

# **Nuclear Energy in the Region and Policy Implications**

**Dr. Kamal J. Araj**

Like no other region, energy resources have shaped the Middle East and its modern-day development trajectory. Endowed with some of the world's most important oil and natural gas reserves, countries in the Middle East have over the past five decades produced and exported more oil and gas than those of any other region, and hold reserves sufficient to supply world energy markets for more than fifty years at current rates of production. Its energy wealth has benefited the Arab World, despite significant differences across the region alongside differing national resources, and their management across governments. Those importing countries, which are not endowed with such resources, have suffered greatly from increasing and fluctuating oil and gas prices. Jordan, as an example, spends currently more than 21% of its GDP on energy imports.

Significant challenges also derive from the Arab energy-led development model, particularly patterns of domestic energy consumption, rising demand for energy across the region, and rising domestic investment needs. This presentation attempts to provide a very brief overview of how a number of countries in the Region are coping with the energy challenge in order to achieve sustainable development. It will show a surprising outcome that nuclear energy, albeit for different reasons, proves to be one of the best long-term viable alternatives available today for electricity generation and water desalination for both oil-producing and importing countries in the Middle East. Examples are: UAE and Saudi Arabia, and Egypt and Jordan. Moreover, for the oil/gas importing countries, nuclear power provides an insurance policy for energy security and protection against future volatility of oil and natural gas prices.

As a case study, this presentation will focus in more depth on Jordan's energy challenges. Jordan has limited access to natural resources (especially water and energy), and is facing significant challenges in planning a stable energy future. It will address the several challenges standing in the way of introducing nuclear power in Jordan such as the high investment cost, the need for skilled engineers and technicians, the limited suitable sites for power plants, the lack of adequate water sources for cooling, the development of legal and regulatory framework and the volatile regional political climate. The presentation will address Jordan's efforts in building its nuclear infrastructure in order to meet these challenges.