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Demand Security II – Competition from Renewable Energy Technologies

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This is the second in a series of four MEI Insights exploring the concept of demand security in the GCC. The third Insight will focus on the trends in global environmentalism and their impact on the demand for oil and gas imports from the GCC. Readers can find the first Insights here

As new energy industries are becoming increasingly competitive, they pose a serious challenge to producers of traditional energy products. This energy market development threatens demand security in the Gulf Cooperation Council's (GCC) member states. Four factors generally determine the quantity of a particular product sold on a market: supply, demand, competition from other manufacturers of identical goods, and alternative products. In seeking to preserve the long-term demand for their hydrocarbon exports, the GCC member states are arguably well equipped to control the impact of supply and competition on their oil and gas exports. However, alternative products, which are becoming increasingly more competitive with oil and gas, are a market factor beyond the GCC's controland will ultimately result in a fall in demand. This article will highlight how developments in the renewable energy sector are likely to affect the global energy market and GCC's demand security.

The renewable energy boom

With soaring investments, technological advancements and political support, the renewable energy industry is booming. According to the United Nations Environment Programme (UNEP), global investment in renewable energies grew by 32% in 2010 and the sector had a market value of $221 billion, up from a $33 billion market value in 2004.[1] Developments in the renewable energy industry are occurring across the board, from the production of energy to the end-use of the consumer. The renewable energy industries continue to exhibit steady growth, unhindered by the financial crisis, in both developed and developing countries and this trend shows no signs of stopping. These industries have not shown the same cycles of boom and bust as the oil industry did in its early stages, thereby also indicating healthy growth of the sector.

One of the most noticeable developments within the renewable energy industry is happening within the wind power sector. Over the past decade, the global wind power generation capacity has grown by over a fifth annually (28.7% in 2008, 31.8% in 2009 and 22.5% in 2010). The scale of individual turbines has also reached impressive levels, with plans being made for turbine designs with a power generation capacity to the order of 10MW (putting this into perspective, most nuclear power plants have a power generation capacity to the order of 1000MW).With increasingly sophisticated mechanisms for how energy can be transmitted from the producer to the consumer, electricity markets are adapting to wind power production, as well as other forms of micro-generation. As technical hurdles are continuously being overcome, these technologies are becoming increasingly attractive to investors and energy consumers. One of the most significant political developments in this field has been China's decision to consider both wind and solar power generation to be strategic industries for investment and development. This should be seen as a strong indication of future advances in renewable energy technologies, given China's record of reducing manufacturing costs. Regardless of the scepticism that has been expressed by commentators regarding the utility of this technology, there is nothing niche about wind

[1] UNEP, "Global trends in renewable energy investment 2011". Available at http://www.unep.org/Renewable_Energy_Investment/

energy.If a country the size of Spain can generate 40% of its electricity using wind power, then this technology has successfully proven its large-scale potential.[2]

In the same way that growth in wind energy industry constitutes the most significant upstream energy development, then technological advancements in the transportation sector represent the downstream revolution.Hybrid and electric vehicles are becoming increasingly popular and most of the automotive manufacturers are currently producing or developing vehicles that utilise these technologies. Investments in high-speed rail, another Chinese industrial focus, arecreating competition with air traffic – another significant market for petroleum products.

Today, decision makers have every incentive to move away from dependence on foreign energy imports. Renewable energies render countries independent from energy expenses, mercantilist politics of exporting nations, security risks in exporter regions, and energy market fluctuations. Moreover, investment in green technologies creates jobs and sharpensa country's technological edge. In Europe, such investments win votes. Although it is important to note that no single technology constitutes a silver bullet to energy import dependence,they are all part of the solution. Economies of scale will make these technologies cheaper and they will increasingly compete with the hydrocarbon industries in markets where oil and gas have traditionally held a dominant position.

The question that remains to be answered it how long it will take until hydrocarbons become obsolete as a fuel source. Most energy market analyses foresee a continued dependence on hydrocarbons in the long term. BP, for instance, maintains that, less than a tenth of the world's power capacity will be renewable by 2030.[3]Yet there is good reason to believe this is an underestimation, (in addition to BP not wanting to worry its investors); namely the report's disregard for the systemic changes these technologies will generate in the global energy security dynamic.

