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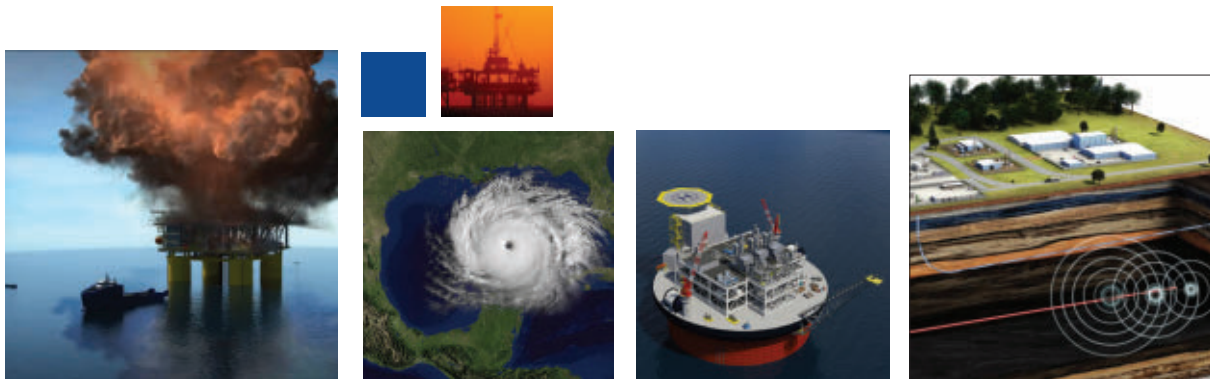
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**EDITORIAL  
NEWSLETTER  
STATISTICS**

**EDITOR'S PERSPECTIVE  
GENERAL INTEREST  
JOURNALLY SPEAKING  
WATCHING GOVERNMENT**





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OFFICE NATIONAL DES HYDROCARBURES ET DES MINES

## MOROCCO

### CALL FOR TENDER ANNOUCEMENT

L'OFFICE NATIONAL DES HYDROCARBURES ET DES MINES

« ONHYM » is issuing a tender in order to select companies for the development of gas resources of the prospective Gharb Center Area located onshore (part of the Gharb basin which has produced gas for decades)

The partnership with the selected company will be formalized through a petroleum agreement giving the right to an exploration permit

The bidders interested in the present tender are invited to request the corresponding documentation by sending a demand to ONHYM at the following address:

**5, Avenue Moulay Hassan – BP. 99, Rabat – Maroc.**

**Tel 212 (0) 5 37 23 98 98**

**Fax 212 (0) 5 37 28 16 34**

The terms of reference (CPS) can be downloaded from ONHYM web site (Link: <http://www.onhym.com/en/calls-for-tender.html>)

The deadline for bid reception is **19 August 2016, at 4 PM.**

# OIL & GAS JOURNAL®

International Petroleum News and Technology | [www.ogj.com](http://www.ogj.com)

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## GENERAL INTEREST



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Nick Snow

Continuing lower crude oil and natural gas prices could make many Middle Eastern and Central Asian producing countries' governments consider serious institutional reforms, speakers at a Washington forum generally agreed.

### 19 WoodMac: Global upstream investment down \$1 trillion since oil-price slump

Global upstream development spending from 2015 to 2020 has declined 22%, or \$740 billion, since fourth-quarter 2014, according to research from Wood Mackenzie Ltd. Including cuts to conventional exploration investment, the figure increases to just more than \$1 trillion.

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#### Libertarian energy policy glows in a year of opportunity



### COVER

*Gassco AS, operator for Gassled, is planning to boost capacity for handling rich gas by yearend at its 90 million-cu m/day Karsto gas processing plant near Haugesund on the western coast of Norway. Gassled is a joint venture of oil and gas companies on the Norwegian continental shelf and owner of Norwegian gas transportation systems. The expansion, which will include modifications designed to raise the plant's rich-gas processing capacity by 5.7 million cu m/day, is due to be completed and operational by Oct. 1, Gassco said. Photo from Gassco.*

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**GENERAL INTEREST** QUICK TAKES**Marathon to buy STACK-focused firm for \$888 million**

Marathon Oil Corp., Houston, has agreed to acquire PayRock Energy Holdings LLC, an Oklahoma City-based portfolio company of EnCap Investments LP, for \$888 million. The deal, to be funded with cash-on-hand, is expected to close in the third quarter.

PayRock holds 61,000 net surface acres and 9,000 net boe/d of current production in the oil window of the Anadarko basin STACK play in Oklahoma.

The acreage features 2P resource of 330 million boe with 490 gross company operated locations, and 700 million boe total resource potential from increased well density in Meramec and Woodford.

"We expect the 2016 capital program on the acquired acreage will be covered within our current \$1.4-billion budget," said Lee Tillman, Marathon Oil president and chief executive officer. "As we look into 2017, we would anticipate a minimum four-rig drilling program in our pro forma STACK position, which will achieve leasehold drilling requirements while accelerating delineation work."

**Noble, PDC swap Wattenberg field acreage**

Noble Energy Inc., Houston, and PDC Energy Inc., Denver, have entered definitive agreements to swap acreage and consolidate their respective land positions in Wattenberg natural gas and condensate field in Weld County, Colo.

The swap involves 13,500 net acres from Noble and 11,700 net acres from PDC, leasehold only. Existing production on the acreage remains with the original party. The companies said the difference in net acreage reflects variances in net revenue interests.

Noble said the exchange will expand its position in a development area called Wells Ranch by about 20%. The acreage due PDC mainly will come out of Noble's Bronco area.

Both companies said the transaction will improve operating efficiencies and expand long-lateral drilling opportunities.

In a separate transaction, Noble said it received \$486 million in an initial closing of the sale of 33,100 net acres in the Greeley Crescent area of Weld County to Synergy Resources Corp., Denver (OGJ Online, May 5, 2016). Noble is to receive a further \$19 million in a final closing expected in the fourth quarter.

**Indian consortium to buy shares in Rosneft unit**

A consortium of Indian companies is to buy 23.9% of shares in a subsidiary of OJSC Rosneft.

The definitive agreement was signed by Indian Oil Corp. Ltd., Oil India Ltd., and Bharat PetroResources Ltd. for shares in JSC Vankorneft, which owns the Vankor and North Vankor field licenses in eastern Siberia.

Vankor is in Turukhansk district of Krasnoyarsk territory. IOC said Vankor is currently producing about 422,000 b/d. Rosneft said Vankor in 2015 produced 22 million tonnes of oil and 8.71 billion cu m of gas.

The acquisition is subject to regulatory approvals and is expected to close in September.

Rosneft owns 85% of Vankorneft. A subsidiary of ONGC Videsh Ltd. holds 15% in a purchase that took effect May 31. **OGJ**

**EXPLORATION & DEVELOPMENT** QUICK TAKES**Rosneft, BP form joint venture for Siberian exploration**

OJSC Rosneft and BP PLC have signed final binding agreements to form a joint venture for onshore exploration in two Siberian basins (OGJ Online, June 19, 2015).

Rosneft will have 51% in Yermak Neftegaz LLC, which will conduct exploration activities in areas of mutual interest (AMI) totaling about 260,000 sq km in the West Siberian basin and the Yenisey-Khatanga basin.

Activities will include regional research, acquisition of seismic data, and drilling of exploration wells. Field work is anticipated to begin in the 2016-17 winter season.

BP committed to spend as much as \$300 million in two phases. Rosneft will contribute licenses and operational experience in the basins with initial drilling to be performed by Rosneft subsidiaries.

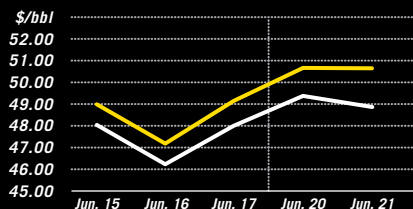
In the initial stage, the joint venture will carry out further appraisal work on the 2009 Rosneft-discovered Baikalovskiy field inside the Yenisey-Khatanga AMI, and exploration of the Zapadno-Yarudeiskoye, Kheiginskoye, and Anomalnoye licenses in the West Siberian AMI.

**Chariot adds Moroccan acreage, exits Mauritania**

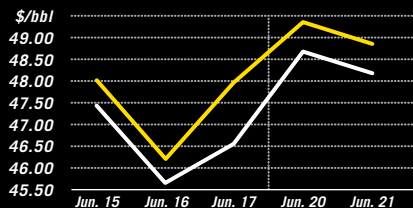
Morocco's Office National des Hydrocarbures et des Mines (ONHYM) has awarded Chariot Oil & Gas Investments (Mo-



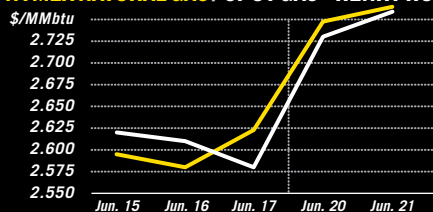
## ICE BRENT / NYMEX LIGHT SWEET CRUDE



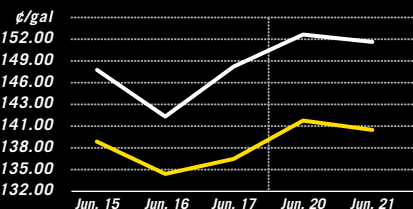
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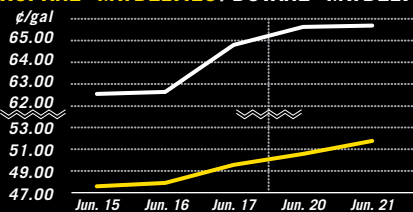
## NYMEX NATURAL GAS / SPOT GAS - HENRY HUB



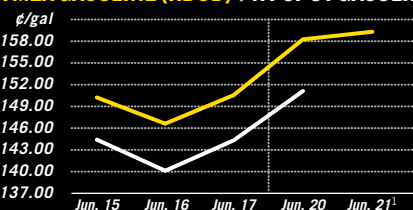
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<sup>3</sup>Nonoxygenated regular unleaded

## US INDUSTRY SCOREBOARD — 6/27

Latest week 6/10	4 wk. average	4 wk. avg. year ago <sup>1</sup>	Change, %	YTD average <sup>1</sup>	YTD avg. year ago <sup>1</sup>	Change, %
<i>Product supplied, 1,000 b/d</i>						
Motor gasoline	9,641	9,372	2.9	9,330	8,956	4.2
Distillate	3,827	3,928	(2.6)	3,739	4,039	(7.4)
Jet fuel	1,632	1,550	5.3	1,576	1,534	2.7
Residual	313	200	56.5	299	206	45.1
Other products	4,940	4,603	7.3	4,955	4,780	3.7
TOTAL PRODUCT SUPPLIED	20,353	19,653	3.6	19,899	19,515	2.0

*Supply, 1,000 b/d*

Crude production	8,741	9,588	(8.8)	8,994	9,362	(3.9)
NGL production <sup>2</sup>	3,374	3,141	7.4	3,397	3,090	9.9
Crude imports	7,620	6,940	9.8	7,793	7,239	7.7
Product imports	2,360	2,029	16.3	2,106	2,060	2.2
Other supply <sup>2,3</sup>	2,166	2,025	7.0	2,043	2,310	(11.6)
TOTAL SUPPLY	24,261	23,723	2.3	24,333	24,061	1.1
Net product imports	(1,339)	(1,325)	—	(1,794)	(1,554)	—

*Refining, 1,000 b/d*

Crude runs to stills	16,305	16,528	(1.4)	16,059	16,003	0.4
Input to crude stills	16,509	16,728	(1.3)	16,260	16,233	0.2
% utilization	90.2	93.0	—	89.3	90.5	—

Latest week 6/10	Latest week	Previous week <sup>1</sup>	Change	Same week year ago <sup>1</sup>	Change	Change, %
<i>Stocks, 1,000 bbl</i>						
Crude oil	531,543	532,476	(933)	467,927	63,616	13.6
Motor gasoline	237,004	239,629	(2,625)	217,814	19,190	8.8
Distillate	152,163	151,377	786	133,591	18,572	13.9
Jet fuel-kerosine	42,198	44,163	(1,965)	40,505	1,693	4.2
Residual	40,782	39,667	1,115	40,285	497	1.2

*Stock cover (days)<sup>4</sup>*

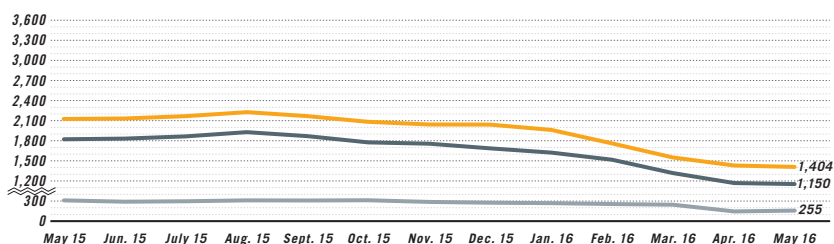
	Change, %	Change, %			
Crude	32.6	32.6	-	28.5	14.4
Motor gasoline	24.6	24.9	(1.2)	23.2	6.0
Distillate	39.8	38.3	3.9	34.0	17.1
Propane	77.1	76.3	1.0	86.1	(10.5)

*Futures prices<sup>5</sup> 6/17*

	Change	Change	Change, %			
Light sweet crude (\$/bbl)	47.91	50.18	(2.27)	60.09	(12.18)	(20.3)
Natural gas, \$/MMBtu	2.60	2.52	0.08	2.80	(0.21)	(7.3)

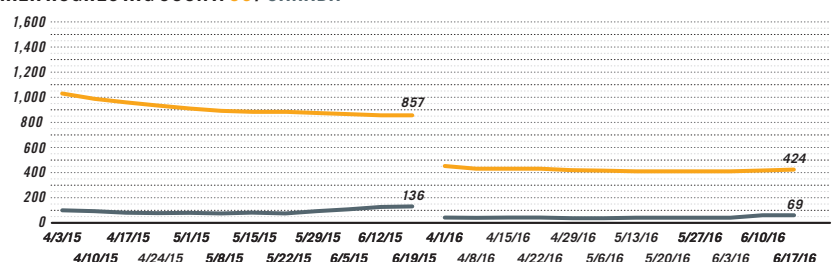
<sup>1</sup>Based on revised figures. <sup>2</sup>OGJ estimates. <sup>3</sup>Includes other liquids, refinery processing gain, and unaccounted for crude oil. <sup>4</sup>Stocks divided by average daily product supplied for the prior 4 weeks. <sup>5</sup>Weekly average of daily closing futures prices. 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

rocco) Ltd., a wholly owned subsidiary of Cariot Oil & Gas Ltd., 75% interest and operatorship of the Mohammedia I-III offshore exploration permits. The permits are nearshore and cover 4,600 sq km in less than 500 m of water. They are adjacent to Chariot's Rabat Deep offshore exploration permits (OGJ Online, Mar. 30, 2016).

