

# ENERGY *Outlook*



## **EIA Says Natural Gas Production to Soar by 2035**

The Energy Information Administration predicts US natural gas production will nearly triple by 2035. The report says the 5 Tcf produced in 2010 accounted for 23% of total dry gas production. By 2035, production could hit 13.6 Tcf and account for 49%. The report predicts the US will be a gas exporter by 2021 as foreign markets increase use and offer higher prices. It also says the percentage of gas-generated electricity will rise slightly, from 24% to 27%. See feature story inside.

## **EPA Sets 2013 Date for Tougher Soot Standards**

In a move that is angering environmental and public health groups, U.S. EPA is delaying setting new standards for fine particles that come from power plants, automotive tailpipes and factory smokestacks until June 2013. EPA is required to review current science and set standards for fine particle pollution every five years under the Clean Air Act. The agency was supposed to complete its review of fine particles, or soot, by last October, but failed to meet the deadline. In a filing with the U.S. Court of Appeals for the District of Columbia Circuit, EPA said it needed more time to finish the standard, which environmental groups

say is long overdue. The agency said it plans to issue proposed new standards this June in hopes of finalizing them a year later.

## **Obama Rejects Keystone XL, Blames Republicans for Forcing Decision**

In a move blasted by congressional Republicans and the oil industry as damaging to U.S. energy security and job creation, President Obama denied a permit sought by TransCanada for the controversial Keystone XL oil sands pipeline, saying that a tight decision deadline imposed by GOP lawmakers did not give the administration sufficient time to review it. They inserted a provision in the temporary payroll tax cut bill passed in December giving the administration only until Feb. 21 to decide the fate of the 1,700-mile pipeline, which would stretch from oil sands formations in Alberta to refineries on the Gulf Coast.

## **Chesapeake CEO Aubrey McClendon Predicts Natural Gas Market Growth**

The United States has enough natural gas to wean itself off oil from the Middle East in 10 years, Chesapeake Energy Corp. CEO Aubrey McClendon said. McClendon said the key is finding new

uses for the country's abundance supply of natural gas. He said the U.S. remains dependent on the Middle East for the bulk of its energy supply, but natural gas could change that. Right now the glut of natural gas has caused prices to dip to near \$2 a thousand cubic feet, forcing Chesapeake and other companies to slash production. McClendon said demand growth will result in more manufacturing jobs being returned to the U.S. because of lower gas costs. He also expects more utilities to rely on natural gas for power generation as they face pressure from regulators and customers to stop burning coal. McClendon said the United States currently consumes about 70 billion cubic feet of natural gas a day. That is split evenly between power generation, residential and commercial use and manufacturing. He said natural gas can be a replacement for coal in power generation and gasoline and diesel in transportation, adding another 130 billion cubic feet of daily demand. McClendon said natural gas could replace about a third of the coal market, which is the primary fuel for power companies.

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**February 2012**

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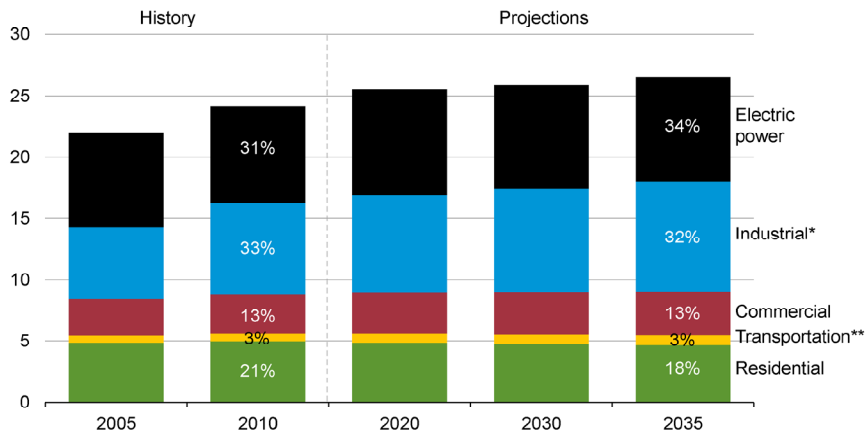
## Power Plants Shifting from Coal to Natural Gas

