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# A collaborative framework for U.S. state-level energy efficiency and renewable energy governance

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ABSTRACT

Energy efficiency and renewables development has transformed state energy governance in the past decade. A new type of energy efficiency and renewable energy administration has been established for coordinating resources and networks across state and local jurisdictions, as well as with entities from the public sector, private sector, and local community. This article examines the role of these administrations and their networks for developing a state-level collaborative governance model.



## 1. Introduction

As energy efficiency and renewable energy development has become a greater priority for the states in the United States (Rabe, 2006; Carley, 2011), several state-level renewable energy and energy efficiency program administrations have emerged in the past decade to support state energy efficiency and renewable energy programs. These energy program administrations play an essential role in coordinating resources, information, and networks among actors in the public sector, private sector, and civil society. This article attempts to understand the coordinative role and functions of these energy administrations, their network across different sectors, and their influence on state-level energy efficiency and renewable energy (hereafter EERE) governance. Lessons learned from this research can assist policymakers and researchers in understanding the coordinative role of state EERE administrations, their connections among other key actors in the network, and how this collaborative network forms a more collaborative EERE governance.

The structure of this article is as follows. We first examine the historical background of these administrations and introduce the concept of collaborative governance. We then apply this concept to energy governance at the state level by identifying critical actors from different sectors and explain the governance network for EERE administrations. In the conclusion, we summarize and indicate directions for future research using this framework.

## 2. The historical background of state-level energy program administrations

The U.S. started to recognize the importance of energy conservation during the Organization of the Petroleum Exporting Countries (OPEC) oil embargo of the 1970s. In response to the economic and social impacts of sudden energy price shocks and shortages, Congress passed the National Energy Act (NEA) of 1978 and the Energy Security Act in 1980. These two national energy policies, which broadly sought to prevent another energy crisis by increasing U.S. energy security, provided a critical regulatory foundation for energy conservation and renewable energy development in the U.S. (Richardson and Nordhaus, 1995).

Among all the statutes included in the NEA, the Public Utility Regulatory Policies Act (PURPA) had the most significant consequences for energy conservation, renewable energy deployment, domestic energy sources, and small-scale energy systems. This act also began the process of deregulation in the electricity market (Munson, 2005; Sovacool, 2011).

In 1990, the outbreak of Persian Gulf War and subsequent Iraqi oil embargo led to another significant U.S. energy crisis. With a 10% decrease in oil imports to the country, the price of petroleum products rose significantly for U.S. customers (Munson, 2005). Congress reacted by passing the Energy Policy Act (EPACT) in 1992,

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which sought to improve energy security by reducing the nation's dependency on foreign oil. This act fundamentally transformed the U.S. wholesale electricity market to an open market to increase market efficiency and renewable energy deployment (Munson, 2005; Ardoin and Grady, 2006). This act was also the first federal-level energy policy to promote energy efficiency through utility integrated resource planning (IRP), which requires utilities to plan their future operations based on an assessment of social benefits and costs (Eto et al., 1996a,b).

The EPACT of 1992 and the 1996 Federal Energy Regulatory Commission (FERC) Order 888 triggered the restructuring of the electricity market (Ardoin and Grady, 2006). These two pieces of legislation opened the wholesale market to other non-utility electricity suppliers (Prause et al., 2007). In addition to increasing competition in the electricity market, restructuring had economic impacts for state energy-efficiency programs. Before restructuring, the EPACT allowed state energy regulators to command the vertically integrated investor-owned utilities (IOUs) to include energy efficiency program costs in their electricity rates (Nadel and Kushler, 2000). During restructuring, increasing competition in the electricity service market caused utilities to decrease spending on their energy efficiency programs (Blumstein et al., 2005). The IOUs were concerned that including energy efficiency program costs in rates would decrease their competitive advantage—customers might avoid the price increase by switching to competitors, which was possible in a restructured market.

