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Oil stocks and security implications

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Oil stocks and security implications

GRCF

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Oil stocks and security implications

Introduction

This report is divided in three sections. In the first section, some conceptual problems related to oil stocks are discussed, including a brief review of the economic literature on optimal stock holding. In the second section a review of the legislation in force is proposed, examining the experience of the Strategic Petroleum Reserve of the US, the International Energy Agency's Emergency Response systems, and finally EU legislation. On the basis of this background, the third section discusses opportunities for novel approaches to the management of stocks in the event of supply disruptions.

Conceptual problems concerning strategic stocks

Strategic stocks are a well-recognised policy tool against supply disruptions – at least since Joseph advised the Pharaoh that Egypt would need to withstand seven lean years after seven fat ones. Nevertheless, the literature on the subject does not appear to be well developed, and indeed the state of the debate, especially with reference to oil and gas strategic storage, is surprisingly rudimentary. In this first section, I shall focus on a list of conceptual problems that are encountered in the definition of a sensible policy for strategic stocks. As with most issues, it will appear evident that the question is not one of “yes or no”, but one of the modalities and details of defining a policy.

In fact, defining a rational storage policy is a deceptively simple task. The rationale for storage is compelling at first sight, but is found to be extremely problematic when looked at in greater detail. “Without divine assistance in forecasting stochastic production, the storage decision is considerably more complex than the one Joseph faced, and the role of storage quite different. In fact, several commonly held impressions about the role of storage of commodities such as grains are incorrect. Rather than stabilising production, storage actually accentuates its variability. Rather than causing a mean-price-preserving decrease or a mean-output-preserving decrease in the dispersion of price, storage generally causes a more complex modification of the distribution of price. Rather than being most effective at eliminating short-falls in consumption, storage actually is more effective at eliminating the incidence of exceedingly high consumption.” (Wright and Williams, *The Economic Role of Commodity Storage*, *The Economic Journal*, Vol. 92, No. 367 (Sep., 1982), 596-614)

In theory, strategic stocks are clearly differentiated from commercial stocks. The latter are held by private companies or final consumers in order to guarantee the smooth functioning of their plants or vehicles in between discrete re-fill of tanks, or in the expectation of financial gain in case the future price might be higher than the current one. Commercial stocks therefore are determined by the requirements of the stockholder, the size of available storage facility and the expectations about future prices.

Private operators make decisions concerning the size of their storage facilities and the extent to which they are kept full on the basis of their assessment of the ease to procure fresh supplies, the expected requirements, and price expectations. The outcome of these complex and highly diffuse stockholding decisions by “the market” is a system that may

be very stable – if large stocks are normally held – or quite brittle. This is clearly not something that public authorities are responsible for, yet, neither they can be indifferent. If, to put it very plainly, an individual car owner remains stuck on the motorway because he failed to keep his tank sufficiently full to reach the next station, it is his problem. However, if all car owners normally fill up their tanks to the full and well before the tanks are empty, a considerable aggregate stock will be established – which may help in case of supply disruptions.

Private operators are expected to deal on their own with all “normal” discontinuities in supply, those that are an intrinsic part of the system and are easily predictable. Strategic stocks, on the other hand, are meant to deal with extraordinary situations which constitute a security threat to the nation. Obviously, this may be the case for situation of open warfare; but as we move from extreme conditions to more nuanced situations the question whether the matter should be considered strategic or commercial becomes increasingly blurred.

Defining the threat

The first prerequisite for elaborating a sensible strategic stock policy is an accurate definition of the “threat” (or “accident”, or “event”) that the stocks are intended to provide a buffer against. This is indispensable not only to allow for a discussion of the adequacy of the tool (are strategic stocks an appropriate tool, what is the required size for them?), but also of the costs and benefits of resorting to this tool.

In the case of oil supply, the threat may be defined either as a physical shortfall or a major change in prices. The two aspects obviously are related, because a physical shortfall will inevitably lead to an increase in prices.

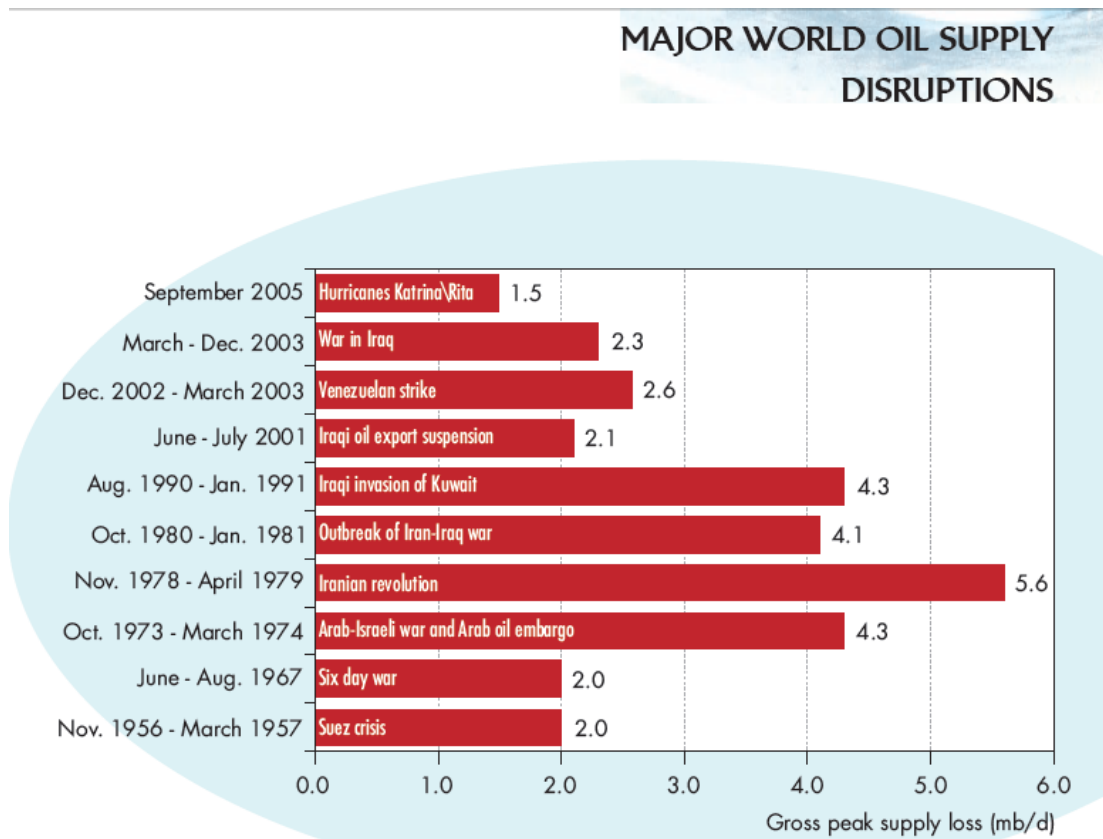
Physical shortfalls that may be the result of a cut in production or exports of a major exporting country or group of exporting countries; and shortfalls that may result from the voluntary or accidental closure of a particular transportation or transit facility. The latter may affect a specific group of importers without necessarily impacting on global supplies, leading to restricted availability of crude or products in specific markets. With respect to European supplies, the logistics and sources of supplies are sufficiently diversified, so that it is difficult to envisage localised disruption (see also deliverable 5.1.3 “Restrictions of passage, accidents and oil transportation norms: scenarios of impacts on costs, global crude oil supplies and supply security”).

Hence, when we speak of the European situation the threat that we should consider is primarily the shortfall in global supplies that may result of the cutback in production or exports on the part of one or a group of major producers.

Demand for oil is constantly increasing, but the pace of change may vary quite significantly; and global supply is the algebraic sum of declines in certain fields and increases in other fields. Accidents or disturbances of greater or lesser impact happen in the industry all the time, and some producing countries have lived in a state of more or

less constant turmoil for decades: we may be hard put at defining the “normal” state of affairs against which the deviation, or “accident” that we wish to protect against, is measured (this point is extensively made in deliverables 5.1.1 “The impact of resource nationalism, voluntary restriction of production and political instability on global oil supplies: quantitative analysis of historical experience” and 5.1.2 “Domestic/international conflicts and terrorist activities inside and outside the Gulf region: scenarios and quantitative estimate of impact on global crude oil supplies”).

