

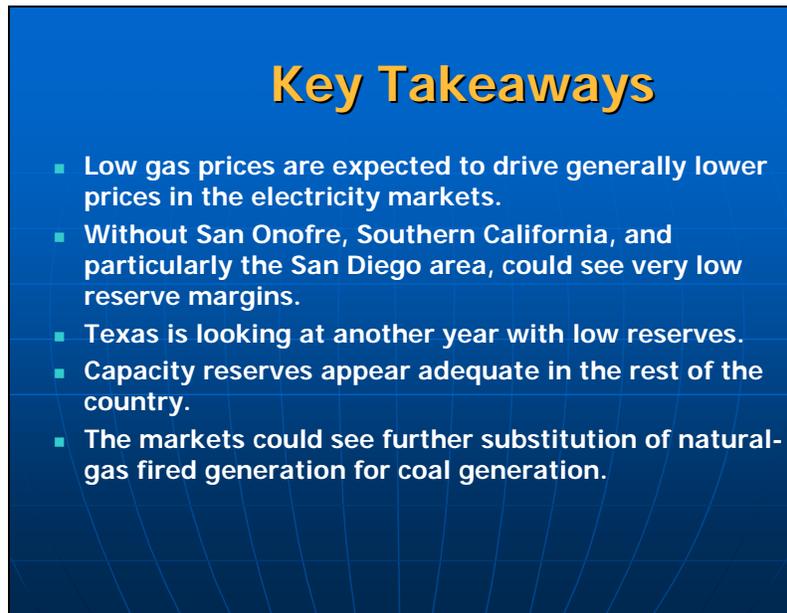
Slide 1



**Summer 2012  
Energy Market and  
Reliability Assessment**

Item No: A-3  
May 17, 2012

Mr. Chairman, Commissioners, good morning. We are pleased to present the Summer 2012 Energy Market and Reliability Assessment, which is a joint effort of the Office of Enforcement and the Office of Electric Reliability.

A blue rectangular slide with a grid pattern and a globe graphic in the background. The title 'Key Takeaways' is centered at the top in a bold, orange font. Below the title is a list of five bullet points in white text, each preceded by a small orange square.

## Key Takeaways

- Low gas prices are expected to drive generally lower prices in the electricity markets.
- Without San Onofre, Southern California, and particularly the San Diego area, could see very low reserve margins.
- Texas is looking at another year with low reserves.
- Capacity reserves appear adequate in the rest of the country.
- The markets could see further substitution of natural-gas fired generation for coal generation.

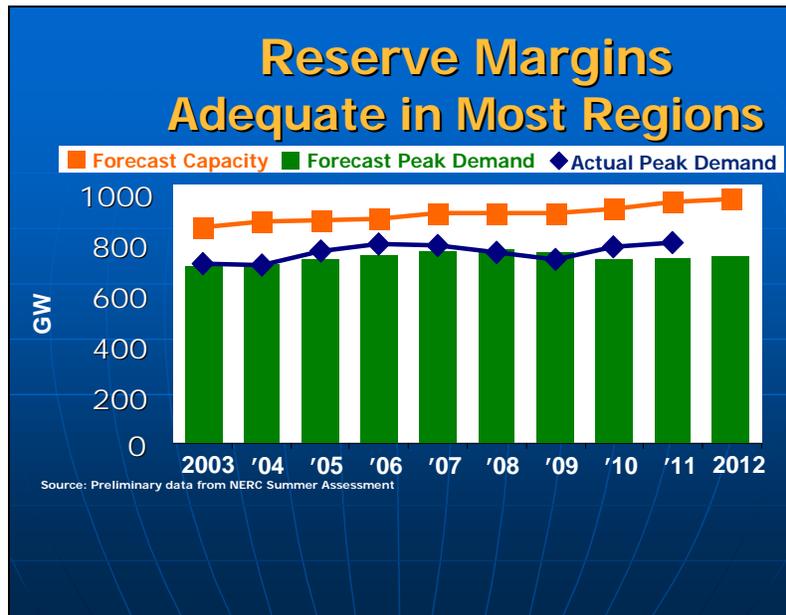
The key takeaways from today's presentation are as follows:  
Robust supplies of natural gas have led to the lowest sustained natural gas prices since 2001. This market trend is expected to continue to place pressure toward generally lower electricity market prices;

