

## **Application Of System Dynamics Approach In Electricity Sector Modelling: A Review**

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### **ABSTRACT**

Electricity has become a vital source of energy for social and economic development in modern era. Likewise, the issues of its planning and management have grown complex. To address complexity in decision making, researchers have chosen system dynamics (SD) modelling and simulation technique. A state-of-art of such studies published during the period 2000–2013 is presented in this paper. The contribution of this review lies in categorizing the literature based on the important and contemporary researched areas. These research areas include models developed for policy assessment, generation capacity expansion, financial instruments, demand side management, mixing methods, and finally micro-worlds. Review shows that policy assessment and generation capacity expansion are the two most modelled topics. Financial instruments models evaluate different mechanism to support renewable technologies whereas mixing-methods channelize descriptive approach of SD into evaluating a single objective. Demand side management and micro-worlds are the least focused categories in SD. This paper also discusses the individual models in each category highlighting their construct, outcomes and any deficiencies.

**KEYWORDS:** Electricity; Modelling; System dynamics

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