

الطاقة وهواجس التغيرات المناخية في العالم

Global Energy Outlook and Climate Change Issues

The energy market in 2009 – The exceptionally bad year 2009 for the global economy, implied that it was not a good year for the energy markets either, as energy demand plunged with the decline in world economy, particularly, in the developed world. Global energy use is estimated to have fallen in 2009 for the first time since 1981. The recovery in the energy markets is closely linked to the recovery of the global economy. However, this time a new dimension has been added insofar not has the energy demand to recover, but it has to also take into account issues of climate change. Developments in the energy market have significant consequence for the oil exporting countries like UAE.

Challenge for the global economy – Currently, the global economy is thus faced with three pronged challenges of (1) economic growth and emergence from the recession, (2) energy security and (3) environment protection. All three have to be managed without unduly comprising any one of them. The environment is a recent addition as concerns about the impact of carbon dioxide (CO₂) emissions have intensified in the past couple of years.

Recovery in energy markets - The recovery and future of energy markets is inexorably linked to the economic recovery. Once global growth resumes, energy demand and use is likely to rebound to previous levels and resume its own growth as well. However, the situation becomes complicated as it is no longer considered desirable to allow growth of the energy industry in its current form and structure. The current path of the global economy growth and energy consumption rates, puts the planet on course for a 6 degree Celsius rise in temperatures by 2030.

Expected changes - The energy sector accounts for 84% of the global CO₂ emissions and 64% of the greenhouse gas emissions. Meeting the challenge of global warming would require a change in the way energy is currently produced and consumed. The production is expected to shift away from fossil fuels towards nuclear energy and renewable energy in the long run. Meanwhile, energy consumption has to be as efficient as possible.

Sectors - All sectors are forecast to increase their CO₂ emissions, but aviation and power generation are the fastest growing sectors here. The power sector is expected to account for over half of the increase in emissions, with a 60% increase in coal fired generation.

Long term demand trends – As of now, approximately 1.5 billion people (viz. almost a quarter of the global population) are without electricity access. That is a huge demand which not only cannot be denied, but will have to be pushed as a desirable goal, irrespective of the global warming consequences. Compromises will have to be made by other consumers of energy, either in quantity or quality. Currently, the largest rising demand for fuel is because of the rise in vehicles in the developing world. This is a trend which is likely to continue, and it is very difficult to put a dampener on the demand, without compromising the economy or individual consumer's rights.

Emission and emitters – Non-OECD countries account for 55% of the world's annual emissions of energy related CO₂. However, historically, their contribution has been much lower, which the International Energy Agency (IAE) estimates to be only 42%. The USA accounts for about 28% of all the CO₂ emissions so far. However, with expected rapid economic growth in the non-OECD countries, their share in emissions is likely to increase rapidly. China is already the world's biggest emitter (partly caused by the fact that China is also the world' manufacturing powerhouse now).

Emissions and per capita income – There is a direct relationship between per capita incomes and emissions per capita. Richer individuals consume more and are therefore, responsible for greater emissions. Thus, it turns out the countries of the Middle East have one of the highest per capita emissions. Qatar is the world leader. In fact, the top four countries are AGCC countries, viz. Qatar, UAE, Bahrain and Kuwait. However, because of their small populations, the emissions of these countries are not a major contributor to the global release of greenhouse gases. The highest emitters in terms of both per capita emissions and total emissions are the countries of the West – the top three being USA, Australia and Canada.

Emissions intensity of GDP – There is an inverse relationship between per capita incomes and emission intensity. Countries with higher GDP consume less energy and have less emission per unit of GDP. This is to say that higher GDP countries use more energy efficient methods. Many countries are already imposing unilateral emission control policies and targets, and the richer countries have taken the lead. While these are not expected to suffice, this clearly marks the future direction in the energy industry.

Recession and emission - Meanwhile, the recession has also meant that carbon dioxide emissions were lesser in 2009 than the projections made for this year. For instance, global electricity consumption was projected to drop by 1.9% in 2009 – the first contraction since World War II. This is the first time since the early eighties that global energy related CO₂ emissions are estimated to have declined. Since emitted gases stay in the atmosphere, any decline in emissions has a long lasting effect. Consequently, the entire projections come down and it gives more breathing time to the energy industry to shift to less greenhouse-gas emitting energy sources.

Energy supply – The recession, unfortunately, has also had a negative impact on investments in the energy sector, which could impact in the medium run. Cutbacks in investment spending announced in 2009 indicate a decline by as much as 19%. This means energy companies are drilling fewer oil and gas wells.

Investments – If global economic recovery is delayed and the prices of fossil based energy sources remain low, then investment into nuclear and renewable energy sources may be delayed as these are capital intensive, and instead, power plants may focus on coal and gas fired plants. In 2009, investment in energy generation from renewable sources fell proportionately more than in conventional sources. The future of the energy industry will be decided by the forthcoming investments in the industry. Unlike other sectors, investments are large, less influenced by market forces and more subject to government decisions and policies. Cutbacks in investment could lead to shortages and price hikes.

Demand structure – The power industry has been and is more likely to adapt to non-emission sources. The transport sector remains the main source of increase in oil demand and it still accounts for almost 97% of the use of oil. Electric and gas fired vehicles are in a negligible minority.

Bio-fuels – Bio-fuels as alternative emerged in the past few years but after making a media splash 2-3 years ago, have not had any impact on the market. The impressive increase in bio fuel production in 2007 has faltered since then and no recovery is expected soon. There has been a re-thinking on bio fuels because of their effect on food prices by diverting cultivation from food crops to fuel production and their savings of green house gases. Lower oil prices last year have put enormous financial strain on several bio-refineries. Consequently, there is hardly any investment in new plants and existing ones are running below capacity. Bio-fuels may see a growth in the long run, but immediately they are unlikely to play any significant role in the energy industry.

UAE – Despite the global recession, oil production and exports in UAE remained at previous peak levels. Estimated oil revenues in 2009 at AED 203.5 billion were considerably less than the record heights of the previous year, but this was because oil prices in 2008 reached exceptional heights. Oil prices were not as high as in 2008, but nevertheless remained at robust levels resulting in healthy oil revenues.

Outlook – Long term changes are uncertain and difficult to predict. Shifting to alternate sources will take considerable effort and investment. However, in the short run the most effective way to cut emissions is by improving energy, which has a huge scope and suits both the consumers and producers alike. Meanwhile, among fossil fuels, gas production and consumption is likely to see an increase because of its environment friendliness and hugely abundant availability. Its challenge, however, is its transportation and investments in gas pipelines.