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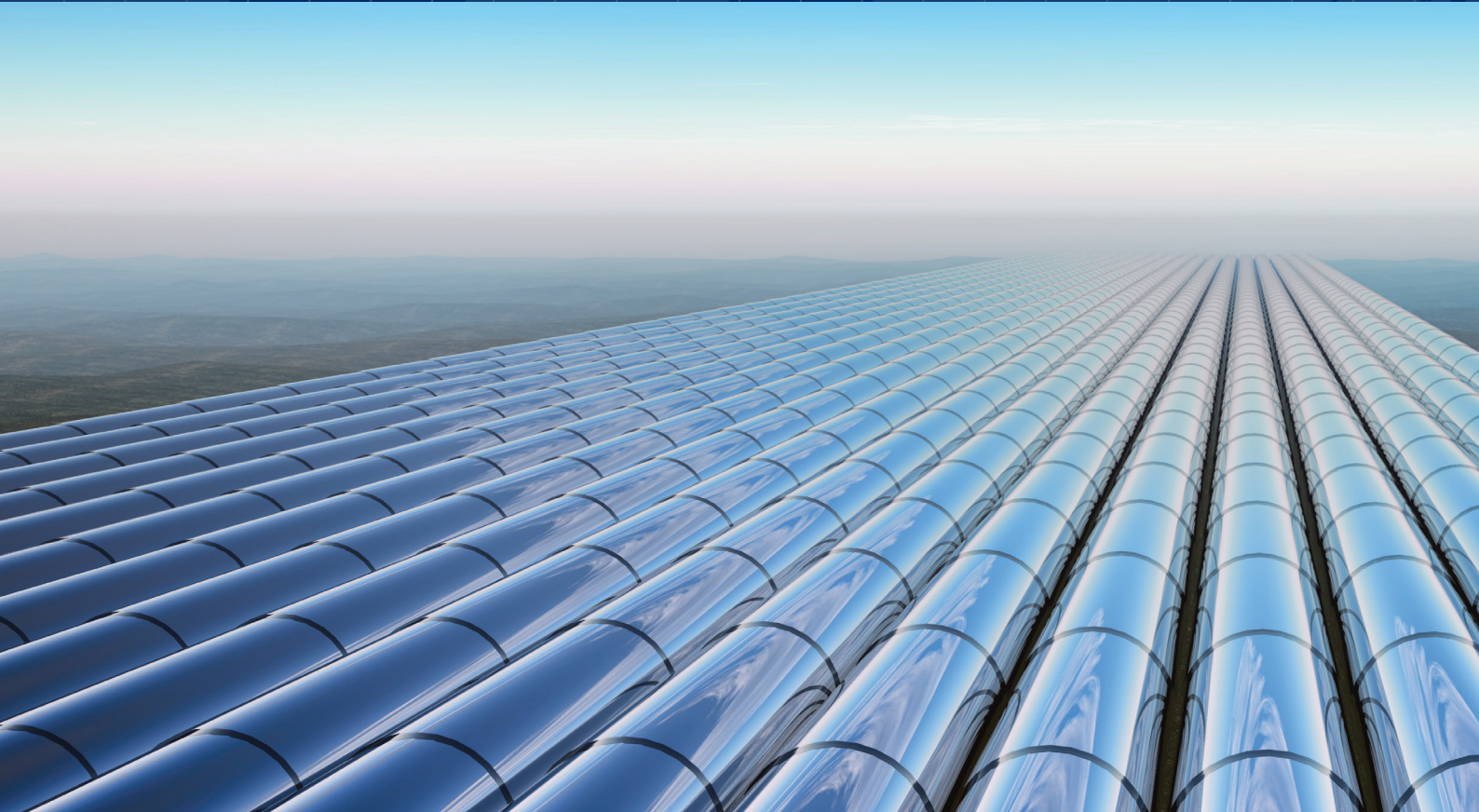
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M&A INTERNATIONAL INC.

Energy Infrastructure Construction & Engineering Services (CES):

M&A Opportunities in a Rapidly Changing Global Energy Economy

2013

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Executive Summary

Energy Infrastructure - Sustained and Attractive Global M&A Opportunities

A combination of rapidly advancing extraction technologies and mounting discoveries of unconventional oil and gas formations in many parts of the world have set the stage for substantial and continuing deployment of capital into oil and gas infrastructure. New and prolific sources of petroleum are opening up fresh opportunities and imposing new challenges on how the oil is brought to market. The availability of plentiful and cheap natural gas makes clean combined cycle natural gas-fired power plants a default choice for base load power generation in much of the developed and developing world. These factors, among others, have converged to create powerful incentives for mergers and acquisitions (M&A) of mid-market companies providing engineering and construction services.

The wide adoption of horizontal drilling techniques and the use of hydraulic fracturing well completion technology, along with high oil prices, have changed the global energy landscape. This has paved the way for dramatic capital flows toward companies that are engaged in transporting hydrocarbon fuels and electrical power generated using clean natural gas. Utilities and pipeline operators depend on a limited number of construction and engineering service companies to expand their capacity to move fuels and electricity to market. This has led to a scarcity in the engineering and construction labor resources required to build tomorrow's energy transportation economy.

Major energy exporters such as Canada and Russia are planning to strengthen their existing export infrastructure to diversify beyond their existing markets. At the same time, the United States, Australia and Latin America are planning and initiating the construction of new and expanded export infrastructures to meet the growing energy needs of emerging markets such as Asia.



To support the expansion in the oil and gas (O&G) sector, governments, national oil companies (NOCs), international oil companies (IOCs), independent oil exploration and production (E&P) companies and energy giants are making significant investments to establish and improve transportation infrastructure such as pipelines, storage facilities and terminals.

In addition, outdated power transmission and distribution (T&D) assets across most of the developed world are adding to the urgent need to invest in energy infrastructure. Due to the reliability and intermittency issues associated with the expansion of renewable energy sources, it has become necessary to add conventional power generation and invest in T&D to get electricity to market from a new population of relatively inexpensive and cheap to build NG-fired power generating stations.

Energy infrastructure M&A varied considerably between 2009 and 2012. After the modest post-recession revival of 2010, 2011 saw a surge in M&A activity. During 2011, deal value in the sector grew 37.4% to \$64.4bn from \$46.9bn in 2010. In 2012, while overall deal value remained virtually stable at \$64.3bn, the median deal value increased to \$58.5mn, from \$49mn in 2011. Over the 2009 to 2012 period, Europe led in terms of overall M&A activity, accounting for a total deal value of \$83.4bn, followed by North America (\$65bn) and Asia Pacific (\$43.5bn). The choppiness of deal volume and aggregate value worldwide should be replaced by a steadier upward curve for both metrics in the years just ahead, as the factors described in this report take hold.

Executive Summary

Energy Infrastructure M&A Gathering Momentum Worldwide

Although the number of energy infrastructure transactions in the CES sub-sector declined from 331 in 2011 to 277 in 2012, the M&A market conditions are likely to see a steady improvement in the coming years. The world is divided on energy policy, primarily due to sharp disagreements between countries and regions (and within countries and regions) on what the energy economy of the future should look like. The shale gas revolution has had a major impact on the world energy economy and taken many policymakers and business leaders by complete surprise. In 2010, many believed that the world had passed “peak oil” and that, moving forward, we would be exploring ways to manage a scarcity of energy resources, while quickly investing in alternative energy to replace fossil fuels.

Even in the US, green energy schemes were increasing, and the world appeared to be moving forward, if a little unsteadily, toward a consensus on carbon capture and carbon trading. However, hydrocarbons remain the only viable way to meet the world’s energy demand, and shale exploitation technology has made new oil & gas supplies cheaper and more widely available than ever before. The movement toward a global consensus on climate change and a global cap and trade, or carbon market, collapsed in the wake of the Copenhagen Global Climate Conference in early 2010. Today, carbon trading schemes and alternative energy investments are no longer attracting significant unsubsidized capital, and that investment shift, along with general uncertainty about the global economy, created choppy deal activity in most of the world, as documented in this report.

New Energy Economy



“The global energy economy is undergoing rapid, transformative change. The near monopoly of the Organization of Petroleum Exporting Countries (OPEC) on significant reserves has been replaced by a diversity of onshore and deep offshore oil and gas discoveries.”

Bryan Livingston
Head of M&A International Inc.’s
CES Group

the abundant new supplies of hydrocarbon commodities. Deal activity within the landscape is ramping up as strategic players look to invest excess funds in inorganic growth. Construction and engineering services (CES) companies are likely to consolidate their market positions to challenge the competition and grow through vertical integration.

M&A International’s analysis suggests stronger and more consistent M&A activity in the energy infrastructure space, accompanied by rising valuations. Oil and gas is being discovered in unexpected locations around the world, and investors have begun to consider a future of energy abundance. Looking ahead, oil & gas production will sharply increase, driven by aggregate global energy demand. An unprecedented amount of capital will be deployed to bring the mobility fuels, electricity and industrial feedstocks to market that are produced with

Overview

High oil prices and rising demand for hydrocarbon-based fuels have led to the increasing adoption of unconventional oil and gas. Natural gas is the leading energy commodity produced by unconventional production methods such as hydraulic fracturing combined with horizontal drilling. These methods are also being used to produce shale petroleum (as in the Bakken Shale Play in North Dakota and several other shale plays in the US). Unconventional production methods are used to produce natural gas liquids (NGL) such as butane and ethane, which are feedstock materials for plastics manufacturing. The new oil & gas production is often in locations that are not served by adequate pipeline transportation infrastructure, creating logistics-based price discounts for commodities. The same is true of the bitumen-derived oil sands petroleum produced in Canada. The infrastructure gap is particularly prominent in the case of oil sands and shale gas reserves in Canada and the US. Other countries, such as China, Argentina, Ukraine, Indonesia and Poland, have also discovered shale reserves in their territories and are facing similar infrastructure needs, as will countries with coal bed methane (CBM) reserves such as Australia, Indonesia and China. With increased infrastructure development, economies such as the US and China are expected to reduce their dependence on imports from the Middle East, Africa and elsewhere.

The energy commodity infrastructure necessary to support a dramatic rise in global oil and gas production from a larger portion of the globe is just one aspect of the infrastructure investment opportunity that is taking shape. Particularly in North America, Russia and Europe, electrical transmission & distribution (T&D) infrastructure is

antiquated, unreliable and unable to meet base load needs during seasonal periods of high demand. According to IEA's "World Energy Outlook 2012", \$7.2tn will be required globally to build new power transmission and distribution lines, about 40% of which will be needed to replace the world's aging infrastructure.

Large scale investment in power infrastructure is called for, with an estimated \$9.7tn needed to float new capacity additions for power generation. In North America, NG-fired facilities for power generation are being added at a brisk pace to replace retiring coal plants and to solve the reliability problems of adding wind and solar capacity to the system. In some cases, natural gas cogeneration plants are being sited away from existing T&D lines because of population density changes and the need to site near natural gas pipeline capacity. Obsolete coal-fired plants, growth in power demand, cheaper fuel in the form of natural gas, and regulatory hurdles associated with keeping coal plants running will drive unprecedented electrical T&D infrastructure investment in the next decade.

Rising Need for Infrastructure

North America is already experiencing energy infrastructure capital spending driven by the linked and concurrent effects of unconventional and alternative energy and the electrical infrastructure necessary to take advantage of the largesse of cheaper natural gas. Pipeline infrastructure for the transportation of petroleum, while not linked to electrical infrastructure, is designed and built by many of the same engineering and

heavy construction companies that build natural gas pipelines. The result is an environment where labor shortages are already promoting opportunistic and organized M&A consolidation activities embraced by both strategic and financial players. Similar conditions exist in Western and Central Europe.

Simultaneously, the mandated addition of renewable energy sources around the world continues to attract investments in renewable power production, electrical grid upgrades and transmission infrastructure development. In 2011, China's State Grid Corp. announced plans to invest \$45bn in smart grid technologies in the country, which accounts for 70% of the Asian smart grid market, followed by an additional \$45bn investment between 2016 and 2020. The South Korean government has budgeted nearly \$24bn, to spend over the next 20 years, to establish a national smart grid. Europe has planned investments worth \$80.3bn between 2010 and 2020 in smart grid technology.

Major electrical manufacturing multinationals such as Siemens, Schneider Electric, Alstom, General Electric Toshiba and ABB have been looking for M&A opportunities in the global grid space. ABB has earmarked \$9–18bn for acquisitions over the next five years. The growing need for investment in infrastructure construction is expected to generate more business for steelmakers, electrical equipment/telecom manufacturers, grid operators, road builders, public works systems and engineering firms in the long term.

M&A Analysis

Analysis by Deal Value and Volume

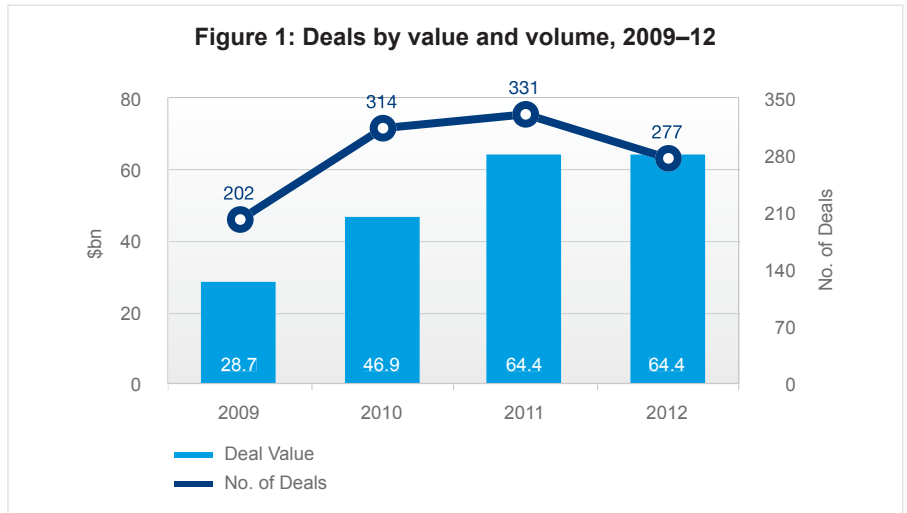
There was a rise in global M&A activity in the energy infrastructure domain between 2009 and 2012, as shown in Figure 1.

The number of announced deals¹ increased from 202 in 2009 to 277 in 2012, while the value of announced deals increased from \$28.7bn to \$64.3bn. From 2011 to 2012, however, the growth trend in deal volume took a downward turn, primarily due to the Eurozone crisis that affected the financing of new projects, as well as potential M&A deals. Deal value during the period remained almost flat. The median deal value increased from \$37.7mn in 2009 to \$58.5mn in 2012.

