**Natural Gas Liquids Spending on the Rise in North America**

**Shale Gas: A Game Changer and More Complications for Price Forecast Developers - Part One**

- Solar energy reported by CAISO in real-time
- The U.S. Northwest gets an online tsunami portal
- Mexico and South Korea enhance their emission reduction policies
- The region’s first copper derivative contract launched in Dubai

**NEW WATCH**

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**Introduction of new products and data sources**

- Delisting of products and data sources
- Potential impact on data
- Changes to data attributes, replacement of products

**Powered by ZEMA**
Supported by market developments in Europe and Asia, new LNG contracts were launched last month. European electricity markets are moving another step closer to integration and price coupling with Nord Pool's selection as a common pricing point for Great Britain Day-Ahead power trading.

Shale natural gas, boosted by technological advancements, is becoming a critical item on the U.S. government's agenda for achieving energy independence. Meanwhile, divergent forces are having varying degrees of impact on the recovery of seemingly abundant reserves, which adds to the uncertainty of natural gas supply projections.
Over the last few years, natural gas has gained major momentum in the U.S. and the nation is now facing what is being referred to as a “natural gas renaissance.” In several years, as promised by some experts, the U.S. will become a net exporter of natural gas. This will have implications not only for the domestic economy by boosting incomes, creating new jobs and government revenue, cutting the trade deficit and enhancing producers’ competitiveness. It will also allow the nation to enjoy many benefits in the international political arena.

Accessibility, higher natural gas prices, and advances in technology, have stimulated commercial development of shale gas resources. The industry reports indicate that technological advances in horizontal drilling brought in a five-fold increase in well productivity. Just a few years ago, LNG terminals were being built in anticipation of importing natural gas; today, they are being converted to exporting terminals fueled by expectations of the ample domestic gas flows.

At the same time, continued rapid development of shale gas in the US and around the world is not a certainty. There are several factors that impact expectations for its production, including pending national environmental standards, limitations in supporting infrastructure, technology, and government decision on whether to exercise control over export or not.

Two In-Depth articles discuss this subject from different angles. One, contributed by IIR Energy, covers the issue of consistently dropping market prices leading to switching producers’ interest from dry gas to natural gas liquids. The second addresses difficulties faced by developers of natural gas projections, brought about by the expansion of shale gas production in the U.S. Reliable natural gas price forecasting is critical, not only for immediate consumers of this commodity, but also for participants in the electricity market due to the leading role the natural gas plays in electricity generation (and it will continue to do so for a long time).

New LNG contacts were launched by two data providers last month. Argus expanded its offerings of global LNG products by adding new series of European and Asian spot price assessments. Asian demand for LNG was also reflected in the new LNG swap developed by CME Clearing Europe, Tradition and ICIS. It is settled against regional indexes for East Asia, the Mediterranean, Iberia and Northwest Europe.

European electricity markets are moving another step closer to integration and price coupling with Nord Pool selection as a common pricing point for Great Britain Day-Ahead power trading. The hub will facilitate the inter-exchange transactions and will arrange for power flows with the interconnector operators. The operation will be conducted by matching demand with the generation based on economic merits. This announcement followed the news on extending interconnection between Great Britain and other parts of the EU, starting with Belgium through the 1000 MW HVDC cable. It will become the third interconnection point with Europe; Britain is already linked with the Netherlands and France.

There are two major types of government policies associated with combating climate change: an increase in renewable generation and reduction in emissions. Over the last month, several new products were introduced to the market in response. CAISO launched a real-time reporting tool for solar powered generation. The EPA introduced two products designed to assist with project planning in regard to environmental considerations. One of them, NEPAssist, pulls data dynamically from multiple databases and web services to conduct online screening of a user-defined region. Another tool by the EPA, developed in partnership with DoE, allows developers to assess under-utilized contaminated lands for solar and wind projects potential.

More effort in emission reduction was taken on the regional level: this time, South Korea and Mexico took steps in implementing their own climate change regimes, including establishing carbon trading markets.
CAISO Reports Real-time Solar Grid Data

On April 22, 2012, CAISO launched Solar Today, a new tool that enhances visibility of renewable resources on the grid. Solar Today reports real-time data of solar energy being generated on the ISO wholesale power grid. 24 real-time data provides transparency by reporting the megawatts being generated by solar power at any given time.

Solar Today is one of several tools the ISO uses to make renewable production data public. Wind Today reports real-time wind production on the grid. The Renewables Watch on the ISO website (see the graph below) provides an overall snapshot of previous day production from renewable sources, such as wind, solar, biomass, biogas, geothermal and small hydroelectricity.

All of these web tools can be accessed here

BRIX Launches 50% Flexibility Contract

On May 2, 2012, BRIX introduced Flex Conventional, the contract for purchase and sale of conventional source-based energy with 50% monthly flexibility in relation to the volume originally agreed on. This new contract enables a buyer to declare the actual desired volume of energy he wishes to acquire (month by month).

“With the electric power prices high volatility, this up to 50% flexibility adds great value to the agents in the Free Contract Environment”, highlights Marcelo Mello, BRIX CEO.

“BRIX Flex Conventional product is an important risk management tool for the free consumer, as it harmonizes the uncertainties connected with its actual consumption and the impossibility of selling any occasional excess energy”, explains Marcelo Mello. “At the same time, the Flex Conventional contract generates advantages for the seller, as it allows the original value of the contract to be reset, in addition to remunerating the flexibility granted to the buyer.”

Should the buyer exercise such flexibility, the original sale price will be adjusted according to the volume of energy actually acquired and the market price at the time of declaration.

NERC’s New Web-Based Database Helps Mandatory Reporting

On May 3, 2012, the North American Electric Reliability Corporation (NERC) launched a web-based database collecting information that can be used for measuring and monitoring contributions of electric power plants to the reliability of the bulk power system.

Electric generating unit operational data has been collected by NERC since 1982 by using the Generating Availability Data System (GADS). In August 2011, NERC’s Board of Trustees broadened GADS participation to all North American conventional power plants.

The new web-based system will facilitate the data collection process and provide NERC access to vital information needed to evaluate electric generation of the bulk power system in North America. Units with a nameplate rating of 50 MW and larger report their information starting January 1, 2012. For units 20 MW and larger, data collection will begin in 2013.

For more information on GADS, click here

NASDAQ OMX Commodities Introduces New Trade Types and UK Spark Spreads


New Trade Types:
- Tailor Made Combinations - allow traders to create standard combinations of orders with up to five different instruments; this will improve the ability of members to communicate complex interests on the exchange.
- Stop Loss Orders - feature both regular Stop Order and Market if Touched Stop Order
- Linked Orders - allow traders to specify either-or conditions for trading in instruments.

UK Spark Spreads:
This is a combination product consisting of UK Power futures and UK Gas futures with nomination in MW/GBP.

Extension of European Union Allowance (EUA) Futures Curves:
The EUA futures curve will be extended to include the December contracts for the years 2015 to 2020 inclusively, and the Certified Emission Reduction futures curve will be extended to include the December contracts for years 2013 to 2020 inclusively.

*Graph created with ZEMA

Genscape Launches ERCOT PowerBuyer

On April 2, 2012, Genscape launched the new ERCOT PowerBuyer service, providing power buyers with a tool to reduce their wholesale power costs. The service includes daily reports specifying hours in tomorrow’s ERCOT's Real-Time market that offer a combination of cost savings vs. the Day Ahead market and low upside risk. In its press release, Genscape stated that PowerBuyer’s customers can reduce their average power costs by up to 14.5%. "Volatility is a fact of life in the ERCOT market,” says Kyle Bessette, head of Genscape’s ERCOT analyst team. “With PowerBuyer, we enable our customers to harness the market's volatility to reduce their costs and avoid risk.”

Genscape monitors over 50 of ERCOT’s largest power plants and has been the leading provider of market intelligence to the ERCOT market since its nodal transition, supported by an experienced team of developers, analysts, and meteorologists. The same rigorous analysis and modeling is behind the PowerBuyer service, which includes a market summary of drivers such as demand, wind generation, outages and congestion.

For more information on GADS, click here
Marex Spectron Launches Cleared Clean Spark Spread Contract

On April 25, 2012, Marex Spectron Group, the global commodities and financial markets broker, launched a cleared clean UK spark spread service. Spark spreads represent the generating margin of gas-fired power stations. Standard spark spreads are a calculation based on the difference between power prices and gas prices (adjusted for fuel efficiency). Clean (or carbon-neutral) spark spreads take into account the carbon costs faced by generators as well as the gas costs.

“We are delighted to see such strong early interest in this new cleared clean spark product and hope that it will attract new traders—financial players and hedge funds—into the market,” said Chris Barton, head of the UK Power desk at Marex Spectron. “Spark spreads have always been a core part of our business; we’ve worked hard to develop liquidity and this new launch reinforces our position as the main spark spread facilitator.”

Nord Pool Spot to Develop the Virtual Hub for Britain

Following a tender run by National Grid Interconnectors, Nord Pool Spot was selected to develop and operate the virtual hub that will support development of a common reference Day-Ahead market price for Great Britain (GB) power exchanges by the end of 2012. The GB market incorporates multiple power exchanges and interconnector operators. The new hub will help all these market participants to integrate, and will report a single electricity market price instead of variety of prices on each GB exchange.

This initiative is part of the North West European market coupling project and will help the GB energy market join with others in Europe to create a single European market by 2014.

EIA Seeks Input on Simplifying Data Collection

On April 9, 2012, The U.S. Energy Information Administration (EIA) proposed to make changes to their electricity data collection in 2013, which involve three forms:

• Form EIA-861, "Annual Electric Power Industry Report"
• The addition of a new form, the Form EIA-861S, "Annual Electric Power Industry Report (Short Form)"
• Form EIA-923, "Power Plant Operations Report"

The changes are aimed at reducing the number of power plants that report fuel cost, quality, and receipts, and narrow the scope of data collected from smaller utilities on retail electricity sales and related data. The proposed changes to the fuel cost, quality and receipts collection would eliminate all power plants with a capacity of less than 200 MW (the reporting threshold: 50 MW) from the survey, and limit the range of fuels collected to coal, petroleum coke, distillate and residual fuel oil, and natural gas. Minor fuels such as blast furnace gas, kerosene and jet fuel would be removed from the survey. The objectives behind the proposed changes are to reduce the workload for survey respondents as well as to cut EIA’s costs for operating the surveys.

COMPLIMENTARY LUNCH & LEARN

Boston, Massachusetts | June 19, 2012

Please mark your calendars for Tuesday, June 19 to join ZE PowerGroup and our partners for a complimentary Lunch and Learn focusing on Data Management Trends and Challenges for Eastern Energy and Commodities Markets. The event will be held from 11:00 a.m. to 4:00 p.m. (EDT). This is an opportunity for you to network with industry experts and market participants as you learn more about the evolving trends in the energy and commodities industry. We also invite you to join us after the workshop for a networking hour and the Boston Red Sox baseball game versus the Florida Marlins.

