Energy Intelligence

Natural Gas Week

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NATURAL GAS WEEKLY SPOT PRICES

Flow Dates: 12/28-1/3

Price Point	$/MMBtu	Chg.	High	Low	Avg. Daily Vol.	Avg. Daily Deals	Jan. Bid Week
GULF COAST							
ANR SE	4.13	-0.08	4.23	4.03	69,606	14	4.19
Col. Gulf - Erath	4.13	0.08	4.20	3.99	83,800	10	4.19
Col. Gulf - Rayne	4.10	0.07	4.19	3.96	130,350	18	4.18
Florida Zone 1	4.14	0.05	4.20	4.08	8,768	1	—
Florida Zone 2	4.10	0.01	4.10	4.10	263	1	4.23
Florida Zone 3	4.40	0.21	4.80	4.14	64,427	6	4.27
Henry Hub	4.16	0.07	4.27	4.03	130,443	22	4.22
NGPL-LA	—	—	—	—	—	—	—
Sonat	4.17	0.03	4.27	4.00	75,503	11	4.16
Tenn 500 So LA Z1	4.15	0.04	4.22	4.06	92,377	14	4.22
Tenn 800 So LA Z1	4.13	0.07	4.20	4.03	64,886	12	4.20
Tetco ELA	4.12	0.09	4.22	4.04	24,028	6	4.19
Tetco WLA	4.12	0.09	4.20	4.00	28,855	5	—
TGT Zone SL	4.12	0.07	4.21	4.04	24,792	4	—
Transco Station 45	4.15	0.07	4.23	4.06	16,043	5	4.21
Transco Station 65	4.15	0.04	4.23	4.08	113,388	21	4.25
Trunkline ELA	4.15	0.11	4.22	4.07	13,614	5	4.20
Trunkline WLA	4.15	0.10	4.19	4.01	11,129	2	4.20
Trunkline Zone 1A	4.14	0.07	4.20	4.05	12,820	3	—
Regional Average	4.16	0.06					4.21
TEXAS (SOUTH/EAST)							
Carthage Hub	4.11	0.15	4.14	3.92	15,257	3	4.14
HSC	4.10	0.11	4.15	4.00	9,800	1	4.16
Katy Hub	4.14	0.13	4.19	3.99	111,443	17	4.10
NGPL-South Texas	4.06	0.07	4.19	3.90	125,214	18	4.11
NGPL-TexOk	4.05	0.07	4.16	3.89	304,943	40	—
Tenn Zone 0	4.10	0.14	4.19	4.01	78,327	17	—
Tetco-East Texas	4.04	0.03	4.10	3.99	4,041	2	4.08
Tetco-South Texas	4.06	0.01	4.06	4.06	200	1	4.08
TGT Zone 1	4.11	0.05	4.19	4.02	127,253	21	4.17
Transco Station 30	4.04	0.01	4.14	4.01	1,143	1	4.17
Regional Average	4.08	0.09					4.12
TEXAS (WEST)							
El Paso Permian	4.07	0.16	4.20	3.85	90,300	9	3.89
NNG Custer	—	—	—	—	—	—	—
Transwes E of Thoreau	3.91	-0.01	3.91	3.90	1,057	1	3.82
Waha Hub	4.05	0.15	4.17	3.77	96,163	15	3.88
Regional Average	4.06	0.15					3.88
MIDCONTINENT							
ANR SW	4.10	0.15	4.21	3.91	33,629	9	3.94
CenterPoint East	4.06	0.09	4.16	3.93	51,905	12	3.95
CenterPoint West	3.99	0.06	4.13	3.92	4,936	2	—
NGPL-MC	4.09	0.13	4.18	3.89	36,375	7	3.96
Oneok	4.07	0.09	4.15	3.98	5,657	1	4.16
Panhandle	4.06	0.13	4.17	3.82	82,687	14	3.95
Williams	4.09	0.18	4.18	3.97	12,480	3	—
Regional Average	4.07	0.12					3.99
GREAT PLAINS							
Emerson	4.42	0.13	4.52	4.17	41,586	6	—
NB Ventura TP	4.29	0.11	4.43	4.14	19,014	2	—
NNG Demarc	4.36	0.16	4.46	4.09	29,586	5	4.24