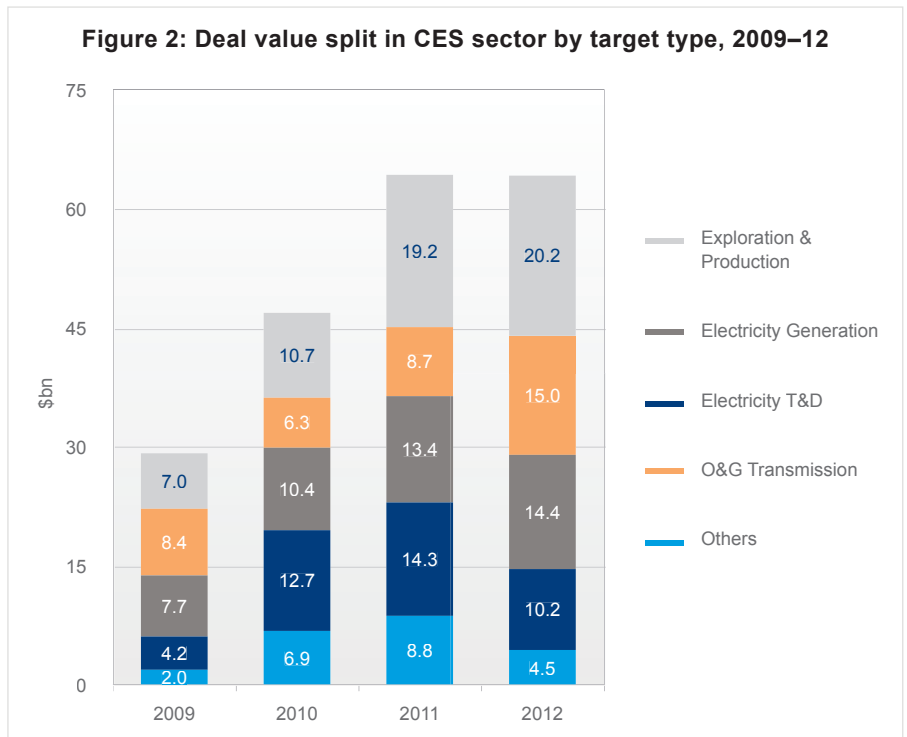
Some of the significant deals include: In 2012, Chicago Bridge & Iron Co. announced to acquire Shaw Group Inc. (more details on page 33). In 2011, Science Applications International Corp. (SAIC) acquired the T&D engineering capabilities of Patrick Energy Services (more details on page 37).

Analysis by Segment

Between 2009 and 2012, the exploration & production segment was the most active with a total of 273 announced deals. The announced deal value for the segment increased to \$20.2bn in 2012 (from \$7bn in 2009), as shown in Figure 2.



Source: Evalueserve Analysis



Source: Evalueserve Analysis

¹ Our analysis is based on the energy infrastructure CES domain that covers service providers, contractors and equipment providers across four sub-segments: exploration & production (including drilling and processing); O&G transmission (including pipelines, storage terminals and compressing facilities); electricity generation (including power plants), and electricity transmission and distribution (including power lines, substations, grids and smart grids). Asset-based deals are excluded.

M&A Analysis

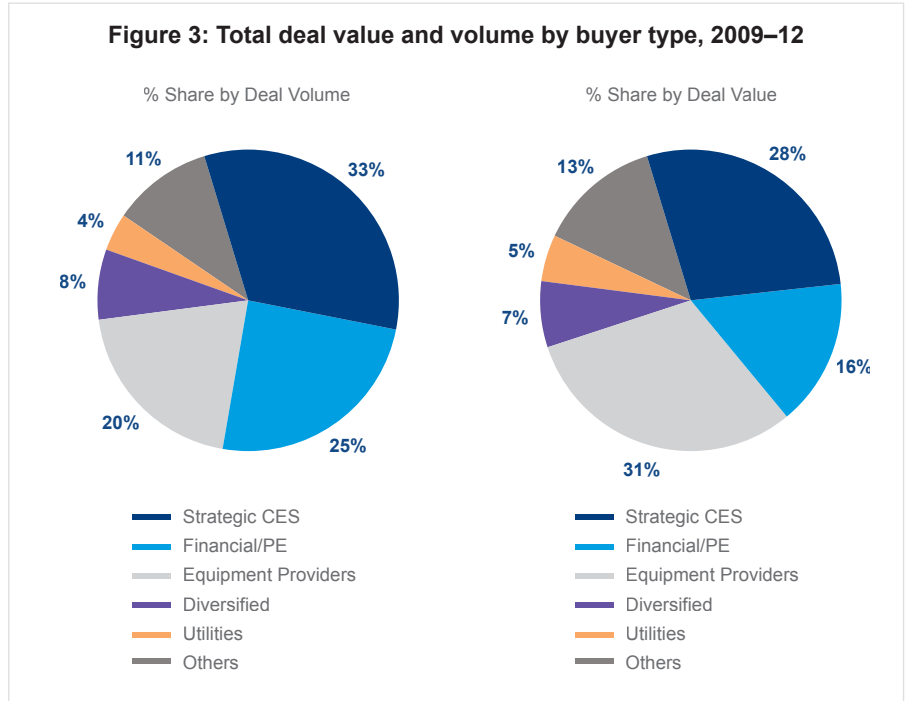
A few key deals include: In 2012, China National Offshore Oil Corp.'s \$560.5mn announced acquisition of China-based Offshore Oil Engineering Co.; in 2011, Lamprell plc's \$373.9mn acquisition of Maritime Industrial Services (more details on pages 32 and 37).

During the same period, the O&G transmission segment rose to total announced deal value of \$10.2bn in 2012 (from \$4.2bn in 2009). In 2012, the electricity T&D segment was the most active with a total of 72 announced deals, while the announced deal value for the segment increased to \$14.4bn (from \$13.4bn in 2011).

A few key deals in the electricity T&D space in 2012 include: ABB Low Voltage Products & Systems' \$4.3bn acquisition of Thomas & Betts Corp. (both US-based) (more details on page 35); Italy-based Prysman SpA's \$66.8mn announced acquisition of Global Marine Systems Energy (more details on page 33).

From 2011 to 2012, the electricity generation segment grew the most by deal value.

A few key deals that drove the increased level of M&A activity in the segment in 2012 include: Toshiba Nuclear Energy Holdings' \$1.6bn acquisition of a 20% stake in Westinghouse Electric Company (USA) (more details on page 32); Japan-based Hitachi Ltd.'s \$1.1bn acquisition of Horizon Nuclear Power (USA) (more details on page 32), and Luxembourg-based Polenergia Holding's \$241.4mn acquisition of Polish Energy Partners Spolka Akcyjna (more details on page 33).



Note: based on 890 deals for which buyer information was available

Source: Evalueserve Analysis

M&A Deal Makers

Both strategic and financial buyers were active in the energy infrastructure space, as shown in Figure 3. Nearly 75% of total deals between 2009 and 2012 were executed by strategic buyers looking to expand their geographical presence, enhance their technological expertise and support their growth objectives.

Some of the notable investments by financial buyers in the energy infrastructure space include: In 2012, Spain-based Grupo Isolux Corsan and Canada-based Public Sector Pension Investment Board provided \$754.4mn funding to Brazil-based Isolux Infrastructure, a construction and engineering company (more details on page 33). Also, in 2012, private equity firms Ratos (Sweden),

Sjatte AP-fonden (Sweden) and Ferd Capital (Norway) announced the acquisition of Norway-based Aibel AS for \$1.5bn (more details on page 32). In 2011, investment firms Simmons & Co. and Sunrise Energy Group invested \$16.4mn in Xodus Group, a provider of oil, gas and energy consulting and engineering services for subsea, O&G and technological applications (more details on page 36). In 2010, Abu Dhabi Islamic Bank, a provider of banking, investment and financial solutions, invested \$100mn in National Petroleum Construction Company Ltd., a provider of EPC services to the offshore and onshore O&G and petrochemical industries (more details on page 38).

Over the 2009 to 2012 period, while Asia Pacific recorded the highest number of deals (408), Europe led in terms of announced deal

M&A Trends & Opportunities by Region

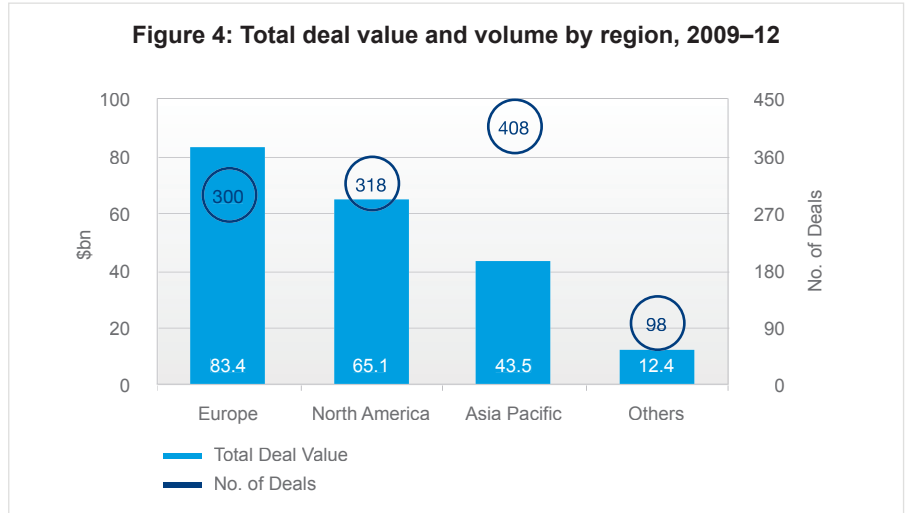
value (\$83.4bn), as shown in Figure 4. At \$71.7mn, the median deal value in Europe was much higher than that of North America (\$50mn) and Asia Pacific (\$39.8mn). The high deal volume (408) in Asia Pacific was due to rapid economic expansion by emerging Asian countries such as China and India. Such activities are likely to further boost the deal activity momentum over the next few years.

Europe - M&A Overview

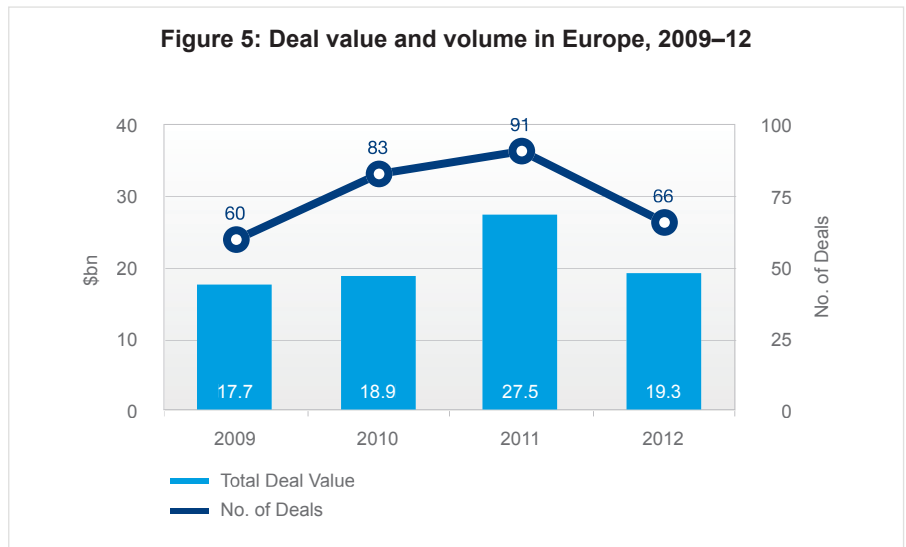
Over the 2009 to 2011 period, deal volume in the region grew 51.7%, as shown in Figure 5. In 2012, however, this growth hit a roadblock on the back of continuing concerns related to the debt crisis, leading to a 27.5% decline in deal volume from 91 announced deals in 2011 to just 66 the following year. Significantly, the median deal value improved, growing from \$52.5mn in 2009 to \$82mn in 2012.

Some significant deals include: In 2012, VINCI SA, a French construction company, acquired the remaining 19.7% stake in Entrepouse Contracting for \$132.9mn (more details on page 34). In 2011, two private equity firms, Maven Capital Partners UK LLP and Simmons & Co., acquired Glacier Energy Services for \$13.6mn (more details on page 37). In 2010, Acergy SA merged with Subsea 7 for \$3.1bn. The merger created a global leader in seabed-to-surface engineering, construction and contracting services for the offshore energy industry (more details on page 39). In 2009, Bilfinger SE acquired MCE AG for \$512mn to strengthen Bilfinger Berger's position as a leading provider of industrial and power services in Europe (more details on page 35).

Of the total announced deals in Europe between 2009 and 2012, about one-fifth were



Source: Evalueserve Analysis



Source: Evalueserve Analysis

cross-border deals, mainly driven by investors from North America and Asia Pacific. The number of cross-border deals involving European targets constituted 16.3% of total deal volume in 2009. It rose to 22.7% in 2010 as domestic acquirors found it difficult to raise money due to the tough business environment, which created buying opportunities for foreign investors. The number dipped to 14% in 2012.

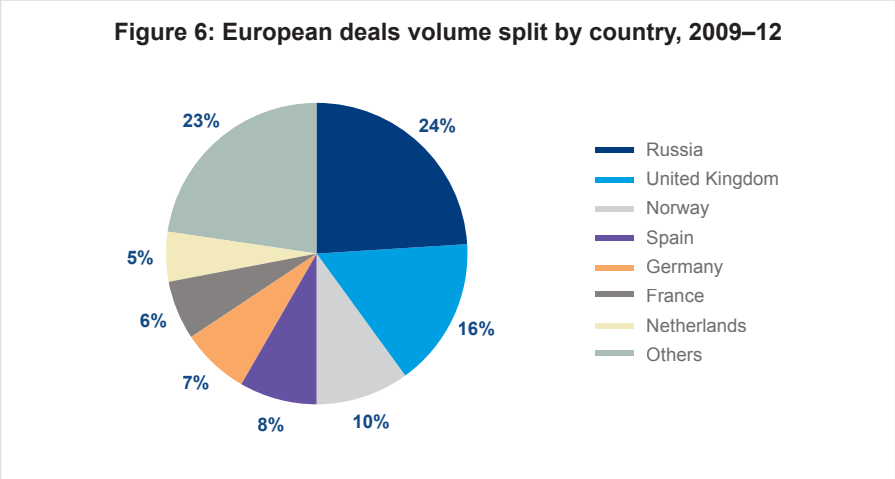
Some of the key cross-border deals include: In 2010, Ezra Holdings acquired EMAS AMC AS for \$251.5mn (more details on page 38). In 2010, Crompton Greaves Ltd. acquired CG Power Solutions UK Ltd. for around \$45mn.

