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Peter D. Cantu
Companies M–Z
Phone: 713.963.6213
Fax: 713.963.6212
Email: peterc@pennwell.com

Kristin Stavinoha
Companies A–L
Phone: 713.963.6283
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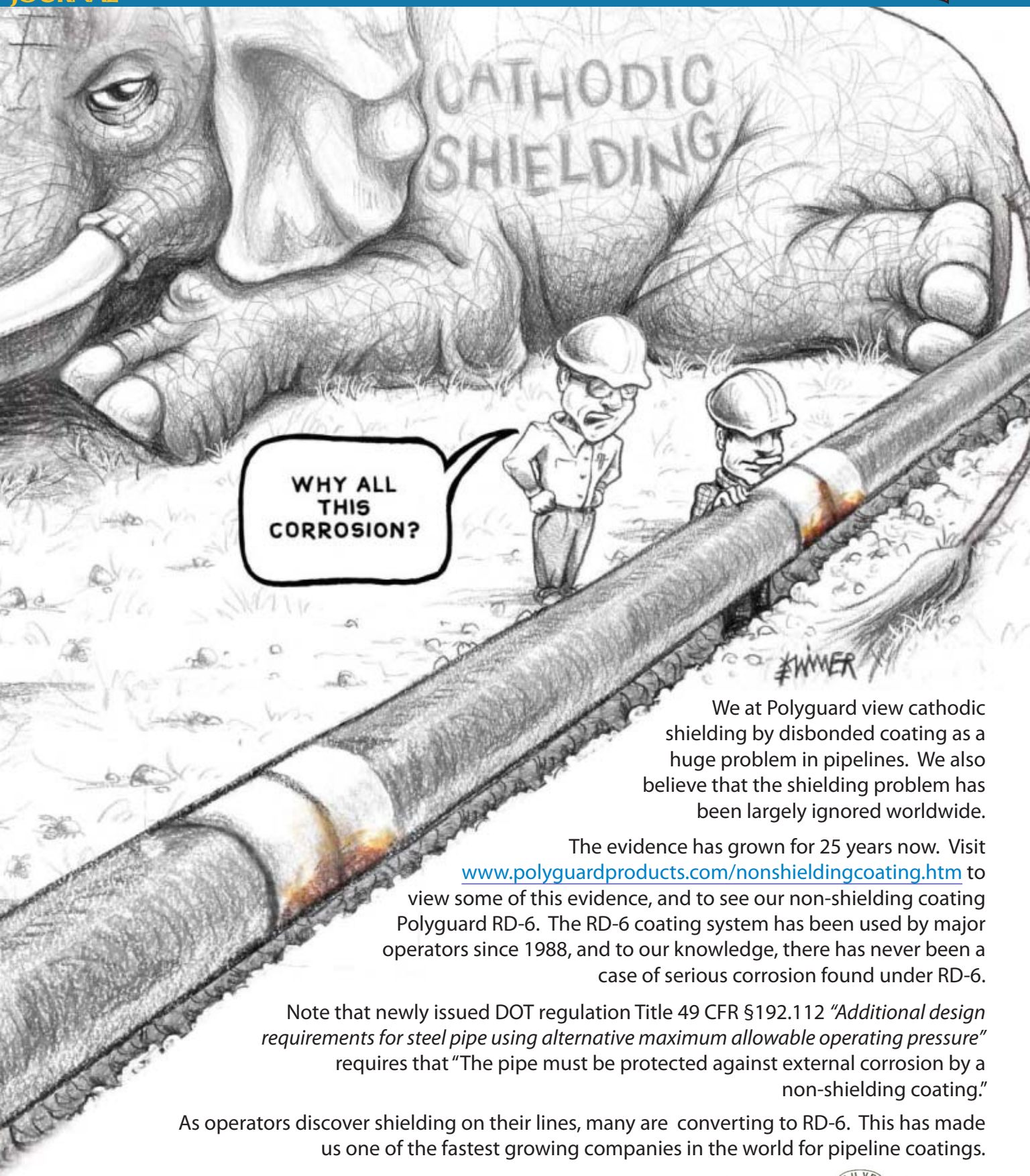
Worldwide Pipeline Construction

Sanctions would help Iran solve its gasoline problems
Orinoco's recoverable figure 513 billion bbl, USGS says
Drillers cautiously optimistic about climbing oil prices



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OIL&GAS JOURNAL®

Feb. 15, 2010
Volume 108.6

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COVER

Crews work on Cairn India's 670-km heated oil pipeline extending from its Mangala processing terminal in Rajasthan to Salaya near the Gujarat coast of India. The 24-in. OD pipeline is wrapped in high-density polyethylene with a polyurethane foam insulation. The pipeline, 400 km of which extends underground, includes 32 heating stations designed to keep crude oil temperatures above 65° C. Pipelay was completed as of January and commissioning was in progress. Cairn India is the Indian arm of UK oil and gas company Cairn Energy PLC and operator of Mangala field. Oil & Gas Journal's special report on Worldwide Pipeline Construction, beginning on p. 39, provides information on construction trends and projects for 2010 and into the future. Photo from Cairn Energy.

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PennWell, Houston office
1455 West Loop South, Suite 400, Houston, TX 77027
Telephone 713.621.9720/Fax 713.963.6285/Web site www.ogjonline.com
Editor Bob Tippee, bobt@ogjonline.com
Chief Editor-Exploration Alan Petzet, alanp@ogjonline.com
Chief Technology Editor-LNG/Gas Processing Warren R. True, warrent@ogjonline.com
Production Editor Guntis Moritis, guntism@ogjonline.com
Pipeline Editor Christopher E. Smith, chriss@ogjonline.com
Senior Editor-Economics Marilyn Radler, marilynr@ogjonline.com
Senior Editor Steven Poruban, stevenp@ogjonline.com
Senior Writer Sam Fletcher, samf@ogjonline.com
Senior Staff Writer Paula Dittrick, paulad@ogjonline.com
Survey Editor/News Writer Leena Koottungal, lkoottungal@ogjonline.com

Publisher Jim Klingele, jimk@pennwell.com
Vice-President/Group Publishing Director Paul Westervelt, pwestervelt@pennwell.com
Vice-President/Custom Publishing Roy Markum, roym@pennwell.com

PennWell, Tulsa office
1421 S. Sheridan Rd., Tulsa, OK 74112
PO Box 1260, Tulsa, OK 74101
Telephone 918.835.3161 / Fax 918.832.9290
Presentation/Equipment Editor Jim Stilwell, jims@pennwell.com
Associate Presentation Editor Michelle Gourd, michelleg@pennwell.com
Statistics Editor Laura Bell, laurab@ogjonline.com
Illustrators Mike Reeder, Kay Wayne
Editorial Assistant Donna Barnett, donnab@ogjonline.com
Production Director Charlie Cole

Washington
Tel 703.533.1552
Washington Editor Nick Snow, nicks@pennwell.com

Los Angeles
Tel 310.595.5657
Oil Diplomacy Editor Eric Watkins, hippalus@yahoo.com

OGJ News
Please submit press releases via e-mail to: news@ogjonline.com

Subscriber Service
P.O. Box 2002, Tulsa OK 74101
Tel 1.800.633.1656 / 918.831.9423 / Fax 918.831.9482
E-mail ogjsub@pennwell.com
Audience Development Manager Tommie Grigg, tommieg@pennwell.com

PennWell Corporate Headquarters
1421 S. Sheridan Rd., Tulsa, OK 74112

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OGJ Newsletter

Feb. 15, 2010

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General Interest — Quick Takes

Western Gas buys Anadarko gathering system

Western Gas Partners LP acquired a natural gas gathering system and other midstream assets in southwest Wyoming from Anadarko Petroleum Corp. for $254.4 million.

Don Sinclair, Western Gas Partners president and chief executive officer, said the assets have significant potential by serving Moxa, Pinedale, and Jonah fields. The acquisition closed on Jan. 29 with an effective date of Jan. 1.

Western Gas purchased Anadarko's 100% ownership interest in the Granger gathering system and the Granger plants, which involve two cryogenic trains with combined capacity of 200 MMcfd, two refrigeration trains with capacity of 145 MMcfd, an NGL fractionation facility with capacity of 9,500 b/d, and associated equipment.

The average throughput on these systems for fourth quarter 2009 was 240 MMcfd. Anadarko's throughput represented nearly half of this amount.

Anadarko's throughput recently was converted into 10-year, fee-based arrangements. To mitigate the remaining gas price risk associated with the acquisition, Western Gas and Anadarko agreed to fixed-price commodity swaps through yearend 2014.

Thailand hikes E&P spending

Thailand's exploration and production spending is projected by the Department of Mineral Fuels (DMF) to increase 18% this year to 169.75 billion baht ($5.14 billion).

E&P spending amounted to 144.23 billion baht in 2009.

Of the projected 2010 budget, 130.23 billion baht would be for capital expenditures, 36.76 billion baht for operating expenses, and 2.76 billion baht for exploration. Most will go to concession areas in the production stage under existing participants, especially PTT Exploration & Production Plc (PTTEP) and Chevron Inc., which are the country's largest gas producers.

PTTEP and Chevron will continue to be top spenders this year at 83.04 billion baht and 67.03 billion baht, respectively. Other concessionaires are expected to spend 19.68 billion baht.

According to DMF, 78% of total expenditures in 2010 will be for development and production, 13% for exploration, and 9% for operation and management costs.

Ghana blocks Kosmos-ExxonMobil deal

Ghana's Minister of Energy Joe Oteng-Adjei denied his country would take by force Kosmos Energy LLC's interest in Jubilee oil field, but the company will not be allowed to sell its stake to ExxonMobil Corp.

Speaking in Port of Spain at an energy conference, Oteng-Adjei said Ghana National Petroleum Corp. (GNPC) is interested in purchasing Kosmos' stake in Jubilee field and has the government's full backing. Kosmos planned to sell its interest to ExxonMobil in a deal valued at $4 billion. Oteng-Adjei told the conference, "What we are saying is that this is an opportunity for us as a country to benefit. What we are saying is that Kosmos as an investor has a fair value to the assets they have invested in, but Kosmos cannot decide on who enters into the country to participate and join with us in the development of our country."

He said Ghana has its own development policies and priorities.

Oteng-Adjei tried to calm fears of oil and gas producers at the conference, telling them investors are safe in Ghana and his country has no interest in taking away assets of Kosmos or any other investor. He said, "We allow every investor to get a fair value of return on their assets and investments that they put into the country. We want to work with them to ensure that whoever they bring into the country is mutually acceptable. But they have no right to impose on us anybody, any entity that does not share our development policies."

Tullow Oil PLC operates Jubilee field, which was discovered in 2007 in deep water off Ghana. It estimates Jubilee is a continuous stratigraphic trap with combined hydrocarbon columns in excess of 600 m, with 600 million-1.8 billion bbl of recoverable hydrocarbons.

Oteng-Adjei said Ghana does not have production-sharing contracts, and the carried participation by its state oil company is 10%. He said the only real return to the government was in taxes and royalties. This is one reason Ghana wants GNPC to obtain Kosmos' stake, he said. Oteng-Adjei said other Jubilee field partners have the financial and technical competence to compete the project even if Kosmos is not part of the consortium.

Tullow holds a 34.7% stake in Jubilee, while Anadarko Petroleum Corp. and Kosmos each hold 23.49%. Sabre Oil & Gas Ltd. holds 2.81%, and EO Group has 1.75%. ✦

Exploration & Development — Quick Takes

Husky tests third S. China Sea gas find

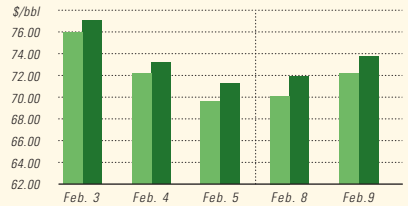
A third discovery on Block 29/26 in the eastern South China Sea "supports an earlier estimation of petroleum initially in place of 4 to 6 tcf for the block," said Husky Energy Inc., Calgary.

Husky plans to submit a development plan for the block to regulatory authorities in early 2010.

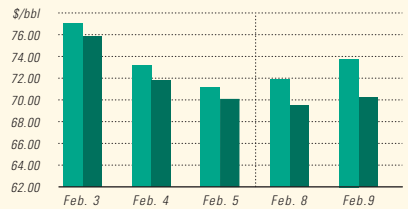
The Liuhua 29-1 exploration well, in 723 m of water 43 km northeast of Liwan 3-1 gas field and 20 km northeast of LH 34-2 gas-condensate field, cut a gross gas column of 145 m with what Husky called "a significant thickness of high quality gas charged

Industry Scoreboard

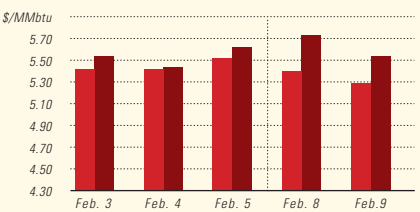
IPE BRENT / NYMEX LIGHT SWEET CRUDE



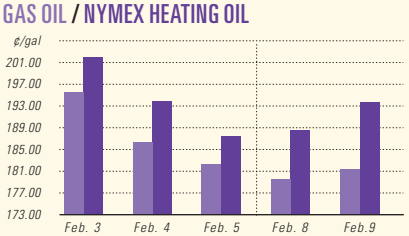
WTI CUSHING / BRENT SPOT



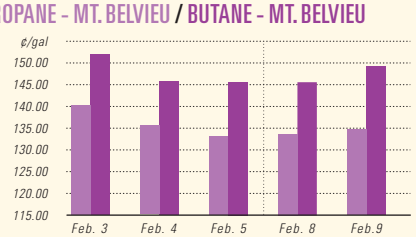
NYMEX NATURAL GAS / SPOT GAS - HENRY HUB



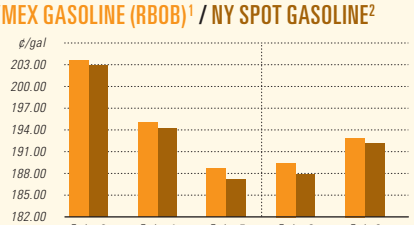
IPE GAS OIL / NYMEX HEATING OIL



PROPANE - MT. BELVIEU / BUTANE - MT. BELVIEU



NYMEX GASOLINE (RBOB)[1] / NY SPOT GASOLINE[2]



[1]Reformulated gasoline blendstock for oxygen blending
[2]Nonoxygenated regular unleaded

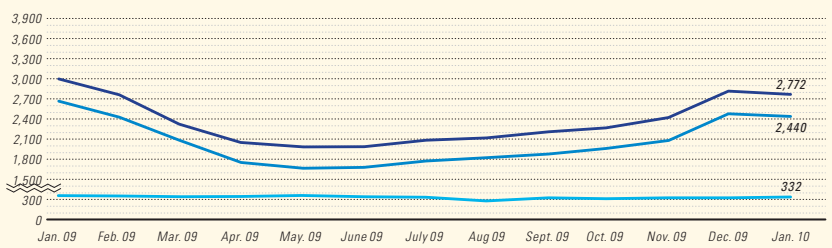
US INDUSTRY SCOREBOARD — 2/15

Latest week 1/29	4 wk. average	4 wk. avg. year ago[1]	Change, %	YTD average[1]	YTD avg. year ago[1]	Change, %
Demand, 1,000 b/d						
Motor gasoline	8,644	8,690	–0.5	8,663	8,690	–0.3
Distillate	3,705	4,075	–9.1	3,673	4,075	–9.9
Jet fuel	1,360	1,357	0.2	1,396	1,357	2.9
Residual	461	700	–34.1	469	700	–33.1
Other products	4,580	4,303	6.4	4,550	4,302	5.8
TOTAL DEMAND	18,750	19,125	–2.0	18,751	19,124	–2.0
Supply, 1,000 b/d						
Crude production	5,431	5,246	3.5	5,446	5,246	3.8
NGL production[2]	2,075	1,797	15.5	2,050	1,797	14.1
Crude imports	8,432	9,852	–14.4	8,417	9,852	–14.6
Product imports	2,790	3,321	–16.0	2,751	3,321	–17.1
Other supply[3]	1,660	1,663	–0.2	1,773	1,051	68.7
TOTAL SUPPLY	20,388	21,879	–6.8	20,437	21,266	–3.9
Refining, 1,000 b/d						
Crude runs to stills	13,729	14,583	–5.9	13,741	14,112	–2.6
Input to crude stills	13,961	14,503	–3.7	13,992	14,503	–3.5
% utilization	79.0	82.1	—	79.1	82.1	—

Latest week 1/29	Latest week	Previous week[1]	Change	Same week year ago[1]	Change	Change, %
Stocks, 1,000 bbl						
Crude oil	328,994	326,677	2,317	346,051	–17,057	–4.9
Motor gasoline	228,121	229,427	–1,306	220,221	7,900	3.6
Distillate	156,548	157,496	–948	142,591	13,957	9.8
Jet fuel–kerosine	43,239	43,690	–451	39,478	3,761	9.5
Residual	39,652	37,789	1,863	34,569	5,083	14.7
Stock cover (days)[4]			Change, %		Change, %	
Crude	24.0	23.7	1.3	24.2	–0.8	
Motor gasoline	26.4	26.4	0.0	25.1	5.2	
Distillate	42.3	42.8	–1.2	35.2	20.2	
Propane	20.7	22.0	–5.9	26.9	–23.0	
Futures prices[5] **2/5**			Change		Change	%
Light sweet crude ($/bbl)	74.59	74.03	0.56	42.52	32.07	75.4
Natural gas, $/MMbtu	5.45	5.35	0.10	4.49	0.96	21.3

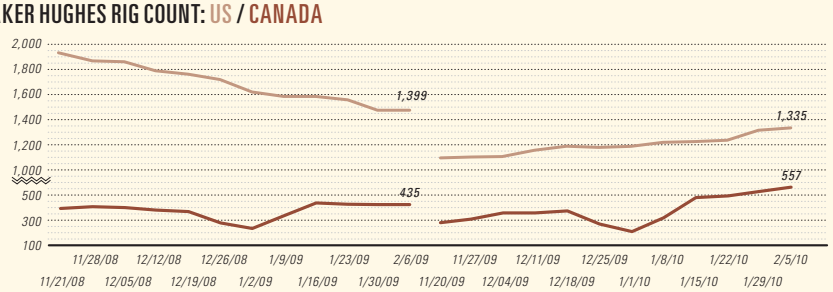
[1]Based on revised figures. [2]Includes adjustments for fuel ethanol and motor gasoline blending components. [3]Includes other hydrocarbons and alcohol, refinery processing gain, and unaccounted for crude oil. [4]Stocks divided by average daily product supplied for the prior 4 weeks. [5]Weekly average of daily closing futures prices.
Sources: 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

reservoir." It also found oil in a deeper reservoir.

The well tested gas at an equipment-restricted rate of 57 MMcfd, and indications were that future deliverability could exceed 90 MMcfd. Front-end engineering design for the Liwan 3-1 deepwater project is complete. Husky will develop Liwan 3-1 and Liuhua 34-2 in tandem. Gas production is to start around 2013. Liuhua 29-1 field will be appraised this year and will use Liwan field facilities.

The West Hercules semisubmersible is preparing to spud the first delineation well at Liuhua 34-2 (OGJ Online, Dec. 9, 2009).

CNOOC Ltd. has the right to participate in any field development project for up to 51% working interest.

Colombia Middle Mag find may have two pays

An apparent discovery in Colombia's Middle Magdalena basin may have oil pay zones in the Upper Cretaceous Umir and Paleocene Lisama formations, said PetroLatina Energy PLC.

The Zoe-1 well, on the Midas block 12 km east of Santa Lucia heavy oil field, went to a total depth of 10,924 ft. Logs show the well to be 60 ft true vertical depth subsea structurally higher at the Lisama level to the San Alberto well Texaco drilled on the same structure in 1985.

Log analysis at Zoe-1 indicated 47 ft of net oil pay in Lisama at 8,632-8,701 ft. A section at 8,701-30 ft also has reservoir quality rock and good oil shows, but it is not yet clear whether it is oil-bearing. The Zoe-1 well also appears to contain producible oil in Umir, where it found two thin sands. The Umir sands were found somewhat overpressured with porosities up to 27% and permeability of 100 md.

Umir tested at a stable 42 b/d of 23° gravity oil at 1,500 psi flowing tubinghead pressure on an 8/64-in. choke. Water cut is 5% and dropping. Umir tests will continue until the end of February, when a service rig will move in to test the Lisama.

PetroLatina is operator of the Midas block with 70% interest. The rig has moved to drill the Santa Lucia-4 development well between two existing wells that produce 19° gravity oil from Eocene La Paz.

Santa Lucia field has several undrilled development locations and potential extension locations and a nearby undrilled prospect. PetroLatina will drill at least one development well and one exploration well on this block in the current drilling campaign.

PetroLatina operates Santa Lucia field with 20% interest. Petrosantander Inc., Houston, has 20%, and Colombia's state Ecopetrol SA has 60%.

Partners advance Athena field development

Partners in Athena oil field in the Outer Moray Firth of the UK North Sea have approved spending to begin development, expecting production to start in the second quarter of 2011.

Ithaca Energy (UK) Ltd., operator with a 22.5% interest, said the group will spend as much as $14.85 million to buy electrical submersible pumps, subsea trees, and engineering support.

They also commissioned a team to plan the development and submit an environmental statement and field development plan to authorities for approval. The team also will complete negotiation of contracts for a floating production, storage, and offtake vessel, subsea facilities, and drilling services.

Ithaca had considered tying Athena wells back to the Claymore platform but found the FPSO option faster (OGJ Online, July 21, 2008). The company estimates initial gross production from the field of 22,000 b/d.

Ithaca has drilled and suspended three Athena wells, which will be reentered and completed. It plans to drill two more wells, one a producer and the other for water injection, in the fourth quarter this year and first quarter of 2011.

Production will flow through a subsea manifold to the standalone FPSO via a 2-km, 8-in. flowline. Shuttle tankers will carry oil from the FPSO. Ithaca expects all offshore installation work to be complete by the end of the second quarter of 2011.

It said Sproule International Ltd. at the end of 2009 estimated Athena proved and probable reserves at 24.4 million bbl.

Other interests are Dyas UK Ltd. 74.5%, EWE AG 20%, and Zeus Petroleum 10%.

Kurdistan well hits pressure below Shiranish

Well control measures are being implemented at the Kurdamir-1 indicated discovery in the northern part of the 2,120 sq km Kalar Bawanoor Block 44 in the southern part of Iraq's Kurdistan region.

WesternZagros Resources Ltd., Calgary, block operator with 40% interest, has drilled an 8½-in. hole to 4,077 m and has penetrated the Aaliji seal and the Cretaceous Shiranish reservoir target and drilled into the Gulneri seal, where it encountered a high pressure zone. Numerous oil and gas shows encountered while drilling through the Aaliji and Shiranish formations are to be logged and tested through 7-in. casing.

The well flowed at combined, equipment-limited rates of 27.5 MMcfd of gas and 1,172 b/d of 61° gravity condensate from Oligocene Pilaspi-Jaddala carbonates drillstem tested at 2,195-2,235 m and 2,280-2,352 m in late 2009. Independent geochemical evaluation indicates the condensate is from an oil-prone source and is likely to be associated with an oil column deeper in the Kurdamir structure. A follow-up flank well is under consideration.

The Aaliji seal was thicker than prognosed and the Shiranish and Gulneri seal were deeper than prognosed. A revised depth and pressure prediction for the Cretaceous Qamchuqa reservoir target exceeds the well's safety limit, and no deeper drilling will take place.

Talisman Energy Inc., Calgary, has 40% interest in the well, and the Kurdistan Regional Government owns 20%. ✦

Drilling & Production — *Quick Takes*

Shtokman partners delay production start

Citing "changes in the market situation and particularly in the LNG market," Shtokman Development AG has delayed by 3 years the start-up of production from Shtokman gas-condensate field in the Barents Sea.

The partnership of Gazprom, Total, and Statoil said final in-

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vestment decisions on pipeline gas will be made in March 2011 and on LNG before the end of 2011.

That schedule will allow for the start of pipeline gas production in 2016 and of LNG in 2017, each 3 years later than initially planned (OGJ, May 18, 2009, p. 23).

The field, discovered in 1988, holds an estimated 135 tcf of recoverable gas. It lies in 1,100 ft of water near the edge of winter sea ice. The Shtokman partners have decided to treat offshore production facilities, the pipeline to shore, and onshore gas treatment as a stage in the first phase of the development project separate from LNG work.

The first phase targets production of 2.4 bcfd of gas from 20 producing wells drilled from three subsea templates. It includes installation of a floating production unit, construction of two dual-phase pipelines to shore, construction of a liquefaction plant at Teriberka, and a link to the North Stream pipeline serving Europe.

Papa Terra FPSO topsides contract let

Brazilian company QUIP selected AMEC PLC to perform basic engineering services for the topsides of the P-63 floating production, storage, and offloading for the Papa Terra heavy 14-17° gravity oil field in the Campos basin off Brazil, operated by Petroleo Brasileiro SA (Petrobras).

Papa Terra is 68 miles off Rio de Janeiro in 3,940 ft of water.

AMEC said the P-63 FPSO will have 16 topsides modules with a total weight of more than 14,000 tonnes. The modules include three oil processing modules, one gas compression module, three electrical power generation modules, two water treating and injection modules, one electrical building module, three utilities modules, one flare system module, and two manifold modules. In addition, the topsides will have a pipe rack more than 200 m long with a material handling trolley.

The FPSO topsides facilities will be designed to process about 140,000 bo/d, 35 MMscfd of gas, and 325,000 b/d of produced water, as well as to inject about 340,000 b/d of seawater.

AMEC's Houston office will manage the engineering for the P-63 FPSO topsides while fabrication and integration work will take place at QUIP's facility in Rio Grande, Brazil.

Previously the Papa Terra Joint Venture let contracts for construction and installation of the P-61 tension-leg wellhead platform (TLWP) for the field (OGJ Online, Feb. 2, 2010).

Operator Petrobras holds a 62.5% interest in Papa Terra and Chevron Overseas of Brazil Ltd. holds 37.5%.

Italy Adriatic field's reserves elevated

Consulting engineers doubled estimates of proved and probable oil reserves at Ombrina Mare field in the Adriatic off central Italy, where Mediterranean Oil & Gas PLC hopes to start production in late 2012.

The consultants estimated 12 million bbl of proved reserves and 28 million bbl of probable reserves, the total being double the firm's June 2008 estimate. The firm didn't revise the previous estimate of 6.5 bcf of proved and probable gas reserves. The field area covers 100 sq km.

The revision resulted from seismic reinterpretation, production test analysis, and other detailed technical studies.

A development plan the company hopes Italian authorities will approve by the end of 2010 calls for the field to produce 5,000-7,500 b/d of 17-19° gravity oil and 3.5 MMcfd of gas. The oil is in a Miocene and Cretaceous carbonate platform reservoir, and the gas is in 16 intervals in Middle-Upper Pliocene sands.

