

Oil, Gas, Shale and Refining Markets and Projects



**Markets, Prospects, and Projects for Suppliers of
Products and Services to the Oil and Gas Industry**



What is Included?

- The service consists of a website with password access along with bi-weekly Alerts, and daily system updates.
- Specific contents are
 - O&G E-Alert issued bi weekly (approximately 30 pages)
 - Daily updates to the projects and plant information
 - Identification of the top 200 owner/operators, system suppliers and architect/engineers
 - Timing and value for each project
 - Database with easy access by project, plant, product, company, process and location
 - Market forecasts by application, process and geography
 - Technology trends

Oil, Gas, Shale Refining Markets and Projects is \$3,000 per year for the first user and \$ 150/yr for additional subscribers

[N049 Oil, Gas, Shale and Refining Markets and Projects](#)

Benefits

This service is for you if you want to utilize detailed forecasting of markets, prospects and projects to fine tune your strategic and tactical plans and to place your efforts for the greatest impact on sales and margins.

- New oil, gas, refining, petrochemical, shale and tar sands plants being installed around the world are listed along with estimates of sales value and timing.
- The big longer term projects are provided years ahead of order date so that your input can be reflected in the specifications.
- Retrofits and upgrade projects at existing facilities are tracked daily.
- Details on all the existing plants are ideal for selling repairs and consumables.
- Bi-weekly project summaries alert you in a timely manner.
- Process descriptions provide a level of understanding on where and how your products will be used.
- Detailed forecasting of markets allows you to predict where to put your promotional resources.
- Integration with Mcilvaine market reports on various flow control and treatment equipment combines detailed forecasting of markets, projects, and prospects.
- Custom consulting can provide additional insights.

Detailed Forecasting is Better and Less Expensive than Sales Lead Reliance

	Sales Lead Driven Strategy	Detailed Forecasting of Markets, Projects, and Prospects
Budgeting	Setting advertising budgets based on the number of sales leads is misleading.	Very detailed forecasting by country and even states and provinces is the best tool.
OEM Sales	Sales leads are a poor way to pursue large customers.	Forecasting the opportunity with each major owner, EPC and engineer is the best guide for your OEM sales staff.
Sales through Reps	Sales leads are often not relevant or too late to help reps.	The reps can dig up the small opportunities while you direct them to the large ones.
Sales Analysis	Review of past sales leads is not a good way to evaluate your market share for a given area.	Detailed project and prospect forecasting allows valuable geographical post-mortems but also for large OEMS/AES who influence sales in multiple geographies.
Gross Margin	Sales lead strategy can reduce margins due to commissions and reliance on local salesmen who are always eager to cut the price.	Work with the global sourcing groups at major owner/operators results in focus on total cost of ownership and higher margins.

Refinery Markets and Processes

Market forecasts and process analyses are provided for refineries, oil and gas extraction, pipelines, gas to liquids, tar sands, shale gas/oil.

- **Overview**
- Capacity
 - World Crude Oil Refinery Capacity
 - U.S. Refinery Individual Plant Capacity
 - Refinery Upgrade Projections
- Background
 - Separation Processes
 - Conversion Processes
 - Treating Processes
 - Feedstock and Product Handling
 - Auxiliary Facilities
- Processes
 - Refinery Process Air Emissions
 - Catalytic Cracking
 - Catalytic Reforming
 - Sulfur Recovery Plant
 - Delayed or Fluid Coking
 - Storage Vessels
 - Wastewater Streams
 - Cooling Towers
 - Equipment Leaks
 - Blowdown System
 - Vacuum Distillation
 - Steam Boilers
 - Process Furnaces
 - Process Heaters
 - Compressor Engines
 - Barge or Ship Loading
 - Gasoline Rack Loading

Operating and Planned Plants

- **Alphabetic Plant Names with Start Up Date**

- [2-EHAcid Plant](#) - 2016
- [4-43 Processing Plant](#) - Operating
- [50 Buttes Natural Gas Plant](#) - 2014
- [Abreu e Lima Refinery](#) - 2015
- [Abu Butabul Gas Processing Plant](#) - 2015
- [Aconcagua Refinery](#) - Operating
- [Adgas Das Island LNG Facility](#) - Operating
- [Adler Flats Deep Cut Gas Plant Phase 1](#) - 2015
- [Adria LNG Terminal](#) - 2016
- [Afipsky Oil Refinery](#) - 2018
- [Aguirre Offshore GasPort Project](#) - 2017
- [Al Karaana Petrochemical Plant \(cancelled\)](#) - 2018
- [Al Sejeel Petrochemical Plant](#) - On hold
- [Al Zour Refinery](#) - 2019
- [Alaska LNG "Mega Project"](#) - 2023
- [Albian Oil Sands \(Jackpine Mine\)](#) - 2010
- [Albian Oil Sands \(Muskeg River Mine\)](#) - 2002

