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Aug. 15, 2016 | Volume 114.8b

GENERAL INTEREST

COVER

Noble Corp. has contracted *marine and offshore engineering consultancy Aqualis Offshore to oversee the load-on, transportation, and load-off operations of the first journey of the world's largest jack up rig, the Noble Lloyd Noble. The rig has an operational air gap of 69 m and is capable of operating in as much as 150 m of water in harsh environmental conditions. It has a maximum total drilling depth capacity of 10,000 m. Aqualis Offshore will ride with the ship for the first leg of the journey from Singapore to Port Elizabeth, South Africa. The rig's final destination is Statoil ASA's Mariner field development in the UK North Sea. Photo from Aqualis Offshore.*

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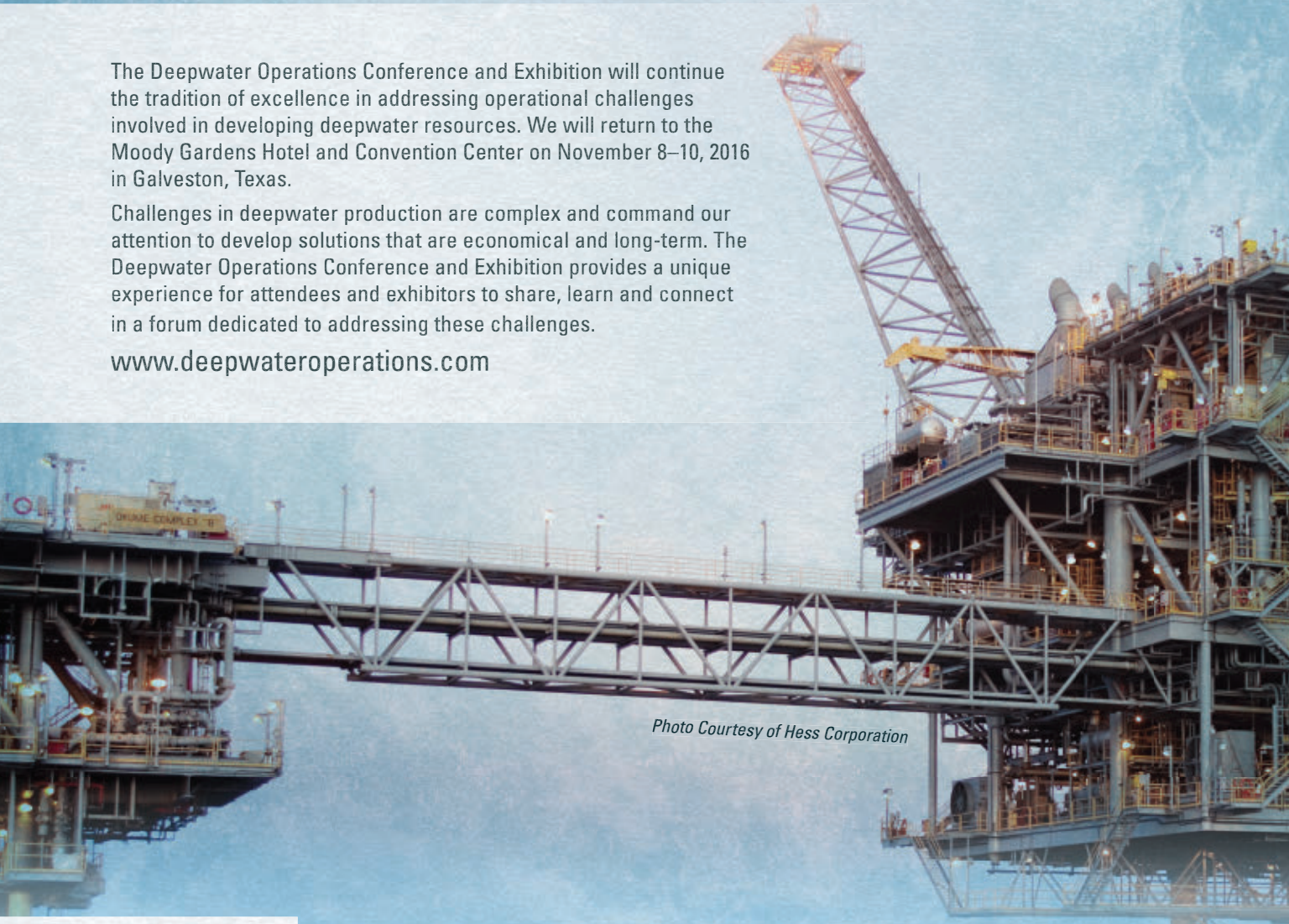

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Aug. 15, 2016

GENERAL INTEREST QUICK TAKES

SM Energy to buy Midland basin firm for $980 million

SM Energy Co., Denver, has agreed to acquire 100% membership interest in Rock Oil Holdings LLC and its 24,783 net acres in Howard County, Tex., from private equity firm Riverstone Holdings LLC for $980 million.

The acquired acreage is largely contiguous and includes 4,900 boe/d net production in July, and 6 million boe of proved developed producing reserves as estimated by SM Energy. Two wells are slated to come online in August.

Effective Sept. 1 and expected to close Oct. 4, the deal expands SM Energy's Midland basin footprint to 46,750 net acres. Jay Ottoson, the firm's president and chief executive officer, noted that Howard County "is emerging as a top-tier area for well performance" within the basin."

Ottoson said, "We expect that the implementation of pad drilling, reservoir modeling, zipper fracs, and leading edge completion technologies will add value from the start."

The company expects to run one rig in the area in this year's fourth quarter, Ottoson said, and two rigs throughout 2017. As a result, he said, the firm is increasing its estimate of total capital spend for 2016 by $15-20 million.

In its second-quarter earnings report, the firm said it plans to focus its second-half Permian drilling activity on the Midland basin's Sweetie Peck area, while dropping its lone Eagle Ford rig in August (OGJ Online, Aug. 5, 2016).

Denver- and Houston-based Rock Oil was formed in March 2014.

Newfield further shifts focus to Oklahoma STACK play

Newfield Exploration Co., Houston, has agreed to divest all of its assets in Texas in separate deals with Protege LLC, Tulsa, and an undisclosed buyer for combined net aftertax proceeds of $390 million.

Protege is acquiring Newfield's Eagle Ford shale assets, while the undisclosed buyer is acquiring Newfield's conventional natural gas assets in South Texas. Current net production from the combined assets is 12,700 boe/d, of which 35% is oil.

"Proceeds from the sale of our Texas assets will replenish our cash balance and position us for the timely acceleration of our STACK development in the future," said Lee K. Boothby, Newfield chairman and chief executive officer.

In the its second-quarter earnings report, the firm said it has increased its 2016 capital budget to $700-750 million, reflecting $40 million for two STACK pilots, and $50 million for additional drilling on existing assets and assets associated with the recently closed acquisition of STACK properties from Chesapeake Energy Corp. (OGJ Online, May 6, 2016). The deal expanded Newfield's STACK footprint to 265,000 net acres.

Boothby noted that the firm has lifted its average type curve in STACK by 15% to 1.1 million boe after drilling more than 100 wells to date. "Our well results continue to improve as we optimize our completions and look for innovative ways to enhance returns in our upcoming full-field development campaign," Boothby said. "We recently closed on our previously announced STACK acquisition and have allocated additional capital to these assets in the second half of this year."

For the second quarter, Newfield recorded a net loss of $667 million primarily attributable to a full-cost ceiling test impairment of $522 million.

Backed financially by EnCap Investments LP, Protege has assets in South Texas, the Permian basin, the Midcontinent region, and the Appalachian basin.

Suncor to buy 30% of Rosebank from OMV

Suncor Energy Inc. is buying a 30% stake in the Rosebank project in the UK North Sea from OMV AG.

Upon completion of the transaction, OMV (UK) Ltd. will have 20% in Rosebank (OGJ Online, Aug. 19, 2013).

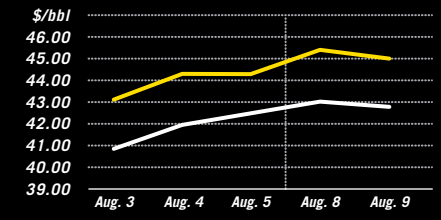
At closing, which is expected in the fourth quarter, Suncor will pay an initial $50 million. Suncor could pay up to an additional $165 million if project partners approve a final investment decision on Rosebank and Suncor elects to participate.

Rosebank was discovered in 2004, and is in the front-end engineering and design phase. It has a design capacity of 100,000 b/d of crude and 80 MMcfd of natural gas.

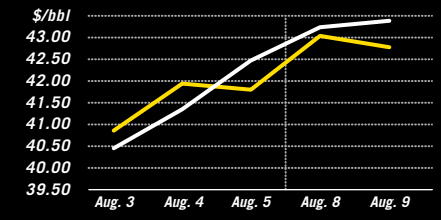
Rosebank is 130 km northwest of the Shetland Islands in 1,110 m of water.

Operator Chevron North Sea Ltd. has 40% in Rosebank, and DONG E&P (UK) Ltd. 10% (OGJ Online, July 9, 2012). OGJ

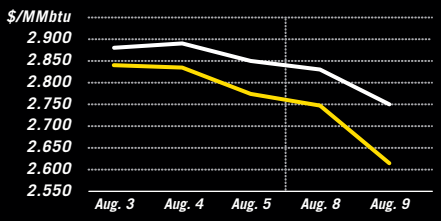
ICE BRENT / NYMEX LIGHT SWEET CRUDE



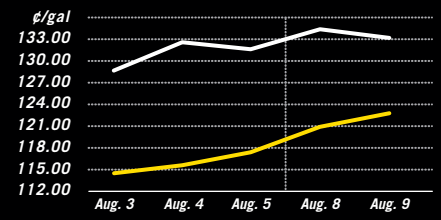
WTI CUSHING / BRENT SPOT



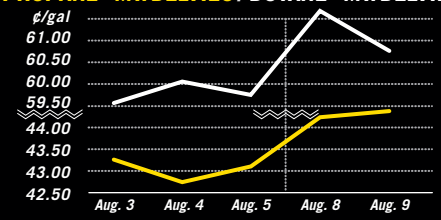
NYMEX NATURAL GAS / SPOT GAS - HENRY HUB



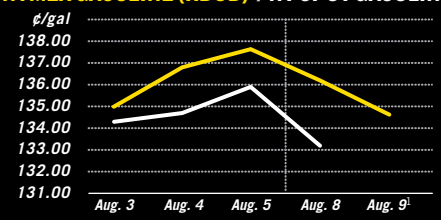
ICE GAS OIL / NYMEX HEATING OIL



PROPANE - MT. BELVIEU / BUTANE - MT. BELVIEU



NYMEX GASOLINE (RBOB)[2] / NY SPOT GASOLINE[3]



[1]Not available [2]Reformulated gasoline blendstock for oxygen blending [3]Nonoxygenated regular unleaded

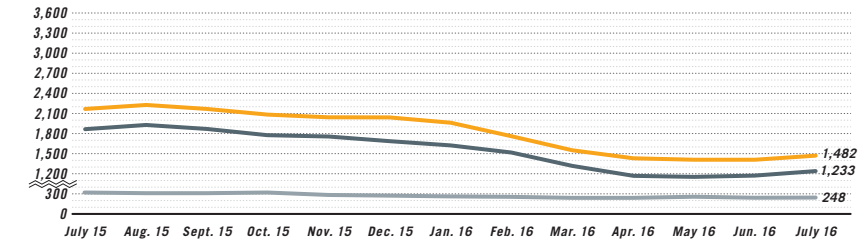
US INDUSTRY SCOREBOARD — 8/15

Latest week 7/29	4 wk. average	4 wk. avg. year ago[1]	Change, %	YTD average[1]	YTD avg. year ago[1]	Change, %
Product supplied, 1,000 b/d						
Motor gasoline	9,751	9,545	2.2	9,429	9,102	3.6
Distillate	3,647	3,719	(1.9)	3,747	3,970	(5.6)
Jet fuel	1,725	1,677	2.9	1,611	1,560	3.3
Residual	341	215	58.6	303	204	48.5
Other products	4,999	5,182	(3.5)	4,935	4,825	2.3
TOTAL PRODUCT SUPPLIED	20,463	20,338	0.6	20,025	19,661	1.9
Supply, 1,000 b/d						
Crude production	8,489	9,500	(10.6)	8,885	9,404	(5.5)
NGL production[2]	3,504	3,313	5.8	3,422	3,129	9.4
Crude imports	8,288	7,505	10.4	7,892	7,270	8.6
Product imports	2,315	2,113	9.6	2,170	2,093	3.7
Other supply[2 3]	2,698	2,283	18.2	2,155	2,318	(7.0)
TOTAL SUPPLY	25,294	24,714	2.3	24,524	24,214	1.3
Net product imports	(1,583)	(1,664)	—	(1,724)	(1,555)	—
Refining, 1,000 b/d						
Crude runs to stills	16,711	17,447	(4.2)	16,198	16,132	0.4
Input to crude stills	16,999	17,178	(1.0)	16,417	16,368	0.3
% utilization	92.8	95.1	—	90.0	91.2	—

