

Electric Choice Question 7: *What has been the experience of other states in terms of meeting capacity needs under various market regimes (i.e. fully regulated, partially restructured, and restructured)?*

Executive Summary

Restructured (deregulated) markets are not well-suited to sufficiently provide for generation capacity needs, a cornerstone of reliability. Economic theory and experiences in deregulated states support this.

- Regulated models support a long-term investment planning process that ensures capacity is available for future reliability at reasonable cost-of-service and that the overall generation portfolio provides for fuel diversity and other needs such as environmental protection
- Reliability is a public good. Economic theory supports the value of reasonable regulation to ensure optimal supply of public goods
- Texas, a deregulated state, is facing reliability issues as the deregulated ERCOT model has not effectively supported new generation investment to meet capacity needs
- New Jersey and Maryland, deregulated states, have required state-sponsored contracts for new generation to address reliability concerns, as the deregulated PJM model has not incented sufficient new generation investment
- The full extent of the challenges of meeting capacity needs under deregulation has not yet been experienced. The country has had an oversupply of generation and reductions in load due to recession. These conditions have masked the difficulty of building new generation under a deregulated model. This challenge will become more apparent as we try to invest in new generation in the future

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- **Regulated models support a long-term investment planning process that ensures capacity is available for future reliability at reasonable cost-of-service and that the overall generation portfolio provides for fuel diversity and other needs such as environmental protection.**

Fully regulated markets meet capacity needs through Integrated Resource Plans (IRPs), which match investment planning with future electric demand so that capacity is built to ensure future reliability. Integrated resource planning also supports a diverse generation portfolio that allows for different fuel mixes and environmental protection. Regulated utilities can plan for an entire portfolio of generation to best meet customers' needs, as opposed to making plant by plant decisions. A regulated certificate of need process evaluates individual investment proposals to ensure they support the IRP plan in the most cost-effective way.

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- **Reliability is a public good. Economic theory supports the value of reasonable regulation to ensure optimal supply of public goods.**

Electricity is fundamentally different from most other industries and products and its unique characteristics require the electric system to have a margin of safety to ensure reliability. The reliability of the electric system is a public good that benefits everyone by supporting a strong and stable economy, protecting health and safety, and providing other intangible benefits.

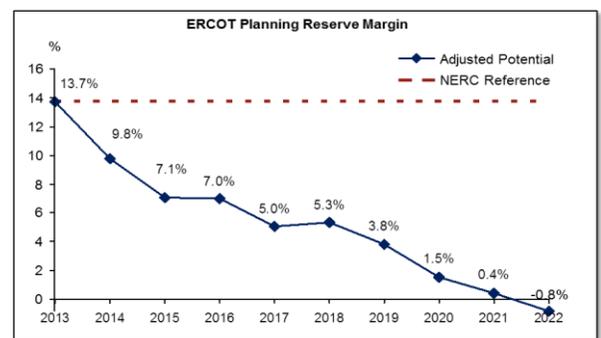
Public goods tend to be under-produced and under-invested in under free market conditions, producing market inefficiency. Economic theory supports government regulation to ensure sufficient production of a public good such as electric reliability. Without sufficient investment in reliability, we risk facing brown- or black-outs, with potentially drastic societal and personal consequences.

(See Overall Question 1 – Making Good Energy Decisions response for detail on why reliability is a public good and best provided for through reasonable regulation)

- **Texas, a deregulated state, is facing future reliability issues as their deregulated model has not supported new generation investment to meet capacity needs.**

“Starting as early as next year, the Electric Reliability Council of Texas (ERCOT) Planning Reserve Margin is anticipated to be 13.4 percent, which is below the NERC Reference Margin Level and ERCOT planning target of 13.75 percent. At these levels, the risk of insufficient generation resources to meet peak demand increases beyond reliability targets.”

Source: NERC, “2012 Long-Term Reliability Assessment”, November 2012



In response to the declining reserve margin forecasts, the Public Utility Commission of Texas “designated the resource adequacy issue as the Commission’s top priority.”

