3 AN ANALYTICAL PERSPECTIVE

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The main areas of concern from an energy security perspective can be summarised as follows:

- Growing (fossil fuel) import dependence in the major OECD consuming countries/regions as well as in major Non-OECD consumers such as China;
- Geopolitics, terrorism and the associated risk of supply disruptions, e.g. last year’s war in Iraq or the Venezuelan general strike of Dec. 2002 – Feb. 2003;
- Finite resources and the associated concern that world production of oil and gas could peak in the near future, leading to physical shortages and/or spikes in energy prices;
- Barriers to investment: with the bulk of remaining fossil fuel resources residing in Non-OECD countries, especially the Middle East and the Former Soviet Union, doubts exist whether the legal/commercial environments in these countries will allow for the required level of investment needed to expand supply in tandem with the growth in global demand;
- High and volatile energy prices, sometimes blamed on just-in-time inventory management practices or speculators but also resulting from reduced margins of spare capacity in global hydrocarbons production and processing and political instability;
- Infrastructure reliability: concerns about the reliability of ageing infrastructure and the impact of regulatory changes on the adequacy
of reserve margins – as highlighted by recent widespread power failures in the US Eastern Seaboard, Italy and London.

Import dependence

Expressed as net fossil fuel imports as a percentage of primary energy use, import dependence has increased in the US and China over the last thirty years but decreased in Europe and Japan. The fall in European import dependence occurred during the 1970s and reflected the development of North Sea oil and gas supplies and the rapid development of nuclear power. The fall in Japanese import dependence has been very modest and reflects largely the growing penetration of nuclear power: domestic hydrocarbon production has always been quite small and has been declining over the last 30 years as a whole. China has only recently emerged as a net importer of energy on account of a rapid growth in oil consumption as the economy has industrialised. Chinese oil production is probably approaching a peak. US import dependence declined between 1972 and 1982 despite oil production peaking in 1971. Oil and gas consumption was lower in 1982 than in 1972 and nuclear power expanded rapidly during this period. Declining consumption was a function of the 1973 and 1979 oil price shocks. Since 1982, the moderation of energy prices and the return of robust consumption growth have encouraged growing import dependence once again: net fossil fuel imports accounted for almost 30% of US energy consumption in 2002.

All of the main countries/regions are more import dependent in the case of oil than they are in the case of energy generally. Both the US and Europe depend on imported oil to satisfy around 60% of consumption, whereas Japan is close to 100%. Despite only becoming a net oil importer in 1993, China was almost 40% dependent on oil imports in 2002 and imports grew a further 30% in 2003. Europe has become less dependent on oil imports over time as North Sea production continued to grow until recently. However, with North Sea production having peaked, European oil import dependence should increase in coming years, as in the US and China. Over the last 30 years, the world’s energy supply has become more diverse. The shares of oil and coal, the dominant fuels in 1972, have fallen while the shares of gas, nuclear and hydro-electricity have grown – as has the share of renewable energy. This trend is expected to continue, albeit more slowly, because of a slowdown in the rate of nuclear/hydro expansion. At the same time that oil’s share of world energy consumption has fallen, oil consumption has become more concentrated in the transport sector, where