With the outage of two San Onofre nuclear units, supply-demand conditions in Southern California, and particularly in the San Diego area, warrant close attention to electric grid operations and electricity market prices if the two units should remain offline during high load periods this summer;

The generation supply in Texas may be strained if the state experiences another hot summer like last year;

However, overall in the rest of the country, capacity reserves appear adequate; and

The shift from coal-fired to natural gas-fired generation will have limited market effects.

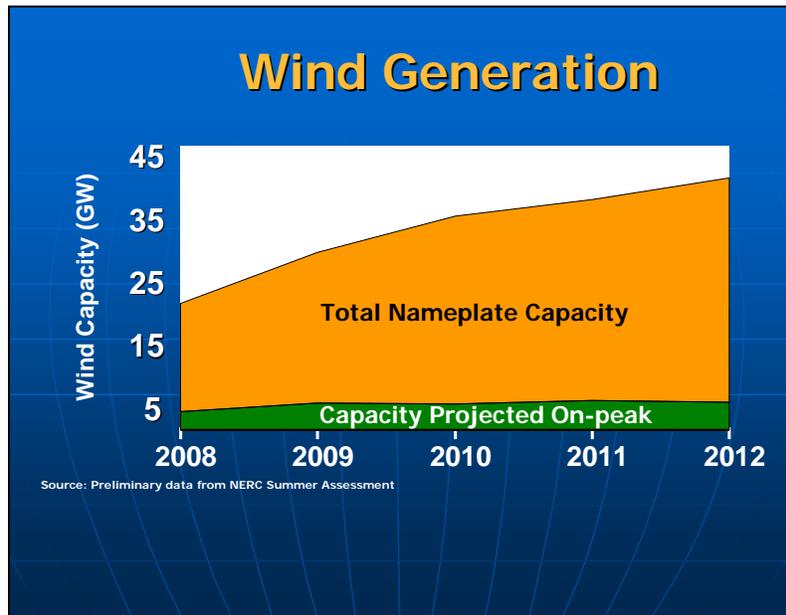


Thank you Alan.

Preliminary data from NERC's Summer Assessment indicates that reserve margins are projected to be adequate in most, but not all, regions of the country this summer. Some areas, such as ERCOT, are projecting a small amount of load growth, while other areas, such as New England are projecting that loads will remain flat or decline. Overall, NERC forecasts that the total US load, when weather adjusted, will decline by less than one percent when compared to last year.

In Texas, ERCOT is forecasting a reserve margin of 13.3 percent, which is below its reserve margin target of 13.75 percent. For California, WECC is forecasting a reserve margin of 15.2 percent, slightly above the reserve margin target of 15.1 percent.

Under normal weather and system conditions, New England's electric power supplies are expected to be adequate this summer. However, reduced and uncertain supplies of Liquefied Natural Gas to fuel the Mystic Generating Station could result in an inadequate supply to the Greater Boston area during extremely high loading periods and multiple contingency conditions. ISO New England is reaching out and working with asset owners in North East Massachusetts and the Boston area to alert them to the situation and is working with local generation and transmission companies to develop special operating plans that can be used to manage a shortage situation.



The NERC Summer Assessment reports that the projected summer installed nameplate wind capacity will increase by about 3.4 GW, or about 9 percent from 2011, for a total nameplate capacity across the nation of approximately 40 GW.

The average on-peak wind capacity for the 2012 summer is forecast to be 11 percent of nameplate capacity. The on-peak capacity forecasts reflect the differing wind characteristics across the country, and range from lows of 2.2 percent of the nameplate capacity of 4.5 GW in the Southwest Power Pool to a high of 26 percent of the nameplate of 1.2 GW in Mid-Central Area Power Pool.