Latest week 7/29	Latest week	Previous week[1]	Change	Same week year ago[1]	Change	Change, %
Stocks, 1,000 bbl						
Crude oil	522,546	521,133	1,413	455,275	67,271	14.8
Motor gasoline	238,190	241,452	(3,262)	216,733	21,457	9.9
Distillate	153,155	152,003	1,152	144,812	8,343	5.8
Jet fuel–kerosine	41,078	41,530	(452)	43,389	(2,311)	(5.3)
Residual	38,292	40,006	(1,714)	39,454	(1,162)	(2.9)
Stock cover (days)[4]			Change, %		Change, %	
Crude	31.3	31.3	—	27.0	15.9	
Motor gasoline	24.4	24.8	(1.6)	22.7	7.5	
Distillate	42.0	40.8	2.9	38.9	8.0	
Propane	94.0	102.8	(8.6)	92.6	1.5	
Futures prices[5] **8/5**			**Change**		**Change**	**Change,%**
Light sweet crude ($/bbl)	40.83	42.14	(1.31)	47.96	(7.13)	(14.9)
Natural gas, $/MMbtu	2.79	2.78	0.01	2.80	(0.01)	(0.2)

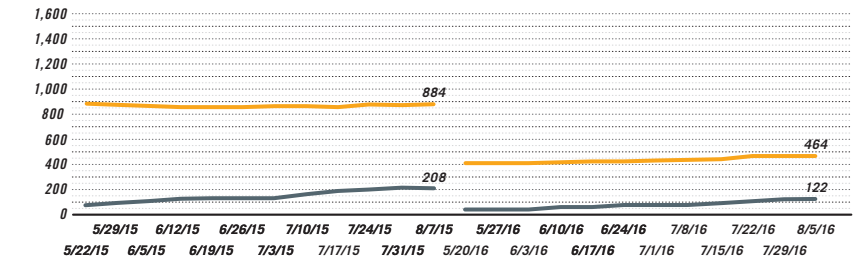
[1]Based on revised figures. [2]OGJ estimates. [3]Includes other liquids, refinery processing gain, and unaccounted for crude oil. [4]Stocks divided by average daily product supplied for the prior 4 weeks. [5]Weekly average of daily closing futures prices.
Source: Energy Information Administration, Wall Street Journal

BAKER HUGHES INTERNATIONAL RIG COUNT: TOTAL WORLD / TOTAL ONSHORE / TOTAL OFFSHORE



Note: Monthly average count

BAKER HUGHES RIG COUNT: US / CANADA



Note: End of week average count

EXPLORATION & DEVELOPMENT QUICK TAKES

Iran Petroleum Contract gets cabinet okay

Iranian cabinet ministers have approved a model contract under which non-Iranian companies might participate in oil and gas exploration and development (OGJ Online, Feb. 23, 2016).

If approved by the parliament, the new Iran Petroleum Contract would replace the buy-back contract Iran has offered with limited success since the early 1990s.

The Islamic Republic News Agency reported the approval of the IPC but offered no details about the structure.

The buy-back model is a risk-service contract that limits non-Iranian participation to 7 years and pays contractors a fixed fee unrelated to production rates.

At a meeting in Tehran last November, Iranian officials indicated the IPC would be a service contract under which non-Iranian companies would participate as minority partners in joint ventures with Iranian companies.

The IPC, according to officials at the meeting, would have a 25-year term and a fee structure more flexible than that of the buy-back model.

Bagpuss well taps hydrocarbons off Scotland

Premier Oil UK Ltd. and partners will assess commercial prospects of their Bagpuss prospect offshore Scotland after their 13/25-1 well cut 41 ft of hydrocarbon-bearing sands in a 68-ft hydrocarbon column (OGJ Online, Aug. 16, 2013). The sands have 25-33% porosity, and the oil is heavy, as expected.

The well, on Block 13/24c on the western margin of the Halibut horst in the Outer Moray Firth, reached 1,532 ft TD in granite basement. It has been plugged.

The well "has proven a significant volume of oil in place," said Robin Allan, Premier director of exploration and North Sea. An Amoco well drilled about 2 km away in 1981 encountered hydrocarbons on the same structure.

Premier is block operator with 40.1% working interest. Other partners include Maersk Oil UK 25%, North Sea Energy (UK NO_2) Ltd. 15%, EnCounter Oil 13.27%, and Groliffe 6.63%.

Sound Energy hits 28-m gas column in Morocco

Sound Energy PLC reported the TE-6 well on the Tendrara license onshore Morocco drilled to a measured vertical depth of 2,665 m and encountered 28 m of net gas pay in the TAGI reservoir (OGJ Online, Apr. 22, 2016).

The well reached a stabilized gas flow rate, post stimulation, of 17 MMscfd, which is "significantly above initial expectations and represents a highly commercial rate," the firm says. Static pressure recorded in the well correlates in terms of gas gradient with all of the wells previously drilled in the license area.

"The combination of these factors together with the fact that none of the historically drilled wells on the license have identified a gas-water contact, suggests the possibility of a significant gas column within a continuous extended structure," the firm says.

"I believe Tendrara, Meridja, and the Eastern Morocco TAGI play have the potential to be a material hydrocarbon province on a regional scale," noted James Parsons, Sound Energy chief executive officer.

The structure may include and extend beyond the reservoir identified at TE-2, 30 km northeast. A third well, TE-8, will be required at the edge of the potential structure for confirmation. It's being planned for later this year.

Sound Energy and Schlumberger Ltd. are now preparing for the second well, TE-7, about 1.3 km from TE-6. It will use subhorizontal drilling techniques that are expected to increase the individual well flow rate in a success case. This will be followed by an extended well test. The rig-up process at TE-7 is already complete and drilling is expected to start this month.

TE-6 will be suspended until the results of TE-7 are confirmed, at which point the company expects to apply for a production concession and commence detailed engineering for construction of the necessary infrastructure, which Oil & Gas Investment Fund (OGIF), one of Sound Energy's partners, has already indicated an interest in funding, constructing, and operating.

Sound Energy has a net effective interest of 27.5% in the Tendrara license. OGJ

DRILLING & PRODUCTION QUICK TAKES

OPEC says Saudi production rose in July

Saudi Arabia reported its crude oil production increased 123,000 b/d in July over June to reach an average total for the month of 10.67 million b/d, the Organization of Petroleum Exporting Countries said in its Monthly Oil Report Aug. 10.

Since the oil-price slump started in late 2014, Saudi Arabia has resisted pressure from other producers to cut production.

OPEC reports crude production based on direct communication from its members and also reports crude production based on secondary sources such as shippers, analysts, and industry. Secondary sources told OPEC that Saudi production rose 30,100 b/d during July over June to a July total of 10.47 million b/d.

For all of OPEC, secondary sources indicated July crude oil production averaged 33.11 million b/d, an increase of 46,400 b/d over June.

Crude oil production from individual cartel members increased the most from Iraq.

Iraq reported July production was up 57,000 b/d to 4.6 million b/d, OPEC said. Secondary sources estimated Iraq's July production at 4.3 million b/d, OPEC said.

BHI: North American rebound lifts global rig count

The average global rig count for July was up 74 units compared with the June average, largely reflecting rises in the US and Canada, according to Baker Hughes Inc. data. The June average was up 2 units, ending 9 straight monthly declines (OGJ Online, July 8, 2016).

The worldwide tally of active rigs during the month averaged 1,481, a decline of 686 from the average in July 2015. The US gained 32 units to 449, down 417 year-over-year. Canada added 31 units to average 94, down 89 year-over-year.

Having borne the brunt of the global industry downturn, Latin America ended its 9-month slump in July with an 8-unit rise to 186, down 127 from its year-ago average. Argentina led the way with a 9-unit jump to 72, down 34 year-over-year. Mexico added 3 units to reach 23, down 22 from its July 2015 average. Venezuela, meanwhile, dropped 3 units to 50, down 20 year-over-year.

The Asia-Pacific region increased 4 units to 186 as well, representing a 26-unit decline from its total in July 2015. India gained 5 units to 113, down just 3 from its year-ago average. Europe rose 3 units to 94, down 14 year-over-year. Norway jumped 4 units to 20, even with its year-ago average.

The Middle East edged up a unit to 390, down 1 year-over-year. A 2-unit drop in Iraq to 38, down 5 from its average in July 2015, was more than offset by a 3-unit rise in Kuwait to 47, also up 3 year-over-year. Egypt recorded its first monthly rise since late last year, adding a unit to reach 27, down 15 from its July 2015 average. Saudi Arabia also added a single unit, posting an average of 125, up 2 year-over-year.

Statoil submits PDO for Utgard discovery in North Sea

Statoil ASA and its partners have submitted to Norwegian and UK authorities the plan for development and operation (PDO) and the field development plan (FDP) for the Utgard gas and condensate discovery in the North Sea.

Recoverable reserves from Utgard are estimated at 56.4 million boe, and capital expenditures are projected at about $415 million. Discovered in 1982, Utgard, formerly Alfa Sentral, is 21 km from Sleipner field, straddling the UK-Norway median line. The majority of reserves are on the Norwegian side.

The Utgard development will include two wells in a standard subsea concept, with one drilling target on each side of the median line. With all installations and infrastructure in the Norwegian part of the sea, the UK well will be drilled from the subsea template, 450 m from the median line on the Norwegian continental shelf.

Statoil in June agreed to acquire 45% interest in the UK portion of the license from JX Nippon Oil & Energy Corp. (OGJ Online, June 3, 2016). That deal followed the acquisitions of 31% equity share in the UK license for Utgard from Repsol SA, and 24% interest from First Oil Expro Ltd. (OGJ Online, Dec. 11, 2015).

Gas and condensate will be transported through a new pipeline for processing at Sleipner, where Utgard gas, high in carbon dioxide content, will undergo carbon cleaning and storage. Statoil notes the reuse of existing infrastructure is essential to the development of Utgard.

Utgard wells are scheduled to come on stream at yearend 2019. In the plateau phase, the field will produce 7,000 cu m/day of oil equivalent.

PROCESSING QUICK TAKES

Enterprise, Oxy commission Delaware basin gas plant

Enterprise Products Partners LP (EPP) and an affiliate of Occidental Petroleum Corp., both of Houston, have commissioned a 150-MMcfd cryogenic natural gas processing plant in Reeves County, Tex., to handle growing rich-gas production from the Delaware basin (OGJ Online, Apr. 30, 2015).

The gas plant, which is supported by long-term, firm delivery contracts and also equipped to extract more than 22,000 b/d of NGLs, began operations on Aug. 3, said EPP, which operates the plant on behalf of Delaware Basin Gas Processing LLC (DBGP), a 50-50 joint venture of EPP and Oxy.

In conjunction with the DBGP plant, EPP said it also has completed construction of an 82-mile, 12-in. NGL pipeline that connects to its Chaparral pipeline to provide customers with access to EPP's fractionation and storage complex in Mont Belvieu, Tex.

The company's Texas intrastate pipeline system also will provide natural gas transportation services at the tailgate of the plant for access to multiple markets, EPP said.

Startup of the new plant follows EPP's May commissioning of its 200-MMcfd cryogenic gas processing plant in Eddy County, NM, both of which come as part of the company's overall strategy to double its capacity in the Delaware basin during 2016 (OGJ Online, May 20, 2016).

The company also recently announced plans to build and commission a 300-MMcfd cryogenic gas processing plant by mid-2018 to further expand its gas processing capacity in the Delaware basin of West Texas or southeastern New Mexico.

JV to expand gas processing in Delaware basin

A subsidiary of EnLink Midstream Partners LP and EnLink Midstream LLC and an affiliate of NGP Natural Resources XI LP have formed a strategic joint venture to operate and expand midstream assets for natural gas, NGLs, and crude oil in the liquids-rich Delaware basin.

Already anchored by long-term, fee-based commitments from major producers, the new Lobo II expansion include installation of a 120-MMcfd cryogenic natural gas processing plant, as well as associated natural gas and liquids-gathering pipeline infrastructure, in Loving County, Tex., and Eddy and Lea Counties, NM, EnLink said.

The expansion will build off EnLink's existing Lobo gathering and processing system, which it acquired from Matador Resources Co. in October 2015, the company said.

Upon completion of Lobo II, the Delaware basin facility will have a total processing capacity of about 155 MMcfd, according to EnLink, which will serve as the JV's managing member and handle day-to-day construction and operation of the assets.

The Lobo II expansion is due for startup by yearend. EnLink, which contributed about $230 million of its Delaware basin assets an additional $285 million to fund potential future development projects and potential acquisitions, will hold

50.1% interest in the JV, with NGP to hold the remaining 49.9% stake for its aggregate capital contribution of $400 million.

Canyon Midstream adds Permian line, compression

Canyon Midstream Partners LLC, Houston, has completed the addition of new pipeline and compression in Winkler County, Tex., as part of an ongoing expansion of its James Lake midstream system, which provides gas gathering, treating, and processing services to producers in the Permian basin (OGJ, June 2, 2014, p. 72).