M&A Trends & Opportunities by Region

Over the 2009 to 2012 period, M&A activities in the region were largely concentrated in Russia, the UK, Norway, Spain and Germany, which collectively accounted for 65% of the deal volume, as shown in Figure 6. Of these countries, Russia, one of the world's biggest oil producers, accounted for the largest share of total deal volume (24%) and total deal value (27%).

Some of the significant deals in Russia include: In 2011, Narsil Konsaltjens Ltd. acquired a 25.5% stake in Elektrotcentromontazh for \$10.5mn (more details on page 35). In 2011, OJSC Chelyabinsk Tube-Rolling Plant invested \$252mn in ZAO Rimera (more details on page 36).

Other European deals include: In 2012, Bilfinger SE - a German engineering and services company — acquired Tebodin BV — a Dutch provider of consulting and engineering services — for \$193.6mn. In 2011, MAN SE — a Germany-based provider of commercial vehicles, engines and mechanical engineering equipment — acquired the remaining 70% stake in Ferrostaal AG — a German provider of industrial services in plant construction and engineering — for around \$467mn. In 2010, private equity firms, 4D Global Energy Advisors (France), Sophia Capital Partners (Argentina) and ShawCor — a Canadian provider of technology-based products and services for the pipeline, pipe services, petrochemical and industrial segments of the O&G and other industries — acquired Socotherm SpA — an Italy-based provider of pipe coating and insulation services — for \$62.7mn. M&A activities in the region were largely driven by technology advancements and vertical integration to offer new services.



Source: Evalueserve Analysis

Seeking Attention — European Electrical T&D Infrastructure

In March 2007, the EU established the 20-20-20 targets for member states. These are to be met by 2020 and refer to a 20% increase in energy efficiency, a 20% reduction in CO2 emissions, and a 20% share of renewable energy in total energy consumption. According to a 2011 European Commission report entitled, "Connecting Europe — the energy infrastructure for tomorrow," the existing European energy infrastructure is not suitable to:

1. Support the large scale deployment of renewable energy
2. Match future energy demand
3. Ensure secured supply

It further reported that investments of around €140bn (\$186bn) were required in the electricity sector - including €23bn (\$31bn) for

subsea cables and €40bn (\$53bn) for smart grids - to develop new energy transmission infrastructure and upgrade the existing ones.

In light of aging European power grids and the 20% renewable energy by 2020 target set by the EU, the integration of renewable energy into the European power grid system will require significant expansion and upgrades in transmission infrastructure over the next decade. According to the 10-Year Network Development Plan 2012 created by the European Network of Transmission System Operators for Electricity (ENTSO-E), an investment of \$137bn will be required to refurbish or construct 51,500 kilometers of extra high voltage (EHV) lines to generate 20% of electricity by renewable resources, in line with the EU's 2020 energy policy targets. For instance, by 2020, an investment of €19bn (\$25.4bn) is required for transmission networks in the UK, while an investment of €30.1bn (\$40.2bn) is required in Germany.

M&A Trends & Opportunities by Region

Nuclear Out



“In the wake of Japan’s nuclear crisis, many European countries such as Germany, Belgium, France, Italy and Switzerland have announced plans to phase out nuclear energy generation by 2020 and beyond. These countries plan to replace nuclear power with renewables such as hydro, wind and solar sources.”

Peter M. Binder
CES Specialist
M&A International Inc.,
Switzerland



Electricity shortfalls will be met by coal-fired and NG-fired plants. For instance, Germany is considering building 24 large coal power plants to make up for the shortfall in nuclear power station output, which cannot be met with renewables. However, as gas plants can ramp up generation faster than coal plants, countries are expected to build more NG-fired plants. The UK is seeking government approval to build 30 new gas-fired power plants that will produce 26 gigawatts (GW) of power. European countries are determined to increase the share of gas in the energy mix for power generation. Poland plans to increase its current 2% share of gas to 10% by 2020. Furthermore, the UK is expected to increase gas share to nearly half of its energy mix by 2030. ecoprog GmbH estimated that in Europe, 160 gas-

fired power plants would be constructed or extended between 2011 and 2015, which will increase the capacity from 176 GW to 242 GW.

The EU’s renewable energy source goals will mandate a modernized and more reliable electrical T&D infrastructure. Various countries in Europe have announced several projects to overcome the intermittency problems with renewable energy sources. Nine European countries (Germany, the UK, France, Belgium, Denmark, the Netherlands, Ireland, Luxembourg and Norway) have planned a €30bn (\$40.1bn) renewable energy power grid of high voltage cables under the North Sea. The undersea transmission lines will run along the coasts of these countries and connect to an onshore network that will transport energy generated by wind, tidal and solar power to these territories.

To tap the growing need for modernized and reliable electricity grids in Europe, many companies executed acquisitions in the European electricity T&D space.

In 2012, the engineering firm Melrose Industries acquired Elster Group, a German provider of gas, electricity, water meters, and other networking and software solutions, for \$2.9bn. The transaction helped Melrose gain access to metering technology that will play a role in modernized electrical distribution. Another T&D supply chain transaction driven by expected growth is the announced acquisition by Prysmian SpA — an Italy-based company engaged in the production, distribution and sale of cables and systems — of Global Marine Systems Energy — a UK-based provider of subsea power cable installation, maintenance and related engineering services — for \$66.8mn.

M&A Trends & Opportunities by Region

4

Russia's Domestic Electricity T&D Opportunity

Russia is the world's fourth biggest producer of electricity, after the US, China and Japan. It also has one of the world's largest electricity networks, with over 2.6 million kilometers of transmission lines and numerous substations. About 47% of its electricity is generated by using gas, 18% by coal, 17% by hydropower and 16% by nuclear energy.

However, its electrical T&D infrastructure is aging and needs modernization in order to become more reliable, given that electricity consumption is expected to double by 2030. Gazprom Energoholding reports that the obsolescent transmission network operated by the Federal Grid Company, Russia's grid operator, leads to transmission losses of 5 to 8% and up to 10 to 13% in the case of the Inter-Regional High-Voltage Grid Company (MRSK). The extensive construction of new conductors, transformers, switchgear and control equipment is urgently needed to cope with an annual future demand increase of up to 2.8% across the Russian system.

As a net exporter of electricity, Russia aims to maintain its revenue stream from power sales. The country is moving to build robust grid connections with Europe through a planning process initiated by the Union for the Co-ordination of Electricity Transmission, which includes 20 European states. Russia is also a participant in planning activity for the projected Asia Supergrid, which would link it with China, Korea, Japan and Mongolia in a high voltage DC network that will boost the development of renewable electricity sources. Both programs hold the promise of significant cross-border capital deployments.

Russia's Ministry of Energy has prepared a strategy document entitled "Power Sector Modernization through to 2020," which envisions RUB 11.2tn (\$370bn) in capital investment for the power sector by 2020.

Table 1: Key investment projects planned by the Federal Grid Company

Project Name	Commissioning Period	Russian Regions	Capacity
Kalininskaya NPP	2012	North Western	1,000 MW
Leningradskaya NPP-2	2013-14	North Western	1,170 MW
Pechorskaya HPP-Ukhta-Mikun	2010-16	Northern	220 kV
Urengoyanskaya SDPP	2012-13	Northern	450 MW
Novovoronezhskaya NPP-2	2013-14	Western	1,150 MW
Donskaya NPP-Borini	2011-15	Western	500 kV
Neryungrinskaya SDPP-Nizhny Kuranakh-Tommo-Maya	2015	Far Eastern	220 kV
Zeyskaya HPP	2012	Far Eastern	500 kV

Note: kV stands for kilovolts; MW stands for megawatts

Source: Federal Grid Company and Press

In 2012, the Ministry of Energy also approved Federal Grid Company's RUB 776bn (\$25.7bn) investment plan for the addition of 66,870 mega volt amperes (MVA) of new transformer capacity and 16,985 km of new transmission lines over 2013 to 2017.

Federal Grid Company has also undertaken projects to develop a unified national electric grid in Russia. It is estimated that this grid will reduce network losses across all voltage classes by 25%, increase the capacity of transmission lines, streamline generation schedules and provide a 30% reduction in the probability of electric grid accidents. To achieve these goals, smart grid pilot projects have already been initiated in the region surrounding St. Petersburg (Northwest Russia) and around Vladivostok and Khabarovsk (Eastern Russia).

Additionally, Siemens earmarked around €115mn (\$153.6mn) to build a local manufacturing plant for transformers and production facilities for high voltage products and gas-insulated switchgear in Voronezh. Together with its Russian partners, it also

intends to spend a further €60mn (\$80.2mn) to build a production plant in Perm to manufacture pipeline compressors for Russia's O&G industry.

European O&G Outlook

The majority of Russian oil exports (78%) are currently shipped to the EU, particularly Germany, the Netherlands and Poland, as described in the Energy Information Agency (EIA) Country Analysis (Russia) 2012.

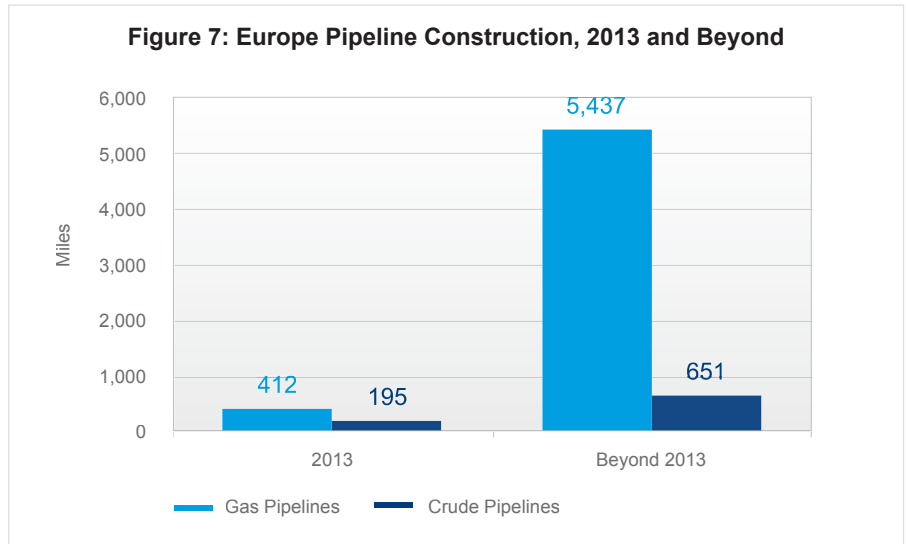
Although Europe is heavily dependent on Russian natural gas supplies, potential shale gas reserves in Central and Western Europe are likely to increase gas supply within the EU. Significant shale gas production may begin shortly in the UK. In light of this development, in 2012, the UK government announced plans to develop a tax regime for the shale gas industry to incentivize investments, with an update expected in the forthcoming UK Budget on 20 March 2013.

M&A Trends & Opportunities by Region

Furthermore, in 2012, the Polish government announced PLN50 billion (\$16.1bn) in government and private funding for shale gas development over the next eight years. It also proposed a tax regime that would cap taxes at 40% of profits. Shale gas development is also gathering steam in the Eastern European region, especially in the former Soviet Union (FSU) states. Russia, along with the FSU states, is the mainstay to meet the EU's energy needs. Kazakhstan, Turkmenistan, Uzbekistan and Azerbaijan have sizable oil and gas reserves.

However, the growth of shale gas extraction and production will be slower in Europe than the US, as, in order to fully exploit its shale gas potential, Europe would need to build the necessary infrastructure to generate, process and transmit the gas, while the US already has this in place.

The EU imports nearly 55% of its energy needs — about 84% of the oil and 64% of the natural gas it requires. Member states import natural gas from Russia, Central Asia, the Middle East and Africa. However, to reduce their dependence on Russian imports, many European countries are looking to increase their LNG imports from international markets such as the Middle East and North Africa (MENA) and the Caspian region. However, the EU may face some challenges in tapping into these markets. For instance, MENA holds large gas reserves and already exports a huge amount of LNG to Europe. With the existing pipelines and LNG import terminals that connect Europe with the MENA region, it is not certain whether MENA nations will provide additional supplies to Europe, given the region's existing reserves and infrastructure. Also, energy supplies from the Caspian region would require a direct and stable transport system such as the Southern Corridor (a European Commission initiative for gas supply from the Caspian and Middle Eastern regions to Europe).



Source: Oil & Gas Journal, Worldwide Pipeline Construction: Crude, products plans push 2013 construction sharply higher

To support additional imports, many European nations are already planning the construction of additional pipelines and LNG terminals. For example, in mid-2014, Poland is planning the Swinoujscie LNG import terminal with import capacity of 5 billion cubic meters per year, though it continues to explore its shale gas reserves. The terminal will receive gas supplies from Qatar as well as other countries on a spot basis. Furthermore, plans are afoot to build the €7.9bn (\$10.5bn) Nabucco natural gas pipeline between 2011 and 2015 that will span 2,050 miles. It will transport gas from the Caspian and MENA regions to Turkey, Bulgaria, Hungary and Austria, and then to Central and Western Europe. Furthermore, the planned Trans Adriatic Pipeline will span over 800 km and will be constructed by 2017/2018. The pipeline will transport gas from Greece to Southern Italy, while crossing Albania and the Adriatic Sea. It will enable direct gas supply from the Caspian region to European markets.

The Oil & Gas Journal estimates that 60,200 miles of pipelines are either planned

or under construction worldwide. From this, Europe accounts for about 6,700 miles of pipelines, as shown in Figure 7.

Russian Perspective

Russia holds the world's largest natural gas reserves of 1,680 trillion cubic feet (TCF), and is the largest producer of dry natural gas and crude oil. According to the EIA, Russia surpassed Saudi Arabia in 2012 as the top crude oil producer globally. Oil and gas exports constitute two-thirds of Russia's total exports and its economy is largely dependent on oil and gas exports, contributing half of its budgeted revenues.

Despite the promise of shale gas production and the rapid expansion of a global LNG market, the EU is an important market for Russia. Therefore, the country's several ongoing pipeline infrastructure projects are designed to expand the supply of Russian oil and gas to the EU.

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However, the EU's significance as Russia's key market has started to decline owing to the rapidly growing demand from Asian economies. At the same time, the prevailing political instability in the Arab nations is posing a risk for the supply of oil and gas to Asia, making Russia a preferable supplier for the long term. Still, significant investments are required to develop large infrastructure to fully realize the Asian opportunity, and Russia is addressing this challenge by building LNG terminals, facilities and pipelines. In 2009, the Russian government earmarked \$2tn under its "Energy Strategy 2030" for new fields and transport infrastructure, to increase its share of oil and gas exports to Asia Pacific markets.