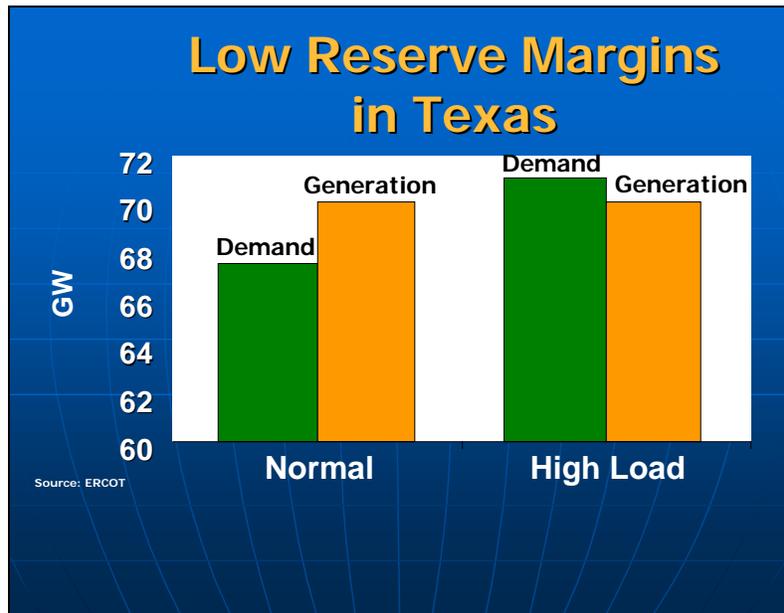
## Eastern Plant Outages and Retirements

- No significant increase in retirements for this summer.
- Potential retirements in fall and beyond.
- Planning coordinators working to coordinate outages, upgrades, etc.

A number of utilities in the Eastern Interconnection have announced intentions to retire older fossil fuel generating units over the next few years, with some retirements in PJM beginning as early as this fall. According to NERC and the Regions, plant retirements are not projected to affect reliability for this summer, and appear to represent normal generation fleet turnover. Similarly, NERC and the Regions report that the planning coordinators continue to work with their generation and transmission owners to manage any maintenance outages related to plant retrofits or upgrades.

Looking ahead to the fall, FirstEnergy has announced plans to retire generating units totaling approximately 3.4 GW in its service territory in northern Ohio and western Pennsylvania. PJM and the transmission owners are coordinating transmission upgrades, reliability must-run agreements, and projects and procedures to allow continued reliable operations in this area.

The NERC Long-Term Reliability Assessment, which will be released in the fall, will provide additional information on projected resource adequacy in future years.



ERCOT is projecting a reserve margin of 13.2 percent, assuming that normal weather conditions occur in Texas this summer. This projected reserve margin will be approximately one half of a percentage point below its reserve margin. ERCOT also projects that forecasted load could exceed projected capacity during an extreme heat wave with higher-than-normal forced generation outages. ERCOT forecasts that over 1.4 GW of demand response will be available to operators during periods of peak demand, and may obtain additional load reductions from public appeals for conservation and price-sensitive demand.

According to NERC and ERCOT, the low reserve margins in Texas are due largely to load growth outpacing generation development. ERCOT has continued to experience load growth through the recession, and several years of hot summer weather have contributed to an increasing load forecast. While drought remains a concern in Texas, ERCOT projects that winter precipitation was sufficient to maintain reservoir levels and provide sufficient cooling water through the summer months.