Source: Public Utility Commission of Texas, Report to the 83rd Texas Legislature “Scope of Competition in Electric Markets in Texas,” January 2013

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Lack of cost recovery assurance in a deregulated model limits deregulated players' willingness to invest with a long-term view.

“Because the wholesale market conditions in ERCOT have not been favorable due to the fleet makeup and low electric prices, investment appears to have stalled. This lack of investment threatens resource adequacy in the near future”

Source: *The Brattle Group, “ERCOT Investment Incentives and Resource Adequacy” June 2012*

ERCOT has lifted price caps to \$9,000/MWh by 2015 to try to incentivize the building of new plants (compare to the \$20-30/MWh ERCOT price range in February 2013). ERCOT is also evaluating other options, such as a centralized forward capacity market similar to the one in PJM. Forward capacity markets have also been ineffective in incentivizing new generation capacity, as will be discussed below.

- **Maryland and New Jersey, deregulated states, have been forced to intervene to meet capacity needs.**

In recent years, both New Jersey and Maryland became concerned that the PJM energy and forward capacity market had not incented a sufficient amount of generation investment for future reliability. After performing their own studies, both states implemented regulated mechanisms to guarantee a return on investment for new generation needed to meet reliability standards.

	State Reliability Concerns	Intervention
New Jersey	<i>“New Jersey is experiencing an electric power capacity deficit and high power prices that may result in the loss of jobs and investment... Construction of new, efficient generation must be fostered by State policy” - 2011</i>	NJ legislature required regulated T&D utilities to enter long-term contracts for 1,950 MW of new gas generation that guarantee a capacity price even if above PJM capacity auction clearing price

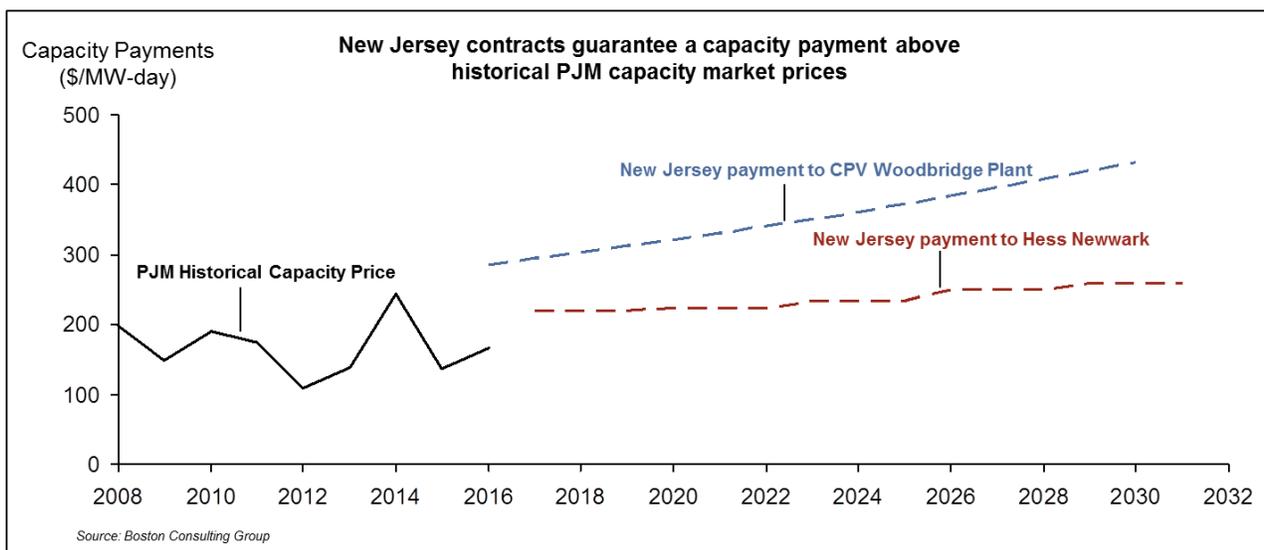
Maryland	<i>“We cannot rely on PJM’s Reliability Pricing Model to deliver new generation to Maryland...Maryland has not seen any significant new generation constructed here since 2003” - 2012</i>	MD regulators required regulated T&D utilities to enter a contract for 650 MW of new gas generation that guarantees a capacity price even if above PJM capacity auction clearing price