This is evidenced by experience in the past decade, when supply tensions and price increases were linked to an array of events, including war in Iraq, but also strikes or disturbances in Nigeria or Venezuela, hurricanes and other acts of God - while demand increased much faster than anyone had expected. Prices increased in 2008 to a level never seen before, but was this due to the Iraq war? Or to the unexpected increase in demand? Or to the economic crisis? Or was it simply the market at work to reflect the circumstances of the day – exceptional in the sense that each day is different, no more?



Source: IEA 2010¹

The International Energy Agency considers that the most important supply disruption in historical experience was consequent to the Iranian revolution, when 5.6 million b/d were lost for a period of 6 months. However, this loss was compensated by increased production in other countries, and total world oil production actually increased from 63.3 to 66 million b/d between 1978 and 79; it declined in subsequent years in response to a decline in demand. So: was there a crisis?

¹ IEA Response System for Oil Supply Emergencies, 2010

The oil market is quite “nervous”, and tends to anticipate a supply shortfall with considerable price hikes, rather than waiting for it to happen. Consequently, it is frequently the case that we pay the price already while the discussion still is going on whether the physical shortfall is fact or fiction – which is not a condition conducive to the orderly and predictable use of strategic stocks.

In other words, situations in which there is a single and clearly identifiable cause of a significant supply shortfall will be extremely rare. The precedent of the 1973 OPEC embargo is unlikely to be repeated, and remains quite isolated. Other episodes of open war involving oil-producing countries, notably Iraq, Iran and Kuwait, have had a variable impact on supply, and expectations have been as important, if not more important, than facts.

A definition of the threat based on price variations would be, in this respect, much clearer than a definition based on physical supply changes. However, if the trigger event for the use of strategic stocks is defined as a change in prices, the distinction between strategic and intervention stocks - the latter being instruments for managing prices on the market rather than tools for addressing a security concern - becomes blurred.

Predictability and adequacy

In order for the adequacy of stocks to be rationally discussed, it is necessary that we have some understanding of the probability of the event against which we are trying to protect ourselves. All insurance policies are based on the statistical evaluation of the probability of an event occurring, and the cost of it. Even in such seemingly absolute State objectives as guaranteeing the integrity of the state we do in fact follow a probabilistic approach, in the sense that no state actually incurs in the expense that would be required to be able to protect against any imaginable external threat.

All discussions of strategic stocks in economic literature tend to relate to their use in agriculture or other sectors in which production is not known a priori, but the probability distribution of outcomes can be estimated. In the case of global oil supplies, we have a plethora of smaller accidents, industrial or socio-political, which cause actual production to deviate from the desired level: these may possibly be predicted statistically, but are not the main source of concern. It is implicitly assumed that these smaller disturbances are part and parcel of the normal functioning of the industry, and protecting against them is the task of private actors.

The adequacy of military preparedness is measured against some scenario of use of a country’s armed forces, which defines their intended capabilities. This could well be done also with respect to strategic oil storage: we might discuss what kind of accident we intend to protect against, and attempt to attribute a probability factor to it, in order to guide a rational decision. This, however, is not frequently done: reference is commonly made to “political instability” and “volatility” in the Gulf, somehow hinting at the possibility that all of the Gulf countries’ oil might suddenly disappear from the scene.

Any considerate discussion shows this to be almost impossible – indeed this has been the contribution of deliverables 5.1.1 and 5.1.2 in the SECURE project.

Alternative scenarios might be more plausible, but the compelling need for large strategic stocks would quickly evaporate. After all, the Gulf has been politically unstable and volatile for decades, and existing oil stocks were used for genuine political circumstances only in 1991 when hostilities began against Iraq to roll back the invasion of Kuwait – and then too late, when the market had already turned around. Our analysis in previous deliverables has shown that scenarios such as the sudden disappearance from the market of the entire production of Saudi Arabia are not credible. The Iraq-Iran war has offered an experience of protracted conflict between two main Gulf producers, yet both continued to export throughout the conflict and a serious shortfall occurred only in the initial months of the conflict, and was easily compensated by production increases elsewhere in the world.

At the time of writing, the most credible imminent threat to global oil supplies is a boycott of Iranian oil imposed by the United Nations in connection with the Iranian nuclear program. This has very low probability anyhow, because the necessary consensus within the Security Council would be very difficult to arrive at: In any case, there exists presently sufficient non utilised capacity in neighbouring countries to compensate for the disappearance of Iran from the market. Strategic stocks might be needed, if at all, simply as a temporary source to fill the gap while other producers ramp up their output. For this, they are very abundantly sufficient.

Cost-Benefit Analysis

In deciding on the rationality of holding oil strategic oil stocks and their optimal size, we should be able to engage in a proper cost-benefit analysis. It is commonly assumed that a shortfall in oil supplies may constitute a security threat or inflict serious economic damage to the industrial countries. However, when considering the impact of oil price increases – which would be the immediate manifestation of oil supply shortages – the literature overwhelmingly suggests that this is limited and certainly far from being considered catastrophic or a security concern.

The estimation of the impact of a disruption in oil supplies is problematic. The results critically depend on an array of assumptions on possible production increases from non-impacted sources, on market reactions and consequent price increases, on policy reactions of the affected importing countries. Until quite recently, the DOE maintained a “Disruption Impact Simulator” (DIS), a simple model based on an Excel spreadsheet which purported to simulate the impact of any exogenously given disruption for up to six quarters². However, this model has now been discontinued and is no longer supported by the DOE. No alternative model has been introduced to substitute for it, but the DOE uses a set of “rules of thumb”, also incorporated in an Excel spreadsheet.

² Jim Hart “Disruption Impact Simulator”, DOE

The DIS model has been used in the past to argue in favour of holding stocks and for presumably determining the “optimal size” of such stocks. For example, the Asia Pacific Energy Research Center published in 2002 a report entitled “Energy Security Initiative: Emergency Oil Stocks as an Option to Respond to Oil Supply Disruptions” which confidently concluded that “The analysis of costs and benefits of expanding oil emergency stocks in the APEC region presented in this report supports expanding reserves by several hundred Mbbl for the APEC region. More specifically, for the smaller Asian oil importing economies, a stockpile of around 30 days coverage of net imports is shown to be optimal in terms of costs versus benefits. For an economy the size of Thailand’s, this implies a stockpile of around 27 Mbbl by 2010”³. The calculation is based on an estimate of the cost of supply disruption arrived at using the DIS model.

In fact, it is clearly unrealistic to pretend to model the market response to a supply disruption: we hardly can predict market response in normal circumstances, even less so in exceptional circumstances. In practice, we see at present a tendency to conceptualise a supply disruption as a sudden jump in price – thus eliminating the need for specifying a function linking a physical disruption to the consequent movement in prices. This means that a physical supply disruption will be considered serious if it leads to a serious jump in prices; if prices do not move very much, the disruption is not there. However, a jump in prices is a necessary but not sufficient condition to speak of a supply disruption, because prices frequently register wide swings even at times when no physical disruption is visible.

But can we consider a significant jump in prices a security threat, which must be countered by resorting to use of the strategic stocks? Under what conditions?

First of all, in many industrial countries – with the notable exception of the United States – energy products are heavily taxed. This is done for general budgetary purposes, but is also frequently justified in view of curbing consumption, in order to reduce import dependency and/or mitigate the impact of emissions on the environment. Whatever the reasons for imposing high excise taxes on energy products, the fact is that the consumer is accustomed to paying prices that are well above market realities. To the very least, this means that the consumer is shielded against market price increases in the sense that – unless excise taxes are also increased in proportion, which would not be rational – the price increase as felt by the consumer is percentage wise much less than the increase of international market prices. In addition, the consumer might further be shielded because in the event of a very severe increase in international prices, such as would justify the liquidation of strategic stocks, excise taxes might be reduced. Of course this measure would not eliminate the impact on the trade balance, and it would have a negative impact on the government budget, thus requiring macroeconomic adjustment: however, if the supply shortfall is temporary, then financing might be preferable to adjustment. If, on the other hand, the supply shortfall is permanent or sustained, then strategic stocks would be of no avail, and adjustment would be required anyhow. In other words: strategic stocks are a tool to cushion, not eliminate, supply shortfall; and changes in excise taxes are a valid alternative in that function.

