

# FIRST IEA-IEF-OPEC SYMPOSIUM ON GAS AND COAL MARKET OUTLOOKS



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## DIALOGUE INSIGHTS

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### MAIN DISCUSSION TOPICS AND FINDINGS

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## KEY INSIGHTS

- Coal and gas together account for almost half of the world's total primary energy consumption.
- Current global gas and coal resources are sufficient to meet future demand through 2035 under virtually any forecast scenario.
- In contrast to oil, the global nature of gas and coal markets is limited – as only one third of gas and around 15% of coal consumption are traded internationally.
- Doubts persist over whether or not the world will experience a “golden age of gas”.
- China has little alternative but to expand coal use in the power sector, at least in the near- to medium-term. The dragon's flame is coal-fired.
- Greater data transparency in gas markets would help reduce speculation and encourage investment based on sound analysis.
- Regulatory reform efforts in the financial and derivatives markets must strike a delicate balance between increasing transparency and preserving liquidity levels.
- Additional dialogue is required to find common ground around the gas pricing mechanisms debate.
- At present, there is a fair amount of confusion in the market: US coal exporters are confused; policymakers in Brussels are confused; if the Japanese phase out nuclear, then this may spark still more confusion.

## 1. EVENT BACKGROUND

The International Energy Agency (IEA), the International Energy Forum (IEF) and the Organization of the Petroleum Exporting Countries (OPEC) jointly hosted the First Symposium on Gas and Coal Market Outlooks at IEA Headquarters in Paris on 4 October 2012. The event, which was organised in response to requests from G20 Leaders, gathered more than 90 experts with a diverse range of backgrounds: the energy industry (consumers and producers), business, government and academia. The Symposium offered a platform for the exchange of views on the outlooks for gas and coal markets, and an opportunity to examine related regulatory developments.

## 2. OVERVIEW

Discussions during the IEA-IEF-OPEC Symposium focused on the outlook for the gas and coal markets from the perspective of both producers and consumers, and on fundamental market drivers and potential game changers. Symposium participants discussed the relative importance of coal and gas in the global energy mix. Combined, the two fuels represent almost half of total global primary energy consumption. In the past decade coal and gas have accounted for around 60% of incremental energy demand worldwide. The world's gas and coal resources are sufficient to meet future demand under virtually any currently-envisioned scenario through 2035.

In contrast to oil, the global nature of gas and coal markets is limited – as only one third of gas and around 15% of coal consumption are traded internationally. Gas and coal markets therefore tend to display distinctly regional characteristics, and associated financial derivative markets are not as mature as they are for oil. Coal and natural gas markets have experienced rapid structural change in recent years, with shifting regional demand patterns and rising international trade among the main drivers.

Recognising that gas and coal markets have become more complex, Symposium participants stressed the importance of sharing diverse views, insights and analyses among organisations and experts to deepen and enrich the global energy dialogue.

## 3. MAIN UNCERTAINTIES AND CHALLENGES FACING THE GAS MARKET

Most Symposium attendees were in agreement that natural gas will play a growing role in the global energy mix in the decades ahead. With that as given, there was ample time to focus on the uncertainties facing the future of the gas market.

Subjects of discussion during the Symposium included the impact of economic growth on gas demand, the outlook for nuclear power post-Fukushima (and related impacts on gas demand), challenges inherent in the development of so-called mega-projects, questions surrounding subsidies for renewables, price formation, future environmental and CO<sub>2</sub> scenarios, and what the future holds for unconventional gas.

The potential impact of recent developments in the world gas market on major gas exporting countries like Russia was also a point of interest. The shift toward gas-on-gas pricing in Europe is putting some large Russian investment plans at risk, pushing Russia to export to Asia. This is more than just talk – this is already happening, and one of the challenges Russia is facing is how to develop green-field production facilities. In Russia, cheap gas fields are depleted already – so the cost of extracting gas in Russia is rising. A key challenge for Russia is to find a way to sell gas to China at a price that will enable Russia to invest in producing more expensive gas.

