

EXECUTIVE SUMMARY

The International Energy Agency (IEA) was founded in 1974 with the mandate to implement the International Energy Program (I.E.P.) – a joint strategy to address oil security issues on an international scale. At that time, 16 countries from the Organisation for Economic Co-operation and Development (OECD) signed the I.E.P. Agreement as a response to the international oil disruption of 1973, and to the wide-ranging macro-economic problems it generated.

Emergency response is still one of the main pillars of the IEA. Becoming a member of the IEA is contingent on countries being members of the OECD and meeting two key obligations: to hold oil stocks equivalent to at least 90 days of net oil imports; and to maintain emergency response measures that can contribute to an IEA collective action during a severe oil supply disruption. Response measures include stockdraw, demand restraint, fuel switching, surge oil production and, if necessary, sharing of available oil supplies. Since the IEA was founded, member countries have taken a number of subsequent decisions that provide significant flexibility as to how and when the IEA responds to a sudden disruption of supplies.

The IEA Governing Board, a body comprising representatives at ministerial or senior official level, defines and determines the implementation of IEA policies. Under the Governing Board, standing groups carry out sectoral analysis, policy review and other operations as necessary. One of these groups, the Standing Group on Emergency Questions (SEQ), is responsible for all aspects of the emergency response. To ensure it considers the full range of related issues, the SEQ takes advice from the Industry Advisory Board (IAB), which is composed of experts from oil companies operating worldwide.

As part of its mandate, the SEQ conducts regular reviews (on a five-year cycle) of the emergency response mechanisms of member countries, thereby ensuring IEA overall preparedness for a rapid response to oil emergencies. These reviews also help to verify that emergency response strategies have adapted adequately to changes in oil market conditions.

Evolving Markets

Oil Supply Security: Emergency Response of IEA Countries 2007 reflects the results of the latest review cycle. It also draws attention to significant changes arising since the last cycle of reviews and the previous edition (2000) of this publication. In the last seven years, the IEA has expanded, adding one new member country (the Republic of Korea) and inviting two more countries (Poland and the Slovak Republic) to join. In addition, the 2005 hurricane season, which wreaked havoc on key elements of the supply chain infrastructure in the Gulf of Mexico, tested IEA capabilities to respond effectively to a

short-term oil supply disruption. This unexpected event highlighted the ways in which the oil market has changed and has become more susceptible to a variety of factors that can disturb the balance of supply and demand.

The risk of oil supply disruptions has grown in recent years and will grow in the near future for a number of reasons including continued demand growth, increased concentration of the remaining oil reserves in a fewer number of countries, the concentration of oil use in the transport sector, and insufficient capacity additions (both upstream and downstream) to keep pace with demand growth. The devastating hurricanes of 2005 also demonstrated that, in today's market, the severity of an oil supply disruption is not only a function of the oil lost. It also relates to the level of commercial stocks, the likely duration of the disruption and the availability of spare production capacity. It is now apparent that at times when the world market has limited excess capacity, a relatively small disruption can have quite severe effects.

Emergency Stocks on the Rise

But the IEA stands prepared. The hurricane response and the recent reviews confirm that key advances have been achieved, particularly in terms of stockholding to support stockdraw in the event of a supply disruption. IEA member countries' stocks remain on an upward trend: since the last publication of this report (2000), they grew by 14% and stood at 4.1 billion barrels at the end of 2006. Stocks grew more than just to compensate for the rise in net imports to IEA member countries; at the end of 2006, total stocks covered 122 days of net imports, compared to the all time lowest level of 108 days in early 2000. There has also been an increase in the number of member countries holding government and/or agency (public) stocks. In 2007, 17 out of the 26 members of the IEA held public stocks. This reflects a rise in the number of member countries with stockholding agencies, which has increased from 4 to 11 since the early 1980s. With the accession of Poland and the Slovak Republic to the IEA, and with Turkey's intention to create an agency, it is anticipated that 20 out of 28 IEA member countries will have public stocks by 2008. In addition, an increasing proportion of all stocks held in IEA member countries is publicly controlled. In the mid-1980s, only one-quarter of all IEA member countries' stocks were publicly held; by 2006, this figure had risen to more than one-third. The collective action of 2005 showed that public product stocks might be necessary when downstream infrastructure is severely damaged and that is why countries who traditionally hold crude oil in their in public reserves are now considering product stocks as well.

