

PREDICTION OF TIME SERIES

Stock market forecast

CONTEXT

Regenerative energy sources, de-localized and fluctuating power generation, 'smart homes', electro mobility: these are some of the issues the energy industry has to face today. Common to all challenges is the fact that, in order to manage them, many features must be understood acting together in the form of networks of dynamical systems.

Understanding the mutual relationships within these networks, concentrating on the decisive factors, are ingredients to not only meet the requirements these challenges impose on today's solutions. They also show the way for future systems can be more flexible, responsive, and cost efficient. A holistic view of the system is already mandatory and will become even more important in the future.



Markets depend on many factors – like weather, market dynamics, and changing consumer behavior – which do not conform to traditional scientific explanations.

Data-based methods provide the only real chance to conceive the structures within these systems.

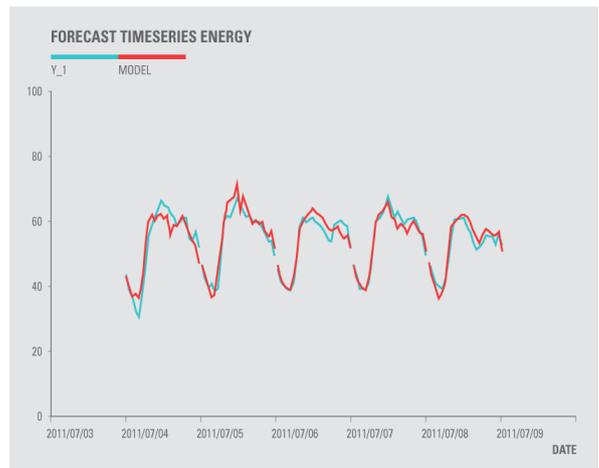
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Q-USD: QLAYM UNSUPERVISED SOLUTION DISCOVERY™ was developed by QLAYM as a technology platform to meet such challenges. The data is processed to concentrate the relevant information into a representative system tailored in size to represent all major facets of the actual dynamics. In this process, interference from outliers, faulty data points, and noise is significantly reduced.

Q-USD™ IN THE FIELD

QLAYM was given the task to forecast a specific time series. The data comprised approximately 100 series of potential input parameters provided on different time scales.

The series was forecasted with high accuracy in the short-term (see figure above), and on a long-term basis. For the long-term evaluation of the power of the model, the average of the 'mean absolute error (MAE)' was calculated.



Comparison of the original series (blue) with the forecast by QLAYM (red)