- **Chronological Start-Up Date**

- 2025 - [LNG Cargo Ships Fueling Stations](#)
- 2024 - [WCC Prince Rupert LNG Project](#)
- 2023 - [Alaska LNG "Mega Project"](#)
- 2022 - [Grassy Point Export Terminal](#)
- 2021 - [Binh Dinh Refinery & Petchem Complex](#)
- 2021 - [Pacific Future Energy Refinery](#)
- 2021 - [Prince Rupert LNG Plant Phase I](#)
- 2021 - [Tahrir Petrochemical Plant Expansion](#)
- 2020 - [Barmer Refinery and Petrochemical Complex](#)
- 2020 - [Energie Saguenay LNG Facility](#)
- 2020 - [Goldboro LNG Export Facility](#)
- 2020 - [Golden Pass LNG Facility](#)
- 2020 - [Gulf LNG Liquefaction Project Phase 1](#)
- 2020 - [Kuwait LNG Import and Regasification Terminal](#)
- 2020 - [Lake Charles LNG Export Project](#)
- 2020 - [PTT Refinery and Petrochemical Project](#)
- 2020 - [Rio Grande LNG Plant](#)
- 2020 - [SABIC Crude-to-chemicals Facility](#)
- 2020 - [Shenhua Ningxia Coal Liquefaction Facility](#)
- 2020 - [Texas LNG Brownsville Facility](#)
- 2020 - [ZapSib-2 Petrochemical Complex](#)
- 2019-2020 - [Kitimat LNG Canada Facility](#)
- 2019 - [Al Zour Refinery](#)

Project Tracking- Includes New Projects at Existing Plants and New Plants

- **Alphabetic Project Start-Up Date**

- [Egina Field Offshore Development Project](#) - 1/1/2017
- ["Edvard Grieg" Oil Pipeline](#) - 1/1/2015
- [2-EHAcid Plant Project](#) - 1/1/2016
- [50 Buttes Natural Gas Plant Expansion](#) - 1/1/2016
- [Aasta Hansteen Field Development](#) - 1/1/2015
- [Abadi LNG Project](#) - 1/1/2016
- [Abreu e Lima Refinery](#) - 1/1/2018
- [Abu Dhabi FCC Catalysts Manufacturing Plant](#) - 1/1/2015
- [Addar Chemical Plant Project](#) - 1/1/2017
- [Adler Flats Deep Cut Gas Plant Phase 1](#) - 1/1/2015
- [Adria LNG Project](#) - 1/1/2016
- [Afghan Refinery Project](#) - 1/1/2015
- [Afipsky Oil Refinery Upgrade Project](#) - 1/1/2018
- [Agbami Phase 3 Project](#) -
- [Aguirre Offshore GasPort](#) - 1/1/2015
- [Aguirre Offshore GasPort Project](#) - 1/1/2016
- [Aguirre Offshore GasPort Project](#) - 1/1/2017
- [Ain Tsila Gas Field Development](#) - 1/1/2018
- [Akabuyo Refinery](#) - 1/1/2014
- [Aker Solutions Angola Subsea Contract](#) - 1/1/2013
- [Al Jassra Rig Drilling Contract](#) - 1/1/2013
- [Al Karaana Petrochemical Plant Project](#) - 1/1/2018
- [Al Sejeel Petrochemical Project](#) - 1/1/2018
- [Al Zour Refinery Control and Safety System](#) - 1/1/2018
- [Alamitos Generating Stations](#) - 1/1/2018

- **Project by Start-Up Date**

- 1/1/2025 - [LNG Cargo Ships Fueling Stations](#)
- 1/1/2025 - [Susitna-Watana Hydroelectric Project](#)
- 1/1/2024 - [Exterran, Brazil Amine Plant Contract](#)
- 1/1/2024 - [WCC Prince Rupert LNG Project](#)
- 1/1/2023 - [Alaska LNG "Mega Project"](#)
- 1/1/2023 - [Porvoo Refinery Modernization](#)
- 1/1/2022 - [CNOOC Grassy Point Export Terminal](#)
- 1/1/2021 - [Papua New Guinea LNG Project](#)
- 1/1/2021 - [Prince Rupert LNG Plant Phase I](#)
- 1/1/2021 - [Binh Dinh Refinery & Petchem Complex](#)
- 1/1/2021 - [Total PNG LNG Facility Project](#)
- 1/1/2021 - [Pacific Future Energy Refinery](#)
- 1/1/2021 - [Pertamina New Refinery](#)
- 1/1/2021 - [SOCAR Garadagh Refining Petchem Complex](#)
- 1/1/2021 - [Tanzania LNG Plant Project](#)
- 1/1/2021 - [West Coast Canada LNG \(WCC LNG\) Project](#)
- 1/1/2020 - [Russia Proposed Refining Petrochem Complex Phases 1&2](#)
- 1/1/2020 - [Exterran, Bolivia Compressor Station Project](#)
- 1/1/2020 - [Greater Enfield Area Development](#)
- 1/1/2020 - [Gulf LNG Liquefaction Project Phase 1](#)
- 1/1/2020 - [SOCAR Sangachal Petrochemical Complex Stage 1](#)
- 1/1/2020 - [Azerbaijan OGPC Project](#)

Daily Project Updates

Exxon Plans to Invest \$25 Bln on B.C. Prince Rupert LNG Project

Texas-based energy giant Exxon Mobil Corp., has submitted plans to develop what could be a \$25-billion liquefied natural gas project near Prince Rupert on British Columbia's north coast. Exxon and its Canadian partner, Imperial Oil Ltd., outlined a strategy for West Coast Canada LNG, or WCC LNG, in a 141-page report to the provincial government's Environmental Assessment Office. Exxon said in the report that it considered eight potential export facility sites in the Kitimat and Prince Rupert areas before deciding to locate at Tuck Inlet, which has a deep-water shipping area and is within easy access to marine transport routes.

"(The) WCC LNG project will leverage the extensive expertise of both Exxon Mobil and Imperial to develop the project resource in a safe and environmentally responsible manner that integrates community engagement into every aspect of the business," the report said.