Venue:
McCormick & Schmick’s
34 Columbus Avenue
Boston, MA
617.482.3999

Agenda
Register
Argus Boosts Global LNG Coverage

On April 12, 2012, Argus launched a new series of European spot LNG price assessments and new forward Asia-Pacific delivery periods. The market need for accurate pricing benchmarks and growing liquidity of spot LNG trade requires a wider global LNG price coverage. The new European market coverage complements the Argus LNG Daily report’s existing Asia-Pacific spot price assessments, market commentary and global netback pricing.

In addition, Argus is expanding its Asia-Pacific LNG coverage because of the greater liquidity and market interest in forward trade in the Asian market. Designed to provide global LNG market participants with insights, Argus Daily reports spot price assessments for Asia-Pacific, the Middle East and Europe, as well as information about shipping movements, market news and analysis.

Argus/IHS McCloskey Launches New API Coal Indexes in Asia-Pacific

On April 24, 2012 Argus and IHS McCloskey launched a major expansion of the API coal indexes in Asia-Pacific. By adding two API coal price indexes to the Argus/McCloskey’s Coal Price Index Report (shown in the graph below) covering high-ash coal exports from Australia and deliveries to south China. API 5 represents 5,500 kcal/kg NAR (net as received) high-ash coal shipped from Australia, while API 8 reflects 5,500 kcal/kg NAR coal delivered to south China.

China consumes about 3.8bn t/yr of coal, a staggering number that is expected to double by 2020. All the Argus and IHS McCloskey indexes are calculated by averaging the relevant Argus and IHS McCloskey price assessments. Read more on page 17.

CME, Tradition and ICIS Launch LNG Swaps

Effective April 17, 2012, CME Clearing Europe, Tradition and ICIS launched the world’s first cleared LNG Swaps as a response to strong demand from the Asian markets for LNG. The product is settled against ICIS Heren’s LNG regional Indexes for East Asia (EAX), the Mediterranean (MDX), Iberia (IBX) and Northwest Europe (NEX).

Louise Boddy, Head of Gas, Power, Emissions and Coal at ICIS, reaffirmed that the growing spot trade sector plays a key role in managing the demand swings for LNG consuming regions, but prices can still move quickly and diverge dramatically across regions.

Platts “Microsite” Reports Jet Fuel Data

On April 10, 2012, Platts started to provide the jet industry with a one-stop source for news, commentary, and price assessments of the aviation industry. The new website section provides online access to web pages devoted to the business of aviation energy, including:

- Platts Global Jet Index, an index reflective of a worldwide value based on Platts’ daily spot market assessments for regional jet fuels
- Graphics of Platts’ spot regional jet fuel price assessment
- Daily commentary and overview of jet fuel pricing in key refining and consuming markets worldwide
- Up-to-the-minute jet fuel news

“We’re pleased to introduce a one-stop source of global jet fuel news and price data that we believe will further enhance transparency in, and broader understanding of, the aviation fuel markets,” said Dave Ernsberger, Platts Global Editorial Director of Oil.

Genscape Offers Europe’s North Sea & Forties Oil Data Service

On April 11, 2012, Genscape announced the expanded launch of Forties oil data service, the major factor in establishing crude oil prices for the entire Atlantic Basin from Norway to Angola. Genscape reports half-hourly updates on flows to the on-shore portion of the Forties pipeline and tracks ocean going tankers loaded at Hound Point. It also states oil storage at Dalmeny daily and yields a complete and accurate picture of oil available for export. The pipeline is calibrated against the UK Department of Energy and Climate Change data to ensure accuracy from every field located in the North Sea.

"Oil traders know the value of having access to the actuals, not estimates or algorithms or mathematical models, but true actual data obtained by the in-the-field monitors,” says Abudi Zein, Senior Vice President for Oil at Genscape. "Ten years ago, we launched an effort to innovate data collection of energy fundamentals. Our European oil offering couldn’t have launched at a better time."

Platts to Assess ex-Cushing WCS

On April 20, 2012, Platts announced its proposal to launch a new Western Canadian Select crude oil assessment on a FOB Cushing, Oklahoma, basis beginning June 1, 2012.

The ex-Cushing WCS assessment is an outright price, and will be published as a differential to the calendar month average (CMA) of the NYMEX WTI contract and reflect barrels to be lifted/injected about one month out and would rollover using the Canadian rollover schedule.


*Graph created with ZEMA
CME Delists Contract Months for Singapore Fuel Oil 180 cst (Platts) Crack Spread Swap Futures

On April 27, 2012, NYMEX delisted all contract months previously listed beyond December 2014 for the Singapore Fuel Oil 180 cst (Platts) Crack Spread Swap futures contract. Since the index provider for this contract changed the barrel metric ton conversion factor from 6.5 to 6.35 barrels per metric ton, NYMEX had to introduce new contracts based on the new 6.35 conversion rate. As a result of the introduction of the new replacement contracts, the existing Singapore Fuel Oil 180 cst (Platts) Crack Spread Swap futures are set to be delisted once all existing open interest expires. December 2014 is the last available contract month for the Singapore Fuel Oil 180 cst (Platts) Crack Spread Swap futures contract. The trading venues are NYMEX trading floor and CME ClearPort.

CME Delists NYMEX Crude Oil Backwardation/Contango Index and NYMEX Crude Oil MACI Index

Effective April 13, 2012, NYMEX delisted NYMEX Crude Oil Backwardation/Contango (B/C) Index (Rulebook Chapter: 968) and NYMEX Crude Oil MACI Index (Rulebook Chapter: 969) contracts. There was no open interest in these contracts. The trading venues were CME ClearPort.

CME Code | Description
--- | ---
XX | NYMEX Crude Oil Backwardation/Contango (B/C) Index
XC | NYMEX Crude Oil MACI Index

Platts to End 27.5kt Dirty Tanker Freight Assessments

Platts announced its intent to discontinue three assessments of fuel oil 27.5kt dirty tanker freight effective November 1, 2012:
- Cross Mediterranean, Med-Med
- Baltic-United Kingdom/Continent, Baltic-UKC
- United Kingdom/Continent-Mediterranean, UKC-Med

The rates are currently published in the Platts dirty Tankerwire and on Platts Global Alert. The assessment codes are:
AAKXF00 - 27.5kt Med-Med Daily worldscale
AAKXK00 - 27.5kt Med-Med Monthly average worldscale
AAKXQ00 - 27.5kt Med-Med Daily $/mt
AAKVV00 - 27.5kt Med-Med $/mt monthly average
AAKXB00 - 27.5kt Baltic/UKC Daily worldscale
AAKXG00 - 27.5kt Baltic/UKC Monthly average worldscale
AAKXN00 - 27.5kt Baltic/UKC Daily $/mt
AAKXV00 - 27.5kt Baltic/UKC $/mt monthly average
AAKXD00 - 27.5kt UKC-Med Daily worldscale
AAKXI00 - 27.5kt UKC-Med Monthly average worldscale
AAKXT00 - 27.5kt UKC-Med Daily $/mt
AAKXO00 - 27.5kt UKC-Med $/mt monthly average

Platts to End some Baltic and Med Freight Rates


These assessments are only published on Platts Global Alert, and they are not included in Platts price assessments or available in any other publication.

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| - Novo-Aug    | - Ceyhan-R’dam |
| 80kt          | 80kt          |
| 130kt         | 130kt         |

Platts to Begin Second-month NGL Assessments

On April 20, 2012, Platts proposed to launch physical natural gas liquids assessments for the second-month starting June 1, 2012. The new assessments would reflect one delivery month forward from the prompt delivery month.

Platts currently assesses NGLs for injection in the current month, with the rollover three calendar days before the beginning of the next month.

The new assessments will be introduced for non-LST Mont Belvieu, Texas, purity ethane (C2), ethane/propane mix (EP), propane (C3), normal butane (C4), non-Targa natural gasoline (C5).

ICE Futures U.S. Adds New U.S. Grain and Oilseed Contracts

ICE Futures U.S. starts trading five new cash settled U.S. grain and oilseed contracts on May 14, 2012, and options on May 15, 2012. Expanding the suite of agricultural contracts based on the market demand, ICE offers its customers more alternatives for the following products:

• U.S. Corn
• U.S. Wheat
• U.S. Soybeans
• U.S. Soybean Meal
• U.S. Soybean Oil

The contracts are based on the CBOT settlement price and are cleared at ICE Clear U.S.

ICE Launches Grading Brazil Arabica

Beginning June 1, 2012, ICE starts offering grading for Brazil Arabica on the eCOPS system. All functionalities on eCOPS will be available for Brazilian stock with the exception of issuing notices. The issuance of notices will be available starting February 2013 for the March 2013 contract. Effective March 2013, ICE is implementing Brazil as a deliverable origin on the Coffee “C” futures contract, at a differential of 900 points under par.

CME Launches Aluminum Premium Platts (25MT) Swap Futures

On April 30, 2012, CME launched newly introduced Aluminum MW U.S. Transaction Premium Platts (25MT) Swap Futures contract based on Platts’ aluminum price assessments. With the launch of this new product, CME settles and clears a total of 470 contracts based on physical price assessments published by Platts. The trading venues are CME ClearPort and Open Outcry on the NYMEX trading floor. These contracts are listed with, and subject to, the rules and regulations of COMEX.

GFI Group Trades the First Iron Ore Swap

On April 19, 2012, GFI Group Inc. executed the first trade of an Iron Ore Swap cleared at the Singapore Exchange. The trade was executed on GFI’s trading platform for energy and commodities - EnergyMatch Europe.

Toby Joyce, GFI Group Head Broker of Iron Ore Swaps in Singapore stated, “We are very pleased to be the first to offer this service for iron ore swaps. This allows us to increase the speed and efficiency in the trade capture process and to reduce operational and settlement risk. We have worked hard with iron ore swaps clearing and Trasport to provide this enhanced service to our clients”.

CME Adds Black Sea Wheat Futures

Effective June 5, 2012, CME lists Black Sea Wheat futures for trading on CME Globex for the following trade date. The new contract will provide risk management and bring price discovery to the growing Black Sea region. The physical delivery is done at designated ports in Ukraine, Romania, and Russia.

This contact is listed with, and subject to, the rules and regulations of CBOT. CME already offers Wheat Futures as shown in the graph below. New European contract will allow to compare wheat prices between regions.

DGCX Launches Copper Futures

On April 20, 2012, the Dubai Commodities Exchange (DGCX) launched Copper Futures, the region’s first copper contract. The introduction of this new contract is the result of a high demand from market participants ensured by ongoing construction and infrastructure projects. The demand for copper is expected to continue to grow across the region with over 600,000 tons of copper being consumed annually in the Middle East at the present.