Source: State filings, State Commissions, Press Releases

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The PJM capacity market was designed to “create long-term price signals to attract needed investments in reliability in the PJM region” – PJM.com. The prices of the PJM capacity market have not remained high enough from year to year to incent the desired new generation and the auction only goes out three years, which does not provide investors with enough assurance of recovery to build a power plant with a 30+ year life.

The contracts entered into by New Jersey to allow investment in new generation are above historical market prices realized in the PJM forward capacity market.



The Brattle Group, in an evaluation of capacity market designs, commented that:

“To achieve efficient price signals in any of the discussed market designs—including designs with capacity payments, reserve requirements, and centralized capacity markets—a regulatory solution generally is needed... to set proper prices during scarcity periods”

Source: *The Brattle Group: “A Comparison of PJM’s RPM with Alternative Energy and Capacity Market Designs” September 2009*

States having to intervene with specific contracts, as seen in New Jersey and Maryland, reflect extreme regulation far beyond traditional reasonable regulation. California had to intervene with largely out-of-market power purchase agreements following the California Energy Crisis to ensure generation – and customers are still paying for those expensive contracts. These extreme regulatory solutions became necessary because of the market failures of deregulation to provide for reliability.

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- **The full extent of the challenges of meeting capacity needs under deregulation has not yet been experienced.**

Beyond the experiences of Texas, New Jersey, and Maryland, the challenges of a deregulated model in meeting capacity needs have not yet been fully experienced in the U.S. for two key reasons.

First, during the early years of deregulation, “merchant” (unregulated) generators overbuilt new capacity based on high demand expectations. The many bankruptcies that resulted from this overbuild are a good indicator that the “merchant” industry and those who finance it are unlikely to repeat the same mistake. In addition, it would be very risky to rely on deregulated generators once again overbuilding to guarantee reliability.

