

Natural Gas in Accession States

What do the EU's new member states bring with them in the way of natural gas infrastructure, and how will they adapt to the rapidly liberalising EU gas market?
By **NIGEL HARRIS & MARY JACKSON.**

THIS YEAR'S ENLARGEMENT of the EU coincides with a period of major change for the natural gas industry in Europe. The EU gas directive of 1998 kick-started a process of industry and market reform leading to a single, open and

market opening by 2007, with the non-household sector being fully opened by July 2004. New Member States are required to step onto this fast moving vehicle and comply immediately with its requirements.



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competitive market for natural gas across Europe. The directive aimed to achieve this goal through the opening of third party access (TPA) to infrastructure for transport and storage of natural gas and by separating control of the main gas infrastructure from vertically integrated national and regional monopoly companies.

In 2003, the EU moved the process moved up a gear with a new, more detailed, gas directive that demanded full mar-

ket opening by 2007, with the non-household sector being fully opened by July 2004. New Member States are required to step onto this fast moving vehicle and comply immediately with its requirements.

As a positive legacy of the communist era, the eight central European accession countries all have well developed natural gas economies. Because of western Europe's long-established and growing dependence on imported gas from Russia's vast reserves, there are high capacity links between the transmission networks of the central European region and the EU15 region. The EU's two new island member states, Malta and Cyprus, have no natural gas infrastructure.

Central European Accession Country Gas Markets

Country	% Open	Reserve (TWh)	Production (TWh)	Production (% Supply)	Consumption (TWh)	% Used for Power Gen*	System Operator	Russian Imports	Other Imports	Imports % Supply
Czech Republic ¹	0%	39.3	1.5	1%	100.2	17%	Transgas	74.6	27.5	99%
Estonia	90%	-	-	-	7.7	64%	Eesti Gaas	7.7	-	100%
Hungary ²	44%	328	30.4	21%	138.8	26%	MOL	100.4	11.8	79%
Latvia	0%	-	-	-	16.7	65%	Latvijas Gase	14.8	-	100%
Lithuania	83%	-	-	-	28.4	51%	Lietuvos Dujos	28.4	-	100%
Poland ³	40%	1,350	46	35%	130.6	7%	POGC	49.7	37	65%
Slovakia	35%	149	2.1	3%	80	25%	SPP	76.9	-	97%
Slovenia	50%	-	-	-	10.9	16%	Geoplin	10.8	-	100%

*Power generation includes CHP

Figures for 2002. Source: EU / Companies / Prospex Research / IEA / industry sources. (1) The non-Russian gas imported into the Czech Republic is from Norway; (2) The non-Russian gas imported into Hungary is from France, Germany and Ukraine; (3) The non-Russian gas imported into Poland is from Germany, Norway and Ukraine.

Energy Policy

Prior to the collapse of the communist bloc and the dissolution of the Council for Mutual Economic Development (Comecon), energy policy in central Europe was a mirror image of the open, competitive market approach favoured by the EU. Isolated from international markets, the region imported gas exclusively from Russia and other Comecon countries at controlled prices, while the governments set end-user prices at artificially low levels.

The central European countries have made enormous progress since 1991 in shifting their energy economies towards the EU model. Most notably, price controls have been largely removed and many state-owned groups have been partly or wholly privatised. Some vertically integrated monopoly gas companies have been broken up and the EU gas directive's requirements for providing TPA to infrastructure have been at least partly implemented in most countries.

The EU's ambitions for open energy markets within Europe extend beyond the boundaries of the EU itself. The Energy Charter Treaty of 1994, to which Russia and all central and eastern European countries (apart from Serbia and Belarus) are signatories, provides a legally binding multilateral framework for intergovernmental co-operation in the energy sector. The treaty establishes freedom of trade and transit in energy commodities throughout the region, and promotes cross border energy investments. The EU candidate members Bulgaria, Romania and Turkey, together with the Balkan states, are also signatories to the Athens Memorandum of 2003, which seeks to establish integrated electricity and gas markets in south eastern Europe by 2005. These countries have committed to implement the market reforms of the EU gas directive, and to transpose its requirements into their national laws by July 2005.

Gas Production

Western Europe (including Norway) produces 67% of its natural gas requirements and imports the remaining one-third, mainly from Russia and Algeria. Total gas production in the EU15 was around 2,300 TWh in 2002, with Norway contributing an additional 730 TWh to the western European total of just over 3,000 TWh. Total production in the ten accession states (EU10), in contrast, was just 80 TWh. All of this gas is consumed locally. The largest producer is Poland, which is able to supply 35% of its demand for gas.