DGCX also established a Copper Advisory Group, an informal group consisting of copper marketers that provides advice on the design of the Copper Futures Contract, facilitate market feedback and helps DGCX ensure that it maintains a constant feedback loop with the copper market.

Mercuria Moves Into Global Metals Markets

On May 3, 2012, Mercuria Energy Group, a privately-owned group of companies active over a wide spectrum of global energy markets including crude oil and refined petroleum products, natural gas, LNG, power, coal, biodiesel, vegetable oils and carbon emissions, announced an expansion of its global trading activities into base metals. The business will be located in both London and Shanghai. The two trading groups will collaborate closely and will be focused primarily on the trading of Copper, Aluminium, Zinc, Nickel, Tin and Lead; spanning the London Metals Exchange, NYMEX and Shanghai.

*Graph created with ZEMA
On April 5, 2012, NOAA announced the launch of a new suite of online portal and smartphone apps providing information on tsunami zones in the U.S. Pacific Northwest, and the Pacific Northwest Tsunami Evacuation Zones. The tools provide an at-a-glance view of tsunami hazard zones along the coasts of Oregon and Washington.

The tool was developed by the Northwest Association of Networked Ocean Observing System (NANOOS) and launched in partnership with the Oregon Department of Geology and Mineral Industries, and Washington State Department of Natural Resources - agencies responsible for the original development of the evacuation zones.

“These are potentially life-saving tools now available for free to the people who live, work and play in our ocean and coastal waters in the Northwest,” said Zdenka Willis, U.S. Integrated Ocean Observing System (IOOS) program director. “The system integrates maps and allows users to see if they are in an evacuation zone, as well as plan evacuation routes,” said Jan Newton, Executive Director for NANOOS. “Planning tools like this are essential to safeguarding lives and property.”

On April 25, 2012, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy’s (DoE) National Renewable Energy Laboratory announced a launch of new tools designed to test underutilized sites and contaminated land for solar and wind energy potential. The tools allow to evaluate sites for renewable energy potential without the need for technical expertise. The tools can help evaluate individual or multiple sites, such as brownfields, and other hazardous waste sites, abandoned parcels, parking lots, and commercial or industrial roofs. Using the decision trees, state and local governments, site owners and community members can identify the best sites for solar or wind facilities from a logistical and economic standpoint.

“Opportunities to install renewable energy systems on vacant properties can be found in every community,” said Jared Blumenfeld, EPA’s Regional Administrator for the Pacific Southwest. “Tapping sun and wind power at brownfield sites, rooftops, parking lots, and abandoned land could provide untapped gigawatts of clean energy.”

In the press release, the EPA estimates that there are approximately 490,000 sites and almost 15 million acres of potentially contaminated properties nationwide. Placing renewable energy producing systems on contaminated sites can increase economic value of the properties, provide a sustainable land reuse option, create jobs and provide clean energy.

On April 23, 2012, ICE announced that the UK Department of Energy & Climate Change had selected the exchange as the preferred supplier to conduct aviation allowances auctions for Phase III of the EU Emissions Trading Scheme (EU ETS) on behalf of the UK Government. ICE will provide auction services to its members and customers for both compliance and price risk management purposes as part of the next phase of the EU ETS.

Emission trading volumes have grown significantly since the first contract was launched in 2005, with annual volumes for the exchange and options products achieving a record 7.57 million contracts in 2011 (7,570 million tonnes of CO2). The UK’s Phase III and aviation auctions are due to start in November, subject to approval by the European Union.

On April 24, 2012, the U.S. Environmental Protection Agency (EPA) announced the public release of NEPAssist, a web-based mapping tool developed to facilitate more efficient and effective environmental reviews and project planning. The tool targets federal agencies and is part of the White House Council on Environmental Quality initiative to modernize and reinvigorate federal agency implementation of the National Environmental Policy Act (NEPA). NEPA requires all federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary process. The mapping tool can be used by Federal agencies to identify alternative project locations and to avoid or minimize their impact.

NEPAssist collects data from publicly available federal, state, and local databases, and allows the public to view information about environmental conditions within the area of a proposed project even during early stages of project development.

On April 5, 2012, Deutsche Börse started reporting online free data on carbon emissions from 1,800 companies around the world as part of the data partnership with the Carbon Disclosure Project (CDP), an independent non-commercial organization that holds the world’s largest database of climate information reported by businesses. The data allows comparisons between companies in terms of their contributions to climate protection, and ensures transparency. Deutsche Börse has offered sustainability data on its website since April 2011; the new CDP emissions data complements other environmental, social and governance data - or “ESG criteria” - disclosed on the same portal.

On April 19, 2012, Mexican legislature passed a climate change bill after three years of debate and revisions. The bill mandates the following:

- Requirements that future governments meet regular emissions reduction targets with the goal of ultimately cutting carbon emissions 30% below business-as-usual levels by 2020, and by 50% below 2000 levels by 2050
- Substitution of renewable sources for 35% of all electricity sources by 2024
- Requirement of mandatory emissions reporting
- Establishment of a carbon-trading market
- Creation of a commission to oversee implementation of the bill

Now the expectations lie with President Felipe Calderon to sign the bill into law.

On May 2, 2012, South Korea’s parliament approved a national emissions trading scheme (ETS), making it only the third Asia-Pacific country behind New Zealand and Australia, to regulate the country’s growing greenhouse gas pollution. Although faced with strong industry opposition, the country is determined to join a growing number of nations to put a price on carbon. With the overwhelming support of lawmakers, 148 approved the scheme of the 151 who voted. Seoul is serious about implementing an ETS by 2015 with the cap-and-trade system potentially covering around 400mn t/yr of CO2 equivalent (CO2e). The ETS legislation encourages all sections of the economy to become more energy efficient, everyone from steelmakers, and shipbuilders to power generators and other large institutions producing more than 25,000 t/yr of CO2e.
NYSE Liffe U.S. Launches Futures on DTCC GCF Repo Index

Effective July 16, 2012, NYSE Liffe U.S. begins trading futures based on the Depository Trust and Clearing Corporation’s (DTCC) proprietary DTCC GCF Repo Index, subject to regulatory approval. The futures are being traded exclusively on NYSE Liffe U.S. and will clear at NYPC. They are designed to track the $400 billion GCF Repo market, which clears at DTCC’s Fixed Income Clearing Corporation.

The new product is calculated using actual, fully-collateralized transactions in the underlying cash Treasury, Agency and Agency Mortgage-Backed markets, with the DTCC GCF Repo Index following the average interest rate paid each day for the most actively traded U.S. repo market. The new futures are designed to increase efficiency of the U.S. futures market.

Tom Callahan, CEO of NYSE Liffe U.S., stated in a press release, “GCF Repo Futures offer the industry a new and more reliable short-term interest rate benchmark for market participants to precisely hedge critical business risks. Based on an index of actual, fully collateralized and centrally cleared financing transactions, we expect these products to quickly become a fundamental tool for the management of short term interest rate risk.”

CME: Bursa Malaysia Derivative Options

Effective May 20, 2012, CME lists the options on FTSE Bursa Malaysia Kuala Lumpur Composite Index (KLCI) futures on CME Globex for trade date May 21, 2012. With this contract, the spot month, the next month and the following two calendar quarterly months will be listed.

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<td>Options on FTSE Bursa Malaysia Kuala Lumpur Composite Index (KLCI) Futures</td>
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ISE Premium Hosted Database™ Features Tick Data and Analytics

On April 30, 2012, the International Securities Exchange (ISE) announced that it had launched the ISE Premium Hosted Database (ISE PhD), a historical tick database that offers full OPRA data including all quotes and trades from all exchanges, U.S. equities level one data, pre-computed implied volatilities and Greeks, full corporate action histories, and ISE Open/Close trade data.

This hosted solution is ideal for full tick or time interval back-testing, validating algorithms, pre/post trade analysis, charting, scanning and time and sales. Subscribers benefit from a pay as you go pricing model that is flexible and customized to their specific data requirements. ISE PhD is accessed easily through a web browser interface with pre-defined queries, or directly through a standard API. In addition to internet access, a variety of connectivity alternatives are offered for ISE PhD, including a cross-connect at ISE’s primary data center (Equinix NY4), through a secure FTP server or via a direct connection from one of many managed connectivity providers, such as BT Radianz.

Jeff Soule, ISE’s Head of Market Data, said, “ISE PhD is a unique solution that was designed to meet the growing demand for voluminous amounts of historical market data in a straightforward, cost-efficient manner. By subscribing to a fully hosted solution, customers can avoid the significant infrastructure costs associated with such a large data quantity and also benefit from the user-friendly features of the platform such as pre-defined query tools. ISE PhD offers a flexible approach to using this valuable, high-quality data set for a variety of risk management, research, and analytical tools.”

CME Launches New S&P Real-time Indexes

Effective May 14, 2012, CME publishes S&P Sri Lanka 20 Index in Sri Lankan rupee (LKR) for the next trade date. This index will be transmitted every 15 seconds.

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<tr>
<th>CME Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>SPLK20LP</td>
<td>S&amp;P Sri Lanka 20 Index [LKR]</td>
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S&P Indices and TMX Launch New Versions of the S&P/TSX Composite Index

Effective July 16, 2012, NYSE Liffe U.S. and TMX Group Inc. begin trading two indexes providing measuring tools for specific stock characteristics within the S&P/TSX Composite, the principal market measure for the Canadian equity markets.

The S&P/TSX Composite Low Volatility Index measures the performance of the 50 least volatile stocks in the S&P/TSX Composite and represents a benchmark for low volatility strategies in the Canadian stock market. Components are weighted relative to the inverse of their corresponding volatility, with the highest weights assigned to the least volatile stocks.

The S&P/TSX Composite High Beta Index will measure the performance of the 50 constituents of the Composite that are the most sensitive to changes in market returns. It will serve as benchmark for investors with a bullish view of the Canadian stock market. Constituents are weighted in proportion to their market sensitivity, or beta, with the highest beta stocks having the highest weights.

“We are extremely excited to license these two new indices,” says Michael Cooke, Head of Distribution for PowerShares Canada. “We believe that a low volatility portfolio may offer protection in down cycles while still participating in upward trending cycles. In addition, we believe that a high beta portfolio allows investors to increase their exposure to the equity market without using leverage.”
CME Adds Nasdaq End-of-Month Options

Effective May 20, 2012, CME lists two new Nasdaq End-of-Month (EOM) options for trade date May 21, 2012 on CME Globex. With this launch, CME delists the week 5 of the Nasdaq 100 Weekly options (CME Code= DN5) and E-mini Nasdaq 100 Weekly options (CME Code= QN5).

<table>
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<tr>
<th>CME Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>DN5</td>
<td>Nasdaq 100 End-of-Month Option</td>
</tr>
<tr>
<td>QN5</td>
<td>E-mini Nasdaq 100 End-of-Month Option</td>
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</table>

The new contracts are listed with, and subject to, the rules and regulations of CME.

