

Background to Tariff Revision 2014

The Electricity Supply Companies (ESCOMs) in Karnataka including BESCO, MESCOM, CESC, HESCO and GESCOM have filed their applications for review of their performance in the year 2012-13 and revision of tariff for the year 2014-15. In their applications which were received by the Commission on 13.12.2013, the ESCOMs had reported a total expenditure of Rs.24,737 crores during 2012-13 against the total revenue realised of Rs.22,250 crores. The combined revenue gap projected by the ESCOMs for 2012-13 was Rs.2,488 crores. The category wise breakup of costs incurred by ESCOMs on supply of power in 2012-13 as reported by them is shown in the following Table:

Amount in Rs Crores							
Particulars	BESCO	MESCOM	CESC	HESCO	GESCOM	TOTAL	% Contribution to overall Cost
Power Purchase Cost	10787.24	1537.41	1960.06	3733.01	2387.96	20405.68	82.5%
O&M Expenses	888.49	260.07	326.07	467.68	364.20	2306.51	9.3%
Depreciation	118.77	50.84	56.64	88.03	90.66	404.94	1.6%
Interest & Finance Charges	504.89	104.99	192.06	285.5	246.78	1334.22	5.4%
Return on Equity	105.97	46.73	0	0	76.04	228.74	0.9%
Other Expenses	150.76	114.51	24.21	31.88	140.75	462.11	1.9%
Less Other Income	232.60	25.32	33.33	35.61	77.96	404.82	1.6%
Net ARR*	12323.52	2089.23	2525.71	4570.49	3228.43	24737.38	100.0%

*ARR-Annual Revenue Requirement

In their applications, all the five ESCOMs had made a submission that the entire shortfall in revenue for the year 2013 amounting to Rs.2,488 crores will be borne by the Government of Karnataka. Further, they had requested the Commission to consider the projected costs of electricity supply during the year 2014-15 and the expected revenue at the prevailing tariff determined for the year 2013-14. The projections of revenue at the prevailing tariff according to them amounted to Rs.25,253 crores against an estimated expenditure of Rs.27,472 crores for all the five ESCOMs. The revenue gap of Rs.2,220 crores for 2014-15 was requested to be made good by the Commission by increasing the tariff by 66 paise per unit for all categories of consumers other than users of IP sets and BJ/KJ households. Thus, the revision of tariff was to be made keeping in view only the expected revenue and estimated costs for their operations during 2014-15 and without reference to the revenue gap of Rs.2,488 crores for the year 2012-13.

The Commission sought confirmation from the ESCOMs of any assurance given by the Government of Karnataka to make good the shortfall of revenue in the year 2012-13. The ESCOMs could not furnish any communication from the Government with such assurance. During the public hearings, the ESCOMs admitted that the Government of Karnataka had declined to make good the entire shortfall in revenue of 2012-13 and had however agreed to provide any additional subsidy assessed by the Commission towards supply of electricity to IP set users and BJ/KJ consumers. A communication dated 22.3.2014 received from the Additional Chief Secretary, Energy Department, Government of Karnataka, addressed to all the ESCOMs confirmed the above position. The Commission has obtained a copy of the said communication.

After examining the applications filed by ESCOMs in December 2013, the Commission has completed the annual performance review of the operations of ESCOMs for the year 2012-13. The Commission has found that the ESCOMs had incurred an overall allowable expenditure of Rs.23,668 crores for supplying electricity during the year. Against this, they have realised a revenue of Rs.16,298 crores directly from consumers and another Rs.4,993 crores as the State Government's subsidy towards the cost of electricity supplied free to the IP set users and BJ/KJ consumers. Thus, they had an allowable revenue shortfall of Rs.2,377 crores for the year 2012-13 on the total sales of 45,656 MUs including 17,177 MUs supplied to IP sets and BJ/KJ consumers. This works out to a shortfall of 52 paise per unit sold during the year. While the average cost of supply during the year was Rs.5.18 per unit, the revenue realized was only Rs.4.66. According to the Tariff Order issued by the Commission on 30.4.2012, the cost of supply was estimated at Rs.4.85 and the tariff determined by the Commission along with the estimated subsidy would have given them a revenue adequate to cover these costs. Given the above facts, it is necessary to analyse the reasons for the ESCOMs incurring costs higher than estimated and realizing revenues lower than those projected in the Tariff Order of 30.4.2012.