Even ignoring the possibility of modulating excise taxes, the experience of the period 2004-8 leads us to the conclusion that the impact of changes in oil prices on GDP is limited. While oil prices kept up climbing in the years 2004-7, the economic policy makers of the industrial countries frequently voiced the concern that growth would be affected and pleaded for OPEC moderation. However economic growth only suffered when the real estate bubble burst in the United States, and more decisively so when the fragility of the financial system was exposed by the collapse of Lehman Brothers. High oil prices may well have played a role in the final outcome, but they certainly were neither the sole nor the main culprit.

Strategic Stocks Legislation: the US, IEA and EU frameworks.

The US Strategic Petroleum Reserve⁴

According to the US Department of Energy, the U.S. Strategic Petroleum Reserve is the largest stockpile of government-owned emergency crude oil in the world. Established in the aftermath of the 1973-74 oil embargo, the SPR is intended to provide the President with a response option should a disruption in commercial oil supplies threaten the U.S. economy. It also allows the United States to meet part of its International Energy Agency obligation to maintain emergency oil stocks, and it provides a national defence fuel reserve. The federally owned oil stocks are stored in underground salt caverns along the coastline of the Gulf of Mexico.

Decisions to withdraw crude oil from the SPR are made by the President under the authority of the Energy Policy and Conservation Act. In the event of an energy emergency, SPR oil would be distributed by competitive sale. Although the SPR has been used for emergency purposes only twice (during Operation Desert Storm in 1991 and after Hurricane Katrina in 2005), the Department of Energy claims that its size makes it a significant deterrent to oil import cut-offs and a key tool of foreign policy. No proof is however offered for this statement, which appears *prima facie* to be highly objectionable: one can hardly think of any case in which oil producing countries may have considered cutting off oil exports - either to the US specifically, or in general - and have been deterred by the existence and size of the SPR.

⁴ This section is based on the website of the US Department of Energy at <http://www.fe.doe.gov/programs/reserves/spr/index.html>

According to the DOE, the need for a national oil storage reserve has been recognized in the US for at least five decades. Secretary of the Interior Harold Ickes advocated the stockpiling of emergency crude oil in 1944 (and also contemplated buying a direct stake in Chevron's – then Standard Oil of California - operations in Saudi Arabia, before the final ownership structure of Aramco was defined...). President Truman's Minerals Policy Commission proposed a strategic oil supply in 1952. President Eisenhower suggested an oil reserve after the 1956 Suez Crisis. The Cabinet Task Force on Oil Import Control recommended a similar reserve in 1970. However no action was taken until the 1973-74 oil embargo. Following that episode, President Ford signed the Energy Policy and Conservation Act (EPCA) on December 22, 1975. This legislation declared it to be U.S. policy to establish a reserve of up to 1 billion barrels of petroleum.

The Gulf of Mexico was a logical choice for oil storage sites. More than 500 salt domes are concentrated along the coast. It is the location of many U.S. refineries and distribution points for tankers, barges and pipelines. In April 1977, the government acquired several existing salt caverns to serve as the first storage sites. Construction of the first surface facilities began in June 1977. The filling of the reserve then began and the most oil for the SPR was purchased in the late 1970s and early 1980s when world oil prices often exceeded \$30 per barrel. According to the DOE, this is the primary reason why the average price of the oil currently in the Reserve is more than \$27 per barrel – which of course ignores the fact that \$27 of 2004 are not the same as \$27 of 1980.

On January 16, 1991 President George H.W. Bush ordered the first-ever emergency drawdown of the SPR. The Department of Energy then implemented a plan to sell 33.75 million barrels of crude oil, the United States' contribution agreed to by the International Energy Agency.

Between the initial authorization and the final sale, however, world oil supplies and prices stabilized, and the United States reduced the sales amount to 17.3 million barrels, which were sold to 13 companies.

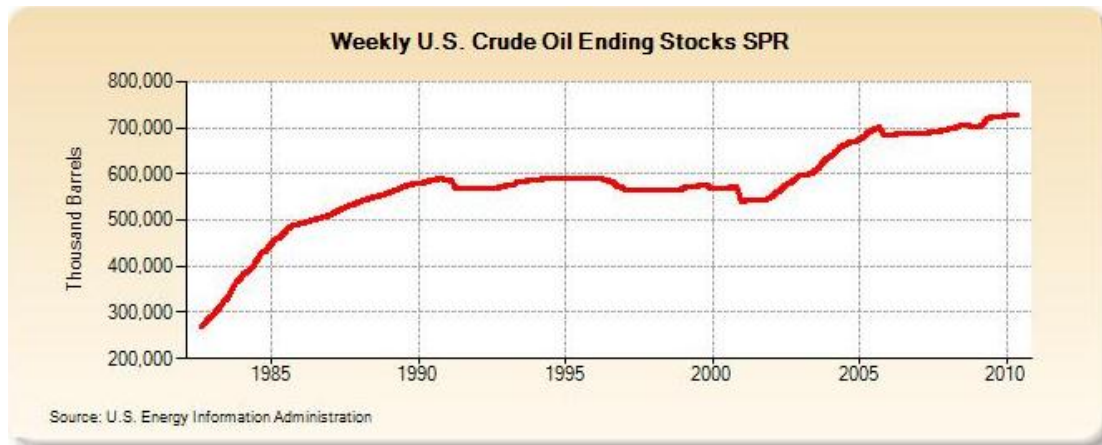
Fill was suspended in FY 1995 to devote budget resources to refurbishing the SPR equipment and extending the life of the complex through at least the first quarter of the next century. In 1999 the fill was resumed in a joint initiative between the Departments of Energy and the Interior to supply royalty oil from Federal offshore tracts to the Strategic Petroleum Reserve.

On November 13, 2001, President George W. Bush ordered the SPR to be filled to approximately 700 million barrels by continuing to use the Royalty-in-Kind program carried out jointly between the Department of Energy and the Department of the Interior. The royalty-in-kind program applies to oil owed to the U.S. government by producers who operate leases on the federally-owned Outer Continental Shelf. These producers are required to provide from 12.5 percent to 16.7 percent of the oil they produce to the U.S. government. The government can either acquire the oil itself or receive the equivalent dollar value.

In December of 2009 the full capacity of 727 million barrels was reached and further accumulation has been stopped.

STRATEGIC PETROLEUM RESERVE INVENTORY				
INVENTORY FULL AS OF DECEMBER 27, 2009				
SWEET	SOUR			TOTAL
292.6 million bbls	434 million bbls	*		726.6

Source: DOE, 2010



SPR Current Inventory

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2010-Jan	01/01	726,617	01/08	726,616	01/15	726,616	01/22	726,615	01/29	726,615
2010-Feb	02/05	726,612	02/12	726,612	02/19	726,612	02/26	726,610		
2010-Mar	03/05	726,608	03/12	726,608	03/19	726,607	03/26	726,607		
2010-Apr	04/02	726,606	04/09	726,604	04/16	726,602	04/23	726,601	04/30	726,601
2010-May	05/07	726,599								

Source: EIA, 2010

The following table details all the movements into and out of the Reserve. It tells us a very simple story: notwithstanding the increasing size of the Reserve, the coverage measured as number of days of net petroleum imports has remained below 60 due to the parallel increase in imports. It went above that level in 2008 due to the decline in imports. It remains in any case well below the IEA mandated level of 90 days of imports.

