Energy storage temperature control dimensionality reduction

In Section 4, the results and discussions focus on several key aspects, including the effectiveness of dimensionality reduction, the comparison of MAPE before and after ...

Experimental results show that the ENN prediction model gains great fitness in the actual load curve and the storage-release time of the energy storage tank. Furthermore, ...

multi-zone thermostatically controlled loads (TCLs) by leveraging dimensionality reduction through an auto-encoder. We develop a multi-task learning fr mework to jointly represent latent ...

The result of this dimensionality reduction is reflected in the feature spaces, as shown in Figure 1 C, where cells #3 and #5 are closer in the first three feature spaces after the ...

In this study, we present a continuous Deep Deterministic Policy Gradient (DDPG)-based control algorithm applied to extended-scale cold storage environments to ...

Space heating and cooling account for up to 40% of the energy used in commercial buildings.1 Aligning this energy consumption with renewable energy generation through practical and ...

Although extensive research has been conducted in the field of building energy consumption, studies focusing on energy modeling and temperature optimization for cold ...

This paper describes an investigation of machine learning for supervisory control of active and passive thermal storage capacity in buildings. Previous studies show that ...

Capable of storing and redistributing energy, thermal energy storage (TES) shows a promising applicability in energy systems. Recently, artificial intelligence (AI) technique is ...

Such storages often are embedded in residential heating systems and control and manage-ment require the knowledge of some aggregated characteristics of that temperature distri-bution in ...

This Chapter presents a few examples of applications of dimensionality reduction for the analysis of data towards the diagnosis of energy systems. These systems ...

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An experimental platform of a temperature-controlled container with a cold energy storage system is built to obtain the experimental data for the prediction model"s construction and validation. The prediction results based on ...

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The control and management of such systems requires knowledge of aggregated characteristics of the temperature distribution in the storage. These describe the input- output behavior of the ...

Abstract--This study proposes a computationally eficient method for optimizing multi-zone thermostatically controlled loads (TCLs) by leveraging dimensionality reduction through an ...

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