Mediterranean Oil & Gas is conducting reprocessing and inversion on 3D seismic data shot over the field and plans to reassess its contingent oil resource estimate.

Development entails a platform with five wells, including one already drilled and two dual oil and gas completions, a 10,000 b/d floating production, storage, and offloading vessel with 50,000 tonnes of storage, and a 12-km submarine pipeline.

Cenovus seeks nod for Narrows Lake project

Cenovus FCCL Ltd. submitted an application to obtain Alberta environmental approval for its proposed $2.2 billion Narrows Lake oil sands project about 10 km east of Conklin, Alta.

Cenovus plans to use either steam-assisted gravity drainage (SAGD) or solvent aided SAGD (SAP) to produce the bitumen from the Narrow Lake's oil sands. Cenovus FCCL is a subsidiary of Cenovus Energy Inc, a company spun off from Encana Corp. in November 2009.

A project summary says construction could start in January 2013 with bitumen production starting in January 2017. The company expects the project to have a 130,000 b/d capacity and be constructed in two or three phases, with the first phase having a 40,000 b/d production capacity. Expected project life is 40 years.

The company notes that the infrastructure requirements for the project include a central processing facility, well pads, roads, electrical power line, salt caverns for butane storage, wells for water source and disposal, storage tanks for diluted bitumen and diluent, as well as pipelines for fuel gas supply, diluted bitumen sales, diluent supply, fresh water supply, brackish water supply, and water disposal. Cenovus adds that it is studying the option of pipelines or rail for solvent transport.

Intervention boosts Beatrice field oil flow

Ithaca Energy (UK) Ltd. has increased production from the northern platform of Beatrice oil field in the UK North Sea by 1,500 b/d with well interventions.

The Ensco 80 jack up has moved off the field, which is in the Inner Moray Firth area, after refurbishing and restarting three wells tied into the Beatrice Bravo platform. Ithaca, operator of Beatrice field under a lease from Talisman Energy Inc., had expected the production boost to be about 500 b/d.

The company attributed about 1,000 b/d of the incremental production to the B11 well, in which intervention included perforation across a previously untapped section of the Middle Jurassic Beatrice reservoir to access an undrained part of the field.

Ithaca expects production from all Beatrice complex facilities, which also include the Alpha platform and unmanned Jacky wellhead platform north of the Bravo facility, to average 10,200 b/d this year.

Ithaca and Dyas UK Ltd. each hold equal interest in Beatrice field. Jacky interests are Ithaca 47.5%, Dyas 42.5%, and North Sea Energy (UK) Ltd. 10%. ✦

Processing — *Quick Takes*

Valero buys Wisconsin ethanol plant

Valero Renewable Fuels Co. LLC completed the purchase of a 110 million gal/year ethanol plant near Jefferson, Wis., from privately held Renew Energy.

The purchase price is $72 million. Renew Energy filed for bankruptcy early last year after 6 years of operation.

Valero has been buying financially distressed ethanol plants and now owns 10 of them with total producing capacity of 1.1 billion gal/year (OGJ, July 20, 2009, p. 36).

PRSI selects Fluor for US refinery study

Pasadena Refining System Inc. (PRSI), a subsidiary of Petroleo Brasileiro SA (Petrobras), has selected Fluor to provide front-end engineering study services for a prospective US refinery project.

Fluor will provide engineering, estimating, and project management services for the conceptual engineering phase of the prospective project that would enhance the performance of the 100,000-b/d Pasadena, Tex., refinery.

The engineering study is currently underway in Fluor's Sugar Land, Tex., office and will be completed later this year.

Total mulls over methane terminal at Dunkirk

Total SA is mulling construction of a methane terminal at Dunkirk as well as diversification of its overall refining business, Industry Minister Christian Estrosi told the National Assembly.

Total told Estrosi of the potential methane terminal without addressing rumors and press reports that the company has decided to shut down the Dunkirk refinery. Total refuses to comment prior to a meeting with workers scheduled Feb. 1.

Estrosi was questioned by National Assembly deputies worried that a shutdown would put 350 jobs at risk at the refinery and 400 within subcontracting companies in a time of high unemployment in France. ✦

Transportation — *Quick Takes*

Petrobras inaugurates new gas pipelines

Brazil's state-run Petroleo Brasileiro SA (Petrobras) has launched the 38-in., 179-km Cabiunas-Reduc III (Gasduc III) gas pipeline, which is capable of carrying 40 million cu m/day.

Petrobras said Gasduc III enhances regional transportation capacity to 40 million cu m/day from 16 million cu m/day. The line can transport gas produced in the Campos and Espírito Santo basins, as well as gas imported from Bolivia and from the Guanabara Bay LNG Regasification Terminal.

Gasduc III also will be able to receive gas coming from the Santos Basin, once the Caraguatatuba-Taubate gas pipeline has been completed later this year. Gasduc III interconnects Brazil's main natural gas processing pole, the Cabiúnas Terminal, to natural gas Hub 2, in Duque de Caxias.

Last month, Petrobras inaugurated the 93-km Paulinia gas pipeline, which will transport 5 million cu m/day. It originates in the city of Paulinia.

In addition to the Paulinia-Jacutinga gas pipeline, Petrobras said that the transportation network that supplies the state of Minas Gerais will be further reinforced in May when the 267-km Gasbel II line is scheduled to begin operating.

With the Paulinia-Jacutinga and Gasbel II gas pipelines, Petrobras said it is boosting its natural gas transportation capacity to Minas Gerais fourfold, rising to 13.2 million cu m/day from 3.2 million cu m/day.

Woodside selects Kimberly hub for Browse LNG

Woodside Petroleum Ltd. and its partners in the Browse LNG project selected James Price Point as the site for the proposed LNG plant, which will process gas from Browse basin fields.

Woodside plans to start front-end engineering and design work in 2011 leading to a final investment decision in mid-2012. The proposed $30 billion (Aus.) LNG plant is in the Kimberley region of Western Australia.

The site decision comes after the Australian government imposed a time limit last year regarding renewal of retention leases on the Browse gas fields—Torosa, Brecknock, and Calliance (OGJ Online, Dec. 4, 2009).

Talks start on Galsi link to Corsica

Negotiations have begun to link Corsica to the 940-km Galsi pipeline planned between Algeria and Italy, French President Nicolas Sarkozy said on a visit to Corsica, a French island off the Mediterranean coast (OGJ, June 8, 2009, Newsletter).

The link from Sardinia to Corsica would require an investment of €425 million, Sarkozy said. The island currently relies on ships for energy deliveries from the continent and fuels its two power stations with heavy fuel oil.

Corsica's natural gas needs are estimated at 300 million cu m/year. The Galsi line, one of two trans-Mediterranean pipelines planned by the Medgaz consortium, is to have capacity of 8 billion cu m/year.

GDF Suez to buy gas fields in Bonaparte Gulf

GDF Suez signed a final agreement to buy 60% of the Petrel, Tern, and Frigate natural gas fields in the Bonaparte Gulf from Santos Ltd. for $200 million.

This heralds the beginning of the proposed Bonaparte LNG project to be run by a GDF Suez subsidiary out of Perth.

The company will begin with a new drilling campaign before yearend to confirm reservoir potential.

Bonaparte LNG project involves floating LNG development of the three fields capable of producing 2 million tonnes/year of LNG. At this stage the contingent resource is estimated at 220 million boe.

First phase of the feasibility and pre-design engineering work will take about 3 years and lead to a final investment decision by 2014. ✦

Calendar

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

OIL&GAS JOURNAL online

Additional information on upcoming seminars and conferences is available through OGJ Online, Oil & Gas Journal's Internet-based electronic information source at http://www.ogjonline.com.

2010

FEBRUARY

SPE North Africa Technical Conference & Exhibition, Cairo, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 14-17.

IP Week, London, +44 0 20 7467 7132, +44 0 20 7255 1472 (fax), e-mail: jbia@energyinst.org.uk, website: www.energyinst.org.uk. 15-18.

Pipeline Pigging & Integrity Management Conference & Exhibition, Houston, (713) 521-5929, (713) 521-9255 (fax), e-mail: clarion@clarion.org, website: www.clarion.org. 16-18.

SPE European Artificial Lift Forum, Aberdeen, +44 1224 495051, Alexandra.stacey@hulse-rodger.com, website: www.spe-uk.org. 17-18.

Pipe Line Contractors Association Annual Conference (PLCA), Scottsdale, Ariz. (214) 969-2700, e-mail: plca@plca.org, website: www.plca.org. 17-21.

Laurance Reid Conditioning Conference, Norman, Okla., (512) 970-5019, (512) 233-2877 (fax), e-mail: bettyk@ou.edu, website: www.lrgcc.org. 21-24.

International Petrochemicals Technology Conference & Exhibition, Madrid, +44 (0) 20 7357 8394, +44 (0) 20 7357 8395 (fax), e-mail: enquiries@europetro.com, website: www.europetro.com. 22-23.

Photovoltaics World Conference & Exhibition, Austin, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.Photovaltaicsworldevent.com. 23-25.

Renewable Energy World North America Conference & Expo, Austin, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.renewableenergyworld-events.com. 23-25.

SPE Unconventional Gas Conference, Pittsburgh, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 23-25.

International Downstream Technology & Catalyst Conference & Exhibition, Madrid, +44 (0) 20 7357 8394, +44 (0) 20 7357 8395 (fax), e-mail: enquiries@europetro.com, website: www.europetro.com. 24-25.

SPE/IADC Managed Pressure Drilling & Underbalanced Operations Conference and Exhibition, Kuala Lumpur, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 24-25.

IPAA Private Capital Conference, Houston, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 25.

Nitrogen + Syngas International Conference and Exhibition, Manama, +44

20 7903 2058, +44 20 7903 2172 (fax), e-mail: cruevents@crugroup.com, website: www.nitrogenandsyngas2010.com. Feb. 28-Mar. 3.

MARCH

Annual Arctic Gas Symposium, Calgary, Alta., (877) 927-7936, website: www.arcticgassymposium.com. 2-3.

APPEX Conference, London, +44 0 20 74341399, +44 0 20 74341386 (fax) website: www.appexlondon.com. 2-4.

Subsea Tieback Forum & Exhibition, Galveston, Tex., (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.subseatiebackforum.com. 2-4.

Middle East Geosciences Conference and Exhibition, Manama, +973 17 550033, +973 17 553288 (fax), e-mail: fawzi@aeminfo.com.bh, website: www.geobahrain.org. 7-10.

SPE Hydrocarbon Economics and Evaluation Symposium, Dallas, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 8-9.

Purvin & Gertz LPG Seminar, The Woodlands, Tex., (713) 331-4000, (713) 236-8490 (fax), website: www.purvingertz.com. 8-11.

CERA Week, Houston, (617) 866-5992, e-mail: info@cera.com, website: www.cera.com. 8-12.

NPRA Security Conference & Exhibition, The Woodlands, Tex., (202) 457-0480, (202) 457-0486 (fax), e-mail: info@npra.org, website: www.npradc.org. 9-10.

Offshore West Africa Conference & Exhibition, Accra, Ghana, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.offshorewestafrica.com. 9-11.

Annual European Fuels Conference, Paris, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 9-12.

SPE European San Management Forum, Aberdeen, +44 1224 495051, e-mail: Alexandra.stacey@hulse-rodger.com, website: www.spe-uk.org. 10-11.

NACE International Corrosion Conference & Expo, San Antonio, (281) 228-6200, (281) 228-6300 (fax), e-mail: firstservice@nace.org, website: www.nace.org. 14-18.

International Pump Users Symposium, Houston, (979) 845-7417, (979) 845-1835 (fax), e-mail: inquiry@turbo-lab.tamu.edu, website: http://turbolab.tamu.edu. 15-18.

API Spring Committee on Petroleum Measurement Standards Meeting, Dallas, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 15-18.

Gas Asia, Kuala Lumpur, +44 (0) 1242 529 090, +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 16-18.

Oil and Gas Africa Exhibition & Conference, Cape Town, SA, +27 21 713 3360, +27 21 713 3366 (fax), e-mail: events@fairconsultants.com, website: www.fairconsultants.com. 16-18.

Offshore Asia Conference & Exhibition, Kuala Lumpur, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.offshoreasiaevent.com. 16-18.

Turkish International Oil & Gas Conference & Showcase (TUROGE), Ankara, Turkey, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 16-18.

Electric Light & Power Executive Conference, Tampa, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.elpconference.com. 21-22.

NPRA Annual Meeting, Phoenix, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 21-23.

GPA Annual Convention, Austin, Tex., (918) 493-3872, (918) 493-3875 (fax),

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e-mail: pmirkin@gpaglobal.org, website: www.GPAglobal.org. 21-24.

AIChE Spring National Meeting & Global Congress on Process Safety, San Antonio, (203) 702-7660, (203) 775-5177 (fax), website: www.aiche.org. 21-25.

Howard Weil Energy Conference, New Orleans, (504) 582-2500, website: www.howardweil.com/energy-conference.aspx. 21-25.

Gas Turbine Users International (GTUI) Annual Conference, Calgary, Alta., +9714 804 7738, +9714 804 7764 (fax), e-mail: info@gtui.org, website: www.gtui.org. 21-26.

Middle East Downstream Week & Annual Meeting, Abu Dhabi, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 22-25.

IADC Drilling HSE Asia Pacific Conference & Exhibition, Singapore, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 23-24.

SPE/ICoTA Coiled Tubing & Well Intervention Conference & Exhibition, The Woodlands, Tex., (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 23-24.

Middle East Refining Conference & Annual Meeting, Abu Dhabi, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 23-24.

Base Oils and Lubricants in Russia and CIS & Annual Meeting, Moscow, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 23-25.

SPE Intelligent Energy Conference and Exhibition, Utrecht, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.intelligentenergyevent.com/conferenceOGJ. 23-25.

Utility Products Conference & Exposition, Tampa, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.utilityproductsexpo.com. 23-25.

DistribuTECH Confernece & Exhibition, Tampa, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.distributech.com. 23-25.

Georgian International Oil, Gas, Energy and Infrastructure Conference & Showcase (GIOGIE), Tbilisi, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 24-25.

NPRA International Petrochemical Conference, San Antonio, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 28-30.

APRIL

ATYRAU North Caspian Regional Oil, Gas and Infrastructure Exhibition, Atyrau, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 6-8.

Rocky Mountain Unconventional Resources Conference & Exhibition, Denver, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.RMURconference.com. 6-8.

Oil & Gas WestAsia Exhibition in conjunction with SPE EOR Conference, Muscat, +968 24660124, +968 24660125 (fax), e-mail: omanexpo@omantel.net.om, website: www.ogwaexpo.com 11-13.

SPE EOR Conference at Oil & Gas West Asia, Muscat, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 11-13.

AAPG Annual Convention and Exhibition, New Orleans, (918) 560-2679, (918) 560-2684 (fax), e-mail: convene@aapg.org, website: www.aapg.org 11-14.

Annual Asian Petcoke Conference, Panaji, Goa, India, (832) 351-7828, e-mail: petcoke.conference@jacobs.com, website: www.petcokes.com. 12-14.

IPAA OGIS, New York City, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 12-14.

SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production, Rio de Janeiro, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 12-14.

IADC Well Control Europe Conference & Exhibition, Aberdeen, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 13-14.

GPA Mid-continent Annual Meeting, Oklahoma City, (918) 493-3872, (918) 493-3875 (fax), e-mail: gpa@gasprocessors.com, website: www.gasprocessors.com. 15.

International Liquefied Natural Gas Conference and Exhibition, Oran, +44 (0) 20 7596 5000, +44 (0) 20 7596 5111 (fax), website: www.lng16.org. 18-21.

Oil & Gas WestAsia Conference, Muscat, +968 24660124, +968 24660125 (fax), e-mail: omanexpo@omantel.net.om, website: www.ogwaexpo.com. 19-21.

Hannover Messe Pipeline Technology Trade Show, Hannover, +49 0 511 89 0, +49 0 511 89 32626 (fax), website: www.hannovermesse.de. 19-23.

Texas Alliance Annual Meeting and Expo, Wichita Falls, (940) 723-4131, (940) 723-4132 (fax), e-mail: texasalliance@texasalliance.org, website: www.texasalliance.org. 20-21.

API Pipeline Conference and Cybernetics Symposium, New Orleans, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 20-22.

SPE Improved Oil Recovery Symposium, Tulsa, (918) 366-7033, (918) 366-7064 (fax), e-mail: IOR@SPEIOR.ORG, Website: www.speior.org. 26-28.

Middle East Fertilizer Symposium & Annual Meeting, Abu Dhabi, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 26-28.

API Spring Refining and Equipment Standards Meeting, New Orleans, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 26-28.

API/NPRA Spring Operating Practices Symposium, New Orleans, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 27.

MAY

Offshore Technology Conference (OTC), Houston, (972) 952-9494, (972) 952-9435 (fax), e-mail: service@otcnet.org, website: www.otcnet.org/2010. 3-6.

GPA Permian Basin Annual Meeting, Midland, Tex., (918) 493-3872, (918) 493-3875 (fax), website: www.gasprocessors.com. 4.

Asian Biofuels, New Feedstocks and Technology Roundtable, Singapore, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 4-6.

OGU/Uzbekistan International Oil & Gas Exhibition & Conference, Tashkent, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 11-13.

International School of Hydrocarbon Measurement, Norman, Okla., (405) 325-1217, (405) 325-1388 (fax), e-mail: lcrowley@ou.edu. Website: www.ishm.info. 11-13.

APPEA Conference & Exhibition, Brisbane, 07 3229 6999, 07 3220 2811 (fax), e-mail: jhood@appea.com.au. website: www.appea.com.au. 16-19.

Mediterranean Offshore Conference & Exhibition, Alexandria, Egypt, +20 2 27065210, +20 2 25184980 (fax), e-mail: conference@omc.it, website: www.moc2006.com. 18-20.

NPRA National Safety Conference & Exhibition, San Antonio, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 19-20.

IADC Drilling Onshore Conference & Exhibition, Houston, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 20.

SPE International Conference on Oilfield Corrosion, Aberdeen, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 24-25.

ILTA Annual International Operating Conference & Trade Show, Houston, (202) 842-9200. (202) 326-8660, e-mail: info@ilta.org, website: www.ilta.org. 24-26.

Petrotech Middle East Refining and Petrochemicals Exhibition & Conference, Manama, +973 1755 0033, +973 1755 3288 (fax), e-mail: aeminfo@aeminfo.com.bh, website: www.aeminfo.com.bh. 24-26.

NPRA Reliability and Maintenance Conference and Exhibition, San Antonio, (202) 457-0480, (202) 457-0486 (fax), e-mail: info@npra.org, website: www.npradc.org. May 25-28.

SPE International Conference on Oilfield Scale, Aberdeen, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 26-27.

SPE Western North America Regional Meeting, Anaheim, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 26-30.

JUNE

Caspian International Oil & Gas/Refining & Petrochemicals Exhibition & Conference, Baku, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 1-4.

AchemAsia, Beijing, 0049 69 75 64 0, 0049 69 75 64 201 (fax), website: www.achemasia.de. 1-4.

ASME Annual Meeting, Pittsburgh, (800) 843-2763, (973) 882-1717 (fax), e-mail: infocentral@asme.org, website: www.asme.org. 4-9.

Society of Petroleum Evaluation Engineers (SPEE) Annual Meeting, Victoria, BC, (713) 651-1639, (713) 951-9659 (fax), website: www.spee.org. 5-8.

Asia Oil & Gas Conference, Kuala Lumpur, 65 6338 0064, 65 6338 4090 (fax), e-mail: info@cconnection.org, website: www.cconnection.org. 6-8.

IAEE International Conference, Rio de Janeiro, (216) 464-5365, (216) 464-2737 (fax), e-mail: iaee@iaee.org, website: www.usaee.org. 6-9.

PIRA Canadian Energy Conference, Calgary, Alta., (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 8.

SPE International Oil & Gas Conference and Exhibition, Beijing, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 8-10.

SUBSEA Asia, Kuala Lumpur, +44 0 20 7840 2102, +44 0 20 7840 2119 (fax), e-mail: sluff@oesallworld.com, website: www.allworldexhibitions.com.oil. 9-11.

IPAA OGIS London, London, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 10.

PIRA Scenario Planning Conference, London, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 14.

PIRA London Energy Conference, London, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 14-15.

EAGE Conference and Exhibition/SPE EUROPEC, Barcelona, Spain, +31 88 995 5055, +31 30 634 3524 (fax), e-mail: eage@eage.org, website: www.eage.org. 14-17.

ASME Turbo Expo, Glasgow, Scotland, (800) 843-2763, (973) 882-1717 (fax), e-mail: infocentral@asme.org, website: www.asme.org. 14-18.

GTI Global Unconventional Gas Conference, Amsterdam, (847) 768-0783, website: www.gastechnology.org/gug2010. 15-17.

IADC World Drilling Conference & Exhibition, Budapest, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 16-17.

PIRA Understanding Global Oil Markets Conference, London, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 16-17.

AAPL Annual Meeting, Vail, Colo., (817) 847-7700, (817) 847-7704 (fax). e-mail: aapl@landman.org, website: www.landman.org. 16-19.

IPAA Midyear Meeting, Colorado Springs, Colo., (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 17-18.

Society of Professional Well Log Analysts Annual Symposium (SPWLA), Perth, (713) 947-8727, (713) 947-7181 (fax), e-mail: webmaster@spwla.org, website: www.spwla.org. 19-23.

International Offshore and Polar Engineering Conference (ISOPE), Beijing, (650) 254-1871, (650) 254-2038 (fax), e-mail: meetings@isope.org, website: www.isope.org. 20-26.

Purvin & Gertz LPG Seminar, Singapore, (713) 331-4000, (713) 236-8490 (fax), website: www.purvingertz.com. 21-24.

NEFTEGAZ International Exhibition for Equipment and Technologies for the Oil and Gas Industries, Moscow, +44 (0) 207 596 5000, +44 (0)

Calendar

207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 21-25.

PIRA Scenario Planning Conference, Houston, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 22.

Atlantic Canada Petroleum Show, St. John's, Newf., (403) 209-3555, (403) 245-8649 (fax), website: www.petroleumshow.com. 22-23.

PIRA Understanding Global Oil Markets Conference, Houston, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 23-24.

API Tanker Conference, San Diego, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 28-29.

API Exploration & Production Standards Conference on Oilfield Equipment and Materials, Wash., DC, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. June 28-July 3.

JULY

COGA Rocky Mountain Energy Epicenter Conference, Denver, (303) 861-0362, (303) 861-0373 (fax), e-mail: conference@coga.org, website: www.coga.org. 7-9.

IADC Lifting & Mechanical Handling Conference & Exhibition, Houston, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 13-14.

Oil Sands and Heavy Oil Technologies Conference & Exhibition, Calgary, Alta., (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.oilsandstechnologies.com. 20-22.

AUGUST

SPE Nigerian Annual Conference and Exhibition, Abuja, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 3-5.

Summer NAPE Expo, Houston, (817) 306-7171, (817) 847-7703 (fax), e-mail: info@napeexpo.com, website: www.napeonline.com. 19-20.

ASEG/PESA Conference & Exhibition, Sydney, +08 9427 0838, +08 9427 0839 (fax), e-mail: secretary@aseg.org.au, website: www.aseg.org.au. 22-26.

The Oil & Gas Conference, Denver, (303) 296-8834, (303) 293-9904 (fax), e-mail: kgrover@enercominc.com, website: www.theoilandgasconference.com. 22-26.

NPRA Cat Cracker Seminar, Houston, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 24-25.

Offshore Northern Seas (ONS) Conference, Stavanger, +47 51 84 90 40, e-mail: info@ons.no, website: www.ons.no. 24-27.

IAEE European Conference, Vilnius, Lithuania, +370 37 401 952, +370 37 351 271 (fax), e-mail: iaee2010@mail.lei.lt, website: www.iaee2010.org. 25-28.

OGMT Maintenance Technology North America Conference, New Orleans, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.ogmtna.com. Aug. 31-Sept. 2.

SEPTEMBER

World Energy Congress, Montreal, (514) 397-1474, (514) 397-9114 (fax), e-mail: info@wecmontreal2010.ca, website: www.wecmontreal2010exhibit.com. 12-16.

Rio Oil & Gas Expo and Conference, Rio de Janeiro, +31 0 79 341 1981, e-mail: stoutjesdijk@iro.nl, website: www.iro.nl/Programme/Rio-Oil—Gas.aspx?mld=9736&rld=145. 13-16.

New Zealand Petroleum Conference, Auckland, +64 3 962 6179, +64 4 471 0187 (fax), e-mail: Helen.moriarty@med.govt.nz, website: www.crownminerals.govt.nz/cms/petroleum/conferences. 19-22.

SPE Annual Technical Conference and Exhibition, Florence, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 19-22.

NPRA Environmental Conference, San Antonio, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 20-21.

Herold Pacesetters Energy Conference, Greenwich Conn., (203) 847-3344, (203) 847-5566 (fax), website: www.herold.com. 20-23.

IPLOCA Conference, Venice, +41 22 306 02 30, +41 22 306 02 39 (fax), e-mail: info@iploca.com, website: www.iploca.com. Sept. 27-Oct. 1.

IADC Drilling HSE Europe Conference & Exhibition, Amsterdam, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 29-30.

OCTOBER

SPE Middle East Health, Safety, Security, and Environment Conference, Manama, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 4-6.

API Fall Committee on Petroleum Measurement Standards Meeting, Westminster, Colo., (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 4-7.

Unconventional Gas International Conference & Exhibition, Fort Worth, Tex. (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.unconventionalgas.net. 5-7.

Kazakhstan International Oil & Gas Exhibition & Conference (KIOGE), Almaty, +44 (0) 207 596 5000, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 5-8.

NPRA Q&A and Technology Forum, Baltimore, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 10-13.

Petchem Arabia Annual Meeting, Manama, +44 (0) 1242 529 090. +44 (0) 1242 529 060 (fax), e-mail: wra@theenergyexchange.co.uk, website: www.wraconferences.com. 11-14.

IPAA OGIS San Francisco, San Francisco, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 12-14.

Offshore Middle East Conference & Exhibition, Dohar, Qatar (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.offshoremiddleeast.com. 12-14.

IADC Contracts & Risk Management Conference, Houston, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 13-14.

Materials Science and Technology Conference and Exposition, Houston, (281) 228-6200, (281) 228-6300 (fax), e-mail: firstservice@nace.org, website: www.nace.org. 15-18.

SPE Asia Pacific Oil and Gas Conference & Exhibition, Brisbane, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 17-20.

SEG International Exposition and Annual Meeting, Denver, Colo., (918) 497-5500, (918) 497-5557 (fax), e-mail: register@seg.org, website: www.seg.org. 17-22.

Permian Basin International Oil Show, Odessa, Tex., (432) 367-1112, (432) 367-1113 (fax), e-mail: pbioilshow@pbioilshow.org, website: www.pbioilshow.org. 19-21.