The Energy Policy Act of 2005 directs the Secretary of Energy to fill the Strategic Petroleum Reserve to its authorized one billion barrel capacity. Consistent with that requirement, the DOE initiated proceedings to select sites necessary to expand the Reserve from its current capacity of 727 million barrels to one billion barrels and is currently considering a site for expansion in Mississippi.

Table 5.17 Strategic Petroleum Reserve, 1977-2008

(Thousand Barrels, Except as Noted)

Year	Foreign Crude Oil Receipts		Domestic Crude Oil Receipts		Withdrawals		End-of-Year Stocks			Days of Petroleum Net Imports ⁵
	Imported by SPR	Imported by Others ^{1,2}	Purchases	Exchanges ²	Sales	Exchanges	Quantity ³	Percent of Crude Oil ⁴	Percent of Total Petroleum Stocks	
								Stocks	Stocks	
1977	7,540	0	370 [6]	0	0	0	7,455	2.1	0.6	1
1978	58,798	0	0	0	0	0	66,860	17.8	5.2	8
1979	24,434	0	4	0	0	0	91,191	212	6.8	11
1980	16,067	0	1,296	0	0	0	107,800	23.1	7.7	17
1981	93,298	0	28,787	0	0	0	230,341	38.8	15.5	43
1982	60,193	0	3,792	0	0	0	293,827	45.7	20.5	68
1983	85,285	0	421	0	0	0	379,089	52.4	26.1	88
1984	72,038	0	49	0	0	0	450,505	56.6	28.9	96
1985	43,124	0	169	0	0	0	493,316	60.6	32.5	115
1986	17,563	0	1,214	0	0	0	511,565	60.7	32.1	94
1987	26,517	0	2,691	0	0	0	540,648	60.8	33.6	91
1988	18,758	0	6	0	0	0	559,515	62.9	35	85
1989	20,348	0	0	0	0	0	579,857	62.9	36.7	81
1990	9,772	0	0	0	3,914	0	585,692	64.5	36.1	82
1991	0	0	0	0	17,216	0	568,508	63.7	35.2	86
1992	3,594	0	2,600	0	0	0	574,724	64.4	36.1	83
1993	5,367	0	6,957	0	0	0	587,080	63.6	35.6	77
1994	4,485	0	105	0	0	0	591,670	63.7	35.8	73
1995	0	0	0	0	0	0	591,640	66.1	37.9	75
1996	0	901	0	0	25,824	901	565,816	66.6	37.5	67
1997	0	0	0	0	2,333	0	563,429	64.9	36.1	62
1998	0	7,980	0	0	0	0	571,405	63.8	34.7	59
1999	3,040	3,595	0	1,422	0	10,750	567,241	66.6	38	57
2000	3,006	1,500	0	2,287	0	33,353 [7]	540,678	65.4	36.8	52
2001	3,912	5,068	583	0	0	0	550,241	63.8	34.7	50
2002	5,767	35,592	0	7,640	0	0	599,091	68.3	38.7	57
2003	0	22,938	0	16,397	0	0	638,388	70.4	40.7	57
2004	0	34,243	0	8,466	0	5,437	675,600	70.3	41.1	56
2005	0	18,878	0	8,406	11,033	9,824	684,544	67.9	40.3	55
2006	0	3,313	0	2,444	0	1,566	688,605	68.8	40	56
2007	0	2,703 [R]	0	1,676	0	0	696,941	70.9	41.8 [R]	58
2008	0	7,109	0	3,195	0	5,401	701,823	68.4	40.4	64

<p>¹Imported crude oil received represents volumes of imported crude oil received at SPR storage facilities for which the costs associated with the importation and delivery of crude oil are the responsibility of the commercial importer under contract to supply the SPR.</p>	<p>⁷Includes 30 million barrels released to increase heating oil stocks in exchange for a like quantity plus a bonus percentage to be returned in 2001 and 2002, as well as additional barrels to create a Northeast Home Heating Oil Reserve.</p>
<p>²The values shown for 1998 and 1999 represent an exchange agreement in which SPR received approximately 8.5 million barrels of high quality oil in exchange for approximately 11 million barrels of lower quality crude oil shipped from SPR during 1999 and 2000. Also, beginning in 1999, a portion of the crude oil in-kind royalties from Federal leases in the Gulf of Mexico was transferred to and exchanged with commercial entities for crude oil to fill the SPR. Crude oil exchange barrels delivered to SPR could be either domestic or imported as long as the crude oil met the specification requirements of SPR. All exchange barrels of imported crude oil are included in "Foreign Crude Oil Receipts, Imported by Others," while exchange barrels of domestic crude oil are included in "Domestic Crude Oil Receipts, Exchanges."</p>	<p>R=Revised. (s)=Less than 0.005 million barrels.</p>
<p>³Stocks do not include imported quantities in transit to SPR terminals, pipeline fill, and above-ground storage.</p>	<p>Note: "SPR" is the Strategic Petroleum Reserve petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.</p>
<p>⁴Includes lease condensate stocks.</p>	<p>Web Page: See http://www.eia.doe.gov/oil_gas/petroleum/info_glance/petroleum.html for related information.</p>
<p>⁵Derived by dividing end-of-year SPR stocks by annual average daily net imports of all petroleum. Calculated prior to rounding.</p>	<p>Sources: Imported by SPR and End-of-Year Stocks, Quantity: • 1977-1980 Energy Information Administration (EIA), Energy Data Report, <i>Petroleum Statement, Annual</i>, annual reports. • 1981-2007 EIA, <i>Petroleum Supply Annual</i>, annual reports. • 2008 EIA, <i>Petroleum Supply Monthly</i> (February 2009). Imported by Others, Domestic Crude Oil Receipts, and Withdrawals: U.S. Department of Energy, Assistant Secretary for Fossil Energy, unpublished data. All Other Data: Calculated.</p>
<p>⁶The quantity of domestic fuel oil which was in storage prior to injection of foreign crude oil.</p>	

SPR drawdowns according to the DOE web site⁵

The Desert Storm Drawdown

Stockpiling crude oil in the SPR reduces the nation's vulnerability to economic, national security, and foreign policy consequences of petroleum supply interruptions. The SPR proved its value in 1991 when a partial drawdown, coupled with a coordinated international supply response, help restore stability to world oil markets during the Persian Gulf War.

On January 16, 1991, coinciding with the international effort to counter the Iraqi invasion of Kuwait, President George H.W. Bush ordered the first-ever emergency drawdown of the SPR. The Department of Energy immediately implemented a drawdown plan to sell 33.75 million barrels of crude oil, the United States' portion agreed to by the International Energy Agency.

The drawdown proceeded on schedule and without major complications. Between the initial authorization and the final sale, however, world oil supplies and prices stabilized, and the United States reduced the sales amount to 17.3 million barrels which were sold to 13 companies.

Hurricane Katrina Drawdown

The SPR's second emergency drawdown occurred after Hurricane Katrina caused massive damage to the oil production facilities, terminals, pipelines, and refineries along the Gulf regions of Mississippi and Louisiana in late August 2005. All Gulf of Mexico production was shut in initially, which equated to about 25% of domestic production. Gasoline prices spiked nationwide in reaction to the disruptions, and the supply levels of gasoline and other refined products were impacted.

On September 2, 2005, in a coordinated action with the International Energy Agency, President George W. Bush issued a Finding of a Severe Energy Supply Interruption and directed the Secretary of Energy to draw down and sell crude oil from the SPR. Secretary Samuel W. Bodman immediately authorized a Notice of Sale for 30 million barrels of crude oil to the U.S. markets. The on-line sale was held from September 6-9, 2005. DOE evaluated each bid and determined that five companies had submitted acceptable offers for 11 million barrels.

⁵ <http://www.fe.doe.gov/programs/reserves/spr/index.html>

Conditions for the utilisation of the SPR are defined by the Energy Policy and Conservation Act (see text box below). In essence, the reserve is targeted for use in the event of a “severe energy supply interruption”, which is primarily defined as physical shortfall. The definition abounds with less than precise parameters: the interruption must be of “significant scope and duration” and must have “an emergency nature”; and it must have “major adverse impact on national safety or the national economy”.