A shift in power plants is under way as more are being fueled by natural gas, and less by coal. Nationwide, the electricity generated by gas-fired plants has risen by more than 50% over the last decade, while coal-fired generation has declined slightly. Natural gas-powered plants generated about 600 billion kilowatt hours of electricity in 2000 and 981 billion hours in 2010, according to the Energy Information Administration (EIA). During the same period coal generation declined from 1,966 billion kilowatt hours to 1,850 billion kilowatt hours, while hydroelectric and nuclear generation stayed about the same. Nationwide, the EIA said natural gas use for power generation rose 7% between 2009 and 2010. That's about 515 Bcf. The biggest jumps were in the Southeast, with use rising 24% in North Carolina, 18% in Virginia and 15% in South Carolina. "Most of the people I know in the electric power industry are building natural gas" plants, said Jay Apt, a professor of technology at Carnegie Mellon University in Pittsburgh. That's because of low prices over the last few years and the relatively low cost of building such plants, compared with coal-fired or nuclear. But Apt cautions that the trend could stall because the basics of supply and demand mean that if too many plants embrace cheap gas, it won't stay cheap. "The surest route to \$6 or \$8 gas is for everybody

to plan on \$4 gas," Apt said, and if prices do rise, coal will again be the most cost-effective fuel. Apt noted that there was a "huge building boom" in natural gas plants from the late 1990s to 2004, because utilities thought they would get rich from the combination of cheap fuel and plants that were highly efficient and relatively cheap to build. There were predictions that prices would stay low over the long term, too. But natural gas prices spiked, and the new gas-fired plants around the nation stayed idle much of the time. That trend was also driven by another irony: The gas-fired plants are easier to start and stop compared with coal or nuclear, so many utilities used them just for peak electric demand periods. Still, history may not repeat itself because of the huge surge in supply from Marcellus Shale gas drilling. Vast gas deposits that previously couldn't be extracted economically are now being tapped using new technologies. Instead of drilling straight down, companies can drill horizontally and follow seams of gas for a mile or more deep underground. Then the drillers use hydraulic fracturing, or "fracking," to free the gas from the relatively dense shale rock. There are already federal permits for 3 trillion cubic feet per year of natural gas exports, Apt said. "Will we export that bounty, and if we do, will that drive up U.S. prices," he said. Natural gas sells for about \$8 in Europe and \$14 in Japan, but less than \$4 here. (Sources: EIA, WSJ)

## Natural gas consumption is quite dispersed; electric power and industrial use drives much of the future demand growth

U.S. dry gas consumption  
trillion cubic feet per year



\*Includes combined heat-and-power and lease and plant fuel. \*\*Includes pipeline fuel.  
Source: EIA, Annual Energy Outlook 2012 Early Release

