

ON EUROPE'S GAS (IN-)SECURITY

The recent gas crisis, with its attendant feeling of déjà vu, once again laid bare both the extent to which Europe is dependent on Russian gas imports as well as its lack of and need for integrated risk management mechanisms and proper national and supranational regulation. Natural gas covers a significant portion of Europe's energy needs (25 percent on average in the EU-27, with up to 44 percent in some countries) most of it from non-European sources, foremost from Russia. And the volume of gas imports to Europe is increasing, as well as the distances over which it must be transported. At the same time domestic gas production, and the flexibility that it offers, is decreasing. All this makes Europe highly susceptible to supply disruptions. Reserve storage capacities, an important instrument to offset such disruptions, differ markedly from country to

country. And such reserves can make all the difference: during the latest supply crisis, some countries had reserves to meet their needs for several months, while others did not have enough even to last a single week (see Table).

All of this underscores just how badly Europe needs integrated risk management mechanisms and proper national and supranational regulation.

Although Europe cannot be expected to resolve its energy dependence problem in the short run, there still are measures that can be taken to dampen supply shocks. Increasing and better integrating European storage capacities would be an important step in the right direction. Some countries apparently coped with the disruption in gas supply much better than others. While Germany announced that it could run half a year on its reserves, others had problems ranging from the merely severe to veritable national emergencies. This is undoubtedly due to differences in resource endowment as well as to the

Table

Natural gas storage capacities of European member states

	Indigenous production (% of TNS*)	Natural gas consumption (% of TPEC**)	Non-EU imports (% of TNS***)	Natural gas consumption per day (mcm ****)	Number of storage facilities	Max. working volume (mcm)	Days covered by storage volume	Max. withdrawal capacity (mcm per day)
Austria	22	23	109	24	4	2,820	119	33
Belgium	0	26	69	44	2	779	18	46
Bulgaria	15	14	85	9	1	1,000	117	8
Czech Republic	1	19	105	25	9	3,376	132	55
Denmark	204	22	0	14	2	881	63	22
Estonia	0	13	100	2	0	0	0	0
Finland	0	11	100	12	0	0	0	0
France	2	14	84	120	15	11,700	98	200
Germany	18	23	75	239	44	19,138	80	463
Greece	0	7	100	7	1	75	11	5
Hungary	21	42	74	36	5	3,400	95	48
Ireland	10	29	0	14	1	198	15	3
Italy	13	36	80	212	10	13,400	63	152
Latvia	0	32	100	5	1	2,325	486	25
Lithuania	0	29	100	7	0	0	0	0
Luxembourg	0	29	0	4	0	0	0	0
Netherlands	161	44	27	104	3	3,500	34	30
Poland	31	13	70	37	7	1,651	44	34
Portugal	0	16	110	14	1	90	7	7
Romania	71	35	30	30	6	2,850	95	40
Slovakia	1	31	104	18	3	2,066	114	32
Slovenia	0	14	101	3	0	0	0	0
Spain	0	21	105	91	2	1,659	18	12
Sweden	0	2	0	3	1	10	4	1
United Kingdom	89	39	22	277	9	4,364	16	127

* TNS: Total Net Supplies. – ** TPEC: Total Primary Energy Consumption. – *** Can exceed 100% because total net supplies include changes of stock. – **** mcm: million cubic metres.

Source: Own compilation on the basis of data from Eurogas's *Annual Report 2006–2007*, www.eurogas.org, accessed 22 January 09.

availability of, or lack of, diversity of suppliers, but also to huge differences in storage capacities: Germany, Italy and France possess significant installed capacities; Portugal, Sweden and Greece have fairly meagre ones, and Estonia, Finland, Lithuania, Luxembourg and Slovenia have no storage capacity at all.

The first oil crisis in the 1970s prompted industrialised countries to create a crisis management outfit – the International Energy Agency – that is supposed to initiate actions to cope with emergency situations. The IEA member countries are obliged to hold mandatory oil stock levels equivalent to at least 90 days of their net imports and to have a clear mechanism for collective actions in case of emergency.¹ Why are there no storage rules for the gas sector? Gas storage is – for physical reasons – much more expensive than oil storage. According to the IEA, the capital cost of gas storage is between five to seven times the cost of underground oil storage facilities per tonne of oil equivalent (toe) stored. Liquefied natural gas (LNG) storage is even more expensive: the capital cost of LNG storage is ten times higher than the cost of storing oil in tanks and approximately fifty times the cost of underground oil storage per toe stored. Besides the sizable fixed cost of gas storage, there is also a relatively high variable cost that comes on top of it.²

Despite the high cost, investment in gas storage can actually be highly profitable, as seems to be the case in North America, where storage capacity is expanding fast. In most of continental Europe, in contrast, storage investment is lagging substantially. This is largely due to Europe's suboptimal market structure. Its national gas markets are in the midst of a transition from the old mono/oligopolistic structure to a North-American-style competitive one. While some European countries like the UK, Belgium, the Netherlands, and Spain have made good progress in

terms of liberalisation, most of Europe still remains dominated by long-term take-or-pay contracts, with prices adjusted periodically on the basis of a linkage to oil prices. Market price signals, which in a competitive Europe-wide market would reflect wholesale price volatility (or seasonality), are largely absent, so the incentive for private storage investors is much weaker than it could be. One could say the European liberalisation effort enhanced competition, but to a certain degree to the detriment of investment outcomes.

Given that the market is not yet functioning properly, regulation is of paramount importance. But supportive regulatory regimes for building storage in Europe are rare: although pipeline systems and storage facilities are inextricably associated, storage is not subject to regulated third-party access under the second EU gas directive. This directive regulates access to the distribution network, but access to storage facilities has to be negotiated individually. Coherent, competition-enhancing regulation is clearly called for. Such a regulation should create incentives for private investment in storage facilities, set rules for minimum storage capacity and aim at increasing both physical and economic interconnection of the European energy market. It should define rules for the case of emergency at a supranational level.³ An expansion of the LNG infrastructure would also be crucial to increase both flexibility and diversity of gas sources.

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¹ For EU member countries it is "at least 90 days of average daily consumption in the preceding calendar year". (EU-Council Directive 2006/67 of 24 July 2006.) That strategic reserve is generally held either by industry or a combination of industry and a public entity and is supposed to help countries cope with severe supply disruptions. The individual national reserves can be bundled so that they can be made available to member states in case of a supply shock. This was the case when hurricane Katrina struck and devastated a large portion of oil production capacities in the Gulf of Mexico: the IEA member countries reacted within 10 hours.

² Across all IEA countries (Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States) the variable cost of maintaining enough gas in strategic storage to satisfy a 90-day net import standard across the IEA is USD 5.4 billion per year.

³ With the EU-Directive 2004/67/EC, which took effect in 2006, an important basis has been created. But this document does not contain rules for obligatory storage capacities, for example, it only states "the member states can implement minimum storage standards ...".