ISA EXPO, Houston, (919) 549-8411, (919) 549-8288 (fax), e-mail: info@isa.org, website: www.isa.org. 19-21.

IADC Drilling Africa Conference & Exhibition, London, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 20-21.

PIRA New York Annual Conference, New York, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 21-22.

GITA's GIS Annual Oil & Gas Conference, Houston, (303) 337-0513, (303) 337-1001 (fax), e-mail: info@gita.org, website: www.gita.org. 24-27.

SPE Russian Oil and Gas Technical Conference and Exhibition, Moscow, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 26-28.

IPLOCA Conference, Venice, +41 22 306 02 30, +41 22 306 02 39 (fax), e-mail: info@iploca.com, website: www.iploca.com. Sept. 27-Oct. 1.

GSA Annual Meeting, Denver, (303) 357-1000, (303) 357-1070 (fax), e-mail: meetings@geosociety.org, website: www.geosociety.org Oct. 31–Nov. 3.

NOVEMBER

IADC/SPE Asia Pacific Drilling Conference & Exhibition, Ho Chi Minh City, (713) 292 1945, (713) 292 1946 (fax), e-mail: info@iadc.org, website: www.iadc.org. 1-3.

Power-Gen Middle East Conference, Doha, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.power-gen-middleeast.com. 1-3.

Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC), Abu Dhabi, +971 2 4444 909, +971 2 4444 383 (fax), e-mail: info@adipec.com, website: www.adipec.com. 1-4.

Deepwater Operations Conference & Exhibition, Galveston, TX (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.deepwateroperations.com. 2-4.

European Autumn Gas Conference (EAGC), Berlin, +44 (0)203 180 6574, e-mail: katecheetham@dmgworldmedia.com, website: www.theeagc.com. 9-10.

NPRA International Lubricants & Waxes Meeting, Houston, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 11-12.

IADC Annual Meeting, San Antonio, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org.11-12.

API Fall Refining and Equipment Standards Meeting, Nashville, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 15-17.

API/NPRA Fall Operating Practices Symposium, Nashville, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 16.

Projections and the pipeline

Christopher E. Smith
Pipeline Editor

I like statistics. I liked them on the back of baseball cards when I was a kid. I like them as produced by organizations such as the US Energy Information Administration and Canada's Energy Resource Conservation Board (ERCB) today.

As much fun as they are to look at for history, however, looking at statistical projections like those offered in EIA's Annual Energy Outlook 2010 Early Release Overview for a glimpse into the (potential) future is even more tantalizing. Is this what things will really look like? What if x, y, or z happens instead of a, b, or c?

Alaskan pipeline

TransCanada and ExxonMobil Corp. filed its plan with the US Federal Energy Regulatory Commission in late January for approval to conduct an open season on its Alaska Pipeline Project to move natural gas from Alaska's North Slope. Two options were submitted for shipper assessment: a $43 billion, 1,700-mile, 4.5 bcfd line from ANS to Alberta and a $26 billion, 800-mile line transporting 3 bcfd of gas from ANS to Valdez, Alas., where it would be converted to LNG. In April, Denali—a consortium of BP PLC and ConocoPhillips—will submit to FERC the open season package for its competing 2,000-mile, $30 billion pipeline.

TransCanada expects its line to be in service by 2020. EIA used a date of 2023 in making its most recent AEO projections. The projections and accompanying text make for interesting reading in the context of the Alaskan gas line discussion.

EIA places US gas consumption at 24.86 tcf in 2035, up from 23.25 tcf in the 2008 base year. Net imports fall to 1.46 tcf from 2.95 tcf along the same timeline as production rises even more rapidly than consumption (to 23.34 tcf from 20.62 tcf). The wellhead price in 2008 dollars for both years is $8.06-8.07/Mcf.

Looking at 2020, the year TransCanada expects to have its line operating, EIA sees production having slipped to 20.04 tcf with net imports of 2.57 tcf and a wellhead price of $6.03/Mcf. The 4-bcfd difference between 2020 and 2035 production could well represent Alaskan production.

AEO 2010 also sees continued US shale gas growth as supplanting more-expensive offshore production and places current Lower 48 states' technically recoverable reserves, including shale gas, at 347 tcf, equivalent to 17.3 years' supply even at 2020 production rates.

Perhaps shale gas is not a prohibitive impediment to an Alaskan gas line.

Oil sands

Producing oil from Alberta's oil sands is an energy-intensive process. Gas has and will continue to provide a good deal of this energy. In a June 2009 report, ERCB says raw bitumen production in Alberta will reach at least 3 billion b/d by 2018 from 1.31 billion b/d in 2008. Even so, ERCB expects all domestic gas demand to equal just 50% of domestic production by 2018.

Oil sands producers are exploring various means of attaining gas self-sufficiency, including asphaltene burning and bitumen gasification.

Perhaps Alaskan gas won't all get absorbed in Alberta's oil sands.

China, Asia

EIA's International Energy Outlook 2009 predicts China will meet more than one third of its gas consumption in 2030 via imports. It sees China's consumption growing from roughly 2 tcf in 2006 to 7 tcf by 2030, meaning imports by then will total roughly 2.5 tcf.

Over the same period, EIA forecasts production in Australia and New Zealand to increase 2.8 tcf, much of which is already designated for export, but consumption in non-OECD Asia as a whole to rise to 24.5 tcf from 9.4 tcf. The agency sees non-OECD regional production growing 8.8 tcf between 2006 and 2030, but 2.2 tcf of this growth will occur in China.

Perhaps Alaskan gas is destined for export as LNG.

These numbers aren't predictive. One need only look at the recent relationship between supply-demand and prices in the crude market to know it takes more than fundamentals to guide a market. Many other factors, be they political, cultural, economic, and environmental, will come to bear in determining the ultimate disposition of ANS gas. But keeping these projections in mind might at least help frame the discussion. ✦

Editorial

An opportunity unfolds

An opportunity is unfolding to restore discernment in energy politics as reality advances on two sources of confusion. One is the supposition that free people want governments to make their economic choices. The other is the preeminence of action on global warming.

That Americans want governments to stay out of their affairs has become evident in the fight over health care reform. The desire became manifest on Jan. 19 when Democratic Massachusetts elected a Republican to fill a vacant Senate position. President Barack Obama has been unable to acknowledge this disavowal of his priority initiative and, by association, aggressive liberalism. Continuing to insist that Americans simply don't understand his program, he now seems altogether disconnected.

Intellectually adrift

Presidential drift comforts no one. Obama must change direction. Too many of the ideas he has tried to force into policy rely on governmental solutions to individual problems. From that state-centered orientation flow a host of energy splurges, some of them potentially disastrous.

In collaboration with liberal Democrats leading Congress, Obama has fused energy to environmental and employment issues and exploited consequent distortions to assert control over markets. The policy levers include extravagant subsidization of noncommercial energy, increased taxation of oil and gas, and consumption mandates, all based on fanciful notions about energy independence, green jobs, and global warming. Until recently, in fact, the unbridled urge to act against warming all but immunized proposals for energy mistakes against questions about cost, scale, and workability.

But global warming's grip on politics has developed a twitch. The Intergovernmental Panel on Climate Change, eminent clearinghouse for climate science, is losing credibility. Problems began with disclosure of e-mails showing that scientists responsible for crucial data had manipulated results and marginalized opponents to promote aggressive regulation. More recently, claims in an influential IPCC report of 2007 about melting glaciers and vanishing rainforests have been refuted.

Worse than that for IPCC unassailability, the errors escaped peer review and, in at least one case, apparently traveled straight from an activist publication into IPCC proclamations about the state of science. Worse yet, after IPCC Chairman Rajendra Pachauri dismissed the mistakes about glaciers as unimportant, the Sunday Times of London reported that a research group he heads in New Delhi received funding to study the nonexistent problem.

None of this means the world lacks reason to worry about a build-up in the atmosphere of greenhouse gases. Global average temperature may yet turn upward again for reasons that probably include, to some still-uncertain extent, human activity. What serial scandals at IPCC mean is that the push for quick action at any cost flowed from science corrupted by politics. The science must be discounted. And the political agenda it propelled must be challenged. To reorient energy economies because of fear over global warming now would represent historic folly. Human activity has contributed at least as much to unwarranted fear as it has to warming.

One priority for the oil and gas industry, therefore, must be to disentangle climate change from energy policy. It won't be easy. Many energy interests are vested in drop-everything climate remedies. But reckless response, such as adoption of the cap-and-trade nonsense struggling in the US Congress, without a balanced assessment of global warming science would be irresponsible. The industry should say so.

Energy choice

The other priority must be to move markets back to the center of energy choice. That means pushing government away from energy the way Americans are pushing it away from health care. Lawmakers and regulators do not know best how much or what kind of energy people should use. Their decisions reflect political deal-making, not economics or physics. Political energy decisions too frequently prove wrong—such as the 2007 mandate to use more biofuel than the market can absorb and more biofuel from exotic feedstock than producers can supply.

Inappropriate meddling by government in the economy and preeminence of global warming in energy politics are under siege. They deserve the attack. The oil and gas industry would profit from their defeat. Its customers would, too. ✦

COMMENT

Sanctions would help Iran solve its gasoline problems

Sara Vakhshouri-Bellenoit
Jamia Millia Islamia University
New Delhi

A close analysis of energy markets and refining capacities in Iran strongly suggests sanctions against gasoline sales to the country—such as have been proposed by bills passed by the US House last Dec. 15 and by the Senate on Jan. 28—would not be effective. In fact, imposition of the sanctions would turn into a blessing for the Islamic Republic.

Important statistics must be considered when weighing the merits of sanctions. Iran is the fourth largest oil-producing country in the world and, after Saudi Arabia, the second largest in the Organization of Petroleum Exporting Countries. In addition, Iran's natural gas reserves have been estimated at 948 tcf or more, second in the world after Russia.

On the world market, Iran exports about 60% of its oil production of 4 million b/d and controls 5% of the global oil supply that has a measure of influence over international oil markets. Iran also has strong influence in the Strait of Hormuz: About 17 million bo/d passes through it.

Iran's problems in attracting new investment had less to do with US sanctions and more to do with its own domestic policies.

Iran's oil policies

After 1979, the year of the Islamic Revolution, all policies regarding crude oil production and marketing were greatly changed. Previously, international oil companies were responsible for almost 90% of Iran's crude oil exports under long-term agreements. After the revolution, National Iranian Oil Co. (NIOC) quickly found itself in charge of both petroleum sales and exports and came to prefer short-term contracts and a wider, more diverse customer base.

The Islamic Republic immediately announced it would reduce production from a pre-1979 level of over 5.5 million b/d to 3.5-4 million b/d in order to save resources for the future. Also, because of the sharp reduction of supply in the market, each barrel of oil generated more revenue than ever before. In fact, by September 1980, Iranian oil production dropped (largely due to the Iran-Iraq war) to less than 700,000 b/d.

At the same time, the US imposed the first of numerous economic sanctions in response to the hostage crisis of 1979-81. Although the US stopped buying oil from Iran, the exporter quickly found new costumers. During the 1990s, US concerns about Iran's nuclear program led to an additional round of sanctions. The Iran and Libya Sanctions Act (ILSA) of 1996 supplemented these measures with restrictions on foreign companies, targeting new foreign oil field investments in Iran. Still, other industrialized countries continued to trade extensively and invest in Iran's petroleum industry.

The absence of an American business presence in Iran has, ironically, created a noncompetitive market for other countries. Total was the first European company to ignore US sanctions. The company argued that European companies were not subject to US legislation and signed a deal to develop offshore Siri oil field. Other companies followed suit: Eni of Italy and major Chinese, Indian, Russian, and Malaysian companies undertook large investments in Iran's petroleum industry.

In general, while sanctions aimed to put Iran under pressure to renounce the use of terrorism or the acquisition of nuclear weapons, they also had an unintended business effect: American companies could not compete in the Iranian market and were losing ground to non-US competitors.

Nevertheless, the ILSA sanctions did persuade some foreign companies to postpone and cancel bidding on new contracts.

Contract problems

But Iran's problems in attracting new investment had less to do with US sanctions and more to do with its own domestic policies, particularly rules on investment.

Legal restrictions on investment in Iran's oil and gas industry—as laid out in the new Constitution, specifically the Budget Act—have limited the flow of much-needed foreign investment and technology. The problem is the "buyback contract" system. NIOC effectively purchases a foreign contractor's services, including funding of the investments. Buyback licensing agreements have played a key role in Iran's oil and gas projects over recent decades.

The buyback contract system prevents any foreign ownership of the Iranian oil industry while still allowing scope for foreign investment. This type of contract revolves around what could be called a repurchase agreement, in which a foreign investor is responsible for funding the project, installing facilities, and transferring the technology and agrees to transfer the project to the host country once it is launched. Capital return and capital gain are achieved by selling products. The investor deals with administrative and engineering affairs, ordering, construction and installation, technology transfer, education, launching, and delivery of the oil field to the host country upon completion.

Technical and legal issues largely make buyback contracts less attractive than more traditional schemes of foreign investment.

All these stages are supervised by the host country, technically and financially. This system ensures a profit by guaranteeing a share from the production and sale of oil and gas. Yet the investor forgoes any potential for profit after completion of the project.

The amount of return on the investment depends on the oil or gas production rate specified in the contract. But the contractor earns a return on investment only by selling oil and gas. These technical and legal issues largely make buyback contracts less attractive than more traditional schemes of foreign investment.

In spite of this, the Islamic Republic was able to attract over $20 billion of foreign investment in oil and gas during 2004-09. At the same time, domestic Iranian companies have become capable and independent in developing a number of oil fields. For example, Petropars Ltd. and Oil Industries' Engineering & Construction are two Iranian companies that, after the close of buyback agreements, successfully worked in the upstream business with other foreign companies.

Iranian oil production has grown modestly over the past decade rather than being completely strangled.

US sanctions were effective in discouraging investment in Iran's petroleum industry to the extent that Iran suffers from underinvestment and older petroleum technology and cannot compete with its rivals in the shared offshore oil and gas fields near Qatar and in South Pars. Yet US sanctions were not completely effective. Iranian oil production has grown modestly over the past decade rather than being completely strangled.

Iran's vulnerability

Iran remains in a vulnerable position, nevertheless. With a population of more than 70 million, Iran uses 1 l./day/person of gasoline, which is heavily subsidized, and overall consumption is rising by more than 11.4%/year. Because Iranian refineries cannot meet demand, the country imports 40% of its gasoline, buying an average total of about 130,000 b/d from Vitol, Glencore, Trafigura, Total, BP, and Reliance Industries.

Upgrading refineries to increase gasoline yields has been difficult since the revolution.

Recognizing the vulnerability, Tehran imposed rationing 2 years ago in a system based on a "smart card." Each car has a fixed quota of subsidized gasoline. If the car's gasoline consumption exceeds the quota, the owner must purchase gasoline at the international market price.

In a country with large petroleum reserves, the system caused much unrest and anger; many Iranians see cheap gasoline as their birthright. There were riots in Tehran.

Iranians found ways to get around the quotas. Many simply purchased an extra car for its quotas. Others participated in an informal market, selling and buying quotas.

Rationing consumption reduced neither traffic nor pollution in Tehran. Most significantly, it generated inflation. This not only hit ordinary people hardest but also spawned a lucrative black market for smuggled gasoline.

Much of this vulnerability relates to the important question of Iran's refining capacity.

According to Oil & Gas Journal, Iranian refineries have total distillation capacity of 1.45 million b/d, with projects announced that would expand capacity to 2 million b/d. In addition, Iran has discussed eight new refineries, which would raise this figure to 3.4 million b/d.

Upgrading processes associated with gasoline manufacture represent small shares of total distillation capacity: catalytic cracking 35,000 b/d, catalytic reforming 164,700 b/d, and catalytic hydrocracking 136,500 b/d.

Major refineries in Iran and their capaci-

ties are Abadan 350,000 b/d, Isfahan 284,000 b/d, Bandar Abbas 232,000 b/d, Tehran 220,000 b/d, Arak 170,000 b/d, and Tabriz 100,000 b/d. Smaller refineries are in Kermanshah, Shiraz, and Lavan Island.

Hobbling for investment

Upgrading refineries to increase gasoline yields has been difficult since the revolution. Before 1979, Iran had access to US technology and was able to undertake massive projects such as the Abadan complex.

Since then, Tehran has had to hobble around to solicit investment from a consortium of foreign companies in completing the Arak refinery in 1993 and from Chiyoda Corp. and Snamprogetti in building the Bandar Abbas complex in 1998. Tehran also received help this year from China Petroleum & Chemical Corp. in upgrading the Arak refinery.

These efforts have not been enough to fully renew Iran's refining capability. In 2007, Iranian oil officials announced that the country's refining industry required investment totaling $15 billion. They mentioned construction of a 300,000 b/d refinery at Bandar Abbas and a 180,000 refinery at Abadan. They further announced a project to build three 120,000-b/d condensate splitters at Bandar Abbas.

In December 2008, the government announced plans to construct seven oil refineries at a cost of $27 billion by 2013. This massive undertaking would increase the industry's output capacity for gasoline by 1.9 million l./day and for gas oil by 1.8 million l./day.

While the grassroots refinery construction plans have been met by doubt because of financial challenges, Iran has been making progress in the upgrade and expansion of existing facilities. The FACTS Global Energy consultancy has noted delays in construction of the Bandar Abbas condensate splitters but says they probably will be completed by 2012-13. Designed to yield little naphtha, the facilities will produce an estimated 200,000 b/d of gasoline.

Sanctions might relieve the Iranian government from one of its biggest headaches: being dependent upon gasoline imports.

If other projects to upgrade the Arak, Abadan, and Isfahan refineries proceed, it is quite possible that Iran will cease to be a gasoline importer by 2010. It may even become a net exporter by 2013.

Effect of sanctions

Iran's refinery capability has undoubtedly been hit by US sanctions. Lacking upgrading capacity and having to run crudes that are predominantly heavy and sour, Iranian refineries yield mostly middle and, especially, heavy distillates.

Yet Iran can get around this problem. From condensates produced in supergiant offshore South Pars gas field, it can produce increasing amounts of gasoline as more splitting capacity comes on line. It is upgrading its refineries, however slowly. And it has little problem exporting heavy distillates.

Achievement of gasoline self-sufficiency in a few years would be important politically. Imposition of sanctions on gasoline sales to Iran, as proposed in the bills before Congress, might help it meet this goal in at least two ways: by focusing government attention and investment on projects essential to increased gasoline production and by making further movement toward market pricing of gasoline more acceptable to Iranians.

Sanctions thus might relieve the Iranian government from one of its biggest headaches: being dependent upon gasoline imports. Gasoline, it seems, may not be the Achilles' Heel of Iran, but rather its Sword of Excalibur. ✦

The author

Sara Vakhshouri-Bellenoit, born and raised in Iran, is a PhD scholar at the Center for West Asia Studies, Jamia Millia Islamia University, New Delhi. She has a master of international relations degree from the School of International Studies at Jawaharlal Nehru University and a master of business management (international marketing). She worked as a researcher in the Petroenergy Information Network of the Iranian Ministry of Petroleum in 2001-04 and as a market analyst with National Iranian Oil Co. (NIOC International) in 2004-05. During 2005-09 she served as senior market analyst with Oil Pension Fund Investment Co. and Pasargad Energy Investment Co. in Iran. Her current research interests include energy security in the Middle East. She can be reached by e-mail at s.vakhshouri@gmail.com.

Argentina protests new Falklands exploration program

Eric Watkins
Oil Diplomacy Editor

Argentina's government lodged a protest with UK's government over plans by UK firms to begin oil exploration off the north coast of the long-disputed Falkland Islands.

Argentina's Foreign Minister Jorge Taiana said his country "firmly rejects" UK plans for exploration in the Argentine continental shelf area. "We will do everything necessary to defend and preserve our rights," Taiana said.

He reiterated what he called Argentina's "sovereignty over the Falklands, South Georgia, and South Sandwich Islands and adjoining maritime spaces, which are an integral part of its national territory."

Last year, the Argentine foreign

ministry presented the UN with 40 volumes of documentation staking the country's claim to 1.7 million sq km of seabed, including the UK overseas territories of the Falklands, South Georgia, and South Sandwich Islands, and a large chunk of Antarctica (OGJ, May 4, 2009, p. 50).

A few weeks later, a consortium led by Repsol YPF SA announced plans for oil and gas exploration in international waters off the Falkland Islands beginning in early 2010 (OGJ Online, June 9, 2009).

However, in his message to the Falkland Islanders in December 2009, British Prime Minister Gordon Brown insisted there was no doubt about British sovereignty over the Falklands, and he promised full support to developing the islands' oil industry.

One of the UK companies exploring for oil and gas in the area, Desire Petroleum PLC, has contracted a rig, the Ocean Guardian, to begin drilling. The rig, owned by Diamond Offshore Drilling Inc., is expected to arrive in mid-February to begin drilling prospects in the North Falkland basin.

Under terms of the contract between Desire Petroleum and Diamond Offshore Drilling, four wells must be completed during a minimum 80-day campaign.

However, Desire Petroleum has secured options to drill a further six wells for itself or its partners, with mobilization and demobilization fees for the rig estimated at $16 million.

Industry sources said three other oil companies would likely lease the same rig for exploration. The firms were identified as Rockhopper Exploration PLC, Borders & Southern Petroleum PLC, and Falkland Oil & Gas Ltd. in association with BHP Billiton Ltd.

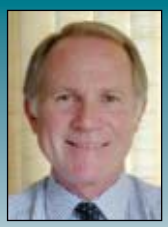
British diplomats have little expectation of any direct military action by Argentina, but they are alert to a possible alternative: Argentina using civilian vessels to disrupt the passage of the rig.

The diplomatic flap coincided with recent reports that Argentina's oil and

WATCHING THE WORLD

Eric Watkins, Oil Diplomacy Editor

Blog at www.ogjonline.com



Al-Qaeda's new oil strategy

The oil and gas industry has long heard of the various chokepoints around the globe. The ones usually mentioned are Hormuz and Malacca—two key spots on the eastward oil supply route.

But now, it seems, the al-Qaeda terrorist organization is strutting its stuff over the Bab al-Mandab, the southern entrance to the Red Sea. Indeed, al-Qaeda is pondering the seizing of the Bab al-Mandab.

That's the word from London-based Al-Quds al-Arabi newspaper, which last week filed a report on an audiotape attributed to Sa'id al-Shihri, the deputy leader of al-Qaeda in the Arabian Peninsula.

Al-Quds reported that al-Shihri's audiotape, which was broadcast by known Islamic web sites, "contained much new information which reveals the present and future plans of this fundamentalist organization."

Seize control

Among other things, the paper stressed the organization's scheme to seize control of Bab al-Mandab Strait "at the entrance to the Red Sea through which most oil exports and US military reinforcements to the gulf region and the Mediterranean Sea pass."

According to the US Department of Energy, an estimated 3.3 million b/d flowed through the Bab al-Mandab toward Europe, the US, and Asia in 2006. The majority of traffic, about 2.1 million b/d, flows north through the Bab al-Mandab to the Suez-Sumed complex.

By closing the Bab al-Mandab, al-Qaeda could keep tankers from the Persian Gulf from reaching the Suez Canal or Sumed Pipeline, while also blocking southern oil transits such as China's transport from Port Sudan—a lifeline for that country's rapidly increasing appetite for energy.

Al-Quds acknowledges that al-Qaeda's control of the Bab al-Mandab "might not be easy, especially as it does not possess heavy weapons and modern boats that can be used for this purpose." The paper said, "But this does not mean it does not possess the logistical capabilities that can disrupt navigation in this vital international passageway," suggesting a widening of the war on terror.

Somali pirates

In particular, it mentions the Somali pirates, thought by some to have a direct connection with the Mujahidin Youth Movement, who have hijacked more than 100 ships—some of them giant oil tankers.

"They must surely have gained considerable expertise in how to intercept commercial ships in the past 5 years—during which their activity intensified," the paper states.

It also reminds us that there are more than 800,000 Somali refugees across the Strait in Yemen, existing in bad living conditions. The paper cannot rule out the possibility that "the Youth Movement has infiltrated and recruited them" to operate in al-Qaeda's ranks.

According to Al-Quds al-Arabi: "The organization does not need to recruit thousands but just few hundreds to implement some of its aims, among them infiltrating into the Kingdom of Saudi Arabia and the gulf countries where two thirds of the world's oil reserves are." ✦

gas production fell in 2009 compared with the previous year, marking the third consecutive decline since 2006.

According to the country's energy secretariat, Argentina produced 36.15 million cu m of oil and 48.41 million cu m of gas, which puts oil production down 4.3% from last year, while gas output dropped 3.7%.

The Falkland Islands, also known as the Islas Malvinas in Spanish, have been under British control since 1833, but Argentina considers them part of its territory. In 1982, the two countries fought a 74-day war over the islands in which almost 1,000 people were killed. ✦

Kuwait sets new output target of 3.5 million b/d

Eric Watkins
Oil Diplomacy Editor

Kuwait plans to increase its oil production by 350,000 b/d over the next 5 years, part of a larger plan eventually to reduce the Arab nation's dependence on oil revenues.

"We are at 3.15 million b/d capacity today and hopefully will push to reach the target of 3.5 b/d in 2015," said Mohammed Husain, deputy chairman of state oil and gas producer Kuwait Oil Co. (KOC).

The announcement follows the Feb. 2 approval by the Kuwaiti parliament of a 30.8 billion dinar ($106.9 billion) plan that aims eventually at diversifying Kuwait's income away from oil.

Under the new plan, Secretary General for Planning Adel al-Wuqayan said government expenditure for oil development was estimated at some 15.6 billion dinars or just under half of the total budget.

Al-Wugayan made no mention of specific oil and gas projects the government had in mind, but Kuwait's Oil Minister Sheikh Ahmed Abdullah al-Sabah last year said the state was planning to spend 25 billion dinars on hydrocarbon development projects over a 20-year period from 2010.

Mohammed Husain did not specify any spending figures in his remarks to reporters, but he did mention several projects aimed at boosting Kuwait's production capacity. "We are rebuilding capacity lost in the fire," said Mohammed. Among other projects, new oil and gas gathering stations are due to start up that would continue the country's efforts to repair damage to facilities from both a fire and an explosion in 2002.

He also said that a new oil and gas gathering center—known as GC-024—would add a further 165,000 b/d to Kuwait's capacity after testing this month.

Mohammed said an early production facility in northern Kuwait would eventually add 20,000 b/d capacity, while a second gathering center—known as GC 16—in western Kuwait would add a further 100,000 b/d.

Meanwhile, following passage of the new budget, Kuwait's ruler Emir Sabah al-Ahmad al-Sabah appointed non-government members to the country's top oil policy body, the Supreme Petroleum Council (SPC).

According to a decree published in the country's official gazette, the new SPC includes seven government members headed by the prime minister, along with 10 non-government members appointed for terms of 3 years.

The SPC, which was formed in 1974 to oversee the country's oil interests, has five ministers who are permanently on the board, including the oil and commerce ministers, along with the prime minister and the governor of the central bank.

