

A System Dynamics Model for Assessment of Alternative Energy Policy Measures: A Case of Energy Management System as an Energy Efficiency Policy Tool

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Abstract : European Union Energy Efficiency Directive provides a set of binding energy efficiency measures to reach. Each of the member states can use either energy efficiency obligation scheme or alternative policy measures or combination of both. Latvian government has decided to divide savings among obligation scheme (65%) and alternative measures (35%). This decision might lead to significant energy tariff increase hence impact on the national economy. To assess impact of alternative policy measures focusing on energy management scheme based on ISO 50001 and ability to decrease share of obligation scheme a System Dynamics modeling was used. Simulation results show that energy efficiency goal can be met with alternative policy measure to large energy consumers in industrial, tertiary and public sectors by applying the energy tax exemption for implementers of energy management system. A delay in applying alternative policy measures plays very important role in reaching the energy efficiency goal. One year delay in implementation of this policy measure reduces cumulative energy savings from 2016 to 2017 from 5200 GWh to 3000 GWh in 2020.

Keywords : system dynamics, energy efficiency, policy measure, energy management system, obligation scheme

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020