

STEP4—Short Term Electricity Price Forecaster

THE PROBLEM

As electricity markets become more competitive, suppliers of electricity to end customers want to be able to work the market to buy electricity at the best rates possible.

This gives rise to the requirement to predict or forecast the electricity prices in the future, thus enabling trading decisions can be made. Usually traders use complex models of the electricity market which are not as accurate as desired.

SOLUTION / OPPORTUNITY

Researchers in the Nimbus Research Centre in the CIT have developed a new algorithm, leveraging an innovative blend of machine learning and statistical techniques, with the working name of STEP4, for predicting the near-term price of electricity.

The algorithm is substantially more accurate at prediction than a Naïve approach which is commonly used as a baseline to benchmark prediction model performance.

External trials involved a comparison of the STEP4 model with the in-house models of two Irish utility companies have demonstrated that the STEP4 k-SVM-SVR algorithm is more accurate than the in-house models used by these companies for the Irish I-SEM market.

The algorithm does not require the development of a complex model of the electricity market, resulting in it being a much easier, faster and less computationally expensive model than other mathematical numerical prediction modelling approaches.

DESCRIPTION



STAGE OF DEVELOPMENT

The Nimbus research group (www.nimbus.cit.ie) in CIT have developed an advanced prototype, in the form of a web based API, which has been running since the I-SEM market went live (1st Oct 2018). The system is currently at a Technology Readiness Level (TRL) of 7.

For the available 2019 data, the **STEP4** k-SVM-SVR day-ahead model delivered accurate forecasts of the I-SEM day-ahead market.

CIT is seeking to licence to and/or partner with a utility company or energy trading company with the necessary expertise and experience to fully commercialise this technology.

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