Analyst IHS Global Insight noted Kuwait's oil and gas industry has seen problems over the past year, especially after a tie-up between state-owned Petrochemical Industries Co. and Dow Chemicals was scrapped at the last minute.

IHS Global Insight also noted there were problems over the long-planned and troubled Al-Zour refinery, "which was put on hold, and contractors had to be compensated for their begun work."

Kuwait's oil industry suffers an inability to deliver on its future oil and gas production boost program, according to IHS Global Insight. ✦

Development costs escalated for Indonesian projects

Eric Watkins
Oil Diplomacy Editor

Indonesia's upstream regulator BPMigas said development costs at the Cepu, Senoro, and Tangguh oil and gas projects escalated above original estimates as an indirect result of soaring oil prices in 2008.

"The sharp increase in oil prices had pushed up the prices of equipment needed for the development of the blocks," Achmad Luthfi, BPMigas deputy chief for planning, told a recent hearing conducted by the House of Representatives Commission VII, which oversees the country's energy and mineral resources.

According to Luthfi, development costs for the Banyu Urip oil field on Cepu block, operated by Mobil Cepu Ltd., more than tripled to $3.58 billion from $1.11 billion in the original plan.

"When the block's plan of develop-

ment was approved in 2006, the oil price assumed was $35/bbl—far lower than the present $70[/bbl]," he said, adding that the rise in development costs followed a surge in drilling costs to $750 million from $273 million, and in construction costs to $2.83 billion from $838 million.

The cost to develop Senoro block in Central Sulawesi increased to $603 million from $245.5 million in the original plan approved in 2007. Luthfi said drilling costs at Senoro rose to $133 million from $8.5 million, while construction costs surged to $470 million from the initial estimate of $163 million.

According to Luthfi, the increase in the costs for the BP-led Tangguh gas field and its LNG project is still being calculated. Under the original plan of development, the project would require $7.21 billion, including $1.03 billion for drilling, $4.16 billion for facilities, and $2.03 billion for other items.

In December, Priyo Widodo, BPMigas treasury chief, said Indonesia failed to meet its oil and gas investment target in 2009 as the global economic slowdown brought down the prices of fossil energy, adding that contractors had cut spending with shrinking energy demand.

Widodo said investment in 2009 fell 10% to $10.87 billion or only 72% of the targeted $15.11 billion. At the time, Widodo said most contractors stopped drilling while they waited for the economy to recover. ✦

ExxonMobil unit to sell Cepu natural gas to Indonesia

Eric Watkins
Oil Diplomacy Editor

A unit of ExxonMobil Corp. has signed a memorandum of understanding to supply natural gas from its Cepu Block to Indonesia's state-owned power utility PT Perusahaan Listrik Negara (PLN) and state gas distributor PT Perusahaan Gas Negara (PGN).

"The MOU was signed last year. PLN will use the gas for its power plants and PGN for the city gas project," ExxonMobil Indonesia spokesman Maman Budiman told a hearing with the House of Representatives Commission VII, which is overseeing the country's energy and mineral resources.

Maman said the gas will be produced from Cepu Block's Jambaran field, which has reserves estimated at 1.3 tcf, all of it to be allocated to the two state-owned enterprises. Maman said discussions are under way with the buyers concerning the details of volume and price.

Maman also discussed the block's oil production, saying ExxonMobil's subsidiary Mobil Cepu Ltd. (MCL) is able to meet the government's production target of 20,000 b/d, but that the downstream facilities to deliver and process the oil belong to other companies that are not ready to receive the crude.

"We can actually produce up to 25,000 b/d, but the receiving facilities are still unable to receive all the output," said Maman, whose statement was confirmed by R. Priyono, chairman of upstream oil and gas regulator BPMigas.

"PT Tri Wahana Universal currently can only receive between 3,000 and 6,000 b/d and PT Pertamina can only receive between 10,000 and 12,000 b/d," said Priyono, who added, "We are still evaluating the possibility that Pertamina could increase its capacity to between 14,000 and 15,000 b/d."

Indonesia has high expectations that production from the Cepu Block will help to reverse the country's overall declining oil production, expecting the block to produce 20,000 b/d since the end of 2008—a target that has yet to be reached.

MCL holds a 45% interest in Cepu Block, while Pertamina holds 45%, and the remaining 10% is held by a consortium of enterprises controlled by the provincial administrations of East and Central Java. ✦

Production improving at Tangguh LNG, but demand down

Eric Watkins
Oil Diplomacy Editor

Indonesia's BP PLC-led Tangguh LNG facility is running at 70-80% of capacity on its two trains that are designed to produce at least 7.6 million tonnes/year of LNG.

"It's going well; we continue to see volumes grow," said Andy Inglis, head of BP exploration and production. Undisclosed problems at its production units resulted in lower production last year at the LNG plant (OGJ Online, Sept. 4, 2009).

BP Indonesia, which operates the Tangguh facility, last summer said it would temporarily shut down the plant to resolve problems encountered since its start-up earlier in the year.

"We are planning to temporarily shut down Tangguh Train 1 to rectify a number of initial problems identified during the start up phase of the plant," said Nico Kanter, head of BP Indonesia, who expected the work to last for "a number" of weeks (OGJ Online, Aug. 13, 2009).

Last December, Raden Priyono, chairman of Indonesia's upstream

oil and gas regulator BPMigas, said Tangguh block would likely ship 116 cargoes of LNG in 2010, including 28 cargoes to China, 24 to South Korea, 55 to the US West Coast, and 9 to Japan.

However, Priyono said Tangguh was expected to ship only 16 cargoes in 2009 compared with its original target of 56 after the BP Indonesia-led consortium temporarily shut down the liquefaction plant in July due to technical problems.

News of improved performance coincides with an announcement that Korea Gas Corp. cancelled an LNG purchase agreement from the Tangguh project.

"The deal with Kogas has been cancelled due to the economic situation in South Korea, which has not improved," said a BPMigas official. "We will seek another possible buyer of the 1 million tonnes/year of LNG," said the official, who added, "We can't produce LNG without a buyer."

Analyst IHS Global Insight said the Kogas cancellation "is a very significant blow to the Tangguh project, which the Indonesians have been viewing as key to defending their global LNG market share from an even steeper decline than that already experienced."

However, the analyst noted that in protracted negotiations with Kogas, the Indonesians appeared to price themselves out of the market.

Indonesia's pressure on Kogas to renegotiate a higher price "strained relations," and "in a climate where Kogas is looking to slash its import commitments to the South Korean market, Tangguh was high on the company's list of suppliers to face the drop," the source said.

Prior to the cancellation by Kogas, Tangguh had five long term supply contracts: CNOOC for 2.6 million typ for 25 years; Posco for 550,000 tpy for 20 years; K-Power for 600,000 tpy for 20 years; Sempra for 3.7 million tpy for 20 years; and Tohoku Electric Power for 125,000 tpy over 15 years, starting in 2010.

BP has a 37.16% interest in Tangguh, while China National Offshore Oil Corp. holds 13.9%, MI Berau BV 16.3%, Nippon Oil Exploration Ltd. 12.23%, KG Companies 10%, LNG Japan Corp. 7.35%, and Talisman Energy Inc. 3.06%. ✦

Senate bill would extend chemical security rules

Nick Snow
Washington Editor

Four members of the US Senate's Homeland Security and Governmental Affairs Committee introduced bipartisan legislation to extend by 5 years existing federal regulations on chemical plant security.

Refiners and petrochemical plant operators have expressed concern that proposals for new chemical plant security requirements ignore a program that has not been fully implemented while attempting to indirectly impose new environmental regulations.

Sens. Susan M. Collins (R-Me.), Mary L. Landrieu (D-La.), Mark L. Pryor (D-Ark.), and George V. Voinovich (R-Ohio) said their bill, S. 2996, would give the US Department of Homeland Security sufficient time to fully implement standards that it developed in 2007.

Collins, the bill's primary sponsor and the committee's ranking minority member, praised DHS for its work in developing a comprehensive chemical security program.

"This industry is vital to our country's economy and important to advancements and innovations, but it can also be a dangerous threat in the event of a terrorist attack," she said. "That is why it is critical that we enable [DHS] to continue this important work. The legislation passed by the House of Representatives would unwisely bring

WATCHING GOVERNMENT

Nick Snow, Washington Editor

Blog at www.ogjonline.com

Eurasian energy 'engagement'

Energy became a more visible part of US foreign policy when Richard L. Morningstar was appointed special envoy for Eurasian energy last April at the US Department of State. He recently looked back at his first few months on the job, outlined emerging trends, and suggested possible responses.

"The key to achieving our strategy is engagement," he said in a Jan. 28 address to the Council on Foreign Relations. "We play a supporting, not leading, role in Europe's energy security and the development of Caspian oil and gas. We need to continue to engage with the private sector, with the [European Union] and with individual European states, with Russia, and with Central Asia.

"Our job is to listen, identify common interests and priorities, and play a facilitating role where we can," Morningstar said. "By doing these things, it is clear we further US interests in raising global oil and gas production, in having secure energy supplies to our allies in Europe, and in supporting sovereignty and independence in Central Asia."

He outlined three main Eurasian strategy components. First, he said, the US encourages development of new oil and gas resources while promoting efficiency and conservation as well as alternative technologies. The US also supports Europe's quest for energy security, and wants to help Caucasus and Central Asian producer countries find new routes to oil and gas markets.

Global security

"When we are talking about new natural gas production in Azerbaijan or Turkmenistan, it is unlikely that one molecule of that gas will reach the US, but it is still important because it would add to international gas supply, increasing global energy security. New supply in one place naturally frees up supply in another," Morningstar observed.

Initiatives to further these goals include support of a southern corridor to bring Caspian basin gas to Europe. Morningstar warned that the concept won't work if countries can't reach "commercially sensible, mutually advantageous" transportation terms.

The US supports the idea of supplies from Iraq (as long as they're sanctioned by the central government) and Turkmenistan in the pipeline, but sees no place there for Iranian gas at this time, he said.

Other supplies

Europe's efforts to bolster its energy security also have strong US backing, according to Morningstar. He noted that the region has other gas supply options, including additional imports from North Africa as well as LNG from Qatar, Nigeria, and elsewhere.

He noted that to further this effort, the US-EU Energy Council was launched in November with US Energy Secretary Steven Chu and Secretary of State Hillary Clinton as the country's top representatives.

Russia is another important partner as a key energy producer and critical regional player, he continued. "We must engage with Russia and work on areas where we can agree. We want to do so in a way that upholds our principles," Morningstar said. ✦

this progress to a screeching halt."

In her floor statement introducing the bill, Collins said DHS's Chemical Facilities Anti-Terrorism Standards (CFATS) establish 18 risk-based performance standards covering items such as securing the perimeter and critical targets, controlling access, deterring theft of potentially dangerous chemicals, and preventing internal sabotage.

"CFATS, however, does not dictate specific security measures," she continued. "Instead, the law allows chemical facilities the flexibility to choose the security measures or programs that the owner or operator of the facilities decides would best address the particular facility and its security risks, so long as these security measures satisfy the department's 18 performance standards."

Phased implementation

She said since 2007 DHS has hired and trained more than 100 chemical facility field inspectors and headquarters employees and hopes to employ 260 more by the end of fiscal 2010. DHS also has received more than $200 million to date to support CFATS, she indicated.

Collins explained that to determine which facilities posed the highest risks, DHS first required chemical plants possessing certain threshold quantities of specified chemicals to complete an online security assessment called "top-screen." Based on this assessment and any other available information, DHS then determined whether a facility presented a high security risk level and preliminarily divided such plants into four tiers of escalating risk.

While all covered facilities must satisfy DHS's performance standards, security measures sufficient to meet them are more robust in higher tiers, Collins said. For plants that qualified as "preliminarily high risk," DHS required preparation and submission of security vulnerability assessments that enabled the department to more accurately identify each plant's risk and assign final risk tier rankings. Based on those rankings, facilities must develop site

security plans and submit to inspections or audits to ensure compliance, the senator said.

DHS employees involved in CFATS have processed a tremendous amount of information in relatively short time, she noted. "According to the department, since establishing CFATS, it has reviewed almost 38,000 Top-Screen submissions and notified more than 7,000 facilities of their high-risk designations and preliminary tiers," she said.

As of December, however, CFATS covered only 6,000 facilities, according to Collins. "Some facilities closed; others made material modifications that altered their risk profile," she said. "Of those remaining, the department has assigned final tiers to almost 3,000, including all of the facilities in Tiers 1 and 2, and is now reviewing their site security plans."

'Swap horses'

DHS has received generally positive reviews as it has implemented CFATS in partnership with the private sector, and the program has been praised as a model for security-based regulation, she continued. "Notwithstanding the department's success in the program and the considerable costs that facilities have incurred in complying with it, some now want to 'swap horses in midstream' by radically overhauling the law," said Collins, adding that a bill the House passed in November would dramatically alter CFATS's nature and stop its progress dead in its tracks.

She and the bill's three co-sponsors were particularly critical of the House measure's provision requiring the use of inherently safer technology (IST) in CFATS Tier 1 and 2 plants. "IST is an approach to process engineering involving the use of less dangerous chemicals, less energetic reaction conditions, or reduced chemical inventories," Collins said. "It is not, however, a security measure. And because there is no precise methodology by which to measure whether one technology is safer than another, an IST mandate may actually increase or unacceptably transfer the risk to other points in the chemical process or elsewhere on the supply chain."

Forcing chemical plants to implement IST could wreak economic havoc on some facilities and affect availability of several commonly used end products, she warned. A mandatory IST program could encourage chemical companies to move their operations overseas, she added.

"To be clear, some owners and operators of chemical facilities will want to use IST. But the decision to implement [it] should be that of the owner or operator, not a Washington bureaucrat," Collins said. "In fact, the evidence is quite compelling that many chemical facilities, based on an assessment of many complex factors, have already taken steps to avoid the use, storage, and handling of extremely dangerous chemicals in favor of safer alternative processes. [DHS's] own data indicate that nearly 1,000 facilities voluntarily adopted safer alternative processes."

The House bill also includes provisions directing the US Homeland Security Secretary to establish new risk-based performance standards and allowing third-party lawsuits against DHS over CFATS's implementation, she said. S. 2996, in contrast, would not only continue work already under way but also establish a voluntary chemical security training program for federal, state, and local governments; chemical industry employees; and government and non-government responders, and a voluntary program to test these capabilities, Collins said. ✦

NPRA, three others sue over California LCFS

Nick Snow
Washington Editor

The National Petrochemical & Refiners Association and three other organizations legally challenged California's low-carbon fuel standard (LCFS) on Feb. 2.

"The California LCFS is unlawful for a number of reasons, including the fact that it violates the Commerce Clause of the US Constitution by imposing undue and unconstitutional mandates on interstate commerce," explained NPRA Pres. Charles T. Drevna.

The standard also would have little or no impact on greenhouse gas emissions nationwide and would harm US energy security by discouraging use of Canadian crude oil and ethanol produced in the US Midwest, Drevna added.

He said, "The fuel prohibited from use in California will simply be used elsewhere, which will result in increasing overall GHG emissions as a result of less-stringent environmental standards in places where those fuels would ultimately be consumed." GHG emissions also would climb from increased transportation distances, he said.

The American Trucking Associations, the Consumer Energy Alliance, and the Center for North American Energy Security joined NPRA in the lawsuit, which was filed in US District Court for California's Eastern District in Fresno. The complaint also said the regulatory scheme discriminates in favor of California-produced fuels by assigning them lower carbon-intensity ratings because of shorter transportation distances to end users.

Recently took effect

California Gov. Arnold Schwarzenegger called for adoption of an LCFS in the state during his 2007 State of the State address to reduce GHG emissions from transportation fuels in the state

by 10% by 2020. The California Air Resources Board adopted a regulation implementing such a standard on Apr. 23, 2009, but it did not officially become effective until the state's administrative law office approved it in January.

Proponents have said the LCFS will diversify transportation fuels in the state, boost the market for alternative-fueled vehicles, and reduce GHG emissions there by 16 million tonnes by 2020. "The drive to force the market toward greater use of alternative fuels will be a boon to the state's economy and public health," CARB Chairwoman Mary D. Nichols said in April. "It reduces air pollution, creates new jobs, and continues California's leadership against global warming."

CNAES Executive Director Thomas Corcoran noted on Feb. 2 that the standard discourages reliance on fuels derived from Canadian oil sands and other nonconventional sources. "This is a slap in the face to our Canadian allies and others who are working hard to help us attain North American energy security," Corcoran said.

ATA Vice-Pres. Rich Moskowitz added that the LCFS also would ban imports to California over fuels derived from oil shale in the US West or domestic coal supplies, which could be converted into transportation fuels. "Discouraging these fuels will simply increase costs while failing to prevent their export to and consumption by other nations," he said.

CEA Vice-Pres. Michael Whatley, a former chief counsel for the US Senate Clean Air and Climate Change Subcommittee, said, "Perhaps it wasn't the state's intent, but as written, the California LCFS is an example of parochial protectionism run amok. This isn't the type of protectionism that will benefit California consumers. It's the type that will ensure sources of essential energy are harder to find in the future and much more expensive to purchase." ✦

Obama issues memorandum creating CCS interagency task force

Nick Snow
Washington Editor

US President Barack Obama issued a presidential memorandum creating an interagency task force to develop a comprehensive carbon capture and storage strategy.

Obama took the action on Feb. 3 as he also announced a series of steps involving biofuels, including the US Environmental Protection Agency's finalizing a second, expanded renewable fuels standard. While the CCS initiative will have a bigger direct impact on coal producers and users, it potentially will affect oil and gas producers, several of whom already use carbon dioxide for enhanced oil recovery.

The memorandum reflected the president and administration's strong commitment to developing a CCS strategy as part of its drive to build a clean energy economy, US Energy Secretary Steven Chu said on Feb. 3. "We can, and should, lead the world in this technology and the jobs it can create," he maintained.

US Department of Energy and Environmental Protection Agency officials will chair the task force, which will develop within 6 months a plan to overcome barriers to widespread CCS deployment within 10 years, the White House said. It added that the group's goals also will include bringing 5-10 commercial demonstration projects on line by 2016.

The memorandum also directs the task force to address incentives for CCS adoption and any financial, economic, technological, legal, institutional, or other barriers. It directs the group to consider the best ways to coordinate existing federal authorities and programs, and to identify areas where additional federal authority may be needed.

The task force periodically will report to the president through Council on Environmental Equality Chairwoman Nancy Sutley, the White House said.

DOE's Fossil Energy Office already has created seven carbon sequestration partnerships which collectively represent regions encompassing 97% of the nation's coal-fired CO_2 emissions, 97% of its industrial CO_2 emissions, 96% of its total land mass, and essentially all of the US geologic sites with carbon storage potential, according to information on its web site. ✦

EPA lowers cellulosic ethanol standard for 2010

Paula Dittrick
Senior Staff Writer

The US Environmental Protection Agency published guidance for the second phase of the renewable fuels standard (RFS2) Feb. 3, directing refiners to ensure that the gasoline pool contains 8.25% ethanol.

The Energy Independence and Security Act of 2007 (EISA) required sales of 12.95 billion gal of renewable fuel in 2010. EISA created a second, expanded version of the RFS, known as RFS2.

The RFS2 rules from EPA originally were scheduled for release Jan. 1, 2009, but EPA delayed the release until this year.

For the first time, EPA announced volume standards for specific categories of renewable fuels. The 2010 cellulosic ethanol standard is 6.5 million gal, down from the 100 million gal that Congress established in 2007.

The RFS2 biomass-based diesel standard is 1.15 billion gal. The biomass-based diesel standard combines the

proposed 2009 and 2010 standards, EPA noted. That combination was called retroactive by oil industry groups.

The total advanced biofuel sales level, excluding biomass-based diesel and cellulosic biofuel, must be 950 million gal, and the rest will be corn-based ethanol. EPA defines advanced biofuel as fuel derived from feedstocks other than corn starch.

EPA finalized a rule implementing EISA's long-term RFS2 mandate for biofuels production to reach 36 million gal by 2022 from 11.1 billion gal in 2009. Of the 36 billion gal, the mandate calls for 21 billion gal to come from advanced biofuels.

In addition, EPA set the first mandatory greenhouse gas reduction thresholds for various categories of fuels. Fuels must demonstrate that they meet certain minimum GHG reduction standards, based on a lifecycle assessment, in comparison to the petroleum fuels they displace.

Industry responds

The American Petroleum Institute said it was concerned that the EPA announcement could result in higher consumer costs for transportation fuels.

"The US oil and natural gas industry are the biggest consumers of ethanol and other biofuels," API said. "Almost 80% of all gasoline now produced in the US contains ethanol. API supports a realistic and workable RFS. Given the complexity of this new regulation, we question how realistic and workable it will be."

API said EPA set retroactive requirements by finalizing the rule on Feb. 3 and making it effective July 1, yet including the mandate for the whole year for refiners rather than prorating it. The RFS1 rule was made effective on Sept. 1, 2007, and EPA prorated it for 4 months.

EPA also was retroactive by combining the biomass-based diesel standard from 2009 into the 2010 standard, API said.

Charles Drevna, president of the National Petrochemical & Refiners Association, said NPRA consistently has supported the integration of biofuels into the nation's fuel mix.

"While we welcome the 2010 guidelines for RFS2 implementation today, our member businesses would have been better served in terms of investment and regulatory certainty to have known these rules months ago," Drevna said Feb. 3.

Although still reviewing the "lengthy and complex regulations," Drevna said, NPRA is concerned that "a

few key provisions evade sound science and may even be unlawful.

"We are concerned, for example, that politics may have trumped science with regard to the revisions to the greenhouse gas emissions from the production of soy-based biodiesel. We also believe that combining biomass-based diesel volumes from 2009 with 2010 and making portions of the final rule retroactive to Jan. 1, 2010, is unfair and likely unlawful."

Cellulosic ethanol shortfall

Benjamin Salisbury, an analyst with FBR Capital Markets, said recent moves by the government to boost biofuels are incrementally favorable to corn-based ethanol.

"Although EPA believes that commercial-scale [cellulosic] ethanol capacity will come online in time for 2011, this decision could set an important precedent for corn ethanol in the event of a future advanced biofuel shortfall," Salisbury said.

Raymond James & Associates Inc. analysts said corn ethanol blending remains essentially the same under RFS2, but that the EPA has outlined a specific annual volume for biodiesel for the first time.

"In 2010, 1.15 billion gal of biodiesel must be blended," an RJA research note said. "However, with roughly 2.5 billion gal of US biodiesel production capacity already in place, even this target will not do much to boost capacity utilization, which means biodiesel is set to remain a tough business."

The US Energy Information Administration reported biodiesel production at 414 million gal for the first 10 months of 2009.

Meanwhile, President Barack Obama on Feb. 3 announced a series of steps his administration is taking to boost biofuels production. In May 2009, Obama established the Biofuels Interagency Working Group, cochaired by the secretaries of energy and agriculture along with the EPA Administrator Lisa Jackson.

The group released its first report Feb. 4, outlining a strategy to advance the development and commercialization of what it calls a sustainable biofuels industry to meet or exceed US biofuels targets. ✦

US ACE denies ConocoPhillips an ANS permit

The US Army Corps of Engineers (ACE) denied a permit application from ConocoPhillips Alaska Inc. to construct a drill pad identified as CD-5 west of the Colville River Delta to expand the Alpine petroleum field on the North Slope.

An ACE statement said there are other practicable alternatives that would have less adverse impact on the aquatic ecosystem and still meet the overall project purpose in the National Petroleum Reserve-Alaska.

ConocoPhillips operates Alpine field, which went on production in November 2000.

Following ACE's denial of the permit, Alaska Gov. Sean Parnell said, "Just in the last 6 months, we've fought the federal government for tying up Outer Continental Shelf leasing, and for adding bureaucratic nightmares and costs with Endangered Species Act listings and critical habitat area designations.

"We've seen the US Fish and Wildlife Service and the Environmental Protection Agency show reluctance to approve anything related to jobs in Alaska," he said. "And then—first, by delay, and now, through their decision—[ACE] continues to set back our nation's chances for economic recovery, domestic energy production, and Alaskans' prospects for jobs."

Permit application

In December 2008, ConocoPhillips applied for permits under the Clean Water Act and the Rivers and Harbors Act to discharge fill material over 62 acres of wetland tundra to construct the CD-5 drill site pad, a 6.2-mile access road with three bridge crossings, two valve pads with access roads, and new pipeline support structures.

ConocoPhillips' preferred alternative states that the drill pad would be connected to the Alpine field's road system by gravel roads and a 1,425 ft bridge across the Nigliq Channel of the Colville. All three bridges and 2.5 miles of road would be within the Colville River Delta. The bridges would be used for vehicles, production pipelines, and utilities.

ACE found that issuing a permit for the applicant's proposal is not in compliance with guidelines that state "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge, which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences".

Other alternatives with less environmental impacts could include horizontal directional drilling but would require new permit applications. These alternatives minimize impacts to the Colville River Delta, which is the largest and most complex delta on the Arctic Coastal Plain and drains nearly 30% of the North Slope, ACE said.

The delta serves as habitat for 80 species of birds, numerous fish, migrating caribou, and is within the subsistence hunting and fishing areas of the village of Nuiqsut. The delta also represents nearly 70% of overwintering fish habitat within the ANS, ACE said. ✦

BG Group CEO issues 'thumbs up' on Brazil production

Eric Watkins
Oil Diplomacy Editor

BG Group said it's on track to more than double its oil and gas production by 2020, with new discoveries in Brazil eventually geared to providing a substantial boost to the firm's bottom line.

"Brazil is one of our main focuses," said BG Group Chief Executive Officer Frank Chapman, adding that the firm eventually expects its production to reach 400,000 boe/d. "We might hit this threshold anytime after the second half of this decade," he said.

Conservative outlook

However, in a conference call with investors, Chapman indicated current projections about Brazil's output potential may be conservative, especially when it comes to the Santos basin.

"Whereas the market recognizes broadly the importance of Brazil to BG Group, the value we've already created from the Santos basin is not yet fully recognized," he said.

"In particular, the rapid play 'de-risking' and our concrete plans for early production ramp-up have already substantially increased the value of this play," Chapman said.

The BG Group executive said the firm's program "really stepped up a gear" in 2009, shooting more than 3,000 sq km of 3D seismic, drilling 7 successful wells, coring 275 m of reservoir, performing 5 drill stem tests (DSTs), and producing 3.5 million bbl gross from the first extended well test (EWT).

"This program has provided a mass of new information, advancing substantially our understanding of the Santos basin, and supporting our earlier assessments and forward development plans," Chapman said.

Recent developments

BG Group summed up its recent developments in Brazil:

• The firm's 2009 appraisal and commercialization program substantially advanced its understanding of the Santos basin presalt, with technology tested and excellent reservoir characteristics observed across a number of locations.