However, in establishing whether a severe energy supply interruption has occurred, one of the criteria is also whether “a severe increase in the price of petroleum products has resulted from such emergency situation”; what exactly is a severe increase in the price of petroleum products is not said. In addition, the Act also envisages the possibility that the Reserve might be used pre-emptively, to prevent the manifestation of a severe energy supply interruption.

In short, the Act attributes considerable latitude to the President as to deciding if and when to draw down from the Reserve.

The Energy Policy and Conservation Act's Statutory Authority for an SPR Drawdown

DEFINITIONS

SEC. 3. As used in this Act:

(8) The term "severe energy supply interruption" means a national energy supply shortage which the President determines -

(A) is, or is likely to be, of significant scope and duration, and of an emergency nature;

(B) may cause major adverse impact on national safety or the national economy; and

(C) results, or is likely to result, from (i) an interruption in the supply of imported petroleum products, (ii) an interruption in the supply of domestic petroleum products, or (iii) sabotage or an act of God.

DRAWDOWN AND DISTRIBUTION OF THE RESERVE

SEC. 161.

(2) For purposes of this section, in addition to the circumstances set forth in section 3 (8), a severe energy supply interruption shall be deemed to exist if the President determines that -

(A) an emergency situation exists and there is a significant reduction in supply which is of significant scope and duration;

(B) a severe increase in the price of petroleum products has resulted from such emergency situation; and

(C) such price increase is likely to cause a major adverse impact on the national economy."

(g)(1) The Secretary shall conduct a continuing evaluation of the Distribution Plan. In the conduct of such evaluation, the Secretary is authorized to carry out test drawdown and distribution of crude oil from the Reserve. If any such test drawdown includes the sale or exchange of crude oil, then the aggregate quantity of crude oil withdrawn from the Reserve may not exceed 5,000,000 barrels during any such test drawdown or distribution.

(h)(1) If the President finds that -

(A) a circumstance, other than those described [above] exists that constitutes, or is likely to become, a domestic or international energy supply shortages of significant scope or duration; and

(B) action taken....would assist directly and significantly in preventing or reducing the adverse impact of such shortage,

then the Secretary may...draw down and distribute the Strategic Petroleum Reserve.

(2) In no case may the Reserve be drawn down under this subsection -

(A) in excess of an aggregate of 30,000,000 barrels with respect to each such shortage;

(B) for more than 60 days with respect to each such shortage;

(C) if there are fewer than 500,000,000 barrels of petroleum product stored in the Reserve; or

(D) below the level of an aggregate of 500,000,000 barrels of petroleum product stored in the Reserve.

The International Energy Agency's emergency response systems

The International Energy Agency was established in the wake of the 1973 export restrictions to the US and other selected industrial countries imposed by OPEC. Ensuring security of supply and solidarity among the major industrial countries is a key objective of the IEA. The agency's emergency response system is therefore a key feature of the organisation: the International Energy Program (IEP), which is contained in the IEA's governing treaty, commits participating countries⁶ to:

- maintain emergency oil reserves equivalent to at least 90 days of net oil imports;
- provide programmes of demand restraint measures to reduce national oil consumption;
- participate in oil allocation among IEA countries in the event of a severe supply disruption.

The IEA also has an additional set of co-ordinated stockdraw and other response measures, known as Co-ordinated Emergency Response Measures (CERM). This was established by a July 1984 IEA Governing Board Decision and updated more recently. In making the Decision, the Governing Board recognised the importance of responding rapidly to a supply disruption in order to minimise the potential economic damage. CERM may apply even if the oil supply disruption is not large enough to activate the IEP emergency measures.

The decision to activate emergency response measures pertains to the Agency's Governing Board. The governing Board receives advice from industry experts, through the Industry Advisory Board.

IEA net oil importing countries have legal obligation to hold emergency oil reserves equivalent to at least 90 days of net oil imports of the previous year. According to the latest information available from the Agency, IEA Member countries currently are holding nearly 4.2 billion barrels of public and industry oil stocks⁷, which represent at least 180 days of net imports. The bulk of this total (60%) is in industry stocks, which include commercial stocks as well as strategic stock obligations imposed by the respective governments. It is not possible to clearly demarcate what is commercial and what is strategic in the industry stocks pool.

⁶ IEA Agreement on an International Energy Programme (As amended 25 September 2008)

⁷ IEA Response System for Oil Supply Emergencies 2010

The duration of available stocks is a function of the drawdown rate (see chart). In case of a drawdown rate of 4-4.5 mb/d the duration would be approximately 1 year.

Closing Oil Stock Levels in Days of Net Imports

(Table explanation here)

February 2010

Archives : 2010 Month...

Countries (click on the countries for more information)	TOTAL (1)	Industry (2)	Public (3)	Of which, held abroad (4)	
				Industry	Public
Canada	net exporter	0	0	0	0
United States	161	89	72	0	0
Total IEA North America	161	89	72	-	-
Australia	95	95	0	0	0
Japan	166	72	94	0	0
Korea	188	92	95	0	0
New Zealand	97	89	8	0	8
Total IEA Asia Pacific	162	78	83	-	-
Austria	106	106	0	7	0
Belgium	110	55	55	9	31
Czech Republic	129	42	87	7	0
Denmark	net exporter	0	0	0	0
Finland	157	100	57	0	0
France	98	37	60	0	1
Germany	127	36	91	6	1
Greece	103	103	0	0	0
Hungary	183	79	104	0	0
Ireland	121	42	79	0	46
Italy	119	119	0	15	0
Luxembourg	106	106	0	92	0
Netherlands	186	107	79	0	49
Norway	net exporter	0	0	0	0
Poland	129	113	16	0	0
Portugal	114	82	32	3	11
Slovak Republic	177	83	95	0	0
Spain	101	61	40	1	0
Sweden	139	139	0	6	0
Switzerland	149	149	0	0	0
Turkey	106	106	0	0	0
United Kingdom	821	821	0	188	0
Total IEA Europe	127	82	45	-	-
Total IEA	180	107	72	-	-
Total IEA net importers	146	84	61	-	-

1. IEA stock levels in days of previous year's net imports using IEA methodology. Total may not equal sum of Industry and Public due to rounding.

2. The portion of total days of net imports covered by industry stocks. This includes stocks held for commercial and operational purposes as well as stocks held by industry to meet minimum national stockholding requirements (including stocks held for this purpose in other countries under bilateral agreements).

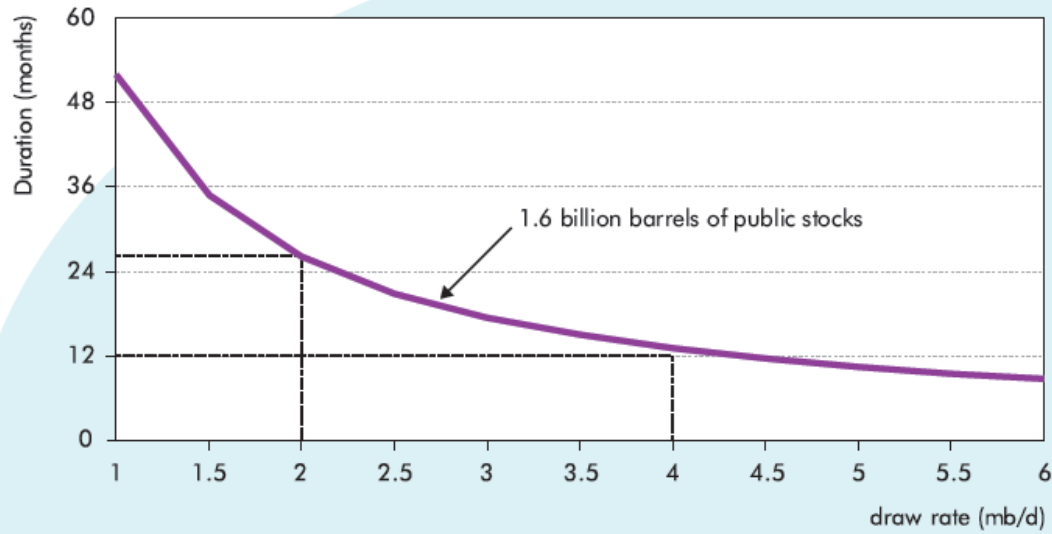
3. The portion of total days of net imports covered by government-owned stocks and stockholding organisation stocks held for emergency purposes (including stocks held in other countries under bilateral agreements).