Deutsche Börse Launches the DAX ex Financials Index

On April 26, 2012, Deutsche Börse launched the DAX ex Financials Index, which measures all stocks in the German blue-chip DAX index except for financial institutions, such as banks, financial services, insurance and real estate.

The DAX ex Financials Index targets institutional investors who want to access the performance of leading German companies without exposure to the financial industry. This index responds to client demand for a flexible rules-based solution for their benchmarking and passive investment needs.

The DAX measures the performance of the 30 largest and best performing companies on the German equities market representing around 80% of the listed market capitalization in Germany. The DAX ex Financials Index currently comprises 25 of the 30 DAX components.

Xetra Launches Bond Index ETFs on Euro Zone and German Securities

On May 3, 2012, Xetra/FWB launched three new exchange traded funds issued by db x-trackers II, a subsidiary of Deutsche Bank:

ETF name: db x-trackers II Eurozone Sovereigns Double Long Daily ETF
Asset class: bond index ETF
ISIN: LU0621755080
Total expense ratio: 0.30 percent
Distribution policy: non-distributing
Benchmark: Deutsche Bank Eurozone Sovereigns Double Long Daily Index
The db x-trackers II Eurozone Sovereigns Double Long Daily ETF enables investors to participate with a leverage factor of two in the positive or inverse performance of government bonds issued by euro zone countries.

ETF name: db x-trackers II Eurozone Sovereigns Double Short Daily ETF
Asset class: bond index ETF
ISIN: LU0621755676
Total expense ratio: 0.30 percent
Distribution policy: non-distributing
Benchmark: Deutsche Bank Eurozone Sovereigns Double Short Daily Index
The db x-trackers II Eurozone Sovereigns Double Short Daily ETF allows investors for the first time to participate with a leverage factor of two in the positive or inverse performance of government bonds issued by euro zone countries.

ETF name: db x-trackers II iBoxx € Germany 7-10 TRI ETF
Asset class: bond index ETF
ISIN: LU0730820569
Total expense ratio: 0.15 percent
Distribution policy: distributing
Benchmark: iBoxx € Germany 7-10 Index
The db x-trackers II iBoxx € Germany 7-10 TRI ETF offers investors access to the government bond market of Germany with the opportunity to react to interest rate expectations within the maturities of seven to ten years.

CME Adds Japanese Government Bonds

Effective May 1, 2012, CME lists the addition of Japanese Government Bonds to the collateral list for foreign sovereign debt, which is acceptable for CDS, IRS and listed derivatives. Using the JGB Book Entry system as the settlement platform in Japan, CME Clearing will need clearing member firm’s local market JGB Book Entry system delivery instructions before the firm’s intent to pledge. The asset type will be BILL or BOND and selecting currency JPY to enter these transactions into Clearing 21.

BM&FBOVESPA Announces Second Preview for the Indexes

On May 7, 2012, BM&FBOVESPA announced the second preview for various indexes, as well as the Ibovespa theoretical portfolio, which will be valid for the period of May to August 2012. This preview is a regular practice of conducting previews of the new indexes:

- The first preview is during the first trading session of the final month of the standing portfolio
- The second preview is in the session following the 15th of the final month of the standing portfolio
- The third preview is during the last trading session of the standing portfolio

Description of indexes methodology can be viewed here
For contract specifications click:
- Bovespa Index - ibovespa
- Brazil Index 50 - IBX-50
- Brazil Broad-Based Index - IBra
- Mid-Large Cap Index - MLCX
- Small Cap Index - SMLL
- Corporate Sustainability Index - ISE
- Electric Power Index - IEE
- Industrial Sector Index - INDX
- Consumption Index - ICON
- Real Estate Index - IMOB
- Financial Index – IFNC
- Basic Materials Index - IMAT
- Public Utilities Index - UTIL
- Valor BM&FBOVESPA Index - IVBX-2
- Special Corporate Governance Stock Index – IGC
- Corporate Governance Trade Index – IGCT
- Special Tag Along Stock Index - ITAG
- Dividend Index - IDIV
- Carbon Efficient Index - ICO2
Shanghai and Shenzhen Launch CSI 300 ETF

On April 5, 2012, fund companies Huatai-PineBridge and Harvest Fund Management launched the CSI 300 Exchange Traded Fund listed on the Shanghai and Shenzhen stock exchanges. The CSI 300 ETF, the China’s first cross-exchange ETF, is considered to be an important step in building a blue chip market in China and may create an avenue for more ETF products.

A recent report by the China International Capital Corp said that investing in the ETF reflects confidence in China’s most significant industries as the CSI 300 Index covers 70% of the total value of China's yuan-denominated A-share market. It is estimated that the combined asset value of the two fund companies’ CSI 300 ETFs will be more than 10 billion yuan (US$1.58 billion).

"The introduction of the CSI 300 ETF provides a transparent and low cost investment tool through passive equity investment," said Yang Yu, General Manager of the Structural Products Investment Department at Harvest. "Also, the management fee of ETF varies from 0.3 percent to 0.5 percent, below a stock fund’s fee of 1.2 percent," Yang said.

CME Discontinues Two S&P Real-time Indexes

Effective May 18, 2012, CME delists VTL Navellier Revenue Weighted Index and Index IQ Japan Mid Cap Index at the end of the business day.

<table>
<thead>
<tr>
<th>CME Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>REVWLOU</td>
<td>VTL Navellier Revenue Weighted Index</td>
</tr>
<tr>
<td>IQMDJPN</td>
<td>Index IQ Japan Mid Cap Index</td>
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</table>

ICE and Cetip to Develop Brazilian Debt Trading Platform

On April 26, 2012, ICE completed an agreement with Cetip, the largest clearing house in Brazil, to develop and deliver a new fixed income trading platform for Brazilian corporate and government bonds. ICE is to develop the technology while Cetip is responsible for product strategy and the promotion of usage in Brazil. This partnership aims to bring more liquidity and depth to the securities market in Brazil.

Luiz Fernando Fleury, Cetip CEO, said, "A major reason for this partnership is ICE’s demonstrated ability to successfully deliver liquidity and pricing transparency in other less liquid markets, similar to the scenario we currently have with our local corporate debt."

The platform is expected to be launched in the second half of 2012.
CME Lists Plastics Swap Futures

Effective April 30, 2012, CME listed three new plastics swap futures contracts for the trading date of May 1, 2012. The trading venues are CME ClearPort and NYMEX Trading Floor. These contracts are listed with, and subject to, the rules and regulations of NYMEX.

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<tr>
<th>CME Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>HPD</td>
<td>HDPE High Density Polyethylene (PCW) BALMO Swap Futures</td>
</tr>
<tr>
<td>LEL</td>
<td>LLDPE Linear Low Density Polyethylene (PCW) BALMO Swap Futures</td>
</tr>
<tr>
<td>PPW</td>
<td>PP Polypropylene (PCW) BALMO Swap Futures</td>
</tr>
</tbody>
</table>

For HPD contract specifications click [here](#)
For LEL contract specifications click [here](#)
For PPW contract specifications click [here](#)

CommodityNetwork: New Service for Commodities Analysis

On April 18, 2012, Barchart.com announced the launch of an online source of real-time quotes, in-depth news, information and analysis about commodities. The service is provided to CommodityNetwork, a service of INTL FCStone Inc. and includes Barchart’s Professional and Lite version of the application, as well as mobile services.

“Barchart is proud to support the CommodityNetwork with our full suite of multi-asset and multi-device real-time quote, chart and news solutions,” said Eero Pikat, President of Barchart. “We are extremely pleased with the integration and launch of our modular designed front-end system that features integrated CommodityNetwork news and market tools,” added Pikat.

“We are thrilled to partner with Barchart,” said Eileen S. Stein, Vice President of CoffeeNetwork, LLC. “Their flexibility and timely attention to detail in building our new market application has proven essential in increasing our offerings to our customers as well as allowing us to fulfill new customer needs,” added Stein.

CBOE and DRW to Create Stock Index Variance Futures

On April 25, 2012, the CBOE Futures Exchange, LLC (CFE) and DRW Trading Group announced an agreement that will allow CFE to use DRW’s methodology to create variance futures. These futures will match the quoting conventions and economic performance of OTC stock index variance swaps. CFE expressed its intent to base a new futures contract on the variance of the S&P 500® (SPX), with the expected introduction later this year, subject to regulatory approval.

Variance swaps measure the difference between the expected and actual variance of an underlying instrument over a fixed time period.

CBOE President and COO Edward T. Tilly said, “CFE’s ability to offer products that combine the conventions of OTC variance swaps with the benefits of exchange-traded futures—transparency, price discovery, certainty of execution and protection against counterparty risk through the OCC—will offer significant benefits for both groups.”

“As a firm with a strong presence in both exchange and OTC markets, we envision both sides benefiting from cleared variance futures,” said Donald R. Wilson, founder and CEO of DRW Trading Group. “Access to variance swaps has typically been limited to the large OTC broker-dealers. By creating an economically equivalent futures-style contract, more market participants will have another avenue to mitigate volatility risk exposure. In addition, with more players in the market, both groups can benefit from an increase in market liquidity.”

Xetra Launches Commerzbank ETCs for Metals and Gasoil

On April 3, 2012 Xetra launched twelve new exchange-traded commodities (ETCs) issued by Commerzbank AG.

The new ETCs allow track performance of platinum, palladium and gasoil. The underlying indexes track the positive and inverse performance of each individual commodity. The indexes are calculated by Commerzbank and follow the movements of the underlying commodity futures contracts. They comprise a leverage component and an interest rate component. The leverage component is based on the daily percentage movements of the futures contract contained in the index. The interest rate component represents an investment in a risk-free money market instrument minus index fees and costs of collateralisation.

Turkey Eyes Cross-Commodity Energy Exchange

On April 27, 2012, the Turkish energy ministry announced its plan to publish a strategy document specifying the goals and timeline for the creation of a cross-commodity energy exchange. A model under consideration is the incorporation of the Izmir-based futures exchange TurkDex and a new cross-commodity exchange into the current Istanbul stock exchange. The new exchange intends to conduct power, gas, oil and emissions trading, which could turn Istanbul into a regional financial center and energy hub.

BM&FBOVESPA to Develop Derivatives Market in Chile

On April 12, 2012, BM&FBOVESPA and the Santiago Stock Exchange (BCS) signed an agreement to implement the Chilean derivatives market at the Santiago Stock Exchange. The agreement specifies the transfer of knowledge and expertise in derivatives market from BM&FBOVESPA to the Chilean Exchange. The scope of information covers products such as equity, interest rate and FX options and futures. This initiative is one of the steps the two exchanges have been taking in building a strategic partnership, which officially started in December 2010. Other strategic projects in the pipeline are connectivity, order routing, and market data distribution.