## MARKET INSIGHT

from Tom Blaney

Oil and gas have continued their hefty price disparity, highlighting the very different price drivers that operate throughout the energy complex. Oil is of course a much greater geo-political commodity, and its' price patterns have significant implications for not only international economies, but the relationships between those economies. Oil has also been a significant and often used hedging tool in recent years, particularly in the time leading up to, and also since, the Lehman event and liquidity crisis. The economic upheavals and lingering uncertainties of the last four years has radically altered the relationship between equities, bonds, commodities and many other investment choices. Those changing markets and relationships have created huge changes in the way professionals trade and invest, and in the way the ordinary citizen save and plan for retirement. Assumptions concerning forward investment results have proven to be far more volatile than ever imagined. Many seasoned traders have used energy contracts and precious metals as a buffer against unexpected moves in more traditional investment vehicles. This has in turn led to previously unheard of levels of volatility in energy contracts that seemingly defy normal supply/demand analysis. Energy contracts have also been used to offset the concerns about future inflation levels, currency imbalances and interest rate movement. All these future market directions are of course more unpredictable than ever; and using other unrelated commodities to hedge these risks has proven to be volatile and equally unpredictable. Probably the biggest wildcard is still the highly charged question of how soon, and with what vigor, the economies around the world start to measurably improve! Over the last year, it seems that the U.S. economy is doing a little better than elsewhere, certainly better than Europe. Statistics measuring U.S. employment and manufacturing have improved even more in recent months. In similar fashion, major U.S. companies have also shown better results, despite many still taking cautious forward outlooks. The U.S. consumer is still around and seems to be once again spending, while also increasing their savings rate and reducing overall debt levels. Not too bad for an economy that was really in the doldrums a couple of short years ago. We are starting to see some better growth numbers and renewed, but still cautious optimism. This pattern, if sustainable, will continue to put upward pressure on interest rates and commodity prices. Gas remains a conundrum; and is clearly caught between the possibility of stronger economic activity and the supply pressure that continues to be anticipated from the Shale factor. No market is clear or easy. Volatility will remain high because uncertainty and fear remain high, with the U.S. more intertwined than ever in foreign concerns. Energy will be equally puzzling, also still caught between improving economic forecasts and unpredictably volatile trading patterns.

## Market Trends



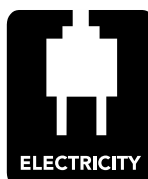
February began its month as the NYMEX prompt month natural gas futures contract trading around \$3.130 and wasted little time trying to push below the \$3.00 level. In its first two days as the prompt contract it managed to push below that level, but couldn't manage to end either day below that threshold. Immediately following the New Year though, February finally did manage to close below that level, and spent the majority of the next three weeks pushing lower with little support. Temps remained warm for the vast majority of the United States, which resulted in several smaller than normal storage reports as reported by the EIA in their weekly statistics. This fueled the acceleration lower, and by mid month, February was below \$2.50. The downward momentum continued for another week, and resulted in a new 10-year low for Natural Gas of \$2.231 on January 23. Shortly after the low was reached though, the first of several producers announced plans on limiting production. This news brought on a round of short covering which drove February up to a high of \$2.80 just three days later. Current fundamentals once again took over, since despite the season's largest withdrawal of 192 Bcf was reported on January 26, storage inventories remain well above normal levels by over 500 Bcf. February dipped back into the \$2.50s on this news before ultimately expiring \$2.678. This represents a decrease of \$.406 from the Feb. closing price.



The NYMEX propane swap opened January at \$1.403/gallon which was the high trade for the month. Propane fell almost 10 percent to a low of \$1.264/gallon on 1/11 before recovering and trading the balance of the month between \$1.290 and \$1.300 per gallon and finishing at \$1.294/gal. Propane stocks currently stand above their 5 year average.

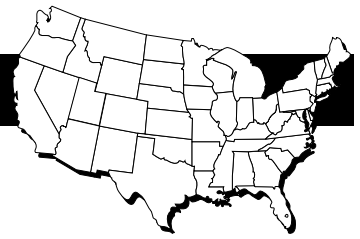


Crude oil traded as high as \$103.74/barrel before sinking to a low of \$97.40 on 1/23 and ending the month at \$98.480/barrel. An improving economic outlook at home and supply uncertainty abroad has been unable to sustain crude values above \$100/barrel when balanced against the more than adequate inventory levels seen currently.



