Ministero dello Sviluppo Economico

G8 ENERGY MINISTERS MEETING 2009

The Impact of the Financial and Economic Crisis on Global Energy Investment

IEA Background paper for the
G8 Energy Ministers' Meeting
24-25 May 2009

Note to Readers

This report was prepared for the G8 Energy Ministerial in Rome on 24-25 May 2009 by the Office of the Chief Economist (OCE) of the International Energy Agency (IEA) in co-operation with other offices of the Agency. The study was directed by Dr. Fatih Birol, Chief Economist of the IEA. The work could not have been completed without the extensive data provided by many government bodies, international organisations, energy companies and financial institutions worldwide.

The 2009 edition of the World Energy Outlook (WEO), to be released on 10 November, will include an update of this analysis and additional insights into the implications of the financial and economic crisis on energy security, climate change and energy poverty over the medium and longer-term.

EXECUTIVE SUMMARY

Energy investment worldwide is plunging in the face of a tougher financing environment, weakening final demand for energy and falling cash flows – the result, primarily, of the global financial crisis and the worst recession since the Second World War. Reliable data on recent trends in capital spending and demand are still coming in, but there is clear evidence that energy investment in most regions and sectors will drop sharply in 2009. Preliminary data points to sharp falls in demand for energy, especially in the OECD, contributing to the recent sharp decline in the international prices of oil, natural gas and coal.

Both supply and demand side investments are being affected. Energy companies are drilling fewer oil and gas wells and cutting back spending on refineries, pipelines and power stations. Many ongoing projects are being slowed and a number of planned projects have been postponed or cancelled – for lack of finance and/or because of downward revisions in expected profitability. Meanwhile, businesses and households are spending less on energy-using appliances, equipment and vehicles, with important knock-on effects for efficiency of energy use. Tighter credit and lower prices make investment in energy savings less attractive financially, while the economic crisis is encouraging end users to rein in spending across the board, as a defensive measure. This is delaying the deployment of a more efficient generation of equipment. Furthermore, equipment manufacturers are expected to reduce investment in research, development and commercialisation of more energy-efficient models, unless they are able to secure financial support from governments.

Impact by sector

In the oil and gas sector, there has been a steady stream of announcements of cutbacks in capital spending and project delays and cancellations, mainly as a result of lower prices and cash flow. We estimate that global upstream oil and gas investment budgets for 2009 have already been cut by around 21% compared with 2008 – a reduction of almost $100 billion. Between October 2008 and end-April 2009, over 20 planned large-scale upstream oil and gas projects, valued at a total of more than $170 billion and involving around 2 mb/d of oil production capacity and 1 bcf/d of gas capacity, were deferred indefinitely or cancelled. A further 35 projects, involving 4.2 mb/d of oil capacity and 2.3 bcf/d of gas capacity, were delayed by at least 18 months. It is likely that the upstream industry will reduce spending on exploration most sharply in 2009 – largely because the bulk of spending on development projects is associated with completing projects that had already been launched before the slump in prices. Oil sands projects in Canada account for the bulk of the postponed oil capacity. The drop in upstream spending is most pronounced in the regions with the highest development costs and where the industry is dominated by small players and small projects. For these reasons, investment in non-OPEC countries is expected to drop the most. In addition, cuts in spending on existing fields risk pushing-up decline rates.

Power-sector investment is expected to be severely affected by financing difficulties, as well as by weak demand. We estimate that global electricity consumption could drop by as much as 3.5% in 2009 – the first annual contraction since the end of the Second World War. In the OECD, electricity demand in the first quarter of 2009 fell by 4.9% on a year-on-year basis. Non-OECD regions have also seen weaker demand: in China, for example, demand fell by 7.1% in the fourth quarter of 2008 and by a further 4% in the first quarter of 2009. Weak demand growth is reducing the immediate need for new capacity additions. At the same time, commercial borrowing has become more difficult and the cost of capital has risen markedly; venture capital and private equity investment has fallen sharply. If a recovery takes longer than expected, and energy prices remain at depressed levels relative to recent peaks, we would expect to see a shift to coal- and gas-fired plants at the expense of more capital-intensive options such as nuclear and renewables, although this will depend on the policies and support mechanisms individual countries and regions have in place.

