

Lending Clarity: CEA guidelines to unify demand forecasting across states

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The Central Electricity Authority (CEA) has recently released guidelines on medium- and long-term demand forecasting, aiming to address the non-uniformity in forecasting approaches used by various states and utilities. While these guidelines offer clarity on major aspects, some issues need to be resolved for effective implementation.

Impact of implementing the CEA guidelines

As per the guidelines, at least 10 years of input data is considered appropriate to create accurate forecast models; however, increasing the number of years of data can lead to even more accurate forecasts. Policymakers and professional forecasters often face issues in accessing historical electricity consumption data from discoms. Therefore, by establishing a minimum requirement of 10 years of past data, these guidelines will assist in gaining access to the necessary electricity consumption data.

Non-uniformity in consumer categories has been observed across forecasts for different states. For example, the Punjab State Electricity Regulatory Commission (PSEERC) categorises “industries” as small, medium and large enterprises, while Andhra Pradesh Electricity Regulatory Commission and the 20th Electric Power Survey (EPS) categorise them as low tension (LT) and high tension (HT) industries. Applying consistent criteria for consumer categories will help forecasters avoid discrepancies in their forecasts.

The low demand projection in the 20th EPS “others” category is attributed to the non-inclusion of “railway traction” and “bulk supply” consumption. In addition, variations in other categories may result from differences in forecast methodologies used by the two agencies. Thus, adopting the CEA guidelines will reduce variations in forecast results from different sources.

What more needs to be done

Newly built discoms: Since the CEA guidelines recommend the use of 10 years’ input data, new discoms should be included along with their parent discoms to obtain accurate forecasts. For instance, Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL) was split into Andhra Pradesh Central Power Distribution Corporation Limited (APCPDCL) and APSPDCL in 2019. So, APCPDCL may be unable to provide data for the past 10 years. Therefore, at present, these two discoms can be considered as one entity to provide accurate forecasts. Alternatively, prorated segregation of demand (based on the number of consumers) for such discoms can help ensure precise forecasting.

Regrouping of consumer categories: The CEA has set up 11 consumer categories and suggested the “econometric method” for forecasting. Further, the gross state domestic product (GSDP)/gross domestic product (GDP) growth rate is recommended as one of the parameters under the econometric method. However, central/state economic surveys typically do not segregate the GSDP/GDP data for most consumer categories, making it unsuitable as an input variable for forecasting. Based on the availability of sector-wise GSDP data, the consumer categories can be reorganised into five main categories: domestic, commercial, industrial (which can include HT and LT industries, public waterworks, bulk supply and open access), agriculture, and others (which can include public lighting and railway traction).

Energy efficiency as a separate parameter: The CEA guidelines consider that the impact of energy efficiency is reflected in the past years' data. However, it needs to be considered as a separate entity because past data may not predict future energy efficiency improvements, especially with upcoming measures such as the Energy Conservation Building Code (ECBC) enforcement in some states and ongoing programmes such as Perform, Achieve and Trade and Unnat Jyoti by Affordable LEDs for All. Moreover, anticipating policy changes related to ECBC and other energy-saving efforts, and separately incorporating energy efficiency as a factor would enable the accuracy of future electricity demand for policymakers and forecasters.

Conclusion

The CEA guidelines are a welcome move that will aid in streamlining the demand forecasting process. Concerted efforts from both state- and national-level players will help align the requirements and develop a holistic methodology.

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