BG said new information provided by the program supports previous assessments and forward development plans, including reserves and resources estimates of more than 3 billion boe net, anticipated net production of more than 400,000 boe/d by 2020, and BG Group's view that its Santos basin presalt developments achieve economic break-even at oil prices below $40/bbl.

• *Tupi Sul.* EWT on Tupi Sul has produced 3.5 million boe gross to date, with pressure support "greater than expected, indicating very good lateral reservoir continuity and quality."

• *Tupi-Iracema.* The pilot floating production, storage, and offloading module is more than 65% complete, with capacity of 100,000 b/d of oil and 175 MMscfd of natural gas. First production is expected by yearend. Full field development will require 200-300 wells and as many as 10 FPSOs.

• *Guara.* Gross reserves and resources estimate of 1.1-2 billion boe, well ahead of initial estimates. "Outstanding test results were achieved in 2009, with production potential of 50,000 b/d/well," BG said, adding that EWT will begin later this year. It said a letter of intent was signed for construction of an FPSO with capacity for 120,000 b/d of oil and 175 MMscfd of gas, with first production expected early 2013.

• *Iara.* Discovery well reentered in 2009. New well to be drilled in 2010; DST in 2011; 3D seismic in 2010-11; and EWT planned for 2013.

• *Carioca.* Further appraisal well planned this year followed by EWT commencing in fourth-quarter 2010.

• *Santos basin gas.* Joint venture agreement to conduct parallel front-end engineering and design (FEED) studies assessing the potential for as much as 3 tonnes/year floating LNG for domestic and export markets.

Chapman underlined BG Group's optimistic outlook, saying confidence has increased "in our ability to produce the oil and gas efficiently and economically, having now tested the technology and observed the excellent reservoir characteristics across a number of locations." ✦

Orinoco's recoverable figure 513 billion bbl, USGS says

Alan Petzet
Chief Editor-Exploration

The volume of technically recoverable heavy oil in Venezuela's Orinoco oil belt is 513 billion bbl, making it one of the world's largest accumulations of recoverable oil, the US Geological Survey said Jan. 22.

The range of recoverable oil is estimated at 380-652 billion bbl, the USGS said. Technically recoverable associated-dissolved gas is estimated at a mean of 135 tcf and a range of 53-262 tcf.

USGS made no attempt to estimate either economically recoverable resources or reserves, and the assessment implies nothing about rates or time frames of production or the likelihood of heavy oil recovery.

Assessment unit

The Orinoco Oil Belt Assessment Unit of the La Luna-Quercual Total Petroleum System covers 50,000 sq km of the East Venezuela Basin Province, which is underlain by more than 1 trillion bbl of heavy oil in place, the agency said.

The USGS made no attempt to estimate economically recoverable resources or reserves or to imply anything about heavy oil production rates or the likelihood of recovery.

The heavy oil in the assessment unit is largely contained in fluvial, nearshore marine, and tidal sandstone reservoirs of the Miocene Oficina formation.

"The reservoir sandstones, although porous and permeable, are characterized by several depositional sequences with considerable internal fluid-flow heterogeneity caused by juxtaposition of different facies and by shale barriers that reduce recovery efficiency," USGS said.

The reservoirs are 150-1,400 m deep with heavy oil of 4-16° gravity. Viscosities range from 2,000 to 8,000 cp.

The oil in place estimate relied mainly on published geologic and engineering data for reservoirs (net oil-saturated sandstone thickness and extent), petrophysical properties (porosity, water saturation, and formation volume factors), recovery factors determined by pilot projects, and estimates of volumes of oil in place.

Petroleos de Venezuela SA estimated 1.18 trillion bbl of oil in place in 1987 and revised that in 2006 to a median of 1.3 trillion bbl, a maximum of 1.4 trillion bbl, and a minimum of 900 billion bbl.

Technically recoverable

Recovery factor was estimated at a minimum of 15% for cold production using horizontal wells. Recovery factor was put at a median of 45% to a maximum 70% using horizontal drilling and thermal recovery methods.

The USGS assessment is the first to identify how much is technically recoverable; that is, producible using currently available technology and industry practices, said Brenda Pierce, USGS Energy Resources Program coordinator.

USGS noted that worldwide oil consumption was 85.4 million b/d in 2008. The three largest consuming countries were the US at 19.5 million b/d, China at 7.9 million b/d, and Japan at 4.8 million b/d.

"Knowing the potential for extractable resources from this tremendous oil accumulation, and others like it, is critical to our understanding of the global petroleum potential and informing policy and decision makers," Pierce said.

The Orinoco is the largest accumulation ever assessed by the USGS. ✦

Midland basin Strawn porosity object of proprietary tests

A proprietary geophysical technology rooted in astrophysics is being tested in the prediction of economic levels of porosity in Pennsylvanian Strawn carbonates in West Texas.

The patented QuantumRD software advanced by ViaLogy PLC, London, analyzes 3D and multicomponent seismic data, well logs, and geologic records to predict porosity.

The technique, new to the oil patch, was applied to a 10 sq mile acreage block in Andrews County. ViaLogy said the software predicted a continuous zone of 6%+ porosity, and a well has been drilled to total depth of 11,241 ft.

"Initial well log analysis shows potential for multiple zones that could be highgraded, highlighted by a net interval of over 50 ft of significant porosity in the Strawn formation alone," ViaLogy said. Well tests are needed to confirm productivity.

Private Midland, Tex., independent Fasken Oil & Ranch Ltd. drilled the well on its sprawling ranch based on ViaLogy's recommendation. The firm has opened part of its property to researchers for tests of geophysical innovations in the Midland basin, where much undeveloped acreage remains.

Strawn targets are typically found below 9,000 ft and are uneconomic at 3% porosity or less, ViaLogy said. Of 18 Strawn wells drilled in the prospect area the past 50 years, three produced. Of the other 15, seven found no Strawn porosity and were completed in the shallower Wolfcamp, and eight were dry.

Porosity variations in Strawn stratigraphy generate a weak signal on seismic and are difficult to amplify using conventional geophysical processing, said Dr. Bob Hardage of the University of Texas Bureau of Economic Geology.

Geophysicists like to remove noise from seismic data, but the QuantumRD routine is to introduce noise to enhance the signal-to-noise ratio in processed seismic data. ViaLogy said that allows the technique to extract more information and "identify subsurface characteristics more effectively than other techniques."

The technique is untested on formations such as Wolfberry, Devonian, and Ellenburger. ✦

New York Herkimer sand gas play to expand

Norse Energy Corp. ASA, Oslo, has identified 300 locations on seismic that could be prospective for gas in fractured Silurian Herkimer sandstone in central New York state.

The total play could ultimately recover 500 bcf of gas, the company said.

Norse Energy expects to drill 30 horizontal Herkimer wells in 2010 to double its yearend 2009 production to 24 MMcfd by the end of the year. Several wells await connection in early 2010 to a gathering system in Chenango County near Norwich (OGJ Online, Oct. 13, 2008).

Norse Energy, which has been drilling in New York since 1996, holds 180,000 acres leases of which 130,000 it judges to have potential in Ordovician Utica shale and Devonian Marcellus shale. The leases are in Broome, Chenango, Madison, and Otsego counties.

The New York State Department of Environmental Conservation is formulating regulations that would govern horizontal drilling and hydraulic fracturing in shale formations (OGJ Online, Jan. 25, 2010). Horizontal shale drilling isn't permitted, and frac jobs in vertical wells are limited to 80,000 gal in the state. ✦

Egypt

Shell Egypt NV completed a low frequency seismic survey in the Egypt's Northeast Abu Gharadig basin.

The survey objective was to introduce LF technology in the Western Desert, said Spectraseis, Zurich, Switzerland. The project is the largest LF seismic synchronous survey, with 110 data points recorded in 4 days. The survey data are being processed. Initial results are expected in early February 2010.

The project took place with logistical support from Ardiseis, a regional joint venture between CGGVeritas and TAQA in the Middle East region, and covered 60 sq km in 1 week using 17 crew.

The survey used the numerical technique of time reverse imaging, which spatially localizes the source of hydrocarbon microtremors by feeding measured signals to the velocity signal, thus numerically estimating the depth origin of spectral anomalies. The result is a subsurface image that suggests the hydrocarbon reservoirs at depth.

Georgia

Frontera Resources Corp., Houston, drilled new wells in Mirzaani and Mtsare Khevi fields in the shallow fields production unit on 5,060 sq km Block 12 in eastern Georgia.

Mirzanni-1 and 5, TD 1,500 m and 1,125 m, respectively, in undeveloped and underdeveloped parts of the field, had oil and gas shows in 120-146 m of net sandstones with higher than expected porosity and permeability.

The wells indicate that zones 12 and 13 will be the primary targets for forward development and zones 14-18 in the Lower Pliocene Shiraki forma-

tion will be a bonus if present. Tests are pending.

Four new wells in Mtsare Khevi bring to 18 the number of development wells drilled since August 2008. The wells tap oil in low-recovery zones I and II and gas in Zone III, all from Upper Pliocene Akchagil reservoirs at 200-350 m.

The shallow fields unit is producing 200 b/d of oil, and a 12 km pipeline with capacity for 3.5 MMcfd of gas is expected to be operating by Mar. 31.

Indonesia

A group led by PT Medco Energi Internasional Tbk plans to spud a second coalbed methane well on the Sekayu block in South Sumatra in March 2010.

The new location, to be drilled below 1,500 ft, is 18 km south of the first well, CBM-SE-02. Two coals at 1,074-82 ft sampled in the first well analyzed at 75-85 scf/ton of methane storage capacity and 500 md of permeability, and more samples are being analyzed.

Partners in the venture with Medco are Ephindo Ilthabi CBM Holdings Inc., Batavia Energy Inc., and CBM Asia Development Corp. CBM Asia also has an 18% net working interest in a PSC for CBM on a 76,000-ha block and a 40% net working interest in a 56,500-ha block in the Kutei basin of East Kalimantan.

Uganda

The Neptune Petroleum (Uganda) Ltd. unit of Tower Resources PLC, London, plans to spud the Avivi-1 exploration well in Uganda's Block 5 in the second week in February 2010.

The rig will move to Avivi-1 from Tullow Oil PLC's Kasamene-2 well. The Avivi-1 well site is 94 km north of Kasamene- 2, but the road route for transporting the rig is 525 km.

Pennsylvania

Chesapeake Energy Corp. completed taking a farmout from Epsilon Energy Ltd., Concord, Ont., on 11,500 net acres of leasehold in the Highway 706 project in Susquehanna County, Pa.

The assets include the acreage, 10 MMcfd of gas production, and related compression, pipeline, and tap site facilities (OGJ Online, Feb. 26, 2009). Epsilon believes the leasehold will support the drilling of 120-150 wells, or 60-75 net to Epsilon.

Chesapeake paid $5 million at closing and will earn a 50% interest in Epsilon's upstream Marcellus shale assets by paying a further $95 million over time by carrying the first $95 million of Epsilon's 50% share of leasehold, drilling, completing, equipping, and gathering costs attributable to the prospect. The carry obligation is expected to be completed by Aug. 1, 2012.

In the framework of the farmout, Chesapeake plans to spend a total of $195 million developing the Highway 706 prospect. Epsilon said Chesapeake's expertise will help it maximize return on the Pennsylvania assets while freeing up resources to concentrate on Epsilon's New York Marcellus shale prospect.

Chesapeake said it expects average estimated ultimate recoveries to be substantially greater than those found on average in the Marcellus.

Anadarko Petroleum Corp. spud seven operated horizontal wells and completed four operated horizontal wells in the 2009 fourth quarter in Pennsylvania in the Marcellus shale play, where it has interests in more than 630,000 acres.

The company's two most recent flow tests each exhibited sustained test rates in excess of 7 MMcfd with 3,000 psi of flowing tubing pressure. Anadarko operates three rigs and participates in 11 nonoperated rigs and expects to increase both counts throughout 2010.

Texas

Gulf Coast

Magnum Hunter Resources Corp., Houston, said it believes at least two more locations can be drilled on acreage in Bee County, Tex., following completion of its Eberstadt-1 well in South Caesar field.

Eberstadt-1 flowed to sales on Feb. 1 at the rate of 1.5 MMcfd of gas with 3,600 psi flowing tubing pressure on a 12/64-in. choke from 100 gross ft of Middle Wilcox. TD is 10,600 ft. The well was still cleaning up after a Jan. 28 frac.

Magnum Hunter is operator with 51.1% working interest and 38.3% net revenue interest. The well sets up a 464-acre gas unit out of 950 acres under lease. Completed well cost was $2 million to the 100% working interest.

Utah

Golden State Resources Ltd., Perth, has spud a third exploratory well since 2006 in the northern Paradox basin in southeastern Utah.

The Paradox Basin-3 well, in 16-23s-23e, Grand County, targets the Upper Ismay zone of Pennsylvanian Paradox above 10,000 ft, which demonstrated gas flow capacity as high as 3.6 MMcfd in the first two wells. A Williams Cos. gas pipeline comes within 6 miles of the Paradox Basin-2 well.

The three wells are in 21 and 16-23s-23e, two townships south of the Cisco Springs area. Consulting engineers offered low estimates of 9 bscf of gas in place in Ismay and 6.2 bcf in Pennsylvanian Barker Creek, and the company has dubbed the area Golden Eagle gas field.

Objectives in the deeper Pennsylvanian section such as the Barker Creek, Alkali Gulch, and Akah formations were intersected close to the bounding fault and are potentially isolated from the main structure. The first two wells bottomed at 16,471 ft and 14,216 ft.

Golden State holds 100% working interest. Eclipse Exploration Inc., Denver, has the right to back in with a 16.67% working interest.

The Golden Eagle structure lies along the Paradox fold and fault belt and is on structural trend with Big Indian, Lisbon, Lightning Draw, Little Valley, and Lisbon South fields.

Pipeline construction plans slow for 2010

Christopher E. Smith
Pipeline Editor

Planned pipeline construction to be completed in 2010 fell by more than 24% from the year prior; with fewer miles planned across all pipeline types (natural gas, crude, and products) and most geographic regions.

Operators plan to complete installation of 11,575 miles in 2010 alone (Table 1), with natural gas construction's share of the plans (more than 5,900 miles) shrinking to less than 50%, based on reports from the world's pipeline operating companies and data collected by Oil & Gas Journal.

Looking forward, to 2010 and beyond, for the second consecutive year less mileage is planned in all pipeline categories than had been the case the year prior, as an uncertain economic recovery and regulatory environment constrain infrastructure development plans.

The increasing globalization of natural gas markets despite current softness in demand drove long-term natural gas pipeline plans (2010 and beyond), with continued strength seen in planned capacity additions in the Asia-Pacific and expanded mileage plans in both the Middle East and Africa.

Larger crude plans in both Europe and Africa kept the 2010 slide in miles expected to be completed in that sector at 8.5% from global totals the prior year.

Plans for construction of product pipelines in 2010 slipped the least of any of the segments, supported by petrochemical pipeline construction in the Middle East and new clean products pipelines in the US.

As 2010 began, operators had announced plans to build nearly 67,000 miles of crude oil, product, and natural gas pipelines beginning this year and extending into the next decade (Fig. 1), a more than 14% decrease from data reported last year (OGJ, Feb. 9, 2009, p. 54) in this report and the second consecutive year during which plans contracted. The vast majority (nearly 79%) of these plans is for natural gas pipelines, an increase from the previous year as expansions in that segment's future proportion of plans outweighed the near-term contraction.

Outlook

The downturn in worldwide pipeline construction trends reflects the current economic unrest, but run counter to US Energy Information Administration energy consumption forecasts, which show continued growth, even if at a slower rate than predictions from a year ago.

EIA forecast world marketed energy consumption to increase by 44% through 2030 (using a 2006 baseline), a period that encompasses the long-term pipeline construction projections stated here.

Energy demand growth will be strongest, according to the midyear 2009 analysis, among non-OECD countries. This non-OECD growth will be led by China and India, where com-

bined energy use will nearly double over the projection period to 28% of world energy consumption. US demand share will contract during the same period from 21% to 17%.

Fuelling this energy demand growth is projected gross domestic product growth in non-OECD Asia of 5.7%/year through 2030—led by China at 6.4%/year, the highest projected growth rate in the world—compared with 3.5% worldwide. Each of these levels are flat or slightly lower than EIA projections from a year earlier, reflecting continued economic uncertainty.

Structural issue that have implications for medium to long-term growth in China include the pace of reform affecting inefficient state-owned companies and a banking system carrying a large number of nonperforming loans, according to the EIA. The development of domestic capital markets to help macroeconomic stability and ensure China's large savings are used efficiently supports medium-term growth projections, according to the EIA.

EIA described the medium-term prospects for India's economy as positive, as it continues to privatize state enterprises and increasingly adopt free-market policies. EIA projects 5.6% annual GDP growth in India 2005-2030.

In December 2009 the EIA forecast a 16% increase in total US liquid fuels consumption, including both fossil liquids and biofuels to an average 22 million b/d in 2035 from 19 million b/d in 2008. The agency said biofuels made up almost all of the growth, with essentially flat consumption of petroleum-based liquids reducing reliance on imported oil.

EIA projects US oil production climbing 20% from 5 million b/d in 2008 to more than 6 million b/d in 2027, maintaining that level through 2035, with production increases stemming from both enhanced oil recovery efforts onshore and increased offshore activity. The agency said US natural gas production would grow 13% from 20.6 tcf in 2008 to 23.2 tcf in 2035, including a 6 tcf shale gas contribution (OGJ Online, Dec. 17, 2009).

The 2010 outlook projects considerably higher US natural gas imports by pipeline than did the updated Annual Energy Outlook 2009, citing increased unconventional production in Canada as outweighing declining conventional production. The 2010 outlook also pushed projected start-up of an Alaska natural gas pipeline back 1 year to 2023, citing lower wellhead prices.

The 2009 outlook projected the US would be a net pipeline exporter by 2030. The 2010 outlook, however, sees imports remaining in play, albeit having shrunk from 2.7 tcf in 2008 to 0.9 tcf in 2030. EIA projects delayed liquefaction projects leading to a US LNG imports peak of 1.5 tcf in 2021 compared with a 1.4 tcf peak in 2018 in the updated 2009 outlook.

OGJ has for more than 50 years tracked applications for gas pipeline construction to what is now called the Federal Energy Regulatory Commission. Applications filed in the 12 months ending June 30, 2009 (the most recent 1-year period surveyed) showed continued health in US interstate pipeline construction.

- More than 2,180 miles of pipeline were proposed for land construction, and no miles for offshore work. For the earlier 12-month period ending June 30, 2008, nearly 900 miles were proposed for land construction.
- FERC applications for new or additional horsepower at the end of June 2009 rose even more sharply, reaching almost 645,000 hp, all onshore, compared with 238,500 hp of new or additional compression applied for a year earlier.

Bases, costs

For 2010 only (Table 1), operators plan to build more than 11,500 miles of oil and gas pipelines worldwide at a cost of nearly $44.3 billion. For 2009 only, companies had planned more than 15,250 miles at a cost of nearly $61.5 billion.

For projects completed after 2010 (Table 2), companies plan to lay nearly 55,200 miles of line and spend roughly $207 billion. When these companies looked beyond 2009 last year, they anticipated spending roughly $225.5 billion to lay more than 62,500 miles of line.

- Projections for 2010 pipeline mileage reflect only projects likely to be completed by yearend 2010, including construction in progress at the start of

PIPELINE CONSTRUCTION IN 2010[1] Table 1

Area	4-10 in.	12-20 in.	22-30 in.	32+ in.	Total
			Miles		
GAS PIPELINES					
US	30	225	343	328	926
Canada	0	0	254	373	627
Latin America	5	108	577	253	943
Asia-Pacific[2]	0	16	81	1,259	1,356
Europe[3]	0	273	49	287	609
Middle East	0	0	0	929	929
Africa	0	0	189	330	519
Total gas	**35**	**622**	**1,493**	**3,759**	**5,909**
CRUDE PIPELINES					
US	0	77	527	790	1,394
Canada	0	0	118	291	409
Latin America	0	16	0	0	16
Asia-Pacific[2]	0	0	629	0	629
Europe[3]	0	0	0	341	341
Middle East	0	0	0	40	40
Africa	223	0	0	0	223
Total crude	**223**	**93**	**1,274**	**1,462**	**3,052**
PRODUCT PIPELINES					
US	0	874	320	6	1,200
Canada	0	0	0	0	0
Latin America	0	0	0	0	0
Asia-Pacific[2]	73	0	0	0	73
Europe[3]	0	0	0	0	0
Middle East	0	1,341	0	0	1,341
Africa	0	0	0	0	0
Total product	**73**	**2,215**	**320**	**6**	**2,614**
WORLD TOTAL					
Gas	35	622	1,493	3,759	5,909
Crude	223	93	1,274	1,462	3,052
Product	73	2,215	320	6	2,614
Total	**331**	**2,930**	**3,087**	**5,227**	**11,575**

[1]Projects planned to be completed in 2010. [2]Regions east of the Ural Mountains and south of the Caucasus Mountains, excluding the Middle East. [3]Regions west of the Ural Mountains and north of the Caucasus Mountains.

the year or set to begin during it.

• Projections for mileage in 2010 and beyond include construction that might begin in 2010 and be completed in 2010 or later.

Also included are some long-term projects judged as probable, even if they will not break ground until after 2010.

US average cost-per-mile for onshore pipeline construction (Table 4, OGJ, Sept. 14, 2009, p. 66) on FERC applications submitted by June 30, 2009, was $3.73 million. There were no offshore applications submitted.

US average cost-per-mile for offshore construction (Table 7, OGJ, Sept. 1, 2008, p. 62) on projects completed in the 12 months ending June 30, 2009, was $5.37 million.

Based on historical analysis and a few exceptions and variations notwithstanding, these projections assume that 90% of all construction will be onshore and 10% offshore and that pipelines 32 in. OD or larger are onshore projects.

Following is a breakdown of projected costs, using these assumptions and OGJ pipeline-cost data:

• Total onshore construction (10,940 miles) for 2010 only will cost more than $40.8 billion:

—$1.1 billion for 4-10 in.

—$9.8 billion for 12-20 in.

—$10.35 billion for 22-30 in.

—$19.5 billion for 32 in. and larger.

• Total offshore construction (635 miles) for 2010 only will cost nearly $3.5 billion:

—$177 million for 4-10 in.

—$1.6 billion for 12-20 in.

—$1.7 billion for 22-30 in.

• Total onshore construction (54,248 miles) for beyond 2010 will cost more than $202 billion:

—$1.5 billion for 4-10 in.

—$11.3 billion for 12-20 in.

—$18.9 billion for 22-30 in.

—$170 billion for 32 in. and larger.

• Total offshore construction (948 miles) for beyond 2010 will cost more than $5 billion:

—$241.5 million for 4-10 in.

—$1.8 billion for 12-20 in.

—$3 billion for 22-30 in.

Action

What follows is a quick rundown of some of the major projects in each of the world's regions.

Pipeline construction projects mirror end users' energy demands, and much of that demand continues to center on natural gas, with the industry remaining focused on how to get that gas to market as quickly and efficiently as possible. The following sections look at both natural gas and liquids pipelines.

PIPELINE CONSTRUCTION IN 2010 AND BEYOND[1]

Table 2

Area	4-10 in.	12-20 in.	22-30 in.	30+ in.	Total
	Miles				
GAS PIPELINES					
US	130	90	1,485	7,085	8,790
Canada	0	0	750	145	895
Latin America	0	24	502	915	1,441
Asia-Pacific[2]	0	1,651	456	18,357	20,464
Europe[3]	0	167	1,216	5,635	7,018
Middle East	0	0	43	4,929	4,972
Africa	0	0	0	3,195	3,195
Total gas	**130**	**1,932**	**4,452**	**40,261**	**46,775**
CRUDE PIPELINES					
US	0	110	0	1,654	1,764
Canada	0	0	713	413	1,126
Latin America	0	0	0	0	0
Asia-Pacific[2]	0	0	0	2,500	2,500
Europe[3]	0	0	0	174	174
Middle East	0	41	158	257	456
Africa	0	186	0	0	186
Total crude	**0**	**337**	**871**	**4,998**	**6,206**
PRODUCT PIPELINES					
US	321	550	0	460	1,331
Canada	0	410	0	0	410
Latin America	0	0	0	0	0
Asia-Pacific[2]	0	0	0	0	0
Europe[3]	0	0	0	0	0
Middle East	0	148	0	0	148
Africa	0	0	326	0	326
Total product	**321**	**1,108**	**326**	**460**	**2,215**
WORLD TOTAL					
Gas	130	1,932	4,452	40,261	46,775
Crude	0	337	871	4,998	6,206
Product	321	1,108	326	460	2,215
Total	**451**	**3,377**	**5,649**	**45,719**	**55,196**

[1]Projects under way at the start of or set to begin in 2010 and be completed in 2011 or later. Includes some probable major projects whose installation will begin in 2011 or later. [2]Regions east of the Ural Mountains and south of the Caucasus Mountains, excluding the Middle East. [3]Regions west of the Ural Mountains and north of the Caucasus Mountains.

North America activity

Gas, NGL

BP PLC and ConocoPhillps have joined resources to build a 4 bcfd natural gas pipeline (Denali) extending from Alaska's North Slope to market in Canada and the US at an estimated cost of $20 billion. The companies plan to have spent $600 million preparing for an open season slated for April 2010. After the open season, the companies will file to obtain certification from the US Federal Energy Regulatory Commission and Canada's National Energy Board for authorization to move forward with construction of the project.

The Denali partners selected Argonne National Laboratory in May 2009 as a third-party contractor for environmental impact statement preparation. Denali earlier awarded Bechtel Corp. an engineering contract for the project's mainline.

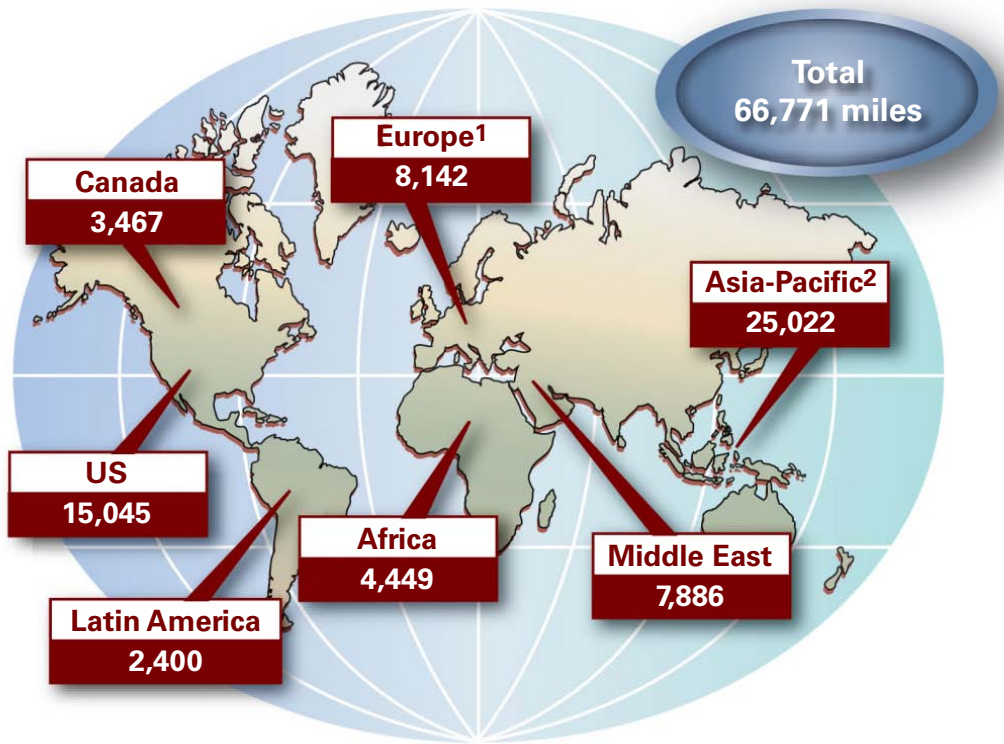
TransCanada Alaska meanwhile began the prefiling process on its own Alaskan natural gas pipeline. TransCanada was awarded rights to build a North Slope gas pipeline under the Alaska Gasline Inducement Act in January 2008. AGIA requires TransCanada to meet certain requirements that will advance the project in exchange for a license providing up to $500 million in matching funds.