(continued on p.2)

2010 Provided Ample Ingredients Depressing US Natural Gas Market

Unrelenting unconventional supply, a no-impact hurricane season and record storage inventories all joined forces to create a suppressive bear market for the US natural gas industry in 2010. Looking ahead, it appears that 2011 could be poised for more of the same price pressures or worse.

"This year was incredibly bearish for natural gas, but if January and February don't bring some seriously concentrated and elongated cold weather, we could be in store for the same sort of low price environment in 2011," said a gas trader in New York.

Last year started off favoring the bears as newly imposed

(continued on page 18)

More Gas Leasing May Be Blocked Under New US Wilderness Program

The Obama administration has declared that it has the authority to designate parts of the western US as "wild lands," in a move that could block access to some pristine areas eyed by gas producers even if Congress does not apply formal "wilderness" status to those regions.

Interior Secretary Ken Salazar issued a secretarial order in late December that "affirms" the ability of the Bureau of Land Management (BLM) to create protections for parts of the West that are valued for their wildlife or outdoor recreation.

His order reverses a 2003 settlement with Utah in which the interior secretary under the Bush administration, Gale

(continued on page 9)

College-Level Energy Education Maturing with Energy Workforce

The business of energy education is becoming increasingly complex — like the industry itself.

A landman who started out with Getty Oil, Ted K. Jacobs has seen the industry change and grow and change some more. A good example, he told *Natural Gas Week*, is the birth, rebirth and continued maturation of the petroleum land management curriculum, offered at a handful of colleges and universities.

Back in 1958 and 1959, the University of Oklahoma (OU) and University of Texas (UT) were the only two schools in the

(continued on page 8)