A new global energy security dynamic

Out of all of the revolutionary aspects of using renewable energy technologies, the fact that they are just that – on-the-spot generating and renewable – is their most politically interesting characteristic. As the share of renewable energies grows on the global energy market, resource limitations will cease to be the determining factor behind the global energy security dynamic. The resource limitations of the past and present energy security game have generated competitive and aggressive international policies on energy and the system has more often than not encouraged policies of competition. Admittedly, there has been a significant level of soft international cooperation on energy matters, for instance in the form of information sharing via the International Energy Agency (IEA). However, hard energy resource-related issues have been dominated by strategies of economic and political competition between energy consumers. The increased use of renewable energies will change that.

The switch to renewable energies has already initiated economical and, perhaps more importantly, political game-changing trends. With increased consumer-consumer cooperation aiming at creating the capacity to generate energy, these concerted efforts are transforming the global energy security game from having a zero-sum dynamic to becoming a win-win enterprise. The successes of the renewable energy industries will feed back on themselves and their impact on economics and international politics will, in time, be considerable.

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[2] The Guardian. 6 March 2009. "Gales set wind power record for Spain". Available at http://www.guardian.co.uk/environment/2009/mar/06/spain-wind-power.

[3] BP Energy Outlook 2030. Available at http://www.bp.com/sectiongenericarticle800.do?categoryId=9037134&contentId=7068677.

Having identified the current trends in the energy industry and their likely impact on global energy politics, the next step is to locate and evaluate the position of the GCC in this emerging dynamic. In the past, the energy exporting nations have had a clear economic and political advantage, as illustrated by the power wielded by the*Organization of the Petroleum Exporting Countries*(OPEC) during the 1973 oil embargo. While most energy exporting nations have never had a monopolistic position on the global energy markets, together they have been able to exert a considerable amount of influence on it. Above all, they have also made fortunes. However, the current economic position of the GCC member states is no longer favourable in the long term. Current trends in renewable energy industries are heralding the coming of a new global energy paradigm and a future that will greatly favour the technically advanced energy consuming nations. From having been one of the most politicised commodities on the global markets, the trade in energy is in the future going to transform from its current politicised form to something that echoes the current trade in cars, trains and tablet computers. The long-term impact of these changes on the GCC member states has yet to be explored.

Divisions on the IRENA

Considering current energy industry trends, the location of the newly established International Renewable Energy Agency (IRENA) in Abu Dhabi seems surprising. Its stated mission of "promot[ing] the widespread and increased adoption and sustainable use of all forms of renewable energy" does not converge with the interests of the hydrocarbon industries on which the GCC member states depend.[4] Perhaps surprisingly, there does appear to exist a certain level of division on this matter within the GCC. Although the ratifications of Bahrain and Kuwait are still pending and Saudi Arabia's signing is conspicuously lacking, half of the GCC member states (Oman, Qatar and the United Arab Emirates) have signed and ratified the establishment treaty of the IRENA.[5] A possible interpretation of this is that these countries are the states most committed to economic diversification within the GCC. They are also the countries in the organisation where schemes to broaden the economic base have been the most successful, and are therefore more likely to see the new energy paradigm as an opportunity rather than a challenge. Whether regional sentiments *vis-a-vis* renewable energy technologies will have an impact on the workings of the organisation remains to be seen due to the IRENA's very recent establishment

Adaptation needed

However positive the current trends might be for renewable energy producers and new energy technology manufacturing nations, they will not displace traditional technologies overnight. According to the latest BP Statistical Review of World Energy, renewable energy accounted for only 1.8% of global energy consumption in 2010. Breaking global economic dependence on fossil fuels will require enormous international effort and an infrastructural shift unlike any other in the history of mankind. However, the wheels of change are already in motion and will generate a reality to which the GCC member states will, eventually, have to adapt. The question that remains to be answered is whether or not these countries are economically and politically equipped to handle the coming challenges to their demand security and to generate the changes that are necessary to prepare for the future.

[4] http://www.irena.org/menu/index.aspx?mnu=cat&PriMenuID=13&CatID=9
[5] Ibid.

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