Reduce Dependency



"To conclude, European countries are determined to improve the supply of hydrocarbon fuels and electricity transmission for domestic markets. While European nations are looking to reduce their dependency on Russian oil and gas supplies, Russia is looking to supply its resources to non-EU markets."

Hans Bethge
CES Specialist
M&A International Inc.,
Germany

Table 2: Major planned pipeline infrastructure projects from Russia to the EU

Project Name	Oil / Gas	Countries Served	Capacity	Investments
Yamal LNG	Gas	Belarus, Poland, the Netherlands and Germany	32.9 BCM	About \$33bn
South Stream	Gas	Bulgaria, Italy, Serbia, Hungary and Slovenia	63 BCM	\$39.1bn
Nord Stream	Gas	Belgium, Denmark, France, the Netherlands, the UK and others	55 BCM	\$9.9bn
North-Western	Oil	Latvia and Lithuania	300,000 barrels per day	-

Note: BCM stands for billion cubic meters

Source: EIA, Gazprom, Press

Table 3: Key projects in the Asia Pacific markets

Project Name	Oil / Gas	Countries Served	Capacity	Investments
Altai	Gas	China	30 BCM	About \$10bn
Sakhalin – Khabarovsk – Vladivostok	Gas	China, Japan and other Asia Pacific nations	30 BCM	\$15.6bn
Purpe-Samotlor	Oil	China	25 MTPA	-
Zapolyarye-Purpe	Oil	China and other Asian markets	45 MTPA	\$3.8bn
ESPO-2	Oil	China, Japan, other Asian markets and potentially the US	50 MTPA	\$10.6-10.9 billion

Note: BCM stands for billion cubic meters. MTPA stands for million tons per annum.

Source: EIA, Gazprom, Press

FSU energy supply is also finding its way to Asian markets. In addition, European green energy targets are influencing the electricity generation mix to include renewables, creating the need for reliable and modernized electricity T&D infrastructure. These factors are driving large scale capital deployments and M&A investments in the European energy infrastructure space.

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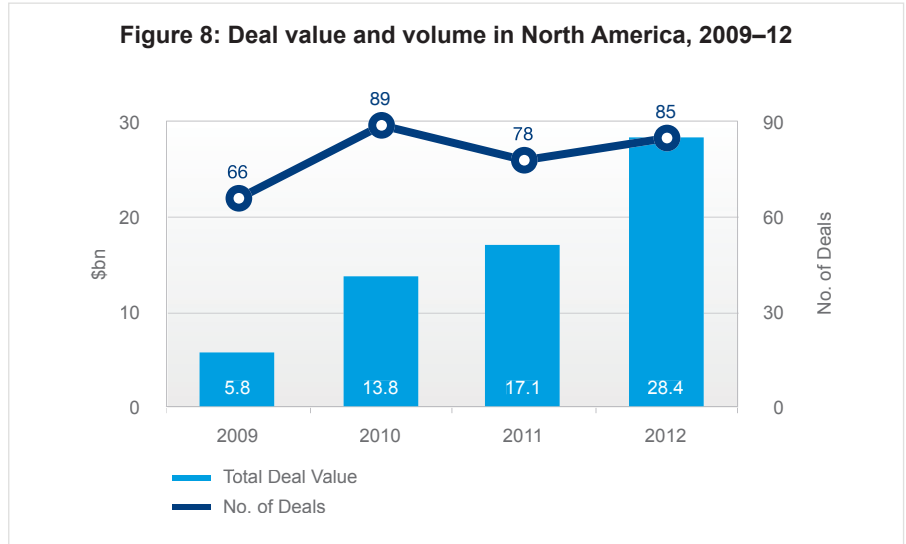
North America - M&A Overview

North America witnessed variations in the number of energy infrastructure M&A deals between the 2009 and 2012 period, as the deal volume grew 29% over the four-year period. This volume growth was particularly marked in 2009 to 2010 (35%), as shown in Figure 8, but dipped 12% in 2010 to 2011, before climbing upward again in 2011 to 2012, to record 9% growth. The median deal value grew from \$34.7mn in 2009 to \$57.3mn in 2012.

Some of the significant deals include: In 2012, the private equity firm Kelso & Co. acquired Power Holdings, a provider of outsourced maintenance and construction services, for \$380mn. Primoris Services Corp. acquired Sprint Pipeline Services for \$28.2mn in 2012 (more details on page 32). During the same year, the private equity firm One Rock Capital Partners acquired Dixie Electric for \$47mn (more details on page 35). In 2011, Pike Electric Corp. acquired Pine Valley Power for \$25.5mn (more details on page 36). In 2010, the energy infrastructure company Williams Partners acquired Overland Pass Pipeline Co., a US-based company engaged in the construction of natural gas liquids pipelines, for \$423.7mn (more details on page 39).

Of the energy infrastructure deals announced in North America between 2009 and 2012, about 12.5% were cross-border deals, mainly comprising investors from Europe and Asia Pacific. The number of cross-border deals constituted 18.3% of the total deal volume in the region in 2009. The percentage share dipped to 7.5% in 2011, and then rose to 11.8% in 2012.

Some of the key cross-border deals include: In 2012, Production Services Network Ltd. acquired Mitchell's Oil Field Service for \$182.5mn (more details on page 32). In 2010, KEC International Ltd. acquired SAE Towers Holdings for \$95mn (more details on page 38). Also, in 2010,



Source: Evalueserve Analysis

Electricidade Industrial Portuguesa acquired J.F. Edwards Construction Co. for \$20.6mn (more details on page 37).

North American Shale Plays and Oil Sands

The O&G transmission infrastructure market in North America is driven by the need to take hydrocarbon-based fuels (mainly from US shale reserves and Canadian oil sands) to market, as the adoption of unconventional methods for O&G production is substantially increasing energy supply. While Canada is looking to increase its shipping capacity via pipeline to the US and find a way into the European and Asian markets, US utilities are increasing the use of domestically produced gas as fuel for power generation.

Although natural gas is the leading energy commodity produced by unconventional production methods (hydraulic fracturing combined with horizontal drilling in shale formations), such methods are also being used to produce petroleum, as in the Bakken Shale Play in North Dakota, and several others in the US.

The current shortfall of shipping capacity for shale hydrocarbon commodities and bitumen-derived oil sands petroleum produced in Canada has resulted in substantial logistics-driven price discounts. Market price signals are persistent and underlie this report's predictions of significant capital deployments in the pipeline contracting space for the next decade.

US O&G Infrastructure Outlook

Among shale hydrocarbon commodities, shale gas represented nearly 21% of US natural gas production in 2011. Its share is expected to increase to 50% by 2040, according to an EIA report entitled "Annual Energy Outlook 2013 (Early Release Overview)." This growth will help the US considerably reduce its dependency on foreign imports of gas and oil, as shale oil production is also on the rise in the US. According to Exxon Mobil's report entitled "The Outlook for Energy: A View to 2040", the US is on its way to becoming a natural gas exporter by 2020. This will largely be driven by an increase in shale gas supply (particularly from wells in North Dakota, Texas, Oklahoma, Louisiana, Arkansas and Pennsylvania).

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The US's export plans for oil and natural gas are well under way, supported by a surge in shale gas supply, resulting in lower NG prices. This has made it profitable for North American companies to sell LNG in international markets, such as Asia, where prices are higher even after taking liquefaction and transport costs into consideration.

In order to best leverage its shale potential, the US is expected to budget over \$130bn in spending between 2010 and 2020 to upgrade and expand its existing midstream infrastructure. Also, the US government is contemplating lifting the bans on most crude and LNG exports.

In addition, planned infrastructure development will be required to build a robust network for importing oil from Canadian oil sands to the US Gulf Coast and the Canadian West Coast, principally the Port of Vancouver, for export to Asia and other global markets. Numerous other pipeline projects to get shale gas and oil to the US market are already budgeted and in the advanced stages of planning. These include the construction of DCP Midstream's 700-mile Sandhills pipeline, which will transport oil from West Texas to Mont Belvieu (East Texas). Also, Oneok Partners is expected to invest between \$910 and \$1,200 million by late 2013 to construct a new 570-mile NGL pipeline to transport either unfractionated NGL or NGL purity products from the mid-continent to the Texas Gulf Coast, and to reconfigure its existing NGL distribution pipelines.

Midstream companies, including refiners and other firms focused on oil and gas transportation, are also expanding rail networks in the US to transport oil by "virtual pipeline" from shale regions, many of which will not be adequately served by pipelines for at least five years. In 2012, Musket Corp. expanded its rail facilities to transport crude oil from North Dakota to markets across the country, increasing its capacity from 10,000 to 60,000 barrels per day. In 2012, Enbridge

Rail announced an agreement with Canopy Prospecting Inc. and formed Eddystone Rail Co., which will develop rail infrastructure for the transportation of oil from North Dakota to Philadelphia. PBF Energy, which operates a refinery near Philadelphia, has invested over \$60mn in an expanded rail yard to increase its ability to obtain and refine oil from the Bakken region and the Canadian oil sand. Surging oil production from unconventional formations is driving these short-term supply solutions and generating interest in advancing the construction of larger volume, and ultimately higher-yielding pipeline installations.

The region has already seen consolidation among key construction and engineering services companies due to increased interest in the development of shale reserves and related infrastructure expansion, as well as growing opportunities in the energy infrastructure space. In 2012, URS Corp., a leading global engineering firm with a construction services division, acquired Flint Energy Services, a major O&G construction services provider, for around \$1.5bn. With the takeover, URS aimed to expand its presence in the North American O&G industry, particularly in unconventional O&G facilities and transportation. During the same year, Primoris Services, one of the largest US-based construction companies, acquired Q3 Contracting, a construction company specializing in small to medium diameter pipeline and gas distribution construction, for \$58.1mn.

Apart from strengthening pipelines and rail infrastructure, the US is moving ahead with plans for exporting natural gas that will have a profound impact on infrastructure construction. The US Department of Energy has recently ruled that LNG exports are in the economic interest of the US, signaling that natural gas exporters will soon see the elimination of the remaining obstacles in building export facilities. Many of the country's LNG import terminals, scattered from the Mid-Atlantic states to the Gulf Coast,

can be converted into dual use import and export LNG facilities. Currently, the country has 12 LNG import terminals that re-gasify imported LNG and offer the opportunity for relatively early establishment of export capability. A total of 17 LNG export license applications have been filed as of February 2013, with the first granted to the Cheniere Energy project at Sabine Pass, Louisiana. In 2013, Royal Dutch Shell partnered with Kinder Morgan to build an LNG export plant at Elba Island, Georgia. The Elba Island terminal received a license in 2012 from the US Department of Energy to export LNG to Free Trade Agreement countries.

Canadian O&G Infrastructure Outlook

Canada has recoverable natural gas reserves of 733 to 1,304 TCF, as well as around 170 billion barrels of oil in its oil sands and shale deposits, as reported by the Government of Canada. The country holds the third largest oil reserves in the world and exports most of its hydrocarbon commodities to the US (98% of its oil exports and 100% of its natural gas shipments). In recent years the Canadian government and private sector leaders have looked at ways of reaching the larger global market with their energy commodities in order to reduce the present dependence on the US as a customer. The US is itself on its way to becoming an exporter of natural gas by 2020, provided that changes are made to established US policies.

Canadian oil sands are mainly located in the landlocked state of Alberta, which is focusing on expanding its transportation infrastructure between the state and the US Gulf Coast, as well as connecting to Canada's West Coast. Pipeline transportation of Western Canadian petroleum east to Ontario and Maritime provinces is also under discussion, which would provide Canada with another export outlet to the global market.

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For several years Canadian exporters have been working to expand the capacity of bitumen-derived oil transport from Alberta to the refineries and US Gulf Coast ports. The most visible symbol of this effort is the \$7bn Keystone XL pipeline project, which will carry Canadian crude to Port Arthur, Texas.

Canadian oil sands crude will also be transported by pipelines to port facilities on Canada's West Coast. The expanded TransMountain pipeline and the proposed new Northern Gateway pipeline will open up an export route to Asia and the rest of the global petroleum market. The \$5.5bn Northern Gateway pipeline project will transport oil from Edmonton to a new terminal in Kitimat, British Columbia, while the TransMountain route will supply oil to terminals in the port of Vancouver, BC. An investment of \$10.4bn in rail infrastructure is also planned to transport oil from oil sands in Fort McMurray, Alberta, to the Valdez, Alaska Marine Terminal for export to Asia.

Canada has also discovered major shale deposits in Alberta, BC, and the Maritimes. A \$5.1bn Prince Rupert Gas Transmission project is proposed, which will carry gas from the Montney Shale basin westward to terminals in BC. From here, the gas will be exported in the form of LNG to Asia (particularly Japan, South Korea and China) as a heating and power plant fuel. In addition, a \$5bn Goldboro LNG export terminal in Nova Scotia is planned that will export gas to Europe and India via the Atlantic route. This facility will be the first LNG terminal in Eastern Canada.

Planned and budgeted oil and gas infrastructure projects are significantly beyond the capacity of the engineering and construction company resources of North America. Even if companies move in from other regions to address the demand, a significant labor shortage is developing which will create excellent conditions for profitable growth, favoring construction and engineering services for most of the decade ahead.

Export Route



"Canada is investing in developing energy commodity export routes to serve markets beyond the US. While its west coast can easily access markets in Asia, its east coast can connect to Europe as a potential market."

Kurt Schurer
CES Specialist
M&A International Inc.,
Canada

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The Oil & Gas Journal estimates that over 20,600 miles of pipelines are planned or under construction in North America, as shown in Figure 9.