NATURAL GAS BIDWEEK PRICES

Flow Dates: 1/1-1/31

Price Point	January Avg. $/MMBtu	Chg. from Prev.	High	Low	Vol.	Deals	Prev. Bid-Week
GULF COAST							
ANR SE	4.19	-0.04	4.19	4.19	45,000	3	4.23
Col. Gulf - Erath	4.19	-0.05	4.19	4.19	10,000	1	4.24
Col. Gulf - Rayne	4.18	-0.05	4.18	4.18	25,000	3	4.23
Florida Zone 1	—	—	—	—	—	—	—
Florida Zone 2	4.23	-0.02	4.23	4.23	2,000	1	4.25
Florida Zone 3	4.27	-0.01	4.28	4.27	4,300	2	4.29
Henry Hub	4.22	-0.05	4.22	4.22	1,000	1	4.27
NGPL-LA	—	—	—	—	—	—	—
Sonat	4.16	-0.12	4.16	4.16	2,400	1	4.28
Tenn 500 So LA Z1	4.22	-0.02	4.24	4.22	30,000	4	4.24
Tenn 800 So LA Z1	4.20	-0.02	4.25	4.19	600	2	4.22
Tetco ELA	4.19	-0.05	4.19	4.19	27,000	2	4.24
Tetco WLA	—	—	—	—	—	—	4.05
TGT Zone SL	—	—	—	—	—	—	4.22
Transco Station 45	4.21	-0.06	4.21	4.21	11,086	3	4.27
Transco Station 65	4.25	-0.04	4.25	4.25	43,648	5	4.30
Trunkline ELA	4.20	-0.05	4.20	4.20	10,000	1	4.25
Trunkline WLA	4.20	-0.05	4.21	4.20	7,500	3	4.25
Trunkline Zone 1A	—	—	—	—	—	—	4.23
Regional Average	4.21	-0.05					4.26
TEXAS (SOUTH/EAST)							
Carthage Hub	4.14	-0.03	4.14	4.14	1,000	1	4.17
HSC	4.16	-0.07	4.17	4.14	25,000	5	4.22
Katy Hub	4.10	-0.08	4.16	4.02	6,500	2	4.19
NGPL-South Texas	4.11	-0.01	4.13	4.09	5,000	2	4.12
NGPL-TexOk	—	—	—	—	—	—	4.11
Tenn Zone 0	—	—	—	—	—	—	4.18
Tetco-East Texas	4.08	-0.06	4.11	4.02	16,078	5	4.14
Tetco-South Texas	4.08	-0.03	4.15	4.05	50,000	5	4.11
TGT Zone 1	4.17	-0.05	4.18	4.17	26,200	6	4.22
Transco Station 30	4.17	-0.07	4.18	4.17	10,606	3	4.24
Regional Average	4.12	-0.04					4.16
TEXAS (WEST)							
El Paso Permian	3.89	-0.24	4.09	3.83	52,600	15	4.12
NNG Custer	—	—	—	—	—	—	—
Transwes E of Thoreau	3.82	-0.24	3.82	3.82	5,000	1	4.06
Waha Hub	3.88	-0.26	3.94	3.82	17,500	4	4.15
Regional Average	3.88	-0.25					4.13
MIDCONTINENT							
ANR SW	3.94	-0.16	4.10	3.86	48,500	12	4.10
CenterPoint East	3.95	-0.11	3.97	3.92	4,644	3	4.06
CenterPoint West	—	—	—	—	—	—	—
NGPL-MC	3.96	—	3.96	3.96	3,500	1	—
Oneok	4.16	0.01	4.20	4.12	22,500	5	4.15
Panhandle	3.95	-0.12	4.10	3.85	33,300	14	4.07
Williams	—	—	—	—	—	—	4.08
Regional Average	3.99	-0.10					4.08
GREAT PLAINS							
Emerson	—	—	—	—	—	—	4.43
NB Ventura TP	—	—	—	—	—	—	4.50
NNG Demarc	4.24	-0.21	4.36	4.20	10,127	5	4.45
NNG Ventura	4.24	-0.23	4.36	4.14	43,900	10	4.47
Regional Average	4.24	-0.21					4.45
UPPER MIDWEST							
Alliance	4.48	-0.08	4.48	4.48	10,000	1	4.57
ANR ML7	—	—	—	—	—	—	4.58
Chicago Citygate	4.34	-0.14	4.50	4.20	54,000	12	4.48
Consumers	4.42	-0.02	4.46	4.33	16,500	4	4.45
MichCon	4.30	-0.19	4.42	3.88	76,100	14	4.49
Regional Average	4.34	-0.14					4.48
SOUTHEAST							
Tetco M1	4.27	-0.05	4.27	4.26	30,000	7	4.32
Transco Zone 4	4.24	-0.05	4.26	4.15	72,174	8	4.29
Transco Zone 5	—	—	—	—	—	—	5.07

(continued on p.9)

NOIA ...

(continued from page 7)

eral government regarding deepwater drilling permits and only a trickle of shallow water projects have been given the go-ahead (See p6).

Be fair, Luthi said, is the message that NOIA is sending Salazar and the BOEM — and consistent when it comes to permitting.

John A. Sullivan, Houston

College-Level ...

(continued from page 1)

US that had petroleum land management (PLM) programs.

"In the boom of the 1980s, 10 petroleum land management programs sprang up and, in 1981, the OU program alone had more than 800 majors," he said. "Then came the bust. For the next 15 years, the industry was on a roller coaster — up and down — and many of these graduates had a degree that did them little good."

Jacobs said he has seen the energy industry as a whole go "from a young workforce to a middle-aged workforce and now to an ancient workforce." After the summer of 1982, with the collapse of Penn Square Bank, the US energy industry continued to downsize its workforce. In 1995, Jacobs became a casualty in one of those workforce reductions.

The universities that had these programs also began making cuts and less than half of the 10 PLM programs survived. In 1997, with the OU PLM program down to four students, the university was looking at eliminating it, as UT had done in 1995.