The economic impact on energy efficiency programs inspired a new rationale termed "market transformation" for many state regulators to plan and manage long-term state EERE programs (Blumstein et al., 2000). This market transformation rationale focused on supporting existing energy policy objectives in a broad policy umbrella. This rationale attempted to make long-term changes by reducing market barriers for energy efficiency and renewable technology to permanently transform state energy markets. States started to recognize the importance of financial mechanisms that can sustain state EERE development regardless of restructuring. To achieve this goal, several states established public benefit funds (PBFs) as part of their restructuring legislation or other regulations to serve as an innovative funding mechanism for supporting state EERE program development. These PBFs secure their funding through a "non-bypassable" charge or "system benefit charge" on customer utility bills (Blumstein et al., 2005; Nadel and Kushler, 2000). The transition to the market transformation rationale and creation of PBFs allowed states to experiment with a more diverse and flexible administrative arrangement.

Several independent administrations were established and assigned to manage state public benefit funds and EERE programs. These administrations are single-purpose organizations that focus on assisting the delivery, development, and implementation of state EERE programs (Blumstein et al., 2005). The establishment of state-level EERE program administrations (Fig. 1) influences the institutional network and arrangement for state-level energy governance. This new institutional network and arrangement allows key actors to collaborate with each other for state EERE policy and planning.

## 3. Collaborative governance

In the field of public administration, the discourse surrounding governance has traditionally centered on the role of the public sector (government) in addressing public issues (Vigoda, 2002; Sarzynski, 2015). However, the complex and interdependent essence of public issues has extended the inquiry beyond the boundaries of the public sector and incorporated other sectors, such as businesses and local communities. Scholars have examined how the linkages among the actors that compose this organizational network affect the governance of public or societal issues (Vigoda, 2002; Lemos and Agrawal, 2006; Sarzynski, 2015)

The theme of collaborative governance has also diffused to other fields, such as environmental policy, climate change adaptation, and natural resources management (Imperial, 2005; Lemos and Agrawal, 2006; Sarzynski, 2015). This research shares a common recognition that each actor in the social and organizational network participates in public issues and has a different and unique role to play (Vigoda, 2002; Jung et al., 2009). This cross-sectoral network encourages society to form a structurally interdependent collaboration through communication, knowledge sharing, and the exchanging of resources (O'Toole, 1997). Collaborative governance emphasizes the collaboration of organizational entities across sectors. This inquiry provides a new definition of governance as the process of planning, facilitating, implementing, and monitoring cross-sectoral organizational arrangements for addressing public policy problems.

A critical challenge for collaborative governance research is identifying the key actors in fragmented social settings and

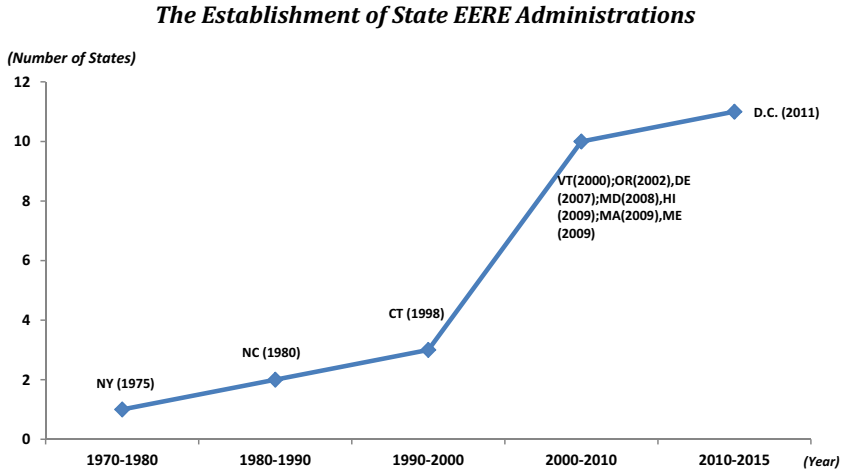


**Fig. 1.** The establishment of state EERE program administration in the U.S.