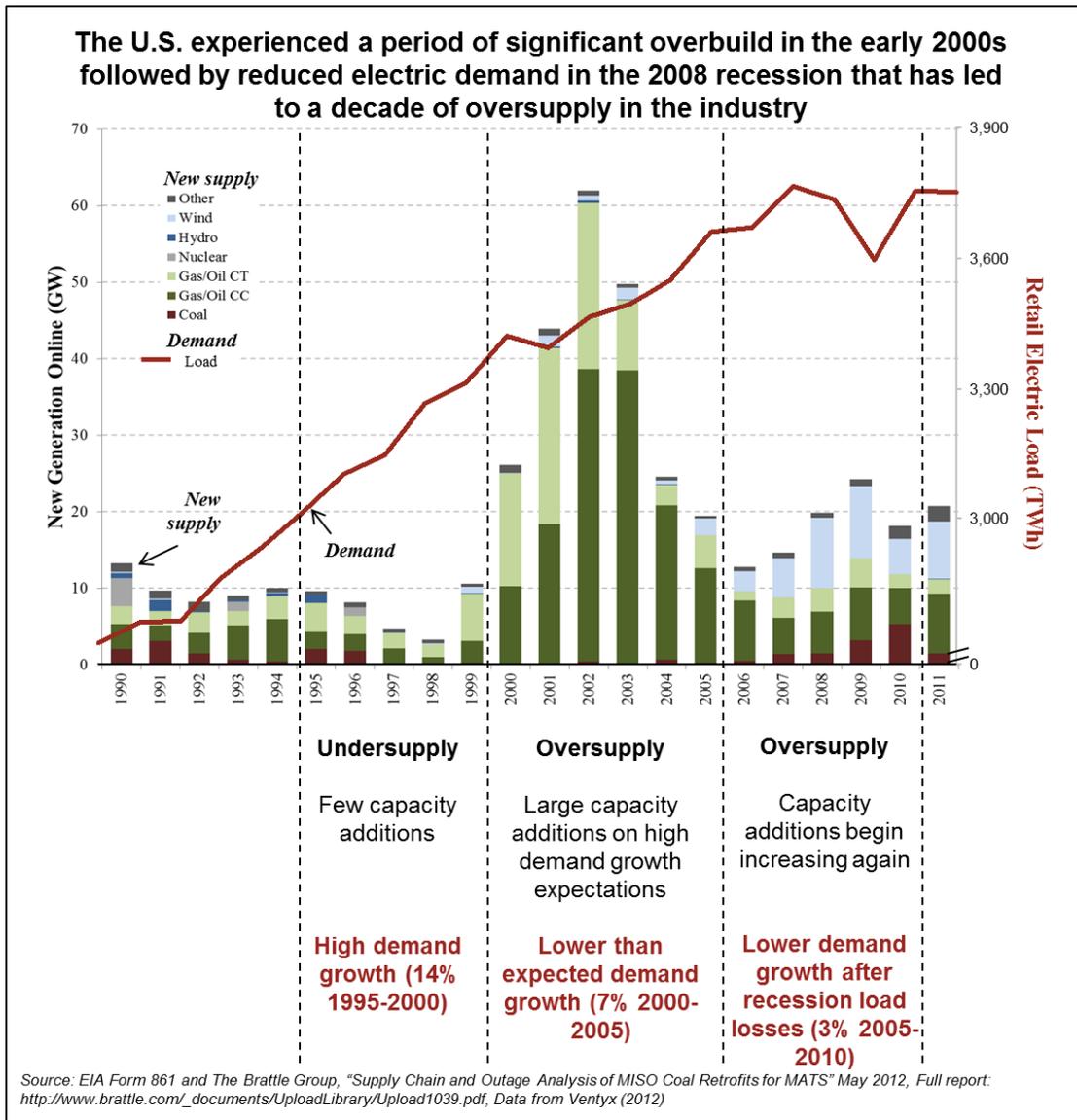
“During the expansion of the late 1990s, electricity demand grew at an increased rate and merchant generators constructed plants to meet the demand, often with the expectation that aging and polluting coal plants would be shut down. The result of this enthusiasm was an over-supply of capacity and lower margins. In addition, as the natural gas price increased, utilities became hesitant to shut down their coal plants due to lower prices for coal and therefore higher margins”

*Source: Stern School of Business, “An Examination of Distress in the Electric Power Industry” April 2005, Report:
http://www.stern.nyu.edu/cons/groups/content/documents/webasset/uat_024330.pdf*

The large investment cycle in the early 2000s, coupled with lower than expected demand growth, resulted in an oversupply of capacity.

Second, this oversupply in the industry continued across the decade as the lower than expected demand growth in the early 2000s was followed by even lower demand growth due to the 2008 recession. Further, demand growth since then has been sluggish as the economy is just returning to pre-recession levels. As a result of this oversupply, large amounts of new investment have not been required.

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Because the United States has had an oversupply of capacity in the last decade, there has not been a need for significant investment in new generation

This lack of need for new generation has masked the difficulties of investing for reliability in a deregulated market

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The overbuild of the early 2000s, prior to the full implementation of deregulation, was not supported by high enough demand and power prices following the full implementation of deregulation. Lower demand and power prices following the 2008 recession further financially distressed merchant generators.

