

# Russian gas key to 2020 targets

*With 2020 only eight years away and taking into account International Energy Agency (IEA) projections, how will Europe meet its greenhouse gas emissions targets whilst ensuring affordable energy supply? Using gas as a transition fuel means Europe must carefully weigh the risks of an increased dependency on Russia. Crispian McCredie and Ruud Weijermars\*, Alboran Energy Strategy Consultants, consider the dilemmas that must be solved for a new European Union energy policy.*

Concerns about switching to renewables, greenhouse gas mitigation and energy conservation have dominated the European Union (EU) energy agenda in the past. This strong policy focus on renewables has arguably diminished the EU's vigilance about the strategic security of its fossil fuel supply. Fossil fuels account for a hefty 76% of Europe's primary energy demand. However, the use of fossil fuels should be scaled back before 2020, to slow down energy-related carbon dioxide (CO<sub>2</sub>) emissions, according to International Energy Agency (IEA) scenarios adopted by the EU and G8 ministers. Substantial investments are needed to achieve this energy revolution. However, the effects of the economic recession may have weakened the EU's commitment to implement the greenhouse gas targets for 2020.

Europe's fast switch to 20% renewables in the energy mix by 2020 is a costly proposition, as today only 10% of its primary energy is from renewable sources. The nuclear option, apart from opposition to expanding its current 14% share in primary energy supply, provides no quick solution, as planning approval and completion exceeds eight years (based upon past performance). Using more natural gas for power production would help curb greenhouse gas emissions, but European gas production has now peaked. Two decades from now, Europe's indigenous

gas production will have halved to 155bn cm/y (see **Figure 1**).

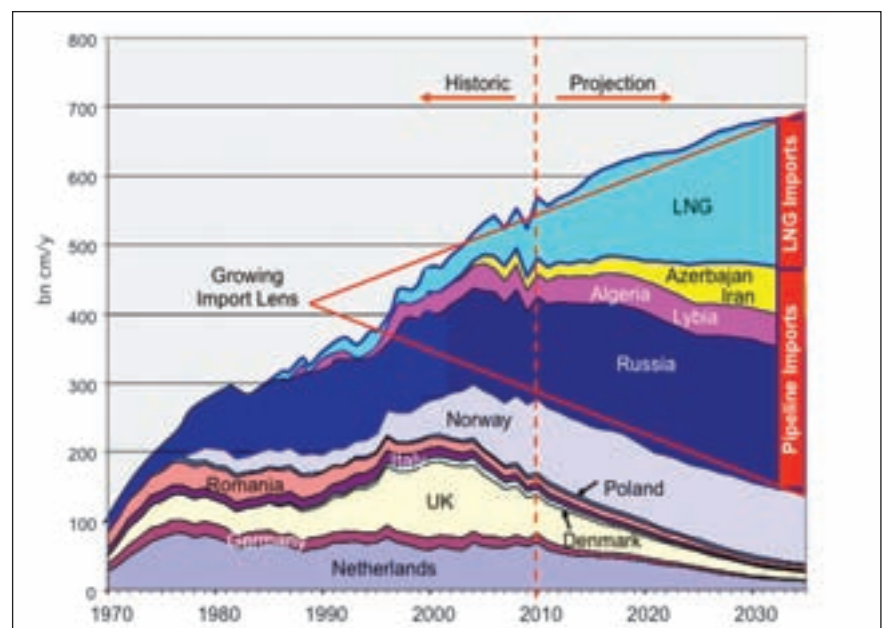
The EU's diminishing gas reserves must be replaced by gas importation. Pipeline imports from Russia, North Africa and at least 200bn cm/y of LNG imports could fill the emerging demand-supply gap. Russia plans to raise its gas deliveries to Europe to 200bn cm/y by 2030, according to its

latest strategy plan.<sup>1</sup> Building new long-distance gas pipelines, primarily to supply oil-indexed gas from Russia, raises the question as to whether that expensive gas will not again be displaced in the future by cheaper LNG supplies from elsewhere. Whilst Russia seems to have a trump card with its vast gas reserves, Europe cannot ignore its energy vulnerability and the only real question will be if Russian gas can be spot gas indexed.

European politicians may feel increasingly uncomfortable about the dependency on Russian gas and seek ways to improve the EU's bargaining position. A range of tactical solutions to increase Europe's gas purchase bargaining power can be considered. But what leverage can Europe really bring to the negotiation table, since it must also attempt to reduce greenhouse gas emissions and meet 2020 targets?

