

March 8, 2010

Natural Gas Trends

Highlights

MIT RESEARCHERS PROPOSE NATURAL GAS-BASED ELECTRICITY GENERATION SYSTEM WITH NO CARBON DIOXIDE EMITTED INTO AIR

Paul Barton, a Chemical Engineering Professor at the Massachusetts Institute of Technology (MIT), and Postdoctoral Associate Thomas Adams recently proposed a new kind of natural gas-based electric power plant to produce electricity. The proposed power plant design would be cost-effective – if the U.S. Congress, hypothetically, were to impose a price of \$15 or more on each metric ton of carbon dioxide emissions.

A solid oxide fuel cell is an electrochemical conversion device that produces electricity directly from oxidizing a fuel. Advantages of this class of fuel cell include high efficiencies, long term stability, fuel flexibility, low emissions, and cost.

Source: http://en.wikipedia.org/wiki/Solid_oxide_fuel_cell

The electric generation system designed by Barton and Adams would:

- combine existing technologies in a new way,
- be powered by natural gas, and
- use solid-oxide fuel cells.

Solid-oxide fuel cells produce power from fuel without burning the fuel.

According to the two researchers, the electric system, if constructed, would not release carbon dioxide into the air; instead, the system would produce a (non-gaseous) stream of “mostly pure carbon dioxide” that could rather easily be stored underground using carbon capture and sequestration (CCS) processes. Carbon dioxide can be a gas, a solid, a liquid, or an amorphous glass-like form.

Source: <http://web.mit.edu/press/2009/solid-oxide.html>

Data

- April Natural Gas Futures Contract (Mar 5), NYMEX at Henry Hub closed at \$4.593
- April Light, Sweet Crude Oil Futures Contract (Mar 5), NYMEX at Cushing closed at \$81.50 per Bbl. or approximately \$12.98 per MMBtu

Last week: Cooler Than Normal Trend Continued

For the heating season (7/1/09 to 6/30/10), cumulative heating degree days are 18% above normal for Texas and 5% below normal for the U.S. For the week beginning 2/28/10 and ending 3/6/10, heating degree days for Texas and the U.S. were significantly above normal.

Source: www.cpc.ncep.noaa.gov

HEATING DEGREE DAYS (HDD)

City or Region	Total HDD for week ending 3/6/10	* Week HDD +/- from Normal	Year-to-date total HDD	* YTD % +/- from Normal
Amarillo	131	- 15	3764	+ 7 %
Austin	96	+ 42	2000	+ 35 %
Dallas – FW	91	+ 12	2323	+ 11 %
El Paso	76	- 4	2174	- 3 %
Houston	88	+ 36	1619	+ 19 %
San Antonio	77	+ 26	1638	+ 15 %
Texas**	93	+ 26	2072	+ 18 %
U.S.**	111	+ 10	2237	- 5 %

* A minus (-) value is warmer than normal; a plus (+) value is cooler than normal. NOAA uses 65° Fahrenheit as the ‘normal’ basis from which HDDs are calculated.

** State and U.S. degree days are population-weighted by NOAA.

Gas Storage Level Drops to 1,737 Bcf

For the week ending 2/26/10, U.S. working gas in storage declined from 1,853 to 1,737 Bcf, compared to 1,808 Bcf in storage a year ago and compared to an average of 1,716 Bcf in storage during the 5-year period from 2005 to 2009. Working gas in storage in the producing region (which includes Texas) decreased from 607 to 580 Bcf.

Source: www.eia.doe.gov

U.S. WORKING GAS STORAGE

Region	Week ending 2/26/10	Prior Week	One-week Change	Current Δ from 5-YR Avg (%)
East	861	935	- 74	- 1.0 %
West	296	311	- 15	+ 22.3 %
Producing	580	607	- 27	- 4.0 %
Lower 48 Total	1737	1853	- 116	+ 1.2 %

Units in billion cubic feet (Bcf)

Last week: Gas Rig Count at 926, Up 21

The gas rig count for the U.S. was up 21 last week and up 10 when compared to 12 months ago. The U.S. total rig count was up 23 last week and up 226 when compared to 12 months ago.

