

# ECONOMIC ANALYSIS ON ENERGY EFFICIENCY CERTIFICATE TRADING IN TEXAS

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## ABSTRACT

Energy efficiency is the key to sustainable development; thus, decoupling economic growth from unsustainable energy demand is an essential factor. Public Utility Commission of Texas (PUCT) has mandated several utility companies energy efficiency annual goals. Each utility company has the flexibility to choose their measures/programs to achieve the goals.

While some utilities had been able to meet the goals easily, the other utility companies had the struggle to meet the objectives. To achieve the state goal, it is crucial to look at energy efficiency certificate trading. It is a certificate issued by independent certifying bodies confirming the energy savings claims of market actors as a consequence of energy efficiency improvement measures. If a utility company can implement more energy efficiency programs in terms of the number of kWh with a relatively lower cost, they can sell their excess to other utility companies that have a higher price to implement their programs. This mechanism will enable the entire system, the State of Texas, to achieve energy efficiency goals at a lower cost. This system has been implemented in several European countries.

There are two types of energy efficiency goals. One parameter is based on the kW. The other parameter is based on the kWh, which is the total energy. Both of those can be based on four-tenths (0.4) percent of peak demand or 30% of growth. This simulation is also adding 5% low-income mandatory constraint and a 30% serving area constraint. These constraints will make sure each utility implement measures for low-income households and utilize their own programs to achieve at least 30% of their goal. The goal of the simulation is to minimize the cost of meeting the goal for energy reduction through energy programs by selecting the least-cost programs subject to the following constraints.

The result of this research suggested that enabling energy efficiency certificate trading minimizes the total cost for achieving the state goal. In almost all simulated cases, All utilities are financially benefited from joining the trading system because they will have less spending to achieve their own energy efficiency goal. In all cases, Adding low-income constraint increase the overall cost significantly, and it has more influence than 30% serving area constraint.

  
David B. Spence (Apr 17, 2020)

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