

## Western Market Infrastructure Assessment

Over the past two years, California and the western states have experienced a series of severe market disruptions triggered, in large part, by dysfunctional market rules, lack of adequate operating reserves, growing demand and inadequate infrastructure. While in the short term, demand has been suppressed, supply has been adequate, and energy prices have stabilized, it is unlikely that these conditions will last. To ensure long-term adequacy, sufficient generation, transmission, and gas pipelines must be planned, designed, built and available to meet growing load requirements.

This study examines the interdependence of the western state's energy needs, market indicators, and the change in infrastructure since market mitigation went into effect. The study focuses on the following current and projected market conditions:

- Electric demand and supply
- Electric transmission
- Natural gas demand and supply
- Natural gas transmission, and
- Creditworthiness of the companies providing service in the western markets.

The study finds that overall, the energy infrastructure in the West is insufficient relative to projected energy demand, and that additional infrastructure expansions are needed to support a competitive market.

The attached study shows that California's reserve margins remain low (approximately 10%) and that the state continues to rely heavily on electric imports to meet demand, up to 20% during the past five years. Concurrently, the southwestern states are witnessing above average population and economic growth which may limit available exports to California. Imports and exports of electricity between regions are limited by a constrained transmission system. While demand reduction and conservation programs helped reduce peak electric demand by 10% -15% in California in 2001, conservation and participation in demand response programs are declining in California and have less impact in other western states. Hydropower represents between 20 and 60 percent of the generation capacity in California and the Northwest, making these regions subject to periodic drought-related generation deficits.

Natural gas demand in the near-term is expected to flatten and then increase as industrial output returns to normal and population grows. The study finds a heavy dependence on natural gas to fuel the new electric generation fleet being developed across the West. While new interstate pipelines are being expanded and built to serve this additional load, it is not clear that the pipeline system and traditional areas of gas supply will be able to

meet growing gas demand. The timing of the region's economic recovery will be pivotal in determining the adequacy of the infrastructure to satisfy the corresponding increase in electric and natural gas demand.

The recent financial downgrades and difficulties of energy companies pose another threat to infrastructure adequacy. Many companies within both the electric and natural gas industry have seen their credit ratings downgraded, while others are on the verge of, or currently in bankruptcy. Credit downgrades have jeopardized power sale agreements, deliveries of power and natural gas, and the development of electric generation. In turn, liquidity in these markets has shrunk and additional collateral is required to complete business transactions. Investor confidence, financial stability, low credit risk, and favorable financing serve as the foundation for additional infrastructure investment.

Lack of infrastructure is a long term problem that requires coordinated and thoughtful regional solutions. Without coordinated effort among western states, energy markets will remain dysfunctional and be exposed to low reliability and volatile prices.

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## **Recommendations for Western States to Improve Energy Infrastructure and Markets**

- Promote time-of-day electric rate structures that encourage price sensitive electric users to conserve.
- Work aggressively with load-serving entities and government agencies to expand demand response programs, conservation, and efficiency programs to reduce peak loads. Encourage demand response participation in bulk power markets
- Establish a regional planning entity that would coordinate electric and gas infrastructure with supply needs. This entity would identify preferred energy transmission corridors and generation sites.
- Facilitate "one-stop" shopping for the permitting of energy projects and expedite the processing at the state and local level.
- Encourage generation diversity to reduce dependence on gas and hydro.
- Establish interstate compacts to identify long-term availability of energy resources for import/export.
- Support the construction of new generation where needed, particularly in urban areas to stabilize the grid and reduce transmission congestion.
- Promote the use of distributed generation and establish interconnection agreements so these additional resources can easily come on-line in areas suffering from transmission congestion.
- Offer incentives for locating natural gas storage facilities (both LNG and underground storage) in operationally desirable locations.
- Support RTO participation for consistent, non-discriminatory grid management.
- Establish and enforce maintenance and reliability standards for electric transmission and distribution.
- Expedite construction of new transmission in historically congested areas.
- Work together to plan and site needed bulk electric transmission.