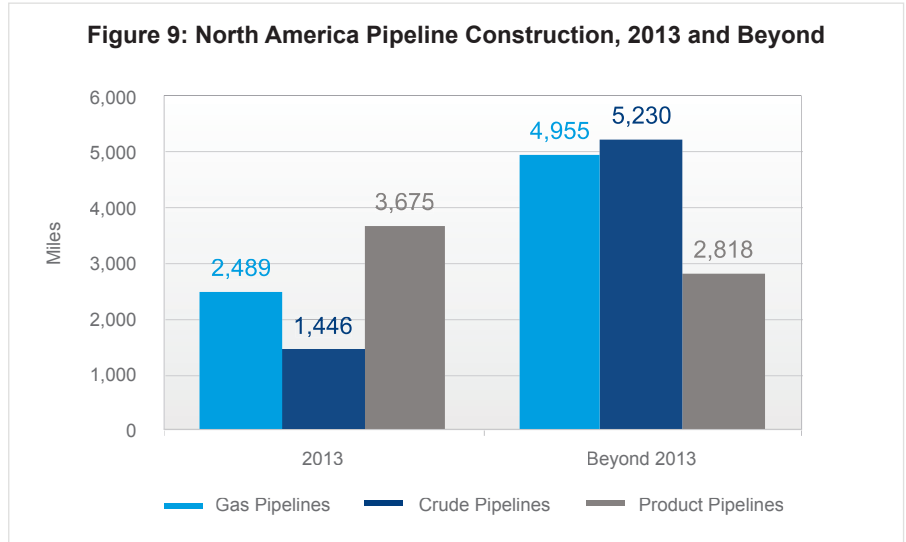
Natural Gas — A Critical Energy Source for Power Generation

Natural gas is on track to become the default fuel choice for new and replacement power generation in North America and many other regions, notably Asia. It is easily available in abundance and is cheaper, thanks to the shale gas revolution in the US and soon in Canada. NG-fired generating capacity is also attractive because:

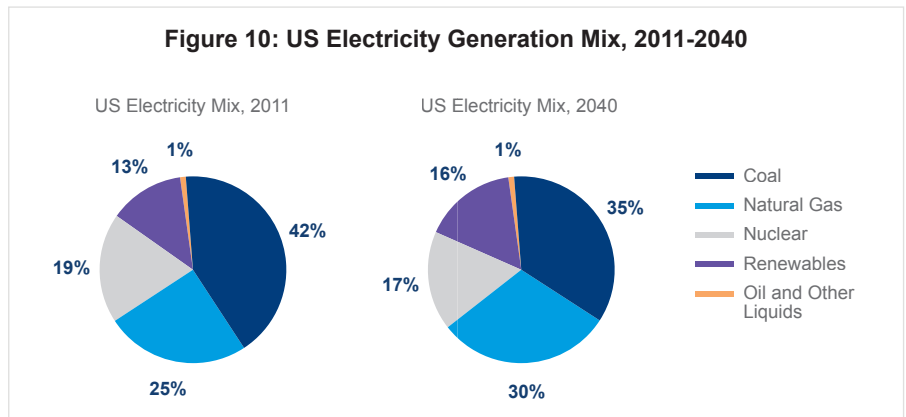
1. NG power stations are relatively cheaper and can be built faster than most other plants
2. Unlike coal and nuclear plants, NG power stations can be planned and built with little regulatory uncertainty
3. Existing coal plants can be converted into operation with NG fuel.

According to the EIA's Annual Energy Outlook 2013, in 2011 NG accounted for 25% of electricity generation in the US, and this contribution is expected to increase to 30% by 2040. Similarly, in 2010, NG contributed 9% to total electricity generation in Canada, and is predicted to reach 15% by 2035, according to Canada's National Energy Board (NEB).

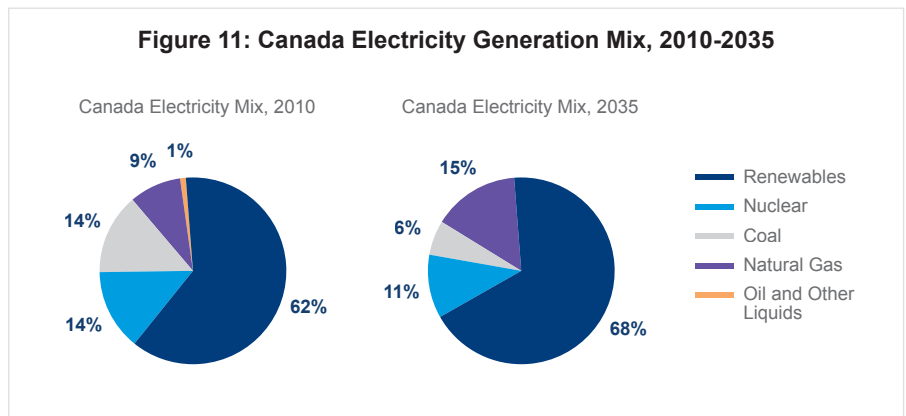
Significant infrastructure investment will be required to build or convert generating capacity fired by NG, and also to link the new power plants to the transmission and distribution network, or grid, that supplies power to consumers.



Source: Oil & Gas Journal, Worldwide Pipeline Construction: Crude, products plans push 2013 construction sharply higher



Source: EIA, Annual Energy Outlook 2013 Early Release



Source: NEB, Canada's Energy Future: Energy Supply and Demand Projections to 2035

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Urgent Investment Need — North American Power Grid

The US power generating and delivery system (grid) is made up of power stations that supply power on a regional basis to high voltage transmission systems. High voltage transmission lines supply power via a series of step-down transformer substations to local distribution systems, which bring power to consumers. Regional high voltage transmission systems are interconnected to provide reliability and flexibility, given that power demand changes on a daily or seasonal basis.

The three US power grids (the Eastern and Western Interconnections and Texas' ERCOT) have not been improved or modernized in line with growing demand. A total of 70% of transmission lines and power transformers are over 25 years old, while 60% of the US' high voltage circuit breakers are more than 30 years old. Operating at capacity for much of the year, the US electricity supply is nearing a reliability crisis.

Impact of Renewables

"Adding to the stress on an already challenged system, renewable energy sources have been mandated by US state and federal governments. Renewables (mainly wind and solar) are intermittent and variable by their nature, meaning they are inherently unreliable. Ironically, additional conventional generating capacity and T&D infrastructure are needed to offset the impact of renewable sources."

Bryan Livingston
Head of M&A International Inc.'s
CES Group

Commercial utilities and government players in the US have reached a consensus on the need to upgrade or replace much of the aging electricity T&D infrastructure. By

2020, North American utilities plan to construct and upgrade the transmission lines, covering 65,420 miles and costing around \$170bn. The upgraded or newly constructed substations and transformers will create an additional \$40bn market. Modernizing the US T&D system, in tandem with adding NG-fired generating capacity, will improve both the reliability and quality of power supply for its end users (power quality, stated simply, is low variability of voltage and frequency delivered to the user).

Power quality has become a major challenge throughout the developed world. The ubiquity of personal computers, cellular communications and internet-based distributed data processing has improved productivity and dramatically changed how people live in the modern world. The benefits of the computer-enabled society are dependent, however, on reliable, quality electrical power. For example, data center power consumption is increasing in the US by approximately 15% a year, from a 2011 load of just under 40 GW. Data centers demand high levels of power quality, and serving their needs is the key to economic success.

Although the US energy network is mainly funded through (regulated) private investments, the investments are not adequate to replace or upgrade the aging infrastructure (power generation, transmission and distribution). The funding gap is rising and is expected to reach \$11bn a year, leading to an accumulated gap of \$107bn by 2020. Of this, over 88% is attributed to the distribution and transmission infrastructure, while about 11% relates to the generation infrastructure.

The Brattle Group estimates that the electric utility industry requires an investment of \$1.5 to \$2.0 trillion in infrastructure upgrades by 2030, as well as \$240 to \$320 billion in renewable projects and base load capacity. In addition, the IHS study, US Transmission Markets and Strategies:

2011-2020 forecasts that nearly \$41bn will be invested in high voltage transmission lines in the US by 2020.

M&A transaction activity reflects the awareness of investors to participate in investment opportunities created by large capital deployments.

In 2012, ABB Low Voltage Products & Systems — a power and automation technologies company — acquired Thomas & Betts Corp. — a designer and manufacturer of components used to manage the connection, distribution, transmission and reliability of electrical power — for \$4.3bn. The deal enhanced ABB's position as a major player in the North American electrical products market. During the same year, Pike Electric Corp., a provider of energy solutions for utilities, acquired UC Synergetic, an engineering, technical and consulting services company, for \$70mn. Also, in 2011, MasTec — an infrastructure construction company — acquired EC Source Services — a provider of EHV transmission line engineering and construction services — for \$112mn to expand its EHV transmission and substation capabilities.

Canada's power grid also requires an annual investment of \$15bn — an accumulated investment of \$293.8bn by 2030 — for the maintenance and repair of its aging facilities and to encourage power generation from renewable sources such as wind, solar and biomass energy.

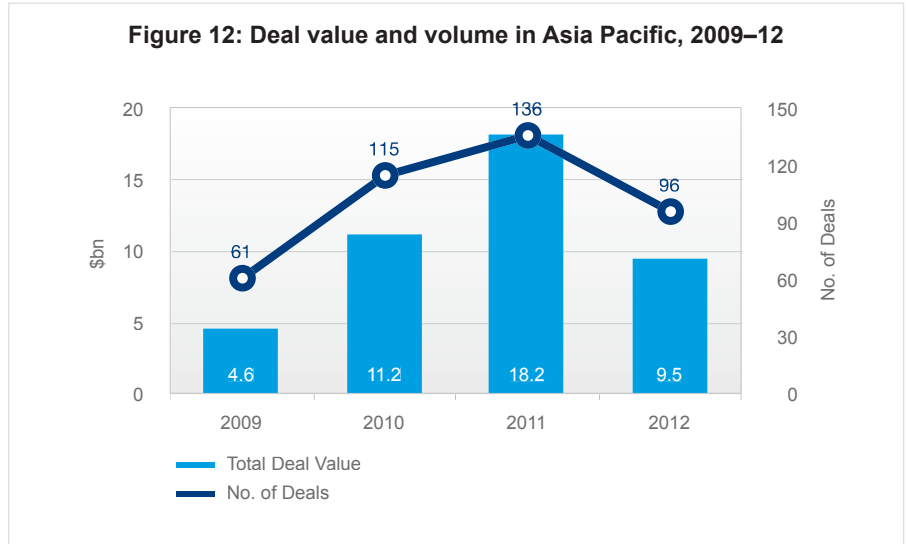
Addressing the challenges of a reliable future power supply involves replacing T&D infrastructure, adding generating capacity and modernizing the electrical delivery system. Smart grid technologies are being adopted that integrate intelligent communications networks with power grids to enable real-time monitoring of the grid and efficient transmission of power. Other innovations that will drive infrastructure spending in the future include US Office of Electricity

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Delivery and Energy Reliability initiatives to encourage a shift to high temperature superconducting (HTS) power conductors, transformers, generators and motors which will help reduce energy losses in power transmission and distribution.

Private sector budgets for T&D infrastructure modernization and smart technology deployment are substantial. Duke Energy plans to invest over \$1bn in smart grid technologies across its service territories, including deployment of over 700,000 electric meters, 450,000 gas meters and 130,000 communication nodes in Ohio. Also, EPB plans to spend about \$226mn to upgrade over half of its distribution circuits. It plans to purchase and install over 1,000 automated feeder switches with SCADA control to automate nearly 80% of its high and medium voltage lines.

Convinced about the growth potential of the electric transmission infrastructure business, companies continue to look for M&A opportunities to expand their operations in that space. In 2010, US-based specialty construction company Quanta Services acquired Canadian electric power-line contractor Valard Construction, for nearly \$224.6mn, to boost its substation engineering services. During the same year, Willbros Group — an independent contractor serving the O&G, power, refining and petrochemical industries — acquired InfrastruX Group — a leading US national provider of natural gas and electric power T&D infrastructure services — for around \$878.8mn. Through this acquisition, Willbros aimed to gain a leadership position in electric T&D services.



Source: Evaluateserve Analysis

Opportunities Ahead

“Companies whose operations focus on the rebuilding and modernization of US and Canadian electrical T&D will see significant opportunities for investment and M&A activity in the years ahead. Investors and strategic acquirors have several billion dollars in capital committed to deployment in the space.”

Kurt Schurer
CES Specialist
M&A International Inc.,
Canada

Asia Pacific (including Japan) - M&A Overview

In Asia Pacific, M&A deal volume grew a whopping 123% over the 2009 to 2011 period, as shown in Figure 12. Stronger M&A activity in the region was led by investors’ expectations of higher growth rates and the stable financial performance of Asia Pacific targets. In 2012, however, it slumped 29% from 136 announced deals in 2011 to 96 announced deals. The median deal value grew from \$40mn in 2009 to \$42.3mn in 2012.

Some of the significant deals include: In 2012, Takaoka Electric Mfg. Co. acquired Toko Electric Corp. for \$262mn (more details on page 34). During the same year, SEBT Investment acquired a 12.38% stake in Daewoo Engineering & Construction Co. for \$367.5mn (more details on page 33). In 2010, Saudi Binladen acquired an 18.83% stake in IL&FS Engineering and Construction Co. for \$64.2mn (more details on page 39).

Of the total announced deals in Asia Pacific over the four-year period, nearly 15% were cross-border deals, mainly comprising investors from North America and Europe.

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Although the number of cross-border deals involving Asia Pacific targets remained fairly stable during the period, a sudden dip was seen in 2012 due to a slowdown in investment activity by North American and European buyers in the region. While the number of cross-border deals accounted for 15.7% of the total deal volume in the region in 2009, the number rose to 17% in 2011, and then dipped to 5.4% in 2012.

Some of the key cross-border deals include: In 2011, Bilfinger SE acquired Neo Structo Construction for \$53.3mn (more details on page 36). In 2010, MacLean Power acquired Dulhunty Power International for \$16.7mn (more details on page 38).

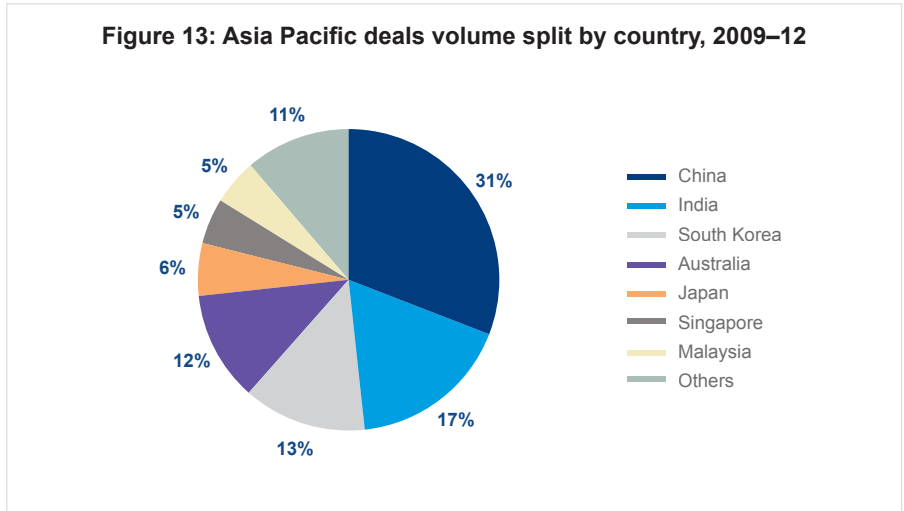
Over the 2009 to 2012 period, M&A volume in Asia Pacific was driven by high activity levels in China, India, South Korea and Australia, which collectively accounted for 73.3% of the overall deal volume, as shown in Figure 13. China attracted the largest share of Asia Pacific deals (31% in terms of both volume and value).