Increase in the cost of service

The average cost of service of ESCOMs during FY13 at Rs. 5.18 per unit was 33 paise more than the cost assumed in the Tariff Order at Rs.4.85. The total costs estimated for the year for all the five ESCOMs for a projected sales of 49,290 MUs was Rs. 23,247 crores. The actual supply achieved by ESCOMs was 45,656 MUs at a cost of Rs. 23,668 crores. The major item of the costs incurred was on purchase of power at Rs.20,405 crores for procuring 56,794 MUs which works out to Rs.3.59 per unit as against the provision of Rs.19,418 crores made in the Tariff Order for procuring 60,638 MUs at an average cost of Rs.3.20 per unit. The expenditure incurred on power purchase would have been Rs.18,174 crores if the power had actually been purchased at Rs.3.20 per unit as assumed in the Tariff Order. Thus, the cost of power purchase was Rs.2,231 crores more than the cost assumed earlier which represented an extra cost of 48 paise per unit sold during the year. Thus, the

increase in the cost of power per unit procured was the main contributor to the overall increase in the cost of supply during 2012-13.

Reasons for increase in cost of power procurement

The Commission has analysed the factors contributing to increase in the cost of power procured. It is seen that the average procurement cost of Rs.3.20 per unit was worked out assuming 29,187 MUs of hydel and thermal power being procured from the Karnataka Power Corporation at an average cost of Rs.1.94 per unit. Another 11,405 MUs was to be procured from long term supplies contracted from the Central Generating Stations at an average cost of Rs.3.01 per unit and 11,064 MUs from other long term contracts of IPPs and renewable generators at an average cost of Rs.3.64 per unit. After exhausting these sources, provision was also made for procuring 8,710 MUs on short and medium term basis from other suppliers through a bidding process at an estimated average cost of Rs.4.46 per unit, thus making up a total procurement of 60,638 MUs for achieving total sales of 49,290 MUs (allowing for T&D losses of about 19 %). The actual power that could be procured during the year was only 56,794 MUs. The major contributor to the shortfall in procurement was in respect of the KPCL generation which could contribute only 22,279 MUs against the anticipated 29,187 MUs for the year. The average cost of procurement from KPCL was also higher than expected at Rs.2.34 per unit as against Rs.1.94 per unit assumed in the Tariff Order. The shortfall of 6,908 MUs in procurement from KPCL was partly made good by increase in the procurement from short and medium term sources. The procurement from these sources during the year was 10,828 MUs at an average cost of Rs.4.64 per unit as against a procurement of 8,710 MUs at Rs.4.46 per unit assumed in the Tariff Order.

