model aims to achieve competition in generation with no entry barriers, competitive end-user markets, transmission unbundling, non-discriminatory tariffs across all consumer categories, and regulated electricity trade (Pollit, 2009). Available evidence from countries which adopted the EU model suggests that unbundling generation and transmission does not necessarily lead to lower prices, but that establishing competitive retail markets do (Steiner, 2001; Hatori and Tsutsui, 2004).

The Chilean model has focused on opening generation and supply to private competitors while the state regulates dispatch, transmission, and distribution. This model was followed by countries such as Peru, Bolivia, and Argentina. Chile managed to halve distribution losses within seven years of implementing reforms in 1982, while Argentina achieved this within three years after implementing reforms in 1992. Spot price per kilowatt hour in the northern Chilean market has fallen from over 80 to under 20 Chilean pesos, from 1983 to 1999. Improvements have been observed in these countries in labour productivity, and in the distribution and energy production per worker as well. Further evidence from developing country literature has shown that a combination of privatization, restructuring, and regulatory mechanisms, have led to improved performance in both transmission and distribution (Newbery and Pollit, 1997; Rudnik and Zolezzi, 2001).

Sources: Steiner, F., (2001), "Industry Structure and Performance in the Electricity Supply Industry", OECD Economics Studies, No. 32, OECD, Paris; Hattori, T and M. Tsutsui, M., (2004), "Economic Impact of Regulatory Reforms in the Electricity Supply Industry: A Panel Data Analysis for OECD Countries", *Energy Policy,* Vol. 32, pp. 823–832; Pollit, M.G., (2009), "Electricity Liberalization in the European Union: A Progress Report", Cambridge Working Papers in Economics 0953, Faculty of Economics, University or Cambridge; Newbery, D. and M. Pollitt, M., (1997), "The Restructuring and Privatization of Britain's CEGB - Was it Worth It?", *Journal of Industrial Economics,* Vol. 45, pp. 269-303; Rudnick, H., and J. Zolezzi (2001), "Electric Sector Deregulation and Restructuring in Latin America: Lessons to be Learnt and Possible Ways Forward", *IEEE Proceedings Generation, Transmission and Distribution,* Vol. 148, pp. 180-84.

7.4 Conclusion and Policy Recommendations

It is evident from the above discussion that the power sector in Sri Lanka is long overdue for an overhaul and the issues in the sector needs urgent attention, given its contribution to economic growth.

An immediate starting point would be to tackle the uneven demand through demand side management strategies such as the introduction of energy efficient equipment. The rapid popularization of Compact Florescent Lamps (CFLs) should be followed by the introduction and promotion of similar devices such as efficient refrigerators and air conditioners.[29] The Ministry of Power and Energy launched an awareness campaign at school level, and conservation promotion at domestic level, by waiving a portion of the electricity bill if the consumer managed to reduce consumption by 20 per cent. There was no follow up on these activities and they appear to be one off schemes. Continuation of such programmes is crucial for demand side management.

In terms of the supply, sufficient diversification of the generation mix in order to do away with the expensive oil-powered thermal generation is crucial. Future additions to the grid can be implemented as PPPs as this has been a successful model in other countries of the world. Reforming the CEB through appropriate organizational reform methods will help eliminate the structural inefficiencies within the institution. Unbundling the power sector to do away with the hybrid supply market would also lead to greater efficiency of the CEB and the sector as a whole. The Sri Lanka Resident Mission of the IMF has recently expressed its desire to assist the government in reforming the loss making SOEs, including the CEB. A key point in any reform agenda would be to implement cost-reflective tariffs in the power sector in order to alleviate the shortcomings of ad hoc price revisions that have manifested over the past few years. This calls for institutional strengthening in the power sector, and ensuring that the regulatory processes in place function optimally.

However, the key factor which would drive all successful reforms is the political will and commitment to see the changes through. The government would need to gather necessary political capital around the reform agenda to implement them successfully, without which the reforms would be completely halted or implemented only partially. It would then leave room for continued drawbacks in the power sector that hinders Sri Lanka's development goals.

[29] Wijeytunga, P.D.C. *et al.*, (2003), "Greenhouse Gas Emission Mitigation in the Sri Lanka Power Sector: Supply-side and Demand- side Options", *Energy Conversion and Management*, Vol. 44, pp. 3247-3265.