





# Heavy Fuel

Will the Middle East nuclear spring continue into summer?

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Given the recent catastrophic events in Japan and unrest in a number of Middle Eastern countries, it is reasonable to assume that the significant progress made in almost every country in the Middle East to promote nuclear power generation will come to a halt.

One could argue that, post-Fukushima, the increased cost of providing additional safety measures in and around nuclear installations, adverse public sentiment and the decision of certain existing nuclear countries and engineering companies to scale back their nuclear ambitions would make the development of new nuclear generation in the Middle East much more difficult. That argument would also conclude that, in a region that is in unsettled transition, where existing state budgets need to be diverted towards socio-economic development and stability programs, continuing to pursue a new nuclear build program may be too costly, and even too dangerous, to contemplate.

The reality is quite different. As far as future nuclear generation in the Middle East is concerned, it is very much a case of “necessity being the mother of all invention.” New nuclear power stations will be built in the Middle East because there is no other way of economically satisfying a growth in electricity demand that is projected at 25% per annum between 2010 and 2015.<sup>1</sup> Although this increase will be met primarily by natural gas,<sup>2</sup> the availability of such gas in the Middle East at its current, heavily subsidized prices is uncertain. Gas will not continue to be as readily available as it is now for power generation. As the current depressed international gas price recovers to USD 7/MMBtu

(Million British Thermal Units) by 2015<sup>3</sup> there will be increasing pressure on those Middle Eastern countries, which have indigenous gas reserves, to benefit from international market prices by exporting their gas, rather than using it domestically at rates which are projected, at that time, to reach no more than half that international market price. Physical shortage of gas in certain Middle Eastern countries is also an issue and has led to major projects such as the Dolphin pipeline from Qatar to the United Arab Emirates (UAE) as well as the development of the Shah sour gas field in the UAE itself.

If sufficient gas is not available as a fuel source for power generation, then the same applies to other fuel sources. Despite its abundance in the countries of the Gulf Cooperation Council (GCC), oil cannot be economically used for base-load power generation except at times of peak demand when a high marginal price justifies it. There are no significant reserves of coal in the Middle East to be used for power generation, whilst hydro-electric and other forms of renewable power generation are currently too insignificant to assist meaningfully in meeting electricity demand. As a result, nuclear energy is the only source of power generation that can realistically fill the supply-demand gap.

Nuclear power generation does present a significant set of challenges for all of the Middle Eastern countries that have chosen to embrace it. Each country will need to develop the infrastructure needed for a nuclear power program entirely from scratch. Apart from demonstrating that they are responsible international nuclear citizens in a politically sensitive area of the world, these countries will have to adopt and comply with international treaty obligations, as well as develop a national legislative and regulatory infrastructure, together with a nuclear safety culture to go with it.

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Finding local and international human resources for their nuclear programs may be the most significant challenge of all for the new nuclear Middle Eastern countries, given that many of these resources left the world nuclear arena in the last 20 years or so, when nuclear power fell out of favor as a result of the “dash for gas.”

And yet, there is evidence that countries in the Middle East have been able to accomplish complex feats of engineering that few at the time would have believed possible. For example, who would have believed, less than 20 years ago, that Qatar would now be the world’s largest exporter of liquefied natural gas (LNG)? The current Emir’s vision and tenacity made this possible.

The nuclear momentum has started across the region and, like the nuclear process itself, will be difficult to stop. Of the 60 countries around the world that have expressed an interest in, or are actively planning to introduce, nuclear power, almost every country in the Middle East is represented.<sup>4</sup> As examples of developments across the region, the planned start-up of the UAE’s first nuclear power plant is in 2017. Saudi Arabia’s King Abdullah City for Nuclear and Renewable Energy was established in 2010 with a mandate to develop a national nuclear and renewable strategy. Jordan, which already imports 95% of its energy needs, is tendering for its first nuclear power plant. Egypt is expecting its first nuclear plant to be operational by 2019.

It is difficult to believe that this momentum will stop. Significant financial resources are available, and the all-important domestic socio-economic development programs (a number of which are dependent on sufficient electricity supplies) must continue for the well-being of the region. While there may be risks, there is no alternative to a summer of nuclear power in the Middle East.

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#### Endnotes

- 1 Business Monitor International, Inc. (BMI).
- 2 U.S. Energy Information Administration (EIA).
- 3 Ibid.
- 4 International Atomic Energy Agency (IAEA).