Some of the key Chinese deals include: In 2011, Nexans SA acquired Shandong New Rihui Cable Co. for \$95.1mn to expand its footprint in the Chinese energy infrastructure market (more details on page 36). Also, in 2010, China XD Electric acquired Xi'an Xd Switchgear Electric Co. for \$85.6mn.

Emerging Energy Infrastructure Needs

The Asia Pacific market offers potential opportunities in terms of demand and supply. On the one hand, most Asian economies are developing and have huge energy requirements. Although the development of their energy reserves is in its initial stages (which may partially offset domestic demands), high growth countries such as China and India have huge demand for energy imports.

Figure 13: Asia Pacific deals volume split by country, 2009–12



Source: Evalueserve Analysis

On the other hand, the Australian continent is one of the developed economies of the world with well-established energy resources. As its energy supply surpasses its consumption, it has emerged as a leading supplier of energy to Asia.

Electricity Transmission Infrastructure Trends

Demand for electricity in emerging Asian nations is growing rapidly, so is the demand for coal. Currently, 60% of Asia's electricity is generated through coal, which is significantly higher than the global average of 40%. The use of coal is expected to continue to rise, even though Asian countries have already started to adopt a cleaner energy mix for electricity generation.

According to the International Energy Agency (IEA), Asia will drive 90% of the global coal demand growth by 2032, with China and India together accounting for 80% of this growth. China and India will continue to be the largest coal importers, while Japan, South Korea and Taiwan will also increase their coal imports. Japan, South Korea and Taiwan do not produce coal, but have a large number of coal-fired

plants. Similarly, many developing countries such as Cambodia, Sri Lanka and Uzbekistan do not produce any coal but plan to set up new coal-fired plants. Coal-exporting countries such as Australia, Indonesia, South Africa and Colombia will need to invest in the expansion of their ports and railway infrastructure to supply coal to the growing Asia Pacific market. Mongolia and Mozambique — recent entrants in the coal exports trade — have already started to build new railways and ports. To meet the growing Asian demand for coal, several mining companies in Russia are building coal terminals on Pacific ports to develop their export infrastructure.

Furthermore, to meet the growing domestic electricity demand, Asia requires a \$7 to \$9 trillion power infrastructure investment by 2030. Insufficient power-generation capacity and transmission infrastructure are posing difficulties for Asian countries and hampering their economic growth.

The investment in electricity transmission infrastructure will need to cover the development of a reliable and modernized grid to ensure efficient transmission. The cumulative smart grid market in China, Japan and South Korea is currently valued at \$8.5bn,

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and is forecasted to grow to \$19bn by 2016. China's planned investment in the modernization of power grids is primarily focused on transmission, distribution automation and meter-reading automation, development support to grids and renewable energy build-out in the country. By contrast, South Korea is looking to develop upgraded smart grid technologies, primarily for global exports. The South Korean government has planned to establish a national smart grid and has budgeted around \$24bn in spending over the next 20 years.

In Japan, the Fukushima nuclear disaster created a shortage of electricity supply and underlined an acute need for demand response, home energy management and smart meter deployments. Nuclear supplies in Japan are being replaced with natural gas, coal and oil imports for electricity generation. The increased reliability on such diverse energy resources has created the need for a grid that is modernized and reliable, with greater transmission capacity.

China also plans to spend RMB 2.55 trillion (\$364bn) on its power grid by 2015. The State Grid Corporation of China plans to develop UHV alternating current systems, more stable direct current lines and smart grid networks to connect its power production regions to power consumption centers, which can be as distant as 800 to 3,000 km.

In 2013, Vietnam also announced plans to spend \$811mn to build 54 power lines of 110–500 kV for improving power transmission and build another 50 projects for capacity enhancement of its power grid in the north of the country.

Furthermore, many international projects are being proposed for the supply of electricity to Asian nations. For instance, a 1,000 MW power import project is planned for Afghanistan and Pakistan to import electricity from Kyrgyzstan and Tajikistan by 2016. The \$953mn project is financed by the World Bank and the Islamic Development Bank.

Many companies executed M&A transactions to tap potential growth synergies in the electricity transmission business in the region. In 2012, Sarawak Cable — a manufacturer of power cables and wires used in the electricity T&D space — acquired Trenergy Infrastructure — a Malaysia-based company engaged in construction and installation of power transmission lines — for \$20.8mn to strengthen its installation and commissioning of the transmission lines business in Malaysia. In 2011, Cardno Ltd., an infrastructure and environmental services company, acquired BEC Engineering, an electrical engineering consultancy, for \$48.4mn to gain electrical engineering expertise in the mining and resources sector. Also, in 2010, Southern Cross Electrical Engineering — a provider of large scale electrical, control and instrumentation installation and testing services for construction projects — acquired Oceanic Industries — an electrical and instrumentation contractor in the oil and gas market in Australia — for \$11.3mn.

Asian O&G Perspective

Asia is largely dependent on O&G imports for its energy needs. Asian shale reserves (particularly in China, Indonesia and India) are expected to bring some relief to the domestic energy markets in the near future as the development of Asian shale resources can largely reduce the dependence of the region's economies on Russia and other foreign natural gas exporters.

According to the EIA, China and India have recoverable shale gas reserves of 1,275 TCF and 63 TCF, respectively, while the US and Canada collectively possess 1,250 TCF. Clearly, China holds the largest shale gas reserves and the Chinese government has taken initiatives to explore shale gas production. By 2020, the country plans to fulfill most of its energy needs from unconventional energy sources. As part of this plan, China has entered into strategic

partnerships with foreign companies to acquire the skills and technologies needed to develop and exploit its shale gas reserves. In addition, in January 2013, 16 Chinese companies were allotted rights to explore 19 shale gas blocks around central China in Henan, Hubei, Hunan, Guizhou, Jiangxi and Zhejiang provinces, as well as in the Chongqing area. These companies collectively plan to invest CNY 12.8 billion (\$2bn) over the coming years. While there is a lack of pipelines, storage facilities and other mid-to-downstream infrastructure to transport gas to local markets, the participation of China's state-owned enterprise and the easy availability of cheaper credit are expected to provide some relief to tackle these challenges.

India has taken similar initiatives in shale development based on the predicted shale deposits located around the country's coastal areas. In 2012, India's Oil and Natural Gas Corp. (ONGC) started to identify potential domestic shale gas reserves, and the Indian government announced that it will hold the first shale licensing round by the end of 2013. India also plans to invest a total of \$143bn in the construction of O&G pipelines by 2017, offering significant opportunities for O&G pipeline contractors.

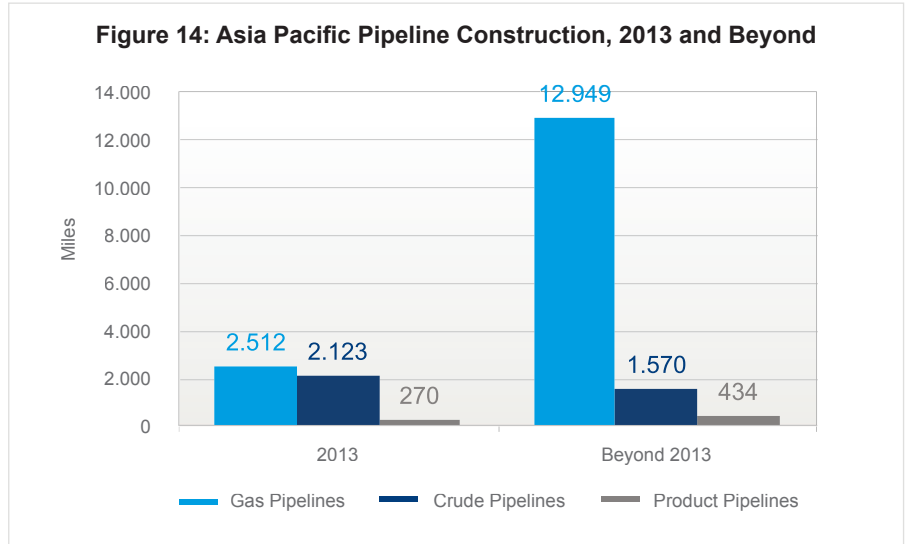
Similarly, Indonesian shale reserves are also targeted for development. According to Indonesia's Bandung Technology University, Indonesia holds shale gas reserves of 1,000 TCF. The Indonesian government announced plans to develop its onshore shale gas fields in Eastern Indonesia by opening tenders in 2013.

Similar to shale gas, coal bed methane (CBM), also known as coal seam gas (CSG), is another unconventional source of gas that has gained global significance as a clean-burning fuel. According to IEA 2011 data, global CBM reserves are estimated to be more than 110 trillion cubic meters (TCM). Canada already produces CBM, as do China, Australia, India and Indonesia, but in smaller quantities.

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China has been focusing on CBM as its unconventional gas resource, along with shale gas. It holds the third largest CBM reserves, estimated at 37 TCF. The Chinese government plans to focus on developing two commercial CBM basins, the Qinshui and Ordos basin, in the near future. China's National Energy Administration (NEA) estimated that these basins will have a CBM production capacity of 16 billion cubic feet (BCF) by 2015. According to the NEA, China will invest CNY 116.6 billion (\$18.5bn) on CBM production by 2015, and build 13 pipelines with an annual capacity of 12 billion cubic meters (BCM).

Indonesia is estimated to hold CBM reserves of 453 TCF, which are much larger than its estimated conventional natural gas deposits of 190 TCF. It is currently a leading exporter of natural gas and supplies gas to countries such as Japan, China, South Korea and Singapore. Given that Indonesia is the largest importer of petroleum products in Southeast Asia, the country now plans to reduce its exports and increase domestic consumption in order to alleviate its reliance on petroleum products. Several production sharing con-



Source: Oil & Gas Journal, Worldwide Pipeline Construction: Crude, products plans push 2013 construction sharply higher

tracts (PSCs) have already been awarded by the Indonesian government to contractors for the development of its CBM reserves. The state oil and gas company, PT Pertamina, has undertaken many projects to build pipelines and terminals for domestic gas supply. Its unit, PT Pertagas, is constructing pipelines to connect the Cirebon and Bekasi areas in West Java by 2014.

In the wake of oil and gas demand and potential energy reserves in the region, the Oil & Gas Journal estimates that around 19,860 miles of pipelines are being planned or are under construction in Asia Pacific, as shown in Figure 14.



M&A Trends & Opportunities by Region

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Strengthening Asia's LNG Import Route

LNG Import



"Although Asian countries' domestic unconventional gas reserves are expected to meet their energy demand in the near future, the majority of the Asian nations are currently dependent on LNG imports for domestic consumption."

Adrian Bradbury
CES Specialist
M&A International Inc.,
China

According to the International Gas Union's (IGU) World LNG Report 2011, Japan and Korea account for 48% of global LNG imports. Based on increasing LNG imports to meet their domestic demand, Asian nations are strengthening their LNG import infrastructure. Countries such as India, Japan and Korea have already undertaken projects to construct LNG terminals and regasification facilities to secure their gas supplies through imports from countries such as Australia and the MENA region.

Table 4: Key projects under construction in countries such as India, Japan and Korea

Project Name	Commissioning Period	Country	Capacity (MTPA)	Project Partners
Dabhol LNG	2012	India	2.0	GAIL, NTPC
Kochi LNG	2012	India	2.5	Petronet LNG
Ishikari LNG	2013	Japan	1.4	Hokkaido Gas
Hazira LNG (Expansion)	2013	India	1.4	Shell, TOTAL
Kochi LNG Phase 2	2013	India	2.5	Petronet LNG
Dahej LNG (2 nd Expansion Phase 1)	2013	India	2.5	GSPC, Petronet LNG
Naoetsu	2014	Japan	1.5	INPEX
Hibiki LNG	2014	Japan	3.5	Saibu Gas, Kyushu Electric
Samcheok	2015	Korea	6.8	KOGAS

Note: MTPA stands for million tons per annum

Source: PFC Energy, IGU World LNG Report – 2011

China has gone a step ahead in pursuit of securing gas imports, having financed construction of fields and transport infrastructure in FSU nations for securing energy supply. In 2012, China's Eximbank agreed to provide \$74mn to modernize Uzbekistan's gas distribution network for facilitating gas export to China. Similarly, in 2012, China National Petroleum Corp. (CNPC) invested in a 1.9 TCF per year gas-for-loan agreement between China and Turkmenistan to facilitate gas supplies to China.

A few key deals to demonstrate how capital deployments made the sector lucrative for M&A activities: In 2011, Dcom Systems Ltd. acquired a 34.31% stake in Jaihind Projects Ltd. for \$10.1mn (more details on page 36). Also, in 2011, Kencana Petroleum acquired Allied Marine & Equipment for \$136.7mn (more details on page 37).

Australian Perspective

With its proven reserves of CBM of nearly 90 TCF, as estimated by the Information Handling Services (IHS), Australia, the fourth largest exporter of LNG, has the potential to become the world's second largest by 2015. Driven by a strong global demand, Australia's LNG exports will increase from about 20 million tons annually (in 2011 to 2012) to over 63 million tons a year by 2016 to 2017, according to the Bureau of Resources and Energy Economics (BREE).

According to BREE's Australian Gas Resource Assessment 2012 report, Australia's total identified resources of CSG are estimated to be 203 TCF. Until now, Australia's west coast has supplied LNG but, with Queensland holding 92% of these reserves, the east coast also has huge potential to become a leading LNG supplier to

M&A Trends & Opportunities by Region

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domestic and international markets. According to BREE's Gas Market Report 2012, "The rise of Australian coal-seam gas (CSG) as a feedstock for LNG exports out of Gladstone in Queensland will substantially change the Eastern gas market (Queensland, New South Wales, Victoria, South Australia, Australian Capital Territory and Tasmania). The potential linkage between the Eastern market and international gas markets, along with a competitive domestic gas market, should support investment in gas supply."

Growth in gas consumption is expected because of the increasing construction of gas-fired power plants, and preference for NG as a cleaner fuel for domestic consumption. For instance, Australian CBM is expected to fuel Japan's power and gas utilities, given that Japan currently meets almost all of its natural gas demands through imports following the Fukushima crisis. In 2011, Japan-based Toyota Tsusho Corp. partnered with UK-based BG Group, one of the world's leading gas companies, to extract CBM from Australia's Queensland region and to transport it to Australia's Gladstone port via a pipeline for liquefaction. The LNG will then be exported to power and gas companies in Japan, Chile, Singapore and elsewhere in the world.