Gas Consumption

The energy consumption of the central European countries during the communist era was dominated by energy-intensive heavy industries with a strong dependence on solid fuels. Minimal attention was paid to energy efficiency or to environmental considerations. At that time, the central European countries consumed far more energy per unit of gross national product than their neighbours in western Europe.

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Since the collapse of the Soviet Union, there has been a large reduction in energy-intensive heavy industry, whose products often proved uncompetitive when exposed to the open world market. Light, energy-efficient industry has grown, and attention to environmental standards has led to a reduction in coal consumption. A sharp initial drop in overall energy demand has been followed by recovery and strong growth, which is expected to continue for at least another decade as the prosperity of the region increases. Gas demand has grown faster than demand for other fuels, primarily because of customers switching from solid fuels to cleaner sources of energy. This trend is expected to continue, with gas taking a growing share of primary energy in most countries as more power generation is switched from coal to gas.

The total gas consumption of the accession countries in 2002 was around 500 TWh, compared with nearly 4,500 TWh in the EU15. The enlargement of the EU15 to 25 increases total EU gas consumption by 11%. Most (84%) of the gas consumed in the EU10 is imported, and nearly all of it comes from Russia.

The state of infrastructure development and the penetration of natural gas varies across the region but is generally similar to that of western Europe. Slovakia's gas network reaches 83% of its population - a greater penetration in any other EU country except the Netherlands. Estonia's gas network has the least penetration of the EU10 countries, reaching just 18% of its population, but this is similar to the situation in Austria and Denmark, and well ahead of Sweden. The consumption of gas per head of population in the EU10 is below the EU15 average, but not by a huge margin.

Investments in Privatised Gas Companies, 2003

Country	Company	Gas Market Role	Share	
Acquisitions by E.ON / Ruhrgas (Germany):				
Czech Republic	MND	E&P	36%	
	JMP	distribution	39%	
	ZCP	distribution	20%	
	JCP	distribution	13%	
Estonia	Eesti Gaas	integrated	34%	
Hungary	DDGÁZ	distribution	50%	
	KOGAZ	distribution	31%	
Latvia	Latvijas G -ze	integrated	47%	
Lithuania	Lietuvos Dujos	transport	36%	
Slovakia	SPP	integrated	25%	
Acquisitions by Eni (Italy):				
Hungary	TIGAZ	distribution	50%	
Acquisitions by GDF (France):				
Hungary	DEGAZ	distribution	73%	
	EGAZ	distribution	64%	
	SPP	integrated	25%	
Slovakia				
Acquisitions by OMV (Austria):				
Hungary	MOL	integrated	10%	
Acquisitions by RWE (Germany):				
Czech Republic	Transgas	integrated	100%	
	SMP	distribution	58%	
	SCP	distribution	52%	
	STP	distribution	51%	
	ZCP	distribution	51%	
	JPM	distribution	50%	
	VCP	distribution	50%	
	PP	distribution	49%	
	JCP	distribution	47%	
	Hungary	TIGAZ	distribution	44%
		FOGAZ	distribution	33%
		DDGAZ	distribution	50%
	Slovakia	Nafta Gbely	E&P, storage	40%

Source: Companies / Prospex Research

Countries with indigenous coal production – particularly the Czech Republic and Poland – still make heavy use of coal as a fuel for power generation. While a switch to gas (as performed by the UK some years ago) would be cost-effective and is desirable for environmental reasons, the social impact of reducing coal consumption would be substantial. This has deterred governments in the region from pursuing a rapid move to widespread use of gas-fired power generation. Another concern has been the near-total reliance on imported gas from Russia. The Czech government chose to pursue nuclear power as a low emission power source, rather than to increase its already high dependency on Russian gas.

Infrastructure

The gas pipeline network in central Europe was developed during the Soviet era as an infrastructure for the transport of Russian gas to central and western Europe. The network has changed little in the last 15 years and remains geared to westward transit of Russian gas. The main transit route is through the Ukraine to Slovakia, where gas flows onwards through the Czech Republic to Germany and through Austria to Hungary, Germany and Italy. A second, northern route, brings gas through Belarus and Poland to Germany. Apart from these major transit pipelines, connections between the central European countries are very limited. This contrasts with the north western European gas network, which has a well developed system of cross-border links, with gas flowing in several directions from North Sea and inland sources as well as from Russia. The EU is funding the development of several projects intended to increase gas connectivity within the central European area, and between central and western European countries.