The month saw peak power prices decline in the prompt month of February, ranging from 12.6% at NiHub to 22.4% at Mass Hub and in the prompt yearly strip ranging from 9.8% at NY-A to 12.3% at Mass Hub. For the majority of the month, the natural gas fundamentals were the principal drivers crushing the power markets. Those drivers were weather forecast devoid of any substantial cold periods, an expanding natural gas surplus and record gas production. Power curves also collapsed under pressure of the stay of the Cross State Air Pollution rules. BofA and other price forecasters lowered their price estimates for natural gas for 2012, added to the downward momentum. In the later part of the month, the power curve turned bullish on news that Chesapeake, followed by other natural gas producers, announced production cutbacks for 2012.

# Around the United States Energy Market



## Illinois Considers Electric-Vehicle Incentives

A new report designed to increase electric vehicle (EV) usage in Illinois calls for a \$1 boost in the state license plate fee to help bankroll rebates and grants for alternative fuel vehicles. The additional fee, which would hike the state's standard license plate renewal cost to \$100 annually, is among a lengthy list of recommendations contained in a report forwarded to members of the Illinois General Assembly and Governor Pat Quinn by the state's Electric Vehicle Advisory Council. The panel's recommendations are designed to get 100,000 EVs on Illinois roads by 2015. A number of industry experts predict Illinois will see between 18,000 and 20,000 EVs on its roads by 2015. Some put the estimates as high as 80,000. The 100,000-mark representatives one-tenth of President Obama's goal of getting one million electric vehicles on the nation's roads by 2015. In addition to bringing more EVs to the streets, the council said it wants lawmakers to approve changes in state law to help jumpstart development of charging stations, said the report. The council wants the General Assembly to ensure that charging stations are not regulated as public utilities.

## Cape Wind Project Unlikely Ready by Mid-2015

The Cape Wind offshore project is unlikely to be producing electricity by mid-2015, New England's power grid manager says in a report that raises the prospect of more delays in a project beset by problems. Cape Wind officials disagree with ISO New England's evaluation and expect to be running at least partially by mid-2015. ISO New England's determination about Cape Wind was included in a recent ISO filing. In rejecting Cape Wind's request, it said, "The ISO and its consultants have determined that it is unlikely that the project will achieve Commercial Operation by the start of the 2015-2016 Capacity Commitment Period." That period begins June 1, 2015. Cape Wind

was proposed in 2001 and aims to be the nation's first offshore wind farm. Opponents say the project's power has been priced far too high and the wind farm will ruin unspoiled views in Nantucket Sound, while endangering birds, marine life and maritime traffic. That opposition and other obstacles have repeatedly forced Cape Wind to move back its projected start date, including at least 3 times since 2009, when it was hoping to produce electricity by last year.

## Groups Rally for New York State Fracking Ban

Environmental groups rallied at the Capitol to call for a legislative ban on hydraulic fracturing of natural gas wells, saying no amount of regulation can adequately safeguard water supplies from contamination. Organizers said about 600 people from around the state traveled to Albany and registered to lobby state lawmakers for various bills related to the practice known as fracking. The state Department of Environmental Conservation has refused to consider new shale gas wells since 2008, when it began an environmental impact review of fracking. New regulations are expected to be in place this year. Industry groups, who point to a decadeslong history of safe gas drilling in New York, have said the regulations proposed by the DEC are so strict they would effectively shut down shale gas development in the state because of the high cost of compliance. Ana Tinsley of Frack Action said the top priority for her organization is the fracking-ban bills sponsored by Avella in the Senate and by Brooklyn Democrat William Colton in the Assembly. The bills would amend the state's environmental conservation law to prohibit fracking and the disposal of any fluid used in the fracking process. A bill that would classify toxic and radioactive wastewater from gas-drilling operations as hazardous waste passed in the Assembly last year but died in the Senate. Another bill would suspend permitting for hydraulic fracturing until June 1, 2013.