NASDAQ OMX Acquires NOS Clearing ASA

On April 25, 2012, NASDAQ OMX Group, Inc. announced the acquisition of the Norwegian NOS Clearing ASA, a clearing house for tanker and dry cargo freight, seafood derivatives and electricity certificates.

NOS Clearing ASA has been the leading clearing house for the freight market since 2001 and is the first clearing house to establish a cleared seafood market in 2005.

Geir Reigstad, Senior Vice President, NASDAQ OMX Commodities, said, “We are very pleased to complete this acquisition and to welcome a highly competent organization into the NASDAQ OMX family. The acquisition fits perfectly into our strategy to grow globally within the energy space, since freight is a key part of the energy supply chain. In addition to that, we are entering a new product range, clearing of seafood derivatives, with a large global potential.”

The acquisition is subject to regulatory approval and the approval by the shareholders of Imarex ASA, the owner of NOS Clearing ASA, listed on the Oslo Stock Exchange.
**Other Matters**

**Deutsche Börse Takeovers Eurex**

On April 30, 2012, Deutsche Börse Group announced completion of the acquisition of SIX Swiss Exchange’s 50-percent share in Eurex Zürich AG, which was agreed on June 7, 2011. Deutsche Börse AG paid 295 million euros and transferred 5.3 million shares to the SIX Group, which gives the SIX Group a stake of around 2.7% in Deutsche Börse AG. In return, Deutsche Börse has acquired the SIX Group’s share in the Eurex Group.

Deutsche Börse Group is fully acquiring all subsidiaries and shareholdings of Eurex Group, including International Securities Exchange Holdings (ISE), Inc., as well as the stakes in Direct Edge Holdings, LLC and the European Energy Exchange AG.

**NYSE and ATG to Connect to Latin American Markets**

On April 27, 2012, at the 16th ASEAN Exchanges CEOs meeting, the ASEAN Exchanges announced that the ASEAN Trading Link will be launched in June 2012, as planned. Initially, the connection will be established between Bursa Malaysia and Singapore Exchange. In August 2012, the Stock Exchange of Thailand will be added.

At the same meeting, the ASEAN Exchanges formalized an agreement with FTSE to provide ASEAN market data and analytics.

Magnus Bocker, Chief Executive Officer of the Singapore Exchange said, “The collaborative decision of the member Exchanges to roll out the ASEAN Trading Link will mark our first key milestone towards breaking down the barriers to cross border trade in ASEAN. Through the trading link, investors in ASEAN will enjoy a new ease of access to a wider investment selection as well as tap the region’s growth opportunities. The three bourses that will participate in the first stage of the ASEAN Trading Link represent approximately two-thirds of the USD2.1 trillion market capitalization of the seven members of the ASEAN Exchanges”.

It is expected that the full collaboration will be represented by all ASEAN Exchanges’ members:

- Bursa Malaysia
- Hochiminh Stock Exchange
- Hanoi Stock Exchange
- Indonesia Stock Exchange
- The Philippine Stock Exchange Singapore Exchange
- The Stock Exchange of Thailand

**Complimentary Lunch & Learn**

**Geneva, Switzerland | June 5, 2012**

Please mark your calendars for Tuesday, June 5 to join ZE PowerGroup and our partners for a complimentary Lunch and Learn focusing on ETRM Integration and Curve Management for European Energy and Commodities Markets. The event will be held at The Swissotel Métropole Geneva from 11:00 a.m. to 4:00 p.m. (CEST). This is an opportunity for you to learn more about the evolving trends and developments in the European energy and commodities industry, as well as to meet and network with industry experts and market participants.

**Venue:**

The Swissotel Métropole Geneva
34, Quai Général Guisan
1211 Geneva 3
Switzerland
During the last month, in Nepool and New York, electricity spot prices did not change on monthly basis as reduced heating demand was balanced by slightly increased natural gas prices.

California electricity prices increased, supported by supply-demand concerns.

Reduced heating demand curbed electricity prices in PJM.

On the East coast, increased seasonal temperatures suppressed heating demand.

On the West coast, temperatures stayed at seasonal norms resulting in no impact on electricity prices.

In comparison with the previous month (as described in April 2012 DataWatch), electricity price forwards moved lower, supported by declined natural gas futures prices. At the same time, the general trend remained the same. Electricity prices are expected to increase significantly in years 2013-2014, especially in New York and California.

The prices of derivatives built on European carbon reduction programs and traded on ICE have not changed when compared to the previous month. The prices are set significantly higher for the remote years, with tightening regulatory requirements for later periods.

Interested in ZEMA Dashboard? Contact us to learn more.
On May 3, 2012, Mercuria Energy Group, a privately-owned group of companies active over a wide spectrum of global energy markets including crude oil and refined petroleum products, natural gas, LNG, power, coal, biodiesel, vegetable oils and carbon emissions, announced an expansion of its global trading activities into base metals. The business will be located in both London and Shanghai. The two trading groups will collaborate closely and will be focused primarily on the trading of Copper, Aluminium, Zinc, Nickel, Tin and Lead; spanning the London Metals Exchange, NYMEX and Shanghai.

Natural gas futures declined, pushed by the constantly growing supply. According to a recent Deutsche Bank estimate, North American gas supplies will grow 2% per year for the foreseeable future, with an 11% growth in production from shale plays.

Natural gas spot prices moved higher, driven by increased cooling demand in the South, improved gas-fired power generation due to seasonal maintenance of nuclear units and limited supply in the New York area.

During the last month, crude oil futures declined, driven by the following factors:

- Sustained instability in Europe, which is likely to continue dragging down economic growth.
- US crude oil high inventories remaining much higher than expected.

Interested in ZEMA Dashboard? Contact us to learn more.
Argus/IHS McCloskey Launch New API Coal Indexes in Asia-Pacific

London, 24 April 2012

Leading international price reporting organisations Argus Media and IHS McCloskey today announce a major expansion of the API coal indexes in Asia-Pacific.

They will add two API coal price indexes to the Argus/McCloskey's Coal Price Index Report that will cover high-ash coal exports from Australia and deliveries to south China. The companies will also launch a new joint API coking coal index. The new indexes will be launched on 4 May 2012.

The expansion of the API indexes will address demand from market participants for reliable independent benchmarks to use as price references in physical and derivative contracts. Argus and IHS McCloskey already publish three API indexes, which are used for 90pc of the world’s internationally traded coal derivatives.

API 5 represents 5,500 kcal/kg NAR (net as received), high-ash coal shipped from Australia, a new market that has emerged over the last few years. This is a lower quality than reflected in the current API 6 fob Newcastle index, which is based on the traditional Newcastle export specification of 6,000 kcal/kg NAR. It is estimated that 50mn t of this lower quality coal was exported from Newcastle last year.

API 8 reflects 5,500 kcal/kg NAR coal delivered to south China*. China consumes about 3.8bn t/y of coal, but this is expected to double by 2020. China imported 182mn t last year and its increasing reliance on imported seaborne coal in the southern coastal regions has a major influence on prices in the internationally traded seaborne markets. Argus and IHS McCloskey intend to launch an API 9 index for 6,000 kcal/kg NAR coal delivered to south China later in 2012.

Argus and IHS McCloskey are also launching a new API index for fob Australia coking coal, API C1. This index assesses the price of prime hard coking coal exported from a range of east coast Australian ports. This will be published weekly through a new service, the Argus/IHS McCloskey Coking Coal Price Index Report.

All the Argus and IHS McCloskey indexes are calculated by averaging the relevant Argus and IHS McCloskey price assessments. The methodologies used to derive these prices are available online at www.argusmedia.com/methodology and www.mccloskeycoal.com.

Argus chairman and chief executive Adrian Binks said: “It is clear that the coal markets in Asia-Pacific are developing rapidly and we are pleased to be able to expand our indexation services in this region to meet the demand for new benchmarks. It makes sense for us to add to the suite of API indexes as these are already used by the vast majority of companies involved in coal markets.”

IHS publisher John Howland said: “The Asia-Pacific coal market has developed at an astonishing rate in the last few years — not only in terms of volume, but also in terms of the diversity of benchmark qualities referenced by the market. This suite of new API indexes addresses the need for these qualities to be indexed.”

* The IHS McCloskey assessment used in the API 8 is the IHS McCloskey/Xinhua Infolink South China (5,500kcal NAR) marker. This is produced in association with Xinhua Infolink, a leading privately-owned, independent Chinese intelligence and insight provider.

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About Argus
Argus Media is a leading provider of price assessments, business intelligence and market data on the global crude, oil products, natural gas, electricity, coal, emissions, bioenergy, fertilizer and transportation industries. It is headquartered in London and has offices in Houston, Washington, New York, Portland, Calgary, Santiago, Bogota, Singapore, Beijing, Tokyo, Sydney, Dubai, Moscow, Astana, Kiev, Porto, Brussels and Johannesburg and other key centres of the energy industry. Argus was founded in 1970 and is a privately held UK-registered company.

About IHS (www.ihs.com)
IHS (NYSE: IHS) is the leading source of information, insight and analytics in critical areas that shape today's business landscape, including energy and power; design and supply chain; defense, risk and security; environmental, health and safety (EHS) and sustainability; country and industry forecasting; and commodities, pricing and cost. Businesses and governments in more than 165 countries around the globe rely on the comprehensive content, expert independent analysis and flexible delivery methods of IHS to make high-impact decisions and develop strategies with speed and confidence. IHS has been in business since 1959 and became a publicly traded company on the New York Stock Exchange in 2005. Headquartered in Englewood, Colorado, USA, IHS employs more than 5,500 people in more than 30 countries around the world.

MDA Offers New and Improved Ag On-Demand

MDA EarthSat Weather offers a variety of data and reports used throughout the energy, agriculture, and weather markets. In addition to providing the basic data products used by traders worldwide throughout these industries (historic, ongoing, and forecast temperatures, precipitation, etc.), EarthSat goes beyond the numbers to provide unique datasets tailored for traders in each industry. New product offerings now include New and Improved Ag On-Demand.

Ag On-Demand (AOD) is a web-based global weather interface that provides custom access to over 6,000 international stations in more than 150 countries worldwide. Within the product, all you need to do is define your period of interest, geographic area, and weather parameter before producing maps and data tables in seconds for different regions across the globe. Already one of our flagship products when it comes to data-centric clients, we have recently made further enhancements to AOD. Previously, AOD data only went back to 2006. However, that data has now been expanded back to 2000 with the ability to leverage simulated data from 1980. In addition to already being a superior product for acquiring previous-day data, these new features will make AOD even more valuable to anyone that uses historical weather data when making important decisions in the energy and commodities markets.