Developed and executed in response to increased customer demand for sour gas processing capacity in Winkler County, the expansion added compression at Canyon's field facility in Kermit, Tex., as well as a 22-mile trunkline extension equipped to deliver as much as 60 MMcfd of gas to the James Lake plant for treating and processing, Canyon said.

With the expansion now completed, the James Lake system currently consists of a 110-MMcfd cryogenic gas processing plant in Ector County, Tex., about 90 miles of gathering trunklines, and eight field compressor stations located across the Texas counties of Ector, Andrews, and Winkler.

Officially commissioned in December 2014, the system delivers residue gas into the El Paso Natural Gas pipeline and NGLs to both the Sand Hills and Chaparral pipelines.

Canyon is currently finalizing a design to expand processing capacity at the James Lake plant to 150 MMcfd, according to the company's web site.

TRANSPORTATION QUICK TAKES

MarEn venture buys interest in Bakken Pipeline

MarEn Bakken Co. LLC—an entity jointly owned by Enbridge Energy Partners LP and Marathon Petroleum Corp.—has agreed to acquire from Energy Transfer Partners LP (ETP) and Sunoco Logistics Partners LP 36.75% interest in the Bakken Pipeline project for $2 billion. The Bakken system includes the Dakota Access pipeline and the Energy Transfer Crude Oil (ETCO) pipeline.

After closing, a Marathon subsidiary will participate in a Dakota Access-ETCO pipeline open season, and subject to its terms and conditions, make a long-term volume commitment on the Bakken project.

Bakken Holdings Co. LLC, a joint venture of ETP and Sunoco, owns 75% of both Dakota Access and ETCO. Bakken Pipeline will consist of 1,172 miles of new 30-in. OD crude oil pipeline extending from North Dakota to Patoka, Ill., and more than 700 miles of pipeline converted to crude service from Patoka to Nederland, Tex. Dakota Access will deliver more than 470,000 b/d of crude oil from the Bakken-Three Forks production area in North Dakota to the Midwest. ETCO will transport crude from the Midwest to Sunoco and Phillips 66 storage terminals in Nederland.

Bakken Holdings is selling 49% of its 75% interest (36.75%) in Dakota Access and ETCO. The remaining 25% of each is owned by wholly owned units of Phillips 66. ETP-Sunoco will retain 38.25% ownership. Sunoco will operate the line.

ETP and Sunoco will receive $1.2 billion and $800 million in cash at closing, respectively. The Bakken Pipeline partners have arranged $2.5 billion in project financing to complete the project.

PAA, Phillips 66 partner to expand STACK crude line

Plains All American Pipeline LP (PAA) and Phillips 66 Partners LP have formed the STACK Pipeline LLC joint venture to transport crude oil from the Sooner Trend, Anadarko basin, Canadian and Kingfisher counties (STACK) play in northwestern Oklahoma to Cushing. Plains contributed an existing terminal at Cashion, Okla., with about 200,000 bbl of crude storage and a 55-mile, 100,000-b/d crude oil pipeline (STACK Pipeline) to the joint venture, while Phillips 66 contributed $50 million cash in exchange for its 50% interest.

The JV plans to invest $15 million to expand the STACK pipeline by building a truck station at Highway 33, about 12 miles northwest of the Cashion terminal, a lateral pipeline to connect the Highway 33 station to the terminal, and 100,000 bbl of new storage at the terminal. PAA and Phillips are also considering both expanding STACK pipeline's capacity by looping it between Cashion and Cushing and adding gathering sources to the system.

The STACK pipeline and the initial expansion are supported by multiple long-term contracts as well as legacy production gathered by existing Plains crude pipelines in western Oklahoma. Phillips 66 noted that the system's connection to Cushing would also provide another source of advantaged crude to it Ponca City, Okla., refinery.

Williams gets FERC approval for eastern US expansions

Williams Partners LP has received approval from the US Federal Energy Regulatory Commission for its New York Bay expansion and Virginia Southside II expansion projects. The New York Bay expansion is designed to serve increasing local distribution demand in New York City while the Virginia Southside II expansion targets electric-power generation in Virginia.

Williams expects to begin construction on each project in the fourth quarter, with each entering service in fourth-quarter 2017. Both expansions are fully subscribed.

The New York Bay expansion will move 115 MMcfd into National Grid's distribution system to the Rockaway Delivery lateral and the Narrows meter station. The Virginia Southside II expansion will send 250 MMcfd to a delivery point on a new lateral off Transco's Brunswick lateral in Virginia for shipment to a 1,580-Mw combined-cycle power plant that Dominion Virginia Power is building in Greensville County, Va.

Williams held a binding open season in May for its Northeast Supply Enhancement project, a 400-MMcfd expansion of the Transco pipeline expected to enter service for the 2019-20 heating season (OGJ Online, May 17, 2016). OGJ

■ *Denotes new listing or a change in previously published information.*

AUGUST 2016

SPE/AAPG/SEG Unconventional Resources Technology Conference (URTeC), San Antonio, web site: www.urtec.org/ **1-3.**

Society of Petroleum Engineers (SPE) Nigeria Annual International Conference & Exhibition, Lagos, web site: connect.spe.org/spenc/naice/naice2016/ **2-4.**

International Conference on Oil Reserves & Estimation Techniques, Seattle, web site: waset.org/conference/2016/08/seattle/ICORET **8-9.**

NAPE Expo, Houston, web site: napeexpo.com/shows/about-the-show/houston/ **10-11.**

EnerCom's The Oil & Gas Conference-2016, Denver, web site: www.theoilandgasconference.com/ **14-18.**

4th International Conference on Petroleum Engineering, London, web site: www.petroleumengineering.conferenceseries.com/ **15-17.**

IADC/SPE Asia Pacific Drilling Technology Conference & Exhibition, Singapore, web site: www.spe.org/events/apdt/2016/ **22-24.**

■ Rocky Mountain Energy Summit, Denver, web site: rmesummit.org/con/ **22-25.**

GeoBaikal 2016: Expand Horizons, Irkutsk, Russia, web site: www.eage.org/event/index.php?eventid=1433&Opendivs=s3 **22-26.**

SPE Asia Pacific Hydraulic Fracturing Conference, Beijing, web site: www.spe.org/events/aphf/2016/pages/general/call_for_papers.php **24-26.**

2nd International Congress & Expo on Biofuels & Bioenergy, Sao Paulo, web site: biofuels-bioenergy.conferenceseries.com/ **29-31.**

15th European Conference on the Mathematics of Oil Recovery (ECMOR XV), Amsterdam, web site: www.eage.org/event/index.php?eventid=1416&Opendivs=s3 **Aug. 29-Sept. 1.**

Offshore Northern Seas, Stavanger, web site: www.tofairs.com/expo.php?fair=103366 **Aug. 29-Sept. 1.**

2nd International Congress & Expo on Biofuels & Bioenergy, Sao Paulo, web site: biofuels-bioenergy.conferenceseries.com/ **29-31.**

■ IADC Asset Integrity & Reliability Conference & Exhibition, Houston, web site: www.iadc.org/event/2016-iadc-asset-integrity-reliability-conference-exhibition/ **30-31.**

Ultradeepwater & Onshore Technology Conference, Galveston, Tex., web site: www.rpsea.org/events/503 **30-31.**

SEPTEMBER 2016

Second Applied Shallow Marine Geophysics Conference, Barcelona, web site: www.Eage.org/event/index.php?eventid=1421&Opendivs=s3 **4-8.**

EAGE First Conference on Geophysics for Mineral Exploration and Mining, Barcelona, web site: www.eage.org/event/?eventid=1420 **4-8.**

European Association of Geoscientists & Engineers (EAGE) First Conference on Geophysics for Mineral Exploration & Mining, Barcelona, web site: www.eage.org/event/index.php?eventid=1420&Opendivs=s3 **4-8.**

22nd European Meeting of Environmental and Engineering Geophysics, Barcelona, web site: www.eage.org/event/index.php?eventid=1419&Opendivs=s3 **4-8.**

SPE Offshore Europe, Aberdeen, web site: www.offshore-europe.co.uk/ **5-8.**

SPE Intelligent Energy Conference, Aberdeen, web site: www.intelligentenergyevent.com/ **6-8.**

NACE Egypt Corrosion Conference, Cairo, web site: egyptcorrosion.nace.org/ **6-8.**

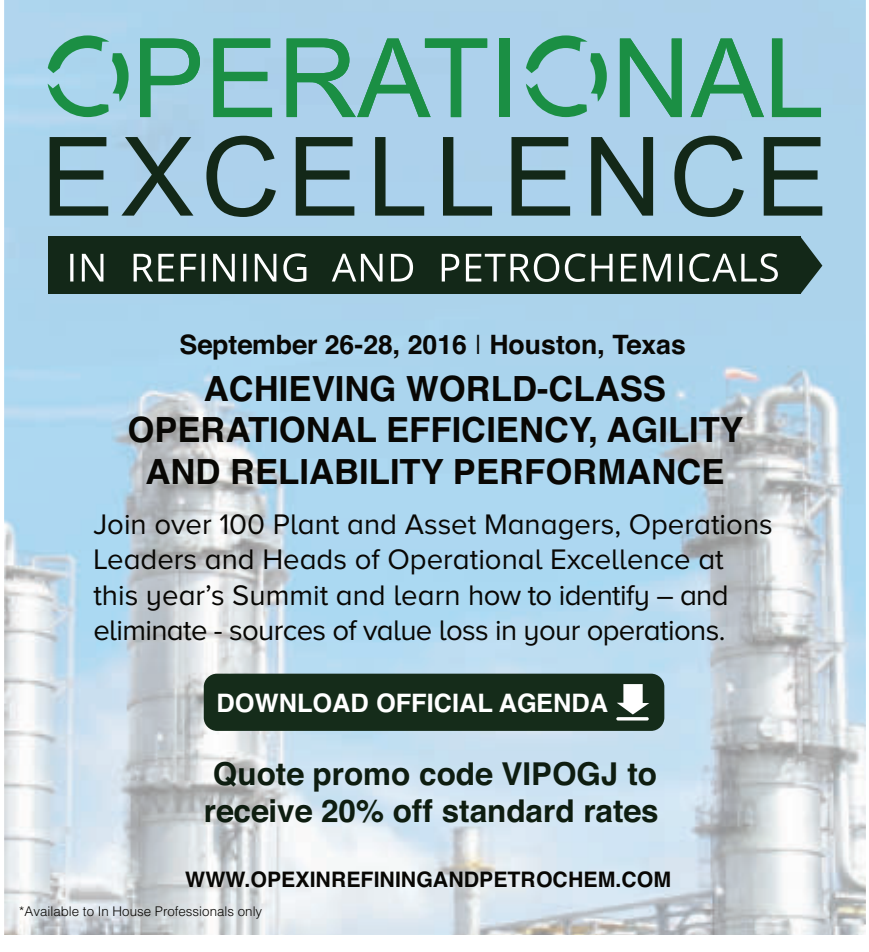
AAPG SEG International Conference & Exhibition 2016, Cancun, web site: www.aapg.org/publications/blogs/events/article/articleid/23667/increase-your-exposure-exhibition-and-sponsorship-opportunities-available/ **6-9.**

AAPG SEG 2016 International Conference & Exhibition, Cancun, web site: www.aapg.org/events/conferences/ice/announcement/articleid/20311/aapg-seg-2016-international-conference-exhibition-cancun **6-9.**

23rd Annual India Oil & Gas Review Summit & International Exhibition, Mumbai, web site: www.oilgas-events.com/india-oil-gas **9-10.**

International Conference on Chemical Engineering, Phoenix, web site: chemicalengineering.conferenceseries.com/ **12-14.**

Geomodel 2016, Gelendzhik, Russia, web site: www.eage.org/event/



index.php?eventid=1448&Opendivs=s3 **12-15.**

■ IADC Advanced Rig Technology Conference & Exhibition, Galveston, Tex., web site: www.iadc.org/event/2016-iadc-advanced-rig-technology-conference-exhibition/ **13-14.**

ESOPE International Exhibition & Symposium for the Pressure Equipment Industry, Paris, web site: www.esope-paris.com/ **13-15.**

SPE Deepwater Drilling & Completions Conference, Galveston, Tex., web site: www.spe.org/events/ddc/2016/ **14-15.**

2nd Annual IoT in Oil & Gas, Houston, web site: energyconferencenetwork.com/iot-in-oil-and-gas-2016/**14-15.**

Rio Oil & Gas Expo & Conference, Rio de Janeiro, web site: www.whereinfair.com/rio-oil-gas-expo/rio-de-janeiro/2016-Sep/ **14-16.**

■ Society of Petroleum Resources Economists Meeting, Houston, web site: www.spreconomists.org/events.htm **15.**

International Conference on Oil & Gas Transportation, Zurich, web site: waset.org/conference/2016/09/zurich/ICOGT **15-16.**

Turbomachinery & Pump Users Symposium, Houston, web site: tps.tamu.edu/event-info **15-17.**

Iran International Petroleum Congress (IIPC), Tehran, web site: www.iranpetroleumcongress.com/ **19-21.**

■ Center for Offshore Safety Forum, Houston, web site: www.centerforoffshoresafety.org/Events/2016%20COS%20Forum **20-21.**

The CWC World LNG & Gas Series: Asia Pacific Summit, Singapore, web site: asiapacific.cwclng.com/ **20-23**.