In June 2009 TransCanada agreed with ExxonMobil Corp. affiliates to work together on an Alaska gas line, the Alaska Pipeline Project. ExxonMobil will share expenses in advancing the project's technical, commercial, regulatory, and financial aspects, while TC Alaska remains the AGIA licensee. The project filed its open season plan with FERC in January 2010.

TransCanada already has NEB authorization for its project. TransCanada has

FORECAST PIPELINE CONSTRUCTION

Fig. 1



[1]Including Russia and former Soviet republics west of the Ural Mountains. [2]Including Russia and former Soviet republics east of the Ural Mountains.

also committed to include an option for transporting gas from Prudhoe Bay to Valdez for export as LNG as part of its open season (Fig. 2).

Both proposals are for 48-in OD pipelines running from ANS to the Alberta hub, Denali with 4 bcfd capacity and TC Alaska with 5 bcfd.

Alaska's Natural Gas Development Authority is continuing to develop plans for intrastate gas pipelines, including a 460-mile system of various diameters from Beluga in southern Alaska to Fairbanks that would be used initially to transport gas from Cook Inlet, but eventually connect to either Denali or TC Alaska's line to bring ANS gas south.

In Canada, the proposed Mackenzie Valley pipeline would stretch more than 750 miles to transport Mackenzie River Delta gas to Alberta and beyond. Plans call for initial capacity of 1.2 bcfd, expandable to 1.9 bcfd. Canada's Joint Review Panel, examining the environmental and socioeconomic impacts of the $16.2 billion (Can.) project, approved the project in December 2009.

In addition to the Aboriginal Pipeline Group, other pipeline partners are Imperial Oil Ltd. 34.4%, ConocoPhillips Canada 15.7%, Shell Canada, 11.4%, and ExxonMobil Canada 5.2%

Costs include $7.8 billion for the Mackenzie Valley mainline, $3.5 billion for the gas gathering system, and $4.9 billion for anchor-field development.

Canada's NEB will start hearing final arguments on the pipeline in April 2010.

Large domestic natural gas pipeline projects designed to move Midcontinent supplies to market centers continued to progress, with new projects also proposed. The Rockies Express pipeline, running 1,679 miles of 42 in. pipe from northwestern Colorado to eastern Ohio, entered service in November 2009. It is the largest new US pipeline project in 20 years. Kinder Morgan Energy Partners LP operates the pipeline and owns 50%. Sempra Pipeline & Storage, a unit of Sempra, and ConocoPhillips each own a 25% stake.

Alliance Pipeline Inc. and Questar Overthrust Pipeline Co. held an open season on their Rockies Alliance Pipeline project in June 2008. Initial support totaled 500,000 dekatherms/day from both Rockies producers and Midwest markets. The pipeline will take delivery of natural gas from Opal, Meeker, and Wamsutter and terminate at Alliance Pipeline delivery points in the Chicago area.

The 1,080-mile, 42-in. OD pipeline does not yet a have a time line for completion, but is designed to have capacity of 1.3 bcfd, expandable to 1.7 bcfd with extra compression. Alliance's current system connects to the Guardian, Vector, Peoples, Nicor, ANR, NGPL, and Midwestern pipeline systems.

Alliance says a detailed time line will be available once commercial contracts have been secured.

TransCanada proposed a competing Rockies-to-Midwest project, Pathfinder, consisting of 673 miles of 36-in. OD pipe running from Meeker, Colo., to an interconnection with the Northern Border Pipeline Co. system for delivery into the Ventura and Chicago area markets.

Changes in natural gas supply growth, however, have prompted TransCanada to consolidate the Pathfinder pipeline project into its Bison project. Bison will consist of 302 miles of 30-in. OD natural gas pipeline and related pipeline system facilities

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extending northeastward from the Dead Horse region near Gillette, Wyo., through southeastern Montana and southwestern North Dakota where it will interconnect with Northern Border Pipeline Co.'s system near Northern Border's Compressor Station No. 6 in Morton County, ND.

Bison's design capacity is 477 MMcfd with potential expandability up to 1 bcfd. TransCanada expects the line to enter service in November 2010.

The US Federal Energy Regulatory Commission issued its final environmental impact statement on Jan. 8, 2009, for El Paso Corp.'s proposed $3 billion Ruby Pipeline connecting Rockies reserves to western US markets, saying any adverse environmental impacts could be effectively mitigated. The pipeline includes 670 miles of 42-in. OD pipe beginning at the Opal hub in Wyoming and terminating at a Malin, Ore., interconnect near California's northern border. Ruby will have an initial capacity of 1.5 bcfd.

Pipeline rights-of-way will cross four states: Wyoming, Utah, Nevada, and Oregon. El Paso has proposed four compressor stations totaling 160,500 hp: one near Opal hub in southwestern Wyoming; one south of Curlew junction, Utah; one at the project midpoint, north of Elko, Nev.; and one in northwestern Nevada.

Pending full permitting, construction could begin in 2010, with an estimated in-service date of March 2011.

Crude

TransCanada Corp. received permitting from the US Department of State in March 2008 to begin construction of border crossing facilities for its 2,148-mile Keystone oil pipeline project, which will transport oil from Canada to the US Midwest. ConocoPhillips is TransCanada's partner in the project.

In addition to 1,379 miles of newbuild US line, Keystone includes additions to existing Canadian pipelines and mainline flow reversals. It can deliver 435,000 b/d of crude oil from Hardisty, Alta., to the US at Wood River and Patoka, Ill. Line fill began fourth-quarter 2009 and TransCanada expects it to be complete first-quarter 2010.

TransCanada plans to expand Keystone's capacity to 590,000 b/d and extend the line to Cushing, Okla., starting in late 2010. The project has secured firm long-term contracts totaling 495,000 b/d for an average of 18 years.

TransCanada announced plans in July 2008 for the Keystone Gulf Coast Expansion Project (Keystone XL), providing additional capacity of 500,000 b/d from western Canada to the US Gulf Coast by 2012. The expansion would boost the system's total capacity to 1.1-million b/d at a total capital cost of about $12.2 billion. Keystone XL has secured additional firm, long-term contracts for 380,000 b/d for an average of 17 years from shippers.

Keystone XL includes 1,980 miles of 36-in. OD line starting in Hardisty, Alta., and extending to a delivery point near existing terminals in Port Arthur, Tex. XL will also include 41 pump stations—33 in the US and 8 in Canada—at roughly 50-mile intervals. Each station will use two to three 6,500 hp electric pumps, providing a total of up to 19,500 hp/station. Each station could be expanded to 32,500 hp as part of boosting the combined Keystone system's throughput to 1.5 million b/d.

TransCanada anticipates starting construction in 2010, pending regulatory approvals, and intends to start the line in 2012

Enbridge Energy Partners LP plans its own pipeline expansion to deliver 450,000 b/d of crude oil to the US. The Alberta Clipper pipeline will run between Hardisty, Alta., and Superior, Wis. Initial capacity can be expanded to as much as 800,000 b/d.

The 672-mile Canadian portion of the pipeline from Hardistry to Gretna, Man., is mechanically complete. Restoration work is under way according to Enbridge but poor weather conditions have delayed completion along some portions of the right-of-way. Enbridge expects all remaining cleanup and restoration work to be completed beginning in spring 2010 and the line to enter service in mid-2010 after the US portion is complete.

Four environmental and Native American groups, however, sued US Secretary of State Hillary R. Clinton and other federal officials on Sept. 3, 2009, to protest US Department of State approval of the pipeline.

Altex Energy is pursuing a completely newbuild 36-in. pipeline running directly from northern Alberta to the US Gulf Coast. The line's initial capacity would be 425,000 b/d, but the company says expansion to 1 million b/d is possible as demand warrants. The pipeline project has been delayed by a lack of oil sands supply growth, according to Altex, which is working with Canadian National Railway on a short-term option to instead use rail for transport of undiluted (or underdiluted) bitumen.

Enbridge has renewed plans to build the Northern Gateway Pipeline to transport 525,000 b/d of oil sands crude from near Edmonton to a tanker terminal in British Columbia for shipment to China, other parts of Asia, and California. A line running parallel to the crude line would ship 193,000 b/d of condensate from the coast to Alberta.

Enbridge expects to build Northern Gateway in 2012-14, pending regulatory approval of filings made in 2009. Commissioning and start-up would occur 2014-15. Enbridge would also operate the Kitimat terminal. The terminal would have 2 mooring berths, 14 storage tanks for petroleum and condensate, and be called on by roughly 225 ships/year.

Products

Colonial Pipeline Co. has delayed a proposed additional pipeline from Jackson, La., to Austell, Ga., running alongside the two current main lines to the extent possible. The 460-mile Project ExCEL, prompted by announced Gulf Coast refinery expansions, represented a more than $2 billion investment, with Colonial citing weakened consumer demand for petroleum products

TRANSCANADA ALASKA PIPELINE PROPOSAL

Fig. 2

Source: TransCanada Pipelines Ltd.

in announcing the decision.

Kinder Morgan Energy Partners LP is continuing the development of its $400 million CALNEV pipeline expansion. Expansion of the 550-mile pipeline involves construction of a 16-in. pipeline from Colton, Calif., to Las Vegas, Nev., and will increase the system's capacity to 200,000 bpd, transporting products for the military at Nellis Air Force Base. A further capacity increase to more than 300,000 bpd is possible with the addition of pump stations.

The new pipeline will parallel existing utility corridors between Colton and Las Vegas. Following its completion, the existing 14-in. line will be transferred to commercial jet fuel service for McCarran International Airport and any future airports planned in Las Vegas, with the 8-in. pipeline that currently serves the airport purged and held for future service.

Start-up of the line is scheduled for late 2012.

Holly Corp. and Sinclair Transportation Co. plan to jointly build a products pipeline extending from Wood Cross, Utah, refineries to terminals north of Las Vegas. The UNEV Pipeline project includes construction of associated terminal facilities in Cedar City, Utah, and northern Las Vegas.

The 400 mile, 12-in. line will cost about $300 million and have an initial capacity of 62,000 b/d, expandable to 120,000 b/d. It will serve refineries and shippers along its route and interconnect to the Pioneer Pipeline. Holly calls for construction to begin January 2010 for an in-service date of October-November 2010.

Latin America

Brazil's 862-mile Southeast-Northeast Interconnection Gas Pipeline (GASENE) will connect the existing southeastern gas system to the northeastern gas system, creating a common gas market and allowing gas imports at Bahia. GASENE connects Cabiunas terminal in Rio de Janeiro to Catu, Bahia. It will create a common gas market in Brazil and allow gas import from Bahia.

Construction on the final 605-mile stretch of the pipeline, between Cacimbas and Catu started in May 2008. The 28-in. OD pipe, using one compressor station, is scheduled to enter service in 2010. Sinopec is building the pipeline, financed by China Development Bank.

The 1,252 km, 48-in. OD Gasoducto del Noreste will deliver 3.2 bcfd of Bolivian gas to Argentina as early as 2015 (Fig. 3). The Bolivian government, Argentine-state Enersa, and Gazprom are developing the $2.67 billion project. Argentina approved a 70-km extension to the line's original 1,182-km length in January 2010. Engineering and construction bids on the project were to have been submitted to Enersa by Dec. 30, 2009.

Camisea II is a gas export project featuring a 253-mile, 34-in. natural gas pipeline connecting Camisea Block 56 to a liquefaction plant being built on the coast 106 miles south of Lima. Peru LNG (Hunt Oil Co., 50%; SK Energy Co. Ltd., 30%; Repsol YPF, 20%) expects the project to enter service in 2010.

The International Finance Corp's Environmental and Social Review of the project says natural gas will travel through the existing Camisea-Lima

Pipeline Transportation System to kilometer post 211 at Huayahura, where it will enter the new pipeline. The pipeline will be designed to transport 677 MMcfd at a pressure of 147 barg (2,160 psig). About 300 km of the pipeline will cross the Andes at altitudes up to more than 5,000 m above mean sea level. The pipeline will receive high-pressure natural gas from the Malvinas Gas Separation Plant, according to the IFC review. The pressure differential between Malvinas and the LNG plant will allow natural gas to reach the delivery point.

Asia-Pacific

PetroChina expects to bring its second West-East Pipeline (WEPP II) into service in late 2010 or early 2011. The pipeline is part of the larger Asian Gas Pipeline, running from Turkmenistan to eastern China. The Chinese trunkline section covers 3,400 miles, connecting Xinjiang province to Guangzhou and Shanghai and is expected to be completed in 2010. The development also calls for 1,240 miles of branch lines. WEPP II will carry 30 billion cu m/year from Central Asia to consuming centers in China.

The Chinese section of WEPP II will use 1.1 million tonnes of X80 42-in. OD UO pipe and 3.2 million tonnes of X80 18-in. OD spiral pipe. PetroChina let contracts to both GE Oil & Gas and Rolls Royce to supply compression for the western Chinese section of the pipeline, running from the Kazakhstan-China border to Zhongwei.

Turkmenistan completed construction of its 117-mile section in October 2009. The line, which starts at the Turkmen gas fields near the Amu Darya river before entering Uzbekistan at Olot and continuing through southern Kazakhstan to China, was commissioned in December 2009. In addition to gas from Turkmenistan and Uzbekistan, the line will be supplied by gas from Kazakhstan's Karachaganak, Tengiz, and Kashagan fields. China National Petroleum Corp. has signed a 30-year agreement for supply of 30 billion cu m/year of gas through the line.

The first stage of the 4,700-km East-Siberia Pacific Ocean oil pipeline, including construction of a 2,400-km oil pipeline from Taishet to Skovorodino near the Chinese border and of a rail oil terminal at Kozmino on Perevoznaya Bay at a combined cost of $14.1 billion, was inaugurated in December 2009. The second stage involves construction of a pipeline link between Skovorodino and Kozmino and will replace the rail line in 2012.

The first phase of the line can carry up to 30 million tonnes/year of oil, about half of it earmarked for China via a 67-km spur from Skovorodino to the Chinese border and the other half shipped to Kozmino. The full ESPO line will eventually carry 80 million tonnes/year.

The branch pipeline would supply the oil hub of Daqing in northern China.

The 50 million tonnes/year shipped along the Skovorodino-Kozmino route would largely be exported to Japan, but hinge entirely on the combination of continued development of the Siberia's other fields and Russia's continued desire to export to Japan.

Myanmar awarded China National Petroleum Corp. exclusive rights to construct and operate the proposed Myanmar-to-China crude oil pipeline. This line and a companion natural gas pipeline would transport hydrocarbons from the Bay of Bengal across Myanmar to southwestern China. Plans call for the 771-km crude pipeline between Maday Island in western Myanmar and Ruili in China's southwestern Yunnan province to initially carry 12 million tonnes/year.

CNPC began building a large oil import port at Kyaukpyu, Myanmar, in October 2009 to serve as the pipeline's input point. The port will be able to receive vessels up to 300,000 dwt and will have storage capacity of 600,000 cu m. The line will eventually carry more than 230,000 b/d to China.

The natural gas pipeline is scheduled to begin carrying 12 billion cu m/year to southwestern China in 2012. The crude line will transport oil carried by tanker from the Middle East, while the gas line will carry material from Myanmar's offshore A-1 and A-3 blocks.

Total estimated project costs amount to $1.5 billion for the oil pipeline and $1.04 billion for the gas pipeline.

The new pipelines will give China better access to Myanmar's resources and will speed deliveries and improve China's energy security by bypassing the congested Malacca Strait, through which most of China's imported crude oil currently travels.

Europe

Work started in early December 2005 on the Russian onshore section of the Nord Stream pipeline in Babayevo. This 56-in. segment will stretch 917 km to the Baltic Sea coast near Vyborg, linking existing gas pipelines from Siberia to the project. Seven compressor stations will provide the necessary pressure. The pipeline will cross the Baltic, making landfall near Greifswald, Germany. This section will be 1,220 km in length with a 48-in. OD.

The full system is scheduled to start operations in fourth-quarter 2011 at a capacity of 27.5 billion cu m/year. The project includes building a second, parallel pipeline, doubling capacity to about 55 billion cu m/year. This second pipeline is planned to come on stream in 2012.

A joint venture consisting of Gazprom (51%), Wintershall AG (20%), E.ON Ruhrgas AG (20%), and NV Nederlandse Gasunie (9%) is building the pipeline. Gazprom has said GDF Suez SA will receive a 9% share in the project from Wintershall and E.ON. Suez expects to complete the deal early in 2010. For the two-leg option, the total cost for the offshore project will amount to more than €7 billion, with Gazprom investing an additional €1.3 billion in the onshore section.

Russia began production at Yuzhno Russkoye oil and gas condensate field

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GNEA PIPELINE

Fig. 3

in December 2007. Gas from this field will be shipped through Nord Stream once it is completed.

Finland approved the pipeline in July 2009, but said more information on potential environmental damage must be supplied. The German government approved the line in December 2009. All other countries through which waters Nord Stream will pass have approved the project.

Gazprom and Eni SPA agreed in December 2007 to build the 560-mile South Stream gas pipeline under the Black Sea and through Bulgaria. Bulgaria and Russia reached agreement in January 2008. On completion, the $10 billion line could distribute gas to northern and southern Europe, with an estimated capacity of 30 billion cu m/year. Participants plan to deliver first gas through South Stream by 2013.

Electricite de France (EDF) signed a memorandum of understanding with OAO Gazprom in December 2009 for "at least 10%" of the consortium in charge of building South Stream. EDF's involvement in South Stream is seen a blow to the Nabucco gas line, due on stream in 2014—a year after South Stream. However, the French government also backs Nabucco for diversification of gas supply routes to Europe.

Austria's OMV AG continues to advance the 56-in. Nabucco pipeline, which will bring some combination of Central Asian, Caspian, and Middle Eastern gas to the Baumgarten hub in Austria near the Slovakian border at a rate of 31 billion cu m/year, before moving it on to Western Europe.

Feasibility studies have led to a two-stage construction plan. The first phase, starting in 2011, calls for 2,000 km of pipe between Ankara, Turkey, and Baumgarten, allowing 8 billion cu m/year of gas from the existing Turkish pipeline network to be transported through the line by 2014. Second-stage construction would begin in 2012 and build eastward from Ankara to the Iranian and Georgian borders, bringing total pipeline length to 3,300 km. Turkey wants Iranian gas for Nabucco.

The US supports construction of Nabucco, citing the need to move gas into Europe though economically viable and secure routes.

The European Union, as represented by the governments of Bulgaria, Romania, Hungary, and Austria, signed an intergovernmental agreement in July 2009 authorizing the Nabucco natural gas pipeline project with Turkey. The project, which is expected to cost around $11 billion, will eventually have a capacity of 31 billion cu m/year. Nabucco has six shareholders: Turkey's Botas, Bulgaria's Bulgargaz, Romani's Transgaz, Hingary's MOL, Austria's OMV, and Germany's RWE.

To deliver gas from Bovanenkovo field—eventual projected production 140 billion cu m/year, with production starting in 2011—Russia is building a multiline gas transmission system connecting the Yamal Peninsula and central Russia. Construction calls for 1,420-mm OD pipes designed to work at higher pressures than existing Russian lines.

Total pipeline length will exceed 2,400 km, consisting of the Bovanenkovo-Ukhta pipeline (1,100 km, 140 billion cu m/year) and the Ukhta-Torzhok gas pipeline (1,300 km, 81.5 billion cu

m/year). Connection to the Ukhta hub will allow shipment through the Yamal-Europe pipeline.

Gazprom began building the 72 km subsea section of the Bovanenkovo-Ukhta line, crossing Baidarate Bay, in August 2008. Construction of the main trunkline began in December 2008.

Plans to export Algerian gas via Italy also progressed. Galsi SPA and Snam Rete Gas SPA signed a memorandum of understanding in November 2007 to construct the Italian section of the planned 8 billion cu m/year Galsi natural gas pipeline, which will deliver Algerian gas to Italy via Sardinia.

Galsi shareholders are Sonatrach, Edison SPA, Enel SPA, Hera Trading, Regione Sardegna, and Wintershall AG.

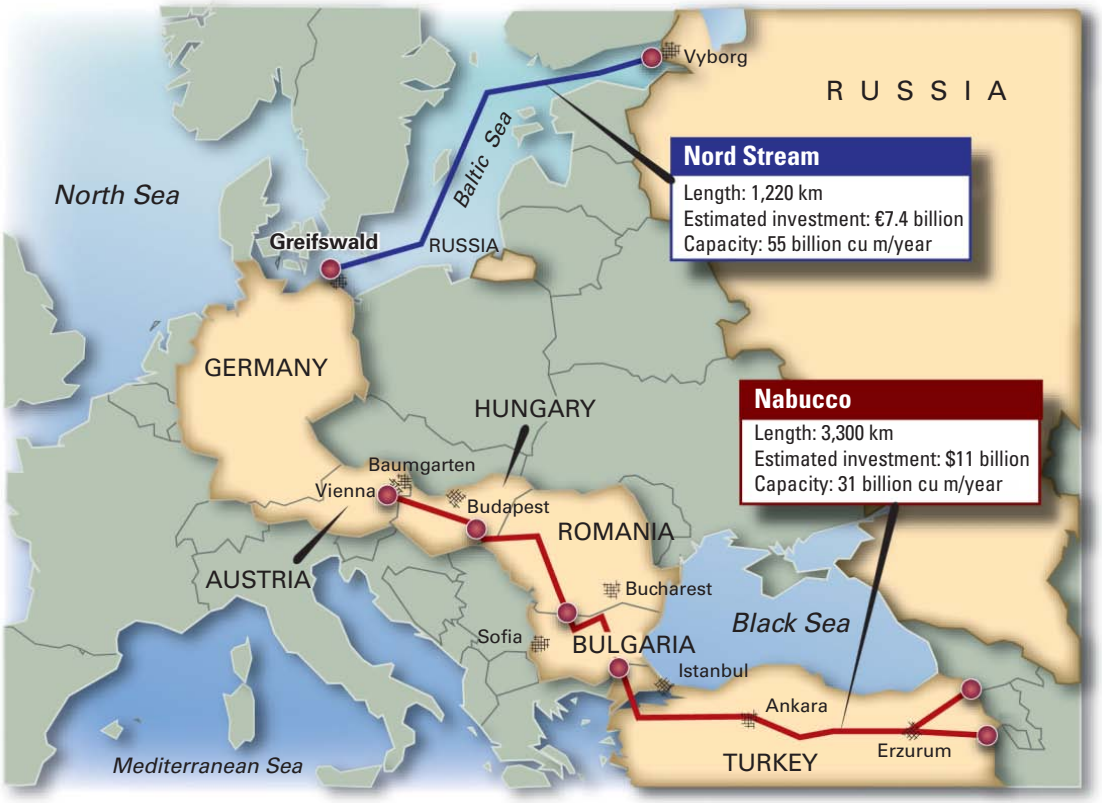
The project envisions four pipeline segments: 640 km onshore between Hassi R'mel gas field in Algeria and El Kala on the Algerian coast; 310 km between El Kala and Cagliari on Sardinia in water as deep as 2,850 m; 300 km between Cagliari and Olbia on the northern Sardinian coast; and 220 km between Olbia and Pescaia, southeast of Florence, in water as deep as 900 m.

Sonatrach will deliver 3 billion cu m/year into the system, Enel, 2 billion cu m/year, and Hera Trading, 1 billion cu m/year.

Work on the line was under way in January 2009, with service expected by 2012-13.

NABUCCO, NORD STREAM PIPELINES

Fig. 4



Middle East

Iran and Pakistan continued laying the groundwork toward building the long-contemplated gas export line from Iran during 2009. The $7 billion project would transport as much as 2.2 bcfd of natural gas from the South Pars field in the Persian Gulf through 1,850 km of 56-in. OD line (Iran, 1,100 km; Pakistan, 750 km).

India had difficulties reaching economic terms for its participation in the project, which combined with US pressure to not participate and security concerns regarding having such a major energy artery running through Pakistan to remove it from participation for the time being.

The Iran-Pakistan pipeline would be an extension of Iran Gas Trunkline (IGAT) 7, currently under construction and expected to be completed in 2010-11. Running 900 km from Asalouyeh to Iranshahr in Iran's Sistan-Baluchistan province, the 56-in. OD line will have a capacity of 5.3 bcfd. A 400-km branch line from Iranshahr to the Pakistani border would have an initial capacity of 750 MMcfd, according to FACTS Global Energy Group, expandable to as much as 2.1 bcfd.

FACTS said the pipeline will enter Pakistan in southern Baluchistan, running to Sindh province where the country's main pipeline hub lies. From Sindh, gas would travel through SSGC's existing distribution network.

Iranian gas entering Pakistan will be used by independent power producers, according to FACTS. Iran and Pakistan agreed in June 2009 to a price formula linked 79% to the Japan crude cocktail (JCC) price. At JCC of $60/bbl Pakistan would pay around $8.20/MMbtu, said FACTS.

Two stages of the IGAT system remain under development. IGAT VII will move South Pars 9-10 gas to the Shar-Khoon refinery and onward to Sistan and Baluchistan provinces and export to Pakistan.

IGAT IX, slated for 2014 completion and also termed the Europe Gas Export Line, will move South Pars 9-10 gas 1,863 km from Asalouyeh to the Turkish border. Construction on the stretch from Asalouyeh to Bidbolyand was completed as of June 2008.

Iran has expressed interest in finding an international partner on a build-own-operate basis for the balance of IGAT IX, which could link with either the proposed Trans-Adriatic pipeline or the proposed Nabucco pipeline for exports further west.

Iran is also building a 2,163-km ethylene pipeline from Asalouyeh in southern Iran to the country's northwestern provinces. The pipeline will transport ethylene to meet the feed requirements of new petrochemical complexes in Gachsaran, Khoramabad, Kermanshah, Sanandaj, and Mahabad.