The European financial crisis has resulted in a drop in regional gas demand in favour of coal for power generation, as an economic response to the very low carbon prices currently set under the EU Emission Trading System. Interestingly, some degree of the current “discomfort” experienced by gas in Europe is directly attributable to the success of gas in the USA. Arbitraged US coal displaced by plentiful US domestic gas is successfully undercutting gas in Europe. Growing momentum toward hub-based pricing and the potential of large LNG exports from the US are also sources of uncertainty.

On the broader international stage, there is healthy gas demand growth in Asia and elsewhere, especially in the aftermath of the Fukushima nuclear accident. Although gas production is expected to increase in many regions, the general expectation voiced by Symposium participants was that the rising cost of new projects would have to be reflected in higher prices in order to service the required investments.

#### **4. SHALE GAS DEVELOPMENTS**

How has the unconventional gas boom affected the overall gas market thus far? And how will the uncertainties associated with the future development of unconventional gas influence the outlook? As the Symposium was held at the International Energy Agency, it was to be expected that the IEA's May 2012 publication "Golden Rules for a Golden Age of Gas" would be a topic of discussion. Some of the key related comments and insights are below:

- Whether or not a golden age of gas will materialise remains uncertain, and will depend upon the degree to which operators obtain a "social license" from various actors and stakeholders;
- The current scenario may represent a golden age for selected gas producing countries, but certainly not for all countries;
- Some discussants noted that, in the short- and medium-term, the US alone stands to enjoy the benefits of a golden age of gas;
- There are concerns that a so-called golden age may turn out to be a "gold-plated" age of gas, as countries such as Poland and China don't have the same infrastructure and regulatory frameworks as the US and thus may not be able to realise the perceived potential of their unconventional reserves.

While shale gas has been at the centre of an energy revolution in the US – with dramatic effects on domestic gas prices and job creation – this has not been the case in Europe, where there is still considerable uncertainty about the volume of unconventional (shale) gas present. Furthermore, European nations continue to take different positions on shale gas: ranging from Poland's enthusiasm for shale gas to France's reluctance to allow exploration. Participants also noted the challenges, specifically environmental, that are associated with shale gas activities. Other challenges are linked to the presence of appropriate regulation, service companies, rig facilities and skilled workers. It seems that the likelihood of a rapid replication of the successful US model in other nations and regions is remote.

Shale gas was criticised by some participants as being a double-edged sword. Their argument was that the increased availability of gas raises the spectre of a potential supply glut, which would lower prices – which would in turn reduce the incentive for producers to invest. Low gas prices may also have an adverse impact on interest in and the market for costly renewables.

#### **5. GAS PRICING MECHANISMS (OIL-LINKED CONTRACTS VERSUS HUB-INDEXED PRICES)**

Recognising the pressures on the oil indexation system of gas pricing, participants noted that nascent gas hubs in Europe and elsewhere currently lack liquidity – and that the viability of a single global gas market remains very much in doubt.

In terms of shifting away from oil-linked pricing, concerns were raised about the possibility of manipulation either by sellers or buyers of gas. Discussants acknowledged the possibility that hub-based prices might prove to be more volatile than those set by the traditional oil-linked contracts. The capital-intensive nature of gas projects and the long lead-time before payback were cited in support of long-term contracts (which were lauded by some, as they help to balance risks and rewards between buyers and sellers).

## 6. MARKET DATA AVAILABILITY: EXTENSION OF JODI TO GAS

There was agreement that more and better natural gas data would benefit market actors, in part because limited natural gas data transparency tends to encourage speculation rather than investment based on sound fundamentals. Participants noted the progress made in extending the Joint Organisations Data Initiative (JODI) to cover gas, thanks to the cooperation of the JODI Partner organisations. However, making JODI-Gas a reality is not without its challenges. Concerns about data confidentiality and data harmonisation, as well as the need to train statisticians, were all raised as potential roadblocks. On a more positive note, experts recalled that participants in the Second Gas Data Transparency Conference in Doha (May, 2012) had identified a number of countermeasures with the potential to address these challenges: transforming the JODI-Gas exercise into a permanent initiative, organising regional capacity-building sessions for statisticians, developing a JODI-Gas Training Manual and launching a beta version of the JODI-Gas database.

