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Energy demand forecasting by means of Statistical Modelling: Assessing Benefits of Climate Information

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Energy demand forecasting is a critical task and it allows to anticipate any problems that might affect power systems operators, especially during periods with high demand peaks. The difficulties of this task are due to the complexity of the systems involved: energy usage patterns are particularly variable and influenced by many factors, such as weather conditions, social, economic and political aspects (i.e. national regulations, international relations). The strong influence of weather on electricity demand in Italy is due to the wide use of residential air-conditioning devices and, more in general, refrigeration and ventilation equipments. For this reasons, accurate climate information may help in obtaining precise energy demand forecasts, usually performed with statistical methods which show their effectiveness particularly where large amount of data is available. We present a study with the aim of assess the effects of the quality of weather data on statistical modelling performance on energy demand forecasting, using data provided by national transmission grid operator.