Construction of the pipeline began in 2003 and is targeted for completion in 2010. The West Ethylene Pipeline was initially to transport 1.5 million tonnes for 1,500 km to feed five planned petrochemical complexes. The Iranian Parliament, however, instructed the Petroleum Ministry to build five more complexes in the cities of Andimeshk, Dehdasht, Hamedan, Kermanshah, and Miyandoab as a means to boost production in the less-developed parts of the country. The pipeline's length, therefore, was extended to 2,163 km and capacity increased to 2.8 million tonnes.

An eleventh plant was added to the plan in June 2008. Olefin plants in Asalouyeh and the Bandar Imam special economic petrochemical zone in Mahshahr City will supply the ethylene; one set for completion in 2010 and the other in 2013.

Bakhtar Petrochemical Co., which is constructing the pipeline, is a private joint stock holding company.

Africa

Nigeria, Algeria, and Niger hope to start gas exports via the proposed 18-25 billion cu m/year Trans-Sahara gas pipeline in 2015. Once built, the 4,300-km line would transport gas from the Niger Delta in southern Nigeria through Niger and into Algeria and Europe. Cost estimates for the project are $13 billion.

According to the feasibility report published by engineering company Penspen Consulting, TSGP would comprise a 48-56-in. pipeline from Nigeria to Algeria's Mediterranean coast at Beni Saf and subsea pipelines of 20-in. between Beni Saf and Spain.

Nigeria's militant Movement for the Emancipation of the Niger Delta (MEND), reiterating its long-standing demands that international oil companies leave the oil-producing Niger Delta, threatened in July 2009 that it would attack the Trans-Saharan gas pipeline, just days after Algeria, Niger, and Nigeria signed an agreement to start the process of constructing the TSGP.

The warnings also followed a decision by Russia's OAO Gazprom to invest in the TGSP through a 50-50 joint venture, called Nigaz, with state-owned Nigerian National Petroleum Corp. Gazprom said Nigaz intends to explore for gas and to develop infrastructure for its development and transport—even including a section of pipeline that could form part of a proposed Trans-Sahara pipeline to export gas directly to Europe.

No date has yet been given for the start of work on the TSGP.

South Africa's New Multi-Products Pipeline (NMPP) project will move diesel, gasoline, and jet fuel from an import terminal in Durban roughly 525 km northwest to the inland Gauteng region. Transnet Ltd. received the final environmental impact report for NMPP in November 2008, with the report submitted at the same time to the Department of Environmental Affairs and Tourism for a decision.

NMPP will include as many as 10 pump stations, with four planned at start-up and others added as needed to meet demand. The 24-in. OD pipeline will supplement the existing 12-in. Durban-Johannesburg Pipeline (DJP), completed in 1965 and already operating at capacity. Transnet plans commissioning for late 2010.

ABB won a contract to supply engineering services and electrical equipment to the pipeline in November 2009.

Algeria's Sonatrach plans to build a 585-km natural gas pipeline, GK3, from Hassi R'mel to an LNG terminal at Skikda. The 48-in. OD pipeline would run 275 km from Hassi R'mel to Chaiba and then 310 km from Chaiba to Skikda. Gas from the line would go into power generation and the planned Galsi pipeline in addition to being used for LNG at Skikda. Sonatrach intends to complete the pipeline in 2011.

Saipem won an EPC contract for Lot 3 of the pipeline in June 2009 encompassing a 48-in. line section from Mechtatine to Tamlouka in northeast Algeria, then connecting the latter to Skikda and El-Kala, located on the northeastern coast of the country, for a total length of about 350 km.

Sonatrach also plans to the complete the 532-km GR4 pipeline from Rhourde Nouss field near the Libyan border to Hassi R'mel in 2010. ✦

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DRILLING MARKET FOCUS

Drillers cautiously optimistic about climbing oil prices

Paula Dittrick
Senior Staff Writer

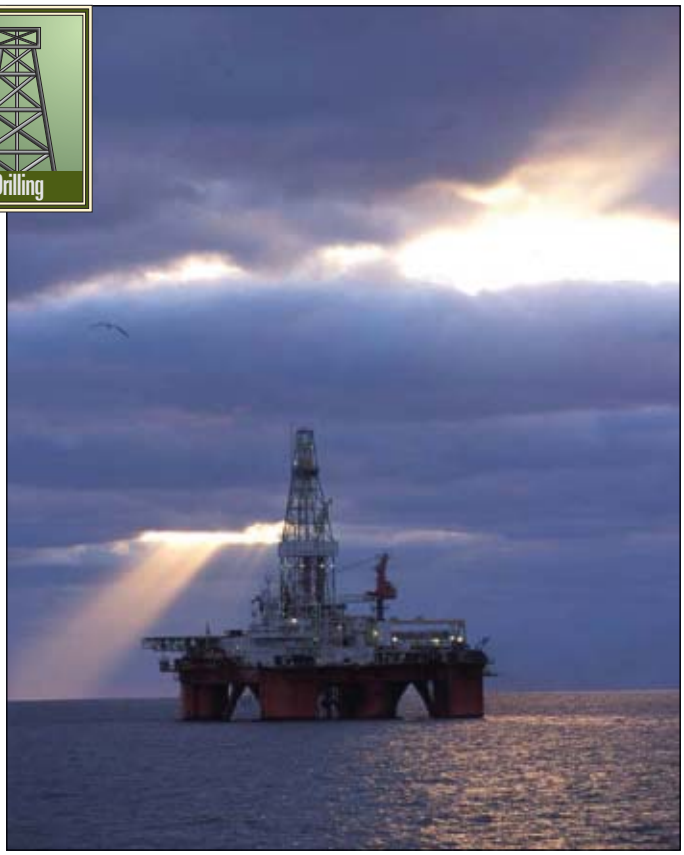
Drilling contractors expressed cautious optimism early this year upon strengthening oil prices while many exploration and drilling companies announced 2010 budgets calling for more exploration and development than in 2009.

At least a few independent natural gas producers said they are leaning toward putting more rigs to work drilling for oil because of the gap between oil and gas prices in late 2009 and early 2010.

In a Jan. 11 research note, RBC Capital Markets said service and drilling contractors likely will benefit from increasing oil activity. RBC analysts forecast crude oil prices of $80/bbl in 2010 and $90/bbl in 2011. Its natural gas forecast is for $6/Mcf in 2010 and $6.50/Mcf in 2011.

RBC believes increasing demand for oil drilling will be driven by unconventional drilling in North America, and the worldwide deepwater market is poised to show strong growth.

"We continue to favor more oil, international-weighted oil service names given stronger confidence in oil prices relative to natural gas," said RBC analysts who expect international drilling markets to be flat to slightly higher with Brazil and deepwater West Africa leading the way.



Transocean Ltd. has a 3-year contract for its deepwater semisubmersible rig GSF Celtic Sea. The contract, worth an estimated $350 million, is with an undisclosed customer for operations in Angola starting in second quarter 2011. Photo from Transocean.

Contractors cautious

Drilling contractors and service companies are cautiously optimistic after being hard hit during 2009, a year when rig counts plummeted along with weakening oil prices. Despite crude oil prices of about $80/bbl on the New York Mercantile Exchange during January, contractors said it still will take a while before some oil companies become convinced of higher prices and commit to big projects again.

"I'm kind of glad to see 2009 end," Larry Pinkston, Unit Corp. chief executive officer, told analysts and reporters attending a January Pritchard Capital Partners LLC conference in San Francisco. Unit Corp is a Tulsa exploration and production company with its own service division.

Jay Swent, chief financial officer, of offshore rig contractor Ensco International PLC, told Pritchard Capital conference participants that he expects "the next year or 2 as being a little more challenging than the good old days."

Oil drilling plans

EOG Resources Inc. is among a few gas-weighted producers that say they are escalating their oil exploration programs while maintaining their already successful gas inventories and gas drilling programs.

Gas now accounts for two thirds of EOG Resources Inc.'s production, but EOG Chief Executive Mark Papa said he hopes that oil will account for half of the company's production by 2011, and the Houston company expects to allocate 60% of its capital expenditures for oil projects.

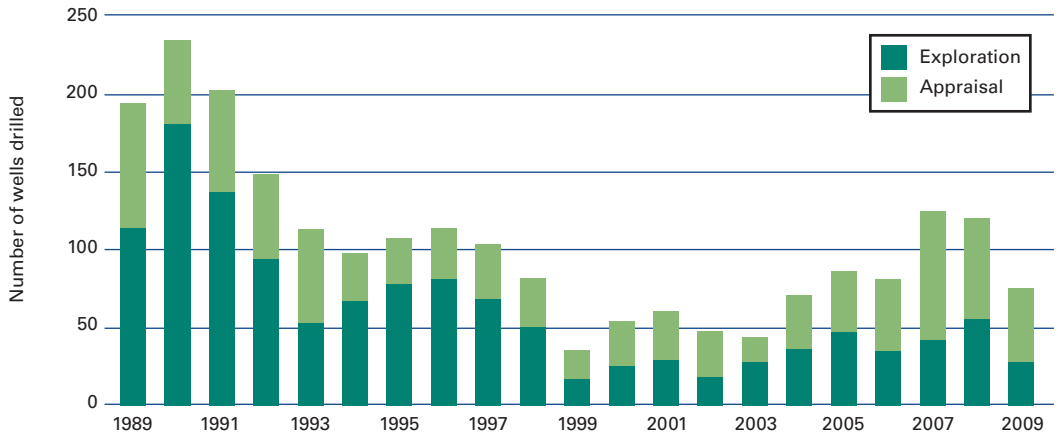
"The concept is that we are evolving EOG from a heavily weighted gas company into a more balanced company," the Jan. 1 Wall Street Journal quoted Papa. "We are bullish on oil short term and long term."

While maintaining a deep inventory of undeveloped gas reserves, EOG is

using its horizontal expertise in gas plays to tap unconventional oil and liquids-rich reservoirs.

A presentation posted on its web site says EOG foresees attractive returns from horizontal drilling in the North Dakota Bakken shale, the Barnett shale in north Texas, and in Waskada field in Manitoba. EOG sees limited competition for shale oil requiring horizontal drilling because most companies remain focused on horizontal drilling in shale gas, which has a low-technical barrier to entry.

UK EXPLORATION, APPRAISAL DRILLING



*Includes mechanical and geologic sidetracks.
Source: Wood Mackenzie Pathfinder

Mariner Energy Inc. Chief Executive Officer Scott Josey said the Houston company is leaning more toward oil projects in its asset acquisitions. Currently two thirds of Mariner Energy's production is gas.

"The areas that I think that we would like to focus on are going to be more oily in nature," he said during a conference call last year. Mariner Energy is acquiring Edge Petroleum Corp.

Mariner Energy announced a $600 million budget for 2010, saying it expects to increase drilling in the Permian basin, particularly in Deadwood oil field in Glasscock County. Assuming the closing of the Edge Petroleum acquisition, Mariner said it plans "to participate in 140-170 onshore wells and test several unconventional play concepts during 2010." The Edge Petroleum acquisition brings South Texas properties to Mariner Energy.

Questar Corp. of Salt Lake City had focused entirely on gas assets, but it's putting 20% of its development capital into oil projects. Executives said future oil revenue is expected to enhance the company's returns.

The company has an 80,000 acre (net) leasehold in the Bakken play. On Oct. 27, Questar E&P said it planned to operate one drilling rig throughout 2010 in the Bakken where it had working interests in 23 producing wells at that time.

Well counts down

The number of wells drilled was down across much of the world during 2009. US and Canada average rig counts each dipped 42% in 2009 compared with 2008, said rig count statistics from Baker Hughes Inc.

In many parts of the US, operators ran fewer than half the rigs on average than in 2008 (OGJ, Jan. 18, 2010, p. 30.)

Research firm Wood Mackenzie's report, "Review of 2009—UK Upstream Sector," outlined how depressed economic conditions led to lower activity in the UK's upstream operations during 2009.

UK exploration and appraisal (E&A) drilling plummeted by 37% from the previous year during the global financial crisis. Uncertainty in the 2009 oil price—which started the year at $30/bbl and ended at $80/bbl—caused oil and gas companies to delay projects and wells.

Geoff Gillies, lead UK and Southern Europe Upstream Research Analyst for WoodMac said, "The upside is that we expect exploration and development levels to stabilize in 2010, and then pick up from 2011 onwards."

WoodMac said 140 MMboe of new reserves were brought on stream last year, marking the lowest reserves additions in the history of the UK Continental Shelf. Only 8 fields started production there last year, marking a 9-year low. Development approvals were also down, with only 6 new fields granted approval compared with 12 in 2008.

The report also noted a significant decrease in the number of companies operating wells in the UK with only 24 companies in 2009 compared with 43 in 2008, reversing the trend of recent years.

The reduced number of operators also reflects fewer wells—with 76 E&A wells drilled in 2009 compared with 120 in 2008 (see chart on this page). Despite less activity, 315 MMboe was discovered, 70 MMboe higher than in 2008.

"There isn't a lack of drilling opportunities in the UK: some companies weren't able to drill even if they wanted to," Gillies said. He blamed the economic downturn and subsequent restricted access to capital funding and tightening capital budgets. ✦

Rigless pump retrieval system expanded

Newly released Shuttle 550 series, deployable through 5½ in. tubing, expands this firm's existing portfolio.

Shuttle technology permits the rigless retrieval and redeployment of conventional electric submersible pump systems via standard wireline technology. This capability permits the operator to fully service the pump, seal, and motor of the ESP system through the tubing

Source: **ZEiTECS Inc.,** 5050 Westway Park Blvd., Suite 175, Houston, TX 77041.

New analyzer measures O_2 in natural gas pipelines

The new OXY4400 optical oxygen analyzer for natural gas pipelines uses fluorescent quenching technology.

The analyzer is a compact, stand-alone, one-channel meter with LCD display and data logger. The unit uses a light source (LED), an optical sensor probe, and a photo detector. Pulsed light from the LED is sent down a fiber optic cable to the sensor probe (optode) where the energy from the light is absorbed by an indicator dye. The light (fluorescence emission) is sent back through the cable to the photo detector, where it is converted to an electrical signal that can be read.

The amount of "quenching" is determined by the amount of O_2 in the stream. The result is an exact and almost instant measurement down to 0.5 ppm, the firm points out.

Fluorescent quenching offers new levels of accuracy, the company says. The process does not consume O_2 and needs no scrubber, in fact, it reads the O_2 without being affected by the hydrocarbons or sulfur content. Optical response time is measured in seconds, not minutes.

Since there are no moving parts or electrolytes, there is no need for constant calibration once it is installed. The optical sensor is also unaffected by EMI, shock, or vibration.

Source: **SpectraSensors Inc.**, 4333 W. Sam Houston Parkway N., Suite 100, Houston, TX 77043.

TGS-NOPEC,

Asker, Norway, has appointed Kristian Johansen CFO to replace Arne Helland, who will continue as CFO until May 1, 2010. Previously, Johansen was executive vice-president and CFO of EDB Business Partners in Oslo, one of the largest IT groups in the Nordic region. He also has experience in the construction, banking, and oil industries. Johansen has undergraduate and master's degrees in business administration from the University of New Mexico.

Johansen

TGS-NOPEC provides geoscience data products and services to the oil and gas industry. The company designs and acquires multiclient data projects worldwide that make up its data library of seismic, gravity/magnetic, and well data, enhanced by its seismic imaging technology and regional interpretation expertise.

Global Industries Ltd.,

Houston, has named Trudy P. McConnaughhay vice-president and controller. In this role, she will be responsible for worldwide financial reporting and accounting. McConnaughhay joined Global in 1999 as assistant corporate controller and has since held several other financial management roles, including director of finance and tax and corporate controller. She is a graduate of McNeese State University and has more than 30 years of experience in both public and private accounting. Global also announced that Peter A. Atkinson, president, will act as principal financial officer until the company concludes its search for a CFO to replace Jeffrey B. Levos, who resigned in November 2009.

Global provides offshore construction, engineering, project management, and support services, including pipeline construction, platform installation and removal, deepwater/SURF (subsea umbilicals, risers, and flowlines) installations, IRM (inspection, repair, and maintenance), and diving services to the oil and gas industry worldwide.

OEG Offshore Ltd.,

Aberdeen, has been formed through the merger of Containental Offshore Ltd. and Vertec Engineering Ltd. All previous Vertec and Containental staff will be retained in the new company, which now employs nearly 100, with plans to increase this number throughout 2010. OEG Offshore will continue to operate out of Vertec and Containental's former bases in the Aberdeen area. OEG Offshore has already committed to spending £7.5 million to increase its rental fleet of cabins and cargo carrying units and will make additional investments over the next 12 months, as well as focus on staff training and recruitment in a bid to further strengthen the company's abilities in engineering and design.

OEG specializes in the design, build, and rental of cabins and cargo carrying units for the offshore oil and gas market.

GL Noble Denton,

London, has announced its launch as a newly rebranded technical service provider for the oil and gas industry, with a comprehensive service portfolio combining former marine and offshore consultancy Noble Denton with Germanischer Lloyd's oil and gas division.

Wishart

GL Noble Denton is part of the GL Group and currently employs over 2,900 technical and operations specialists and experts in 54 offices throughout the globe. Over the next 2 years GL Noble Denton plans to hire more than 700 new technical personnel, engineers, and marine operations specialists. John Wishart became president of GL Noble Denton in January 2010. He joined Noble Denton in October 2008 as group managing director and is a chartered engineer with a BS in chemical engineering. He has a wide international portfolio with more than 25 years experience in the upstream and downstream sectors of the oil and gas business.

GL Noble Denton supports and assists oil and gas clients in all technical, safety and assurance questions involving onshore production, onshore pipelines, storage, import terminals, LNG facilities, refineries and petrochemical plants, and distribution networks, as well as mobile offshore drilling units, floating production systems, fixed platforms, subsea and riser systems, offshore support vessels, tankers and shipping. and offshore pipelines.

GE Energy Oilfield Technology (OFT),

Yately, UK, has been realigned from GE Energy Services to GE Oil & Gas. The move strengthens and expands the GE Oil & Gas drilling and production portfolio offering to customers, extending the business reach with directional drilling, formation evaluation systems, and wireline solutions for oil and gas exploration and production.

OFT designs and manufactures wireline and drilling measurement solutions for the oil field services sector through its Tensor, Reuter Stokes, Geolink, and Sondex products lines.

GE Oil & Gas is a world leader in advanced technology equipment and services for all segments of the oil and gas industry, from drilling and production, LNG, pipelines, and storage to industrial power generation, refining, and petrochemicals.

Electromagnetic Geoservices ASA (EMGS),

Trondheim, Norway, has appointed Dag W. Reynolds executive vice-president, sales/marketing and business development. Reynolds has 20 years experience in the oil and gas industry. Previously, he was CEO for the seismic company SeaBird Exploration Ltd. from 2005 to 2007. Prior to that, he worked for Petroleum Geo-Services ASA for 9 years, where he was central in building PGS to market leader in the North Sea FPSO (floating production, storage, and offloading) market. In 2007, he cofounded Spring Energy ASA, a Norwegian oil company, and has since worked as an independent consultant.

EMGS uses its proprietary electromagnetic (EM) technology to support oil and gas companies in their search for offshore hydrocarbons. Its services enable integration of EM data with seismic and other geophysical and geological information to give explorationists a clearer and more complete understanding of the subsurface. EMGS operates the world's first purpose-built 3D EM vessel fleet.

Baker Botts LLP,

Houston, has named John F. Sheedy partner in the firm's global projects department in its Moscow office. Sheedy, who has built an extensive legal practice in oil and gas, natural resources, mergers and acquisitions and private equity transactions, has more than 20 years of experience in representing both Russian and foreign clients in transactions involving Russia. During his 2 decades of work in Russia, Sheedy has represented a number of energy companies in a variety of projects, including oil and gas ventures, well workover projects, pipeline projects, and, most prominently, production sharing agreements. When the Russian economy diversified in the late 1990s and early 2000s, his client base expanded to include cross-border mergers and acquisitions in the country, including private equity deals. Sheedy earned his undergraduate degree in Russian and linguistics from Georgetown University in Washington, DC, and his law degree from the University of Michigan. Prior to joining Baker Botts, he was a partner with Orrick (CIS) LLC, an affiliate of Orrick, Herrington & Sutcliffe LLP, and formerly had practiced with Coudert Brothers.

Sheedy

Baker Botts is a leading international law firm with offices in Abu Dhabi, Austin, Beijing, Dallas, Dubai, Hong Kong, Houston, London, Moscow, New York, Riyadh, Washington, DC, and Palo Alto, Calif.

Knowledge Reservoir,

Houston, has announced plans to realign and strengthen its business structure and service offering to enable the company to more aggressively pursue several key market initiatives. The company is dividing its business lines into a series of consulting practices.

The reservoir management business is being refocused into four practices: deepwater, improved recovery and field redevelopment, unconventional resources, and reserves and mergers/acquisitions. Knowledge Reservoir also continues to expand its surface systems business along two practices: flow assurance and pipeline systems engineering. Its knowledge management business stream will be developed in three areas: the ReservoirKB deepwater knowledge base, knowledge base products, and knowledge management consulting, including data management solutions, an area in which the company sees considerable growth opportunities.

Knowledge Reservoir is a leading geosciences and engineering consulting company, with offices in Texas, California, the UK, Norway, Oman, and Malaysia.

Bjorge ASA,

Tananger, Norway, has named Steinar Aaslund president and CEO. He succeeds Stig Feyling following the assumption of control of Bjorge by private equity funds Aker Capital fund and HitecVision. Previously, Aasland was managing director of Ahlsell Norge since 2004. From 1992 to 2004, he held several managerial positions at Stavanger Rorhandel, later acquired by Ahlsell. Aasland's educational background encompasses machine technology and a master's in corporate management and strategy. Feyling, Bjorge's CEO the past 3 years, will undertake key positions in other companies owned by HitecVision. In addition, Bjorge named Trine Saether Romuld as executive vice-president in charge of finance and treasury, effective Mar. 10, 2010. Previously, she was CFO and investment director of Converto Capital Management, which serves as investment advisor to Aker Capital Fund. Saether Romuld, a state-authorized public accountant and graduate of the Norwegian School of Economics and Business Administration, was previously group executive vice-president of Aker ASA, CFO of Aker Drilling, and CFO of Marine Harvest.

Bjorge supplies products and systems and full range solutions for the oil and gas industry in the areas of pumps, valves, fiscal metering, instrumentation, automation, monitoring, fire and gas detection and extinguishing systems, as well as advanced surface treatment.

Lufkin Industries Inc.,

Lufkin, Tex., has elected John Hofmeister to its board of directors. Hofmeister is a former president and US country chair for Shell Oil Co. US and a former human resources group director for Royal Dutch/Shell Group in The Hague. Previously, he held various marketing, business development, and human resources management positions with Allied Signal (now Honeywell) in Hong Kong and Paris, Northern Telecom (now Nortel), and General Electric. He is founder and current CEO of Citizens for Affordable Energy Inc., a Washington, DC, based not-for-profit organization. Hofmeister also serves as an independent director on the board of UK-based Hunting PLC.

Hofmeister

Lufkin sells and services oil field pumping units, foundry castings, and power transmission products throughout the world.

Mustang Engineering,

Houston, has named Richard Seale president of the company's automation and control business unit, succeeding Don Colchin, who has retired. Previously, Seale was manager of projects for the unit. Seale has over 30 years of experience in the automation industry and has held various positions in automation engineering and project management in refining, chemicals, and offshore and onshore oil and gas. He is a certified project management professional and a registered professional engineer in Texas. Colchin joined Mustang in 1996 with a core group of automation professionals, including Seale, to develop Mustang's automation and control business unit. Under his leadership, the business unit has grown to a staff of more than 200, has offices in three US cities, and was recently named Control Engineering magazine's 2010 System Integrator of the Year for companies with revenue greater than $50 million.

Mustang, a Wood Group company, provides services to the global oil, gas, chemical, and manufacturing industries, specializing in design, engineering, procurement, project management, and construction management, and offers these services through its six business units: upstream oil and gas, midstream, pipeline, automation and control, refining and petrochemicals, and process and industrial.

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CRDASSAY Current

Worldwide Oil Field Production Survey — Field name, field type, discovery date, and depth.
E1077 Current E1077C Historical, 1980 to current

Enhanced Oil Recovery Survey — Covers active, planned and terminated projects worldwide. Updated biennially in March.
E1048 Current E1148C Historical, 1986 to current

Worldwide Gas Processing Survey — Gas processing plants worldwide with details.
E1209 Current E1219C Historical, 1985 to current

International Ethylene Survey — Information on country, company, location, capacity, etc.
E1309 Current E1309C Historical, 1994 to current

LNG Worldwide — Facilities, Construction Projects, Statistics
LNGINFO

Worldwide Construction Projects — List of planned construction products updated in May and November each year.

	Current	Historical 1996–Current
Refinery	E1340	E1340C
Pipeline	E1342	E1342C
Petrochemical	E1341	E1341C
Gas Processing	E1344	E1344C

U.S. Pipeline Study — There are 14 categories of operating and financial data on the liquids pipeline worksheet and 13 on the natural gas pipeline worksheet.
E1040

Worldwide Survey of Line Pipe Mills — Detailed data on line pipe mills throughout the world, process, capacity, dimensions, etc.
PIPEMILL

OGJ 200/100 International Company Survey — Lists valuable financial and operating data for the largest 200 publicly traded oil and gas companies.
E1345 Current E1145C Historical 1989 to current

Oil Sands Projects — Planned Canadian projects in four Excel worksheets. Includes mining, upgrading, in situ projects, and historical table with wells drilled back to 1985.
OILSANDPRJ

Production Projects Worldwide — List of planned production mega-projects.
PRODPROJ

See website for prices

www.ogjresearch.com

IMPORTS OF CRUDE AND PRODUCTS

	Districts 1-4 1-29 2010	Districts 1-4 1-22 2010	District 5 1-29 2010	District 5 1-22 2010	Total US 1-29 2010	Total US 1-22 2010	Total US *1-30 2009
	1,000 b/d						
Total motor gasoline	926	764	0	59	926	823	829
Mo. gas. blending comp.	719	580	0	59	719	639	585
Distillate	438	653	0	5	438	658	177
Residual	441	194	54	0	495	194	538
Jet fuel-kerosine	103	95	13	45	116	140	16
Propane-propylene	103	151	18	15	121	166	205
Other	16	202	116	50	132	252	735
Total products	**2,746**	**2,639**	**201**	**233**	**2,947**	**2,872**	**3,085**
Total crude	**7,430**	**6,893**	**996**	**974**	**8,426**	**7,867**	**10,037**
Total imports	**10,176**	**9,532**	**1,197**	**1,207**	**11,373**	**10,739**	**13,122**

*Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

PURVIN & GERTZ LNG NETBACKS—FEB. 5, 2010

Receiving terminal	Liquefaction plant: Algeria	Malaysia	Nigeria	Austr. NW Shelf	Qatar	Trinidad
	$/MMbtu					
Barcelona	7.46	5.39	6.68	5.28	5.99	6.60
Everett	5.18	3.06	4.81	3.14	3.62	5.48
Isle of Grain	4.52	2.43	3.90	2.32	2.98	3.92
Lake Charles	3.04	1.11	2.81	1.30	1.54	3.66
Sodegaura	5.83	7.84	6.08	7.78	7.07	5.14
Zeebrugge	6.62	4.31	5.86	4.19	4.92	5.93

Definitions, see OGJ Apr. 9, 2007, p. 57.
Source: Purvin & Gertz Inc.
Data available in OGJ Online Research Center.