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About MDA
MDA is a leading space technology company providing mission-critical information solutions. MDA’s diverse portfolio of capabilities offer customers innovative and effective space-based and geospatial information solutions and services. MDA’s core expertise is in Earth observation, Earth science, risk analysis and defense products. MDA’s shares trade on the TSX under the symbol MDZ and MDZ.DB. It is headquartered in Vancouver and has facilities and operations in Broomall, PA; Calgary, AB; Houston, TX; Kent, WA; and Victoria, BC. For more information, visit www.mdacorp.com.
This month, ZEMA has added several key datasets from vendors such as AESO, Argus Media, Baker Hughes, California ISO, EIA, ERCOT, ETSO Vista, IESO, OPIS and SGX. Key data types includes DDS Summaries, FMB Weekly, GOM Oil and Gas, Daily and Hourly RUCs, Salt/Non-Salt Storage, Wind Forecasts and Future Settlement Prices.

ZEMA Expands Data Coverage

This month, ZEMA has added several key datasets from vendors such as AESO, Argus Media, Baker Hughes, California ISO, EIA, ERCOT, ETSO Vista, IESO, OPIS and SGX. Key data types includes DDS Summaries, FMB Weekly, GOM Oil and Gas, Daily and Hourly RUCs, Salt/Non-Salt Storage, Wind Forecasts and Future Settlement Prices.

ZE Wins Energy Risk Data Management House of the Year 2012

ZE PowerGroup Inc. (ZE) is pleased to announce that it has been awarded the Energy Risk 2012 Data Management House of the Year. This marks the fourth consecutive year that ZE’s best of breed ZEMA Suite has been recognized by Energy Risk as Data Management House of the Year. The ongoing award points to a software product that is not just innovative but that continues to meet the evolving needs of the market.

ZE’s robust data collection, process automation capabilities, analysis tools, advanced forward curve building and intuitive graphical user interfaces are just some of the key features that make ZEMA the industry standard in enterprise data management. ZEMA is built and supported by people who fully understand the industries served, the functions for which the application will be used and ultimately the data being managed.

This year, ZEMA was also voted #1 for Preferred System, #1 for Ease of Integration by Consultancy and #1 for Customer Service by Software End-Users, in Energy Risk’s Annual Software Survey. Additionally, Allegro named ZE this year’s Innovator of the Year. ZE would like to extend its gratitude to all of its clients and partners for their ongoing support. ZE also thanks Energy Risk Magazine for its gracious and continued recognition of ZE’s efforts.

To learn more about what continues to make ZEMA Suite “Data Management House of the Year”, contact ZE, schedule a demonstration or call 1.866.944.1469.
Natural Gas Liquids Spending on the Rise in North America

By IIR Energy

SUGAR LAND - May 24, 2012 - Researched by Industrial Info Resources (Sugar Land, Texas) - Despite small gains, natural gas prices remain low. The low prices have been caused by a number of factors, including a lack of demand because of mild winter temperatures and increased shale gas production, leading to a surplus of supply. As a result, plants and drilling in dry-gas heavy or isolated markets such as the Rocky Mountains are facing difficult times. However, liquids-rich plays, such as the Eagle Ford Shale in south Texas, are facing no such problems, and have, in fact, seen an increase in spending and infrastructure development.

The key to the success of the liquids-rich plays is - as the name would imply - natural gas liquids (NGLs). NGLs, also called condensates, are the heavier hydrocarbons such as ethane, butane, and propane that are found as liquid contaminants in some natural gas fields. These compounds are typically sold to commercial customers, such as chemical processors, where they are used as feedstock. One of the more profitable is ethane, which is used as feedstock for ethylene, a base chemical in many petrochemical processes.

With this new potential for profit, many natural gas companies are shifting resources and investing more heavily in NGL infrastructure. According to Industrial Info's project database, about $500 million in NGL capital projects were completed in 2011. That number is expected to increase by more than 600% in 2012, when capital project completions will represent more than $3 billion in investments, nearly half of which, roughly $1.4 billion, is taking place in the state of Texas alone. This is a significant jump, especially when compared to the much smaller $57 million difference between 2011 and 2010. So far this year, $46 million in projects have already been completed, while most of completions are expected in the third quarter.

The majority of projects set to be completed in 2012 began construction in 2011, the year after natural gas prices fell sharply. The trend of increasing investment in NGL infrastructure continues into 2013 as well. While the jump between 2012 and 2013 is not as shocking as that between 2011 and 2012, the more than 100% increase to $6.25 billion in total investment, with more than $3.5 billion in projects in Texas alone, is still impressive.

In order to keep up with the growing demand for intelligence in the Natural Gas sector, IIR Energy, a division of Industrial Info Resources, is offering a new product, NatGas Live, which covers the physical Natural Gas infrastructure information such as owners, locations, capacities, outages, curtailments, and new construction of all major gas processing, LNG, production, and storage assets across the globe. NatGas Live gives participants the understanding and transparency needed to take action and monetize the opportunities in the dynamic market.

For more information please contact iirteam@iirenergy.com or visit us at www.iirenergy.com.

About the Contributor

IIR Energy, a division of Industrial Info Resources, Houston, TX, is the leading provider of supply-side market intelligence for the energy market including Electric Power Generation, Oil & Gas Storage, Transmission and Production, Alternative Fuels such as Biodiesel, Ethanol, and Coal Gasification, and the Petroleum Refining industry. IIR Energy is dedicated to providing time-sensitive, critical market information that enables asset owners, developers, regulators, as well as financial & physical participants to enhance their trading strategies and minimize market risk.

IIR Energy combines dynamic, accurate, and timely information with the latest web based software applications to give our clients the ability to understand historical, current, and future supply-side details for key commodities. Research is confirmed and validated at the plant and unit level, which also supports a more accurate macro view of the supply balance. Weather, load/demand, and supply are the three most important drivers in projecting the cost of energy. With this suite of IIR Energy's commodities services, clients can fill the information void on supply that has long existed in an effort to better predict market behavior.

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Natural gas has occupied a large portion of US business news for at least one year now and the reason is rather unorthodox—historically low prices and expectation of an overwhelming abundance of natural gas. The abundance is the result of technological achievements in shale gas recovery (improved hydraulic fracturing and horizontal drilling). The industry is eyeballing new opportunities emerging from the possibility of delivering gas in a liquefied state (liquefied natural gas or LNG) by waterway. This combination of circumstances promises not only economic benefits in the form of new jobs, revenues and low manufacturing and energy costs, but also long awaited energy independence.

In his 2012 State of the Union address, President Barack Obama stated that the US has a supply of natural gas that can last nearly 100 years and the administration will take every possible action to safely develop this energy. In a subsequent initiative to convert engines in automotive vehicles to burn natural gas, and a new tax to sustain development of a natural gas fueling infrastructure. Shale gas extraction was mentioned as the centre point of this vision.

Unfortunately, and as usual, things are not so shiny and beautiful as they might seem. There are costs, there are obstacles and there are many question marks that have very real potential of blocking the development of this perfect scenario.

All this adds to the already high uncertainty associated with projections of natural gas price movements. The most challenging question to answer is what categories of data sources should be included in the models simulating future natural gas prices. Forecasts are built on historical data, current movements in traded financial instruments and fundamentals; however, such factors as future technologies, regulations or geopolitics, and their impact on future prices, can and do get omitted from the analysis. Up until several years ago, the number of input parameters was not particularly overwhelming; still, many forecasts - even those provided by credible agencies - have not demonstrated a perfect track record.

The U.S. Energy Information Administration (EIA) produces a long-term natural gas price outlook as a part of the Annual Energy Outlook (AEO), which is updated annually. Projections change frequently as the agency keeps incorporating the most recent developments in its forecasts. Figures 1 - 3 show the historical and actual prices plotted against the NYMEX futures. As seen in Figure 2, the EIA projections moved incrementally higher, as can be seen in Figure 2. Expectations for more delayed periods remained subdued due to the conviction that prices will ultimately settle down at the reasonable level of $5-$6/MMBtu. Projections prepared in different years, even in 2005 and 2008 when price spikes exceeded $10/MMBtu, converged at the $5-$6/MMBtu mark after year 2012.

After a substantial natural gas price increase in 2005, driven by hurricanes Katrina and Rita in the Fall of 2005, and the stock shortage in December of the same year, the EIA projections moved incrementally higher, as can be seen in Figure 2. At the same time, expectations for more delayed periods remained subdued due to the conviction that prices will ultimately settle down at the reasonable level of $5-$6/MMBtu. Projections prepared in different years, even in 2005 and 2008 when price spikes exceeded $10/MMBtu, converged at the $5-$6/MMBtu mark after year 2012.

As shown in Figure 1, in its year 2003 outlook, the EIA predicted that natural gas prices will stay at the levels of the end of 2002 and subsequently move even lower. After the winter of 2003 price spike on the East Coast, which happened due to a shortage of stock during cold weather, the EIA revised its expectations upward for 2004. As real-time natural gas prices continuously edged up in 2004, prices for the 2005 forecast were revised upward as well.

Shown on Figure 1 - Figure 3, moving average of NYMEX Henry Hub natural gas futures, which are used as a tool for longer-term market analysis, as well as inputs into price forecast models, arguably so, represent a collective market opinion. While many rely on results of trades of these futures to prepare a view of future market movements, plotted against the actual gas prices, NYMEX futures have consistently failed to predict market movements. One can say with a certain degree of confidence that the collective market opinion represented by NYMEX Henry Hub natural gas futures works for near-term periods only.

Given a demonstrated weak ability to predict natural gas movements in the past, despite a geographically closed system of gas recovery and transportation, does it make sense to try to forecast prices now when other factors and numerous uncertainties increase the complexity of forecasting—globalization of natural gas, changing regulations, an uncertain political climate and potential technological improvements? The answer is “probably yes”, with an emphasis on “probably”. What has to be considered thoroughly is that the number of scenarios will likely multiply, and more adjustments will have to be made to the fundamentals and technicals, with expert opinion playing a more critical part than ever before. New data sources will be added and more data points included in future price simulation models.

The expansion of shale gas resources is not in question, nor is the technical ability to extract them, but the economics of shale plays stir many disagreements. Changing technologies, the regulatory environment, potential legislation that

(continued on the next page)
would promote or limit LNG exports, the generation stack and renewable generation, available infrastructure, and other market developments can have a reversal effect on natural gas recovery and prices. All these factors can be segregated into two major groups: those affecting potential supply coming from shale gas reserves and those impacting demand.

However, the highest level of governmental involvement evolved into the direct financing of technologies targeting exploration of domestic natural gas and crude oil deposits. Shale gas exploration is just one part of these efforts; however, it just might become the winner.

Government funding has been playing an important part in industry development in general and in the evolution of shale gas exploration in particular.1

1977: Supported by the Department of Energy (DoE), the first massive hydraulic fracking demonstrated by Mitchell Energy & Development Corp., ‘slickwater’ fracking technology was received from another oil company, Union Pacific Resources. Shale gas technology was spawned in the Barnett Shale around Dallas and Fort Worth.

1986: DoE financed the first multi-fracture, air-drilled, horizontal Devonian shale well in Wayne County, West Virginia.