It said Exxon has 40 years of experience developing LNG projects in Qatar, Indonesia and New Guinea and now wants to develop one in Canada.

"WCC LNG project believes that Canada and B.C. are well positioned to further grow domestic gas production and provide globally competitive and sustainable LNG exports to attractive Asian and global markets."

The report comes as world oil and gas prices are falling and other major LNG developers, including Malaysian state-owned Petronas, put their B.C. LNG export facility plans on hold. Petronas recently said it supports B.C.'s recent environmental and tax rules governing LNG, but is taking more time to review its bottom line before making a final investment decision.

Exxon said if it decides to go ahead with the WCC LNG project, construction will start in two years and the plant expected to be in operation by 2024. It said between 1,000 and 6,000 construction jobs could be created. B.C.'s Natural Gas Development Ministry called Exxon's submission of its project description to the Environmental Assessment Office a major step forward.

The province has formally requested that its environmental assessment process be permitted as a substitute for federal Canadian Environmental Assessment Agency's review process.

The Canadian Environmental Assessment Act requires federal Environment Minister Leona Aglukkaq to approve the substitution request. The federal agency is seeking public comments until Feb. 2 on the project and its potential effects on the environment.

Eighteen LNG project proposals are currently underway in B.C., but investors have yet to make one final investment decision.

[http://cdn.exxonmobil.com/~media/Files/Other/2015/1314220010007RRev1WCC%20LNGProject%20Description%20JAN15lower%20resol
uti.pdf](http://cdn.exxonmobil.com/~media/Files/Other/2015/1314220010007RRev1WCC%20LNGProject%20Description%20JAN15lower%20resol
uti.pdf)

Bi Weekly E Alerts with the Latest Project and Plant Details

PROJECTS

The following projects each will result in millions of dollars of orders for flow control and treatment products. Each project has been rated. The opportunity size is rated from 1-10 with 1 being small and 10 being very large. The timing for flow and treatment orders has been provided by year e.g., T 16 = timing of order is 2016.

Technip Awarded Contract to Supply Hydrogen Reformers for PETRONAS' RAPID Project (06, T17)

Technip has been awarded by Tecnicas Reunidas a significant contract to supply three hydrogen reformers as part of the hydrogen production facility at PETRONAS' Refinery and Petrochemical Integrated Development (RAPID) project located in the state of Johor, Malaysia. As the heart of the hydrogen plant, the reformers will produce 344,500 Nm³/h [(2)] of hydrogen and syngas products. It will supply high quality export steam to the refinery steam network. The supply of the reformers is based on Technip's proprietary top-fired steam methane reforming technology. The reformers are expected to come on-stream in 2018. RAPID is PETRONAS' largest green-field downstream undertaking in Malaysia, and along with its six major associated facilities, forms the Pengerang Integrated Complex (PIC). The associated facilities are the Pengerang Co-generation Plant, LNG Re-gasification Terminal, Air Separation Unit, Raw Water Supply project, the Liquid Bulk Terminal and the Central and Shared Utilities and Facilities. Early involvement represents a strategic focus for Technip. Prior to the supply of the hydrogen reformers, Technip was involved in the front-end engineering design for the RAPID project. The reformer project will be executed by Technip's office in Zoetermeer, the Netherlands.

Saudi Petrochemicals Group SABIC Plans New Ventures in China

Saudi Basic Industries Corp., the world's second-biggest chemicals manufacturer, plans more than three joint venture projects in China, according to acting CEO Yousef Al Benyan. SABIC, controlled by the Saudi government announced earlier this month a global restructuring to make itself more agile and cost-efficient. The company plans to expand in China and the US. "There are good prospects there, and hopefully we will be able to announce them in the first quarter next year," Al Benyan said, "We have more than three opportunities for joint ventures in China and we will announce them accordingly," he said. "The restructuring plans will also result in some redundancies in the US and will have the most impact on Europe," Al Benyan said. The reorganization won't affect the company's operations in the Middle East. SABIC, the second-largest chemical company after BASF based on market capitalization, is also on track to expand investment in US shale gas projects through joint ventures.

Rosneft, ChemChina Sign MOU for Proposed Integrated Complex (07, T18)

OJSC Rosneft and China National Chemical Corp. (ChemChina) have signed a memorandum of understanding to cooperate on development of Rosneft subsidiary Far East Petrochemical Co.'s (Fepco) plan to build the largest integrated refining and petrochemical complex in Russia's Far Eastern Federal District (FEFD), near the city of Nakhodka. The MOU outlines ChemChina's offer to buy a majority stake in Fepco to become the Russian operator's strategic partner on the long-planned project, Rosneft said. In addition to paving the way for a future petrochemical cluster in FEFD, the phased development also would enable increased Russian fuel and petrochemical exports to reach fast-growing markets elsewhere in Asia-Pacific. Scheduled for completion in 2020, Phase 1 of the project would involve construction of a 12 million-tonne/year refinery with the following production capacities: gasoline, 1.57 million tpy; diesel, 6 million tpy; kerosene, 790,000 tpy; and bunker fuel, 140,000 tpy. A second phase of the project, due to complete construction in 2022, would deliver a petrochemical plant that includes a 3.4 million-tpy naphtha steam cracker capable of producing 1.4 million tpy of ethylene and 600,000 tpy of propylene. The cracker will use ethylene production technology licensed by Chevron Lumus Global. The grassroots petrochemical plant additionally will include the following production capacities: polyethylene, 850,000 tpy; polypropylene, 800,000 tpy; butadiene, 200,000 tpy; benzene, 230,000 tpy; and monoethylene glycol, 700,000 tpy. Rosneft currently is preparing project documentation for Phases 1 and 2 of the project, with engineering surveys due to be completed in 2016, Rosneft Chairman Igor Sechin told investors earlier this month. The company said it expects combined construction costs on Phases 1 and 2 to run about 660 billion rubles, including capital investments for infrastructure. Should market conditions warrant it, a potential third and final phase of the project designed to double both refining and petrochemical production capacities at the complex could be built by 2028, Rosneft said.