In 2014, Chariot acquired 375 sq km of 3D seismic data in the precursor Mohammedia Reconnaissance license, from which the company identified several prospects including: EOP-1 and EOP-2 (Eo-Oligocene); LKP-1a, 1b, 2a, and 2b (Lower Cretaceous); and JP-2 (Jurassic).

Netherlands, Sewell & Associates Inc. audited these prospects with a gross mean resource ranging 50-289 million bbl.

The Jurassic carbonate shelf-edge system that makes up the JP-1 prospect in the Rabat Deep license is thought to lie along the western margin of the Mohammedia permits, the company said (OGJ Online, May 4, 2015). According to Chariot's assessment, the carbonate shelf acts as a structural control on the overlying Early Cretaceous margin with the LKP prospects, which result from deposition of interpreted shallow-water deltaic clastics. Both the Eo-Oligocene and Lower Cretaceous prospects have seismic attributes that could indicate hydrocarbons, the company said.

As part of this acquisition, Chariot has committed to acquire 250 sq km of 3D seismic data where the LKP prospects extend outside its current data. The company will acquire an additional 2,000 km of 2D seismic over the remaining unexplored area of the permits. Both programs are likely to be carried out in 2017.

ONHYM maintains 25% interest in the Mohammedia permits. In addition to its added acreage offshore Morocco, Chariot announced it will not enter into the first renewal phase of the C-19 license offshore Mauritania. The company acquired 3,500 sq km of 3D seismic data in 2013 and undertook reprocessing of legacy 2D seismic data along with seabed coring to perform an integrated analysis of the block.

Chariot cited the unsuccessful bid to acquire third party funding of an exploration well as the primary reason for exiting Mauritania. Cairn Energy PLC (OGJ Online, Aug. 8, 2013) was also a partner on C-19 with 35% interest. Both companies will likely exit Mauritania.

### **Faroe finds oil, gas in North Sea Brasse prospect**

Faroe Petroleum Norge AS has encountered 39 m of gross gas, oil-bearing reservoir, 18 m and 21 m, respectively, in its Brasse well (31/7-1) in license PL740 in the Norwegian North Sea. Spudded in May, the well has been drilled to a total depth of 2,780 m (OGJ Online, May 19, 2016).

The reservoir is thought to be analogous to producing Brage oil field 13 km north of Brasse, the company said. Faroe holds 14.3% interest in the field.

If the Brasse drilling results prove a commercial discovery, "it could be tied-back to the Brage production facilities or alternatively to other nearby installations," said Faroe CEO Graham Stewart.

The partnership has plans for a sidetrack to confirm the reservoir distribution and hydrocarbon contacts. Faroe and Point Resources AS each hold 50% interest in the Brasse prospect.

### **NPD: Statoil finds gas, condensate near Oseberg South**

The Norwegian Petroleum Directorate said a wildcat drilled in the North Sea by Statoil Petroleum AS found natural gas and condensate with a preliminary estimate of 1-3 million cu m of gas equivalent recoverable.

The Songa Delta semisubmersible drilled well 30/11-13 about 8 km southeast of the 30/11-8 S Krafla discovery (OGJ Online, June 28, 2011). It's also about 27 km south of the Oseberg South facility. Water depth is 106 m.

It was drilled to a vertical depth of 3,313 m below the sea surface to the Ness formation. Statoil encountered gas columns of 5 and 31 m in the top part of the Tarbert formation, its primary target. The well is in production license 272, where Statoil will next drill wildcat 30/11-14 with the Songa Delta (OGJ Online, Sept. 4, 2015). **OGJ**

## **DRILLING & PRODUCTION** QUICK TAKES

### **BP sanctions fast-track development of Atoll Phase 1**

BP PLC and Egyptian Natural Gas Holding Co. (Egas) have sanctioned development of the Atoll Phase 1 project in the North Damietta offshore concession in the East Nile Delta.

The project will bring as much as 300 MMscfd of gas (gross) to the Egyptian market beginning in first-half 2018. Atoll field is estimated to hold 1.5 tcf of gas and 31 million bbl of condensates.

Atoll Phase 1 is an early production scheme (EPS) involving the recompletion of the existing exploration well as a producing well, the drilling of two additional wells, and the installation of the necessary tie-ins and facilities required to produce from the field.

The Atoll wells will be drilled by Ensco PLC's DS-6 ultradeepwater drillship, which arrived in Egypt last month and is expected to start drilling in August for roughly 24 months. BP says success with Atoll Phase 1 EPS could lead to further investment in the Atoll Phase 2 full field development.

The firm recently completed multiple transportation and processing agreements accelerating development of Atoll. Onshore processing will be handled by the existing West Harbour gas processing facilities.

BP reported the Atoll discovery in March 2015 (OGJ Online, Mar. 9, 2015). The Atoll heads of agreement was signed 8 months later (OGJ Online, Nov. 5, 2015). BP has 100% interest in the concession.

### **PDO approved for Oseberg Vestflanken 2 in North Sea**

Norway's Ministry of Petroleum and Energy has greenlighted Statoil ASA's plan for development and operation (PDO) for Vestflanken 2 in the northern section of the North Sea. The PDO was submitted last December (OGJ Online, Dec. 18, 2015).

Located 9 km from the Oseberg field center, Vestflanken 2 is

the first of three planned phases for development of the remaining reserves in the Oseberg area. The project will help extend the life of the Oseberg field, which has been producing since 1988.

Development of Vestflanken 2 involves an unmanned wellhead facility resting on the seabed. The concept is new to the Norwegian shelf, but common on the Danish and Dutch shelves.

The platform will have no process equipment, living quarters, drilling facilities, or helicopter deck. Wells will be drilled with a mobile drilling unit, while maintenance will be performed by a support vessel with adapted gangway drawing up alongside the platform.

The wellhead facility has 10 well slots, two of which will be used to inject gas. Additionally, two production wells will be drilled from an existing subsea template on Vestflanken.

Further injection will take place by bringing in gas through a new pipeline from an existing gas injection system. The wells on Vestflanken 2 will be controlled from the Oseberg field center, where the oil and gas will also be processed.

Statoil is operator of Vestflanken 2 with 49.3% interest. Partners are Petro AS 33.6%, Total SA 14.7%, and ConocoPhillips 2.4%.

ConocoPhillips in 2015 estimated development cost at just under \$1 billion, facilitating production of 110 million boe. Of the total, oil represents 62 million bbl, while gas amounts to 7.8 billion standard cu m. The reservoirs are 2,400-3,100 m subsea.

### **Pioneer to expand Midland basin drilling**

Pioneer Natural Resources Co. will increase its rig count for horizontal drilling in the northern part of its Midland basin Spraberry-Wolfcamp play to 17 from 12 after an acquisition from Devon Energy Corp. and in response to its “improving outlook for oil prices.”

Pioneer agreed to acquire 28,000 net acres, mostly undeveloped, from Devon for \$435 million, subject to normal closing adjustments. The acreage is in Martin, Midland, Upton, Reagan, Glasscock, Andrews, Dawson, Gaines, and Howard counties. Net production is 1,000 boe/d, of which 70% is oil.

About 15,000 net acres is in the Sale Ranch area of Martin and northern Midland counties, where Pioneer is active. Combined with its existing acreage, the acquisition will add 70 locations targeting the Permian Wolfcamp B shale to Pioneer's Sale Ranch drilling inventory in an area where lateral lengths average about 9,000 ft.

A separate 8,000 net acres in the Sale Ranch area and northern Midland County will add about 80 Wolfcamp B locations where lateral lengths are less than 7,500 ft.

Pioneer said it will use the remaining 13,000 net acres acquired from Devon and existing acreage in trades to consolidate its land positions in core areas.

It expects to add its first rig in the area in September, followed by two rigs each in October and November.

The company also reported an underwritten public offering of 5.25 million shares of its common stock, with an estimated

value of \$827 million, to fund the acquisition and general corporate activities.

The agreement is one of several sales announced by Devon of noncore Midland basin acreage. The agreed sales prices total \$858 million, bringing to \$2.1 billion the total proceeds of program by the company to divest noncore properties.

### **QEP Energy to add Midland basin acreage**

QEP Resources Inc., Denver, said its wholly owned subsidiary QEP Energy Resources will gain 430 horizontal drilling locations targeting four horizons in the northern Midland basin with property acquisitions in Martin County, Tex., totaling \$600 million.

The operator entered a definitive agreement with “individuals and entities” to buy 9,400 net acres 10 miles east of existing QEP operations. The company current holds about 26,000 net acres in the Midland basin, mostly in Martin and adjacent Andrews counties.

About 98% of the acquisition acreage is held by production to the base of the Permian Wolfcamp formation or deeper. Net production is 1,400 boe/d, about 83% crude oil, from 96 vertical wells.

Target formations of the drilling locations to be acquired are Wolfcamp A and B and Permian Middle Spraberry and Spraberry shale.

Terms of the agreement are subject to adjustment to the extent participating sellers are unable to secure joinders from associated property owners by July 13. **OGJ**

## **PROCESSING** QUICK TAKES

### **Reliance starts up unit at Jamnagar refinery**

Reliance Industries Ltd. (RIL), Mumbai, has commissioned a benzene recovery unit (BRU) at the domestic-tariff area (DTA) refinery of its 1.24 million-b/d Jamnagar refining and petrochemical complex in Gujarat, India.

Designed to reduce the amount of benzene from light naphtha produced from DTA refinery's fluid catalytic cracking (FCC) units for upgrading to fuels that meet Euro 3 and 4 quality specifications, the BTU produced its first on-specification raffinate for blending and sales on May 23, RIL said in a filing to India's BSE Ltd. (formerly Bombay Stock Exchange).

Based on proprietary technology created by RIL and Indian Institute of Petroleum at Dehradun, the new unit uses an extractive distillation process using a robust and selective solvent that enables a 99 vol % or higher benzene-recovery rate (extracted and upgraded to cyclohexane-grade benzene) and raffinate product containing 0.2 vol % or less benzene, RIL said.

While RIL confirmed Technip SA served as detailed engineering contractor for the project, the company did not disclose details regarding the new unit's capacity.

### **Liberian firm lets contract for refinery study**

ECOWAS Refinery Liberia Ltd. (ERLL) has let a contract to

KBR Inc. to execute a bankable feasibility study for a proposed 100,000-b/d refinery to be built in Buchanan, Liberia.

To be performed over 5 months, KBR's scope of work includes development of an optimal refinery configuration, a financial model inclusive of capital and operational cost estimates, as well as an environmental, social, and health impact assessment (ESHIA) study, the service provider said.

KBR will execute the project with support from China National Petroleum Corp. subsidiary China Huanqiu Contracting & Engineering Corp., which will advise in tailoring the BFS product for potential future-phase Chinese investment in the refinery.

While KBR did not disclose a value of the contract, the company said the project value will be booked into earnings of its technology and consulting business segment for this year's second quarter.

ERLL previously was awarded a contract by state-owned Liberia Petroleum Refinery Co. (LPRC) to execute a feasibility study for construction of its own refinery in the country, according to 2013 local media reports out of the region.

KBR did not respond to a request to clarify whether ERLL has awarded this most recent contract on behalf of LPRC or as the proposed refinery's future owner.

ERLL could not be reached directly for comment.

In its 2011-16 strategic plan issued in October 2012, LPRC said it intended to conduct feasibility studies for construction of a 50,000-b/d refinery in Liberia, which currently without its own operable refinery, relies exclusively on fuel imports from surrounding regions.

### **EPP plans third gas plant for Delaware basin**

Enterprise Products Partners LP (EPP), Houston, plans to further expand its gas processing capacity and associated systems in the Delaware basin of West Texas and southeastern New Mexico to take advantage of growing production of NGL-rich natural gas in the region (OGJ Online, Sept. 30, 2014).

EPP will build a 300-MMcfd cryogenic gas processing plant and add more than 40,000 b/d of NGL extraction capability to complement the company's ongoing growth in the region, EPP said.

While EPP has yet to determine a precise location to site the proposed plant, the company confirmed the proposed project already is anchored by long-term commitments from an unidentified major producer.

In addition to providing gas processing capabilities, the scope of the project will include construction of rich gas gathering lines, a residue pipeline to the Waha hub in West Texas, and an NGL pipeline to EPP's Mid-America Pipeline system to integrate operations with the rest of the company's Delaware basin systems, EPP said.

The proposed project, which will include the third cryogenic gas processing plant EPP has announced in less than 24 months, is scheduled for startup during second-quarter 2018.

In May, EPP commissioned a 200-MMcfd cryogenic gas processing plant as well as 25,000 b/d of NGL-extraction capability

and associated systems in Eddy County, NM, as part of the company's overall strategy to double EPP's gas processing capacity in the Delaware basin during 2016 (OGJ Online, May 20, 2016).

EPP also remains on track with the previously announced startup during this year's third quarter of a 150-MMcfd cryogenic gas processing plant and 20,000-b/d of NGL extraction capability project under development with an affiliate of Occidental Petroleum Corp. (OGJ Online, Apr. 30, 2015).

EPP, which will operate the Waha plant on behalf of EPP-Oxy joint venture Delaware Basin Gas Processing LLC, also will build, own, and operate a 12-in. OD pipeline that will move NGLs from the plant to one of EPP's NGL pipelines offering access to its NGL fractionation and storage in Mont Belvieu, Tex.

Once all in service by mid-2018, the three projects together will increase EPP's processing capacity in Delaware basin to 800 MMcfd from 40 MMcfd in 2012, said A.J. Teague, chief executive officer of EPP's general partner. **OGJ**

## **TRANSPORTATION** QUICK TAKES

### **Tesoro closes Alaska logistics acquisition**

Tesoro Corp., through affiliates, has closed its acquisition of wholesale marketing and logistics properties in Anchorage and Fairbanks, Alas., from Flint Hills Resources (OGJ Online, Nov. 24, 2015).

