

Electricity Market Restructuring: Challenges and Solutions

Luther M. Dow P.E.

EPRI

Palo Alto, California, U.S.A.

World wide, the electricity sector is on the verge of transformation to a future state. In this future state the sector will be characterized by reliability, affordability, stability, and environmental consciousness; overall, supporting the economic goals of all classes of customers. This transformation is being driven by socioeconomic changes, political influences, and technological developments. Crucial to the transformation of the sector is the development of effective and efficient markets; the restructuring of the classic regulated models. The restructuring of electricity markets is likely the most highly complex and economically challenging effort any nation or region can undertake.

The challenges inherent in electricity market restructuring are derived from the complexity and reliability demands that must be met while forging new markets. Examples of catastrophic failures from electricity marketing restructuring efforts typify the impacts that market design shortfalls may have on the economic prosperity and the vitality of the region served. Out of these examples the need for an alternative pathway to the future can be identified; the successes and failures of others serve as guideposts for market restructuring efforts in the future.

EPRI research into global restructuring efforts led to identification of a “Third Way” to restructure electricity markets, an approach that relies on an evolutionary process rather than an event. This approach enables the region to manage the market evolution to meet future demands and maximize risk control through market design research. It leverages on international collaboration to ensure knowledge from past experiences in global markets is used to develop each restructuring process effort, and market simulation to thoroughly test each design. The combined leverage of global collaboration and market simulation is the key to successful electricity market restructuring.