Database Searches

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- [ABB](#)
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- [Abraxas Petroleum](#)
- [Abu Dhabi Gas Development Co](#)
- [Abu Dhabi Marine Operating Co](#)
- [Abu Dhabi National Energy Co](#)
- [Abu Dhabi National Energy Co \(Taqa\)](#)
- [Abu Dhabi National Oil Co](#)
- [Abu Dhabi Oil Co](#)
- [Accenture](#)
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- [Air Separation Units](#)
- [Air Separation Units](#)
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- [Amine Unit](#)
- [Ammonia](#) 氨水
- [Ammonia Tank](#)
- [Analysis House](#)
- [Analytical Instruments](#)
- [Analyzer](#)
- [Anticorrosion Coating](#)

Search by Application

Each NAICS Number is Further Segmented by a Unique McIlvaine Classification

Application Sequencing	
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Coal Liquefaction 煤的液化
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	FPSO
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Gas to Chemicals
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Gas to Liquids
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	LNG
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Oil Field Services
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Oil Shale
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Shale Gas 页岩气
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Shale Oil
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Subsea
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Synthetic Natural Gas
211111 - Crude Petroleum and Natural Gas Extraction 原油和天然气开采	Tar Sands 焦油砂

Petrochemicals Application Search

(0 = opportunity size, t = timing of order)

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Indorama Invests \$175 Mln to Renovate, Restart Louisiana Ethane Cracker (05,T16)

- Indorama Ventures will renovate and restart a dormant ethane cracker west of Lake Charles, Louisiana, where Indorama Ventures will make a \$175 million capital investment, Louisiana Gov. Bobby Jindal and Indorama Ventures CEO Alope Lohia announced on September 25. Based in Bangkok, Thailand, Indorama Ventures, or IVL, has used its US subsidiary Indorama Ventures Olefins LLC to acquire the dormant ethane cracker facility. The project in Carlyss will generate an annual production capacity of 370,000 metric tons of ethylene and 30,000 metric tons of propylene, with the facility capable of processing both ethane and propane. A commercial startup before the end of 2017 is targeted. Louisiana will provide Indorama with an incentives package that includes a \$1.5 million performance-based grant to offset infrastructure costs

Refinery Search

(0 = opportunity size, t = timing of order)

Axens' VGO HDS Technology Selected by Total for Donges Refinery, France

- Axens VGO HDS technology has been selected by Total for a new vacuum gasoil (VGO) hydro desulfurization unit at the Donges refinery (France). The unit is designed to process around 40,000 BPD (barrels per day) and will allow Total producing low sulfur fuels meeting the evolution of EU specifications. The project forms part of a €400-million (\$459.1 million) investment to upgrade the Donges refinery that Total announced in April. Total said the new HDS unit, which will use intermediate feedstock, will receive its hydrogen supply from a steam methane reformer to be built by a contractor already under a long-term hydrogen supply contract with the refinery. For the Donges project, Axens has proposed an optimized process scheme specifically adapted to the existing refinery environment, and incorporating Total's requirements in terms of energy efficiency and operational flexibility. Axens supplies VGO HDS technology license, basic engineering, proprietary catalysts and equipment as well as related services: training, unit start-up and follow-up.

Fluor Wins EPC Work for Kuwait's Al-Zour Refinery (06, T16)

- Fluor announced October 13 that its joint venture team was selected by Kuwait National Petroleum Co. (KNPC) as the preferred bidder for two engineering, procurement and construction (EPC) packages. Facilities in the two packages will include a variety of key process units, utilities and infrastructure for the new Al-Zour oil refinery project in Kuwait that is expected to produce 615,000 bpd. Fluor booked its \$2.6 billion portion of the contract in the third quarter of 2015. Fluor is leading the joint venture, known as FDH JV, which consists of Fluor, Daewoo Engineering and Construction, and Hyundai Heavy Industries. The FDH JV is currently executing one package in the KNPC Clean Fuels project and will begin activities on the newly awarded Al-Zour packages soon. The Al-Zour refinery complex will be built on a greenfield site located south of Kuwait City. When completed, the new complex is expected to be one of the largest refineries in the world.

Proposed Blending Facility Would Better Expand Shale Output to Refineries (06, T17)

- A \$400 million crude oil storage and blending complex proposed for St. Landry Parish in Louisiana would expand market opportunities for production coming from liquids-rich shale plays while providing refiners and petrochemical plant operators with a better-tailored barrel to meet their needs. Better tailoring crude to meet existing refinery requirements could eliminate the need for billions of dollars worth of refinery upgrades and conversions. The Hazelwood Energy Hub would offer crude oil storage, blending and terminaling in St. Landry Parish, LA. The project is slated to include six aboveground crude oil storage tanks and utilize four salt dome caverns for additional storage of numerous crude oil varieties. Backers plan to blend and ship crude oil to refinery customers in the Gulf Coast region. Hazelwood Energy Hub was incorporated in 2013 to develop the St Landry Parish blending project. Construction will begin in 2016, and the facility is expected to begin operation in 2018.

