SESSION Five: Sakhalin's Role on the Global Energy Map – New Markets and Opportunities

Gas Markets in Asia: Current Status and Future Prospects (Slide 1)

Ladies and Gentlemen, welcome to the fifth and final session of the first day of the 13th Sakhalin Oil and Gas Conference. Thank you for staying with us. I know that it has been a long day, but we have an excellent final panel to discuss the important issue of new markets and opportunities for Sakhalin's oil and gas production. My name is Mike Bradshaw and I am Professor of Human Geography at the University of Leicester in the UK and a regular participant in this conference and frequent visitor to Sakhalin. I will provide brief introductions to each of the other panel members before they speak and you have their full bibliographies in the conference materials.

(Slide 2)

The other speakers will speak to specific aspects of market opportunities, both present and longer-term. My purpose is to discuss the wider context of current markets in the Asia-Pacific region and future prospects for exports from Sakhalin. I will focus on natural gas, as you know oil is easily placed on a global market place and relatively straight forward to transport. Gas, by comparison, is mainly sold through long term contracts, though there is a growing spot market, and requires producers and consumers to invest in costly pipelines and LNG supply chain infrastructure.

A Global Shift in the Growth of Energy Demand (Slide 3)

The first point that I want to make is that the world is currently experiencing a global shift in terms of the locus of economic growth and future demand for energy. This table from a recent report on energy security, prepared for the British Prime Minister, Gordon Brown, demonstrates this shift in the centre of gravity of the global economy southwards and eastwards. This is a shift that has likely been accelerated by the current global economic crisis.

World Marketed Energy Consumption OECD and Non-OECD, 1980-2030 (Slide 4)

This graph, which is taken from the US Energy Information Agency's 2009 World Energy Outlook, projects what is likely to happen as population growth and economic development in the non-OECD world drives increasing demand for energy. In its 2008 World Energy Outlook, the International Energy Agency projected that between 2006 and 2030 the non-OECD would account for 87% of the global increase in global energy demand, with China and India together accounting for just over half of the total increase, and the Middle East contributing a further 11% of the increase. In their recent Statistical Review of World Energy, BP reported that: Non-OECD primary energy consumption exceeded OECD consumption for the first time.' Thus, the shift is already taking place and Sakhalin is well placed to benefit from it.

Natural Gas in the APR Energy Mix (2008) (Slide 5)

Much is made of the fact that natural gas plays a relatively modest role in the energy mix of the major economies of the Asia-Pacific region. As this slide demonstrates, in both the US and the EU natural gas accounts for over 25% of total energy consumption and is fast becoming the fuel of choice for electricity generation. In the APR region it already plays a substantial role in the mature economies of Japan and South Korea, but it plays a very modest role in the emerging economies of China and India, in both absolute and relative terms. For reasons that I will discuss later, most analysts suggest that the role of natural gas in the APR is set to grow more rapidly then overall energy consumption. The IEA predicts that more than three-quarters of the projected global growth in demand for gas between now and 2030 will come from the non-OECD world, with the most growth in absolute terms coming from the Middle East, but with the pace of growth fastest in China. The growth in the Middle East is important as domestic demand may limit the availability of an exportable surplus, for example, Saudi Arabia has already decided to use its natural gas to meet domestic energy needs.

Current LNG Supply to the APR in 2008 (BCM) (Slide 6)

The vast majority of natural gas is consumed in producing countries. According to BP, in 2008 19% of global gas production is traded by pipeline and 7% by LNG. However, for reasons of geography, LNG is the dominant source of LNG supply for the APR region. Historically, this LNG supply network emerged out of Japan (1969 first delivery from Alaska), followed by South Korea, Taiwan and most recently China and India. As this table shows, there is now a complex network of LNG trade supplying the region. When I first gave a gas markets presentation to the Sakhalin Oil and Gas Conference in London more than 10 years ago, this table was far less complicated with two major consumers—Japan and South Korea—and a handful of suppliers. Going back further, BP's 1990 Statistical Review showed just two consumers—Japan (94% of total APR demand) and Korea- and 8 suppliers, with Indonesia accounting for 54% of total supply. The fact that this table shows a larger number of smaller LNG flows reflects two recent developments: first, the development of a spot market for LNG supplies and second, the globalisation of LNG trade with cargoes travelling between the Atlantic and Pacific basins, which once represented separate markets.