Tesoro Alaska Co. LLC and Tesoro Alaska Terminals LLC acquire an Anchorage terminal with 580,000 bbl of storage capacity, a truck rack, and rail-loading capability; a Fairbanks airport terminal with 22,500 bbl of jet-fuel storage capacity and a truck rack; and a terminalling agreement at the seller's North Pole terminal providing rail offload capabilities.

Tesoro agreed with the state attorney general to offer for investment an interest of about 25% in its Tesoro Logistics Anchorage product terminal.

### **Bear Head LNG gets Canadian government approval**

Bear Head LNG Corp. Inc., a wholly owned subsidiary of Liquefied Natural Gas Ltd., has received Governor in Council approval for a licence to import natural gas from the US and a license to export LNG from Bear Head LNG's project site on the Strait of Canso in Richmond County, NS. The Canadian National Energy Board approved Bear Head natural gas imports and exports in August 2015 (OGJ Online, Sept. 11, 2015), subject to approval from the governor in council.

The licenses authorize Bear Head LNG to import as much as 14.2 billion cu m/year of gas, sufficient to export as much as 12 million tonnes/year of LNG. Both licenses are for a period of 25 years.

Bear Head LNG has approval from the US Department of Energy to export US-sourced gas both to nations that do and nations that do not have free trade agreements with the US.

Gas will be supplied to Bear Head LNG on Bear Paw Pipeline, which in March filed environmental documents with the government of Nova Scotia (OGJ Online, Mar. 30, 2016). **OGJ**

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

## JUNE 2016

SPE Argentina Exploration & Production of Unconventional Resources Symposium, Buenos Aires, web site: [www.spe.org/events/laur/2016/](http://www.spe.org/events/laur/2016/) **1-3**.

23<sup>rd</sup> International Caspian Oil & Gas Conference, Baku, web site: [www.oilgasconference.az/2016/?p=index](http://www.oilgasconference.az/2016/?p=index) **2-3**.

Society of Petroleum Evaluation Engineers (SPEE) 53<sup>rd</sup> Annual Meeting, Lake Tahoe, NV, web site: <https://secure.spee.org/> **4-9**.

Canadian Energy Research Institute (CERI) 2016 Petrochemical Conference, Kananaskis, Alta., web site: [ceri.ca/index.php?option=com\\_content&view=article&id=57&Itemid=60](http://ceri.ca/index.php?option=com_content&view=article&id=57&Itemid=60) **5-7**.

Australian Petroleum Production & Exploration Association (APPEA) Conference & Exhibition, Brisbane, web site: [www.appeaconference.com.au/](http://www.appeaconference.com.au/) **5-8**.

SPE Canada Heavy Oil Technical Conference, Calgary, web site: [www.spe.org/events/choc/2016/](http://www.spe.org/events/choc/2016/) **7-9**.

Caspian Oil & Gas Exhibition, Baku, web site: [www.oilgas-events.com/Caspian-OG-Exhibition/](http://www.oilgas-events.com/Caspian-OG-Exhibition/) **7-10**.

Internet of Things (IOT) in Oil & Gas Europe, Aberdeen, web site: [energyconferencenetwork.com/iot-oil-gas-europe-2016/](http://energyconferencenetwork.com/iot-oil-gas-europe-2016/) **8-9**.

ICOGPE 2016: 18th International Conference on Oil, Gas & Petrochemical Engineering, Toronto, web site: [www.waset.org/conference/2016/06/toronto/](http://www.waset.org/conference/2016/06/toronto/) **13-14**.

SPE Trinidad & Tobago Section Energy Resources Conference, Port of Spain, web site: [spettconf.org/](http://spettconf.org/) **13-15**.  
Nigeria Oil & Gas Conference & Exhibition, Abuja, Nigeria, web site: [www.cwcnog.com/](http://www.cwcnog.com/) **13-16**.

SPE London Annual Conference: Adapting to a Challenging Oil Price Environment, London, web site: [www.spe.org/events/lond/2016/](http://www.spe.org/events/lond/2016/) **14**.

Oil & Gas Polymer Engineering Texas 2016, Houston, web site: [www.amiplastics-na.com/events/Event.aspx?code=C734&sec=5725](http://www.amiplastics-na.com/events/Event.aspx?code=C734&sec=5725) **14-15**.

LNG Fuels Summit, Amsterdam, website: [www.lngfuelssummit.com/](http://www.lngfuelssummit.com/) **14-15**.

CWC's LNG Fuels Summit, Amsterdam, web site: [www.lngfuelssummit.com/](http://www.lngfuelssummit.com/) **14-16**.

IADC World Drilling 2016 Conference & Exhibition, Lisbon, www. [iadc.org/event/world-drilling-2016/](http://iadc.org/event/world-drilling-2016/) **15-16**.

IADC World Drilling Conference & Exhibition, Lisbon, web site: [www.iadc.org/event/world-drilling-2016/](http://www.iadc.org/event/world-drilling-2016/) **15-16**.

AAPG Annual Convention & Exhibition 2016, Calgary, web site: [ace.aapg.org/2016](http://ace.aapg.org/2016) **19-22**.

AAPG 2016 Annual Convention & Exhibition, Calgary, web site: [www.aapg.org/events/conferences/ace/](http://www.aapg.org/events/conferences/ace/) **19-22**.

North American Custody Transfer Measurement Conference, San Antonio, web site: [www.ceesi.com](http://www.ceesi.com) **21-23**.

ICOGPE 2016: 18th International Conference on Oil, Gas & Petrochemical Engineering, Copenhagen, web site: [www.waset.org/conference/2016/06/copenhagen/](http://www.waset.org/conference/2016/06/copenhagen/) **ICOGPE 27-28**.

The 4<sup>th</sup> Annual Cyber Security for Oil & Gas Summit, Houston, web site: [www.oilandgas-cybersecurity.com/](http://www.oilandgas-cybersecurity.com/) **27-29**.

Independent Petroleum Association of America (IPAA) 86th Midyear Meeting, Colorado Springs, Colo., web site: [www.ipaa.org/meeting-events/event-details/?mid=266](http://www.ipaa.org/meeting-events/event-details/?mid=266) **27-29**.

2016 Exploration & Production Standards Conference on Oilfield Equipment & Materials, Washington, DC, web site: [www.api.org/events-and-training/calendar-of-events/2016/e-p](http://www.api.org/events-and-training/calendar-of-events/2016/e-p) **June 27-July 1**.

Papua New Guinea Oil & Gas Summit, Port Moresby, web site: [pngoilgas.com/](http://pngoilgas.com/) **28-29**.

## JULY 2016

World Congress on Petroleum & Refinery, Brisbane, web site: [petroleum.omicsgroup.com/](http://petroleum.omicsgroup.com/) **21-23**.

## AUGUST 2016

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

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

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

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

■ 4th International Conference on Petroleum Engineering, London, web site: [www.petroleumengineering.conferenceseries.com/](http://www.petroleumengineering.conferenceseries.com/) **15-17**.

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

GeoBaikal 2016: Expand Horizons, Irkutsk, Russia, web site:

[www.eage.org/event/index.php?eventid=1433&Opendivs=s3](http://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](http://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/](http://biofuels-bioenergy.conferenceseries.com/) **29-31**.

15<sup>th</sup> European Conference on the Mathematics of Oil Recovery (ECMOR XV), Amsterdam, web site: [www.eage.org/event/index.php?eventid=1416&Opendivs=s3](http://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](http://www.tofairs.com/expo.php?fair=103366) **Aug. 29-Sept. 1**.

2<sup>nd</sup> International Congress & Expo on Biofuels & Bioenergy, Sao Paulo, web site: [biofuels-bioenergy.conferenceseries.com/](http://biofuels-bioenergy.conferenceseries.com/) **29-31**.

## SEPTEMBER 2016

Second Applied Shallow Marine Geophysics Conference, Barcelona, web site: [www.Eage.org/event/index.php?eventid=1421&Opendivs=s3](http://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/](http://www.eage.org/)

[event/?eventid=1420](http://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](http://www.eage.org/event/index.php?eventid=1420&Opendivs=s3) **4-8**.

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

SPE Offshore Europe, Aberdeen, web site: [www.offshore-europe.co.uk/](http://www.offshore-europe.co.uk/) **5-8**.

SPE Intelligent Energy Conference, Aberdeen, web site: [www.intelligentenergyevent.com/](http://www.intelligentenergyevent.com/) **6-8**.

NACE Egypt Corrosion Conference, Cairo, web site: [egyptcorrosion.nace.org/](http://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/](http://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-](http://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](http://www.oilgas-events.com/india-oil-gas) **9-10**.  
International Conference on Chemical Engineering, Phoenix, web site: [chemicalengineering.conferenceseries.com/](http://chemicalengineering.conferenceseries.com/) **12-14**.  
Geomodel 2016, Gelendzhik, Russia, web site: [www.eage.org/event/index.php?eventid=1448&Opendsivs=s3](http://www.eage.org/event/index.php?eventid=1448&Opendsivs=s3) **12-15**.  
ESOPE International Exhibition & Symposium for the Pressure Equipment Industry, Paris, web site: [www.esope-paris.com/](http://www.esope-paris.com/) **13-15**.  
SPE Deepwater Drilling & Completions Conference, Galveston, Tex., web site: [www.spe.org/events/ddc/2016/](http://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/](http://energyconferencenetwork.com/iot-in-oil-and-gas-2016/) **14-15**.  
Rio Oil & Gas Expo & Conference, Rio de Janeiro, web site: [www.whereinair.com/rio-oil-gas-expo/rio-de-janeiro/2016-Sep/](http://www.whereinair.com/rio-oil-gas-expo/rio-de-janeiro/2016-Sep/) **14-16**.  
Turbomachinery & Pump Users Symposium, Houston, web site: [tps.tamu.edu/event-info](http://tps.tamu.edu/event-info) **15-17**.  
Iran International Petroleum Congress (IIPC), Tehran, web site: [www.iranpetroleumcongress.com/](http://www.iranpetroleumcongress.com/) **19-21**.  
The CWC World LNG & Gas Series: Asia Pacific Summit, Singapore, web site: [asiapacific.cwclng.com/](http://asiapacific.cwclng.com/) **20-23**.  
SPE Liquids-Rich Basins Conference—North America, Midland, Tex., web site: [www.spe.org/events/lrbc/2016/](http://www.spe.org/events/lrbc/2016/) **21-22**.  
Eastern Section, American Association of Petroleum Geologists 2016 Annual Meeting, Lexington, Ky., web site: [www.esaapgmtg.org/](http://www.esaapgmtg.org/) **25-27**.  
Corrosion Technology Week 2016, Houston, web site: [ctw.nace.org/](http://ctw.nace.org/) **25-29**.  
SPE Annual Technical Conference & Exhibition (ATCE), Dubai, web site: [www.spe.org/atce/2016/](http://www.spe.org/atce/2016/) **26-28**.  
SPE Annual Technical Conference & Exhibition, Dubai, web site: [www.spe.org/events/calendar/](http://www.spe.org/events/calendar/) **26-28**.  
Global Oil & Gas South East Europe & Mediterranean Conference, Athens, web site: [www.oilgas-events.com/Global-Oil-Gas-Black-Sea-Mediterranean-Conference/](http://www.oilgas-events.com/Global-Oil-Gas-Black-Sea-Mediterranean-Conference/) **28-29**.  
International Conference on Geophysics, Vancouver, web site: [geophysics.conferenceseries.com/](http://geophysics.conferenceseries.com/) **29-30**.  
**OCTOBER 2016**  
ICOGPE 2016: 18th International Conference on Oil, Gas & Petrochemical Engineering, Barcelona, web site: [www.waset.org/conference/2016/10/barcelona/ICOGPE](http://www.waset.org/conference/2016/10/barcelona/ICOGPE) **3-4**.  
Kazakhstan International Oil & Gas Conference (KIOGE) 2016, Almaty, Kazakhstan, web site: [kioge.kz/en/conference/about-conference](http://kioge.kz/en/conference/about-conference) **5-6**.  
USEA 9th Annual Energy Supply Forum, Washington, DC, web site: <https://www.usea.org/event/usea-9th-annual-energy-supply-forum> **6**.  
International Conference on Geosciences, Orlando, web site: [geosciences.conferenceseries.com/](http://geosciences.conferenceseries.com/) **6-7**.  
Cyber Security for Critical Assets LATAM, Rio de Janeiro, web site: [www.criticalcybersecurity.com/latam/](http://www.criticalcybersecurity.com/latam/) **6-7**.  
23rd World Energy Conference, Istanbul, web site: [www.wec2016istanbul.org/tr/](http://www.wec2016istanbul.org/tr/) **9-13**.  
The 2016 API Tank, Valves, & Piping Conference & Expo, Las Vegas, web site: [www.api.org/events-and-training/calendar-of-events/2016/tvp](http://www.api.org/events-and-training/calendar-of-events/2016/tvp) **10-13**.  
SEG International Exhibition and 86th Annual Meeting, Dallas, web site: [www.seg.org/web/annual-meeting-2016/](http://www.seg.org/web/annual-meeting-2016/) **16-21**.  
The 8th Saudi Arabia International Oil & Gas Exhibition (SAOGE), Dammam, web site: [www.saoge.org/](http://www.saoge.org/) **17-19**.  
SPE Well Construction Fluids 2025 Forum: Meeting the Challenges, Dubai, web site: [www.spe.org/events/16fmel/](http://www.spe.org/events/16fmel/) **17-19**.  
2016 Fall Committee on Petroleum Measurement Standards Meeting, Los Angeles, web site: [www.api.org/Events-and-Training/Calendar-of-Events/2016/fallcopm](http://www.api.org/Events-and-Training/Calendar-of-Events/2016/fallcopm) **17-21**.  
The 37th Oil & Money Conference, London, web site: [www.oiland-money.com/](http://www.oiland-money.com/) **18-19**.  
Society of Petroleum Engineers (SPE) African Health, Safety, Security, Environment & Social Responsibility Conference & Exhibition, Accra, Ghana, web site: [www.spe.org/events/hsea/2016/](http://www.spe.org/events/hsea/2016/) **18-20**.  
SPE Latin America & Caribbean Heavy Oil & Extra Heavy Oil Conference, Lima, web site: [www.spe.org/events/laho/2016/](http://www.spe.org/events/laho/2016/) **19-20**.  
Arctic Technology Conference (ATC), St. John's, Newfoundland & Labrador, web site: [www.arctictechnology-conference.org/](http://www.arctictechnology-conference.org/) **24-26**.  
SPE Russian Petroleum Technology Conference & Exhibition, Moscow, web site: [www.spe.org/events/rpc/2016/](http://www.spe.org/events/rpc/2016/) **24-26**.  
SPE North America Artificial Lift Conference & Exhibition, The Woodlands, Tex., web site: [www.spe.org/events/alce/2016/](http://www.spe.org/events/alce/2016/) **25-27**.  
SPE Asia Pacific Oil & Gas Conference & Exhibition (APOGCE), Perth, web site: [www.spe.org/events/apogce/2016/](http://www.spe.org/events/apogce/2016/) **25-27**.  
The 10th Element Oilfield Engineering with Polymers Conference, London, web site: [oilfieldpolymers.nace.org/](http://oilfieldpolymers.nace.org/) **25-27**.  
Bottom of the Barrel Technology Conference (BBTC) Middle East & Africa 2016, Manama, web site: [www.bbtc-mena.biz](http://www.bbtc-mena.biz) **26-27**.  
Gulf Safety Forum (GSF) 2016, Doha, web site: [www.gulfsafetyforum.com/](http://www.gulfsafetyforum.com/) **30-31**.  
23rd Africa Oil Week Africa Upstream Conference 2016, Cape Town, web site: [www.oilgas-events.com/Find-an-Event/Africa-Oil-Week/](http://www.oilgas-events.com/Find-an-Event/Africa-Oil-Week/) **Oct 31-Nov 04**.  
**NOVEMBER 2016**  
2nd International Conference & Expo on Oil & Gas, Istanbul, web site: [oil-gas.omicsgroup.com/](http://oil-gas.omicsgroup.com/) **2-3**.  
The Abu Dhabi International Petroleum Exhibition & Conference, (ADIPEC), Abu Dhabi, web site: [www.adipec.com/](http://www.adipec.com/) **7-10**.  
RefComm Mumbai 2016, Mumbai, web site: [refcommcommunity.com/refcomm-mumbai-2016/](http://refcommcommunity.com/refcomm-mumbai-2016/) **7-11**.  
International Petroleum Technology Conference (IPTC), Bangkok, web site: [www.iptcnet.org/pages/about/future-dates.php](http://www.iptcnet.org/pages/about/future-dates.php) **14-16**.  
4th East Africa Oil & Gas Summit & Exhibition, Nairobi, web site: [eaogs.com/](http://eaogs.com/) **15-17**.  
21st Annual Oil & Gas of Turkmenistan (OGT) Conference 2016, Ashgabat, web site: [ogt.theenergyexchange.co.uk/](http://ogt.theenergyexchange.co.uk/) **16-17**.  
5th International Conference on Petroleum Geology & Petroleum Industry, Dubai, web site: [petroleumgeology.conferenceseries.com/](http://petroleumgeology.conferenceseries.com/) **24-25**.  
Oil & Gas Safety & Health Conference 2016 OSHA Exploration & Production, Houston, web site: [www.oshasafetyconference.org/Events/ugm/Osha2016/default.aspx](http://www.oshasafetyconference.org/Events/ugm/Osha2016/default.aspx) **29-30**.  
Society of Petroleum Engineers (SPE) Middle East Artificial Lift Conference & Exhibition, Manama, Bahrain, web site: [www.spe.org/events/meal/2016/](http://www.spe.org/events/meal/2016/) **Nov. 30-Dec. 1**.  
**DECEMBER 2016**  
5th World Congress on Petrochemistry & Chemical Engineering, Phoenix, web site: [www.petrochemistry.omicsgroup.com/](http://www.petrochemistry.omicsgroup.com/) **5-7**.  
Third EAGE Integrated Reservoir Modelling Conference, Kuala Lumpur, web site: [www.eage.org/event/index.php?eventid=1477&Opendsivs=s3](http://www.eage.org/event/index.php?eventid=1477&Opendsivs=s3) **5-7**.