1991: DoE provided micro-seismic (3D) mapping assistance to Sandia National Laboratory, allowing it to determine the location of the shale fractures.

1980–2002: Federal tax credit subsidies (US Code Section 29) and different price supports for explorations.

Now, 40 years after its announcement, independence is within reach with natural gas as the game changer. The government’s support of shale gas exploration, however, is not a 100% sure thing, as is pretty much anything that has to do with the reliance on the political agenda. Today, the so-called “Pickens Plan” is seeking to get congressional approval for natural gas subsidies that will support conversion of over-the-road trucks, municipal buses, refuse and recycling trucks, taxi cabs, utilities, and express delivery firms to run on natural gas. But maybe tomorrow all focus will switch back to the expansion of renewable energy and the nation-wide Renewable Energy Portfolio will be adopted, leading to even higher subsidies and grants given to renewable generators. Or maybe the nuclear industry will figure out how to run safer operations and a secure way to dispose of the processed nuclear fuel, thus paving the road for the government’s support of nuclear generators. In such cases, natural gas developers can lose valuable funds needed to continue improving technologies, which industry analysts are relying on when preparing estimates of the future supply. If recoverable reserves turn out to be less and costs are higher than expected, the natural gas outlook will be completely different from what is pictured now.

The volume of available and recoverable shale gas resources is a rather controversial and complex issue. There have been multiple arguments and re-calculations of projections prepared by different agencies and industry experts. The EIA in AEO-2012 revised down the U.S.’ natural gas potential reserves to 141 Tcf by cutting 66% from the Marcellus Shale formation estimation prepared in 2011.
This drop contributes to a 42% reduction in the estimated unproven technologically recoverable resources for the total US shale gas making it 482 Tcf (versus 827 Tcf estimated in 2011). The industry insiders claim that the government agency underestimated the reserves because it bases calculations on the currently available drilling and exploration technology and presumes no advancements.

Experts, who are not employed by industry, believe that based on a review of both individual well and group of wells decline profiles for the Barnett, Fayetteville and Haynesville shale plays, reserves are over-stated and that North America has a 25-year, not a 100-year supply.

The main reason for such discrepancies is that different parties apply different models to simulate well production and economic viability. Different types of well profiles are proposed by producers versus their opponents. The industry typically applies a steadily flattening hyperbolic decline, which results in a much higher recovery, longer well life and presumably ignores additional costs associated with well re-stimulations that require additional capital investment.

According to the Chesapeake Energy analysis, the initial decline rate is 85% per month for Haynesville, 63% for Marcellus, 74% for Barnett and 68% for Fayetteville. Even with inclusion of results of analysis of the Energy Research Foundation, which indicated improvement of production rate by 34.6%, the average rate of production is still very high.

Opponents apply exponential (weak to moderate hyperbolic) decline, characterized by an initial ten-to fifteen-month period of steep decline, followed by a stable, shallower rate of decline. The difference in the two approaches leads to as large a spread in estimates as 50 versus 12 years of well production.

However, gas producers do not seem to base their decisions of participating in shale exploration just on pure economics. The Massachusetts Institute of Technology published “The Future of Natural Gas” report which shows that cost of shale gas production is far above the current market price at Henry Hub. Most wells are commercial at gas prices at least in the range of $8.00 to $9.00/mcf to break even on full-cycle prices. This means that the current gas production is explained not as much by commercial viability, but by the drive to gain market share in anticipation of a future increase in prices or decrease in cost of drilling, completing, and well stimulating.

Moreover, recent activities by energy companies leading to more mergers and acquisitions suggest that some shale gas players may already have reached the limits of their financial resources and are being forced to sell out. The entry of producers with better capital cushions will provide better support for natural gas development in North America in the longer-term.

In other scenario, however, a sustained decline of production rates leads to a decrease in drilling with operators shifting emphasis to extracting liquids. In January, 2012, Chesapeake announced that it would further reduce its operated dry gas drilling activity by 50% by the 2012 second quarter from 47 dry gas rigs currently in use, and by 67% from an average of approximately 75 dry gas rigs used during 2011.

Chesapeake’s operated dry gas drilling capital expenditures in 2012 are expected to decrease to $0.9 billion, approximately 70% from similar expenditures of $3.1 billion in 2011. This anticipated level of dry gas drilling capital expenditures is the company’s lowest since 2005. Chesapeake decided to redirect savings to liquids-rich plays.

The shale gas revolution is constricted by, among other factors, the rate of recovery, cost, and economic viability in general. Given a relatively short history of most of the currently highly producing plays, the production prediction model is yet to prove to be universally correct. While incremental cost reduction is still likely to continue, this reduction level will start to plateau very soon as there is only so much room to cut. Over-estimation of recoverable reserves and underestimation of associated costs can lead to disastrous consequences for investors.

One thing is for sure at this point in time: it is difficult to predict how shale plays production will develop in the future, and what estimates are most suitable to be included in future price predictions.

Environmental Regulations

The uncertainty of estimates of how much recoverable gas exists is aggravated by a continuously growing anti-fracking movement, which is unlikely to halt production, but can easily reduce the number of drilled wells and lower total output. Environmental regulations and their severity can have a recognizable impact on shale gas development.

The process of shale gas recovery, if poorly managed, can result in adverse effects on the environment and human health, especially with regard to possible effects on drinking water resources. The focus is on hydraulic fracturing, which is becoming the center point of concerns voiced by environmentalists, residents, and other stakeholders.

The amount of water used in the hydraulic fracturing process depends on the type of formation and production parameters (for example, well depth and length, fracturing fluid properties, and fracture job design). For comparison, water requirements for hydraulic fracturing in coalbed methane range from 50,000 to 350,000 gallons per well while the water usage in shale gas plays reaches 2 to 4 million gallons. The table below shows the total volume of water used in fracturing depending on the depth and porosity of the shale gas play.

<table>
<thead>
<tr>
<th>Shale Play</th>
<th>Depth (ft)</th>
<th>Organic Content (%)</th>
<th>Freshwater Depth (ft)</th>
<th>Fracturing Water (gallons/well)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnett</td>
<td>6,500-8,500</td>
<td>4-5</td>
<td>1,200</td>
<td>2,300,000</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>1,000-7,000</td>
<td>4-10</td>
<td>500</td>
<td>2,900,000</td>
</tr>
<tr>
<td>Haynesville</td>
<td>10,500-13,500</td>
<td>0.5-4</td>
<td>400</td>
<td>2,700,000</td>
</tr>
<tr>
<td>Marcellus</td>
<td>4,000-8,500</td>
<td>3-12</td>
<td>850</td>
<td>3,800,000</td>
</tr>
</tbody>
</table>

The hydraulic fracturing technique uses blended liquids consisting of water, chemicals, and a propping agent (called a proppant; these are solid ingredients). The most common proppant is sand, and it is usually quoted as an integral part of the mix. However, sometimes resin-coated sand, bauxite, or ceramics are used as proppant. The mixture used for fracturing consists mostly of water, some proppant (about 10%) and chemicals (1%). The list of chemicals added to the mix is expansive and includes acids, corrosion inhibitors, solvents, foaming agents, breaker fluids, biocides, and so on. Although representing the smallest proportion of a mix, chemicals cause the most concern.

There are several stages of well production during which contaminated fluid leaks may occur.
Shale Gas: A Game Changer and More Complications for Price Forecast Developers – Part One

(continued from the previous page)

After a well is constructed, the formation is hydraulically fractured to stimulate production. The process requires large volumes of water that must be transported to the well site. Once on site, water is mixed with chemicals and a proppant. This process of creating the liquid mix is the first potential occurrence for hydraulic fracturing fluids to spill on or near well pads.

Further, blended liquids are pumped into a well under extreme pressure causing cracks in underground formations. The fluid carries proppant into formation. At this stage, well malfunctioning may cause an accidental release of fracturing fluid and its migration into drinking water aquifers. This danger is increasing when wells are being re-fractured. Repeated fracturing of a well can cause serious damage to casing and cement, and result in liquid escaping into formations.

As the injection pressure is reduced, fluid is returned to the surface, leaving the proppant behind to keep the fractures open. These fractures allow oil and natural gas to flow easily thus increasing well production. Water returned to the surface (called flowback or produced water) contains hydraulic fracturing fluid and natural formation water. These wastewaters are typically stored on-site in tanks or pits, and then transported for treatment, disposal, land application, or discharge. In some cases, flowback water is transported to old wells for disposal. Sometimes, flowback water is treated and reused in hydraulic fracturing.

The amount of fracturing fluid that is recovered during the first two weeks after a fracture ranges from 25-75% of the originally injected fluid. The rest remains in the well and, in an unfortunate turn of events, this water can escape into formation.

A well is plugged when it completes its production lifecycle. An improperly closed well may allow fluid to flow up toward ground or surface waters or down the wellbore, leading to contamination.

At this point, there is no federal framework for shale gas regulation; gas drilling is regulated at the state level. Meanwhile, there have been several developments on a national level to bring exploration, especially its environmental side, to the common ground.

The Environmental Protection Agency (EPA) has taken a few steps in this direction. In October 2011, the EPA initiated rulemaking to set discharge standards for wastewater from shale gas extraction and scheduled its plan to propose rulemaking in 2014. Currently, the EPA is studying fracking and its impact on drinking water, with a preliminary report expected this year.

President Obama, in his 2012 State of the Union address, emphasized that the expansion of shale gas exploration will be pursued with due consideration given to safety and public health. Following this, on May 4, 2012, the U.S. Department of the Interior proposed a rule requiring public disclosure of fluids used for hydraulic fracturing on federal lands. The proposal, which is now making its way through a public comment period, will require drillers to provide public disclosure of chemicals used in hydraulic fracturing on public land and American Indian land. Other premises address strengthening regulations related to well-bore integrity and issues related to flowback water. The released proposal has already stirred up criticism as the fluids’ contents disclosure would only be required after fracking takes place, not prior to it. The final version of the rule is yet to be seen, but the public review is expected to bring forth many comments and complaints.

For example, Ohio and Michigan do not require chemicals to be disclosed to regulators or to the public; they report a range, not an exact concentration of chemicals. In Pennsylvania, fracking liquids must be disclosed to regulators, and the public can request information about them from the state Department of Environmental Protection. Drillers in Wyoming report product concentrations only to the supervisor of the Wyoming Oil and Gas Conservation Commission, but not to the public.

Other states go even further in reducing potential danger to the environment from fracking by banning or suspending it. New Jersey has a one-year moratorium on hydraulic fracturing while New York City prohibits it within the New York City watershed.

There are two extremes voiced in the media: some in the industry are opposing any new rules, and others argue that fracturing should be banned altogether. The federal level regulation, when released, might have a certain impact on hydraulic fracturing, and limitations imposed by environmental regulations might lead to higher costs of compliance and will consequently affect the rate of natural gas recovery.

