

March 6, 2008

# How Does Peak Energy Demand Affect U.S. Utility Credit Concerns?

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# How Does Peak Energy Demand Affect U.S. Utility Credit Concerns?

As electricity demand rises and reserve margins continue to decrease throughout the U.S., the reliability of power supply will be an area of concern over the next 10 years. The "2007 Long-Term Reliability Assessment" study, published by the North American Electric Reliability Corporation in October 2007, cites that demand for electricity will rise at about twice the rate (17%) of committed planned generation investment (8.4%).

Ensuring a reliable and continuous power supply is likely to become harder to achieve as growing demand outpaces resource planning and squeezes reserve margins (the amount of unused available capability as a percentage of total capability during the peak demand), which could result in shortages and rolling blackouts. Credit quality for electric utilities is very vulnerable to future declines in reliability, which would likely trigger an acute response from regulators in the form of lower returns on equity or denial of incurred costs. The need for investment in new capacity will burden utilities' balance sheets and cash flow-generating abilities and pressure credit metrics over this time.

In Standard & Poor's Ratings Services opinion, the question of how low reserve margins can drop before they trigger credit concerns remains unclear. Reserve margins are a function of resource planning; a process that has become difficult due to a number of factors. First, the electric power industry has taken to a shorter-term approach to resource planning. Second, it's difficult to coordinate with those firms that plan supporting infrastructure projects. Third, initiatives by legislators and regulators to reduce greenhouse gases complicate issues by requiring utilities to implement cleaner technology, employ alternatives for baseload power generation (gas-fired and nuclear), and include renewable energy resources into the future generation mix.

## Shorter-Term Planning Has Benefits But Raises Questions

The construction timeline for generation in the U.S. has shortened, particularly for natural gas-fired power plants, mostly due to technology advances. This has provided benefits to credit quality for these projects since a nearer-term focus creates more clarity about potential revenues, interest from investors, and regulatory treatment. However, this approach relies on undeveloped and uncommitted projects to meet forecasted demand, as the shorter construction schedules give planners some comfort that projects will be available. It also creates potential disconnects in the timing of needed infrastructure projects (lines and pipes) that provide fuel and connections to the grid.

## Infrastructure Support Is Critical

The availability of transmission lines and fuel sources is critical for planning adequate generation resources. However, project timelines for completion don't necessarily sync with generation projects. The timing differential could lead to reliability issues because even though power generation may be in place, the ability to access fuel supply or connect to the grid may not be. The siting process can be more difficult for transmission lines especially if new paths of service are involved. And heavily populated areas are invariably more costly because of local opposition, environmental issues, more complicated negotiations with legislators and regulators, and the legal battles that tend to accompany these concerns. In some cases, these obstacles can cause cost overruns from delays and possibly lead to termination of a project.

Currently, natural gas provides about 20% of power generation in the U.S. and given the focus on green energy, that's expected to increase because natural gas produces fewer emissions than coal-fired base plants produce. System reliability will therefore depend more on procuring sufficient supply, avoiding supply interruptions, and mitigating the volatility of natural gas prices. An increase in demand for natural gas will require additional storage, more pipeline capacity, alternate pipeline routes, improved coordination with pipeline operators, and development of new supply.

Building the infrastructure to transport natural gas has been slow. New producing basins in the Barnett Shale and Rockies gas fields aren't close to traditional pipeline connections, thus spurring the need for new capital to build new pipes. The massive Rockies Express Pipeline project to bring gas from the West to the East is close to completion for Phase 1. Better access for Rockies producers to this new interstate system should aid natural gas supply, but probably won't be enough. And with a moratorium on drilling in certain reserve pockets, liquefied natural gas will become a substitute, once storage projects, which in general are off schedule, are completed.

## **Concerns About Greenhouse Gas Emissions Complicates Matters**

The need to reduce the discharge of carbon dioxide into the air because of global warming concerns present significant challenges to resource planning and maintaining adequate reserve margins. Alternatives to coal-fired baseload plants include natural gas, nuclear fuel, wind, and solar power, all of which emit little to no CO<sub>2</sub> and can serve baseload needs. However, deficiencies in the current gas infrastructure and siting, licensing, technology, and spent fuel issues for nuclear plants create as many problems as they solve for the planning process. Furthermore, the use of wind and solar power doesn't exactly relieve reliability concerns since they depend upon certain weather conditions, and their lower capacity factors may even create a need for higher reserve margins.

Furthermore, the need to reduce carbon emissions will likely have a significant effect on credit, particularly on utilities with large coal-fired generation portfolios. Three items that will have the biggest credit impact are integrated resource plans that reduce or eliminate the building of new coal-fired power plants; the need for carbon sequestration on existing coal power plants to meet newer, more exacting standards; and research and development for cleaner coal technologies. All are potentially large ticket items that electric utilities might have to confront. Funding for greenhouse gas emission reduction will hurt coal-plant operators' credit quality. Preserving credit quality may be possible from carefully structured initiatives, such as a cap-and-trade mechanism, incentive returns, or a wires surcharge. A rider on customer bills for CO<sub>2</sub> costs similar to monthly or quarterly fuel true-ups would also benefit cash flow and credit.

In conclusion, many questions still remain as to what level electricity demand, infrastructure needs, and global warming concerns can reduce reserve margins in the power industry to trigger concerns about the utilities' credit quality.

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