As Australia's CBM reserves mainly located on the eastern coast are far away from domestic gas markets, major capital investment is required to ensure supply in the long term. According to the BREE, "New gas pipelines will be required, particularly in Eastern Australia, to provide sufficient supply for new gas-fired electricity generation in response to demand for cleaner energy."

The eastern market has already started to witness increased pipeline construction activity, with several projects announced and nearing completion.

Table 5: Key projects in Australia

Project Name	Commissioning Period	Australian Regions	Scale	Investments
Moomba to Sydney Pipeline (expansion)	2009-13	New South Wales	5-year 20% capacity expansion	\$0.1bn
Queensland Hunter Pipeline (Wallumbilla to Newcastle)	2012-14	Queensland/ New South Wales	831 km	\$0.9bn
Gladstone LNG (GLNG) Pipeline	2015	Queensland	420 km	\$18.5bn
Arrow Bowen Pipeline (Bowen Basin-Gladstone)	2014-17	Queensland	600 km	\$1bn
Australian Pacific LNG Pipeline	2014	Queensland	450 km	\$36.1bn
Arrow Surat Pipeline	2011-13	Queensland	467 km	\$0.6bn
Young to Wellington Pipeline	2014	New South Wales	219 km	\$0.2bn
Lions Way Pipeline (Casino to Ipswich)	2013-17	New South Wales/ Queensland	145 km	\$0.1bn

Source: Australian Energy Regulator (AER) 2011, Press

According to the Australian Energy Regulator (AER) 2011 data, investments of about \$2.7bn are planned for improving and expanding the domestic gas transmission network and securing supplies from the east coast. This is driven by the need to transport gas from new processing facilities in the Bowen-Surat and Gunnedah basins to major demand centers in New South Wales, Victoria and South Australia.

The east coast also plays a vital role in Australia's coal exports. According to the BREE, Resources and Energy Quarterly (September 2012), two of Australia's eastern states, Queensland and New South Wales (NSW), currently produce 97% of Australia's black coal. The key export destinations for Australia's metallurgical and thermal coal include Japan, China, South Korea and India.

The World Coal Association (WCA) estimates that Australian coal production will grow 30% before 2030, driven by the increasing demand for coal in its export markets. To meet this growing demand, the government and private players are investing hugely to fund the expansion and upgrade of the transport network. Though Queensland and NSW have a well-connected rail network for coal transportation from the coal mines to the existing port terminals, Australia is building new rail networks to accommodate the increasing production and exports of coal. Western Australia is not far behind, and several leading miners and rail operators are building and expanding their networks.

M&A Trends & Opportunities by Region

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Similarly, to address capacity constraints for handling increasing quantities of coal export, port infrastructure is also being modernized within the mining states of Queensland, NSW and Western Australia. According to the BREE, “[A]n additional 20% of the total port capacity (existing, under construction and planned) may be needed to provide sufficient infrastructure for projected commodity export volumes by 2025.”

Growth by Export



“Australia is currently witnessing construction activity in CBM and coal for its exports trade, two of its key energy standpoints. While CBM has a significant potential in the future, coal already has an established export market. Both of these (export) commodities are important for the Australian economy, as is the development and expansion of the port and rail infrastructure in the country.”

Paul Young
CES Specialist
M&A International Inc.,
Australia

Table 6: Key railway projects in pipeline/under construction in Australia

Project Name	Commissioning Period	Australian Regions	Scale	Investments
Nebo Train Maintenance Facility (expansion)	2012-13	Queensland	-	\$20.7mn
Hunter Valley Rail Network (expansion)	2014	New South Wales	200 MTPA (Current cap.: 146 MTPA)	\$0.2bn
Pilbara (expansion)	Through to early 2013	Western Australia	155 MTPA	\$9bn

Note: MTPA stands for million tons per annum

Source: Company Press Releases

Table 7: Significant port projects planned/under construction in Australia

Project Name	Commissioning Period	Australian Regions	Additional Capacity	Investments
Hay Point Coal Terminal (phase 3)	2014	Queensland	11 MTPA	\$2.5bn
WICET (stage 1)	2014	Queensland	27 MTPA	\$2.6bn
Fitzroy Terminal	2015	Queensland	22 MTPA	\$1.2bn
WICET (stage 2)	2016	Queensland	27 MTPA	\$1.4bn
NCIG Export Terminal (stage 2)	2013	New South Wales	23 MTPA	\$0.9bn
NCIG Export Terminal (stage 3)	2013-14	New South Wales	13 MTPA	\$1bn
Cape Lambert Port, Rio Tinto (expansion)	2013-15	Western Australia	353 MTPA	\$1.2bn

Note: MTPA stands for million tons per annum

Source: Bureau of Resources and Energy Economics, Company Press Releases

Conclusion and Outlook

The increasing demand for high quality, reliable electrical power and hydrocarbon fuels around the world puts energy infrastructure in the spotlight for global investment. The companies that are equipped to supply materials, equipment and labor to build expanded and upgraded infrastructure also represent an M&A investment opportunity. Most of the infrastructure development will occur first within the developed countries, with the US and Canada absorbing a large share of investments in the O&G and electrical T&D segments. Construction and engineering services activity and M&A activity will take place first in the US, Canada, Latin America, China and Europe, but not necessarily in that order, with the rest of the world catching up in due course.

Large scale capital deployments have already been earmarked to modernize or develop electricity T&D infrastructure, driven by economic growth and growing population to meet the increased demand for electricity, specifically in developing Asian nations. Also, in the developed world where the demand is relatively flat, the need for renewable energy (in electricity generation) and usage of smart grids (in electricity transmission) have created the need for increased transmission capacity and transmission automation systems.

- According to the IEA November 2011 release, the global energy sector requires investments of \$38tn by 2035 in existing and new capacity. Out of this, \$17tn will be required for power generation, distribution and transmission, 60% of which will serve emerging markets.
- According to Pike Research, between 2010 and 2020, \$606bn will be invested in electricity transmission projects globally. Pike Research also predicted that the planned investment in high voltage direct current transmission systems will be around \$220bn by 2020.

- Bloomberg New Energy Finance (BNEF) projected that global smart grid investments will increase to \$25.2bn by 2018, from \$13.9bn in 2012.

The development of unconventional oil & gas resources will also drive sustained, significant investment in the capacity to move energy commodities to market, including:

- For 2013, oil and gas pipelines spanning over 15,300 miles are planned worldwide, costing more than \$50bn.
- An investment of around \$144bn would be made in over 44,800 miles of oil and gas pipeline projects planned beyond 2013.
- Liquefaction terminals are expected to see strong capital deployments over the next 10 years, leading to heavy capital expenditure on LNG carriers between 2013 and 2023.

M&A Opportunities



“The increased need for infrastructure backed by anticipated large scale capital deployments in this decade presents significant business opportunities for existing players in the energy infrastructure supply chain, thereby driving M&A activities.”

Gianni Casanova
CES Specialist
M&A International Inc.,
Brazil

About M&A International Inc.



M&A International Inc.'s members actively represent buyers and sellers in the CES industry as well as those seeking to raise private equity and debt capital. We possess significant CES sector expertise, industry relationships and experience in successfully executing complex transactions on behalf of our clients.

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Representative Transactions




Transactions Closed by Members of M&A International Inc.

Role of M&A International:	Advisor to			
Sector	Energy Machinery and Equipment			
Target	Danstoker Holding A/S, Omnical Kessel- und Apparatebau GmbH			
Our role	Advisor to seller			
Selling Company/ Location	Private shareholders of Danstoker Holding A/S, Denmark			
Activity	Manufactures biomass-based boilers and waste heat recovery systems			
Acquiror/ Investors/ Location	Thermax Limited, India			
Activity	Produces energy-efficient solutions and components			
Description of Transaction	Appointed as the strategic and financial advisor to the owners of Danstoker A/S in the sale of the company and its German subsidiary Omnical Kessel- und Apparatebau GmbH, identifying Thermax Limited as the suitable buyer. The acquisition, valued at US\$40 million, will play a key role in Thermax's plans for growth in the European energy market.			

Role of M&A International:	Advisor to			
Sector	Construction and Engineering Services			
Target	SKODA POWER a.s.			
Our role	Advisor to buyer			
Selling Company/ Location	SKODA HOLDING a.s., Czech Republic			
Activity	Financial holding			
Acquiror/ Investors/ Location	Doosan Heavy Industries & Construction Co., Ltd., South Korea			
Activity	Builds power plants and develops generating systems			
Description of Transaction	Advised Doosan in negotiations and establishing the Share Purchase Agreement to acquire ŠKODA POWER for US\$662 million. ŠKODA manufactures and supplies technological equipment and customer services in the power generation sector. The mandate was later extended to negotiating local financing for this acquisition.			
























Representative Transactions

Transactions Closed by Members of M&A International Inc.

Role of M&A International:	Advisor to			
Sector	Construction and Engineering Services			
Target	Parkland Pipeline			
Our role	Advisor to seller			
Selling Company/ Location	Private shareholders of Parkland Pipeline, Canada			
Activity	An oil and gas service company specializing in the planning, construction and ongoing maintenance of pipelines and pipeline oilfield facilities			
Acquiror/ Investors/ Location	Tetra Tech, United States			
Activity	A leading provider of consulting, engineering, program management, construction management and technical services			
Description of Transaction	Advised Parkland Pipeline Contractors on its sale to Tetra Tech, Inc. A dozen qualified and highly interested buyers were identified through a disciplined sale process, and the seller ultimately received offers from three qualified buyers, each exceeding the seller's price expectations by at least 40%. An international team negotiated with the various buyers to get the best deal for the seller in terms of significant cash at closing, an attractively structured earn-out, and a commitment from the buyer to invest significant capital in the company in order to meet the earn-out targets.			

Representative Transactions

Transactions Closed by Members of M&A International Inc.

 <p>has been acquired by</p>  <p>Energy Machinery and Equipment Advisor to seller Denmark/India</p>	 <p>has acquired</p>  <p>Construction and Engineering Services Advisor to buyer South Korea/Czech Republic</p>	 <p>has acquired</p>  <p>Energy Machinery and Equipment Advisor to buyer United States</p>	 <p>has been acquired by</p>  <p>Construction and Engineering Services Advisor to seller United States</p>
 <p>acquired a 35% stake in</p>  <p>Real Estate Advisor to buyer United Kingdom/Czech Republic</p>	 <p>issued bonds in worth of US\$35 million</p> <p>Other Industrials and Capital Goods Fundraising - other finance Israel</p>	<p>MT Højgaard A/S's service assets in</p>  <p>have been acquired by</p>  <p>Construction and Engineering Services Advisor to seller Denmark</p>	 <p>has been acquired by</p>  <p>Construction and Engineering Services Advisor to seller Canada/United States</p>
 <p>has been acquired by</p>  <p>Construction and Engineering Services Advisor to seller United States</p>	 <p>has been acquired by</p>  <p>Construction and Engineering Services Advisor to seller Germany</p>	<p>A 70% stake in</p>  <p>has been acquired by</p>  <p>Energy and Utilities, Multi-Utilities Advisor to seller Brazil</p>	 <p>has been acquired by its management, backed by Enterprise Ventures and</p>  <p>Industrials and Capital Goods, Diversified Manufacturing Advisor to seller United States</p>