# Falling fortune



**MATT ZBOROWSKI**  
Staff Writer

As publisher of the OGI150 each September, editors at Oil & Gas Journal already have a pretty good idea of which US industry firms are handling the downturn better or worse relative to their peers. However, with the yearly release of the Fortune 500, we're offered a glimpse via yearly revenue numbers of how the oil and gas industry is faring compared with others in the US.

Reflecting a year in which the oil and gas industry felt the full effect of the prolonged oil-price slump, the number of upstream producers that appear in the top 500 fell to 9 in 2016 from 11 in 2015. Dropping out of the top 500 were Murphy Oil Corp., diving 312 spots to No. 662, and Pioneer Natural Resources Co., down 26 spots to just outside the list at No. 522.

Despite falling below an arbitrary cutoff point, PNR's decline is less precipitous than many producers that remain within the top 500. Murphy, meanwhile, reported a 2015 net loss of \$2.271 billion encompassing property impairments at Seal heavy-oil field in Western Canada, and oil and gas fields offshore Malaysia and in the deepwater Gulf of Mexico.

ConocoPhillips remained the largest independent but fell 39 spots to No. 90 among the overall top 500, with profits during the year dropping \$4.428 billion. The firm said it plans to pay down its \$25-billion debt load during 2016. In second at No. 175 and down just 38 spots was Freeport McMoRan Inc., whose mining operations expand well beyond just oil and gas.

Devon Energy Inc. moved up to third among the producers despite falling just 64 spots to No. 216. Chesapeake remained in fourth after dropping 81 spots to No. 223. Occidental Petroleum Corp. rounded out the top five at No. 225, diving 110 spots from its position in 2015 as the second-largest producer by revenue.

Remaining in the top 500 were oil field services firms Halliburton Co., down 21 spots to 117; and its former merger partner Baker Hughes Inc. at 178, dropping 49 spots. Cameron International Corp., officially acquired by Schlumberger Ltd. this year, fell 44 spots to No. 319; while FMC Technologies Inc., after recently agreeing to be ac-

quired by Technip SA, dropped 53 spots to No. 410.

## Boom-to-bust: Oil City USA

Including the two oil field services firms that are joining forces with the French, six of the nine firms mentioned above are headquartered in the nation's energy capital of Houston. Including the northern suburb of The Woodlands, Houston claims 24 firms across all industries in the Fortune 500, second only to New York City.

The new tally is down 2 from last year due in part to KBR Inc. falling to No. 501 from No. 424 following a 20% decline in revenue. Of the 24 firms across all industries headquartered in Houston on this year's list, at least 18 are involved somewhere in the upstream, midstream, and downstream supply chain. Overall, Phillips 66 ranks first and ConocoPhillips third, with eight of the first 10 being oil- and gas-related firms.

Seen in recent decades as something of a model of economic growth, Houston in April recorded by far the smallest increase in US nonfarm employment among the 12 largest US cities at a mere 0.3%, according data from the US Bureau of Labor Statistics. More economically diverse Dallas had the highest growth at 3.9%.

Further, Houston's housing market has dived in recent months. In April, 66% of area homes were still on the market after 30 days vs. 50% last year, a report from real estate web site Trulia indicates. Industry hotbeds Ft. Worth, Oklahoma City, and Tulsa experienced similarly diminished activity. A separate report from Florida Atlantic University on the largest housing markets in the US projects a decline or flattening of Houston area housing prices.

The Houston area represented a 6.5-million-person sample size of what the US oil and gas industry's economic ecosystem looked like in 2015, complete with bankruptcies, layoffs, freshly empty office space, and empty bank accounts that prevented a marked increase in consumer spending. And the recovery, like that of the previously booming industry, will likely be slow and arduous. **OGJ**

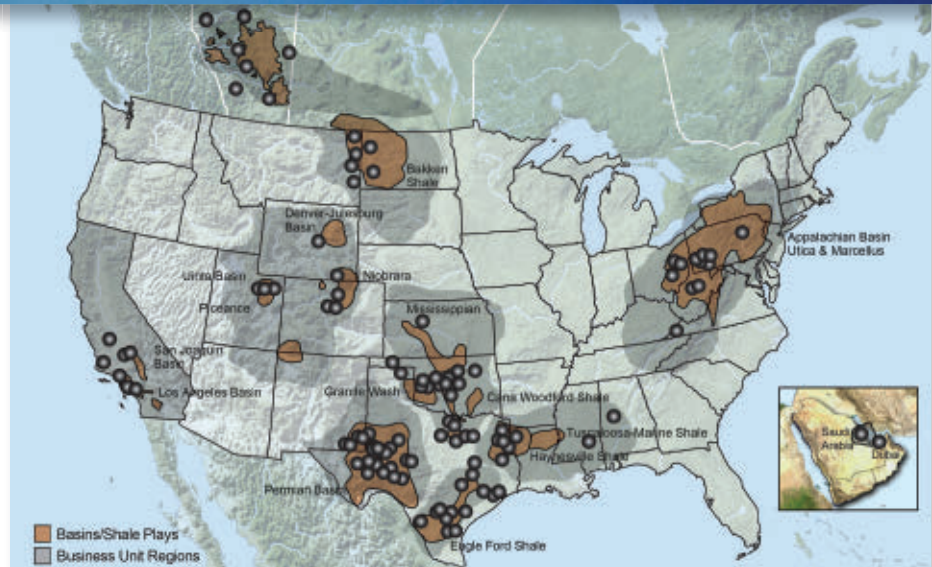


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SERVICES OFFERED	WEST TEXAS	✓	✓	✓	✓	✓
	SOUTH TEXAS	✓	✓	✓	✓	✓
	MID-CON	✓	✓	✓	✓	✓
	ROCKIES	✓	✓	✓	✓	✓
	NORTH EAST	✓	✓	✓	✓	✓
	CALIFORNIA		✓	✓	✓	✓

All rankings current as of April 2016

For any questions, contact [Inquiries@cjenergy.com](mailto:Inquiries@cjenergy.com).



# Unsettling ‘the science’

How many protestors dressed as dinosaurs to disparage fossil energy—tagged as symbols of activism in the first part of this editorial series—can define “climate sensitivity?” How many can explain why climate sensitivity is important to the politics of energy?

Probably not many. Most people, activists and otherwise, form opinions from what’s reported by the popular news media. There, the standard message goes like this: A scientific consensus has formed around the near-certain proposition that human emissions of greenhouse gases, mostly carbon dioxide from combustion of oil, gas, and coal, account for most or all observed warming of the atmosphere and that halting a certainly dangerous trend requires a massive shift to energy from renewable sources. “The science” supporting this view is said to be settled.

## Climate sensitivity

As popularly portrayed, “the science” seldom mentions climate sensitivity: the amount of temperature increase resulting from a doubling of CO<sub>2</sub> in the atmosphere. In predictions of global average temperature during a period of CO<sub>2</sub> build-up, that relationship obviously is critical. Yet climate sensitivity is poorly understood. “The science” concerning it is quite unsettled.

Predictions by computational models of dangerous global warming assume high climate sensitivity. That assumption must in turn assume that CO<sub>2</sub>, a trace gas, amplifies warming caused by a far more-abundant greenhouse gas, water vapor. Whether and to what degree that amplification occurs remain uncertain.

What’s portrayed as the “settled science” that warns of catastrophic warming is, in fact, a theory. And it’s a theory whose predictions can be tested by comparison with observation. If the predictions are wrong, something’s wrong with the theory. That’s how science works.

During the past 40 years, a period of rapid growth of CO<sub>2</sub> in the atmosphere, global average temperature increased on average by one-half to one-third the rate predicted by models that assume high climate sensitivity. The temperature record thus weakens a theory already subject to question. CO<sub>2</sub> has been much more abundant in

the atmosphere than it is now during past ice ages. As a scientific theory, therefore, climate sensitivity remains a work in progress.

These observations neither deny the existence of a warming trend evident in the temperature record during the age of industrialization nor disprove that human activity, especially the burning of fossil fuels, contributes to the phenomenon. They do, however, imply limits to anthropogenic warming and therefore to the mitigation people can achieve by denying themselves the benefits of fossil energy.

But try telling that to a protestor in a dinosaur suit. To activists, human emissions of CO<sub>2</sub>—now ludicrously branded “carbon pollution”—represent a dire threat to humankind. To them the threat is certain and worthy of sacrificial remedies that take no account of cost. To them, after all, “the science” is settled.

The activists are simply wrong about that. Yet they have commandeered political and media discussion about climate change. They have fooled unquestioning news media with their simplistic diagnoses and persistent moralizing. They even managed to rebrand the issue from the original “global warming” after temperature trends flattened. And they are succeeding politically—blocking fossil-energy projects, winning lavish subsidies for nonfossil energy, and persuading international leaders who should know better to proclaim climate change the greatest threat of the age.

Activists—from those in dinosaur costumes in the streets to others in tailored suits in courtrooms—have turned science into a tool of propaganda serving a radical political agenda. Science has suffered as a result. Analysis and inquiry have given way to dogmatism and calumny. And some scientists have been complicit in the process.

## Damaged credibility

Science is never settled. It challenges rather than pursues consensus. It exists to enlighten, not manipulate. And its credibility in the public arena has suffered.

Along with science, climate-change activism has damaged democratic processes. On that subject, more will appear in this space next week. **OGJ**



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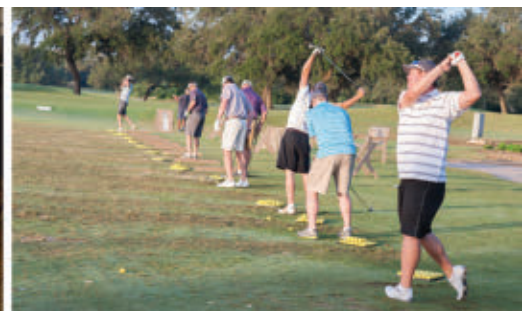
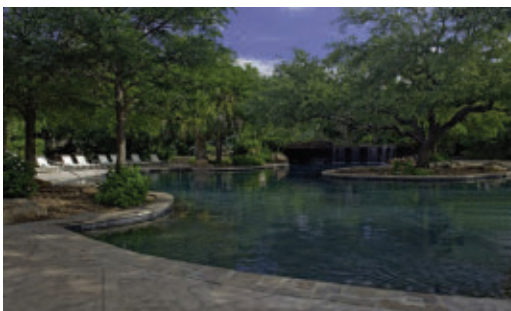
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# Sustained low prices may make producing countries reform, panel says

**Nick Snow**

Washington Editor

Continuing lower crude oil and natural gas prices could make many Middle Eastern and Central Asian producing countries' governments consider serious institutional reforms, speakers at a Washington forum generally agreed. But it's not certain whether regional political unrest will make them direct more money to military programs instead of economic management if they successfully reduce or eliminate price subsidies and tax breaks, they said during a June 8 discussion at Johns Hopkins University's School for Advanced International Studies.