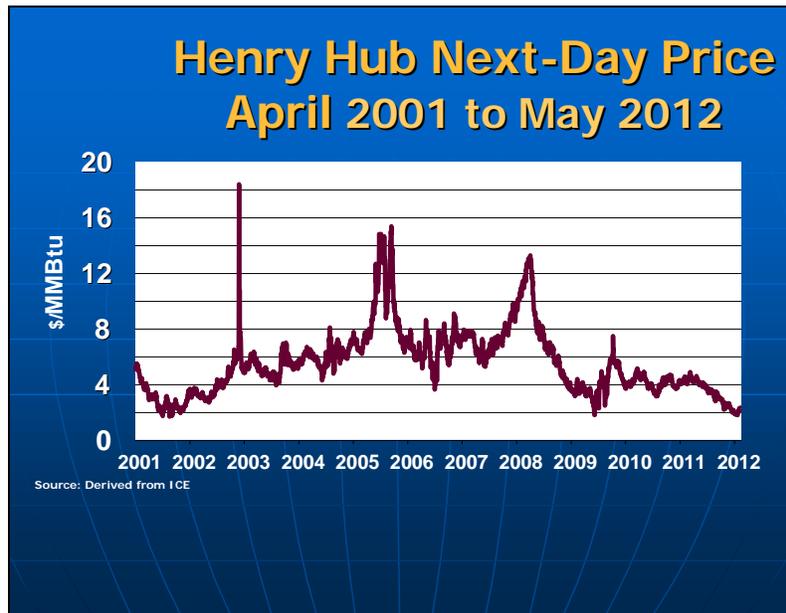
In Southern California, the San Onofre Nuclear Generating Station between Los Angeles and San Diego has been shut down for repairs. Without the 2.3 GW from this plant, NERC forecasts that projected reserve margins in California may be close to, but still be above, the regional target of 15.1 percent. The extended plant outage will also limit transfers into the San Diego area from the Los Angeles basin. Two mothballed units at Huntington Beach have been reactivated, and will provide additional capacity in the Los Angeles basin and support additional transfers into San Diego. Entities in the area are also working to increase demand response and conservation measures in southern Orange County and San Diego. Alan...

Thank you, David.

In addition to the reliability concerns David just described, if the San Onofre Nuclear Generating Station units continue on outage into the summer the market impacts could extend beyond the San Diego area. In particular, Southern California, which includes the transmission zones of both San Diego Gas & Electric and Southern California Edison, may see elevated prices compared to Northern California and neighboring regions, especially during periods of high demand. With the region reliant on imports, the removal of the two SONGS units means the region will need to rely on plants with higher costs. Greater price volatility typically occurs under such situations.

The ultimate impact on customers should be at least partially buffered, with the local load-serving entities having physical capacity, purchase agreements, and Congestion Revenue Rights. Few customers pay bills based on the real-time price, but high real-time prices work their way into day-ahead prices and longer-term instruments if they are sustained.

Staff will follow the market operations closely, including the supply and demand conditions and any market participant behavioral issues.



The most prominent market driver for energy markets this summer will be the cost of natural gas, which has fallen to prices last seen a decade ago. In staff's 2011 State of the Markets Report last month, staff showed how prices have declined throughout 2011. This decline to below \$3 per MMBtu has continued into 2012.

Gas prices at the recent lower level can be expected to have a significant impact on electric markets. Gas prices in the \$2-\$2.50 price range place downward pressure on electricity prices generally, and moves some dispatch to natural gas from coal, which I will discuss later.

Staff expects that surplus-gas conditions will continue through the summer. Overall, with these market conditions, natural gas prices can be expected to stay near their present levels.

### Natural Gas Prices 2011 and 2012 Forwards (per MMBtu)

|                   | 2011   | 2012   | % Change |
|-------------------|--------|--------|----------|
| Transco Zone 6 NY | \$4.89 | \$2.48 | -49%     |
| Chicago           | \$4.29 | \$2.28 | -47%     |
| NWP Sumas         | \$3.90 | \$2.05 | -47%     |
| SoCal             | \$4.28 | \$2.51 | -41%     |
| Henry             | \$4.22 | \$2.25 | -47%     |

Forward prices for July and August each year as of May 1. Source: New York Mercantile Exchange (Nymex)

This chart compares forward natural gas prices for last summer with forwards for this summer. Staff looks at forward prices for the peak summer months of July and August for perspective on how market participants currently view the dynamics affecting seasonal prices. Staff does not view forward prices as a predictor of actual prices, but analyzing the trends in the forward prices can help to understand market factors heading into summer. The sharp contrast between what summer forwards are today and what they were in 2011 shows that the forward markets expect that the current natural gas surplus in supply will continue to be the price driver over this period.

With storage already filling as we enter summer and production levels continuing at a robust level, physical fundamentals indicate that natural gas prices will continue at lower levels compared to recent years.