## Lower gas use unrealistic

A new EU energy strategy must address measures to circumvent the apparent failure to meet the EU's 2020 obligations. The target for 2020 is set at a 20% reduction in energy consumption below 'projected' levels and 20% of primary energy use to come from renewable sources. Simultaneously, greenhouse gas emissions should be reduced by 20%, taking 1990 as the reference year. To calculate the cost of downscaling fossil fuel use to meet Kyoto greenhouse gas targets, the IEA published normative scenarios in 2008 and 2010 (see **Figure 2**). These studies were developed on the request of



**Figure 1: More gas imports (pipeline and LNG) must help to fill the growing wedge between Europe's gas demand and its dwindling indigenous gas production**  
Source: Alboran, BP, IHS CERA

OECD Europe and the G8 economies. The cost of executing detailed future energy scenarios that can keep emissions at levels to meet Kyoto targets amounts to \$1.1tn/y from now until 2050 (equivalent to Italy's current GDP, or 1.1% of global GDP each year). This sum is needed to establish a cleaner global energy mix by a combination of a shift in primary energy sources as well as innovation in energy technology.

The IEA's blue map scenario for power for advanced technologies such as hybrid and all-electric vehicles sees no impact before 2020. Nonetheless, the EU's demand for electrical power continues unabated. Investment in wind power is only competitive if supported by government subsidy, despite the advances that are being made with larger turbines and lower operating costs per kilowatt hour. An additional hurdle is the need for substantial investment in smart grids throughout Europe to cope with the fluctuations of wind power. Biomass has yet to prove to be scalable, so electrical base load will continue to be provided by existing nuclear, expensive clean coal or gas-powered plants. All of which makes the case for reduced gas consumption to 2020 unlikely.

### Diversify gas supplies

Natural gas prices vary greatly as gas flows through western economies (see Table 1). A competitive disadvantage emerges if energy costs differ disproportionately from one world region to another. Russian gas deliveries to central Europe have become by far the costliest. Europe paid a staggering Russian gas bill of some \$45bn in each of the past few years.

The EU thinks the Nabucco pipeline can provide leverage on Russia and Gazprom, but the gas for Nabucco would need to come from former Soviet states in central Asia. The major prospective supplier, Turkmenistan, will remain under Russian patronage as long as Russia uses Gazprom's pipeline 'diplomacy' to keep Turkmenistan gas flowing via the Brotherhood pipeline to Ukraine and western Europe.<sup>2</sup> Until 2006, Turkmenistan was forced to sell gas to Russia at \$46/1,000 cm, with Gazprom selling the gas to Ukraine at twice that price. In 2008, Gazprom conceded to pay Turkmenistan \$130/1,000 cm, while netting \$180/1,000 cm from

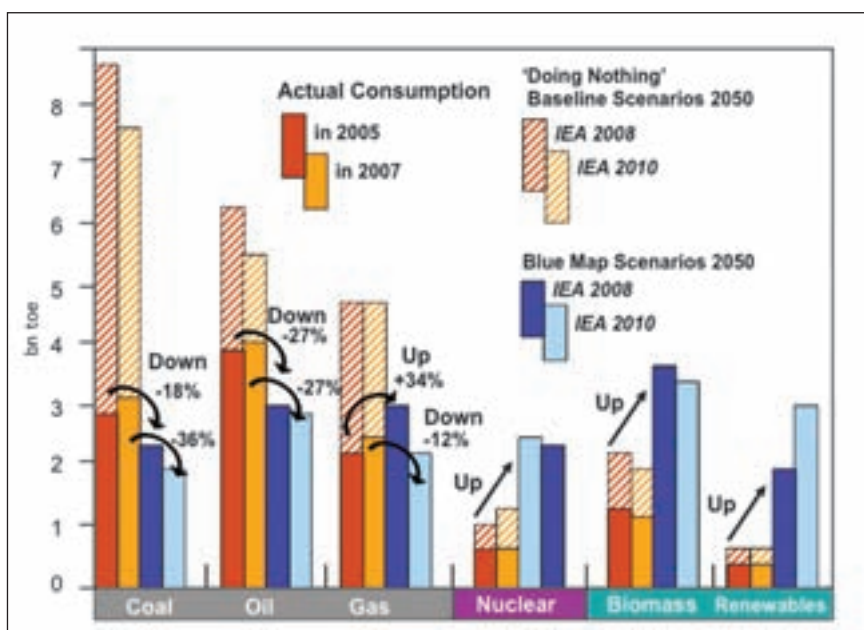


Figure 2: Primary energy demand in the world (bn toe). Fossil fuels are scaled down in the IEA's blue map energy mix scenarios for 2050

Source: IEA Energy Technology Perspectives, 2008 and 2010

Ukrainian gas deliveries and nearly \$260/1,000 cm from its central European gas sales. As such, it is not in Gazprom's interest to let go its pipeline monopoly in central Asia – nor may there be sufficient production to fill another European gas pipeline.