4. The portion of a country's Total stocks which are held in another country under a bilateral agreement. In specific instances, member countries can count stocks held in the territory of other countries as part of their stocks to fulfil their minimum IEA stockholding requirements (see explanation on stocks held abroad). Sometimes these stocks are indeed owned by the entities having the stockholding obligation; in other cases these stockholding amounts are in the form of tickets (see explanation on tickets).

Days of net imports for regional totals include IEA net importers only.

Updated 12 May 2010

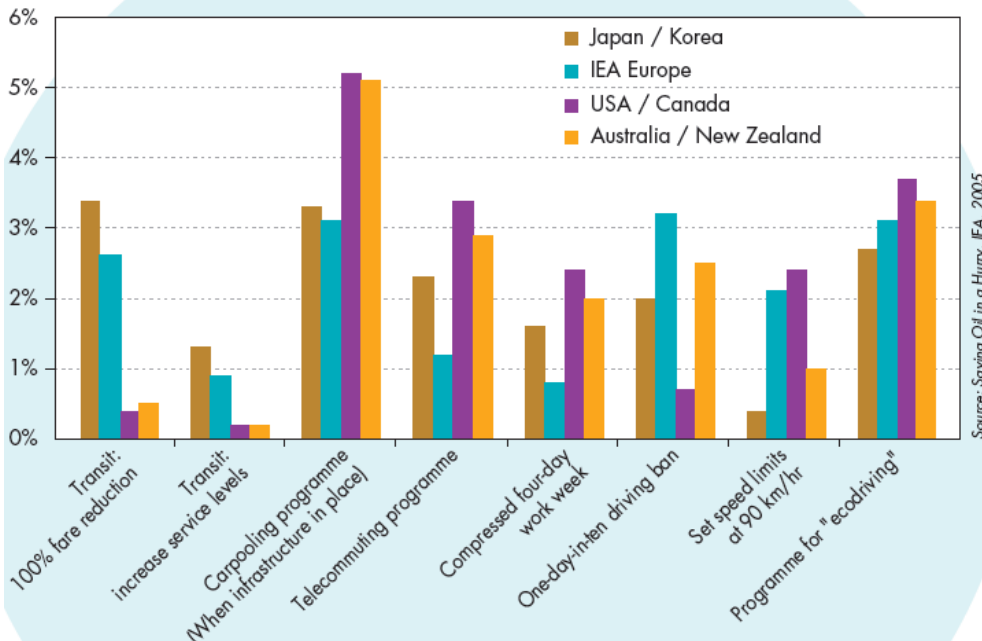
Any questions or comments should be directed to the EPD Secretariat



Source: IEA 2010

In addition to using the strategic storage, the IEA countries may adopt various policies to reduce consumption. It is indeed clear that not all uses of petroleum products are essential or of strategic importance. The IEA has published a major study on the potential for reducing consumption in times of crisis⁸ – some main conclusions are summarized in the chart below.

Potential percentage reduction in oil consumption by type of measure in IEA countries



Strictly speaking, IEA’s emergency response has been activated only twice, at the time of the outbreak of hostilities in the Gulf (“Desert Storm”) and after the damages caused

⁸ IEA “Saving Oil in a Hurry” 2005

by the hurricane Katrina in the Gulf of Mexico in 2005. The IEA activated its Contingency Plan on 17th January 1991 to make available to the market 2.5 million barrels of oil per day. However, the market turned around almost immediately after the outbreak of hostilities, and IEA's intervention proved unnecessary. In the case of the hurricane the IEA member countries decided to make available to the market the equivalent of 60 million barrels through the use of emergency stocks, increased indigenous production and demand restraint.

Preparations for the use of emergency response were made also in connection with the Y2K scare, which proved entirely unfounded.

Preparations were made also in 2003, when global oil markets were tight, affected by low inventories and high uncertainty with strikes in Venezuela, disturbances in Nigeria, and the war in Iraq. The IEA claims that its experience in emergency response management during this period highlighted the appropriateness of IEA emergency response procedures. "Notably, Member countries and the IEA Secretariat demonstrated rapidity and flexibility in responding to the situation through its decision making framework. Using this framework, the IEA carefully and continuously assessed the situation and shared these assessments with Member countries, the oil industry and strategic non-Member countries. The IEA was ready to reinforce the efforts of oil-producing countries, and the markets knew it. The risk of a possible disruption was minimized." Nevertheless, the fact is that the shortfall in Iraqi production was met by increased production in Saudi Arabia, and there was no need to use emergency stocks.

EU Legislation in force concerning oil stocks.

The legislation currently in force in the EU concerning oil stocks is Council Directive 2009/11/EC of 14 September 2009 replacing Directive 68/414/EEC, "imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products". The original 1968 directive was extensively revised already in 1973. In September 2002, the Commission proposed a set of new measures for improving the security of energy supplies, which did not receive the approval of the Parliament and the Council, and were finally withdrawn on October 20, 2004.

Council Directive 68/414/EEC of 20 December 1968 was the first piece of legislation "imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products". The directive notes the growing dependence of the EU on oil imports and the gravity of the consequences of "any difficulty, even temporary, having the effect of reducing supplies of such products imported from third States", but does not specify what exactly is meant by "difficulty".

Council Directive 98/93/EC of 14 December 1998 introduced several modifications to the 1968 Directive. The 98 Directive refers to "any difficulty, even temporary, having the effect of reducing supplies of such products, or significantly increasing the price thereof on international markets", thus not clarifying the exact definition of "emergency", and indeed opening the door to the possibility that not just a physical shortfall, but also a significant increase in prices might be considered one.

On September 11 of 2002, the Commission proposed a new set of measures for improving the security of energy supplies, as it believed that the tools existing at this

date were not sufficient. The proposition did not receive the approval of the Parliament and was withdrawn in 2004. In particular the proposal to adopt 120 days of stocks while the international norm had settled at 90 was objected to.

In 2006 directive 2006/67/EC was promulgated which was meant as a summary document of the previous directives (68/414/EC, 72/425/EC and 98/93/EC) in the interest of clarity, and therefore does not introduces any new provision.

The Council Directive 2009/11/EC of 14 September 2009

In September 2009 the European Council enacted a new directive on stocks that replaces and covers the scope of the previous directives and aims at achieving a higher level of coherence with IEA standards and thus reduce bureaucratic procedures. It also aims at harmonizing emergency mechanisms among members.

Stockholding obligations

The stockholding obligations remain at 90 days, however, the emergency reserves will now be based on the net imports and not on the consumption. As said in a summary given by the Commission:

"Under Council Directive 2006/67/EC of 24 July 2006 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products, stocks are calculated on the basis of average daily inland consumption during the previous calendar year. However, stockholding obligations under the Agreement on an International Energy Programme of 18 November 1974 (hereinafter "the IEA Agreement") are calculated on the basis of net imports of oil and petroleum products. For that reason, and owing to other differences in methodology, the way in which stockholding obligations and Community emergency stocks are calculated should be brought more into line with the calculation methods used under the IEA Agreement." The text also allows for the reserves to equate 61 days of daily consumption instead of the 90 days of imports if the former amount is higher.

"Indigenous production of oil can in itself contribute to security of supply and might therefore provide justification for oil-producing Member States to hold lower stocks than other Member States. A derogation of that kind should not, however, result in stockholding obligations that differ substantially from those that apply under Directive 2006/67/EC. It therefore follows that the stockholding obligation for certain Member States should be set on the basis of inland oil consumption and not on the basis of imports."

