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# DEREGULATION OF THE ELECTRIC UTILITY INDUSTRY – IMPLICATIONS FOR NUCLEAR POWER

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## Abstract

The deregulation movement sweeping the international electric utility community represents a dramatic shift from the traditional business model of utilities. This paper will focus on deregulation in the United States and the new challenges for nuclear power plant operators. An overview of the new operating models being implemented in the US will lead into a discussion on new economic and operating concerns for nuclear power plant operators.

## Discussion

All electric utility systems consist of three main components: Generation, the production of kilowatts; Transmission, high-voltage transportation of the power; and Distribution, delivery of the power to customer facilities. The traditional United States utility company was vertically integrated, or composed of all three components. Since the customers living in the utility's service area had no choice but to receive service from the local utility, electric rates were determined through a formal "Rate Case" proceeding and approved by a Public Utility Commission or similar organization charged with balancing the interests of the utility with the interests of the general public. Utility companies were almost always guaranteed an acceptable rate of return on any capital investments made for purpose of serving customers, even when this led to the construction of excess capacity.

The past 25 years have seen the passage of several key regulations that have set the stage for the current changes in the electric utility market. These regulations include the Public Utility Regulatory Policy Act of 1978 (PURPA), the Energy Policy Act of 1992 (EPAct), and FERC Orders 888 & 889 in 1996. Additionally, 24 out of 50 states have either passed or considered legislation to create a competitive retail market.

One issue of particular concern to utility companies is stranded cost recovery. Since many utility companies made large capital invests (such as nuclear power plants) under the traditional market model of guaranteed capital recovery, the switch to a competitive market leaves utility companies with large "stranded" costs that may not be recovered in a purely competitive marketplace. Each state is determining the appropriate method to compensate traditional utility companies through the use of a Competitive Transition Charge.

As one of the first states to enact complete deregulation of the electric utility generation market, California is often looked at as a sample case of deregulation implementation. Although it is one of the largest states in the U.S., only 3 large investor-owned utility (IOU) companies serve most Californians. The California market was officially opened to competition on April 1, 1998 and consists of several key new features.

A new corporation, the Independent System Operator (ISO), now operates the entire electrical grid in the state of California. The ISO is the responsible organization for insuring grid reliability and availability. To this end, the ISO runs competitive markets for Ancillary Services and Real Time Energy while maintaining contracts with key generators throughout the state. All generation from the 3 large IOUs must pass through a new non-profit market house, the Power Exchange (PX). The PX runs Day-ahead, Day-of and Forward markets to determine a market clearing price for each hour based purely on supply and demand. To encourage competition, the 3 IOUs in California were instructed to divest a percentage of generation capacity.

The changes implemented in the California market have created several new players in the state. Deregulated affiliates of regulated utilities have purchased generation capacity in the state and operate through the PX, bilateral contracts, or alternative marketplaces. Companies formerly discouraged by the difficulties in building new generation in California are now considering building new generation capacity to take advantage of what can be high market clearing prices. Another type of company finding a niche in this market are power marketers, companies that buy and sell power to end-use customers with the intention of providing a value-added service to the customer while making a profit on the margin between purchase and selling price.

These market changes force the Nuclear Power Plant owner to review all current operating assumptions to assess the potential for success in the new market. We have already seen consolidation among nuclear power plant owners looking to achieve economies of scale. Existing operators face new challenges in meeting regulatory requirements created for a vertically integrated environment. Finally, any proposed new construction in the U.S. market must meet an even stricter set of financial targets.