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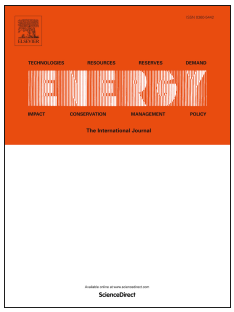

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Thermal load forecasting in district heating networks using deep learning and advanced feature selection methods

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Abstract

Recent research has seen several forecasting methods being applied for heat load forecasting of district heating networks. This paper presents two methods that gain significant improvements compared to the previous works. First, an automated way of handling non-linear dependencies in linear models is presented. In this context, the paper implements a new method for feature selection based on [1], resulting in computationally efficient models with higher accuracies. The three main models used here are linear, ridge, and lasso regression. In the second approach, a deep learning method is presented. Although computationally more intensive, the deep learning model provides higher accuracy than the linear models with automated feature selection. Finally, we compare and contrast the proposed methods with earlier work for day-ahead forecasting of heat load in two different district heating networks.

Keywords: District heating, Linear models, Regression, Deep learning, Machine learning, Day ahead forecasting

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