"It has become increasingly clear that prices will stay low for a long time, a major difference from their simply being low," noted Min Zhu, deputy managing director at the International Monetary Fund, which cosponsored the event with the Middle East Institute and SAIS. "It's not just single cuts, but comprehensive policy reforms that reflect a dramatically changed situation. Crises always provide opportunities," he said. "Countries which act early will be leaders in the future because they will have begun to try putting their national economies on a sustainable footing."

Low oil and gas prices and other major shocks have hit the Middle East-North Africa (MENA) and Caucasus-Central Asia regions with serious and persistent impacts, a recent IMF study concluded. Several governments have taken important policy actions already, but additional responses are needed in a number of areas. All countries will need to strengthen policy frameworks and institutions and accelerate structural reforms, it said.

"This is not 'business as usual,'" said Martin Sommer, deputy chief of IMF's Middle East and Central Asia regional studies division and one of the study's authors. "Oil and gas countries have fallen a long way, but several of these countries already have begun to take steps. They'll need to take more, because significant challenges remain."

## **Study's focus**

The report, which was generally based on information as of April, concentrated on low price-related challenges facing Gulf Cooperation Council members (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE); Algeria; and oil

exporters in the Caucasus and Central Asia (Azerbaijan, Kazakhstan, Turkmenistan, and Uzbekistan).

To keep the focus on impacts from lower prices, it did not cover developments in MENA exporting nations where conflicts also are having an impact (Iraq, Libya, and Yemen) or where sanctions are being removed (Iran).

"Policymakers are looking at lower budgets," Sommer said. "Some are looking at reducing or beginning to reduce domestic energy prices. But the bad news is that this type of reform will take a long time." Countries with more diversified economies will be starting in better than those that rely almost exclusively on oil and gas exports, he said.

"It was very dramatic when prices fell from \$110/bbl to \$40/bbl," said another speaker, IHS Financial Services Vice-Pres. Roger Diwan. "This was the first since the 1980s that we've seen what high prices can do to supplies. Several countries got a windfall, but it wasn't broadly based. Low prices had a different impact in others where major investment has slowed down, if not outright stopped."

The extent to which Iran, Iraq, Saudi Arabia, and other Persian Gulf countries can increase production is a key question, he said. "The next 3-5 years could determine the longer-term price range," Diwan said. "The world still has some demand as well. India's grew the most for the first time in 2016's first quarter."

He said global prices have recovered significantly since the beginning of the year, increasing 85% from February to the end of April. "We could move into a \$55-80/bbl range in the next few years. It's not certain whether stability at this level would make producing countries feel it's less urgent to make reforms," Diwan said.

## **Dialogue has shifted**

"In reading about and visiting much of the gulf region, I'm struck by how much the policy dialogue has shifted in the last 2 years," said another speaker, Aasim M. Husain, deputy director at IMF's Middle East and Central Asia department. "Reforms which were unthinkable are being discussed seriously. Where gasoline prices were virtually free, they've risen and begun to move with other countries."

It's also significant that there's more talk about government, and the public sector can no longer be a country's primary employer, he said. "Taxes are being introduced or increased. Privatization is being discussed. The idea that even a part of Saudi Aramco would be privatized was unthinkable 2 years ago," Husain said.

Husain considers the move and signals very positive overall, but added that sustaining reforms will be a challenge. "If government spending has driven economic growth, the private sector will need to step in, particularly since jobs will be hard to find," he said. "Countries are using external markets better. I hope that the lessons from this price drop won't be forgotten, even if prices climb back to \$100/bbl eventually."

But another speaker suggested that decisions producing nations' governments made when prices were high could make implementing reforms more difficult. "When these countries' economies, especially in the gulf, were growing, the additional jobs did not necessarily go to the local population," said Jean-Francois Seznec, a Middle East Institute scholar and SAIS adjunct professor.

"Many have serious youth unemployment and have begun new efforts that will need to be put on steroids now to create small and medium-sized private enterprises that can put them to work," he said. "There also are geopolitical risks, such as tensions between Iran and Saudi Arabia which are huge. They could work together—Saudi Arabia could use Iran's natural gas—but the Saudi government is uneasy because it believes Iran has taken over several other countries' governments, and it feels surrounded."

The biggest change could be that continued low oil prices will force regime changes in consuming countries that producers have supported, according to SAIS Dean Vali Nasr. "Many which have small tax systems but large ministries to dispense wealth to the population will need to get use to the US no longer needing their oil and gas production," he said. "Producing countries will need to decide whether to keep spending money on client governments or direct it elsewhere." **OGJ**

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## WoodMac: Global upstream investment down \$1 trillion since oil-price slump

Global upstream development spending from 2015 to 2020 has declined 22%, or \$740 billion, since fourth-quarter 2014, according to research from Wood Mackenzie Ltd. Including cuts to conventional exploration investment, the figure increases to just more than \$1 trillion.

Capital expenditures in 2016-17 will be down 30%, or \$370 billion, compared with pre-oil-price plunge expectations, notes Malcolm Dickson, WoodMac principal analyst.

The firm expects to see further cuts throughout the year as more projects are dropped and companies struggle to break even.

"Virtually every oil-producing country has seen some form of capex cuts," said Dickson. "The deepest are in the US Lower 48, where forecast capital investment has halved in 2016-17, falling by \$125 billion. This is mainly down to a big drop-off in drilling, with the onshore rig count dropping by 53% from 2015 to 2016."

A large drop off has also occurred in Russia, where investment is down 40% over the next 2 years, but much of that figure is due to the ruble depreciating vs. the dollar. WoodMac says Russia intends to maintain production and continue drilling. In March, the country reached another post-Soviet liquids production record of 10.9 million b/d.

The Middle East has generally been less impacted, as several countries in the region spend to maintain market share. Saudi Arabian investment, for example, will not decline during 2016-17.

Compared with expectations from before the oil-price slump, WoodMac expects 7 billion boe less to be produced from 2016-2020. In the nearer term, as a result of the price drop, it forecasts 3%, or 5 million boe/d, less global production in 2016 and 4%, or 6 million boe/d, less in 2017, with onshore US accounting for 70% of the fall.

### **Costs not keeping pace**

"In the main, discretionary projects have been hardest hit with conventional pre-[final investment decision] greenfield investment alone down \$80 billion from 2016 to 2020," explained Dickson. Spending on deepwater and ultradeepwater projects has been cut nearly 40% in 2016-17. Conventional exploration investment for 2015-20 is \$300 billion less than the firm expected in 2014.

Andrew Latham, WoodMac vice-president of exploration research, noted that "costs have not been cut as much and as quickly" as the firm expected despite exploration investment more than halving since 2014, with expected spending at \$42 billion/year in 2016-17. "Some deepwater exploration spend has been protected by long rig contracts, but as these unwind we expect sharper cuts than in non-deepwater," he added.

However, WoodMac notes that cost deflation has played a major role in driving down spend. For example, costs in the US unconventional sector in 2015 fell 25% on average from peak in 2014. The firm's models show 2016 is likely to yield another 10%.

"For now, the select few projects that are progressed will do so because costs have been cut substantially to hit economic hurdle rates," said Dickson. "But kick-starting the next investment cycle will require more cost deflation and project scope optimization, along with confidence in higher prices and arguably fiscal incentives." **OGJ**

## E&Y: Private equity to ramp up global oil, gas capital deployment

The global oil and gas industry is set to receive an infusion of capital from private equity (PE) firms, Ernst & Young LLP indicates in a global survey of 100 PE firms active in the business.

Some \$971.4 billion of PE from June is still to be deployed, according to the survey, “Capitalizing on Opportunities: Private Equity Investment in Oil & Gas,” with 25% of PE firms planning acquisitions before yearend and 43% by first-half 2017.

“Greater consensus over the oil-price future and more favorable asset valuations are improving the conditions for PE,” explained Andy Brogan, E&Y global oil and gas transactions leader.

The survey shows that creative capital structures are on the rise due to the debt burden of many PE-backed oil and gas firms. Of the 71% of respondents exploring new capital structures, 62% cite joint ventures and drilling companies, and 59% cite contingent pricing as the most popular options.

When it comes to where capital is being deployed, E&Y notes increased attention to rising energy demand in emerging economies. All respondents expect to see more PE involvement in Asia-Pacific, rising from 79% in the last survey conducted in 2013. Investors are being drawn to the region

for its low costs, ease of doing business, and general macro-economic growth.

Similarly, 99% of respondents believe PE interest in North America will grow. Medium-sized companies looking to service debt, merge, or sell assets are providing opportunities for funds looking to bolster their existing portfolios.

“The US shale market saw an influx of PE resources before prices dropped,” said Deborah Byers, E&Y US energy leader. “And as liquidity, asset-based lending, and reserve-based lending continue to decrease, companies will increasingly look to alternative financing like PE.”

PE firms are set to become more involved in the mid-stream and upstream segments over the next 2 years, with 44% of respondents considering the two sectors as their best opportunity for return on investment.

“Many of the recent upstream bankruptcy filings are balance sheet fixes,” noted Byers. “Once these companies emerge from restructuring, they will reevaluate their assets which may lead to increased sales in the market.”

Amid depressed oil prices, PE firms are positioning to provide short-term and long-term financial solutions across the industry, with 63% saying they will provide value to corporates through growth capital. **OGJ**

## Shell keen on its shale potential worldwide

Royal Dutch Shell PLC considers its shale holdings a growth priority for 2020 and beyond now that the major divested roughly half its US and Canada unconventional properties in recent years, executives told reporters during a June 20 media event at its West Houston offices.

Greg Guidry, executive vice-president of unconventional, noted Shell is concentrating its shale business in the Permian basin, Haynesville, the Marcellus and Utica in Appalachia, the Montney and Duvernay in Western Canada, and the Vaca Muerta in Argentina.

“We have one-half the footprint that we did in 2013 but have a larger resource volume,” Guidry said. His division has emphasized cost reduction and improved capital efficiency, cutting its direct overhead costs 76% as of the first quarter compared with 2013.

Capital spending on shales is about \$2-2.5 billion/year, he said. Shell reported 240,000 boe/d of shale production in the first quarter, up 39% from 2013. Shell estimates it holds an estimated 12 billion boe in shale reserves worldwide.

“We are much leaner, much simpler, and much more nimble,” Guidry said, adding that Shell specifically worked

to become more competitive with major independents on its unconventional strategy.

“We have substantial choices in the post-BG world” for shale reserves, Guidry said. Last year Shell acquired BG Group PLC in a \$70.1-billion transaction (OGJ Online, Apr. 8, 2015).

Shell’s unconventional business currently is focused on liquids-rich shales rather than on its gas plays, he said. The Permian in West Texas and the Duvernay in Canada are the most promising for light, sweet oil.

Laurens Gaarenstroom, Shell’s general manager of emerging basins, US and Latin America, said he is very optimistic about the quality of source rock in Vaca Muerta, where he believes Shell has some of the top estimated ultimate recovery rates.

“The rocks are probably among the best in the world, but of course the costs are still way too high compared with North America,” Gaarenstroom said. Argentina still needs more service providers to make costs more competitive, he said.

Industry has drilled about 600 wells in the Vaca Muerta with 500 of them being vertical wells, Gaarenstroom said. He noted that Shell has drilled only horizontal wells in the play, and he sees others shifting to horizontal wells there. **OGJ**

# Antero to acquire W.Va. acreage for \$450 million

Antero Resources Corp., Denver, has agreed to acquire 55,000 net acres of undeveloped Marcellus shale leasehold—including deep rights on 41,000 net acres prospective for the underlying dry Utica—and 14 MMcfed of net production from Southwestern Energy Co., Houston, for \$450 million.

The acreage is in Doddridge, Harrison, Marion, Monongalia, Pleasants, Ritchie, Tyler, and Wetzel counties in West Virginia, with proved reserves of 11 bcfe as of Dec. 31, 2015. The deal is effective Jan. 1 and expected to close in the third quarter.

About 75% of the acquired acreage is in Antero's rich gas, highly rich gas, and highly rich gas-condensate regimes, with the remaining 25% in the dry gas regime. Antero estimates the undeveloped properties include 4.1 tcf of unaudited Marcellus 3P reserves and 1.8 tcf of dry Utica resource potential.

The deal adds 625 identified 3P locations and enhances 435 existing 3P locations by incremental working interests or increased lateral length, Antero notes. The lateral length of the new or enhanced identified 3P locations averages 9,300 ft.

Also as part of the deal, a third party has a 30-day tag along option to sell the remaining 19% average working interest in the acquired properties to Antero, or an additional 13,000 net acres, under the same terms. The tag along acreage includes 1 tcf of unaudited Marcellus 3P reserves, 400 bcf of dry Utica resource, and 3 MMcfed of net production.

If the tag along option is exercised by the third party, the adjusted acquisition price is estimated at \$560 million.

## Firms' plans

"The transaction creates a new platform for development and consolidation in Wetzel County, with attractive rich and dry gas Marcellus locations, as well as stacked pay potential for the dry Utica," said Paul Rady, Antero chairman and chief executive officer.

"Additionally, this acquired acreage is able to access our firm transportation portfolio and thus move incremental production to currently favorable markets," Rady said. "Similar to the successful strategy that we deployed in Tyler County, we expect to further consolidate acreage in Wetzel County and build out the necessary midstream infrastructure to move our gas to market," he said.

Pro forma for the acquisition, Antero's Marcellus leasehold position includes more than 480,000 net acres and 3P reserves of 33.7 tcf.

"Due to the savings achieved year-to-date from service cost reductions and operating efficiencies, we expect to add an additional rig in the second half of the year while maintaining our original drilling and completion budget of \$1.3 billion," commented Glen Warren, president and chief financial officer.

"The additional rig, which will focus primarily on Tyler County, enables Antero to accelerate production [such] that we believe we can generate 20% to 25% year-over-year growth [in] 2017 with a minimal increase to the 2017 drilling and completion capital budget compared to 2016," Warren said.