2016 Deloitte Oil & Gas Conference, Houston, web site: www2.deloitte.com/us/en/pages/energy-and-resources/events/oil-and-gas-conference.html **21**.

■ IADC Drilling HSE&T Europe Conference & Exhibition, Amsterdam, web site: www.iadc.org/event/euro-hset-2016/ **21-22.**

SPE Liquids-Rich Basins Conference—North America, Midland, Tex., web site: www.spe.org/events/lrbc/2016/ **21-22.**

International Conference on Petroleum Industry & Energy, Los Angeles, web site: www.waset.org/conference/2016/09/los-angeles/ICPIE **22-23**.

Eastern Section, American Association of Petroleum Geologists 2016 Annual Meeting, Lexington, Ky., web site: www.esaapgmtg.org/ **25-27.**

Corrosion Technology Week 2016, Houston, web site: ctw.nace.org/ **25-29**.

Missouri University of Science and Technology

Geosciences and Geological and Petroleum Engineering Department (GGPE)

DEPARTMENT CHAIR

MISSOURI S&T

The Department of Geosciences and Geological and Petroleum Engineering (GGPE) at Missouri University of Science and Technology invites applications for the position of Department Chair. Candidates should have a record of successful multi-disciplinary team leadership with exceptional skills in communication, organization, and promoting collaboration within and among multiple academic and technical programs. Candidates will embrace the values of transparency, inclusion, and collegiality, and possess a strong record of building programs and facilitating the success of personnel. Requirements include: a Ph.D. in Geosciences, Geological Engineering, Petroleum Engineering or a closely related area; experience in academic, industry, or government research sectors; and a successful scholarly record commensurate with appointment at the rank of full professor.

The department has grown by 37% since 2011 to reach 22 full-time faculty including 21 tenured or tenure-track professors and 1 full-time teaching faculty member. The department offers B.S., M.S., and Ph.D. degrees in each of geology and geophysics, geological engineering and petroleum engineering. The department also offers an online M.E. program in Geotechnics. The department currently has 545 undergraduate students and 297 graduate students in its Ph.D., M.S., and M.E. programs. The department's faculty and students are actively engaged in a wide variety of multi-disciplinary research. Closely associated programs on campus include Civil Engineering, Environmental Engineering and Mining Engineering. Local area establishments with active research collaborations include the U.S. Geological Survey (Mid-continent Geospatial Mapping Center), Missouri Department of Natural Resources, Fort Leonard Wood, the Missouri S&T Rock Mechanics and Explosives Research Center, Materials Research Center, Environmental Research Center, and Energy Research and Development Center. More information about the department and campus can be found at http://ggpe.mst.edu/. Questions and nominations can be emailed to robertsst@mst.edu.

Interested candidates should electronically submit an application consisting of a cover letter, current curriculum vitae, statements of teaching and leadership philosophies, a research statement, and complete contact information for five references to Missouri University of Science and Technology's Human Resource Office at http://hr.mst.edu/careers/academic/. Application review will begin on October 15, 2016, and will continue until the position is filled. All submitted application materials must have the position number 00066297 in order to be processed. Hardcopy applications will not be accepted.

The final candidate is required to provide copies of official transcript(s) for any college degree(s) listed in application materials submitted. Copies of transcript(s) should be provided prior to the start of employment. In addition, the final candidate may be required to verify other credentials listed in application materials. Failure to provide official transcript(s) or other required verification may result in the withdrawal of the job offer.

All job offers are contingent upon successful completion of a criminal background check. The University of Missouri is an equal access, equal opportunity, affirmative action employer that is fully committed to achieving a diverse faculty and staff. Equal Opportunity is and shall be provided for all employees and applicants for employment on the basis of their demonstrated ability and competence without unlawful discrimination on the basis of their race, color, national origin, ancestry, religion, sex, sexual orientation, gender identity, gender expression, age, genetic information, disability, or protected veteran status.

Bankruptcy woes

LAURA BELL
Statistics Editor

It should come as no surprise that North American oil and gas producers are struggling in today's current low-price environment. Companies seeking relief from uncontrollable outstanding debt can file one of two types of bankruptcies: Chapter 7 or Chapter 11.

If a Chapter 7-type of bankruptcy is filed, the company halts all business operations and liquidates any assets to pay off debt, closing the door to its business.

More frequently, a Chapter 11-type of bankruptcy can be used. Once filed, the company can potentially "reorganize" its business to eventually become profitable again. Administration continues with the day-to-day operations, but all major business decisions must be permitted by a bankruptcy court.

Since the start of 2015, international corporate law firm Haynes & Boone LLP tracked 85 North American oil and gas producers that filed for bankruptcy. These cases account for nearly $61.2 billion in cumulative secured and unsecured debt. For this year's first half, of those firms filing bankruptcy, 43 were oil and gas producers with a cumulative total of roughly $44 billion in secured and unsecured debt.

In June, only 4 exploration and production companies filed with total debt of around $1.5 billion, where in April, 11 E&P companies filed with $14.7 cumulative debt, and 12 filed in May with a cumulative debt of $25.6 billion. The state of Texas holds the most filings with 43 E&P companies in bankruptcy courts and with the most cumulative debt of over $29 billion. Delaware has 15 bankruptcy cases and $15.3 billion in cumulative debt and holds the No. 2 spot.

Top ten cases

In April, Haynes & Boone released a report of the top 10 bankruptcy cases of companies with filings from the beginning of 2015 through end of this past March. At the time of the release, Samson Resources Corp. led the list with more than $4 billion in total debt. The company is currently seeking an alternative restructuring plan and has been approved by the courts to sell at auction various oil and gas wells with a collective PV9 reserve value of $16.5 million.

The No. 2 case is with Sabine Oil & Gas Corp., with $2.9 billion in total debt. The firm's restructuring plan includes debt-for-debt exchange, a debt-to-equity conversion, and the issuance of stock warrants.

With $2.1 billion in debt, Quicksilver Resources Inc. was No. 3 on the list. The court approved the sale of Quicksilver's US oil and gas assets to BlueStone Natural Resources LLC for $245 million. With $1.2 billion in total debt, Swift Energy Co. was No. 4. Swift negotiated with senior noteholders to a restructuring support agreement, where senior notes would be converted to 96% of the common stock of the reorganized Swift. Swift also sold certain assets in Louisiana to Texegy LLC in exchange for approximately $49 million.

The remaining E&P firms on the bankruptcy list are: No. 5, Energy & Exploration Partners Inc., $1.2 billion in total debt; No. 6, Magnum Hunter Resources Corp., $1.1 billion; No. 7, Milagro Oil & Gas, $1.1 billion; No. 8, Venoco Inc., $952.1 million; No. 9, New Gulf Resources LLC, $586 million; and No. 10, ERG Operating Co. LLC, $409.7 million

Since the release of the report by Haynes & Boone, additional E&P firms have filed and should be cited as noteworthy with their respective total debt:

- Sandridge Energy Inc., $8.3 billion.
- Linn Energy LLC, $6 billion.
- Breitburn Operating LP, $5.8 billion.
- Pacific E&P Corp., $5.3 billion.
- Ultra Petroleum Corp., $3.8 billion.
- Energy XXI Ltd., $2.8 billion.
- Halcon Resources Corp., $1.8 billion.

"Despite the modest recovery in energy prices, all indications suggest many more producer bankruptcy filings will occur during 2016," writes Haynes & Boone.

With some bankrupt companies selling assets—to reduce their debt—much lower than what they invested in, smaller businesses can take advantage of the opportunity to own solid properties. OGJ

A NEPA blank check

Call it a blank check for environmental obstructionism.

Guidelines issued this month by the White House Council on Environmental Quality (CEQ) give extremists and their friends in government a powerful new way to impede work. They suggest agencies consider the possible effects on climate change of decisions subject to the National Environmental Policy Act (NEPA). That's the 1969 law requiring formal reviews, including the often-contentious environmental impact statement (EIS), for governmental decisions such as those involving oil and gas leasing of federal land and construction of pipelines and other facilities.

Targets for challenge

Completion of an EIS can take years. The process provides opportunities for public comment and generates targets for legal challenge. Environmental pressure groups skillfully use it to kill or delay projects they oppose. Expansion of NEPA review to encompass climate change adds raw material to their obstructionist enterprise.

Legality of the CEQ initiative is questionable. Jim Inhofe (R-Okla.), chairman of the Senate Committee on Environment and Public Works, responded to publication of CEQ's final guidelines with a statement repeating his earlier assertion that "global climate change falls outside the scope of NEPA so the guidance has no legal basis." He also noted the CEQ has no chairman approved by the Senate or nominated by the president. So the guidelines, he said, "can have no force or effect as CEQ staff have no authority to take any official action."

Legal questions aside, NEPA regulation of climate change defies logic. NEPA review is supposed to assess specific environmental effects and remediation options of specific activities requiring federal sanction. The CEQ now urges agencies to consider the potential effects on climate change by assessing a proposed activity's emissions of greenhouse gases (GHGs), such as carbon dioxide, methane, and water vapor. But this approach has a problem: While GHG emissions of most activities are reasonably predictable, the potential effects on globally averaged temperature, the core metric of climate change, are not.

Large questions remain about the extent to which temperature responds to increases in atmospheric concentrations of GHGs. Temperature observations don't validate the high-sensitivity assumptions that underlie predictions of dangerous warming. Until climatological processes are understood better than they are now, no one accurately can say how a prospective activity's GHGs might affect climate change. The CEQ, with a strategy typical in the politics of climate, handles the uncertainty problem by ignoring it.

Even if rising GHG levels warm the atmosphere as much as dubious computer models assume, no single project can contribute meaningfully to climate phenomena. The climate is a huge, complex system. A specific activity's contribution to change of that system is destined to be small, probably immeasurably so. That should exclude climate change from NEPA review. But it doesn't stop the CEQ.

In the final guidelines, the council acknowledges, "The totality of climate change impacts is not attributed to any single action but are [sic] exacerbated by a series of actions including actions taken pursuant to decisions of the federal government. Therefore, a statement that emissions from a proposed federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA."

A bludgeon

This tautological nonsense dodges the genuine issue of NEPA applicability and dangerously implies that any possibility for any effect on climate change, signaled by the potential for any emissions of GHGs, warrants assessment. Standing by are platoons of environmental lawyers eager to challenge the sufficiency of any such assessment for projects their clients dislike.

CEQ's guidelines interpret NEPA and don't constitute a regulation. Agencies don't have to follow them. In the administration of President Barack Obama, however, agencies seldom forgo opportunities to exert control and thrill environmentalists. The fusion of climate change and NEPA creates a bludgeon few of them will resist. Later, Americans shouldn't wonder what clobbered their economy. OGJ

AFPM asks EPA to move RFS's point of obligation

Nick Snow
Washington Editor

The American Fuel & Petrochemical Manufacturers petitioned the US Environmental Protection Agency to move the point of obligation under the Renewable Fuel Standard to the owner of hydrocarbons at the rack, the same point at which excise taxes are collected.

"EPA committed to reconsidering the point of obligation if it became clear that the Renewable Identification Numbers (RIN) market is not functioning as it intended. And, with RIN prices trading recently at a dollar or more, this is certainly the case," AFPM Pres. Chet Thompson said on Aug. 4 when the trade association filed its rulemaking petition.

"Moving the point of obligation closer to the point of compliance would make the RFS program more sensitive to market needs and reduce consumer costs, and provide some relief until Congress can take appropriate action," Thompson said.

Each year, EPA must translate mandated volumes under the RFS into percentage standards that obligated parties use to determine their individual renewable volume obligations (RVO), AFPM said.

It said the agency created the RIN system for refiners and other obligated parties to demonstrate compliance by acquiring enough RINs each year to address the compliance obligations (i.e., their individual RVOs multiplied by their gasoline and diesel fuel production in a given year).

EPA described the RIN-based trading program as "an essential component of the RFS program, ensuring that every obligated party can comply with the standard while providing the flexibility for each obligated party to use renewable fuel in the most economical ways possible," AFPM's petition said. "The RIN-based system was recognition that some refiners would have access to terminal blending facilities, allowing them to acquire RINs in this fashion, and that other refiners would not have such access."

Not working as intended

The system, however, is not working as EPA intended, particularly after the agency decided to breach the E10 blend wall that was reached in 2013 and expanded the RIN acquisition requirement to diesel fuel, it said. RIN prices increased to $1.40/gal from 2¢/gal at that time, and while prices have fallen from their record peaks, RINs still trade at $1 or more per credit after EPA announced its 2017 RFS quotas (OGJ Online, May 19, 2016), AFPM said.