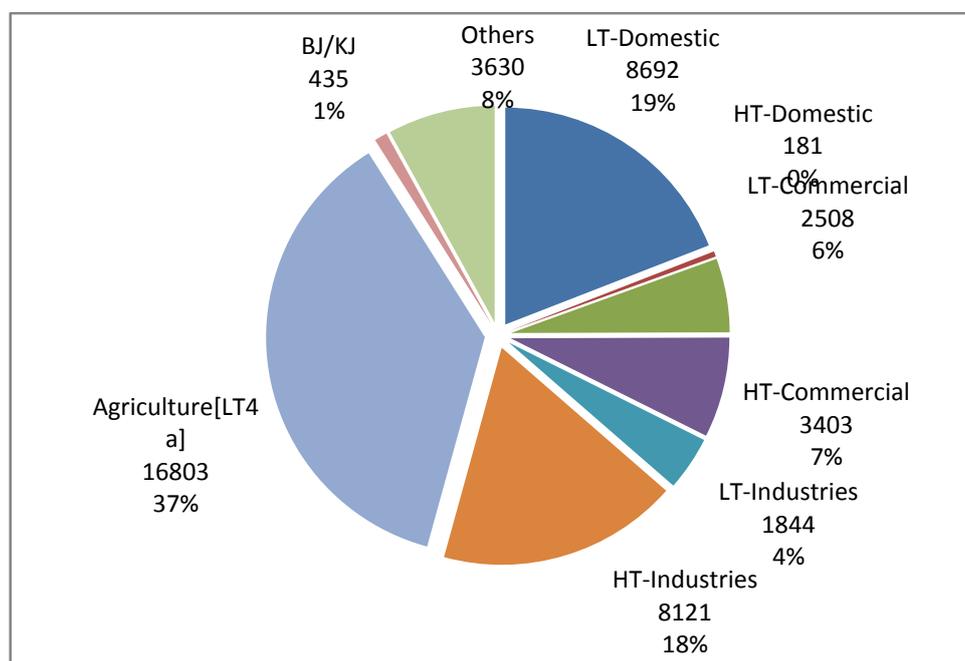
Shortfall in Realisation of Revenue

The Tariff Order for 2012-13 had projected a total revenue realisation of Rs.23,907 crores including government subsidy of Rs.4,722 crores giving per unit realisation of Rs.4.85 during the year. The actual revenue however was only Rs.21,290 crores giving a per unit realisation of Rs.4.66. Thus, the revenue realised per unit was 19 paise lower than estimated. This low realisation coupled with the higher average cost of service of Rs.5.18 per unit resulted in an overall shortfall of 52 paise per unit sold and a revenue gap of Rs.2,377 crores during the year.

An analysis of the reasons for the lower per unit realisation shows that sale of power to metered category of consumers including industries, commercial establishments, household consumers, etc., was lower than targeted and the quantum of sales to the unmetered category of consumers including IP set users and BJ/KJ households was higher than targeted in the Tariff Order . The combined sales achieved by the ESCOMs to the metered categories of consumers was 28,478 MUs at an average realisation of Rs.5.72 per unit as against the estimated 33,973 MUs at an average realisation of Rs.5.64 per unit. The sales achieved for the IP set users and

BJ/KJ households was 17,177 MUs against the estimated 15,317 MUs for the year. The sales made to these categories amounted to 1,860 MUs more than the quantum estimated in the Tariff Order. This additional supply of power could not be supported by cross subsidy from sales to metered categories of consumers. Therefore it became necessary for the Commission to recover the entire cost of this additional supply to the unmetered categories of consumers from the Government at the average cost of supply of Rs.5.18 per unit. This would involve an additional subsidy contribution of Rs. 965 crores from the State Government towards the cost of supply to irrigation pump sets and BJ/KJ households.

The consumer category wise energy sold by ESCOMs during 2012-13 is shown in the following diagram:



Increasing supplies to I.P.Sets and BJ/KJ consumers

In its tariff orders for the years 2011-12 and 2012-13, the Commission had already noted that sales to the irrigation pump sets were increasing rapidly from year to year. The Commission had noted that the sale of power to irrigation pump sets which was 11,693 MUs in 2009-10 went up to 12,630 MUs in 2010-11 and 15,300 MUs in 2011-12. Along with the growing number of IP sets, the specific consumption (power consumed per IP set) reported by ESCOMs had also increased from 6,547 units per year in 2009-10 to 6,986 units in 2010-11 and 8,290 units in 2011-12. The Commission had directed that ESCOMs should adhere to the norm of 6 hours 3-phase supply to IP sets as stipulated by Government which would ensure that there was no abnormal growth in the specific consumption from year to year. However, the ESCOMs have repeatedly pleaded their inability to effectively regulate power

supply to IP sets as most IP sets are linked to feeders supplying power to households and other consumers in the rural areas. Also, the ESCOMs have not been able to install meters for measuring power supplied to IP sets due to resistance from the consumers.