Source: Baker Hughes

BAKER HUGHES ROTARY RIG COUNT

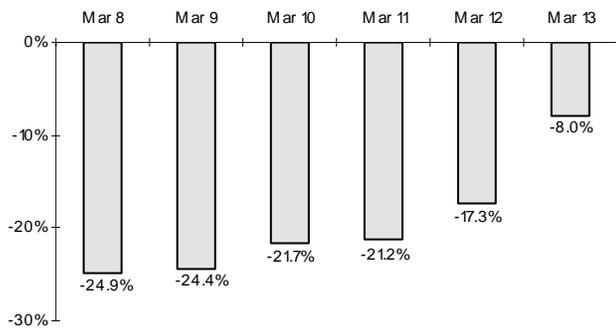
	As of 3/5/10	+/- Prior Week	Year Ago	+/- Year Ago
U.S. total	1396	+ 23	1170	+ 226
Gas	926	+ 21	916	+ 10
Oil	456	0	241	+ 215
Texas	588	+ 23	480	+ 108
N. Amer.	1939	- 10	1469	+ 470

This week: U.S. Energy Use Lower Than Norm

U.S. energy use is forecast to be significantly lower than normal, according to the Dominion Energy Index, as shown below. The index forecasts total U.S. residential energy usage, a component of which is natural gas.

Source: Dominion Energy Index

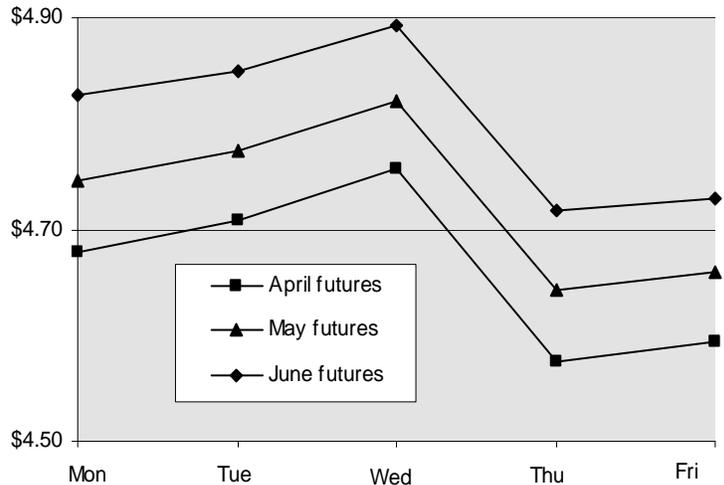
U.S. ENERGY USE FORECAST



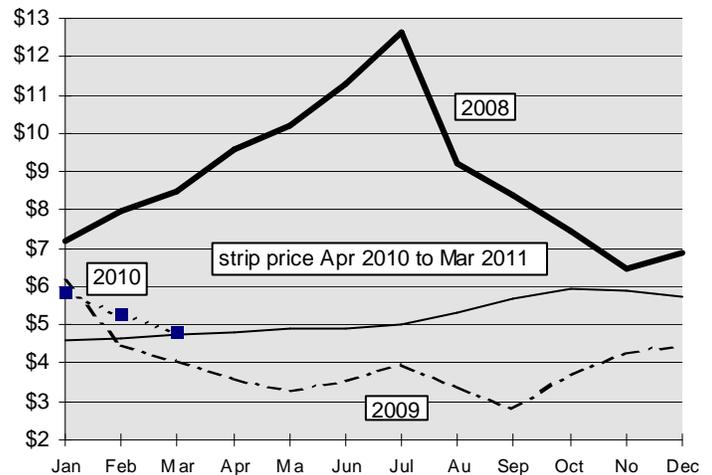
NATURAL GAS RIG COUNT BOUNCING BACK

On 9/12/08, Baker Hughes reported 1,606 gas rigs - as part of its weekly rotary rig count. By 7/17/09, the number of gas rigs plummeted to 665. As shown in the table, left, the gas rig count, at 926, is steadily rebounding from its low of 665.

NYMEX NATURAL GAS PRICE MOVEMENT 3/1/10 - 3/5/10



NYMEX HENRY HUB FUTURES PRICES



GAS PRICE SUMMARY AS OF 3/5/10

	This Week	+/- Last Week	+/- Last Year	12-Month Strip Avg.
US April futures				
NYMEX	\$4.593	-\$0.220	\$0.962	\$5.056