"RINs have evolved from their intended purpose of facilitating a program where the use of biofuels would be uneven among regions to a commodity that has become a profit center for large fuel retailers with dominant positions in certain geographic markets. This has dramatically increased the costs of implementation for certain obligated parties and disadvantaged consumers," it contended.

The petition used the term "rack seller" to identify parties that hold title to the petroleum fuel at the blending point that are currently responsible for excise taxes. The term is distinct from "below the rack" blenders, which would remain unobligated under AFPM's proposed definition.

"This proposed definition will reduce the number of obligated parties, make the RFS more sensitive to market realities, and more equitably distribute the compliance burden among those parties in the best position to determine feasible compliance scenarios," the petition said. "And, for these reasons, it would reduce the systemic and compliance costs of the RFS program, which ultimately would benefit consumers."

Thompson said AFPM continues to believe that Congress should repeal the RFS, which the 2005 Energy Policy Act established and the 2007 Energy Independence and Security Act expanded, because declining demand resulting from stronger automotive fuel efficiency requirements and lower crude oil imports resulting from the US unconventional production boom have changed the rationale for the program's existence.

"The problems with the RFS are pervasive and AFPM will continue to fight for its repeal," Thompson said. "But until that happens, EPA has the responsibility to ensure that the program is operating as effectively as possible, which today it is not." OGJ

API aims latest campaign to reform or repeal RFS directly at voters

Nick Snow
Washington Editor

The American Petroleum Institute launched a fresh advocacy campaign aimed at reforming or repealing the federal Renewable Fuels Standard. "Our campaign will focus on how higher ethanol mandates can hurt consumers, potentially raise costs, and possibly void automobile warranties," API Downstream Group Director Frank Macchiarola said.

"We are urging policymakers to put the interest of the American consumer first," he told reporters during an Aug. 9 teleconference. "The broken RFS mandate aims to force consumers to use high ethanol blends they don't want and don't need. Nearly 90% of vehicles on the road today were not designed for higher ethanol blends, such as E15. And many automakers say that using E15 could potentially void new car warranties."

Ethanol levels should be set at no more than 97% of the national fuel supply in the near term to protect consumers while ensuring that ethanol-free gasoline remains available to those who want it, Macchiarola said.

"API has joined a chorus of voices sounding the alarm on the potential problems created by the burdensome ethanol mandate. From recreational boaters and motorcyclists to environmental groups and food groups, an ever-increasing number of Americans are saying 'No More' to the ethanol mandate," he indicated.

There's growing bipartisan agreement in Congress that the RFS program is a failure, the API official said. He noted that HR 5180, which Reps. Bill Flores (R-Tex.), Peter Welch (D-Vt.), and two other US House members introduced this spring, now has more than 100 cosponsors (OGJ Online, May 12, 2016).

Asked if he had studied the American Fuel & Petrochemical Manufacturers proposal to move the collection point for Renewable Identification Numbers, which are credits to help refiners and other obligated parties meet biofuels credits, farther downstream, Macchiarola said API strongly opposes the idea (OGJ Online, Aug. 5, 2016). "It's an interim move that would solve nothing while introducing more complexity into the system by increasing the number of collection points," he said.

Macchiarola also said that while API has contacted both major parties' presidential campaigns about the issue, it believes it's more effective to contact the public directly with an educational campaign and hope voters reach out to members of their congressional delegations with their concerns.

"A lot is said during political campaigns and a lot of policies are laid out that may not be workable in the long run," he said. "Our approach is to provide the public with the best information about what is needed. It's not targeting anyone specifically, simply informing the American consumer." OGJ

API petitions federal court to review EPA oil, gas emissions rule

Nick Snow
Washington Editor

The American Petroleum Institute has sued the US Environmental Protection Agency, challenging the agency's final rule that imposes emissions limits for new, reconstructed, and modified oil and gas sources. The Aug. 2 petition to the US Appeals Court for the District of Columbia seeks a judicial review for regulations the agency issued on June 3, alleging that EPA failed to adhere to specific Clean Air Act limitations on how the agency can develop regulations.

API Managing Counsel John Wagner said, "Even as oil and gas production has risen dramatically, carbon emissions have fallen, thanks to industry leadership and investment in new technologies. Consumers and businesses are seeing significant savings through lower energy costs largely driven by the revolution in US shale energy production."

API said other industry groups and a coalition of 14 states also have sued EPA, calling on the federal court to assess the agency's rule on the grounds that it has exceeded its statutory authority. The Independent Petroleum Association of America reported Aug. 3 that it, the International Association of Drilling Contractors, and 17 other national and state upstream associations also petitioned the DC federal appeals court on Aug. 2 for a judicial review of EPA's new oil and gas-related methane emissions rule.

"After more than a year of trying to communicate industry's concerns to EPA on the economic burdens associated with this

NICK
SNOW
Washington Editor | Blog at www.ogj.com

Texas' oil-field relief plan

Texas oil and gas producers are contending with continued depressed prices like their counterparts in other states. Many liked what they heard when Texas Railroad Commissioner Christi Craddick announced details of her Texas Oilfield Relief Initiative during the commission's Aug. 9 open conference.

"These initial ideas will save extensive time for our staff and tens of millions of dollars for oil and gas operators. This initiative serves as Phase 1 of a long-term effort to streamline our operations that our executive director and staff will continue to carry out," she said.

"It's an extension of our commitment to best serve Texas with innovative regulatory practices, yet calls for a more thorough review in a time of industry slow-down when we should find ways to save time and money," Craddick said.

The initiative calls on the agency to identify reports and filings that can be reduced or eliminated without affecting public or environmental safety.

It would reduce production requirements for marginal or stripper wells. It would implement a revised internal inspection priority system so inspectors can prioritize rig inspections and hydraulic fracturing treatments in sensitive areas without affecting other inspections.

It calls for a review of washout factors the commission has used for decades in its completion program to determine whether different ones should be used in some parts of the state to calculate cement tops.

This will expedite the compliance verification process for both operators and the agency without compromising well integrity, the commission said.

TRC's Groundwater Advisory Unit will identify counties or portions of counties in which the usable quality water protection depth is constant. Those areas will be eligible for area-wide recommendations for meeting surface casing requirements, it indicated.

Application, report forms

The initiative also calls on TRC to extensively review all of its application and reporting forms, and determine whether the information they generate is necessary or can be eliminated. It would simplify the complete duplication of a drilling permit application with an operator's sworn statement of no changes from the original. The operator would then pay the fee for reissuing the permit, speeding up the process for both the commission and producer

Officials from five Texas oil and gas associations applauded the initiative.

"These reforms will provide much-needed relief to operators across the state as we continue to confront depressed commodity price," said Texas Independent Producers & Royalty Owners Pres. Ed Longanecker.

The commission already has moved forward with several of the initiative's recommendations and expects to take up more in future open meetings.

Executive Director Kimberly Corley said she hopes to finalize and implement all of the recommendations by Jan. 1, 2017. OGJ

new rule, during an already economically challenging time for the industry, independent producers were compelled to pursue legal pathways since the final rule omits flexibility for smaller, independent companies," IPAA Executive Vice-Pres. Lee O. Fuller said.

The two oil and gas industry lawsuits came the same day that IPAA, American Exploration & Production Council, and 47 other upstream independents' groups recommended that EPA use its recent information collection request to learn more about the industry because of problems they saw in the agency's recent emissions limits rule (OGJ Online, Aug. 3, 2016). The GPA Midstream Association, the former Gas Processors Association, also raised concerns in comments that it submitted.

It said it does not believe EPA should regulate methane emissions from existing sources, and offered a series of constructive comments on the proposed ICR, which the association said would clarify, improve, and streamline the request, if EPA and the White House Office of Management and Budget elect to proceed with the information gathering effort.

"GPA Midstream has a long history of working collaboratively with EPA, and will work with them on this particular issue to lessen the regulatory burdens and minimize the costs this will have on the midstream industry," said Mark Sutton, president of the Tulsa-based organization. OGJ

NOAA issues final guidance for ocean noise impact on marine mammals

Nick Snow
Washington Editor

The National Oceanic and Atmospheric Administration Fisheries Division issued final guidance to help federal agencies predict how manmade under-

water sounds potentially affect marine mammals' hearing. NOAA will use the guidance in its assessments and authorizations of offshore activities that produce underwater noise, it said on Aug. 3.

The matter is of particular interest to offshore oil and gas producers and geophysical contractors that use 3D seismic mapping to identify and delineate new resources. Groups that oppose offshore exploration and production have voiced alarm that this could disturb sea mammals.

The International Association of Geophysical Contractors expressed concern this spring over delays at NOAA's National Marine Fisheries Service in receiving incidental take authorizations to shoot seismic on the Mid-Atlantic US Outer Continental Shelf (OGJ Online, Mar. 14, 2016). IAGC and other oil and gas associations are reviewing NOAA's new guidance to determine its possible effects, several officials told OGJ on Aug. 4.

Sound is critical to marine mammals' survival because it is a primary means of communication, orientation, and navigation for finding food, avoiding predators, and selecting mates, the US Department of Commerce agency said.

Its authorities to address ocean noise effects on marine resources fall primarily under the Marine Mammal Protection Act, Endangered Species Act, National Marine Sanctuaries Act, and the Magnuson-Stevens Fisheries Act. These allow NOAA to recommend or require mitigation to reduce or eliminate activities' predicted noise impacts to species and the places they rely on, the agency said. NOAA shares this responsibility with several other federal agencies, it added.

NOAA said in addition to helping it reach decisions on proposed activities that generate underwater noise, the guidance will help other federal agencies, industries, and other applicants more accurately predict the projects' effects and help inform decisions about appropriate mitigation and monitoring. The agency's fisheries division also has created online tools to help applicants use the new guidance, it said.

Initial reactions are critical

Among trade associations studying the action's possible consequences, a National Ocean Industries Association official issued an immediate response. "Regardless of NOAA's recent guidance, generations of ocean science have failed to demonstrate any significant impact to marine life from noise associated with oil and gas activities," NOIA Vice-Pres. for Government and Policy Affairs Jeff Vorberger said.

"In addition to this long-standing record of safe operations, our industry regularly implements mitigation measures according to best practices and strictly follows federal regulations with respect to marine sound," Vorberger told OGJ on Aug. 4.

In a statement, IAGC said that while it is still reviewing NOAA's final acoustic guidance, "it appears major revisions recommended by our industry and other reviewers were not made, in favor of unreviewed, unilateral, and rash decision-making instead of adherence to transparency and the best available science."

It warned that NOAA's final guidance is likely to produce an increase in numbers of estimated Level A takes and in the size of corresponding activity exclusion zones, at least for certain marine mammal species, when compared to the results from the three previous independent expert recommendations in 2007, 2012, and 2015.

"This will likely lead to excessive overestimates of 'takes' under the MMPA for geophysical survey sound sources, when there have been no proven incidents of harm to any marine mammal stocks anywhere in the world by geophysical activities in the first place," IAGC said.

This was not the first time the administration of US President Barack Obama had developed guidance for federal agencies in environmental matters. A day earlier, the White House Council on Environmental Quality released final guidance to help federal agencies consider climate-change impacts of their decisions during National Environmental Policy Act reviews (OGJ Online, Aug. 3, 2016). OGJ

Producers urge EPA to use data collection request to learn about industry

Nick Snow
Washington Editor

The Independent Petroleum Association of America, American Exploration & Production Council, and 47 other US oil and gas trade associations urged the US Environmental Protection Agency to use its recent data collection request to learn more about the industry's concerns and challenges.

Independent producers expressed particular concern in their Aug. 2 comments about EPA's recent final rule to limit methane emissions from new oil and gas wells, which include an expansion of regulation to marginal wells producing less than an average 2.5 b/d of crude oil or 22 Mcfd of natural gas (OGJ Online, May 13, 2016).

These marginal, or stripper, wells represent about 80% of the nation's oil wells and two thirds of its gas wells, the associations noted. "In current economic conditions, [they] are at an economic tipping point, and additional regulation would cause their failure if that regulation does not recognize this reality," they said in their comments about EPA's information collection request (ICR).

"More broadly, EPA is embarking on regulation in an industry that it does not understand," the comments continued. Using the ICR progress could give it the understanding to be a fair and effective regulator, but "the pathway that is

currently being taken in the ICR development will thwart, rather than improve, EPA's understanding of the industry," they said.

EPA must understand not only the proposed methane emissions limits impact on marginal wells, but also recognize that the universe of existing oil and gas wells and facilities is a mixture of wells, the associations said.

"There will be variability of oil and gas reservoir characteristics and production methods—e.g., primary, secondary recovery, enhanced oil recovery (EOR)—the presents of artificial lift technologies, future production dynamics, and numerous facility and pipeline configurations," they explained. "There will be a mixture of regulatory driven technologies and voluntarily applied technologies that must be taken into account."

Opportunity to understand

The associations stressed the need for EPA to better understand what US producers face, including how oil and gas wells' production rates decline, and learn from existing agency data and resources that are publicly available from state agencies.