The Nirantara Jyothi Yojana which aims at separation of IP set feeders from other rural feeders has been completed only in respect of 537 feeders against 1,746 feeders planned in four out of the five ESCOMs. The completion of this project in respect of all the feeders already planned and its extension to other feeders which are now covered by the almost defunct RLMS system will enable the ESCOMs to effectively regulate the supply of power to IP sets. In the meanwhile, the power assessed as having been supplied to IP sets is increasing the subsidy payment required from Government from year to year. Thus, the subsidy determined by the Commission towards power supplied to IP sets and BJ/KJ households has increased from Rs.3,842 crores in 2010-11 (for supply of 13,231 MUs), to Rs.4,156 crores in 2011-12 (for supply of 16,141 MUs) and now to Rs.5,958 crores in 2012-13 for supply of 17,238 MUs. The Government of Karnataka has actually released Rs.20,930 crores to ESCOMs from 2010-11 to 2013-14 including an amount of Rs.2,420 crores towards arrears of subsidy relating to 2009-10. Further, the Government has provided additional equity of Rs.1,778 crores (including KPTCL) during 2010-14.

The demand-supply gap

One of the reasons for the increasing quantum of power procurement on short/medium term basis at somewhat high prices is the gap between the growing demand for electricity and the relative slow increase in the availability of power from the State's own generation. The growth of supply by ESCOMs has increased from 42,337 MUs in 2009-10 to 58,495 MUs in 2013-14. It is further expected to increase to about 61,000 MUs in 2014-15. Against this, the availability of power from the State owned (KPCL) generation stations, which was 24,987 MUs in 2009-10, has increased to 27,365 MUs in 2013-14. From the Central Generating Stations, the supply of power has increased from 11,262 MUs to 12,616 MUs during the same period. Similarly the availability of power from renewable sources like cogeneration, mini hydel and wind energy has increased from 4,450 MUs to 5,878 MUs. The remaining supply from the ESCOMs has been sourced from comparatively expensive Independent Power Producers (IPPs) and through short/medium term power purchases, both from within and outside the State. Such purchases have increased from 1,638 MUs in 2009-10 to a high of 17,795 MUs in 2012-13 and again 12,607 MUs in 2013-14. Even after sourcing power from IPPs and short term sources at comparatively high cost, the State ESCOMs are not able to meet the full demand for electricity and there was a shortfall of 4.2 % against the estimated demand in FY14.

The source wise power purchased by ESCOMs since 2008-09 is as follows:

Type of Sources	FY-09		FY-10		FY-11		FY-12		FY-13		FY-14	
	MU	%										
KPCL Hydel	12679	30	12056	28	10541	22	13988	26	10023	18	12637	22
KPCL Thermal	11151	27	12679	29	10913	23	12814	24	12943	23	14451	25
CGS	9790	23	10420	24	10397	22	11228	21	11787	21	12207	21
Major IPPs	701	2	531	1	2027	4	3420	6	6113	11	6372	11
Minor IPPs (NCE)	3983	10	5181	12	5353	11	5755	11	5390	9	5878	10
Short /Medium term and other Purchases	3518	8	2423	6	8478	18	6485	12	10927	19	6235	11
Total	41821		43289		47709		53689		57183		57780	

Power Position for FY15:

The energy requirement estimated by ESCOMs was 62959 MUs for FY15. The Commission has approved power purchase of 61721MU considering the sales of 50392MU. The ESCOM wise and generation source wise energy requirement approved for FY15 are as follows:

Source of Generation	Approved Power Purchase for FY15- Figures in Million Units						
	KPCL Hydel	KPCL Thermal	CGS	NCE	IPP	Short-term & Others	TOTAL
BESCOM	3750	8091	7946	3324	5503	1943	30557
MESCOM	1315	1338	1046	875	53	299	4926
CESC	1816	1694	1578	896	1	679	6664
HESCOM	3606	2909	2592	1065	1208	280	11660
GESCOM	2520	2010	1784	680	349	572	7915
Total	13007	16042	14946	6840	7114	3773	61722

The Commission, while approving sales and power purchase for FY15, has noted that the ESCOMs have identified adequate sources of generation for procurement of 61,722 MU at reasonable rates. In terms of peak load requirement, the State has recorded a peak demand of 8761 MW in FY13 and 9223 MW in FY14 indicating a growth of about 5 %. Considering the same growth in FY15, the anticipated peak demand in FY15 would be 9700 to 9750 MW. Considering the infirm sources like wind and mini-hydro, the capacity available from other sources may not be adequate to meet the estimated peak demand during the months of December

2014 to March 2015. The Commission is of the view that any contingencies like breakdowns in large thermal power plants in summer months may also result in some peak shortage in the system during other months as there is no reserve generation capacity in the present conditions.