The Directive adds the obligation for member state to have at least one third of the reserves composed of oil products in proportions corresponding to consumption patterns of the member state (IHS 2009).

Member States have an obligation to ensure that stocks are available and physically accessible. In this regard, they are responsible for putting in place arrangements for the identification, accounting and control of these stocks. A register containing information on emergency stocks (the location of the depot, refinery or storage facility, the quantities (involved, the owner of the stocks and their nature) should be established and

continually updated. A summary copy of the register shall be sent to the European Commission once a year.

The directive leaves the door open to the possibility of setting up specific stocks for a list of refined products.

EU powers

Additional powers are granted to the EU such as reviewing and auditing stocks maintained by member states (IHS, 2009). The purpose of this measure is to enable the EC to coordinate an EU contribution in the case of an IEA action.

Stockholding entities

The directive wishes to encourage the setting up of central stockholding entities (CSE) in the form of a non-profit making body or service. Under the conditions and limitations laid down by the Directive, CSEs and Member States may delegate part of the management of stocks to another Member State with stocks on its territory, to the CSE set up by the said Member State or to economic operators. The CSE shall maintain oil stocks (including acquisition and management of these stocks).

Art 7(1) Where a Member State sets up a CSE, it shall take the form of a body or service without profit objective and acting in the general interest and shall not be considered to be an economic operator within the meaning of this Directive.

Art7(2) The main purpose of the CSE shall be to acquire, maintain and sell oil stocks for the purposes of this Directive or for the purpose of complying with international agreements concerning the maintenance of oil stocks. It is the only body or service upon which powers may be conferred to acquire or sell specific stocks.

The purpose of these entities will be to acquire, maintain and sell oil stocks for the purposes of this directive or for complying with international agreements on maintenance of oil stocks.

Coordination Group

The directive sets up a coordination group with the task of reviewing the security situation of the Union.

Art. 17 A Coordination Group for oil and petroleum products is hereby set up (hereinafter the "Coordination Group"). The Coordination Group is a consultative Group that shall contribute to analysing the situation within the Community with regard to security of supply for oil and petroleum products and facilitate the coordination and implementation of measures in that field. The Coordination Group shall be made up of representatives of the Member States. It shall be chaired by the Commission. Representative bodies from the sector concerned may take part in the work of the Coordination Group at the invitation of the Commission.

Emergency procedures

No specific rule is set up by the directive concerning the usage of the stocks. In particular it does not propose a definition of an emergency. It asserts that (art 20):

“Member States shall ensure that they have procedures in place and take such measures as may be necessary, in order to enable their competent authorities to release quickly, effectively and transparently some or all of their emergency stocks and specific stocks in the event of a major supply disruption, and to impose general or specific restrictions on consumption in line with the estimated shortages, inter alia by allocating petroleum products to certain groups of users on a priority basis.”

Two types of situation are envisaged:

- If an international decision to release stocks affecting one or more Member States has been taken (probably by the IEA), the Member States can use their stocks and must notify the Commission so that the Coordination Group can be alerted. Or the Commission can directly recommend to Member States to release some of their stocks.
- If one Member State experiences difficulties and no international decision has been taken, the Commission arranges a consultation of the coordination group and informs and coordinates with the IEA. If a major supply disruption is deemed to have occurred, the Commission shall authorise the release of some or all of the quantities of emergency stocks and specific stocks.

New approaches to oil stocks for enhanced security

The analysis proposed in the previous sections points to some significant shortcomings in the current design of strategic stocks policies. We may summarize the key problems as follows:

- Rules for the activation of strategic stocks are nebulous: the main objective is expected to be compensating for physical shortfalls of supply, but in fact price movements anticipate any such shortfall and crises manifest themselves as price rather than quantity shocks. Undoubtedly, prices are far more volatile than quantities supplied. However, price shocks may also be independent of actual/expected changes in quantities supplied.
- Strategic stocks necessarily have limited duration; experience has consistently shown that availability of unused capacity at key producing countries is much more important and effective in compensating for physical supply shortfalls.
- The accumulation of strategic stocks should not be viewed in isolation from commercial stocks and possible demand management policies in case of supply emergencies.
- The desirable size of strategic stocks is difficult, if not impossible, to determine. The effect of accumulating stocks on markets and prices is not clear and could result in increased volatility, rather than the opposite.

In the light of the above considerations, we propose two main directions of analysis for an innovative approach to oil stocks:

- Playing down the distinction between strategic and commercial stocks and adopting policies to encourage accumulating and holding stocks on the part of all operators.
- Cooperation between major oil importers and exporters in view of encouraging and consolidating the existence of a sufficient cushion of unused capacity to compensate for supply shortfalls.

Encouraging companies and major consumers to hold more stocks

We should clearly distinguish between the wisdom of maintaining large public stocks and that of encouraging large(r) private stocks. The problems we have been highlighting concerning public stocks are very much related to their public nature – that is to the need to have clear activation criteria, cost-benefit analysis, and differentiation between emergency contingencies and market intervention. None of these arguments applies to privately held stocks, and the wisdom of encouraging private actors in the industry to hold larger stocks would appear to be out of discussion.

The drive towards cost cutting and maximisation of return on invested capital has meant that all companies have strived to minimise their working capital, and one way to do so is to reduce stocks and progressively eliminate all redundancies in one's logistics

system. The consequence is much greater vulnerability to supply disruptions, which however is clearly not considered much of a problem by the financial community, whose analysis influences market evaluation of the stock. This is not a problem just for oil; it is a problem for network energy and for other industries as well.

The debate about insufficient investment under conditions of market liberalisation is ongoing, and may be expected to eventually converge on solutions that will re-establish some stability and resilience to the system. This debate, however, mainly concentrates on network energy, and appears to have overlooked the problems of the oil industry.

The alternative should be considered of adopting regulations at various stages in the industry mandating a certain level of stocks and redundancies in several crucial facilities, which may contribute to the overall reliability of the system. In a sense, this is what is done when oil companies are mandated to maintain stocks equal to at least x days of consumption – except that these stocks are then called strategic and are not freely controlled by the companies themselves. Companies should be mandated to maintain stocks of crude and products as well as maintain a certain redundancy in capacity in crucial logistics or refining capacity, which the companies might more flexibly resort to when they feel a need to do so. E.g. requiring companies to maintain a minimum average level of crude oil stocks over a 12 months period, but allowing drawdowns in the event of specific tensions or shortages.

Encouraging private operators to hold larger stocks requires that institutions and facilities should be established to manage stocks in a flexible way which is more in line with market signals.

Managing stocks in response to price signals can be a profitable operation and contribute to dampening price fluctuations. Investors may choose to buy and sell purely paper barrels or they may decide to hold physical barrels: the latter option is likely to have a beneficial effect on price stability. The objective of government regulations should therefore be to encourage private investors to hold physical stocks. Today, individual investors (the doctors and dentists of Chicago fame) and large financial investors shy away from physical barrels, and only want to deal in paper.

Encouraging holding physical stocks requires passing legislation that will make it easier to build and maintain storage. This is partly an issue of environmental and fiscal rules, partly an issue of market organisation. Physical storage operators (who shall be separate legal entities from the owners of the stored oil) should be empowered to issue certificates convertible in physical barrels: oil deposited into the storage would be exchanged for such certificates, and certificates could be used to withdraw oil from storage. There is nothing exotic about this, but such a facility and a market for the certificates that it might issue does not exist.

Governments may well decide to facilitate this development by establishing an agency to build and manage the storage facility – this can be established at the national or regional level or both - and issue certificates to oil depositors. The possibility of depositing oil would be open to all, including national oil companies of oil exporting countries.

Major trading companies, such as Vitol, maintain storage facilities already today, but the phenomenon is limited and not sufficient to influence crude oil prices. Much larger storage facilities are needed, and private sector initiative may not be attracted to doing so. Nevertheless, per se the business of operating storage facilities may very well be profitable if investment in physical stocks develops as envisaged here.