For Southwestern, cash proceeds from the deal are expected to be used to reduce the principal balance of the company's \$750 million term loan due in November 2018. **OGJ**

## Associations, others ask BOEM to keep Arctic in 2017-22 OCS plan

**Nick Snow**

Washington Editor

Oil and gas trade associations and other groups urged the US Bureau of Ocean Energy Management to not remove or modify offshore Alaska lease sales that are now part of the draft proposed 2017-22 US Outer Continental Shelf program. Their June 16 requests came as the comment period for the next 5-year plan closed.

The American Petroleum Institute, Independent Petroleum Association of America, National Ocean Industries Association, and nine other national organizations jointly approved BOEM's plan to have lease sales in Cook Inlet and the Beaufort and Chukchi seas.

They expressed concern, however, with proposals to reduce the areas available for lease or to impose mitigation measures that potentially would render a lease nonviable. Their joint comment asked BOEM to maintain the three proposed Alaska OCS lease sales without further access restrictions.

Separately, the Alaska Oil & Gas Association and 14 other oil and gas, business, and labor organizations in the state urged BOEM Director Abigail Ross Hopper to keep the Alaska offshore sales as is in the next 5-year plan.

"A strong Alaskan economy is not simply affected by the development of the Arctic OCS—it is dependent upon it," they said in their comment. "Our state's oil fields have matured over the years, and it is vital that new arenas and development opportunities are realized for the future economic security of our state."

Former US Sec. of Defense William S. Cohen and 13 other national security experts also called upon BOEM to move ahead with the planned lease sales for the Beaufort and



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SNOW**

Washington Editor | Blog at [www.ogj.com](http://www.ogj.com)

## Murkowski's uphill battle

Legislative obstacles are nothing new to US Sen. Lisa Murkowski (R-Alas.). The 49th State's senior senator, who chairs the Energy and Natural Resources Committee, has encountered many in her career. But getting the US House of Representatives to agree to a conference on the broad energy policy reforms she and ranking minority member Maria A. Cantwell (D-Wash.) introduced in 2015 and the Senate approved in April is proving difficult.

Time is running short. A congressional recess begins on July 4 and continues through Sept. 5. Fall elections increase the odds that work on resolving differences between the Senate and House bills won't be finished this year.

"Today's naming of conferees by the House is an important milestone in our efforts to craft a broad, bipartisan bill—and a critical step forward to reconciling differences between the House and Senate bills," she said on May 26. "I'm confident the conference process will lead to a good bill that finally allows our energy and resource policies to build upon changes that have occurred over the past decade."

By June 14, as she wrapped up a committee hearing on energy economic issues, Murkowski said it was growing imperative for the joint committee to start meeting soon, especially since both the House and Senate have to be in session for it to do so. "There are some keen differences between the House bill and the Senate bill, and we've got our work cut out for us," she said.

Six days later, House Energy and Commerce Committee Chairman Fred Upton (R-Mich.) and Natural Resources Committee Chairman Rob Bishop (R-Utah) said in a joint statement that their primary goal is to get a bill that US President Barack Obama will sign into law.

"We remain committed to working in a bicameral, bipartisan manner and remain hopeful we can set aside our differences and move ahead with a formal conference between the two chambers," they indicated—without saying exactly when.

### *Tried to avoid controversy*

As they developed the original bill, Murkowski and Cantwell tried to make it noncontroversial by concentrating on correcting policies rendered obsolete by time. Murkowski reluctantly accepted authorizing the first crude oil sale from the US Strategic Petroleum Reserve in a nonemergency situation to win votes in the Senate. House members added several controversial provisions that led to a vote largely along party lines.

House and Senate committees crowded hearings on more troublesome issues, from the Renewable Fuel Standard to the US Environmental Protection Agency's ground-level ozone limits, into June's final 2 weeks. That may have distracted federal lawmakers so they didn't try harder to move ahead with the broader energy bill's joint conference. **OGJ**

Chukchi seas. "The strategic significance of the Arctic is growing due to rapid change in the physical and geopolitical environments. Excluding the Arctic from the program would harm our ability to protect our interests and to promote cooperation in the region," they said in a June 16 statement.

### *Others are interested*

Human activity will increase in the Arctic as the region becomes more navigable, they observed. "Since Arctic sea routes cut transit distances between Asian, European, and North American markets, shipping in the region will increase along with associated logistical infrastructure," said the group, which also included retired military and US Coast Guard commanders. "Likewise, Arctic offshore energy development will occur, whether or not the US participates, as other countries pursue the Arctic's large energy resources to meet long-term needs."

Their comments came a day after US House Permanent Select Committee on Intelligence Devin Nunes (R-Calif.) introduced a resolution that would keep the Beaufort and Chukchi sales in the 2017-22 OCS plan. "Canceling the Arctic lease sales would be a self-defeating action that would not have the slightest effect on global warming," Nunes said. "It would merely surrender the development of Arctic energy to rival nations like Russia."

Concerns over possible removals of or added restrictions to the scheduled federal Arctic OCS lease sales developed after the US Department of the Interior deleted a planned 2021 sale offshore Virginia (OGJ Online, Mar. 15, 2016). Interior officials said this was largely in response to US military and public concerns that were much stronger this time than 5 years earlier.

"While other nations are actively pursuing their offshore oil and natural gas opportunities, federal policies in the US have closed more than

85% of America's offshore areas to exploration activities," NOIA Pres. Randall B. Luthi said on June 16. "Currently, we don't have an accurate assessment of our own offshore oil and gas resource potential and under the limited current plan, we can't even look. It is important that we not back-track any further on our energy future."

Separately, Daniel T. Naatz, IPAA's senior vice-president of government relations and political affairs, said, "America needs a robust offshore energy program that best utilizes the energy-rich resources we have right here at home, balancing thoughtful environmental protections and the tremendous economic and consumer benefits that come along with it. Why keep these plentiful resources, which are still needed for years to come, off limits? We strongly urge the president to keep all areas of the offshore available for future consideration." **OGJ**

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## Federal district judge in Wyoming sets aside BLM's final fracing rule

**Nick Snow**

Washington Editor

A federal district court judge in Wyoming set aside the US Bureau of Land Management's final hydraulic fracturing rule after finding the agency did not have the necessary congressional authority to impose it.

"Congress has not delegated to the Department of Interior the authority to regulate hydraulic fracturing. BLM's effort to do so through the Tracking Rule is in excess of its statutory authority and contrary to law," Judge Scott W. Skavdahl of US District Court for Wyoming said in his June 21 decision. "Therefore, the court holds the [fracing] rule unlawful, and it is."

The decision applied to separate lawsuits filed by Wyoming and Colorado, and by the Independent Petroleum Association of America and the Western Energy Alliance. Officials from the two oil and gas trade associations immediately applauded Skavdahl's ruling.

"The judge determined that the federal government lacks the authority to regulate fracing, period," said Kathleen Sgamma, WEA vice-president for government and public affairs. "He decided exclusively on statutory authority, so there's nothing to remand, no do-over."

She said, "He didn't even rule on our technical Administrative Procedures Act arguments, which we believe are still strong and represent another line of defense if BLM appeals to the circuit court."

In Washington, an IPAA spokesman said, "Today's de-

cision demonstrates BLM's efforts are not needed and that states are—and have for over 60 years been—in the best position to safely regulate hydraulic fracturing. All of our technical arguments remain valid. Even if such a reversal would occur, the rule is still ruled as invalid under the Administrative Procedures Act."

It was not immediately clear what BLM might do in response to Skavdahl's decision. "While we defer more comment due to pending litigation, BLM's modernized fracing requirements reflect today's industry practices and are aimed at ensuring adequate well control, preventing groundwater contamination, and increasing transparency about the materials used in the fracturing process," a DOI spokeswoman in Washington said.

The agency issued the final rule in March 2015 (OGJ Online, Mar. 20, 2015), after withdrawing an earlier proposed version when states and oil and gas producers strongly objected.

The judge previously issued preliminary injunctions keeping the agency from enforcing the regulations until legal challenges against it could be resolved (OGJ Online, Oct. 1, 2015), and until BLM could submit a full administrative record in the legal challenges (OGJ Online, June 24, 2015).

"It's unfortunate that implementation of the rule continues to be delayed because it prevents regulators from using 21st century standards to ensure that oil and gas operations are conducted safely and responsibly on public and tribal lands," the DOI spokeswoman told OGJ by e-mail. **OGJ**

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## House GOP's 'better way' includes energy, regulatory policy reforms

**Nick Snow**

Washington Editor

Republican members of the US House of Representatives proposed a series of policy changes to tackle excessive regulations, develop more American energy, and curb lawsuit abuse as a third plank in their "Better Way" for the next administration.

"We as a country spend up to \$2 trillion every year just to comply with Washington's mandates," House Speaker Paul D. Ryan (Wis.) said during a press conference near the Capitol with other House GOP leaders where the proposals were released on June 14.

"The truth is, we need rules—clear, firm rules that all of us can live by," Ryan said. "The question is what the



best way is to write them. To keep our air and water clean, to protect consumers from scams and rip-offs—but also to create jobs and expand opportunity. It does not have to be an either-or. We can have both. That's why we wrote this plan.”

The plan's more than 100 ideas included:

- Fewer and smarter regulations, by cutting down on needless requirements and making necessary rules more efficient and effective.
- More affordable and reliable energy, by connecting the recent US energy renaissance more directly to consumers with more production of domestic resources, and ending needless delays which hold up projects.
- Helping hard-working Americans become financially independent, while ending Wall Street bailouts.
- More choices for workers and students by removing bureaucratic barriers that keep them from getting ahead.
- “Real Internet innovation,” with clear and consumer-friendly rules that prevent the Federal Communications Commission “from making up regulations as it goes along.”
- A lawsuit abuse crackdown to “keep trial lawyers in check, and improve protections for consumers and small businesses.”

The ideas were developed by a taskforce on reducing regulatory burdens, which included chairmen of the Energy and Commerce, Natural Resources, and seven other House committees.

“No major regulation should become law unless Congress takes a vote,” Ryan said. “In fact, we should consider setting a cap on the amount of regulatory costs that Washington can impose every year. The burden should not be on the people to justify themselves to Washington. The burden should be on Washington to justify itself to the people.”

Natural Resources Committee Chairman Rob Bishop (Utah) said outdated federal regulations—or policies that lack expert input or state engagement—do more harm than good. “They stifle innovation. They negatively impact peoples’ wallets and discourage the very behavior that made this nation the envy of the world. That’s why we are calling for a better way,” he said.

Bishop said, “We have a burdensome federal regulatory system that promotes uncertainty and holds up jobs and projects indefinitely. We need to put the days of believing bureaucrats in DC know best behind us and take actions to strengthen our lead to keep energy prices low for American families for generations to come.”

National Ocean Industries Association Pres. Randall B. Luthi congratulated Ryan, Bishop, and other members of the regulatory reduction taskforce “on their blueprint for regulatory and legislative reforms that would deliver affordable and reliable homegrown energy to American consumers and strengthen our energy security.”

Luthi said, “The offshore oil and gas sector is under unprecedented regulatory assault as the Obama administration rushes to finalize rules on well control, air quality, financial assurance, and Arctic operations [that] threaten the future of offshore energy production.”

He said, “In a political climate rife with hyperbolic rhetoric, unsubstantiated claims, and naive calls to keep it in the ground, ‘A Better Way’ lays out legislative solutions for improving our nation’s economy and reducing regulatory burdens, particularly in the oil and gas sector.” **OGJ**

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## Western governors issue policy statement outlining ESA concerns

**Nick Snow**

Washington Editor

Western US governors called for closer federal cooperation with state and local governments under the Endangered Species Act.

“Given the impact ESA listing decisions have on vital state interests, states should be provided the opportunity to be full partners in administering and implementing the ESA,” they said in a policy statement issued as their 2016 annual meeting concluded in Jackson Hole, Wyo.

The 1973 law’s premise is a strong federal-state partnership, the June 14 policy statement noted. “But the act and its implementation should seek to provide expanded and meaningful consultation opportunities for states to comment, participate, or perform before the federal government takes action,” it said. “Such participation is largely optional under the current scheme, and has been provided inconsistently.”

Several western governors, particularly from states where the federal government owns most of the land, have expressed anxiety about possible local impacts from US Fish and Wildlife Service proposed threatened or endangered species listings.

Oil and gas producers worked with state wildlife agencies, county and local governments, ranchers, outdoor recreation groups, environmental organizations and other stakeholders to manage the greater sage grouse’s habitat over 11 states and keep it from being listed (OGJ Online, Sept. 22, 2015).

Lawsuits have continued, however, most recently when the Western Energy Alliance and North Dakota Petroleum Council jointly filed an action charging the US Bureau of Land Management and US Forest Service developed

amended land use plans for the bird that impose restrictions on new oil and gas leases and on development of existing leases (OGJ Online, May 13, 2016).

“The role of states also has been limited by rigid internal federal processes, interagency jurisdictional disputes, and interpretations of the provisions of the Federal Advisory Committee Act,” the policy statement said. “This scenario has prevented the sharing of scientific information and the consideration of state-determined, science-based information.”

It said western governors recognize that species and habitat protection can be enhanced through working with the National Marine Fisheries Service within the US Department of Commerce, and FWS and other US Department of the Interior agencies, as well as appropriate changes in the laws itself.

“However, determining the shape of those changes has proven controversial and Congress has been unable to reauthorize the ESA since [the law’s] spending authority expired in 1992,” the policy statement said. It noted that key areas in addition to authorization which need to be addressed include:

- Improving regulatory flexibility for federal agencies to prioritize petitions received to list or change the listing status of a species under the ESA.
- Establishing a comprehensive incentive system to encourage state and local governments to develop water, land-use, and development plans that meet the ESA’s objectives as well as local needs, both before and after a species is petitioned for listing under the law.
- Providing adequate tools and incentives that encourage private landowners to engage in species and habitat conservation activities both before and after a species is petitioned for listing under the ESA.
- Addressing ways to discourage litigation that strains federal resour-

es, and impedes the agencies’ ability to direct resources to truly imperiled species.

- Making ESA Section 6 more functional to increase partnerships and cooperation between states and the federal government in addressing issues involving the law.

- Providing greater distinction between the management of threatened versus endangered species under the law to allow for greater management flexibility, including increased state authority for species listed as threatened.