Symposium participants commended the collaborative international efforts to increase market data transparency, and stressed the need to make further significant progress in this area – including on JODI-Gas.

## 7. THE ROLE OF COAL IN THE GLOBAL ENERGY MIX

Are coal demand drivers robust around the world? Which markets will drive future supply and demand growth? How will the shale gas glut and low gas prices in the US affect the outlook for coal in the US and elsewhere? And how will energy and environmental policies impact the coal outlook?

Participants acknowledged the importance of coal in today's world. Coal resources are abundant and available across the globe: currently-identified coal reserves are sufficient to meet contemporary production rates for more than 100 years. At present, coal is the second primary energy source in use globally (representing around 28% of primary energy) and some expect it will overtake oil as the most important fuel source by 2030. Around 75% of global demand for thermal coal is driven by power generation, and more than 40% of global power generation is fueled by coal – with nearly 85 % of it consumed in the country where it is produced.

The centre of power in the global thermal coal trade has shifted away from the Atlantic to the Pacific, increasing the importance of non-OECD countries for the global coal market (driven to a large extent by China's recent import surge). China and India in particular have little alternative but to expand coal use in the power sector, at least in the near- to medium-term. Therefore, coal is expected to extend its run as the dominant fuel in China's energy mix (around 70% as of 2010) – despite policy efforts directed at diversifying the mix (which include investments in expanding nuclear capacity that are roughly five times greater than the levels seen in France during the 1980s). As one participant noted, the dragon's flame is coal-fired. China is currently a price setter for coal, though if India becomes the largest coal importer, price formation may change.

The US shale gas revolution has led to a crowding-out of thermal coal in the US power sector, which has forced these idled coal supplies onto the international thermal coal market – subsequently leading to additional supply and low prices in the Atlantic Basin. On this point, it was noted that at current prices for coal, gas and CO<sub>2</sub>, coal has a significant cost advantage over natural gas in the North-Western European electricity sectors. As a result, European coal demand in 2011 increased by a historic 7% (benefiting from cheap US imports), while gas demand declined. Some posited that it would take a CO<sub>2</sub>-price in excess of 60 EUR/t CO<sub>2</sub> to give natural gas in Europe a cost advantage similar to the one in the United States. The environmental benefits of using gas are immense when compared to coal, but low ETS carbon prices undermine the advantage of gas's environmental credentials. One discussant noted that from 2006-2011, the US has cut CO<sub>2</sub> emissions more than any other country thanks to gas displacing coal.

Participants also noted that prices for coal reflect that regional coal markets are more integrated than gas markets. This may be due in part to the differences in shipping costs. Shipping gas as LNG is roughly four times more expensive than shipping coal, because of high costs involved in the liquefaction of natural gas.

## 8. FINANCIAL REGULATION IN GAS AND COAL MARKETS

What is the status of market transparency in gas and coal, at both national and international levels? What are the challenges to increasing transparency in the gas- and coal-related financial markets? Are these similar to challenges faced in other commodity markets? And how will proposed financial regulations in energy derivative markets impact gas and coal markets?

Participants noted that in the interest of improving regulatory oversight and managing risk in energy derivatives markets, greater transparency is being called for by energy and financial authorities alike. They further noted that transparency differs across regions and commodities (gas vs. coal). Transparency of prices for coal should be improved – some experts cited examples of price quotes differing by as much as 20%.

Experts discussed at length the regulatory reform efforts in the financial and derivative markets, recognising that the ongoing review of financial market regulation will likely have a significant impact on commodity markets. The need to preserve the ability of physical traders to use these markets to facilitate trading and manage underlying price risk was acknowledged, as was the need to ensure that reform efforts do not negatively impact market liquidity.

The insights presented in this Brief are for general reference on the diversity of perspectives expressed, and should not be interpreted as reflecting the participants' consensus nor the specific views of the organisations that hosted the event.