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Increasing Accuracy of National Load Forecast using a Nominal Meteorological Input, Temperature Index

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National electricity forecast is a vital input for day ahead market of energy sector. In forecasting phase of this aggregate demand meteorological variables provide main dynamics that explains daily trend of consumption as they shape the heating and cooling need of consumers. When we are making a nationwide prediction however, meteorological observations from different parts of country is required.

On this point, our study aims to estimate a nominal index that is generated by HDD and CDD values from different meter points, weighted by elasticity of demand towards heating cooling need of region and consumption share of region, and finally via using this index as an input, increasing the accuracy of load forecast models. For this pilot work we used Turkish electricity consumption data, and estimated the index over historical air temperature observations 8 different meter points of the country. In the final part we investigated the results we found from the load forecast model that uses our index along with other regular inputs. In measuring utilization benefit of this approach, results from regular load forecast models‘ and those we found are compared.