- Providing more extensive state engagement in development and implementation of Section 4(d) special rules or other ESA mechanisms which promote species conservation while addressing situations that merit flexibility or creative approaches.

“Climate change is increasingly being used as a determinant factor in the assessment of the need to list a species under the Act; however, the ESA may not be equipped to address this potential global threat to species and habitat,” the statement said. “Nevertheless, the meaning of ‘foreseeable future’ with the use of climate modeling is still undefined for effective management decisions related to implementation of the ESA.”

Predictions from climate models grow increasingly uncertain over time, it said. Additionally, the federal services currently have no criteria to weigh the model uncertainty related to projected scientific information, such as climate change, in their scientific reviews, the statement said.

“The ESA requires that the services use the ‘best available’ biological information in making determinations about individual species’ status for the purposes of the ESA,” it said. “Biological information should be collected as thoroughly as possible in the timeframe provided by the [law], and should include scientific information and biological opinions from affected states.” **OGJ**

## Libertarian energy policy glows in a year of opportunity

by **Bob Tippee**, Editor

*For the US oil and gas industry, the probable choice between presidential candidates represents a true dilemma.*

*Democrat Hillary Clinton would extend the attack against fossil energy begun by President Barack Obama. Republican Donald Trump would not.*

*In fact, the energy policy Trump described in a speech May 26 is one of the saner positions of his campaign.*

*Unless legal inquiries dogging Clinton yield indictments, however, Trump can’t win the general election. His reckless oratory, peevishness, and weak command of issues alienate too many Americans.*

*For a perennial third party few ever notice, 2016 should be a year of opportunity.*

*The Libertarian Party has chosen former New Mexico Gov. Gary Johnson as its presidential candidate and former Massachusetts Gov. William Weld as his running mate.*

*Calling their platform socially liberal and fiscally conservative, the candidates hope to appeal to Democrats wary of Clinton and Republicans appalled by Trump.*

*Their immediate goal is to break the 15% poll-support threshold needed for admission to presidential debates, which they need for exposure. In a recent Fox News poll, they scored 12%.*

*While odds remain against a Libertarian win in November, problems of the front-runners in a campaign full of surprises warrant a look at the third party’s energy policy.*

*According to Johnson’s web site, the candidate sees enforcement of “reasonable environmental protections” as a “proper role of government”—the Libertarian benchmark.*

*But Johnson doesn’t believe the government should “engage in social and economic engineering for the purpose of manipulating the energy marketplace or creating winners and losers in what should be a robust free market.”*

*Johnson acknowledges that the climate “probably” is changing and that humans “probably” contribute to the process.*

*“The important question, however, is whether the government’s efforts to regulate, tax, and manipulate the marketplace in order to impact that change are cost-effective—or effective at all.”*

*Johnson thus rejects the climate dogmatism of Democrats while upholding the market principles abandoned, on energy, by Republicans.*

*The Libertarians deserve a hearing.*

**(From the subscription area of [www.ogj.com](http://www.ogj.com), posted June 17, 2016; author’s e-mail: [bobt@ogjonline.com](mailto:bobt@ogjonline.com))**

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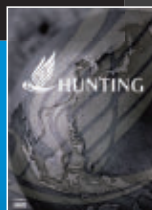
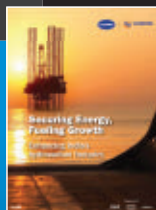
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## IMPORTS OF CRUDE AND PRODUCTS

	— Districts 1-4 —		— District 5 —		— Total US —		
	6-10 2016	6-3 2016	6-10 2016	6-3 2016	6-10 2016	6-3 2016	6-12* 2015
	1,000 b/d						
Total motor gasoline.....	727	800	22	16	749	816	681
Mo. gas. blending comp.....	516	756	13	14	529	770	671
Distillate.....	54	164	69	3	123	167	148
Residual.....	249	195	21	73	270	268	197
Jet fuel-kerosine.....	62	7	101	129	163	136	141
Propane-propylene.....	55	119	25	15	80	134	101
Other.....	759	745	283	60	1,041	805	1,037
<b>Total products.....</b>	<b>1,906</b>	<b>2,030</b>	<b>521</b>	<b>296</b>	<b>2,426</b>	<b>2,326</b>	<b>2,305</b>
<b>Total crude.....</b>	<b>6,477</b>	<b>6,468</b>	<b>1,145</b>	<b>1,237</b>	<b>7,622</b>	<b>7,705</b>	<b>7,066</b>
<b>Total imports.....</b>	<b>8,383</b>	<b>8,498</b>	<b>1,666</b>	<b>1,533</b>	<b>10,049</b>	<b>10,031</b>	<b>9,371</b>

\*Revised.

Source: US Energy Information Administration

Data available at PennEnergy Research Center.

## EXPORTS OF CRUDE AND PRODUCTS

	6-10-16	Total US 6-3-16	*6-12-15
	1,000 b/d		
Finished motor gasoline	374	374	426
Jet fuel-kerosine	152	152	160
Distillate	1,178	1,178	1,025
Residual	366	366	380
Propane/propylene	649	649	449
Other oils	1,010	1,010	913
<b>Total products</b>	<b>3,729</b>	<b>3,729</b>	<b>3,353</b>
<b>Total crude</b>	<b>489</b>	<b>489</b>	<b>441</b>
<b>Total exports</b>	<b>4,218</b>	<b>4,218</b>	<b>3,794</b>
<b>NET IMPORTS</b>			
Total	5,830	5,813	5,578
Products	(1,303)	(1,403)	(1,048)
Crude	7,133	7,216	6,626

\*Revised.

Source: Oil & Gas Journal

Data available at PennEnergy Research Center.

## CRUDE AND PRODUCT STOCKS

District	Crude oil	— Motor gasoline —			— Fuel oils —		Propane-propylene
		Total	Blending comp.	Jet fuel, kerosine 1,000 bbl	Distillate	Residual	
PADD 1.....	16,681	69,664	65,287	11,138	57,138	10,730	3,276
PADD 2.....	154,476	50,998	44,961	7,075	31,045	1,407	21,893
PADD 3.....	274,052	80,841	71,824	15,206	47,686	23,106	50,789
PADD 4.....	24,495	7,583	5,498	577	3,344	160	<sup>1</sup> 2,394
PADD 5.....	61,840	27,918	25,866	8,203	12,950	5,380	—
<b>June 10, 2016.....</b>	<b>531,544</b>	<b>237,004</b>	<b>213,436</b>	<b>42,199</b>	<b>152,163</b>	<b>40,783</b>	<b>78,352</b>
<b>June 3, 2016.....</b>	<b>532,476</b>	<b>239,630</b>	<b>214,592</b>	<b>44,163</b>	<b>151,379</b>	<b>39,667</b>	<b>77,293</b>
<b>June 12, 2015<sup>2</sup>.....</b>	<b>467,927</b>	<b>217,814</b>	<b>191,476</b>	<b>40,505</b>	<b>133,591</b>	<b>40,285</b>	<b>80,660</b>

<sup>1</sup>Includes PADD 5. <sup>2</sup>Revised.

Source: US Energy Information Administration

Data available at PennEnergy Research Center.

## REFINERY REPORT—JUNE 10, 2016

District	REFINERY OPERATIONS		REFINERY OUTPUT					
	Gross inputs 1,000 b/d	Crude oil inputs 1,000 b/d	Total motor gasoline	Jet fuel, kerosine	Fuel oils Distillate 1,000 b/d	Residual	Propane-propylene	
PADD 1.....	1,158	1,165	3,304	89	337	35	162	
PADD 2.....	3,656	3,651	2,640	254	980	49	431	
PADD 3.....	8,629	8,562	2,078	836	2,870	191	950	
PADD 4.....	652	652	339	38	216	9	<sup>1</sup> 196	
PADD 5.....	2,414	2,287	1,641	345	581	104	—	
<b>June 10, 2016.....</b>	<b>16,509</b>	<b>16,317</b>	<b>10,002</b>	<b>1,562</b>	<b>4,984</b>	<b>388</b>	<b>1,739</b>	
<b>June 3, 2016.....</b>	<b>16,651</b>	<b>16,417</b>	<b>9,816</b>	<b>1,644</b>	<b>4,837</b>	<b>429</b>	<b>1,718</b>	
<b>June 12, 2015<sup>2</sup>.....</b>	<b>16,648</b>	<b>16,283</b>	<b>9,933</b>	<b>1,672</b>	<b>5,012</b>	<b>370</b>	<b>1,652</b>	
	<b>18,307</b>	<b>Operable capacity</b>	<b>90.2 utilization rate</b>					

<sup>1</sup>Includes PADD 5. <sup>2</sup>Revised.

Source: US Energy Information Administration

Data available at PennEnergy Research Center.

Additional analysis of market trends is available through **OGJ Online**, *Oil & Gas Journal's* electronic information source, at <http://www.ogj.com>.



## OGJ CRACK SPREAD

	6-17-16*	6-19-15*	Change	Change,
	\$/bbl			%
<b>SPOT PRICES</b>				
Product value	59.88	81.22	(21.34)	(26.3)
Brent crude	47.39	60.65	(13.26)	(21.9)
Crack spread	12.49	20.56	(8.07)	(39.2)

## FUTURES MARKET PRICES

<b>One month</b>				
Product value	62.41	84.63	(22.22)	(26.3)
Light sweet crude	47.56	59.89	(12.33)	(20.6)
Crack spread	14.85	24.73	(9.88)	(40.0)
<b>Six month</b>				
Product value	60.58	77.13	(16.55)	(21.5)
Light sweet crude	50.18	61.60	(11.42)	(18.5)
Crack spread	10.40	15.53	(5.13)	(33.0)

\*Average for week ending.

Source: Oil & Gas Journal

Data available at PennEnergy Research Center.

**OGJ GASOLINE PRICES**

	Price ex tax 6-15-16	Pump price* 6-15-16 ¢/gal	Pump price 6-17-15
(Approx. prices for self-service unleaded gasoline)			
Atlanta	164.3	213.7	261.1
Baltimore	175.7	226.7	264.6
Boston	172.8	217.7	267.6
Buffalo	166.7	227.8	278.1
Miami	161.8	216.8	271.1
Newark	171.9	204.8	256.1
New York	189.6	250.7	294.8
Norfolk	206.9	247.7	244.8
Philadelphia	156.9	225.7	288.8
Pittsburgh	174.9	243.7	285.8
Wash., DC	198.9	240.8	275.8
PAD I avg	176.4	228.7	271.7
Chicago	250.5	299.0	309.0
Cleveland	195.4	241.8	276.2
Des Moines	198.4	248.8	278.3
Detroit	197.2	246.2	276.2
Indianapolis	200.7	249.0	267.3
Kansas City	197.7	233.4	257.2
Louisville	201.1	245.5	297.3
Memphis	207.1	246.9	259.3
Milwaukee	186.1	237.4	283.3
Minn.-St. Paul	191.8	238.8	276.2
Oklahoma City	191.5	226.9	260.4
Omaha	199.8	245.9	268.4
St. Louis	192.5	228.2	276.3
Tulsa	192.3	227.7	257.4
Wichita	189.2	231.6	259.4
PAD II avg	199.4	243.1	273.5
Albuquerque	179.7	217.0	260.3
Birmingham	174.7	214.0	251.5
Dallas-Fort Worth	176.4	214.8	259.8
Houston	176.3	214.7	251.8
Little Rock	176.0	216.2	256.2
New Orleans	172.7	211.1	254.8
San Antonio	177.3	215.7	251.3
PAD III avg	176.2	214.8	255.1
Cheyenne	183.4	225.8	260.6
Denver	195.3	235.7	265.6
Salt Lake City	189.9	237.7	295.2
PAD IV avg	189.5	233.1	273.8
Los Angeles	254.9	313.9	385.8
Phoenix	190.5	227.9	279.4
Portland	187.3	236.8	295.9
San Diego	227.8	286.8	373.2
San Francisco	234.2	293.2	385.8
Seattle	206.9	269.8	277.7
PAD V avg	216.9	271.4	333.0
<b>Week's avg.</b>	<b>191.3</b>	<b>238.0</b>	<b>278.5</b>
<b>May avg.</b>	<b>176.1</b>	<b>222.8</b>	<b>267.0</b>
<b>Apr. avg.</b>	<b>161.9</b>	<b>208.6</b>	<b>245.7</b>
<b>2016 to date</b>	<b>155.0</b>	<b>201.8</b>	—
<b>2015 to date</b>	<b>195.3</b>	<b>242.6</b>	—

\*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**

	6-17-16	6-19-15
Alabama	1	—
Alaska	8	10
Arkansas	—	5
California	5	11
Land	5	11
Offshore	—	—
Colorado	16	38
Florida	—	1
Illinois	2	3
Indiana	—	—
Kansas	2	13
Kentucky	1	—
Louisiana	46	69
N. Land	15	26
S. Inland waters	5	5
S. Land	5	11
Offshore	21	27
Maryland	—	—
Michigan	—	—
Mississippi	1	1
Montana	—	—
Nebraska	—	2
New Mexico	20	43
New York	—	—
North Dakota	24	77
Ohio	12	20
Oklahoma	58	105
Pennsylvania	13	47
South Dakota	—	—
Texas	191	363
Offshore	—	—
Inland waters	—	—
Dist. 1	16	51
Dist. 2	14	39
Dist. 3	4	18
Dist. 4	8	20
Dist. 5	1	5
Dist. 6	9	17
Dist. 7B	5	2
Dist. 7C	18	33
Dist. 8	101	149
Dist. 8A	7	11
Dist. 9	4	2
Dist. 10	4	16
Utah	4	8
West Virginia	12	19
Wyoming	7	21
Others HI-1	1	1
<b>Total US</b>	<b>424</b>	<b>857</b>
<b>Total Canada</b>	<b>69</b>	<b>136</b>
<b>Grand total</b>	<b>493</b>	<b>993</b>
US oil rigs	337	631
US gas rigs	86	223
Total US offshore	21	27
<b>Total US cum. avg. YTD</b>	<b>495</b>	<b>1,167</b>

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**

	16-17-16 1,000 b/d	26-19-15 1,000 b/d
(Crude oil and lease condensate)		
Alabama	20	28
Alaska	527	459
California	548	577
Colorado	304	324
Florida	6	7
Illinois	19	25
Kansas	97	127
Louisiana	1,310	1,334
Michigan	13	18
Mississippi	54	69
Montana	60	81
New Mexico	360	416
North Dakota	1,059	1,193
Ohio	69	67
Oklahoma	344	410
Pennsylvania	16	21
Texas	3,571	3,727
Utah	84	105
West Virginia	18	24
Wyoming	203	240
Other states	49	70
<b>Total</b>	<b>8,731</b>	<b>9,322</b>

<sup>1</sup>OGJ estimate. <sup>2</sup>Revised. Source: Oil & Gas Journal. Data available at PennEnergy Research Center.

