**Analysis and Accurate Prediction of User’s Response Behavior in Incentive-Based Demand Response**

**Abstract:**

Incentive-based demand response can fully mobilize a variety of demand-side resources to participate in the electricity market, but the uncertainty of user response behavior greatly limits the development of demand response services. This paper ﬁrst constructed an implementation framework for incentive-based demand response and clariﬁed how load-serving entity aggregates demand-side resources to participate in the power market business. Then, the characteristics of the user’s response behavior were analyzed; it is found that the user’s response behavior is variable, and it has a strong correlation on the timeline. Based on this, a prediction method of user response behavior based on long short-term memory (LSTM)isproposedaftertheanalysisofthecharacteristicsoftheLSTMalgorithm.Theproposedprediction method was veriﬁed by simulation under the simulation environment setup by TensorFlow. The simulation results showed that, compared with the traditional linear or nonlinear regression methods, the proposed method can signiﬁcantly improve the accuracy of the prediction. At the same time, it is veriﬁed by further experiments that the proposed algorithm has good performance in various environments and has strong robustness.

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Pentium Dual Core.
* Hard Disk : 120 GB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 1 GB

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows XP/UBUNTU.
* Implementation : NS2
* NS2 Version : 2.28
* Front End : OTCL (Object Oriented Tool Command  Language)
* Tool : Cygwin (To simulate in Windows OS)