While regional differentials persist, there is much less variation than in years past. New pipeline infrastructure, such as the Ruby Pipeline, the new Florida Gas Transmission expansion and Rockies Express has linked new supply sources to demand markets and reduced bottlenecks significantly. The differences that do arise in basis are limited in magnitude. Also, basis differences derive from temporary conditions such as weather-driven demand in the Northeast, driving basis higher, or from supply surplus in the Northwest, driving basis lower.

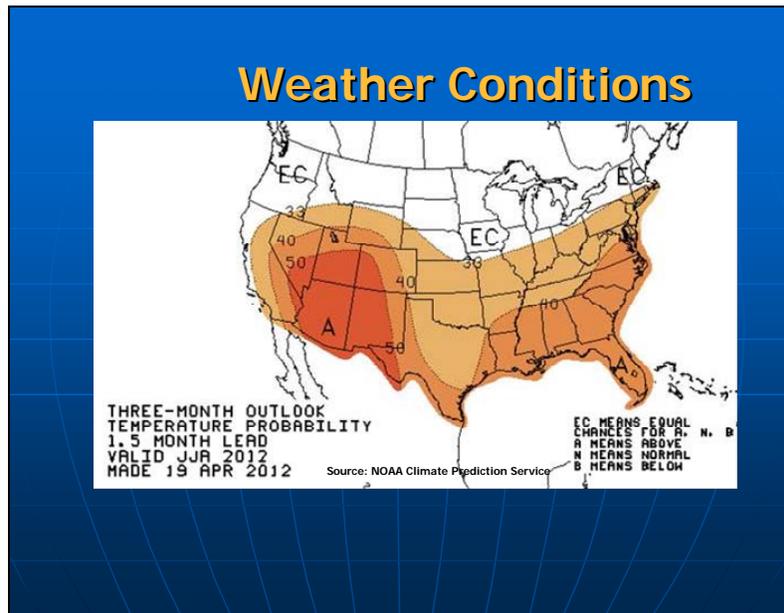
### Electricity Prices 2011 and 2012 Forward Price Comparison (\$/MWh)

|                 | 2011    | 2012    | % Change |
|-----------------|---------|---------|----------|
| PJM Western Hub | \$63.25 | \$46.55 | -26%     |
| Mass Hub        | \$60.95 | \$38.50 | -37%     |
| Cinergy/Indiana | \$47.50 | \$37.25 | -22%     |
| Mid C           | \$31.62 | \$25.00 | -21%     |
| SP-15           | \$47.00 | \$38.50 | -18%     |
| Palo Verde      | \$42.50 | \$34.75 | -18%     |

Source: Derived from ICE

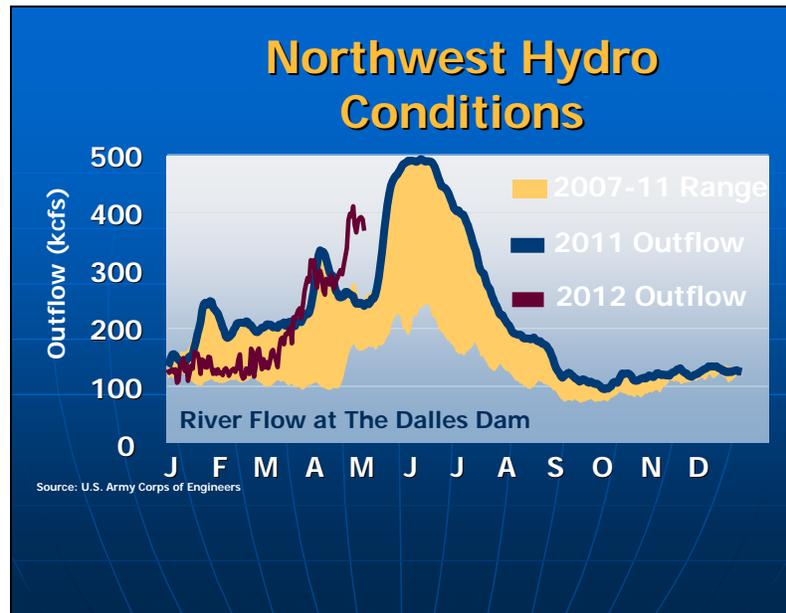
This chart compares electricity forward prices for this summer as of May 1st with electricity forwards from last year. The forward prices indicate that market participants expect lower prices than a year ago. The chart shows that prices for the forward summer strip this year are \$7 to \$22/MWh less than similar forwards a year ago.