## U.S. OKs Wind Energy Lease Sales in East Coast waters

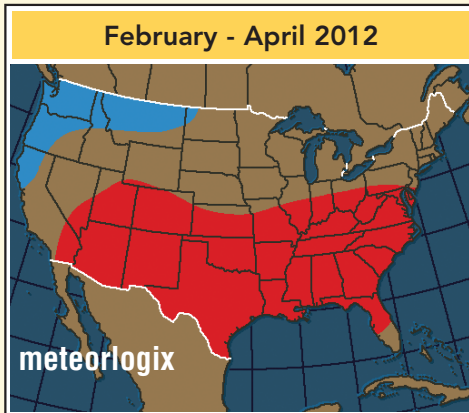
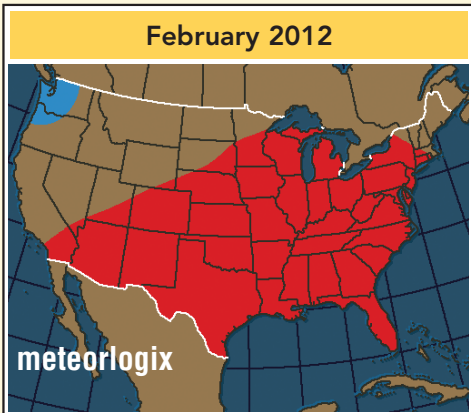
The U.S. Department of the Interior Secretary Ken Salazar and Bureau of Ocean Energy Management (BOEM) director Tommy P. Beaudreau announced on Feb. 2 that the department's renewable energy initiative has cleared an important environmental review, allowing Interior to move forward with the process for wind energy lease sales off Maryland, Virginia, New Jersey and Delaware. BOEM's National Environmental Policy Act (NEPA) assessment found that there would be no significant environmental and socioeconomic impacts from issuing wind energy leases in designated Outer Continental Shelf (OCS) areas off the mid-Atlantic Coast. BOEM also published Calls for Information and Nominations for Maryland and Virginia to solicit lease nominations from industry and request public comments regarding site conditions, resources and multiple uses of the Wind Energy Areas. The agency prepared an environmental assessment of the potential impacts of issuing renewable energy leases, including reasonably foreseeable consequences associated with site characterization activities, such as geophysical, geotechnical, archeological and biological surveys in the Wind Energy Areas off Maryland, Virginia, New Jersey and Delaware. BOEM will use environmental assessments to inform future leasing decisions in the mid-Atlantic Wind Energy Areas and to review site assessment plans. If a lessee proposes a wind energy generation project on its lease, BOEM would prepare a separate site- and project-specific analysis under NEPA of its construction and operations plan, and provide additional opportunities for public involvement.

# 30 AND 90 DAY WEATHER FORECASTS



## Temperature

Above Normal Below Normal



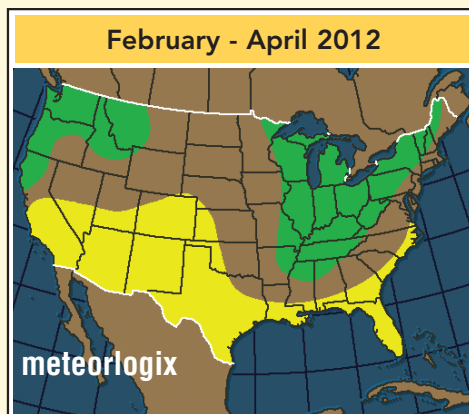
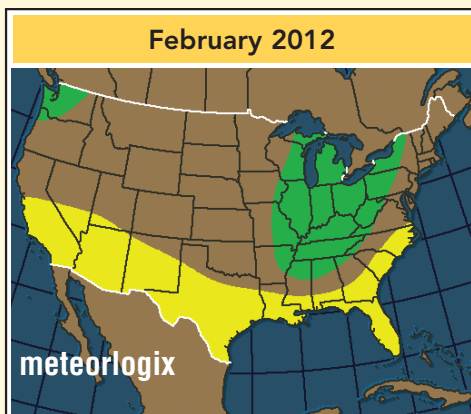
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## President Obama Calls for More Offshore Oil Drilling