SOCAR Advances Modernization of Baku Refinery

- State Oil Co. of Azerbaijan Republic (SOCAR) is planning to add a grassroots bitumen plant as part of program designed to modernize and expand operations at the company's Heydar Aliyev (formerly New Baku) refinery at Baku in Azerbaijan. SOCAR has let a contract to Austria-based Porner Ingenieur GMBH to provide basic design works for the proposed 400,000-tonne/year bitumen plant, with Fluor Corp. to serve as contractor on the project, SOCAR said. Porner is scheduled to begin work on the project in the near future, said SOCAR, which disclosed no further details regarding either of the recent contracts. The company said the Heydar Aliyev refinery's modernization and upgrading program, which will be implemented in stages during 2015-19, will result in 100% production of fuels that meet Euro-5 quality standards as well as high-quality raw feedstock to be transported via pipeline to an associated ethylene and polyethylene plant operated by SOCAR subsidiary Azerikimya Production Union. The upgrading program follows recent shutdown and subsequent merger of processing activities at its Azerneftlyag refinery with those of the nearby Heydar Aliyev refinery as a way eliminate economically inefficient production activities and management structures associated with the operation of two separate refineries. Operations at the Azerneftlyag refinery ended on Jan. 1, with some of the plant's still-unidentified production installations to gradually be implemented into operations at Heydar Aliyev. Earlier in the year, local media outlets reported that the modernization and integration program at Heydar Aliyev would raise crude processing capacity at the refinery to over 7 million tpy from its current 6 million-tpy capacity.

Daily Updates – October 28, 2015

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- Saudi Basic Industries Corp., the world's second-biggest chemicals manufacturer, plans more than three joint venture projects in China, according to acting CEO Yousef Al Benyan. SABIC, controlled by the Saudi government announced earlier this month a global restructuring to make itself more agile and cost-efficient. The company plans to expand in China and the US. "There are good prospects there, and hopefully we will be able to announce them in the first quarter next year," Al Benyan said, "We have more than three opportunities for joint ventures in China and we will announce them accordingly," he said. "The restructuring plans will also result in some redundancies in the US and will have the most impact on Europe," Al Benyan said. The reorganization won't affect the company's operations in the Middle East. SABIC, the second-largest chemical company after BASF based on market capitalization, is also on track to expand investment in US shale gas projects through joint ventures.

Rosneft, ChemChina Sign MOU for Proposed Integrated Complex (07, T18)

- OJSC Rosneft and China National Chemical Corp. (ChemChina) have signed a memorandum of understanding to cooperate on development of Rosneft subsidiary Far East Petrochemical Co.'s (Fepco) plan to build the largest integrated refining and petrochemical complex in Russia's Far Eastern Federal District (FEFD), near the city of Nakhodka. The MOU outlines ChemChina's offer to buy a majority stake in Fepco to become the Russian operator's strategic partner on the long-planned project, Rosneft said. In addition to paving the way for a future petrochemical cluster in FEFD, the phased development also would enable increased Russian fuel and petrochemical exports to reach fast-growing markets elsewhere in Asia-Pacific. Scheduled for completion in 2020, Phase 1 of the project would involve construction of a 12 million-tonne/year refinery with the following production capacities: gasoline, 1.57 million tpy; diesel, 6 million tpy; kerosene, 790,000 tpy; and bunker fuel, 140,000 tpy. A second phase of the project, due to complete construction in 2022, would deliver a petrochemical plant that includes a 3.4 million-tpy naphtha steam cracker capable of producing 1.4 million tpy of ethylene and 600,000 tpy of propylene. The cracker will use ethylene production technology licensed by Chevron Lummus Global. The grassroots petrochemical plant additionally will include the following production capacities: polyethylene, 850,000 tpy; polypropylene, 800,000 tpy; butadiene, 200,000 tpy; benzene, 230,000 tpy; and monoethylene glycol, 700,000 tpy. Rosneft currently is preparing project documentation for Phases 1 and 2 of the project, with engineering surveys due to be completed in 2016, Rosneft Chairman Igor Sechin told investors earlier this month. The company said it expects combined construction costs on Phases 1 and 2 to run about 660 billion rubles, including capital investments for infrastructure. Should market conditions warrant it, a potential third and final phase of the project designed to double both refining and petrochemical production capacities at the complex could be built by 2028, Rosneft said.