"The industry has successfully cut its greenhouse gas emissions levels, allowing the United States to become the world's leader in cutting carbon," IPAA Executive Vice-Pres. Lee O. Fuller said as the associations filed their comments. "However, this proposed ICR has all the signs of a rushed job, not a thorough process to gather the facts and hear meaningful public comment from the people closest to the US oil and gas industry."

Fuller said the proposed information gathering effort creates additional paperwork for producers to submit to EPA and adds unnecessary burdens on companies' technical teams to prepare and submit rushed comments under enormous time constraints. "Meanwhile, many of these same technical teams are currently developing their companies' compliance programs for EPA's June regulations and will then turn to their companies' greenhouse gas inventory reports, which are due in the first quarter of 2017," Fuller said.

Instead of creating duplicative work and information, which goes against the federal Paperwork Reduction Act's intent, EPA should first, collect all of the publicly available data from industry databases—or acquire it free from state agencies—then can refine its search and request more targeted, specific information from the industry, he recommended. "As it stands now, EPA's proposed ICR is clearly being driven by a tight political timeline to initiate and largely complete the information-gathering process before the end of this administration's term," Fuller said.

The independent producers expressed support for similar comments jointly submitted earlier by the American Petroleum Institute and the Western Energy Alliance. OGJ

APICORP: MENA countries investing $10.3 billion to import LNG

Countries in the Middle East and North Africa (MENA) account for a rapidly rising share of global LNG demand and will invest about $10.3 billion in the "medium term" to meet import needs, says Arab Petroleum Investment Corp. (APICORP).

The MENA share of LNG demand will rise to 6.5% by the end of next year from 1% in 2013, according to APICORP Energy Research.

LNG imports by MENA consumer countries totaled 10.5 billion cu m in 2015, of which 40% was from Qatar.

"But these levels will rise steeply, spurred by the present global supply overhang, which should allow regional buyers to lock in preferential prices and allow them to choose from a wider range of suppliers," APICORP says.

The countries, some of which have problems with creditworthiness, will be cautious about investment in permanent LNG import terminals and increasingly will charter floating storage and regasification units (FSRUs) "as a temporary and lower cost solution."

Country trends

Kuwait, the first Gulf Cooperation Council member to import LNG, is an exception. Now using an FSRU, it plans a permanent terminal at Mina Al-Ahmadi with capacity of 15 billion cu m/year, capable of being doubled.

In the United Arab Emirates, where LNG imports by Dubai meet peak gas demand during summer, plans for an import facility in Fujairah have been cancelled in favor of a chartered FSRU at Ruwais, Abu Dhabi.

APICORP calls that option a "flexible solution" to meeting power shortfalls until four nuclear reactors are completed in the UAE in the early 2020s.

Bahrain, where growth in electricity demand will be boosted by a new aluminum plant, plans an LNG terminal with capacity of 4.1 billion cu m/year, expandable to 8.2 billion cu m/year.

Saudi Arabia has indicated it might use LNG to supplement its gas supply. The kingdom wants to raise the gas share of power-generation fuel to 70% by 2030 from 50% at present to replace oil.

Egypt, once an exporter through gasification plants at Idku and Damietta, now imports LNG via two FSRUs. In the first quarter, it imported 1.67 billion cu m, more than the summer peak average of 2015.

Even if the offshore Zohr natural gas discovery is developed on schedule, Egyptian gas demand will exceed supply by 2 billion cu m/year by 2021, APICORP predicts. The gov-

ernment has begun a tender to lease a third FSRU.

In Morocco, expansion of power-generation capacity requires 3.5 billion cu m/year of LNG to supplement pipeline imports from Algeria. The utility ONEE plans an import terminal and has issued tenders for the import of 2.7 billion cu m of LNG in 2020, rising to 5 billion cu m by 2023.

Jordan, Lebanon, Iraq

Jordan, which once imported gas from Egypt and Iraq, has turned to diesel and fuel oil in power generation but still generates 80% of its electricity with gas. It began importing LNG with a 7.5-billion-cu-m/year FSRU last year.

Because Jordan has agreed to import gas by pipeline from fields off Israel beginning in 2018, it will not expand its LNG capacity.

Lebanon resorted to fuel oil for power generation after imports from Egypt via the Arab Gas Pipeline ended in 2010. It has issued a tender for a 7.7-billion-cu-m/year FSRU, but progress is slow.

Iraq flared 70% of the 23 billion cu m of gas it produced last year because of a lack of gas-recovery in oil fields and delayed plans for gathering and processing. Power generation therefore is fueled by oil. The planned start-up of 7 Gw of gas-fired capacity will add demand beyond existing shortfalls and make LNG attractive.

"Permanent import facilities are perhaps a stretch in a country where the government is struggling to sustain public spending, but Iraq could take advantage of currently low spot prices and follow other neighboring countries by chartering an FSRU to meet current demand shortfalls," APICORP says. OGJ

Ithaca to expand Greater Stella position in four deals

Ithaca Energy Inc. has expanded its core position in the Greater Stella area of the central North Sea with four acquisitions, taking additional interest in the Vorlich discovery and operated interest in the Austen discovery.

The Aberdeen-based firm has agreed with Engie E&P UK Ltd., formerly GDF Suez; Ineos UK SNS Ltd.; and Maersk Oil North Sea Ltd. to acquire 100% interest and operatorship of license P1588 (Block 30/1f), effective Jan. 1.

License P1588 holds 10-20% of the Vorlich discovery, with the balance of the discovery being in license P363 (Block 30/1c). Including the P363 license interest acquired from Total SA in January, execution of the agreements increases Ithaca's overall interest in the discovery to 33%.

Vorlich was discovered and appraised in 2014 with exploration well 30/1f-13AZ and 13Z (OGJ Online, Oct. 23, 2014). Vorlich is 10 km north of Ithaca's Greater Stella production hub and is estimated to contain 24 million boe of gross proved and probable undeveloped reserves. Following completion of the Vorlich appraisal program in 2014, current activities are focused on planning and preparation of a field development plan.

After completion of the deals, interest in license P363 will be BP PLC as operator with 80% and Ithaca 20%; and interest in license P1588 will be Ithaca 100% as operator.

Separately, Ithaca has agreed with Engie E&P to acquire 75% interest and operatorship of license P1823 (Block 30/13b), effective May 1. The license holds the Austen discovery, which is 30 km southeast of the Greater Stella hub.

Austen is an Upper Jurassic oil and gas-condensate accumulation on which a number of wells have been drilled. The most recent was appraisal well 30/1b-1010Z drilled by Engie in 2012 that was tested at a maximum flow rate of 7,820 boe/d, which was 50% oil.

The gross contingent resources associated with Austen are estimated by Ithaca at 4-28 million boe. An independent assessment will be completed at yearend as part of the usual annual reserves evaluation exercise.

After the deal is completed, the Austen license interest will be operator Ithaca with 75% and Premier Oil PLC with 25%. Ithaca says further subsurface and development engineering studies are planned to advance preparation of a field development plan for approval prior to January 2019.

The license acquisitions are expected to be completed in the second half. Ithaca's working interest acquisition in Vorlich from Total was completed in July.

Ithaca notes that the majority of required deepwater marine system trials have been successfully completed since the recent departure of the FPF-1 floating production facility from the Remontowa shipyard in Poland (OGJ Online, July 12, 2016). The final remaining trials are expected to be completed in the coming days. OGJ

Petrobras to resume work at Rnest, Comperj refinery projects

Robert Brelsford
Downstream Technology Editor

Petroleo Brasileiro SA's board of directors has approved plans to resume construction activities at two of the company's Brazilian refineries after previously delaying ongoing development at the sites following a series of financial troubles and government investigations that began in late 2014.

The board greenlighted plans to restart work activities at the Abreu e Lima refinery (Rnest) near Recife in Brazil's

Pernambuco state, and at the Rio de Janeiro petrochemical complex (Comperj) in Itaboraí, in the state of Rio de Janeiro, at a July 22 meeting, Petrobras said in a series of releases.

At the Rnest refinery, the approvals will enable continuation of procurement activities to complete the sulfur emissions reduction (SNOx) unit as well as other unidentified construction work related to the refinery's first 115,000-b/d phase, which following startup in December 2014 (OGJ Online, Dec. 5, 2014), currently processes 100,000 b/d of crude, the company said.

After completion, the SNOx unit—the first of two Haldor Topsoe AS's proprietary SNOx plants to be installed at Rnest—will be able to treat up to 650,000 cu m of flue gas and produce as much as 750,000 tonnes/day of sulfuric acid (OGJ Online, Mar. 13, 2015).

The unit is due for startup sometime in 2017, according to Petrobras' latest annual report.

Petrobras plans to reach a final investment decision regarding the best strategy for implementing Rnest's second 115,000-b/d phase as part of its forthcoming business and management plan, which will be underpinned by integrated analysis of the company's current project portfolio and in line with market projections, as well as funding limits.

Comperj project

Petrobras's board also has approved work to resume activities related to implementation of associated units for a natural gas processing unit to be built as part of the long-planned and still-delayed Comperj project (OGJ Online, June 4, 2007), the company said.

Part of the company's Route 3 integrated project, Comperj's gas processing unit will join Gas Pipeline Route 3, a supplementary gas treatment plant at Cabiúnas terminal, and the Route 3 Northern Pipeline segment to form the infrastructure needed to transport and process natural gas supplies from the Santos basin presalt offshore Brazil.

Despite advancing work on Comperj's gas processing unit, the board delayed further FIDs for other units of the refining complex's Phase-1 development until December 2020, calling for continued efforts by the company to seek investment partners for the project.

Projects involving a future Phase 2 of refining at Comperj as well as a proposed lubricant unit at site have been cancelled completely, Petrobras said. OGJ

Gazprom Neft lets contract for Omsk refinery

Robert Brelsford
Downstream Technology Editor

JSC Gazprom Neft has let a contract to RusTechnip, a joint venture of Technip SA and Rostec State Corp. subsidiary JSC Rustechexport, for a grassroots 8.4 million-tonne/year primary crude and vacuum distillation (CDU-AVT) complex at its existing 21.4 million-tpy Omsk refinery in Western Siberia, Russia.

RusTechnip, which also delivered front-end engineering and design (FEED) for the project, will provide engineering, procurement, and construction management (EPCM) services for the complex, Technip said.

While the service provider did not disclose a value of the earlier FEED contract, the company did value the EPCM services contract at €50-100 million.

Requiring an investment of 40 billion rubles, the CDU-AVT complex will include six sections, including a separate unit equipped to process 1.2 million tpy of stable gas-condensate (SGC), which will be used to boost production of Euro 5-quality gasoline, diesel, and jet fuels, Gazprom Neft said in a June release.

With contracts for supply of long-lead equipment such as distillation columns, compressors, and furnaces already awarded to major suppliers that include OAO Volgogradneftemash, Gazprom Neft said the first batch of large-sized column equipment for the CDU-AVT complex is due for delivery at Omsk this summer.

The company plans to decommission six aging units of the refinery's previous generation of primary process-

JSC Gazprom Neft has let a contract to RusTechnip for a CDU-AVT complex at its 21.4 million-tpy Omsk refinery in Western Siberia. Photo from Gazprom Neft.

ing following startup of the complex, which is due to be commissioned by early 2019.

Designed with a number of technologies aimed at improving environmental performance of Omsk's operations, the complex will include advanced sulfur-removal technology and continuous emissions monitoring, as well as a closed drainage system to redirect recoverable oil during processing to reduce releases of fuel oil.

The CDU-AVT also will meet the latest requirements for industrial safety by implementing the latest automated processing technologies and plant-monitoring systems, including alarms, video-surveillance cameras, and speakerphones, the company said.

This latest overhaul, which comes as part of Gazprom Neft's phased program to modernize and upgrade its Russian refineries to improve processing capacities, oil conversion rates, energy efficiency, production quality, and environmental impacts by 2020, follows reconstruction and modernization of Omsk's AT-9 crude distillation complex in 2015 (OGJ Online, Dec. 2, 2013; Apr. 27, 2015).

Other completed projects at Omsk include reconstruction of the refinery's fuel oil deep-processing complex in December 2015 and reconstruction of a sulfuric acid alkylation unit during first-quarter 2016, according to Gazprom Neft's most recent reports to investors (OGJ Online, Apr. 30, 2015).

Future plans

Gazprom Neft also is proceeding with construction of a deep oil refining complex at the Omsk refinery as part of the second phase of its modernization program, the company said.

The proposed 2 million-tpy complex will equip the refinery to increase production of light-end products such as Euro 5-quality diesel and jet fuels from heavy residues by more than 6%, as well as provide up to 250,000 tpy of raw material for production of high-performance lubricants, including Group II and III oils.

Once completed, the planned complex will use a combination of hydrocracking and sulfur-removal technologies to remove 99.8% of sulfur compounds from unfinished feedstock to produce finished products meeting the most stringent environmental specifications, the operator said.