Against the continuously increasing demand, the ESCOMs are hoping to meet the future demand from the new thermal power projects being implemented in the State at Kudagi in Bijapur District, Yermarus and Edlapur in Raichur District and Unit-III of Bellary Thermal Power Station in Bellary District. These projects with a combined capacity of 4,600 MW capable of generating 34,000 MUs per year are likely to be commissioned between 2015 and 2018. The supply from the Central Generation Stations is also likely to increase from sources like Kudamkulum Thermal Power Station, Vallur Thermal Power Station in the near future and the proposed two new units of Kaiga Nuclear Energy Plant over a period of 5 to 7 years. It is therefore hoped that the shortage in electricity will be greatly alleviated by the year 2017-18 assuming that the demand for electricity in the State will grow at about 8 % per year.

Another constraint faced by the State in sourcing less expensive power from the other parts of the country is the non-availability of adequate inter-regional transmission facilities between the eastern / western grid and the southern regional grid. Even though the projects for augmentation of transmission lines between the southern region and the other regions are under implementation, they are not likely to be completed before 2016 giving adequate facility for the State's ESCOMs to source comparatively less expensive power from the northern and western regions utilising the excess capacity available with some generating companies.

Development of Renewables

In view of the growing demand for electricity in the State, one of the important sources that need to be harnessed is the renewable energy sources including mini hydel, wind power and solar energy. These sources are capable of being developed in the short to medium term of 1 to 5 years with investments mobilised from private entrepreneurs. At present, about 6,000 MUs or 10 % of the State's electricity supply is obtained from these sources at an average price of Rs.3.50 per unit. The estimated potential of wind energy which is more than 12,000 MW can be harnessed within a short period of 2 to 5 years and can deliver over 20,000 MUs per year to the State's grid. Similarly, generation of solar energy both through roof top PV plants and MW scale generating stations can also meet the State's energy requirement from 3 to 5 % over the next 10 years. Promotion of these sources hinges upon major policy initiatives to liberalise legal restrictions on purchase of land for wind and solar energy plants and grant of clearances for use of forest land. Besides being cost effective, the renewable sources also confer immense environmental benefit to the State.

Reduction of AT&C Losses

The increasing cost of procurement of power to meet the growing demand can be considerably moderated by a substantial reduction of the Aggregate Technical and Commercial Losses in the system. About 19 % of the electricity procured by the ESCOMs is now lost in transmission and distribution including the unauthorised use of power (theft). These losses could be reduced to less than 14 % which will result in savings of about 3,000 MUs costing about Rs.1,200 crores per year at the present level of supply. The KERC has been urging the ESCOMs to take systematic measures for reduction of losses by taking up energy auditing at the feeder and DTC level and by strengthening the distribution network to reduce technical losses. These measures call for substantial investments which can be undertaken in a phased manner. These measures will also improve the quality and reliability of supply to consumers besides making available additional quantities of energy. One of the recommendations of the Commission to convert the existing low voltage distribution network into high voltage distribution system (HVDS) has also been accepted by Government and pilot projects to implement the system are now being taken up by ESCOMs.

Supply to unelectrified households

In spite of the fact that the supply of electricity in the State has commenced over 100 years ago and in the recent years it has been growing at about 8 % per year, there are still over 12 lakh households which are without electricity supply according to the 2011 census. KERC has directed the ESCOMs to prepare detailed action plans for providing electricity supply to all the unelectrified households within a period of three years. It would be appropriate for the State Government to provide financial assistance to ESCOMs to cover part of the cost of extending the network to implement the above programme so that nearly 10 % of the State's population which is now without electricity gets access to this important facility for improving their quality of living.