As noted, staff does not view forwards as a price forecast, but, rather, perspective on how the various market participants view market conditions. This is particularly true for electric prices. The weather impact on electric prices can introduce large swings that cannot be predicted months in advance. Typically, because the market does not know for certain how hot the summer will be, it takes a weather-normalized view of load levels and their effect on price when contracting forward.



NOAA predicts a warmer-than-normal summer across most of the country. The only exceptions are parts of the Pacific Coast and the northern tier of the nation, where normal temperatures are expected. The greatest chance of above-average temperatures is the area centered around Arizona and New Mexico. NOAA also sees an increased chance of below-normal precipitation in the Northwest through the summer months.

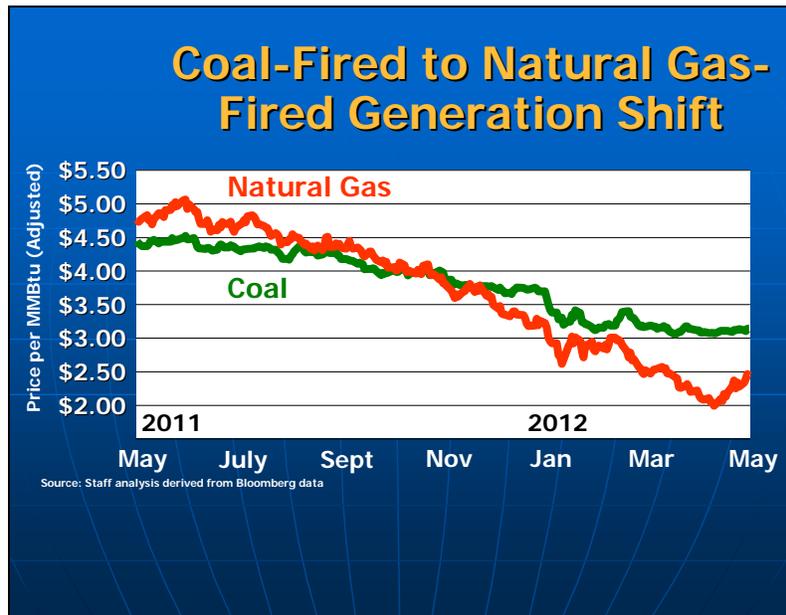
Early forecasts for the hurricane season from Colorado State University call for lower-than-normal activity for the Atlantic this summer. It predicts 10 named storms, of which 4 will become hurricanes, and 2 of those 4 will become major hurricanes, category 3 or greater. Six hurricanes are considered normal for a season. When assessing the impact of hurricanes, an important factor to keep in mind is the geographical change in U.S. production. In 2005, before the shale gas revolution, the double hit from hurricanes Katrina and Rita sent gas prices soaring through large portions of the U.S. market. By 2008, shale gas added more than 9 Bcf to daily production, and another double-hurricane hit that summer (hurricanes Gustav and Ike) caused barely a ripple in gas prices. New onshore production less vulnerable to hurricanes, pipeline infrastructure additions, additional Gulf Coast storage and LNG terminals have added diversity of supply options and flexibility to the system that minimize the effects of hurricanes on natural gas markets.



Conditions for hydroelectric generation in the West are mixed. Snowpack in British Columbia and parts of the U.S. Northwest came in at average or above-average levels. California, on the other hand, is well below average. The Pacific Northwest reached 98 percent of average snowpack as of April 1, the historical peak snow accumulation date, while California was 60 percent.

This means that conditions likely will support significant hydroelectric production in the Northwest. Inside California, available hydroelectric generation is expected to be somewhat below average. While snowpack levels are low, reservoir levels are closer to normal owing to good hydrologic conditions last year. The expected abundance of hydro production in the Northwest will benefit the California and Southwest markets. As is typical of normal hydro conditions, transmission lines from the Northwest into California can be expected to be well loaded during the spring and going into the summer.