Profiles of Top Owner/Operators

- **Sinopec**

- Overview

- In 2014, the Company's turnover and other operating revenues were RMB 2,825.9 billion, decreased by 1.9% compared with that of 2013. The operating profit was RMB 73.5 billion, representing a year on year decrease of 24.1%.
- Most of crude oil and a portion of natural gas produced by the Company were internally used for refining and chemical production, with the remaining sold to other customers. In 2014, the turnover from crude oil, natural gas and other upstream products sold externally amounted to RMB 69.6 billion, an increase of 14.3% over 2013. The change was mainly due to the increase in sales volume of crude oil and increase in sales volume and prices of natural gas in 2014.
- In 2014, petroleum products (mainly consisting of oil products and other refined petroleum products) sold by Refining Segment and Marketing and Distribution Segment achieved external sales revenues of RMB 1,633.9 billion, accounting for 58.7% of the Company's turnover and other operating revenues, representing a decrease of 2.8% over 2013 mainly due to the decline of various refinery products prices and sales volume decrease of other refined petroleum products which offset the effect of increase in gasoline, diesel and kerosene sales volumes. The sales revenue of gasoline, diesel and kerosene was RMB 1,342.0 billion, representing an increase of 0.7% over 2013, and accounting for 82.1% of the total sales revenue of petroleum products. Turnover of other refined petroleum products was RMB 291.9 billion, representing a decrease of 16.0% compared with 2013, accounting for 17.9% of the total sales revenue of petroleum products. The Company's external sales revenue of chemical products was RMB 357.0 billion, representing a decrease of 4.6% over 2013.
- Fuling shale gas exploration and development achieved remarkable progress with 106.8 billion cubic meters of proven reserves and 2 billion cubic meters of annual production capacity added. Sinopec produced 361 million barrels of crude oil and 712.7 billion cubic feet of natural gas in 2014, up by 8.48% and 7.95% year on year respectively. The company restructured the refining business based on market changes and processed 235 million tonnes of crude, up by 1.48%. Chemicals manufacturing and marketing was steady, with 10.7 million tonnes of ethylene produced and 60.79 million tonnes of chemicals sold, both up by 7.2%. Leadership advantage in fuels markets was further consolidated, with sales volume reaching 189 million tonnes, up by 5.1%, and non-fuels business grew by 28% to RMB17.1 billion.

Market Analysis and Forecasting

- The analysis of markets includes
 - Segmentation by application e.g. refining, oil and gas, tar sands
 - Sub-segmentation e.g. Sub sea, pipeline, tar sands, shale oil, shale gas, gas to liquids, ethylene, coal liquids, LNG, coal to syngas (huge market in China)
 - Production forecasts
 - Capital equipment investments by geography and application
 - Process flow diagrams depicting components utilized in the applications
- Mcilvaine has unique insights due to complimentary analysis of coal, wind, solar, biomass, ethanol and other alternatives.
- As an example the coal to syngas program in China promises to deliver 30 billion m³/yr of syngas to coastal cities at a far lower price than LNG delivered by ship from the U.S. This means LNG price may be shaped by European demand.

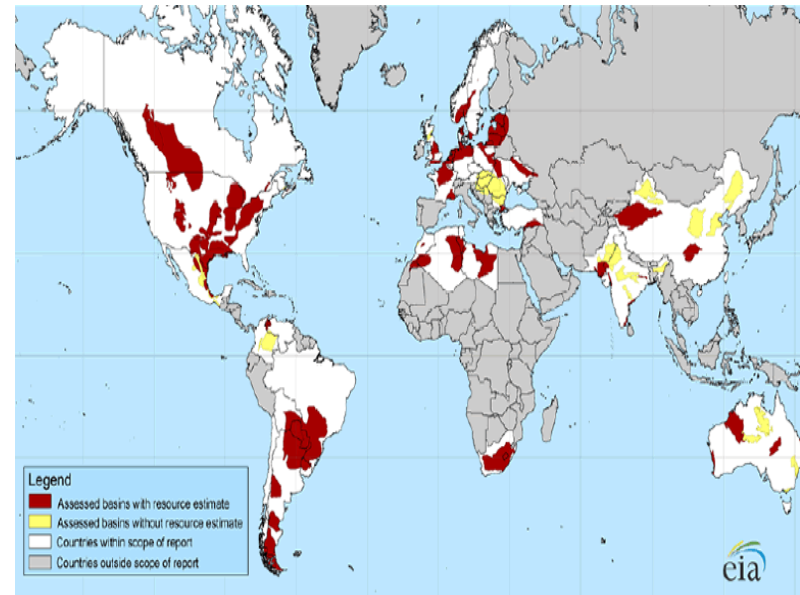
Shale Gas Market Overview

- Worldwide opportunities in “unconventional” oil & gas
 - For oil:* ultra-deep offshore; onshore tar sand & shale
 - For gas:* onshore shale formations with horizontal drilling & fracking



North America

100 year supply: estimated but unproven
20 year supply: probable
10 year supply: proven