A timeline for the project, however, was not disclosed. OGJ

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THE EDITOR'S PERSPECTIVE

Democratic platform takes environmental moralizing too far

by **Bob Tippee**, Editor

Scooting ever leftward, the Democratic Party overworks an annoying habit of liberalism in the environmental section of its campaign platform.

The habit is to overdress policy positions in the weighty vestments of morality.

So, for example, climate change becomes more than a complicated phenomenon meriting concern from scientists and policy-makers. It must be a matter of faith, about which the only acknowledged positions are righteous belief and damnable doubt.

It's on this issue that the Democratic platform steps beyond tiresome moralizing.

Platform writers point out that "low-income and minority communities" suffer disproportionately from harm caused by pollution and the extreme weather assumed to result from climate change.

"Simply put," they add, "this is environmental racism."

Now, racism is a serious problem. So are environmental degradation and poverty. All deserve serious attention.

But conscripting passions of one especially moral problem in service to political exertions of another hardly represents serious problem-solving. It amounts instead to propagandizing.

What's more, just as the poor suffer disproportionately from environmental problems--and all problems--the wealthy profit disproportionately from policy responses.

The effect goes beyond promotion by climate crusaders, such as former US Vice-Pres. Al Gore, of green-technology companies from which they make money.

Tax credits for climate-friendly behavior favor rich people, too.

Researchers at the Energy Institute in the Haas School of Business at the University of California, Berkeley, reported that finding in a study last year.

Severin Borenstein and Lucas Davis examined tax returns to see who benefited from the $18 billion in federal income tax credits taken over the past decade for weatherizing homes, installing solar panels, buying electric vehicles, and making other clean-energy investments.

"The bottom three income quintiles have received about 10% of all credits, while the top quintile has received about 60%," they reported. For electric vehicles, the top quintile got 90% of all credits.

The analysts expressed proper concern about "distributional impacts" evident in the data.

Commendably, however, they didn't make a racial issue of their findings.

(From the subscription area of www.ogj.com, posted Aug. 5, 2016; author's e-mail: bobt@ogjonline.com)

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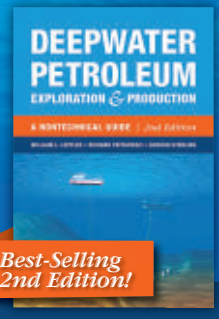

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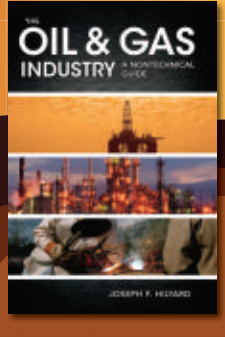

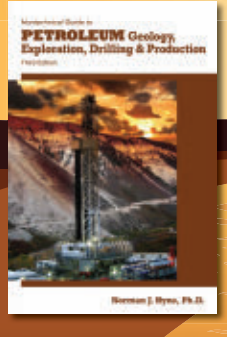

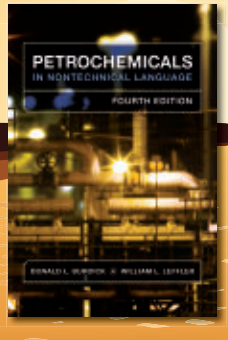

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IMPORTS OF CRUDE AND PRODUCTS

	Districts 1-4		District 5		Total US		
	7-29 2016	7-22 2016	7-29 2016	7-22 2016	7-29 2016	7-22 2016	7-31* 2015
	1,000 b/d						
Total motor gasoline	618	854	19	15	637	869	823
Mo. gas. blending comp.	564	763	19	14	583	777	789
Distillate	89	83	7	10	96	93	150
Residual	181	37	131	138	312	175	69
Jet fuel-kerosine	49	21	49	172	98	193	154
Propane-propylene	62	101	12	22	74	123	74
Other	769	802	194	104	963	906	657
Total products	**1,768**	**1,898**	**412**	**461**	**2,180**	**2,359**	**1,927**
Total crude	**7,410**	**7,117**	**1,328**	**1,320**	**8,738**	**8,437**	**7,180**
Total imports	**9,178**	**9,015**	**1,740**	**1,781**	**10,918**	**10,796**	**9,107**

*Revised.
Source: US Energy Information Administration
Data available at PennEnergy Research Center.

OGJ CRACK SPREAD

	8-5-16*	8-7-15*	Change	Change, %
	$/bbl			
SPOT PRICES				
Product value	53.37	66.31	(12.94)	(19.52)
Brent crude	40.88	48.59	(7.71)	(15.86)
Crack spread	12.49	17.72	(5.23)	(29.54)
FUTURES MARKET PRICES				
One month				
Product value	55.47	67.74	(12.28)	(18.12)
Light sweet crude	40.85	44.92	(4.07)	(9.06)
Crack spread	14.61	22.83	(8.21)	(35.97)
Six month				
Product value	54.62	62.71	(8.09)	(12.90)
Light sweet crude	44.36	48.04	(3.68)	(7.66)
Crack spread	10.26	14.66	(4.40)	(30.02)

*Average for week ending.
Source: Oil & Gas Journal
Data available at PennEnergy Research Center.

EXPORTS OF CRUDE AND PRODUCTS

	Total US		
	7-29-16	7-22-16	*7-31-15
	1,000 b/d		
Finished motor gasoline	454	454	444
Jet fuel-kerosine	156	156	149
Distillate	1,266	1,266	1,293
Residual	362	362	398
Propane/propylene	668	668	547
Other oils	995	995	1,053
Total products	**3,901**	**3,901**	**3,884**
Total crude	**677**	**677**	**576**
Total exports	**4,578**	**4,578**	**4,460**
NET IMPORTS			
Total	6,340	6,218	4,647
Products	(1,721)	(1,542)	(1,957)
Crude	8,061	7,760	6,604

*Revised.
Source: Oil & Gas Journal
Data available at PennEnergy Research Center.

CRUDE AND PRODUCT STOCKS

District	Crude oil	Motor gasoline		Jet fuel, kerosine	Fuel oils		Propane-propylene
		Total	Blending comp.		Distillate	Residual	
	1,000 bbl						
PADD 1	18,485	71,316	65,975	10,551	58,175	9,790	5,056
PADD 2	151,513	51,564	45,331	6,156	30,637	1,127	28,751
PADD 3	269,785	78,585	69,876	14,796	46,763	22,026	53,081
PADD 4	25,472	7,648	5,706	717	3,515	201	[1]2,978
PADD 5	57,290	29,077	26,776	8,857	14,064	5,148	—
July 29, 2016	**522,545**	**238,190**	**213,664**	**41,077**	**153,154**	**38,292**	**89,866**
July 22, 2016	**521,134**	**241,453**	**215,803**	**41,530**	**152,002**	**40,007**	**89,599**
July 31, 2015[2]	**455,276**	**216,734**	**191,834**	**43,389**	**144,813**	**39,454**	**90,378**

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available at PennEnergy Research Center.

REFINERY REPORT—JULY 29, 2016

District	REFINERY OPERATIONS		REFINERY OUTPUT				
	Gross inputs	Crude oil inputs	Total motor gasoline	Jet fuel, kerosine	Fuel oils: Distillate	Fuel oils: Residual	Propane-propylene
	1,000 b/d						
PADD 1	1,093	1,103	3,271	92	348	39	154
PADD 2	3,835	3,834	2,733	258	1,090	49	399
PADD 3	8,871	8,791	2,271	888	2,727	182	961
PADD 4	624	623	330	38	188	8	[1]183
PADD 5	2,673	2,501	1,671	483	589	76	—
July 29, 2016	**17,096**	**16,852**	**10,276**	**1,759**	**4,942**	**354**	**1,697**
July 22, 2016	**16,924**	**16,586**	**10,111**	**1,688**	**4,919**	**361**	**1,732**
July 31 , 2015[2]	**17,261**	**17,076**	**9,982**	**1,634**	**5,025**	**430**	**1,661**
	18,320	**Operable capacity**	**93.3**	**utilization rate**			

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available at PennEnergy Research Center.

STATISTICS

OGJ GASOLINE PRICES

	Price ex tax 8-3-16	Pump price* 8-3-15	Pump price 8-5-15
	¢/gal		
(Approx. prices for self-service unleaded gasoline)			
Atlanta	150.1	199.5	251.2
Baltimore	157.1	208.1	254.2
Boston	154.1	199.1	257.2
Buffalo	148.1	209.1	268.2
Miami	143.1	198.1	261.2
Newark	163.1	196.0	247.8
New York	171.1	232.1	280.5
Norfolk	188.3	229.1	230.5
Philadelphia	138.3	207.1	276.2
Pittsburgh	156.3	225.1	273.2
Wash., DC	180.2	222.1	263.2
PAD I avg	159.1	211.4	260.3
Chicago	212.8	261.4	293.8
Cleveland	163.4	209.8	251.0
Des Moines	159.8	210.2	251.0
Detroit	160.1	209.0	256.6
Indianapolis	163.1	211.4	258.7
Kansas City	155.2	190.9	236.6
Louisville	161.9	206.3	270.8
Memphis	168.5	208.3	248.7
Milwaukee	148.0	199.3	273.4
Minn.-St. Paul	155.3	202.3	262.0
Oklahoma City	146.9	182.3	222.4
Omaha	152.8	198.9	237.6
St. Louis	156.6	192.3	263.2
Tulsa	155.7	191.1	223.6
Wichita	154.8	197.3	247.2
PAD II avg	161.0	204.7	253.1
Albuquerque	153.8	191.0	248.8
Birmingham	165.8	205.0	240.7
Dallas-Fort Worth	160.6	199.0	231.9
Houston	161.7	200.1	232.8
Little Rock	160.8	201.0	242.2
New Orleans	161.6	200.0	243.0
San Antonio	160.6	199.0	243.8
PAD III avg	160.7	199.3	240.4
Cheyenne	175.0	217.4	277.4
Denver	187.4	227.8	286.5
Salt Lake City	181.5	229.4	290.4
PAD IV avg	181.3	224.8	284.8
Los Angeles	248.2	307.2	387.3
Phoenix	184.8	222.2	280.0
Portland	181.7	231.2	298.8
San Diego	222.2	281.2	381.0
San Francisco	228.2	287.2	356.0
Seattle	201.3	264.2	315.3
PAD V avg	211.1	265.6	336.4
Week's avg.	**169.0**	**215.7**	**267.0**
July avg.	**178.7**	**225.4**	**278.7**
June avg.	**188.3**	**234.9**	**276.9**
2016 to date	**160.7**	**207.4**	—
2015 to date	**203.1**	**250.4**	—

*Includes state and federal motor fuel taxes and state sales tax. Local governments may impose additional taxes.
Source: Oil & Gas Journal.
Data available at PennEnergy Research Center.

BAKER HUGHES RIG COUNT

	8-5-16	8-7-15
Alabama	2	2
Alaska	4	9
Arkansas	—	4
California	6	12
Land	6	12
Offshore	—	—
Colorado	20	36
Florida	—	—
Illinois	3	1
Indiana	—	—
Kansas	—	10
Kentucky	1	2
Louisiana	42	81
N. Land	15	28
S. Inland waters	4	5
S. Land	7	12
Offshore	16	36
Maryland	—	—
Michigan	—	—
Mississippi	3	3
Montana	—	1
Nebraska	—	3
New Mexico	30	54
New York	—	—
North Dakota	28	71
Ohio	13	20
Oklahoma	61	107
Pennsylvania	15	39
South Dakota	—	—
Texas	217	383
Offshore	1	1
Inland waters	—	—
Dist. 1	18	42
Dist. 2	14	49
Dist. 3	6	17
Dist. 4	9	18
Dist. 5	2	6
Dist. 6	9	22
Dist. 7B	4	4
Dist. 7C	24	35
Dist. 8	114	151
Dist. 8A	8	17
Dist. 9	1	4
Dist. 10	7	17
Utah	2	4
West Virginia	7	19
Wyoming	8	22
Others ID-1, NV-1	2	—
Total US	**464**	**884**
Total Canada	**122**	**208**
Grand total	**586**	**1,092**
US oil rigs	381	670
US gas rigs	81	213
Total US offshore	17	38
Total US cum. avg. YTD	**484**	**1,101**

Rotary rigs from spudding in to total depth.
Definitions, see OGJ Sept. 18, 2006, p. 46.
Source: Baker Hughes Inc.
Data available at PennEnergy Research Center.

OGJ PRODUCTION REPORT

	[1]8-5-16	[2]8-7-15
	1,000 b/d	
(Crude oil and lease condensate)		
Alabama	17	27
Alaska	425	440
California	540	566
Colorado	304	340
Florida	6	6
Illinois	20	26
Kansas	94	122
Louisiana	1,286	1,448
Michigan	14	17
Mississippi	51	68
Montana	58	77
New Mexico	357	413
North Dakota	1,057	1,193
Ohio	64	75
Oklahoma	253	423
Pennsylvania	16	20
Texas	3,542	3,763
Utah	80	101
West Virginia	20	21
Wyoming	186	237
Other states	50	47
Total	**8,440**	**9,430**

[1]OGJ estimate. [2]Revised. Source: Oil & Gas Journal.
Data available at PennEnergy Research Center.