Representative Transactions

Major M&A Transactions Mentioned in this Report

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
December 2012	Power Holdings (US)	Kelso & Co. (US)	Power Holdings provides outsourced maintenance and construction services to the electric utility industry. The company was acquired by Kelso & Co. for \$380mn in cash.	380.0	N/A
December 2012	Aibel AS (Norway)	Ratos AB (Sweden), Sjatte AP-fonden (Sweden), Ferd Capital (Norway)	Aibel AS provides engineering, construction, upgrading and maintenance services for O&G and renewable energy sectors. Ferd Capital, Ratos AB and Sjatte AP-fonden agreed to acquire Aibel AS for an enterprise value of approximately NOK 8.6 billion.	1,538.5	N/A
November 2012	Q3 Contracting Inc. (US)	Primoris Services Corp. (US)	Q3 Contracting Inc. operates as a construction contracting company, specializing in small to medium diameter pipeline and gas distribution construction. The company was acquired by Primoris Services Corp. for \$58.1mn in cash. This acquisition broadened Primoris' presence in pipeline construction, replacement and integrity work in the US.	58.1	N/A
October 2012	Horizon Nuclear Power Ltd. (UK)	Hitachi Ltd. (Japan)	Horizon Nuclear Power Ltd. constructs nuclear power stations. The company was acquired by Hitachi Ltd. for approximately £700mn. The deal was expected to double Hitachi's nuclear sales to \$4.5bn by 2021.	1,119.1	N/A
October 2012	Offshore Oil Engineering Co. Ltd. (China)	China National Offshore Oil Corp. (China)	Offshore Oil Engineering Co. Ltd. operates as an offshore engineering construction company. The company announced a private placement of up to 640 million A shares for maximum gross proceeds of CNY 3.5 billion under which China National Offshore Oil Corporation will subscribe for at least 70% of the shares issued.	560.5	N/A
October 2012	Westinghouse Electric Co. LLC (US)	Toshiba Nuclear Energy Holdings Inc. (US)	Westinghouse Electric Co. LLC provides fuel, services, technology, plant design and equipment for the commercial nuclear electric power industry. Toshiba Nuclear Energy Holding Inc. acquired an additional 20% stake in Westinghouse Electric for ¥125bn in cash. The acquisition helped Toshiba become a leading global nuclear power group.	1,598.1	N/A
September 2012	Frac Tech Holdings LLC (US)	Consortium led by Temasek Holdings Pte. (Singapore)	Mitchell's Oil Field Service provides construction and trucking services for the oil and gas industry. The company was acquired by Production Services Network Ltd. for \$182.5mn.	182.5	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
September 2012	Global Marine Systems Energy Ltd. (UK)	Prysmian SpA (Italy)	Global Marine Systems Energy Ltd. provides subsea power cable installation, maintenance and related engineering services. The company was acquired by Prysmian SpA for approximately €53mn. The acquisition further strengthened Prysmian's submarine power cable installation capability.	66.8	N/A
September 2012	Polish Energy Partners SA (Poland)	Polenergia Holding Sarl (Luxembourg)	Polish Energy Partners engages in the development, implementation and management of electricity and heat generation projects in Poland. The company's 57.76% stake was acquired by Polenergia Holding Sarl for approximately PLN 410 million. Polenergia acquired 12.31 million shares at PLN33 per share.	241.4	6,1
August 2012	Daewoo Engineering & Construction Co. Ltd. (South Korea)	SEBT Investment Ltd. (South Korea)	Daewoo Engineering & Construction Co. Ltd. constructs LNG terminals, storage tanks and plants, as well as gas pipelines and related facilities in the O&G sector. The company's 12.38% stake was acquired by SEBT Investment Ltd. and other investors for around KRW 420 billion. Daewoo's 51 million shares were acquired at KRW 8,140 per share.	367.5	16,8
August 2012	Trenergy Infrastructure Sdn Bhd (Malaysia)	Sarawak Cable Bhd (Malaysia)	Trenergy Infrastructure Sdn Bhd engages in the construction and installation of power transmission lines. The company was acquired by Sarawak Cable Bhd for MYR 65 million in cash. The acquisition strengthened Sarawak's installation and commissioning business for transmission lines in Malaysia.	20.8	3,0
July 2012	The Shaw Group Inc. (US)	Chicago Bridge & Iron Co. NV (Netherlands)	The Shaw Group Inc. provides engineering and construction contracting services in the power generation market in the US. The company was acquired by Chicago Bridge & Iron Co. N.V. (CB&I) at \$41.00 in cash and 0.12883 shares of CB&I equity for each share of Shaw. The acquisition created one of the world's largest EPC service companies in the energy infrastructure sector.	4,828.3	10,6
July 2012	Isolux Infrastructure SA (Brazil)	Grupo Isolux Corsan SA (Spain), Public Sector Pension Investment Board (Canada)	Isolux Infrastructure S.A. operates as a construction and engineering company. The company received a €500mn investment from the Public Sector Pension Investment Board (for a 30% stake) and €100mn from Isolux Corsan. The funding helped Isolux to strengthen its position in its toll roads, high voltage power lines and photovoltaic electricity generation businesses.	754.4	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
June 2012	Elster Group SE (Germany)	Melrose Industries plc (UK)	Elster Group SE provides gas, electricity, water meters, and other networking and software solutions. Melrose Industries plc acquired Elster in a \$20.50 per Elster American depository shares or \$82 per Elster share offer. The transaction helped Melrose gain access to gas and power meters for advanced electricity grids.	2,880.7	10,4
June 2012	UC Synergetic Inc. (US)	Pike Electric Corp. (US)	UC Synergetic Inc. provides engineering, technical and consulting services such as overhead and underground transmission lines, design, transmission line routing and survey studies. The company was acquired by Pike Electric Corp. for \$70mn in cash. The acquisition expanded Pike's footprint in the Northeast and Midwest US regions, and strengthened its position as one of the largest utility infrastructure engineering and design firms in the US.	70.0	N/A
April 2012	Toko Electric Corp. (Japan)	Takaoka Electric Mfg. Co. Ltd. (Japan)	Toko Electric Corp. manufactures transformers and other electrical equipment. The company was acquired by Takaoka Electric Mfg. Co. Ltd. for ¥13.2bn in stock under which both companies formed a holding company. One Takaoka Electric share was exchanged for a 0.1 share of the holding company, and one Toko Electric share was exchanged for a 0.195 share of the holding company.	262.0	1,1
April 2012	Entrepose Contracting SA (France)	VINCI SA (France)	Entrepose Contracting SA engages in the design and construction of industrial projects in the O&G and energy sectors, as well as for shallow water operations. VINCI SA acquired the remaining 19.7% stake in Entrepose for approximately €100mn, under which VINCI paid €100 for each share of Entrepose.	132.9	8,4
March 2012	Sprint Pipeline Services LP (US)	Primoris Services Corp. (US)	Sprint Pipeline Services LP provides pipeline contracting services to the energy industry in the US. The company was acquired by Primoris Services Corp. for \$28.2mn. Primoris issued 62,052 shares of Primoris common stock and paid \$19.2mn in cash. The acquisition expanded Primoris' presence in the US Gulf Coast region.	28.2	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
March 2012	Tebodin BV (Netherlands)	Bilfinger SE (Germany)	Tebodin BV provides consulting and engineering services, such as general and detailed planning of plants, as well as project management, procurement and construction supervision. The company was acquired by Bilfinger Berger for approximately €150mn in cash.	193.6	N/A
February 2012	Dixie Electric LLC (US)	One Rock Capital Partners LLC (US)	Dixie Electric LLC operates as an electrical contracting company, specializing in oil field electrical construction and maintenance, natural gas pipeline automation, utility distribution, transmission lines and power substations. The company was acquired by One Rock Capital Partners LLC for \$47mn.	47.0	N/A
February 2012	URS Flint (Formerly known as: Flint Energy Services Ltd.) (Canada)	URS Corp. (US)	URS Flint provides production services, infrastructure construction, oilfield transportation and maintenance services for the oil and gas industry. URS Corp. acquired Flint Energy Services Ltd. for CAD 1.2 billion in cash and renamed the company URS Flint. URS Corp. paid CAD 25 per share to Flint shareholders and assumed Flint's debt. The transaction significantly expanded URS Corp.'s presence in the North American oil and gas sector, particularly in the unconventional oil and gas segments.	1,488.7	9,3
January 2012	Thomas & Betts Corp. (US)	ABB Low Voltage Products & Systems (US)	Thomas & Betts Corp. engages in the design, manufacture and marketing of components used to manage the connection, distribution and transmission of electrical power. The company was acquired by ABB Low Voltage Products & Systems at \$72 per share in cash, or approximately \$3.9bn. The transaction enhanced ABB's position as a major player in the North American low voltage products market.	4,318.1	9,2
November 2011	Ferrostaal AG (Germany)	MAN SE (Germany)	Ferrostaal AG provides industrial services in plant construction and engineering worldwide. MAN SE acquired the remaining 70% stake in Ferrostaal for €350mn.	467.0	N/A
November 2011	Elektrotcentromontazh OJSC (Russia)	Narsil Konsaltjens Ltd. (Russia)	Elektrotcentromontazh OJSC operates as a general contractor and designer for the construction of new energy facilities. The company's 25.5% stake was acquired by Narsil Konsaltjens Ltd. for RUB 330 million.	10.5	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/EBITDA
November 2011	Neo Structo Construction Ltd. (India)	Bilfinger SE (Germany)	Neo Structo Construction Ltd. operates as a mechanical engineering company for refineries, petrochemical, O&G/offshore, power and other industries. The company was acquired by Bilfinger Berger SE for €40mn.	53.3	N/A
September 2011	ZAO Rimera (Russia)	OJSC Chelyabinsk Tube-Rolling Plant (Russia)	ZAO Rimera provides integrated oilfield services and solutions, such as provision of equipment for the construction of federal and regional pipelines. OJSC Chelyabinsk Tube-Rolling Plant invested RUB 9 billion to buy 180 million Rimera common shares at the par value of RUB 50 each, in a private placement.	252.0	N/A
August 2011	Pine Valley Power Inc. (US)	Pike Electric Corp. (US)	Pine Valley Power Inc. provides construction and maintenance services to T&D, substations, power plants, power generation and other industries. Pike Electric Corp. acquired 10,000 shares of Pine Valley for \$25.1mn, with net of cash acquired of \$0.47mn. The transaction helped Pike Electric to undertake large scale EPC projects in the Western US.	25.5	N/A
July 2011	Jaihind Projects Ltd. (India)	Dcom Systems Ltd. (India)	Jaihind Projects provides engineering, procurement and construction services to hydrocarbon, water and infrastructure sectors in India. An additional 34.31% stake in the company was acquired by Dcom Systems for INR 500 million.	10.1	3,6
July 2011	BEC Engineering Pty Ltd. (Australia)	Cardno Ltd. (Australia)	BEC Engineering Pty Ltd. operates as an electrical engineering consultancy. The company was acquired by Cardno Ltd. for AUD 45 million in a 75% cash and 25% stock deal. The acquisition helped Cardno Ltd. gain electrical engineering expertise in the mining and resources sector.	48.4	N/A
June 2011	Shandong New Rihui Cable Co. Ltd. (China)	Nexans SA (France)	Shandong New Rihui Cable Co. Ltd. (the power cable unit of Shandong Yanggu Cable Group Co. Ltd.) manufactures voltage power cables. Its 75% stake was acquired by Nexans SA for around CNY 620 million. The acquisition expanded Nexans' footprint in the Chinese energy infrastructure market.	95.1	N/A
June 2011	Xodus Group Ltd. (UK)	Simmons & Co. (UK), Sunrise Energy Group (Netherlands)	Xodus Group Ltd. provides oil, gas and energy consulting and engineering services for subsea, O&G and technological applications. The company raised £10mn from Simmons Parallel Energy and Sunrise Energy Group.	16.4	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
May 2011	Patrick Energy Services Inc. (US)	SAIC Energy, Environment & Infrastructure LLC (US)	Patrick Energy Services Inc. provides planning, design, engineering and construction services for power transmission, control and distribution. The company's transmission and distribution engineering capabilities were acquired by SAIC Energy, Environment & Infrastructure LLC for \$25mn in cash. The acquisition enhanced SAIC's energy and smart grid services portfolio.	25.0	N/A
May 2011	Allied Marine & Equipment Sdn Bhd (Malaysia)	Kencana Petroleum Bhd (Malaysia)	Allied Marine & Equipment Sdn Bhd (AME) provides subsea inspection, repair, maintenance and light construction services in Southeast Asia. The company was acquired by Kencana Petroleum Bhd for MYR 400 million in stock (149.254 million shares at the rate of RM2.68 each). The acquisition was in line with Kencana's objective to become a fully integrated offshore services company, and to establish its position in the subsea services and deep water segment.	136.7	N/A
May 2011	EC Source Services LLC (US)	MasTec Inc. (US)	EC Source Services LLC provides extra high voltage (EHV) transmission line engineering and construction services. MasTec Inc. acquired the remaining 67% interest in EC Source by issuing 5.13 million shares and assuming approximately \$8.6mn in debt. The acquisition expanded MasTec's EHV transmission and substation capabilities.	112.4	N/A
April 2011	Maritime Industrial Services Co. Ltd. (UAE)	Lamprell plc (UAE)	Maritime Industrial Services Co. Ltd. Inc. provides engineering, procurement and construction services to the O&G, petrochemical, power generation and other industries. The company was acquired by Lamprell plc for NOK 1.7 billion (NOK 38 per share).	373.9	7,3
March 2011	Glacier Energy Services (Formerly known as: MBAe Oil & Gas) (UK)	Maven Capital Partners UK LLP, Simmons & Co. (UK)	Glacier Energy Services provides subsea systems, wellhead equipment and pipeline components for the O&G industry. Maven Capital Partners UK LLP and Simmons & Co. (Parallel Energy Fund) acquired MBAe Oil & Gas Ltd. which comprised of Roberts, a pipeline machining company, and WellClad, a welding services specialist, for £8.5mn in cash. The acquisition formed a new entity, Glacier Energy Services.	13.6	N/A
December 2010	J. F. Edwards Construction Co. (US)	Electricidade Industrial Portuguesa SA (Portugal)	J. F. Edwards Construction Co. provides specialty electrical contracting services. The company was acquired by Electricidade Industrial Portuguesa SA for €15.5mn.	20.6	N/A

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
November 2010	Gulmar Offshore Middle East LLC (UAE)	Oaktree Capital Management LP (US)	Gulmar Offshore Middle East LLC operates as a subsea engineering and general contracting company. Oaktree Capital Management L.P. invested \$100mn for a majority stake in Gulmar Offshore in 2010.	100.0	N/A
October 2010	Valard Construction Ltd. (Canada)	Quanta Services Inc. (US)	Valard Construction Ltd. provides power line contracting services, such as turnkey and construction services, in overhead and underground transmission and distribution systems, substations, fiber optics and substation and transmission foundations. The company was acquired by Quanta Services Inc. for \$118.9mn in cash and approximately 4.5 million common shares. The transaction expanded Quanta's presence in Canada, as well as boosted its substation engineering services.	224.6	N/A
October 2010	EMAS AMC AS (Formerly known as: Aker Marine Contractors AS) (Norway)	Ezra Holdings Ltd. (Singapore)	EMAS AMC AS provides subsea construction, installation, maintenance, repair and decommissioning services. Ezra Holdings Ltd. issued 72.48 million shares and \$50mn in convertible bonds, as well as paid \$50mn in cash to acquire Aker Marine Contractors AS which was renamed EMAS AMC AS. The acquisition made Ezra one of the world's top five subsea umbilicals, risers and flowlines contractors.	251.5	N/A
October 2010	Dulhunty Power International Ltd. (Hong Kong)	MacLean Power LLC (US)	Dulhunty Power International Ltd. manufactures electricity transmission equipment. The company's 50.82% stake was acquired by Maclean Power LLC for AUD 17 million.	16.7	N/A
September 2010	National Petroleum Construction Co. Ltd. (UAE)	Abu Dhabi Islamic Bank PJSC (UAE)	National Petroleum Construction Co. Ltd. provides engineering, procurement and construction services to the offshore and onshore O&G and petrochemical industries. The company raised \$100mn in funding from Abu Dhabi Islamic Bank PJSC.	100.0	N/A
September 2010	SAE Towers Holdings LLC (US)	KEC International Ltd. (India)	SAE Towers Holdings LLC manufactures steel lattice towers for high voltage power transmission. The company was acquired by KEC International Ltd. for \$95mn in cash. The transaction strengthened KEC's presence in North and Latin America regions, and made KEC the largest lattice tower manufacturing company in the world.	95.0	5.0

Representative Transactions

Date Announced	Target	Acquiror	Deal Synopsis	Value (\$mn)	EV/ EBITDA
July 2010	Overland Pass Pipeline LLC (US)	Williams Partners LP (US)	Overland Pass Pipeline LLC constructs natural gas liquids pipelines. An additional 49% stake in the company was acquired by Williams Partners LP for \$423.7mn.	423.7	N/A
June 2010	Subsea 7 Inc. (UK)	Subsea 7 SA (Formerly known as: Acergy SA) (UK)	Subsea 7 Inc. provides seabed-to-surface engineering, construction and contract services to the offshore energy industry. Acergy SA acquired Subsea 7 Inc., in a merger transaction, for NOK 15.8 billion and offered 1.065 Acergy common shares for every Subsea 7 Inc. common share. The merged entity was renamed as Subsea 7 SA, a global leader in seabed engineering and construction.	3,084.9	8,3
June 2010	IL&FS Engineering and Construction Co. Ltd. (Formerly known as: Maytas Infra Ltd.) (India)	Saudi Binladen Group Ltd. (Saudi Arabia)	IL&FS Engineering and Construction Co. Ltd. operates as an infrastructure development, construction and project management company in India. Saudi Binladen Group Ltd. acquired an 18.83% stake in Maytas Infra Ltd. for INR 2.9 billion.	64.2	N/A

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