"Before the dean pulled the plug, the alumni convinced him to see if they could bring someone in from the industry to revive the program," Jacobs said. "I got the job, I am not an academic, but rather consider myself as a 'pracademic.' So, I went out to the industry and asked them what can we do to improve the old curriculum and produce a graduate the industry would hire."

By 1998, Jacobs had implemented a major curriculum overhaul that included changing the name to Energy Management, as the new program looks at both the upstream and midstream parts of the industry.

"Back in 1999, oil was at its lowest at about $10 per barrel," Jacobs said. "Regardless, though, of what the price of oil or natural gas is, the workforce was still aging and was going to need an infusion of new talent, i.e. new and tech savvy energy-focused graduates."

The new curriculum added financial, analytical and engineering segments to the curriculum. It paid off as the course went from four students to 230. After nine years at OU, Jacobs left to develop a similar program at the University of Tulsa, which has the distinction of being the only private institution with an Energy Management program

"To have a successful program like this, you need certain things: a petroleum engineering program, a law school, be located in an oil-patch city and have access to excellent industry people who can come to the classroom," Jacobs said. "The University of Tulsa (TU) has all that. There is no reason why TU can't become the energy education capital of the world. We have everything right here to accomplish that."

Jacobs said the program allows only 30 students a year to come into the program. Energy Management students are

(continued on page 9)

NATURAL GAS BIDWEEK PRICES (cont.)

Flow Dates: 1/1-1/31

Price Point	January Avg. $/MMBtu	Chg. from Prev.	High	Low	Vol.	Deals	Prev. Bid-Week
Regional Average	4.25	-0.09					4.34
APPALACHIA							
Col. Gas App. Pool	4.39	-0.02	4.40	4.39	25,000	3	4.41
Dominion North	—	—	—	—	—	—	4.82
Dominion South	4.59	0.10	4.60	4.58	35,500	5	4.49
Lebanon Hub	4.40	-0.03	4.42	4.37	40,000	4	4.43
Regional Average	4.47	0.00					4.46
EASTERN CANADA							
Dawn	4.69	-0.12	4.71	4.55	14,434	7	4.81
Iroquois	3.72	-1.67	3.72	3.72	2,310	1	5.39
Niagara	4.94	-0.10	4.94	4.94	10,000	1	5.04
Regional Average	4.70	-0.18					4.87
NORTHEAST / MIDATLANTIC							
Algonquin	—	—	—	—	—	—	6.00
Dracut	7.42	1.18	7.42	7.42	2,000	1	6.24
Iroquois Zone 2	7.47	1.44	7.47	7.47	5,000	1	6.02
Tenn Gas Zone 6	—	—	—	—	—	—	6.06
Tetco M3	6.98	1.85	7.02	6.94	22,792	6	5.13
Transco Z6 - Non-NY	7.63	2.38	7.72	7.32	23,700	7	5.26
Transco Z6 - NY	8.67	2.95	9.02	8.52	19,500	7	5.72
Regional Average	7.69	2.00					5.69
ROCKIES							
Cheyenne Hub	3.85	-0.23	3.90	3.84	5,700	2	4.08
CIG	3.80	—	3.86	3.76	8,754	2	—
Kern River / Opal	3.83	-0.19	4.01	3.78	89,500	15	4.01
NW Rockies	3.81	-0.19	3.84	3.79	22,000	3	4.00
Questar	—	—	—	—	—	—	—
Regional Average	3.82	-0.19					4.01
SAN JUAN BASIN							
El Paso Bondad	—	—	—	—	—	—	—
El Paso San Juan	3.89	-0.24	3.96	3.81	345,000	61	4.12
Regional Average	3.89	-0.24					4.12
PACIFIC NORTHWEST/WESTERN CANADA							
AECO	3.56	-0.10	3.86	3.44	238,839	46	3.67
Kingsgate	—	—	—	—	—	—	—
Malin	4.07	-0.25	4.17	4.00	39,900	9	4.32
NW Sumas	4.19	-0.77	4.38	4.11	129,367	27	4.97
Stanfield	—	—	—	—	—	—	—
Westcoast Station 2	3.37	-0.40	3.56	3.32	83,241	13	3.77
Regional Average	3.74	-0.43					4.17
CALIFORNIA							
Kern - Wheeler Ridge	—	—	—	—	—	—	—
PG&E Citygate	4.24	-0.39	4.35	4.18	25,000	6	4.64
PG&E South	—	—	—	—	—	—	4.26
SoCal Border	4.01	-0.27	4.04	3.98	95,000	12	4.28
SoCal Citygate	4.05	-0.26	4.23	4.00	90,000	9	4.31
Regional Average	4.06	-0.29					4.35