Many large merchant power bankruptcies followed the overbuild of the early 2000s



Additional bankruptcies followed as commodity cycles resulted in lower power prices and additional load was lost in the recession



Source: Company filings; Stern School of Business, "An Examination of Distress in the Electric Power Industry" April 2005

Financial distress has made "merchant" generators— who invest for profit— more wary of investing regardless of reliability concerns

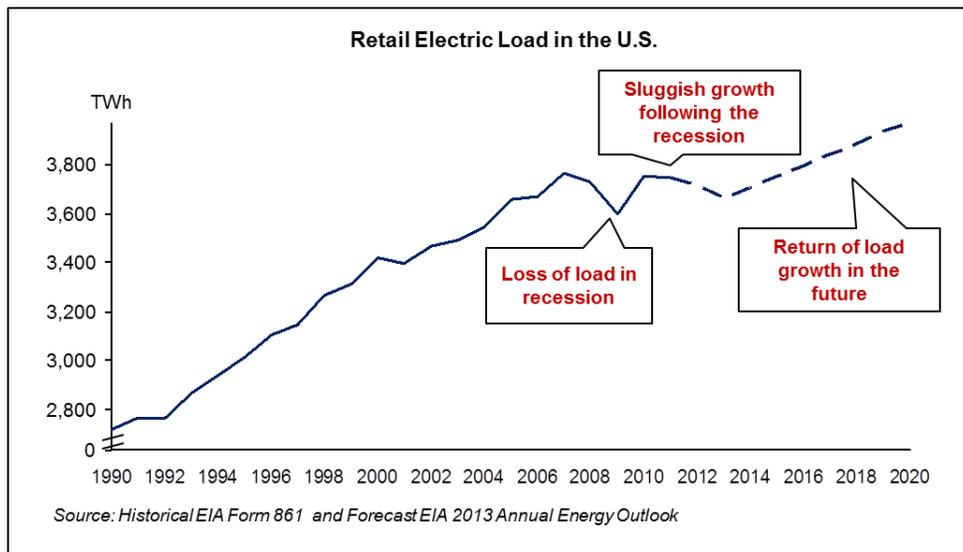
Today, because of these financial challenges, merchant generators require more assurance of recovery of investment before they will build. Merchant generators invest with a profit motive without the requirement to ensure reliability – so the deregulated model places reliability at risk in periods of low power prices. This has already been seen in Texas as described above. Bankrupt companies and financially distressed companies are not able to invest.

"Because the wholesale market conditions in ERCOT have not been favorable due to the fleet makeup and low electric prices, investment appears to have stalled. This lack of investment threatens resource adequacy in the near future"

Source: The Brattle Group, "ERCOT Investment Incentives and Resource Adequacy" June 2012

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The challenges of investing for reliability in a deregulated market will become more apparent – as in Texas, New Jersey, and Maryland – as we try to invest in new generation in the future given retirements of aging coal plants, a transition toward new and cleaner generation plants, and the return of load growth.