Even though hydro conditions are not expected to be as flush as a year ago, BPA sees a high likelihood that there will be some over-generation as a result of river and hydroelectric facility protocols designed to protect fish. Over-generation may, in turn, lead to curtailments of non-hydro resources, which has already occurred this spring. The financial markets may see negative prices during some over-generation conditions. Other regions such as ISO New England, New York ISO, and MISO use hydroelectric generation as part of their generation mix, both from internal generation within each region and from Canadian imports. None of these areas is as dependent on, or influenced by, hydro conditions as the Northwest and California. Based on hydro conditions in the eastern regions, we do not see any notable market issues to report. In the past there have been concerns about drought conditions in some areas and the availability of cooling water. Some regions, such as the Southeast and the Southwest are expected to be under drought conditions this summer, but these conditions are not expected to be severe enough to cause concern about the reliability of generators that depend on water supplies for cooling.

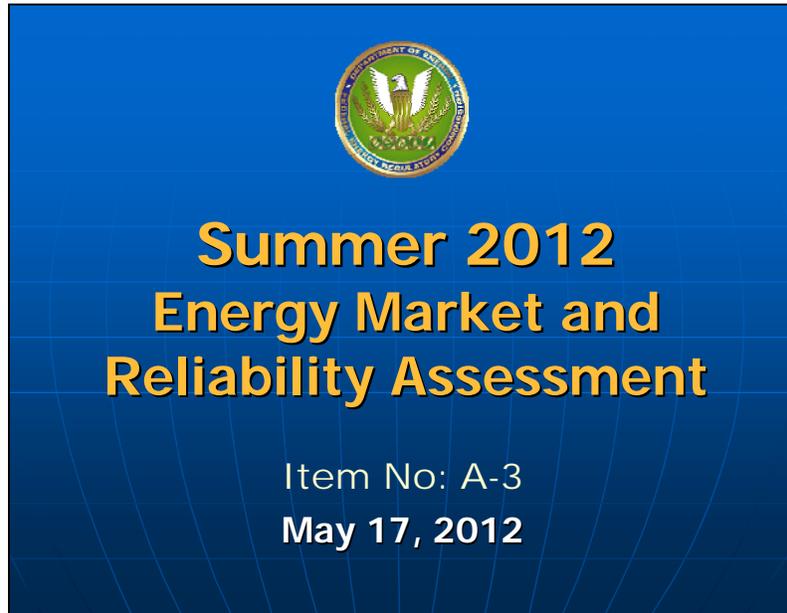


As noted, the low cost of natural gas is expected to continue to exert downward pressure on electricity prices this summer. We expect the ongoing substitution of natural gas-fired generation for coal-fired generation to continue as a result of these low gas prices. When the cost of natural gas dropped below \$4 per MMBtu, combined cycle units started competing on price with coal-fired steam units using Central Appalachian coal. The graph above shows a crossover in favor of natural gas in the fall of 2011. The comparison is on an MMBtu basis adjusted for typical heat rate of natural gas and coal-fired units. In regions such as MISO, PJM, and the Southeast for example, where there is significant coal-fired capacity as well as natural gas-fired capacity, use of the installed natural gas-fired generation has grown as use of coal resources has dropped.

The ability of the natural gas-fired plants to obtain sufficient fuel does not appear to be a significant factor or a market concern during the upcoming summer. In particular, capacity in long-haul pipelines is generally sufficient to avoid disruptions in the use of natural gas for electric generation for this summer.

The switch-over from coal to natural gas can be expected to lower coal plant revenues. In addition, some coal plant owners may reduce their offers in order to keep running because they need to manage their coal piles. This is because many coal-fired plant owners entered into contracts determining price and delivery schedules when conditions were different.

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This concludes our prepared presentation. I would like to express gratitude to the many staff members in the Office of Electric Reliability and the Office of Enforcement who contributed to this report.

We are happy to answer any questions you may have.