US CRUDE PRICES

	8-5-16 $/bbl*
Alaska-North Slope 27°	30.62
Light Louisiana Sweet	37.17
California-Midway Sunset 13°	32.50
California Buena Vista Hills 26°	41.10
Wyoming Sweet	38.05
East Texas Sweet	35.75
West Texas Sour 34°	33.25
West Texas Intermediate	38.25
Oklahoma Sweet	38.25
Texas Upper Gulf Coast	32.00
Michigan Sour	30.25
Kansas Common	37.25
North Dakota Sweet	30.50

*Current major refiner's posted prices except N. Slope lags 2 months. 40° gravity crude unless differing gravity is shown. Source: Oil & Gas Journal. Data available at PennEnergy Research Center.

WORLD CRUDE PRICES

OPEC reference basket	Wkly. avg.	8-5-16	$/bbl 39.10
		— Mo. avg., $/bbl — May-16	June-16
OPEC reference basket		43.21	45.84
Arab light-Saudi Arabia		43.48	46.28
Basrah light-Iraq		42.05	44.63
Bonny light 37°-Nigeria		46.85	48.48
Es Sider-Libya		45.83	47.28
Girassol-Angola		46.58	48.30
Iran heavy-Iran		41.67	44.68
Kuwait export-Kuwait		41.60	44.50
Marine-Qatar		44.13	46.37
Merey-Venezuela		34.28	38.22
Minas 34°-Indonesia		48.64	51.56
Murban-UAE		47.12	49.28
Oriente-Ecuador		41.96	44.03
Saharan blend 44°-Algeria		47.73	48.98
Other crudes			
Fateh 32°-Dubai		44.29	46.25
Isthmus 33°-Mexico		44.76	47.51
Brent 38°-UK		46.83	48.28
Urals-Russia		45.08	46.60
Differentials			
WTI/Brent		0.01	0.46
Brent/Dubai		2.54	2.03

Source: OPEC Monthly Oil Market Report.
Data available at PennEnergy Research Center.

REFINED PRODUCT PRICES

	7-29-16 ¢/gal		7-29-16 ¢/gal
Spot market product prices			
Motor gasoline (Conventional-regular)		No. 2 Distillate Low sulfur diesel fuel	
New York Harbor	132.30	New York Harbor	126.20
Gulf Coast	130.80	Gulf Coast	123.70
		Los Angeles	127.90
Motor gasoline (RBOB-regular)		Kerosine jet fuel	
New York Harbor	117.00	Gulf Coast	114.40
No. 2 heating oil		Propane	
New York Harbor	117.70	Mont Belvieu	42.30

Source: EIA Weekly Petroleum Status Report.
Data available at PennEnergy Research Center.

IHS PETRODATA RIG COUNT

AUG. 5, 2016

	Total supply of rigs	Marketed supply of rigs	Marketed contracted	Marketed utilization rate (%)
US Gulf of Mexico	104	53	39	73.6
South America	53	49	41	83.7
Northwest Europe	108	87	68	78.2
West Africa	70	55	29	52.7
Middle East	167	157	124	79.0
Southeast Asia	95	80	39	48.8
Worldwide	829	693	498	71.9

Source: IHS Petrodata
Data available in PennEnergy Research Center

US NATURAL GAS STORAGE[1]

	7-29-16	7-22-16	7-29-15	Change, %
	bcf			
East	729	715	654	11.5
Midwest	825	815	676	22.0
Mountain	213	213	173	23.1
Pacific	314	318	341	(7.9)
South Central	1,207	1,233	1,055	14.4
Salt	320	336	294	8.8
Nonsalt	886	897	761	16.4
Total US	**3,288**	**3,294**	**2,899**	**13.4**
	May-16	**May-15**	**Change, %**	
Total US[2]	**2,976**	**2,296**	**29.6**	

[1]Working gas. [2]At end of period.
Source: Energy Information Administration
Data available at PennEnergy Research Center.

BAKER HUGHES INTERNATIONAL RIG COUNT

Region	July 2016 Land	July 2016 Off.	July 2016 Total	July 2015 Total
WESTERN HEMISPHERE				
Argentina	72	—	72	106
Bolivia	5	—	5	2
Brazil	5	10	15	37
Canada	92	2	95	183
Chile	4	—	4	3
Colombia	6	—	6	25
Ecuador	4	—	4	12
Mexico	6	17	23	45
Peru	1	—	1	3
Trinidad	1	3	4	8
US	429	20	449	866
Venezuela	47	3	50	70
Other	2	—	2	2
Subtotal	**674**	**55**	**730**	**1,362**
ASIA-PACIFIC				
Australia	1	2	3	16
Brunei	—	2	2	—
China-offshore	—	28	28	23
India	78	35	113	116
Indonesia	14	3	17	22
Japan	—	1	1	—
Malaysia	—	3	3	6
Myanmar	—	1	1	—
New Zealand	—	—	—	—
Papua New Guinea	1	—	1	4
Philippines	3	—	3	4
Taiwan	—	—	—	—
Thailand	1	10	11	18
Vietnam	—	3	3	3
Other	—	—	—	—
Subtotal	**98**	**88**	**186**	**212**
AFRICA				
Algeria	55	—	55	50
Angola	—	5	5	8
Congo	—	1	1	2
Gabon	—	—	—	3
Kenya	10	—	10	11
Libya	—	1	1	1
Nigeria	2	3	5	8
South Africa	—	—	—	1
Tunisia	1	—	1	2
Other	2	2	4	8
Subtotal	**70**	**12**	**82**	**94**
MIDDLE EAST				
Abu Dhabi	28	20	48	38
Dubai	—	2	2	2
Egypt	19	8	27	42
Iran	—	—	—	—
Iraq	39	—	39	44
Jordan	—	—	—	—
Kuwait	47	—	47	44
Oman	65	—	65	67
Pakistan	29	—	29	23
Qatar	3	4	7	7
Saudi Arabia	108	17	125	123
Sudan	—	—	—	—
Syria	—	—	—	—
Yemen	—	—	—	—
Other	1	—	1	1
Subtotal	**339**	**51**	**390**	**391**
EUROPE				
Croatia	1	—	1	1
Denmark	—	—	—	3
France	—	—	—	—
Germany	2	—	2	—
Hungary	2	—	2	2
Italy	4	—	4	3
Netherlands	—	2	2	5
Norway	—	20	20	20
Poland	4	—	4	7
Romania	3	—	3	8
Turkey	29	—	29	28
UK	—	10	10	12
Other	7	10	17	19
Subtotal	**52**	**42**	**94**	**108**
Total	**1,233**	**248**	**1,482**	**2,167**

Definitions, see OGJ Sept. 18, 2006, p. 42.
Source: Baker Hughes Inc.
Data available at PennEnergy Research Center.

PRODUCTION BY REGION

	Oil production July-16 b/d	Oil production Aug.-16 b/d	Oil production change	Gas production July-16 Mcf/d	Gas production Aug.-16 Mcf/d	Gas production change
Bakken	998	966	(32)	1,591	1,560	(31)
Eagle Ford	1,127	1,079	(48)	6,014	5,805	(209)
Haynesville	47	46	(1)	5,916	5,880	(36)
Marcellus	40	40	—	17,976	17,950	(26)
Niobrara	383	371	(12)	4,068	3,994	(74)
Permian	1,980	1,974	(6)	6,914	6,868	(46)
Utica	77	77	—	3,663	3,668	5
Total	**4,841**	**4,553**	**(288)**	**46,142**	**45,725**	**(417)**

Source: US Energy Information Administration
Data available in PennEnergy Research Center.

DRILLING PRODUCTIVITY REPORT

	New-well oil production per rig* July-16 b/d	New-well oil production per rig* Aug.-16 b/d	New-well oil production per rig* change	New-well gas production per rig* July-16 Mcf/d	New-well gas production per rig* Aug.-16 Mcf/d	New-well gas production per rig* change
Bakken	841	858	17	1,116	1,149	33
Eagle Ford	1,052	1,076	24	3,135	3,193	58
Haynesville	31	31	—	5,505	5,573	68
Marcellus	69	69	—	11,225	11,267	42
Niobrara	940	961	21	2,927	3,004	77
Permian	503	515	12	883	895	12
Utica	358	369	11	7,397	7,513	116
Rig-weighted avg.	**548**	**558**	**10**	**2,884**	**2,850**	**(34)**

*Drilling data through April, projected production through June.
Source: US Energy Information Administration. Data available in PennEnergy Research Center.

PROPANE PRICES

	May 2016 ¢/gal	June 2016 ¢/gal	May 2015 ¢/gal	June 2015 ¢/gal
Mont Belvieu	51.60	50.70	47.00	36.90

Source: EIA Weekly Petroleum Status Report
Data available at PennEnergy Research Center.

MUSE, STANCIL & CO. REFINING MARGINS

	US Gulf Coast $/bbl	US East Coast $/bbl	US Mid-west $/bbl	US West Coast $/bbl	North-west Europe $/bbl	South-east Asia $/bbl
July 2016						
Product revenues	55.78	54.27	56.81	59.75	51.43	49.09
Feedstock costs	(44.88)	(47.23)	(42.23)	(41.56)	(46.30)	(43.95)
Gross margin	10.90	7.04	14.58	18.19	5.13	5.14
Fixed costs	(2.46)	(3.42)	(2.77)	(3.22)	(2.77)	(2.15)
Variable costs	(1.05)	(0.96)	(0.89)	(1.36)	(1.35)	(1.58)
Cash operating margin	**7.39**	**2.66**	**10.92**	**13.61**	**1.01**	**1.41**
June 2016	9.05	4.30	13.56	17.74	2.91	0.49
YTD avg.	9.51	3.26	10.51	13.84	2.70	1.42
2015 avg.	11.27	5.52	17.58	22.42	5.99	4.35
2014 avg.	8.50	3.99	19.43	15.04	3.05	2.17
2013 avg.	7.42	2.22	24.96	15.85	3.15	1.97

Source: Muse, Stancil & Co. See OGJ, Jan. 15, 2001, p. 46
Data available at PennEnergy Research Center.

MUSE, STANCIL & CO. GASOLINE MARKETING MARGINS

June 2016	Chicago* ¢/gal	Houston ¢/gal	Los Angeles ¢/gal	New York ¢/gal
Retail price	273.65	215.13	287.02	245.50
Taxes	54.99	38.40	58.59	48.94
Wholesale price	187.54	165.76	200.11	165.97
Spot price	180.15	157.73	170.16	158.89
Retail margin	31.12	10.97	28.32	30.59
Wholesale margin	7.39	8.03	29.95	7.08
Gross marketing margin	**38.51**	**19.00**	**58.27**	**37.67**
May 2016	29.81	15.95	63.94	30.35
YTD avg.	34.17	16.17	72.39	37.31
2015 avg.	36.40	20.71	66.66	39.71
2014 avg.	33.12	25.36	45.25	39.64
2013 avg.	32.33	20.45	35.26	36.05

*The wholesale price shown for Chicago is the RFG price utilized for the wholesale margin. The Chicago retail margin includes a weighted average of RFG and conventional wholesale purchases.
Source: Muse, Stancil & Co. See OGJ, Oct. 15, 2001, p. 46.
Data available at PennEnergy Research Center.
Note: Margins include ethanol blending in all markets.

MUSE, STANCIL & CO. ETHYLENE MARGINS

	Ethane ¢/lb ethylene	Propane ¢/lb ethylene	Naphtha ¢/lb ethylene
July 2016			
Product revenues	30.04	51.66	63.94
Feedstock costs	(8.29)	(27.55)	(57.59)
Gross margin	21.75	24.11	6.35
Fixed costs	(6.82)	(8.06)	(9.11)
Variable costs	(2.76)	(3.13)	(3.97)
Cash operating margin	**12.17**	**12.92**	**(6.73)**
June 2016	10.03	10.48	(11.85)
YTD avg.	10.30	10.43	(7.24)
2015 avg.	14.28	20.53	(7.40)
2014 avg.	41.38	31.42	(8.91)
2013 avg.	42.23	33.28	(17.24)

Source: Muse, Stancil & Co. See OGJ, Sept. 16, 2002, p. 46.
Data available at PennEnergy Research Center.

MUSE, STANCIL & CO. US GAS PROCESSING MARGINS

July 2016	Gulf Coast $/Mcf	Mid-continent $/Mcf
Gross revenue		
Gas	2.69	2.30
Liquids	0.52	1.38
Gas purchase cost	2.99	3.09
Operating costs	0.07	0.15
Cash operating margin	**0.15**	**0.44**
June 2016	0.20	0.52
YTD avg.	0.18	0.50
2015 avg.	0.17	0.44
2014 avg.	0.46	1.28
2013 avg.	0.58	1.61
Breakeven producer payment, % of liquids	65%	65%

Source: Muse, Stancil & Co. See OGJ, May 21, 2001, p. 54.
Data available at PennEnergy Research Center.

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