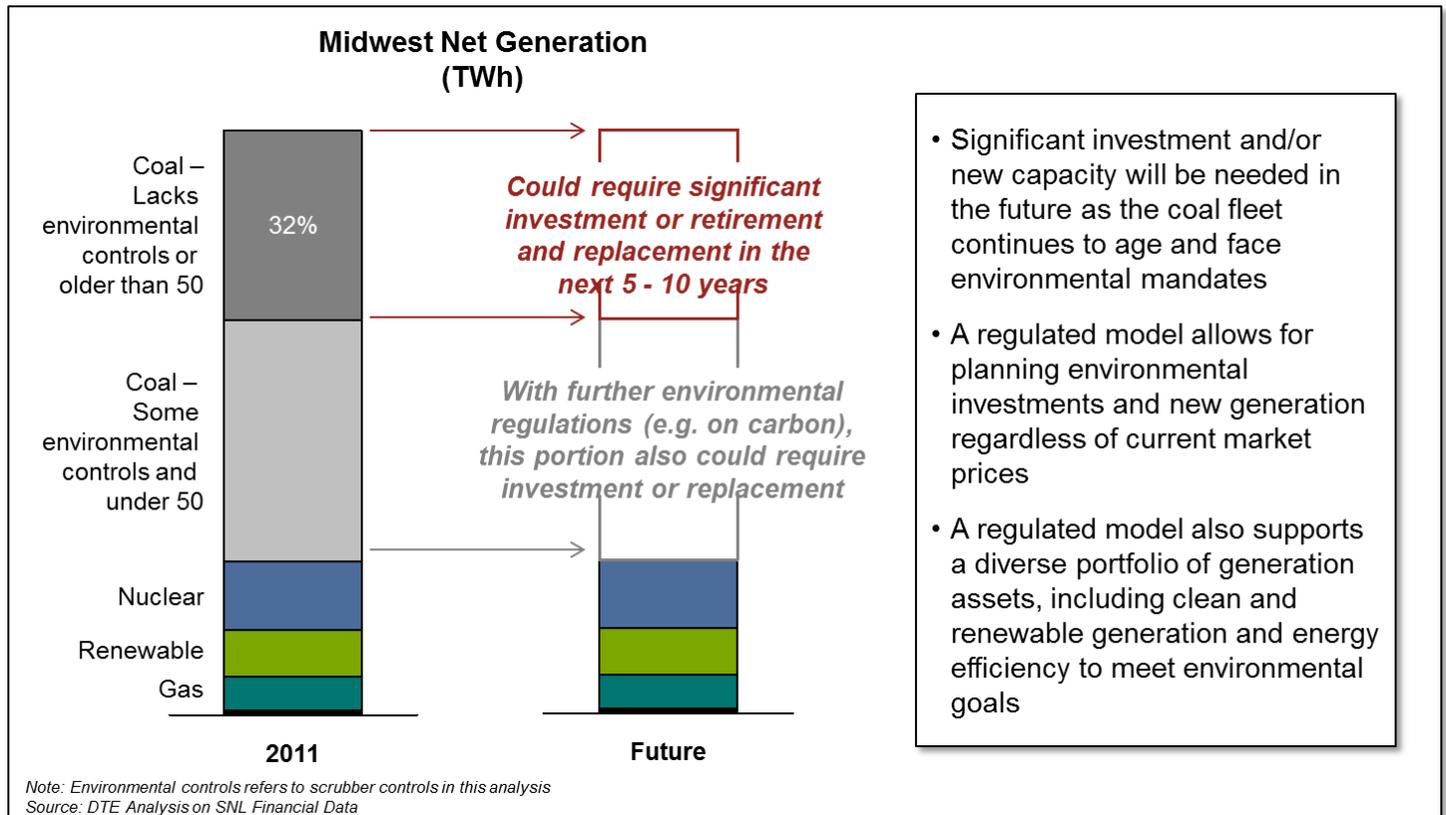
AEP CEO and President, Nicholas Akins, recently expressed that the current surplus of capacity seen in most regions may be a situation that changes quickly in the future:

“In a recent interview with IHS The Energy Daily, Akins was surprisingly blunt in suggesting that Texas might not be the only deregulated electricity market to be in danger of sudden and uncomfortable price spikes in the years ahead. He noted that AEP and other utilities currently are closing older power plants because of tougher clean air requirements, reduced power demand caused by the recent recession and low electricity prices, largely stemming from cheap natural gas, a key power plant fuel. But Akins says that while many regions currently have surplus generating capacity, that situation could change in a hurry if the economy starts to grow more robustly, which he suggests could quickly squeeze power reserve margins”

Source: IHS The Energy Daily, “AEP chief: Longer-term capacity markets would aid power supplies” February 2013

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In the MISO market, although there is currently a surplus of capacity, significant new generation or environmental control investment could be needed in the future to replace the current fleet with a diverse fuel mix of generation. This includes investment needs in Michigan, where most utilities are MISO members.



It is essential that the Michigan regulatory model ensures that generators can invest for long-term reliability and environmentally responsible generation.