Gas storage facilities, mainly in the form of depleted onshore gas fields and underground salt caverns, play an important role in allowing gas suppliers to meet Europe's highly seasonal demand for gas. Western Europe has storage capacity equal to around 14% of annual consumption, and is working to increase this capacity to improve the flexibility and security of its supply. The EU10 countries fare slightly better, with a total storage capacity equivalent to 19% of the region's annual consumption, but this capacity is concentrated in a few areas, and some countries have none. Such countries rely on gas import contracts with Russia that allow them to vary their consumption rate during the course of the year.

Market Participants

Former national monopoly companies dominate the gas supply business in central Europe. With the exception of Lithuania, each country has a single dominant supplier that controls more than 95% of wholesale gas supply. Poland's monopoly gas supplier POGC remains fully state owned, and in Slovakia, the state owns 51% of monopoly gas supplier SPP. In all other countries, the dominant gas supply company is now largely or completely in private hands. In this respect, the accession countries lag behind most western European states in the reform of their gas markets, although Austria, Belgium, Luxembourg and Sweden also still each have a single dominant national gas supplier.

As the former state owned monopoly gas companies have been privatised, large western European gas market players have been quick to step in and obtain a slice of the central European pie. In the most significant move, Germany's RWE acquired 100% of the Czech wholesale gas supplier and transmission system operator Transgas and shareholdings in eight of the Czech Republic's regional gas distribution companies. Through these acquisitions, RWE controls 100% of the Czech wholesale gas market and a large part of the regional distribution market. RWE's German rival E.ON (owner of Ruhrgas) has large minority shareholdings in Estonia's Eesti Gaas, Latvia's Latvijas Gaze and Lithuania's Lietuvos Dujos, and smaller shareholdings in Slovakia's SPP (alongside Gaz de France) and several Czech and Hungarian gas distribution companies. Gaz de France, Italy's Eni and Austria's OMV also all have shareholdings in Hungarian gas supply or distribution companies.

Trading

There is essentially no gas trading activity in the CEE region yet. Traded spot markets in natural gas within Europe exist only in the UK and to a lesser extent in Belgium (Zeebrugge) and around the Dutch transmission system and its interconnections with Germany. Gas supply throughout continental Europe is dominated by long-term contracts that wholesale supply companies use to procure gas from producers and exporting countries. The price of gas obtained under these contracts is linked to that of competing fuels, usually gas oil and/or fuel oil, rather than being based on the value of gas itself. In many countries, almost the entire national demand for gas is met by a handful of large contracts between exporters and the dominant wholesale suppliers. Such contracts often have durations of 20 years or more.

The same situation applies in the accession countries, where gas obtained from Russia under large, long-term contracts provides up to 100% of the available supply. Some central European countries have started to diversify their sources of gas supply: in recent years, wholesale suppliers in Hungary, the Czech Republic and Poland have purchased some of their gas from companies in western Europe (Norway, Germany and/or France), although the gas they physically consume is still Russian in origin. In 2001, Poland's POGC signed long-term contracts to procure large amounts of gas from Norwegian and Danish suppliers, which would require the construction of a new gas pipeline to bring gas from the North Sea into Poland. This plan has been put on hold, as Poland's demand for gas has grown less rapidly than was forecast.

For now, gas supply within the accession countries remains tied up in long-term contracts controlled by dominant or monopoly wholesale suppliers, even more so than in western Europe. But throughout Europe, things are set to change as the effect of the 2003 gas directive starts to be felt, particularly after the July 2004 deadline for full opening of the non-household gas market. Large gas consumers, such as power generators, are increasingly able to dissociate themselves from their traditional relationship with the dominant local supplier, and obtain gas at competitive rates from suppliers elsewhere in the EU. As this activity grows, it should open the way for a more flexible approach to gas supply, with shorter-term contracts, and more direct competition between suppliers.

The EU's new members are now on the same regulatory timetable as the EU15 and they appear as committed to

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reforming their gas markets as most western European countries. The Baltic states will be hampered by their total dependence on Russian gas and lack of connectivity with the rest of Europe. But the main central European block of accession countries now seems as likely a location for the development of an open, competitive, short-term market in gas as anywhere else in Europe.

The speed with which the region has transformed its gas industry - and is continuing to do so - has been remarkable. The Czech Republic, Hungary, Poland and Slovakia look set to rapidly become as significant in the European gas market as many EU15 Member States. ■

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