Electrical Tariffs based on Long -Run Marginal Costs For The Interconnected Northern Grid of Oman

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Abstract

The electricity tariffs in Oman are subsidized and are based on cost accounting approach and they do not reflect the true cost incurred in generating, transmitting and distributing a kilowatt-hour of electricity at the consumer end. According to economic theory of efficient pricing, the prices of commodities should be set equal to their marginal cost of production. This study presents the estimation of long-run marginal cost (LRMC) at generation, 33 kY, and 415Y voltage levels for the interconnected Northern Grid of Oman. The scope of the study is limited to find the strict LRMC and no attempt has been made to set the tariffs for different sectors. The LRMC is estimated from the value of future demand growth and necessary investment for power supply facilities. The long term demand growth (in kW and kWh) and corresponding fixed cost and variable cost of new power facilities needed were estimated. The estimated numbers are discounted to the present value. The present value divided by the cumulative kW and kWh represents approximated value of LRMC. The result shows that at the generation level the marginal capacity cost is US$ 75lkW-year and the marginal energy cost is 2.07 ¢lkWh. These costs increase as we move downstream from generation to consumer end. The average cost of electricity at the consumer end connected at 415 Y is 6.52 ¢lkWh or 25.17 BzlkWh. The study recommends the application of time of use tariff/seasonal tariff to decrease the consumption during peak hours, thus reducing the stress on the system during peak hours. For future work, it would be interesting to make adjustments in the LRMC to set the tariffs for different sectors in such a way to achieve the financial viability of the power sector and to achieve certain social objectives as well. The relation between government and private power producer's tariffs needs to be explored, examining the transactions between these two. It is also recommended that a detailed study on transmission pricing should be carried out for future unbundling of power sector and this study can serve as a preliminary guideline for such a detailed study.