Infrastructure (transportation and storage)

The boom in production can be restricted not only by political and regulatory developments, but also by physical constraints, such as available storage space - often underground salt caverns or depleted oil and gas fields—and transmission capacity. This year, we are already facing something that could turn into a more serious issue later. Usually, natural gas inventories drop in winter and build up again over the spring and summer. In periods of extremely cold weather, the price of natural gas in North America spikes to high levels due to the shortage of gas in storage. However, currently, with the low level of gas prices (at times dropping below the $2/MMBtu) and booming production, storage gets filled up quickly. Unusual seasonal weather patterns aggravate this even more; the warm winter reduced the amount of gas needed to heat homes and offices and the mild spring cut the need for air conditioning. Gas in storage is now at an unprecedented high for this time of year, as shown in Figure 7.

One can only guess what will be the reaction to such conditions from gas producers. It is possible that producers will continue to recover gas to fill up gas storage facilities. Then they would likely have to cut their prices even further and possibly halt production altogether if inventories fill up. But this is only one scenario. Another one calls for an increase in the actual storage capacity.

The significance of reporting storage and transmission capacity was very quickly picked up by the EIA. On May 10, 2012, the EIA started publishing information on planned additions to natural gas pipeline capacity and natural gas storage facilities. Given the growing importance of the data, the EIA stated that it will update this information quarterly. New information includes data on upcoming natural gas pipelines with details on the status, capital cost estimates, ownership, design capacity, pipeline diameters, regulatory jurisdiction, project type, market served, and approximate in-service dates.

(continued on the next page)
According to the first report, the following natural gas pipeline projects have been announced or currently under construction and are expected to be commissioned as early as 2013 (see Figure 8).

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Pipeline Operator Name</th>
<th>Status</th>
<th>Year In Service</th>
<th>State(s)</th>
<th>Region(s)</th>
<th>Miles</th>
<th>Additional Capacity (MMcfd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renaissance Gas Transmission Project</td>
<td>Spectra Energy</td>
<td>Announced</td>
<td>2015</td>
<td>AL, GA</td>
<td>Southeast</td>
<td>230</td>
<td>1,250</td>
</tr>
<tr>
<td>Skidmore LNG Pipeline</td>
<td>Oregon LNG Inc</td>
<td>Applied</td>
<td>2015</td>
<td>OR</td>
<td>Western</td>
<td>120</td>
<td>1,500</td>
</tr>
<tr>
<td>Perryville Storage Lateral</td>
<td>Perryville Gas Storage LLC</td>
<td>Under Construction</td>
<td>2015</td>
<td>LA</td>
<td>Southwest</td>
<td>14</td>
<td>600</td>
</tr>
<tr>
<td>Elba Express Compressor</td>
<td>Elba Express Pipeline</td>
<td>Announced</td>
<td>2015</td>
<td>GA</td>
<td>Southeast</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Commonwealth Pipeline</td>
<td>UGI Corp/energy LP/NG Holding</td>
<td>Announced</td>
<td>2015</td>
<td>PA, MD</td>
<td>Northeast, Southeast</td>
<td>260</td>
<td>780</td>
</tr>
<tr>
<td>Constitution Pipeline</td>
<td>Cabot Oil &amp; Gas Corp/Williams Partners</td>
<td>Announced</td>
<td>2015</td>
<td>PA, NY</td>
<td>Northeast</td>
<td>120</td>
<td>500</td>
</tr>
<tr>
<td>Fort Necessity Storage Lateral</td>
<td>Fort Necessity Gas Storage LLC</td>
<td>Approved</td>
<td>2015</td>
<td>LA</td>
<td>Southeast</td>
<td>15</td>
<td>1,500</td>
</tr>
<tr>
<td>Riviera Beach plant</td>
<td>Florida Power &amp; Light Co</td>
<td>Announced</td>
<td>2014</td>
<td>FL</td>
<td>Southeast</td>
<td>32</td>
<td>-</td>
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<tr>
<td>Ohio Pipeline Energy Network</td>
<td>Texas Eastern Transmission</td>
<td>Announced</td>
<td>2014</td>
<td>OH</td>
<td>Midwest</td>
<td>70</td>
<td>1,000</td>
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<tr>
<td>Algonquin Incremental Market (AIM)</td>
<td>Algonquin Gas Transmission</td>
<td>Announced</td>
<td>2014</td>
<td>PA, NY, CT, RI, MA</td>
<td>Northeast</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Atlantic Access Project</td>
<td>Transcontinental Gas Pipe Line</td>
<td>Pre-Filing</td>
<td>2014</td>
<td>WV, SC</td>
<td>Northeast, Southeast</td>
<td>230</td>
<td>1,350</td>
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<tr>
<td>Overback to Ludly Project</td>
<td>National Fuel Gas Supply Corp</td>
<td>Approved</td>
<td>2014</td>
<td>PA</td>
<td>Northeast</td>
<td>82</td>
<td>500</td>
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<tr>
<td>Cherokee Natural Gas Pipeline Project</td>
<td>EcoEnergy</td>
<td>Approved</td>
<td>2014</td>
<td>CO</td>
<td>Central</td>
<td>34</td>
<td>189</td>
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<tr>
<td>Downeast Lateral</td>
<td>Downeast LNG LLC</td>
<td>Approved</td>
<td>2014</td>
<td>ME</td>
<td>Eastern</td>
<td>33</td>
<td>500</td>
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<tr>
<td>WM Interstate Pony Express</td>
<td>WM Interstate Pipeline Co</td>
<td>Announced</td>
<td>2014</td>
<td>WV, N, CO, NE, KS</td>
<td>Central</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Texas Eastern Maritimes Lateral Project</td>
<td>Texas Eastern Transmission</td>
<td>Announced</td>
<td>2014</td>
<td>WV</td>
<td>Northeast</td>
<td>-</td>
<td>-</td>
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<tr>
<td>West Side Expansion Project</td>
<td>Williams天然气Transmission &amp; Storage</td>
<td>Announced</td>
<td>2014</td>
<td>IL, IN</td>
<td>Midwest</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>East Side Expansion Project</td>
<td>Williams天然气Transmission &amp; Storage</td>
<td>Announced</td>
<td>2014</td>
<td>IL, IN</td>
<td>Midwest</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TETCO TEAM 23 Expansion</td>
<td>Texas Eastern Transmission</td>
<td>Announced</td>
<td>2014</td>
<td>PA</td>
<td>Northeast</td>
<td>-</td>
<td>1,495</td>
</tr>
<tr>
<td>Transco Rockaway Delivery Project</td>
<td>Transcontinental Gas Pipe Line</td>
<td>Announced</td>
<td>2014</td>
<td>NY</td>
<td>Northeast</td>
<td>3</td>
<td>530</td>
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<tr>
<td>Unicoil NY Marc</td>
<td>Unicoil Pipeline Co</td>
<td>Announced</td>
<td>2014</td>
<td>NJ, NY</td>
<td>Northeast</td>
<td>60</td>
<td>260</td>
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<tr>
<td>Warran Country Expansion</td>
<td>Williams天然气Transmission &amp; Storage</td>
<td>Announced</td>
<td>2014</td>
<td>PA</td>
<td>Northeast</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Century Lateral</td>
<td>Gulf Transmission Northwest LLC</td>
<td>Approved</td>
<td>2014</td>
<td>OR</td>
<td>Northwest</td>
<td>24</td>
<td>175</td>
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<tr>
<td>Pacific Connector Gas Pipeline</td>
<td>Northwest/PGE/Chicago Pipers</td>
<td>Under Construction</td>
<td>2013</td>
<td>OR</td>
<td>Western</td>
<td>215</td>
<td>1,000</td>
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<tr>
<td>Northeast Upgrade Project</td>
<td>Tennessee Gas Pipeline Co</td>
<td>Approved</td>
<td>2013</td>
<td>PA, NJ</td>
<td>Northeast</td>
<td>37</td>
<td>936</td>
</tr>
<tr>
<td>NM Blue Ridge Pipeline Project</td>
<td>Blue Ridge Northwest Pipeline &amp; Puget Sound</td>
<td>Approved</td>
<td>2013</td>
<td>OR, WA</td>
<td>Western</td>
<td>128</td>
<td>500</td>
</tr>
<tr>
<td>Northeast Passage Project</td>
<td>El Paso/Equitable LP</td>
<td>Announced</td>
<td>2013</td>
<td>OH, NY</td>
<td>Midwest, Northeast</td>
<td>471</td>
<td>1,180</td>
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**Figure 8:** EIA Report on the Planned Natural Gas Pipeline Projects (continued on the next page)
Shale Gas: A Game Changer and More Complications for Price Forecast Developers – Part One

Another new report published by the EIA is upcoming natural gas storage facilities detailing storage facilities that are expected to enter service in the next three years. Key project attributes include project name and ownership, estimated in-service dates, storage region, total capacity, working capacity, deliverability, regulatory jurisdiction, and others. The first report shows the following storage facilities under development. See Figure 9.

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<th>State</th>
<th>Working Capacity (Bcf)</th>
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Figure 9: EIA Report on the Planned Natural Gas Storage Projects

According to the new EIA reports, developers are aggressively pursuing opportunities to add new natural gas transmission pipeline and storage capacity. When realized, such developments in infrastructure will mean reduced restrictions in gas recovery that can be limited by storage capacity.

The highest density of these facilities are in Northeast and Southeast regions, which is the path connecting the largest shale plays with the Gulf Coast. This is a sign that more infrastructure is being built to carry natural gas to LNG import terminals.

About the Authors

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Olga has over 15 years of experience in the energy, business and trade sectors. As a member of the ZE team, she has conducted qualitative and quantitative research and analysis, project evaluation and strategic planning for the energy and commodities industry. Her expertise focuses on regulatory support and market monitoring.

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Vera has over 20 years professional experience in the area of mathematical, statistical and economical modeling. As a member of the ZE team she has conducted energy market monitoring and analysis, and performed electricity and fuel prices price forecasts.
References


28. EIA provides new information on planned natural gas pipelines and storage facilities on May 11, 2012 <http://www.eia.gov/todayinenergy/detail.cfm?id=62308>

About ZE PowerGroup Inc
ZE is an experienced software and strategic consulting firm that combines energy industry expertise with advanced software development capability. The company possesses deep industry knowledge and comprehensive operational experience. ZE is the developer of ZEMA Suite, a sophisticated Enterprise Data Management and Analysis solution built to meet the specific challenges of energy and commodity market participants.

About ZEMA
ZEMA is an enterprise data management suite designed for collecting data and performing complex analysis. ZEMA replaces fragmented data collection and analysis processes with a sophisticated, unified and automated data management system. Each ZEMA component can perform as an independent product; this means greater flexibility when integrating ZEMA into your organization. ZEMA is consistently ranked #1 for preferred system, #1 for ease of system integration, and #1 for customer service. ZEMA is easy to use and backed by our support team around the clock.

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