To promote US-made energy, President Obama said he would open more than 75% of potential offshore oil and natural gas resources to exploration and produce enough clean energy on public land to power 3 million homes. In his State of the Union address, Obama said the nation is rapidly increasing oil production but, with just 2% of the world's oil reserves, it needs to look at other energy sources. He said he will take every possible action to safely develop natural gas while requiring companies that drill on public lands to disclose the chemicals they use. He called on Congress to pass clean energy tax credits. Small independent oil and natural gas producers said they pleased to hear Obama tout the benefits of increased domestic natural gas production, but expressed skepticism about his pledge to reduce government regulations.

## Precipitation

Above Normal Below Normal



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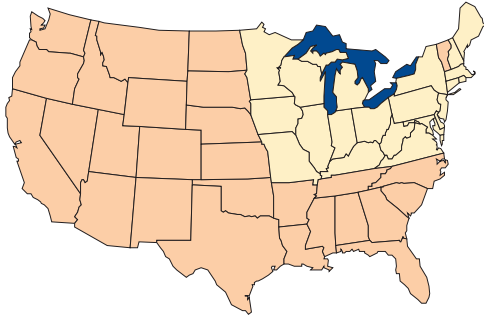
## WSI Expects Late-Winter Pattern Change Across US with Below-Normal Temperatures Becoming More Widespread


WSI (Weather Services International) expects the upcoming period (February-April) to average colder than normal across most of the northern and western US, with above-normal temperatures confined to the south-central and southeastern states. The WSI seasonal outlooks now reference a standard 30-year normal (1981-2010).

## NOAA: Above-Normal February Temperatures Across Much Of US

Above-normal temperatures are expected across much of the U.S. in February, government forecasters said in an end-of-the-month outlook. The forecast extends the area of above-normal temperatures farther into the northern and western Plains than was expected in the Jan. 19 forecast from the National Oceanic and Atmospheric Administration. From the West Coast inland to central Montana and Arizona, NOAA sees equal chances of normal, above-normal or below-normal temperatures in the month. An equal chances designation also is in place for northern New England and South Florida.

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## MORE NEWS AND INFORMATION FROM INTEGGRYS ENERGY

### Duke Energy, Integrys Energy Services and Smart Energy Capital Complete Solar Projects for New Jersey's Central Regional School District

Duke Energy Renewables, Integrys Energy Services and Smart Energy Capital announced the completion of two ground-mounted photovoltaic (PV) systems for the Central Regional School District in Bayville, N.J. The PV solar arrays at Central Regional Middle School and Central Regional High School can collectively produce approximately 1.5 megawatts (direct current) of zero emission electricity. "We expect the system will meet 80 to 90 percent of the district's total electric needs each year," said School Administrator Kevin O'Shea. "At the same time, the district is reducing carbon emissions while educating its students on the environment. "The district estimates it will avoid the release of approximately 19 million pounds of carbon dioxide in the first year of operation," he added. "Kiosks in each school will enable students, parents and community members to

track the savings and energy produced by the system." The school district is purchasing all of the output from its respective PV systems at a fixed rate under the terms of a 20-year power purchase agreement with a project company owned by INDU Solar Holdings. INDU is a 50-50 joint venture between Duke Energy Renewables and Integrys Energy Services. These PV solar projects are examples of the development model announced by the INDU partners and Smart Energy Capital in October 2010. At that time, the companies committed to jointly pursue the development of rooftop and smaller ground-mounted solar projects for customers throughout the United States. The model provides customers certainty of financing and a faster, more efficient transaction. The partners continue to pursue several other PV projects in various stages of development across the United States. Smart Energy Capital, together with its strategic partner, the Dobco Group, developed the PV projects for the school district, which included arranging the sale of Solar Renewable Energy Certificates. INDU financed all of the construction costs for the projects.

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