**US CRUDE PRICES**

	6-17-16 \$/bbl*
Alaska-North Slope 27°	24.29
Light Louisiana Sweet	43.35
California-Midway Sunset 13°	37.30
California Buena Vista Hills 26°	46.62
Wyoming Sweet	44.23
East Texas Sweet	42.50
West Texas Sour 34°	39.50
West Texas Intermediate	44.50
Oklahoma Sweet	44.50
Texas Upper Gulf Coast	38.25
Michigan Sour	36.50
Kansas Common	43.50
North Dakota Sweet	37.75

\*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**

OEPEC reference basket	Wkly. avg.	6-17-16 Mo. avg., Apr.-16	\$/bbl 45.09 \$/bbl May-16
<b>OEPEC reference basket</b>	37.86	37.86	43.21
Arab light-Saudi Arabia	38.22	38.22	43.48
Basrah light-Iraq	36.62	36.62	42.05
Bonny light 37°-Nigeria	41.51	41.51	46.85
Es Sider-Libya	40.48	40.48	45.83
Girassol-Angola	41.25	41.25	46.58
Iran heavy-Iran	36.65	36.65	41.67
Kuwait export-Kuwait	36.33	36.33	41.60
Marine-Qatar	38.97	38.97	44.13
Meruy-Venezuela	28.84	28.84	34.28
Minas 34°-Indonesia	38.52	38.52	48.64
Murban-UAE	42.47	42.47	47.12
Oriente-Ecuador	35.04	35.04	41.96
Saharan blend 44°-Algeria	42.33	42.33	47.73
<b>Other crudes</b>			
Fateh 32°-Dubai	39.00	39.00	44.29
Isthmus 33°-Mexico	38.14	38.14	44.76
Brent 38°-UK	41.48	41.48	46.83
Urals-Russia	39.89	39.89	45.08
<b>Differentials</b>			
WTI/Brent	(0.53)	(0.53)	0.01
Brent/Dubai	2.48	2.48	2.54

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

**US NATURAL GAS STORAGE<sup>1</sup>**

	6-10-16 bcf	6-3-16 bcf	6-10-15	Change, %
East	585	559	491	19.1
Midwest	703	679	485	44.9
Mountain	188	183	146	28.8
Pacific	312	307	326	(4.3)
South Central	1,253	1,244	962	30.2
Salt	368	370	294	25.2
Nonsalt	885	874	668	32.5
<b>Total US</b>	<b>3,041</b>	<b>2,972</b>	<b>2,410</b>	<b>26.2</b>
<b>Mar.-16</b>		<b>Mar.-15</b>		<b>Change, %</b>
<b>Total US<sup>2</sup></b>	<b>2,492</b>	<b>1,483</b>	<b>68.0</b>	

<sup>1</sup>Working gas. <sup>2</sup>At end of period. Source: Energy Information Administration. Data available at PennEnergy Research Center.

**REFINED PRODUCT PRICES**

	6-10-16 ¢/gal	6-10-16 ¢/gal
<b>Spot market product prices</b>		
Motor gasoline (Conventional-regular)	No. 2 Distillate	Low sulfur diesel fuel
New York Harbor	153.40	New York Harbor
Gulf Coast	148.90	Gulf Coast
		Los Angeles
Motor gasoline (RBOB-regular)	Kerosine jet fuel	Gulf Coast
New York Harbor	159.40	139.20
No. 2 heating oil	Propane	Mont Belvieu
New York Harbor	143.70	49.50

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

**IHS PETRODATA RIG COUNT**

	JUNE 17, 2016			
	Total supply of rigs	Marketed supply of rigs	Marketed contracted	Marketed utilization rate (%)
US Gulf of Mexico	112	62	40	64.5
South America	60	56	45	80.4
Northwest Europe	106	87	71	81.6
West Africa	65	54	29	53.7
Middle East	166	157	122	77.7
Southeast Asia	91	77	35	45.5
Worldwide	832	705	500	70.9

Source: IHS Petrodata. Data available at PennEnergy Research Center.

WORLD OIL BALANCE

	EIA						IEA						OPEC					
	-2016-		2015				-2016-		2015				-2016-		2015			
	1st	4th	3rd	2nd	1st	4th	1st	4th	3rd	2nd	1st	4th	1st	4th	3rd	2nd	1st	4th
	Million b/d																	
<b>DEMAND</b>																		
OECD	46.6	46.4	46.7	45.4	46.5	46.4	46.6	46.3	46.7	45.3	46.4	46.4	46.5	46.3	46.5	45.4	46.4	46.6
Non-OECD	47.6	47.7	48.3	47.9	46.4	46.8	48.6	49.2	49.0	48.8	47.2	47.8	46.6	47.7	47.4	46.6	45.5	46.2
<b>TOTAL DEMAND</b>	<b>94.2</b>	<b>94.1</b>	<b>95.0</b>	<b>93.3</b>	<b>92.8</b>	<b>93.3</b>	<b>95.2</b>	<b>95.5</b>	<b>95.7</b>	<b>94.1</b>	<b>93.6</b>	<b>94.2</b>	<b>93.1</b>	<b>94.0</b>	<b>93.9</b>	<b>92.0</b>	<b>91.9</b>	<b>92.8</b>
<b>SUPPLY</b>																		
<b>Non-OPEC</b>																		
OECD	27.0	27.1	26.8	26.4	26.6	26.7	23.9	24.2	23.9	23.5	23.8	23.8	25.3	25.5	25.3	24.9	25.2	24.9
Non-OECD	30.4	31.0	31.0	30.9	30.6	31.7	29.1	29.3	29.1	29.3	29.5	29.3	31.9	32.0	31.8	31.9	32.0	32.8
<b>OPEC</b>																		
Crude Oil	31.6	31.8	32.0	31.5	30.8	30.3	32.6	32.4	32.4	32.2	31.2	31.2	32.3	32.2	32.2	31.9	31.0	30.3
NGLs	6.7	6.6	6.6	6.6	6.5	6.3	6.8	6.7	6.7	6.7	6.6	6.6	6.2	6.2	6.2	6.2	6.0	5.9
<b>TOTAL SUPPLY</b>	<b>95.6</b>	<b>96.5</b>	<b>96.4</b>	<b>95.4</b>	<b>94.6</b>	<b>95.0</b>	<b>96.5</b>	<b>97.2</b>	<b>97.0</b>	<b>96.3</b>	<b>95.1</b>	<b>95.5</b>	<b>95.7</b>	<b>95.9</b>	<b>95.5</b>	<b>94.9</b>	<b>94.2</b>	<b>93.9</b>
<b>Stock change</b>	<b>1.4</b>	<b>2.4</b>	<b>1.4</b>	<b>2.1</b>	<b>1.8</b>	<b>1.8</b>	<b>1.3</b>	<b>1.7</b>	<b>1.3</b>	<b>2.2</b>	<b>1.5</b>	<b>1.3</b>	<b>2.6</b>	<b>1.9</b>	<b>1.6</b>	<b>2.9</b>	<b>2.3</b>	<b>1.1</b>

<sup>1</sup>IEA total supply includes processing gains and global biofuels.  
 Source: US Energy Information Administration, International Energy Agency, OPEC  
 Data available in PennEnergy Research Center.

OECD TOTAL NET OIL IMPORTS

	Sept. 2015	Aug. 2015	July 2015	Sept. 2014	Chg. vs. previous year	
					Volume	%
					Million b/d	
Canada	(2,775)	(3,002)	(2,664)	(2,508)	(156)	6.2
US	4,451	5,205	4,544	5,234	(690)	(13.2)
Mexico	(604)	(725)	(542)	(810)	268	(33.1)
France	1,787	1,423	1,612	1,633	(21)	(1.3)
Germany	2,247	2,258	2,063	2,190	(127)	(5.8)
Italy	1,082	1,221	1,106	947	159	16.8
Netherlands	898	1,064	823	838	(15)	(1.8)
Spain	1,354	1,153	1,177	1,152	25	2.2
Other importers	4,442	4,257	4,369	4,097	272	6.6
Norway	(1,544)	(1,277)	(1,712)	(1,525)	(187)	12.3
United Kingdom	613	694	371	574	(203)	(35.4)
<b>Total OECD Europe</b>	<b>10,879</b>	<b>10,793</b>	<b>9,809</b>	<b>9,906</b>	<b>(97)</b>	<b>(1.0)</b>
Japan	3,806	4,095	4,191	3,901	290	7.4
South Korea	2,241	2,403	2,207	2,189	18	0.8
Other OECD	1,620	1,411	1,546	1,558	(12)	(0.8)
<b>Total OECD</b>	<b>19,618</b>	<b>20,180</b>	<b>19,091</b>	<b>19,470</b>	<b>(379)</b>	<b>(1.9)</b>

Source: US Energy Information Administration  
 Data available at PennEnergy Research Center. NOTE: No new data at press time.

OECD\* TOTAL GROSS IMPORTS FROM OPEC

	Jan. 2016	Dec. 2015	Nov. 2015	Jan. 2015	Chg. vs. previous year	
					Volume	%
					Million b/d	
Canada	97	187	241	171	(74)	(43.3)
US	3,125	2,766	2,831	3,272	(147)	(4.5)
Mexico	—	—	—	20	(20)	(100.0)
France	693	776	881	638	55	8.6
Germany	365	371	289	448	(83)	(18.5)
Italy	736	622	604	550	186	33.8
Netherlands	621	520	622	401	220	54.9
Spain	630	877	699	790	(160)	(20.3)
Other importers	1,444	1,474	1,418	1,360	84	6.2
United Kingdom	399	419	499	575	(176)	(30.6)
<b>Total OECD Europe</b>	<b>4,888</b>	<b>5,059</b>	<b>5,012</b>	<b>4,762</b>	<b>126</b>	<b>2.6</b>
Japan	3,320	3,132	3,751	3,502	(182)	(5.2)
South Korea	2,909	2,702	2,743	2,650	259	9.8
Other OECD	251	218	225	235	16	6.8
<b>Total OECD</b>	<b>14,590</b>	<b>14,064</b>	<b>14,803</b>	<b>14,612</b>	<b>(22)</b>	<b>(0.2)</b>

\*Organization for Economic Cooperation and Development.  
 Source: US Energy Information Administration  
 Data available at PennEnergy Research Center.

US PETROLEUM IMPORTS FROM SOURCE COUNTRY

	Feb. 2016	Jan. 2016	Average YTD		Chg. vs. previous year	
			2016	2015	Volume	%
			1,000 b/d			
Algeria	174	126	149	97	52	53.6
Angola	133	166	150	114	36	31.6
Kuwait	289	205	246	254	(8)	(3.1)
Nigeria	274	132	200	45	155	344.4
Saudi Arabia	1,011	1,054	1,033	879	154	17.5
Venezuela	773	702	736	722	14	1.9
Other OPEC	556	667	614	547	67	12.2
<b>Total OPEC</b>	<b>3,210</b>	<b>3,052</b>	<b>3,128</b>	<b>2,658</b>	<b>470</b>	<b>17.7</b>
Canada	4,201	4,111	4,155	3,956	199	5.0
Mexico	539	710	627	809	(182)	(22.5)
Norway	61	58	60	34	26	76.5
United Kingdom	71	115	94	110	(16)	(14.5)
Virgin Islands	—	—	—	—	—	—
Other non-OPEC	1,938	1,689	1,808	1,755	53	3.0
<b>Total non-OPEC</b>	<b>6,810</b>	<b>6,683</b>	<b>6,744</b>	<b>6,664</b>	<b>80</b>	<b>1.2</b>
<b>TOTAL IMPORTS</b>	<b>10,020</b>	<b>9,735</b>	<b>9,872</b>	<b>9,322</b>	<b>550</b>	<b>5.9</b>

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

OIL STOCKS IN OECD COUNTRIES\*

	Jan. 2016	Dec. 2015	Nov. 2015	Jan. 2015	Chg. vs. previous year	
					Volume	%
					Million bbl	
France	171	168	164	170	1	0.6
Germany	287	285	283	286	1	0.3
Italy	120	117	117	116	4	3.4
United Kingdom	83	81	83	73	10	13.7
Other OECD Europe	825	809	801	1,364	(539)	(39.5)
<b>Total OECD Europe</b>	<b>1,486</b>	<b>1,460</b>	<b>1,448</b>	<b>1,373</b>	<b>113</b>	<b>8.2</b>
Canada	186	188	187	192	(6)	(3.1)
US	2,041	2,015	2,022	1,874	167	8.9
Japan	580	582	582	574	6	1.0
South Korea	219	228	222	197	22	11.2
Other OECD	111	109	103	114	(3)	(2.6)
<b>Total OECD</b>	<b>4,623</b>	<b>4,582</b>	<b>4,564</b>	<b>4,324</b>	<b>299</b>	<b>6.9</b>

\*End of period.  
 Source: US Energy Information Administration  
 Data available at PennEnergy Research Center.

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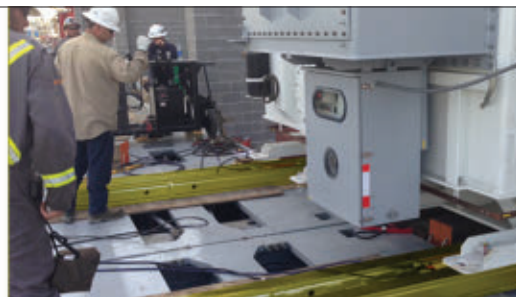
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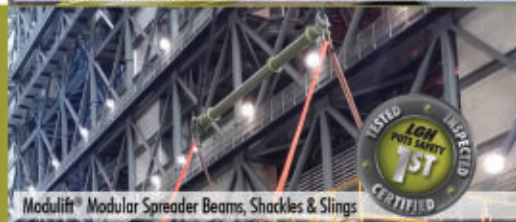
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