Emergency Response Measures

Over time, stockdraw has proven to be the most powerful mechanism available to IEA member countries during an oil supply disruption, but this publication also highlights progress in other areas. Demand restraint is another key measure in the IEA toolkit that can help free up barrels by encouraging oil consumers to reduce their use of oil. This publication places particular emphasis on demand restraint within the transport sector, which currently accounts for more than half of all oil consumption in IEA member countries. Increasing indigenous oil production and switching to other fuel sources in an emergency remain additional options, although these have become limited in scope. In the transport sector, the potential for fuel switching is inconsequential due to the lack of alternative transport fuels so far. In the electricity market, the high level of substitution of natural gas for oil in electricity production means that the traditional "alternative" fuel is already in high demand and not readily available. In fact, under certain circumstances, switching to oil is an appropriate response for

a supply disruption in natural gas in the power and heat sectors. This integration raises an additional question regarding the role of alternative fuels during oil supply emergencies – *i.e.* to what extent supply disruptions of other fuels, such as natural gas, could spill-over into the oil market and cause severe oil demand increases.

Equally important to having emergency response mechanisms in place is the ability to use them at short notice. The IEA has the ability to respond rapidly to an oil supply disruption through real-time communication with member countries and major players outside the IEA. The IEA also has a framework for decision-making which is tested and updated through regular simulation exercises.

Beyond IEA Borders

Oil consumption outside IEA member countries now dominates global oil demand growth. The IEA *World Energy Outlook 2007* (WEO 2007) forecasts that global oil demand will increase from 84.5 mb/d in 2006 to 98.5 mb/d in 2015 and 116.3 mb/d in 2030. Some 42% (13.9 mb/d in absolute terms) of this increase will come from China and India alone. Until the 1990s, these countries were marginal net importers. However, their imports have since taken off, while their domestic production has remained relatively stable. Today, these countries are major net importers – as are most IEA member countries. For this reason, the IEA is promoting dialogue and information sharing on oil security policies and measures with China and India, and with key importing countries belonging to the Association of Southeast Asian Nations (ASEAN). The key objectives of these bridge-building efforts are to promote the well functioning of markets, transparency, stock-building and co-ordination in times of supply disruptions.

The IEA has adopted an “outreach” strategy to promote emergency stock building in these countries and to harmonise emergency response measures across both member and non-member countries, as a means of enhancing the impact of such measures in times of a significant supply disruption. Both China and India have announced substantial plans for stock building. In 2007, China finished constructing and started filling its first storage sites; India began preparations for the construction of its first sites. A brief overview of stockholding plans in China, India and ASEAN countries is included in this publication. To date, the plans announced include a strategic reserve of some 500 mb for China and more than 100 mb for India. Combined, these volumes will rank just under the 2007 level of the strategic reserves of the United States, which is by far the largest public reserve holding among IEA member countries.

The findings contained in the following pages illustrate the growing robustness and agility of the IEA emergency response systems. They also demonstrate the value of the periodic reviews as a means of adjusting specific response mechanisms in order to mitigate the effects of an oil supply shortfall. Perhaps most importantly, they highlight why being prepared is so important for the future.

At the time of writing, the IEA had 26 member countries. The Slovak Republic and Poland have been officially invited to become members. As this book will be the IEA reference on oil security for the coming years, the Slovak Republic and Poland are included in the analysis of this publication as full members of the IEA.