

## **Demand Side Management Scenario for District Long-term Electricity Planning**

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### **Abstract**

Electricity demand growth in the long run should be satisfied by a matched available power supply. Several aspects involved in this issue include the proper projection of sectoral end-use electricity demand, appropriate assumption on key parameters, available energy resources and power energy delivered into the system. Such energy system can be represented in a long-term electricity supply-demand model. This paper presents a long-term electricity planning model using Long-range Energy Alternatives Planning System (LEAP), an accounting framework bottom-up model tool. A district area sustainable long-term electricity planning taken into account household, business, industry, and public sectors from 2013 to 2025 is modelled with emphasized on the involvement of demand side mitigation scenario to help reduce the need of energy. From the analysis, the Jember-Lumajang district electricity consumption is estimated to be around 2,310.3 Thousand MWh in 2025 with BEU scenario and it would be reduced up to 1,935.4 Thousand MWh if Demand Side Management scheme is applied. Under the SUS scenario, the electricity demand growth over the period of study is expected to be 5.63%, or 1.38% lower than that obtained in the BEU scenario.

**Keywords:** Sustainable, Demand Side Management, Electricity Planning, Efficiency.