CITYGATE PRICES

Price Point	January Avg. $/MMBtu	Chg. from Prev.	High	Low	Vol.	Deals	Prev. Bid-Week
Austin, Texas	4.00	-0.26	—	—	—	—	4.27
Detroit, Michigan	4.49	-0.14	—	—	—	—	4.63
Los Angeles, Cal	4.51	-0.27	—	—	—	—	4.78
Minneapolis, Minn	4.34	-0.23	—	—	—	—	4.57
Nashville, Tenn	4.22	-0.05	—	—	—	—	4.27
Philadelphia, Penn	8.65	2.95	—	—	—	—	5.70
Seattle, Washington	4.25	-0.77	—	—	—	—	5.03
Washington, DC	8.63	2.95	—	—	—	—	5.68

College-Level ...

(continued from page 8)

required to take upper division courses in Accounting, Business Law, Economics, Finance, Geology, Petroleum Engineering and graduate courses in the TU College of Law. Many students have the opportunity to work part-time jobs in Tulsa during the school year and across the nation over the summer. They also participate in a mentoring program with local energy-related professional associations that work one-on-one with the students.

"It is a combination of the best of worlds. They get a chance to apply what they learn in class at their internship and what they learn in the internship back in class," Jacobs said. "They have a chance to see how all the pieces fit together."

Besides TU and OU, other universities with existing PLM/EM programs include Texas Tech, the University of Louisiana at Lafayette, Western State College and the University of Calgary.

Jacobs has placed 100% of his graduates at TU and OU since 1997.

"If you speak the language of the energy industry, potential employers are more open to hiring you," he said.

TU is also in the process of developing an online master of energy business program in partnership with Robert Gordon University in Aberdeen, Scotland, Jacobs said. This will not be a traditional masters of business administration (MBA) program, but a masters program catering to energy professionals with at least three to five years of experience.

"If you are an engineer in Houston and need to take North Sea oil and gas law, now you will be able to," Jacobs said. "This program will offer engineers all four of those cornerstone programs that MBAs have, but with an energy focus."

Jacobs said he hopes to roll out the program in the spring of 2012, and is in the process of hiring a director to create the curriculum and oversee the program, which may offer a certificate later on.

"With this generation, they demand the online, distant learning system," Jacobs said. "The industry doesn't have the luxury of sending them off for a couple of years. With an online program, the company gets to keep their worker who is learning more and becoming more valuable to them at the same time."

The developing shale plays will also help push the need for multi-disciplined workers, he said.

"I see an energized energy graduate in very high demand," Jacobs said. "This is a huge niche for us and a huge window of opportunity."

John A. Sullivan, Houston

More ...

(continued from page 1)

Norton, agreed to cease formal protection of wilderness areas without congressional approval.

Salazar characterized the strategy as a "common sense" way to protect back-country places where Americans "recreate, find solitude and enjoy the wild."

On the other hand, gas industry groups said it will add to the existing list of road blocks that may prevent current or future exploration within natural gas basins based in Colorado, Wyoming, Utah and New Mexico (NGW Dec.27,p1).

Kathleen Sgamma, government affairs director for the

(continued on page 10)