CRUDE AND PRODUCT STOCKS

District	Crude oil	Motor gasoline: Total	Motor gasoline: Blending comp.[1]	Jet fuel, kerosine	Fuel oils: Distillate	Fuel oils: Residual	Propane–propylene
	1,000 bbl						
PADD 1	12,776	58,798	41,264	9,837	63,251	14,520	3,221
PADD 2	83,894	55,994	27,292	8,436	33,030	1,130	13,432
PADD 3	170,886	74,418	44,681	13,926	44,310	19,412	16,735
PADD 4	15,805	5,987	1,813	688	3,258	193	[1]932
PADD 5	45,633	32,924	28,489	10,352	12,699	4,397	—
Jan. 29, 2010	**328,994**	**228,121**	**143,539**	**43,239**	**156,548**	**39,652**	**34,320**
Jan. 22, 2010	**326,677**	**229,427**	**144,974**	**43,690**	**157,496**	**37,789**	**36,813**
Jan. 30, 2009[2]	**346,051**	**220,221**	**123,354**	**39,478**	**142,591**	**34,569**	**44,574**

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

REFINERY REPORT—JAN 29, 2010

District	REFINERY OPERATIONS: Gross inputs	REFINERY OPERATIONS: Crude oil inputs	REFINERY OUTPUT: Total motor gasoline	REFINERY OUTPUT: Jet fuel, kerosine	REFINERY OUTPUT: Fuel oils: Distillate	REFINERY OUTPUT: Fuel oils: Residual	REFINERY OUTPUT: Propane–propylene
	1,000 b/d						
PADD 1	1,123	1,134	2,254	53	347	65	44
PADD 2	3,250	3,244	2,145	199	942	32	248
PADD 3	6,627	6,473	2,433	619	1,646	331	672
PADD 4	528	522	296	33	144	5	[1]49
PADD 5	2,210	2,088	1,456	405	405	124	—
Jan. 29, 2010	**13,738**	**13,461**	**8,584**	**1,309**	**3,484**	**557**	**1,013**
Jan. 22, 2010	**13,871**	**13,624**	**8,636**	**1,343**	**3,516**	**662**	**990**
Jan. 30, 2009[2]	**14,711**	**14,341**	**8,679**	**1,463**	**4,169**	**625**	**1,061**
	17,681 Operable capacity		**77.7% utilization rate**				

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

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

OIL&GAS JOURNAL online research center

OGJ CRACK SPREAD

	*2-5-10	*2-6-09	Change	Change, %
	$/bbl			
SPOT PRICES				
Product value	82.16	54.14	28.03	51.8
Brent crude	72.56	43.68	28.88	66.1
Crack spread	9.60	10.46	-0.86	–8.2
FUTURES MARKET PRICES				
One month				
Product value	82.49	53.13	29.36	55.3
Light sweet crude	74.59	40.50	34.09	84.2
Crack spread	7.90	12.62	–4.73	–37.4
Six month				
Product value	86.36	57.81	28.55	49.4
Light sweet crude	77.21	50.99	26.22	51.4
Crack spread	9.14	6.82	2.33	34.2

*Average for week ending.
Source: Oil & Gas Journal
Data available in OGJ Online Research Center.

OGJ GASOLINE PRICES

	Price ex tax 2-3-10	Pump price* 2-3-10	Pump price 2-4-09
	¢/gal		
(Approx. prices for self-service unleaded gasoline)			
Atlanta	234.7	266.1	182.3
Baltimore	229.1	271.0	180.1
Boston	225.2	267.1	179.9
Buffalo	217.8	281.0	184.8
Miami	231.2	284.1	182.9
Newark	231.1	264.0	173.8
New York	216.9	280.1	189.9
Norfolk	223.3	261.0	173.8
Philadelphia	224.4	275.1	188.9
Pittsburgh	223.3	274.0	197.8
Wash., DC	234.2	276.1	198.9
PAD I avg	226.5	272.7	184.8
Chicago	241.7	296.8	213.7
Cleveland	240.2	286.6	198.0
Des Moines	221.3	261.7	189.4
Detroit	237.1	288.7	196.7
Indianapolis	229.5	279.6	195.7
Kansas City	220.9	256.6	183.4
Louisville	228.6	269.5	191.4
Memphis	125.9	165.7	181.7
Milwaukee	226.4	277.7	193.7
Minn.-St. Paul	216.1	261.7	187.4
Oklahoma City	201.2	236.6	171.6
Omaha	214.9	260.6	182.9
St. Louis	212.9	248.6	181.1
Tulsa	199.2	234.6	175.1
Wichita	203.3	246.7	179.8
PAD II avg	214.6	258.1	188.1
Albuquerque	220.2	257.4	181.4
Birmingham	217.8	257.1	179.4
Dallas-Fort Worth	212.9	251.3	176.8
Houston	214.9	253.3	172.3
Little Rock	209.0	249.2	183.4
New Orleans	219.4	257.8	179.4
San Antonio	222.0	260.4	177.4
PAD III avg	216.6	255.2	178.6
Cheyenne	220.1	252.5	157.4
Denver	235.2	275.6	174.3
Salt Lake City	214.7	257.6	172.4
PAD IV avg	223.4	261.9	168.1
Los Angeles	231.2	297.0	203.1
Phoenix	241.2	278.6	183.7
Portland	247.8	291.2	208.7
San Diego	233.2	299.0	214.7
San Francisco	235.3	301.1	219.6
Seattle	238.5	294.4	206.7
PAD V avg	237.9	293.5	206.1
Week's avg.	**222.0**	**266.8**	**186.8**
Jan. avg.	**224.9**	**269.7**	**177.1**
Dec. avg.	**214.4**	**259.2**	**171.1**
2010 to date	**224.3**	**269.1**	--
2009 to date	**133.4**	**179.0**	--

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

REFINED PRODUCT PRICES

	1-29-10 ¢/gal		1-29-10 ¢/gal
Spot market product prices			
Motor gasoline (Conventional-regular)		Heating oil No. 2	
New York Harbor	189.39	New York Harbor	189.40
Gulf Coast	187.50	Gulf Coast	187.03
Los Angeles	192.25	Gas oil	
Amsterdam-Rotterdam-Antwerp (ARA)	187.25	ARA	185.21
Singapore	204.40	Singapore	188.81
Motor gasoline (Reformulated-regular)		Residual fuel oil	
New York Harbor	188.64	New York Harbor	159.83
Gulf Coast	188.00	Gulf Coast	165.19
Los Angeles	198.25	Los Angeles	190.34
		ARA	167.04
		Singapore	175.07

Source: DOE Weekly Petroleum Status Report.
Data available in OGJ Online Research Center.

BAKER HUGHES RIG COUNT

	2-5-10	2-6-09
Alabama	3	2
Alaska	9	9
Arkansas	41	50
California	24	27
Land	23	26
Offshore	1	1
Colorado	48	73
Florida	0	1
Illinois	1	0
Indiana	3	3
Kansas	21	16
Kentucky	8	11
Louisiana	198	171
N. Land	133	89
S. Inland waters	11	7
S. Land	16	21
Offshore	38	54
Maryland	0	0
Michigan	0	0
Mississippi	9	12
Montana	6	4
Nebraska	1	0
New Mexico	55	53
New York	3	2
North Dakota	76	66
Ohio	7	8
Oklahoma	115	135
Pennsylvania	70	22
South Dakota	0	0
Texas	541	612
Offshore	4	6
Inland waters	0	0
Dist. 1	23	8
Dist. 2	14	33
Dist. 3	36	45
Dist. 4	45	55
Dist. 5	79	134
Dist. 6	70	102
Dist. 7B	11	16
Dist. 7C	54	41
Dist. 8	108	74
Dist. 8A	20	19
Dist. 9	31	32
Dist. 10	46	47
Utah	25	23
West Virginia	27	27
Wyoming	38	56
Others—HI-1; NV-4; TN-1	6	16
Total US	**1,335**	**1,399**
Total Canada	**557**	**435**
Grand total	**1,892**	**1,834**
US Oil rigs	445	283
US Gas rigs	878	1,104
Total US offshore	44	62
Total US cum. avg. YTD	**1,265**	**1,528**

Rotary rigs from spudding in to total depth.
Definitions, see OGJ Sept. 18, 2006, p. 42.

Source: Baker Hughes Inc.
Data available in OGJ Online Research Center.

SMITH RIG COUNT

Proposed depth, ft	Rig count	2-6-10 Percent footage*	Rig count	2-6-09 Percent footage*
0-2,500	95	2.1	57	—
2,501-5,000	48	77.0	69	50.7
5,001-7,500	139	29.4	187	24.0
7,501-10,000	260	7.6	295	3.0
10,001-12,500	275	10.5	280	2.1
12,501-15,000	206	2.4	275	0.3
15,001-17,500	181	—	151	—
17,501-20,000	80	—	69	—
20,001-over	44	—	40	—
Total	**1,328**	**10.0**	**1,423**	**6.7**
INLAND	16		15	
LAND	1,267		1,353	
OFFSHORE	45		55	

*Rigs employed under footage contracts.
Definitions, see OGJ Sept. 18, 2006, p. 42.

Source: Smith International Inc.
Data available in OGJ Online Research Center.

OGJ PRODUCTION REPORT

	[1]2-5-10	[2]2-6-09
	1,000 b/d	
(Crude oil and lease condensate)		
Alabama	20	21
Alaska	696	679
California	643	650
Colorado	68	66
Florida	5	2
Illinois	22	23
Kansas	109	109
Louisiana	1,418	1,351
Michigan	16	17
Mississippi	62	62
Montana	85	81
New Mexico	163	161
North Dakota	226	190
Oklahoma	182	177
Texas	1,404	1,375
Utah	65	63
Wyoming	148	142
All others	68	77
Total	**5,400**	**5,246**

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

US CRUDE PRICES

	2-5-10 $/bbl*
Alaska-North Slope 27°	70.46
South Louisiana Sweet	72.25
California-Midway Sunset 13°	63.40
Lost Hills 30°	71.45
Wyoming Sweet	61.69
East Texas Sweet	67.25
West Texas Sour 34°	62.75
West Texas Intermediate	67.75
Oklahoma Sweet	67.75
Texas Upper Gulf Coast	60.75
Michigan Sour	59.75
Kansas Common	66.75
North Dakota Sweet	61.00

*Current major refiner's posted prices except North Slope lags 2 months. 40° gravity crude unless differing gravity is shown.

Source: Oil & Gas Journal.
Data available in OGJ Online Research Center.

WORLD CRUDE PRICES

$/bbl[1]	1-29-10
United Kingdom-Brent 38°	72.32
Russia-Urals 32°	71.95
Saudi Light 34°	70.76
Dubai Fateh 32°	72.67
Algeria Saharan 44°	73.28
Nigeria-Bonny Light 37°	74.41
Indonesia-Minas 34°	74.86
Venezuela-Tia Juana Light 31°	71.99
Mexico-Isthmus 33°	71.88
OPEC basket	72.62
Total OPEC[2]	71.97
Total non-OPEC[2]	72.02
Total world[2]	71.99
US imports[3]	71.29

[1]Estimated contract prices. [2]Average price (FOB) weighted by estimated export volume. [3]Average price (FOB) weighted by estimated import volume.

Source: DOE Weekly Petroleum Status Report.
Data available in OGJ Online Research Center.

US NATURAL GAS STORAGE[1]

	1-29-10	1-22-10	1-29-09	Change, %
	bcf			
Producing region	796	807	765	4.1
Consuming region east	1,251	1,334	1,105	13.2
Consuming region west	359	380	337	6.5
Total US	**2,406**	**2,521**	**2,207**	**9.0**
	Nov. 09	**Nov. 08**	**Change, %**	
Total US[2]	**3,833**	**3,346**	**14.6**	

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

Statistics

International rig count

Region	Jan. 2010 Land	Jan. 2010 Off.	Jan. 2010 Total	Jan. 09 Total
WESTERN HEMISPHERE				
Argentina	58	—	58	67
Bolivia	2	—	2	2
Brazil	33	31	64	59
Canada	456	3	459	377
Chile	2	—	2	3
Colombia	34	—	34	34
Ecuador	10	—	10	10
Mexico	100	25	125	125
Peru	6	3	9	4
Trinidad	—	3	3	2
United States	1,225	42	1,267	1,553
Venezuela	51	14	65	74
Other	2	—	2	1
Subtotal	**1,979**	**120**	**2,099**	**2,312**
ASIA–PACIFIC				
Australia	5	12	17	22
Brunei	1	3	4	4
China–offshore	—	17	17	23
India	74	27	101	80
Indonesia	47	11	58	65
Japan	3	—	3	1
Malaysia	—	13	13	12
Myanmar	3	2	5	3
New Zealand	6	—	6	5
Papua New Guinea	2	1	3	3
Philippines	4	—	4	3
Taiwan	—	—	—	—
Thailand	3	9	12	10
Vietnam	—	10	10	7
Other	—	—	—	—
Subtotal	**148**	**105**	**253**	**238**
AFRICA				
Algeria	18	—	18	24
Angola	1	10	11	5
Congo	3	2	5	3
Gabon	2	—	2	1
Kenya	—	—	—	—
Libya	14	2	16	16
Nigeria	5	4	9	5
South Africa	—	—	—	—
Tunisia	3	2	5	3
Other	5	3	8	1
Subtotal	**51**	**23**	**74**	**58**
MIDDLE EAST				
Abu Dhabi	8	3	11	12
Dubai	—	1	1	2
Egypt	40	15	55	54
Iran	—	—	—	—
Iraq	—	—	—	—
Jordan	—	—	—	2
Kuwait	21	—	21	12
Oman	45	—	45	52
Pakistan	18	—	18	22
Qatar	2	6	8	9
Saudi Arabia	55	13	68	74
Sudan	—	—	—	—
Syria	19	—	19	22
Yemen	12	—	12	12
Other	2	—	2	1
Subtotal	**222**	**38**	**260**	**274**
EUROPE				
Croatia	—	1	1	—
Denmark	—	3	3	3
France	1	—	1	1
Germany	4	1	5	8
Hungary	1	—	1	3
Italy	3	1	4	4
Netherlands	2	2	4	2
Norway	—	22	22	25
Poland	3	—	3	1
Romania	9	—	9	14
Turkey	7	—	7	5
UK	1	14	15	23
Other	9	2	11	4
Subtotal	**40**	**46**	**86**	**93**
Total	**2,440**	**332**	**2,772**	**2,975**

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

Oil import freight costs*

Source	Discharge	Cargo	Cargo size, 1,000 bbl	Freight (Spot rate) worldscale	$/bbl
Caribbean	New York	Dist.	200	—	—
Caribbean	Houston	Resid.	380	154	1.55
Caribbean	Houston	Resid.	500	161	1.62
N. Europe	New York	Dist.	200	284	4.00
N. Europe	Houston	Crude	400	162	3.35
W. Africa	Houston	Crude	910	119	2.70
Persian Gulf	Houston	Crude	1,900	70	2.96
W. Africa	N. Europe	Crude	910	132	2.23
Persian Gulf	N. Europe	Crude	1,900	74	2.30
Persian Gulf	Japan	Crude	1,750	116	2.90

*Jan. 2010 average.
Source: Drewry Shipping Consultants Ltd. Data available in OGJ Online Research Center.

Waterborne Energy Inc. US LNG imports

Country	Jan. 2010	Dec. 2009	Jan. 2009	Change from a year ago, %
	MMcf			
Algeria	—	—	—	—
Egypt	16,460	14,530	2,790	490.0
Equatorial Guinea	—	—	—	—
Nigeria	3,030	—	—	—
Norway	5,860	—	2,980	96.6
Qatar	16,430	4,660	—	—
Trinidad and Tobago	22,730	18,190	22,880	–0.7
Total	**64,510**	**37,380**	**28,650**	**125.2**

Source: Waterborne Energy Inc.
Data available in OGJ Online Research Center.
Data not available at press time.

Propane prices

	Dec. 2009	Jan. 2010	Dec. 2008	Jan. 2009
	¢/gal			
Mont Belvieu	119.04	131.25	61.03	72.71
Conway	120.30	131.64	70.62	80.11
Northwest Europe	131.48	147.55	69.55	83.62

Source: EIA Weekly Petroleum Status Report
Data available in OGJ Online Research Center.

Muse, Stancil & Co. refining margins

	US Gulf Coast	US East Coast	US Mid–west	US West Coast	North–west Europe	South–east Asia
	$/bbl					
Jan. 2010						
Product revenues	87.64	84.38	84.52	87.45	84.57	83.67
Feedstock costs	–81.11	–80.37	–78.37	–76.46	–77.92	–80.80
Gross margin	6.53	4.01	6.15	10.99	6.65	2.87
Fixed costs	–2.16	–2.50	–2.43	–2.83	–2.43	–1.89
Variable costs	–1.88	–1.29	–1.68	–2.86	–3.47	–1.03
Cash operating margin	**2.49**	**0.22**	**2.04**	**5.30**	**0.75**	**–0.05**
Dec. 2009	1.58	0.11	3.68	8.45	1.85	–1.91
YTD avg.	2.49	0.22	2.04	5.30	0.75	–0.05
2009 avg.	3.03	1.15	5.75	10.32	1.66	–0.70
2008 avg.	9.09	3.04	11.53	12.96	6.77	3.13
2007 avg.	12.60	6.65	18.66	20.41	6.05	2.32

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

Muse, Stancil & Co. gasoline marketing margins

Dec. 2009	Chicago*	Houston	Los Angeles	New York
	¢/gal			
Retail price	269.92	245.54	292.87	277.77
Taxes	54.74	38.40	59.01	50.38
Wholesale price	203.10	198.83	215.89	208.60
Spot price	192.55	186.51	201.77	189.47
Retail margin	12.01	8.31	17.97	18.79
Wholesale margin	10.55	12.32	14.12	19.13
Gross marketing margin	**22.56**	**20.63**	**32.09**	**37.92**
Nov. 2009	30.22	19.93	40.53	33.31
YTD avg.	23.46	21.99	26.60	30.61
2008 avg.	33.11	32.15	27.22	41.81
2007 avg.	26.96	23.12	19.05	31.10
2006 avg.	19.74	19.94	18.03	27.90

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

Muse, Stancil & Co. ethylene margins

	Ethane	Propane	Naphtha
	¢/lb ethylene		
Jan. 2010			
Product revenues	52.80	91.38	111.61
Feedstock costs	–31.99	–74.66	–108.46
Gross margin	20.81	16.72	3.15
Fixed costs	–5.38	–6.36	–7.19
Variable costs	–4.56	–5.35	–7.16
Cash operating margin	**10.87**	**5.01**	**–11.20**
Dec. 2009	7.65	2.64	–15.68
YTD avg.	10.87	5.01	–11.20
2009 avg.	12.93	9.63	–13.72
2008 avg.	21.00	22.89	–5.91
2007 avg.	14.41	14.14	–7.42

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

Muse, Stancil & Co. US gas processing margins

Jan. 2010	Gulf Coast	Mid–continent
	$/Mcf	
Gross revenue		
Gas	5.57	5.37
Liquids	1.35	3.75
Gas purchase cost	6.20	7.21
Operating costs	0.07	0.15
Cash operating margin	**0.66**	**1.76**
Dec. 2009	0.61	1.76
YTD avg.	0.66	1.76
2008 avg.	0.41	1.14
2007 avg.	0.45	1.61
2006 avg.	0.44	1.47
Breakeven producer payment, % of liquids	49%	52%

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

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PLEASE NOTE THAT ALL SALES ARE SUBJECT TO FINAL APPROVAL OF THE BANKRUPTCY COURT. TRUSTEE WILL ONLY SEEK COURT APPROVAL OF AN OFFER THAT HE DEEMS ADEQUATE. PENDING COURT APPROVAL, TRUSTEE IS OBLIGATED TO ENTERTAIN ANY SIGNIFICANTLY HIGHER OFFER.

For additional information, please contact Trustee, Joseph M. Hill, at (713) 789-0500 x8317, or by email, joehill@cagehill.com. Additional documentation available for review upon execution of Confidentiality Agreement, obtainable from Trustee. Offers should be submitted in writing to Trustee's attention by mail to 5851 San Felipe, Suite 950, Houston, Texas 77057, by fax to 713-974-0344 or by email, joehill@cagehill.com and received no later than 3:00 p.m. on Monday, February 22, 2010.

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DOE's unspent dollars can't stimulate much

A Feb. 4 congressional question to US Energy Sec. Steven Chu shows why state-sponsored energy works poorly as economic stimulus.

Chu testified to the Senate Committee and Energy and Natural Resources about the administration's proposal to raise Department of Energy spending to $28.4 billion in fiscal 2011 from $26.4 billion enacted for fiscal 2010. Of the proposed total, $11.2 billion would be for the National Nuclear Security Administration, up $1.3 billion from 2010.

Why, wondered Sen. Lisa Murkowski (R-Alas.), should Congress approve a budget hike for DOE when the agency has disbursed only a small part of the stimulus money channeled to it last year?

The America Recovery and Reinvestment Act allocated DOE $36.7 billion in seven broad categories: energy efficiency and renewable energy, clean-up of Cold War nuclear sites, loan guarantees for renewable energy, "smartgrid" and efficient electrical transmission, carbon capture and storage, scientific research, and the energy part of an advanced research program.

So far, DOE has spent $2.1 billion.

"We're not dilly-dallying," Chu said, according to a report in the Wall Street Journal. "Many of these organizations [state and local governments] aren't used to dealing with that magnitude of money."

As an explanation, this makes perfect sense. What doesn't make sense is the thrust of so much public money into a system unable to handle it efficiently.

The dilemma is fatal: The government wants to inject money into the economy promptly to spur activity and, it believes, employment. Because the dispensing agency works carefully—Americans must hope—to prevent looting of the program, however, the stimulus is meager and slow.

Part of the problem is staffing. So DOE wants more money for more people to push more papers. Meanwhile, Congress is considering a jobs bill with more energy spending.

Especially relative to the bureaucratic and subsidy costs, these exertions will yield precious little usable energy. Because of the economic drain, employment gains will be illusory.

Congress has a more effective use for the $34.6 billion of 2009 stimulus money DOE hasn't spent. It should give it back to taxpayers, who earned it in the first place.

(Online Feb. 5, 2010; author's e-mail: bobt@ogjonline.com)

The Editor's Perspective

by Bob Tippee, Editor

Market Journal

by Sam Fletcher, Senior Writer

PIIGS trample energy prices

Energy prices flopped with crude down 5% for its biggest 1-day loss in 6 months Feb. 4, then tumbled below $70/bbl to a 7-week low before "bottom pickers" bid prices back above $71/bbl Feb. 5 on the New York market, amid growing global concern that the weak economies of Portugal, Ireland, Italy, Greece, and Spain (PIIGS) may undermine Europe's recovery from the recession.

That's because of the high percentage of public debt to gross national product in those countries. Reuters published estimates of 77.4% for Portugal, 64.5% Ireland, 115% Italy, 113.4% Greece, and 53.4% Spain. Greece is seen as the weakest link in the eurozone, and there is fear it will default on its public debt. As a result, sovereign debt is no longer viewed as a riskless asset in financial markets. Many observers expect rating agencies to downgrade the credit ratings of PIIGS countries this year. As a result, investors were pulling money out of higher risk energy and equity commodities for the safe haven of the strengthening US dollar, with the euro at its lowest level since late May. "The dollar index had been under pressure for most of the second half of 2009, but continued concerns about the stability of the eurozone are making the dollar regain its value as king of currencies," said Olivier Jakob at Petromatrix, Zug, Switzerland. "The dollar index is now at the highest level since July of last year, and on the euro correlation model, West Texas Intermediate remains overbought by about $10/bbl, given that the dollar index continued to rise as WTI was falling."

In New Orleans, analysts at Pritchard Capital Partners LLC said, "The overall market price action in conjunction with a stronger US dollar and weaker commodities suggest that the long-term outcome of the current economic crisis is one of low growth and minimal inflation. The 200-day moving average for the front month crude contract is approximately at $70.50/bbl, and this level should provide reasonable support for crude. Crude has traded above its 200-day moving average since May of last year."

Adam Sieminski, chief energy economist, Deutsche Bank, Washington, DC, said oil prices have remained relatively resilient in an environment of rising risk aversion. However, he warned, "This will not be able to persist . . . since a period of stronger oil prices is unlikely to be sustainable until global oil demand, including gasoline demand in the US, gets on more solid footing. US oil demand in January was still running at 2% below year-ago levels."

Call home

After months of silence, Nigerian President Umaru Musa Yar'Adua announced in early February he will surrender his office to Vice-President Goodluck Jonathan after he first reports by letter to the National Assembly about his extended visit to Saudi Arabia.

Yar'Adua dropped out of public sight Nov. 23 when he left Nigeria for medical treatment at the King Fahd Hospital in Jeddah. Silence on his condition and prognosis prompted rumors he was in a coma, brain-damaged, or dead. This caused a political crisis in Africa's most populous nation and biggest oil producer since Yar'Adua did not hand over authority to his vice-president before leaving.

Meanwhile, a government amnesty program for rebels in the oil-producing Niger Delta stalled amid lack of progress on promised reforms that would allocate more federal revenues to that area. That prompted an announcement by the militant Movement for the Emancipation of the Niger Delta that it was ending a 3-month cease-fire. However, Jakob at Petromatrix said, "It is difficult to assess what is the current status of the MEND following last year's amnesty."

Yar'Adua's colleagues in the Peoples' Democratic Party earlier issued an ultimatum for him to contact government officials. They extended the deadline to Feb. 15, pending his promised letter. Meanwhile, PDP senators said they will not accept executive communications from Jonathan as vice-president.

Shortly before Yar'Adua announced he would step down, analysts at the Centre for Global Energy Studies, London, said, "The situation in Nigeria is becoming more precarious, and the fragile peace between the militant groups operating in the Niger Delta and the federal government looks to be rapidly unraveling." As a result, they said, "The possibility of disrupted supplies from Nigeria is perhaps already being priced into the March oil futures contract." On the other hand, Jakob said, "The vice-president is from the Delta, and a little unrest in the region would be the perfect excuse to accelerate the transition of power to Goodluck Jonathan who would then become the first Nigerian president from the Delta region."

(Online Feb. 8, 2010; author's e-mail: samf@ogjonline.com)

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