The outlook for investment in renewables-based power projects is mixed, depending on the policy framework, but is generally falling proportionately more than that in other types of generating capacity. We estimate that for 2009 as a whole investment in renewables could drop by as much as 38%, although stimulus provided by government fiscal packages can probably offset a small proportion of this decline. Investment in renewable energy assets surged in recent years, recording year-on-year growth of 85% in 2007. But activity slowed in 2008 as sources of finance contracted and lower fossil-fuel prices reduced the economic incentive for new investment, particularly in the last few months of the year. Preliminary data for the first quarter of 2009 indicates that the slump in investment has accelerated, with spending 42% lower than in the previous quarter. In most regions, investment in bio-refineries has all but dried up due to lower ethanol prices and scarce finance.

Industry surveys suggest investment in the coal sector could drop by 40% in 2009 compared to 2008. Nonetheless, this drop is from very high levels reached in 2007 and 2008, which were exceptionally profitable: coal companies used free cash flows to sharply increase their investments, as well as paying out large dividends to shareholders. Expected reductions in capital spending in 2009 are most marked among high-cost producers, especially those supplying export markets, such as in the United States and Russia. In contrast, Indonesian coal producers continue to enjoy high margins with little apparent disruption to planned expansions.

Implications for energy security, climate change and energy poverty

Falling energy investment will have far-reaching and, depending on how governments respond, potentially grave effects on energy security, climate change and energy poverty. Cutbacks in investment in energy infrastructure will only affect capacity with a lag, often amounting to several years. So, in the near term at least, weaker demand is likely to result in an increase in spare or reserve production capacity. But there is a real danger that sustained lower investment in supply in the coming months and years, could lead to a shortage of capacity and another spike in energy prices in several years time, when the economy is on the road to recovery. The faster the recovery, the more likely that such a scenario will happen.

The impact on greenhouse-gas emissions will depend on how the crisis affects investment in different types of energy technology. In the short term, slower economic growth will curb growth in emissions. But, in the medium and longer-term, the crisis may lead to higher emissions, as weak fossil-energy prices and financing difficulties curb investment in clean energy technologies, increasing reliance on fossil-fuelled capacity. At the same time, investors will remain risk averse, so that funding for clean energy projects will be available primarily for proven technologies in attractive markets. Once the recession is over, the likely burst of economic growth or "catch-up effect" may also cancel out any short-term emissions benefit. There is also a very real risk that the world's preoccupation with dealing with the crisis will lessen the chance of reaching a comprehensive climate-change agreement in Copenhagen.

Cutbacks in energy investment will impede access by poor households to electricity and other forms of modern energy – a vital factor in pulling people out of poverty. There are an estimated 1.6 billion people worldwide still lacking access to electricity – most of them in sub-Saharan Africa and southern Asia. This figure may grow as a result of the crisis, as some of the households that previously had access are no longer able to afford to pay for the service and financial problems limit the ability of utilities to connect new customers.

IEA urges governments to act on economic, energy security and environmental goals

These concerns justify government action to support investment in energy efficiency and clean energy. Many countries recognise this: a small but significant share of the additional public spending in short-term economic stimulus packages announced to date (about 5% of a total of $2.6 trillion) is directed at energy efficiency and clean energy – either direct investment or fiscal incentives for low-carbon power technologies and the development and commercialisation of more energy-efficient end-use technologies. These moves are a positive step in the right direction, potentially killing three birds with one stone: tackling climate change, enhancing energy security and combating the recession.

But much more needs to be done. The investment needed to put the world onto an energy path consistent with limiting the rise in global temperature to around 2°C far exceeds the additional investments that are expected to occur as a result of the stimulus packages so far announced. Our analysis suggests that, relative to their recent announcements, governments should be looking to increase the level of new funds they commit to energy efficiency and low-carbon energy policies by a factor of around four. And, at a minimum, this level of investment would have to be sustained each and every year for decades to come. The IEA, therefore, encourages world leaders attending the 2009 G8 Summit under the Italian Presidency to push for such action on a global scale – a *Clean Energy New Deal* – to exploit the opportunity the financial and economic crisis presents to improve energy efficiency and effect a permanent shift in investment to low-carbon technologies including carbon capture and storage. This must be seen as a long-term commitment that extends well beyond the limited time horizon of the economic stimulus packages.