Diversification could come from LNG imports. However, for Europe, even the planned increase of LNG imports to 200bn cm/y by 2030 may not be easy to achieve. The world's LNG receiving capacity is three times greater than LNG supply train capacity. This means Europe may face stiff competition in securing the 200bn cm/y LNG imports required by 2030.

Shale gas has freed the US from natural gas imports. However, its late arrival, growing environmental concerns in Europe and the less favourable geological conditions, mean that shale gas development cannot be relied upon in Europe until the technology has been proven to work in its domestic shale gas fields, as well as overcoming any political opposition.

### East-West joint ventures

Another way to improve cooperative leverage between the west and Russia is through interweaving the E&P industry through mergers and joint

ventures. Nearly all major oil companies have flocked to secure and operate Russian oil and gas assets over the last 20 years. Unfortunately, the track record shows that such joint ventures are unlikely to succeed.<sup>4</sup>

ConocoPhillips exited Russia altogether in early 2011, after years of struggling with its 20% Lukoil stake, acquired for \$7bn in 2004. The company sold 13% back to Lukoil for \$5.8bn and 7% to smaller investors. In addition, it has written off substantial losses on its Lukoil venture over the years.

At Sakhalin I – the joint venture between ExxonMobil (30%), Sodeco (30%), ONGC (20%), Sakhalinmorneftegaz (11.5%) and Rosneft (8.5%) – Gazprom wants to sell Sakhalin's gas domestically. It is prepared only to take gas in its pipelines at domestic Russian gas prices. But the Sakhalin I operator disagrees, and wants to sell its joint venture gas at premium export prices to the Asia-Pacific market. Meanwhile, at Sakhalin II – the joint venture between Shell (55%), Mitsui (25%) and Mitsubishi (20%) – the earlier renegotiation of terms resulted in the formal handover of operatorship to Gazprom in 2008. The original partners received \$7.45bn for surrendering their 50% stake, which covered only two thirds of the 50% share in expenditures already made by the joint venture partners.

BP continues to seek a successful Russian partnership. Its subsidiary TNK-BP has encountered several major setbacks, including the abortion of the

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Region	US	UK	Central Europe	Ukraine	Russia
\$/1,000 cm	216	261	286	164	75
\$/1,000 cf	6.1	7.4	8.1	4.6	2.1

Table 1: Natural gas wholesale prices across economies (four-year average, 2006–2009)

Source: Alboran, references 2 and 3

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Kovyckta gas field development after the production licence obligation could not be met, whilst Slavneft, the other major subsidiary is now facing difficulties in obtaining pipeline access to meet licence requirements for its East Siberian assets. BP is also now facing challenges from its Russian shareholders after the failure of the proposed tie up with Rosneft for the development of the Barents Sea.

Given that history has a habit of repeating itself, the chances of a successful East-West joint venture in Russia are small and should be entered into with great care.

### Improve EU bargaining power

The idea to engage in coordinated energy purchasing was first proposed by former EU ministers Jerzy Budzek and Jacques Delors in a joint declaration in May 2010. Yet, the concept of an overall EU Gas Purchasing Agency is at odds with the EU's own internal gas market liberalisation directives. The negotiating power of buyers is diminished if they are in competition with each other for gas volumes from a single supplier. This issue was less pressing when cheaper gas was available from non-Russian sources, for

example, Algeria or LNG, in 2008 to 2010. The pressure on global gas prices made European buyers at the time resort to take-or-pay-settlements for long-term contracted Russian gas deliveries.<sup>5</sup> In spite of the penalties, such settlements were favoured as spot gas was cheap and made up the difference. The oversupplied EU market explained most of the 25% drop in Russian gas deliveries to the EU in 2009.

However, looking forward, the spread of gas prices charged by Gazprom in European contracts remains large and the EU's collective bargaining power could theoretically increase by purchasing EU gas via a single European agency.<sup>6</sup> Recent modelling work shows that trade quotas enforce the diversification of suppliers and may improve security of supply, but often result in more expensive gas contracts.<sup>7</sup> The creation of a single European buyer, a monopsony, facing a single major Russian seller such as Gazprom, is unlikely to be beneficial to a buyer's alliance according to recent bargaining models.<sup>7</sup> The modelling of buyer alliances may be too simplistic if not accounting for cases where buyers and sellers with cross-shareholding collude to take advantage of a third-party seller or buyer. An EU gas purchasing agency

may, in fact, provide a false sense of security and not guarantee cheaper gas contracts. The idea remains on the drawing board.

### Looking ahead

The EU should strive to achieve at least one of its 2020 targets. Energy conservation must be a top priority. The EU must press ahead to ensure the future of its gas supplies at least to 2020 and probably beyond. The strategic disadvantage of European energy consumers clearly needs to be reversed, preferably resulting in a competitive strength rather than weakness. ●

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\* Also at Delft University of Technology



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