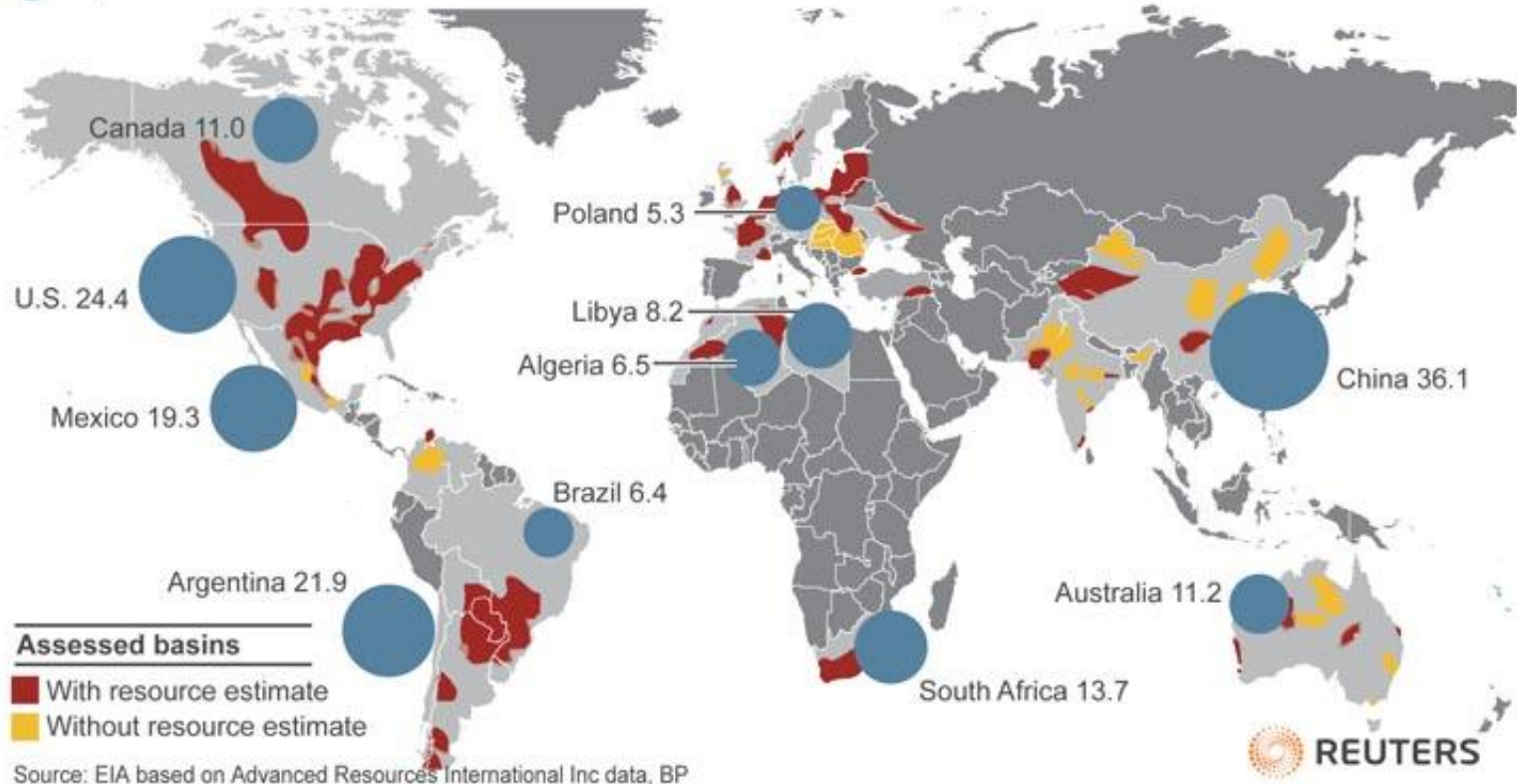
World

Slow start in Europe due to political issues
Slow start in China/Asia due to technology issues
Slow start in S. America due to political/technical issues

Shale Gas Market Overview

Global shale gas basins, top reserve holders

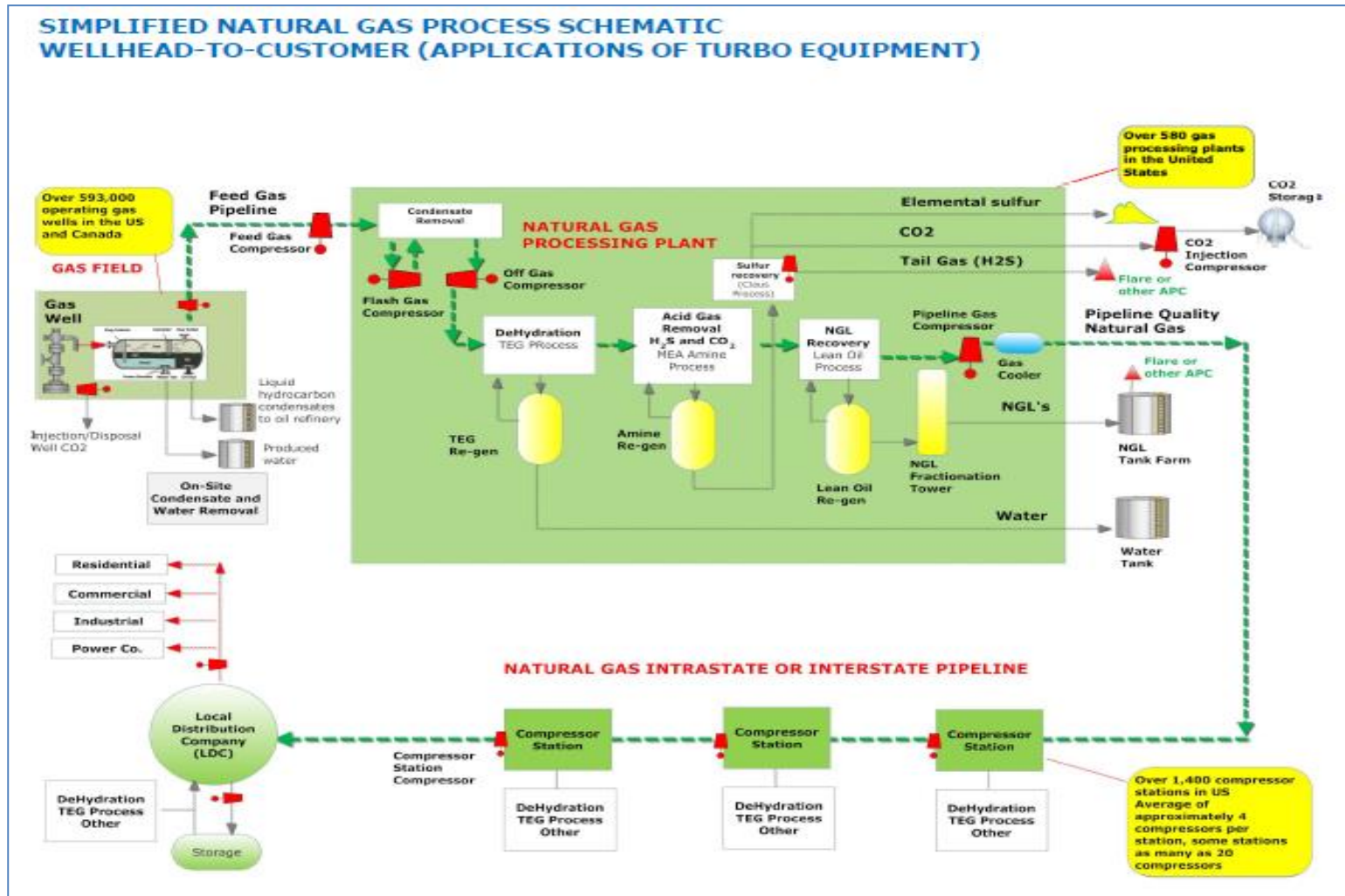
● Top reserve holders 200 - Trln cubic metres