LNG Markets and Suppliers, 2008 (slide 7)

Today, Japan remains the largest consumer of LNG in the APR followed by South Korea; but there are signs that this will change in the medium term. Equally, the rankings of the major LNG suppliers is likely to be shaken up, not least because Sakhalin-2 is now placing its LNG in the market; but also because of the planned rapid growth of LNG capacity in Australia and worldwide (including Gazprom's ambitious plans for LNG). The IEA's 2009 Gas Markets Review reports that there is over 60 bcm of new liquefaction capacity coming on line this year. Suggesting, that in the short-term at least, growing production will be chasing falling demand. In the longer term the challenge is to match the investment cycle to the growth in demand to ensure both the security of supply required by consumers and the security of demand required by producers and their partners.

IEA Projections for Total Energy and Gas Demand Growth 2006-2030 (Slide 8)

As noted earlier, the IEA's projection suggest that demand for natural gas will grow faster than overall growth in energy demand. When this projection is disaggregated, the rate of growth is projected to be highest in the Middle East, China and India.

Forecast of APR Gas Demand in the IEA 2008 Reference Scenario (Slide 9)

A more detailed analysis of the APR region shows modest growth in Japan; unfortunately specific data for South Korea are not available, and very substantial growth for China and India.

Forecast of Apr Gas Demand in the EIA 2008 Reference Scenario (Slide 10)

The net result of these trends is a dramatic shift in the gas demand situation in the APR with China replacing Japan as the major gas market. Given that China is unlikely to increase domestic gas production at anywhere need the rate required, the level of import dependence is bound to increase with pipeline gas coming from Central Asia and, potentially Russia, and LNG to coastal regions coming from a variety of suppliers, potentially including Sakhalin.

Key drivers of future demand (Slide 10)

These projections are at best educated guesses, in 2008 all the projections were downgraded and will no doubt be downgraded further this year. However, the global financial crisis will probably only serve to set the demand curve back a bit, it won't change the fundamentals that seem to be governed by three key drivers: the rate of economic growth/decline, that is closely related to population growth; the need for 'energy security'—defined by the IEA as 'stable and affordable supplies of energy'—and the demands of climate change policy that require a decarbonisation of global energy supply to stabilise CO_2 at levels that will avoid catastrophic climate change.

The Energy Security-Climate Change Nexus (Slide 11)

Focusing on the relationship between energy security and climate change, there are good reasons to expect both drivers to promote the increased usage of natural gas.

Energy Security

Diverse energy mix—suggests a growing role for gas in the APR region.

Multiple sourcing—suggests a need to strike a balance between Middle East and Asia suppliers—thus reducing reliance on shipment through the straits of Malacca.

Flexibility—tends to favour LNG over pipeline supply infrastructure—pipelines lock producers and consumers into a relationship that can be held hostage to geopolitics as recently demonstrated in Europe.

Climate Change

Decarbonisation—suggests a growing role for natural gas in the energy mix, especially for electricity generation.

Bridging fuel—to a low carbon future, instead of nuclear or coal, that latter in the absence of CCS.

Demand destruction—Longer-term fossil fuels face the prospect of demand destruction as a result of the growth of low carbon alternative—as LNG projects last 30+ this will soon be a consideration.

The APR Gas Balance (Slide 12)

Summing things up, for an exporting state the key equation is the balance between production and domestic demand, that delivers an exportable surplus. For example, if domestic demand in the RFE takes precedence in the short-term (the next decade), then there will be very limited amounts of gas available to export beyond that already contracted by Sakhalin-2.

For an importing state, the key equation is domestic demand minus domestic production. Here the key drivers will be the growth of gas demand in China and India versus the growth of domestic production that will determine the size of the market available for exporters.

Getting gas to market (Slide 13)

Here geography plays a key role in determining the options. From a Sakhalin perspective, exports of LNG can add to energy security in the APR region; equally, Sakhalin could supply pipeline gas to China and South Korea.

Where to get your gas? (Slide 14)

However, the forecasts suggest increasing competition with more LNG suppliers and longer-distance shipments. This suggests that projects that include companies from consuming nations will be essential to gaining market share. This has been true for Sakhalin-2 where the majority of its LNG is going to Japan. Future projections suggest that it will be important to involve Chinese and Indian companies in the next generation of Sakhalin projects—of course ONGC is already involved in Sakhalin-1.

Conclusions: Prospects for Sakhalin Gas Exports (Slide 15)

Limited in the short-term due to a shortage of exportable surplus

Good in the medium to long-term:

LNG as an alternative to Middle East supply—but will face competition from Australasia.

A Clear competitive advantage in terms of pipeline gas to China / South Korea (but in competition with gas from East Siberia and Sakha-Yakutia).

Thank you for your attention