The EU might decide to invest in the creation of storage facilities offering their use for free to producers wishing to “deposit” their crude in them. Producers would retain ownership and control of the crude under normal circumstances, but the EU would be allowed access under emergency conditions. Producers might receive a certificate for the crude they deposit in the storage, which they might use as collateral to borrow from the financial system. The European Investment Bank might specifically be mandated to issue loans against these certificates, e.g. to finance investment in creating unutilised capacity in the same producing countries. The availability of such an “oil deposit window” would encourage producing countries to abandon the attempt to modify their production levels in anticipation of changes in market balance: experience has told us that such anticipations can prove unfounded, leading to even worse market imbalances. The ability to divert oil to a “deposit window” in case of weak demand, or to withdraw from it in case of unexpectedly strong demand, would enhance the ability of major producers to maintain prices at levels close to their targets. Storage facilities could be established in all appropriate locations, not necessarily in the territory of the country or group of countries establishing the same. In fact, it might be very interesting to establish large storage facilities at critical logistical junctures, such as the Suez Canal or the Malacca Strait, or in conjunction with pipeline projects to bypass the same.

Prospects for a cooperative approach to the management of strategic stocks

The hypothesis of some kind of cooperative management of supply emergencies was originally contained in the informal agreement between the Executive Director of the International Energy Agency, Claude Mandil, and the Minister of Petroleum of Saudi Arabia, Ali Naimi, in the run-up to the 2003 war in Iraq. The agreement envisaged that Saudi Arabia would use its unutilised capacity to make up for any shortfall in global crude oil supplies, and the IEA would abstain from using its strategic stocks.

The agreement was a powerful and extremely significant precedent, because it implicitly asserts that existing unutilised capacity in Saudi Arabia – and to some extent in other GCC member countries as well, but the role of Saudi Arabia is quite unique because of the extraordinary elasticity of the Kingdom’s oil production – is the first line of defence against unexpected and undesirable interruptions or disturbances in the regular pattern of crude oil supplies. In contrast, non-OPEC countries normally produce at full capacity and do not have a policy of systematically maintaining unused capacity that might be resorted to in case of a shortfall of other countries’ exports. It is only within OPEC, and indeed within the Gulf, that significant unused capacity is systematically maintained.

Ever since this early informal agreement the main industrial countries, led by the United States, have consistently pressed major Gulf producers to maintain significant non utilised capacity and persist in investing even at times of slack demand.

Nevertheless, the importing countries do nothing to share the investment burden, which is required to maintain such unused capacity. Indeed, the importing countries constantly claim that the producing countries should allow more of an involvement of the

international oil companies in investing upstream – however the international oil companies are certainly not interested in investing in unused capacity. It is probably impossible to envisage that governments of the importing countries would contribute to the financing of investment in unused capacity; however, in the context of a cooperative approach to dealing with supply emergencies, the investment by producing countries in unused capacity should be credited to them as their contribution to the overall stability of the system.

The pace of investment in new capacity and the possibility of maintaining a sufficient cushion of unused capacity is closely connected with the discussion on “demand security” that has featured prominently in the preoccupations of the main oil exporting countries. This point has been discussed already in deliverable 5.1.4a. It was proposed there that major producers may stabilise the utilisation of their capacity through long-term take-or-pay contracts modelled on the experience of major gas exporters. Such contracts might include the joint establishment and management of sufficient storage capacity to compensate for any unexpected variation in demand or supply in the short term, with automatic adjustments to prices and contractual volumes in case of persisting deviations.

The underlying theme of these proposals is that the purpose of maintaining stocks should be changed from being a tool for confrontation to becoming a terrain for cooperation. Originally, strategic stocks were conceived of as a tool to resist the possible political use of oil supplies, a memory of the 1973 OAPEC attempt to use oil as a weapon. Little mattered that the attempt was ultimately a total failure.

But sufficient water has passed under the bridges to allow us to conclude that what is needed is a policy to manage stocks in a cooperative manner with major producers, in order to stabilise oil markets and prices. Major producers have today clearly embraced a policy aimed at guaranteeing consumers that supplies will be sufficient – and increasingly also are manifesting the preoccupation that unstable prices might eventually undermine acceptance of their primary export. The interests of exporters and importers therefore tend to converge at least to some extent – i.e. in the desirability of a more orderly and predictable evolution of oil markets, to which cooperative management of stocks might substantially contribute.

Appendix

Summary of Council Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products

The new Directive lays down rules aimed at:

- making oil supply in the Community more secure through reliable and transparent mechanisms based on solidarity amongst Member States;
- maintaining minimum stocks of crude oil and/or petroleum products;
- putting in place emergency procedures to be used in the event of a shortage.

Main provisions concerning emergency stocks

Member States must maintain a total level of oil stocks corresponding, at the very least, to 90 days of average daily net imports or 61 days of average daily inland consumption, whichever of the two quantities is greater.

The average daily net imports are to be calculated on the basis of the method explained in Annex I of the Directive, whilst the procedure for calculating average daily inland consumption is given in Annex II. Annex III lays down the procedure for calculating stock levels.

Member States have an obligation to ensure that stocks are available and physically accessible. In this regard, they are responsible for putting in place arrangements for the identification, accounting and control of these stocks. A register containing information on emergency stocks (the location of the depot, refinery or storage facility, the quantities involved, the owner of the stocks and their nature) should be established and continually updated. A summary copy of the register shall be sent to the European Commission once a year.

In order to maintain stocks, each Member State may set up a central stockholding entity (CSE) in the Community, in the form of a non-profit making body or service. The CSE shall maintain oil stocks (including acquisition and management of these stocks). Under the conditions and limitations laid down by the Directive, CSEs and Member States may delegate part of the management of stocks to another Member State with stocks on its territory, to the CSE set up by the said Member State or to economic operators.

Under the conditions and limitations laid down by the Directive, Member States may authorise any economic operators upon whom they have imposed stockholding obligations to delegate part of these obligations to:

- the CSE of the Member State in question;
- one or several CSEs that have expressed a wish to maintain such stocks;

- certain other economic operators which have surplus stocks.

Main provisions relating to specific stocks and other stocks of products

Each Member State is invited to commit to maintaining specific stocks. In this case, they must maintain a minimum level defined in terms of number of days of consumption. Specific stocks shall be owned by the Member State concerned or the CSE set up by it. Member States shall publish their decision to hold specific stocks in the Official Journal of the European Union.

Specific stocks shall be composed of one or several of the following products:

- ethane;
- LPG;
- motor gasoline;
- aviation gasoline;
- gasoline-type jet fuel (naphtha-type jet fuel or JP4);
- kerosene-type jet fuel;
- other kerosene;
- gas/diesel oil (distillate fuel oil);
- fuel oil (high sulphur content and low sulphur content);
- white spirit and SBP;
- lubricants;
- bitumen;
- paraffin waxes;
- petroleum coke.

Member States shall ensure that in total, for the reference year, the crude oil equivalent of the quantities consumed of products included in the categories used is at least equal to 75 % of inland consumption. If there is no commitment to maintain at least 30 days of specific stocks, Member States shall ensure that at least one third of their commitment is held in the form of products, under the conditions laid down by the Directive.

Biofuels and additives

When calculating stockholding obligations and stock levels actually maintained, biofuels and additives shall be taken into account only where they have been blended with the petroleum products concerned. Furthermore, under certain conditions, part of the biofuels and additives stored on the territory of the Member State in question may be taken into account when calculating stock levels actually maintained.

Emergency procedures

Member States must be able to release all or part of their emergency stocks and specific stocks if required. Contingency plans shall be developed. In the event of a major supply disruption, emergency procedures must be in place. Specific rules also apply according to whether or not there is an effective international decision to release stocks.

Context

Since the system for the management of oil stocks was flawed, the Commission considered it useful to revise Community stockholding mechanisms. Oil is now one of the European Union's main energy resources and security of supply should be enhanced in order to avoid or mitigate a crisis in this sector.

The Directive repeals Directives 2006/67/EC and 73/238/EEC, as well as Decision 68/416/EEC.

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