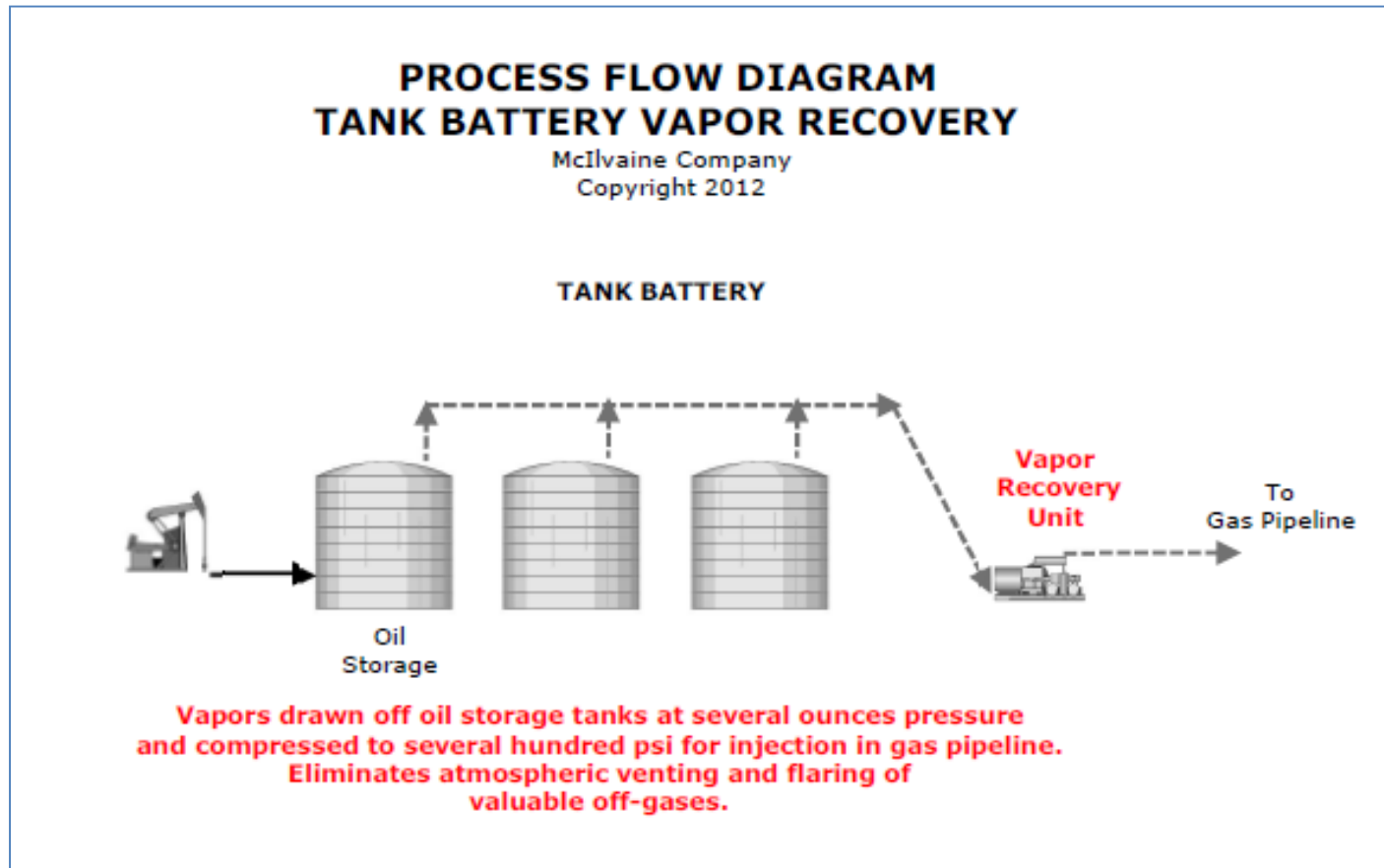
Reuters graphic/Catherine Trevethan

Market Analysis of Processes

Flow Schematics for Gas Processing



Market Analysis of Processes such as Storage of Gas and Liquids



Market Analysis of Pipelines

SIMPLIFIED NATURAL GAS PIPELINE COMPRESSOR STATION SCHEMATIC

NATURAL GAS PIPELINE COMPRESSOR STATION

