

Why go nuclear?

Much has been made of the global expansion of nuclear power. While experts discuss the pros and cons, countries are moving forward with their plans to build new plants. Of all the energy technologies available, why nuclear?

A PERSPECTIVE FROM THE UNITED ARAB EMIRATES

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ON MARCH 23, 2008, THE cabinet of ministers of the United Arab Emirates (UAE) officially endorsed a policy document entitled, "The Policy of the United Arab Emirates on the Evaluation and Potential Development of Peaceful Nuclear Energy." This policy, which was developed by the UAE government, in consultation with the International Atomic Energy Agency (IAEA) and the governments of major nuclear supplier nations, laid out a set of principles, commitments, and strategies that will guide the assessment and potential implementation of a peaceful nuclear energy program within the UAE.

The government of the United Arab Emirates has been gratified by the positive reception that the UAE policy has

received, and I believe that such broad international support is a reflection of the thoughtful and responsible manner in which the UAE is approaching this sensitive issue. Nevertheless, it's hard to ignore a discernable trend among some commentators, who although acknowledging the progressive thinking embodied in the UAE policy, continue to ascribe the UAE's interest in nuclear energy to simple technological one-upmanship. Such commentary is wrong and fails to acknowledge either the inherent advantages of nuclear energy or the impact of the policy commitments undertaken by the government of the UAE.

In reality, the UAE's sole interest in nuclear energy is to generate electricity to support its growing and increasingly diverse economy. The UAE continues to enjoy real annual GDP growth rates in excess of 10 percent, as well as an ever-expanding non-oil and gas contribution estimated at more than 66 percent of GDP in 2007. Studies carried out by UAE gov-

ernment entities project that this pace of economic development will result in a tripling of electricity demand by 2020, requiring the installation of more than 30,000 megawatts of new generation capacity. Keeping pace with this demand represents a challenge that requires consideration of every viable option.

Nuclear energy represents a proven, economically competitive, and environmentally promising method for producing electricity. In assessing its options for meeting future electricity demand, the UAE evaluated a comprehensive list of options in addition to nuclear energy, including natural gas-fired power plants, crude oil-fired power plants, and coal-fired power plants, as well as alternative and renewable technologies such as waste-to-energy, solar, and wind. Head-to-head comparisons between these technologies demonstrated the benefits of nuclear energy as a cost-competitive and environmentally friendly form of base-load power generation.

In addition to being virtually free from carbon emissions, nuclear energy was found to be a low-cost alternative to traditional fossil fuel-based options, cheaper than both natural gas and coal, and vastly outperforming crude oil and diesel fuel at current world market prices. Understandably, some parties, observing the abundant crude oil reserves held by the UAE, have suggested that it should simply burn crude oil to generate needed electricity. While such a course is technically feasible, it would result in a dramatic loss of export revenue for the UAE, as well as a proportionate reduction in the amount of crude oil it could supply to the global economy. Importantly for the UAE, nuclear energy also provides a means to address chronic domestic natural gas shortages that have challenged UAE utilities in recent years. Finally, the low variable cost of nuclear energy represents a valuable tool in countering the risk of price volatility inherent in use of fossil fuel-based technologies.

While it is possible to demonstrate cost advantages of nuclear energy over current alternative and renewable ener-

gy technologies, the reality is that these technologies do not compete for the same role, owing to the fact that the latter are not base-load technologies. Indeed, the more interesting conclusion arising from UAE analysis is the degree to which these technologies can complement each other in reducing the overall emissions of the country's electricity sector, underlining the fact that the UAE's future energy portfolio is likely to feature fossil fuel, nuclear, alternative, and renewable technologies, as well as focus on demand-side management to increase efficiency.

Importantly, beyond practical energy considerations, the UAE also views its potential adoption of peaceful nuclear energy as an opportunity to drive posi-

tive change at the international level. By developing a model for the deployment of nuclear energy that is based on the highest standards of operational transparency, safety, security, and nonproliferation, as well as the principles of long-term sustainability and cooperation with the IAEA and responsible nuclear supplier states, the UAE hopes to chart a new path via which the benefits of nuclear energy may be safely made available to an expanding list of countries. The UAE's commitment to forego domestic enrichment and reprocessing is a key component of its model and is further enhanced by full transparency and cooperation, including the formation of an international advisory board and the favoring of financial arrangements that

allow for foreign ownership and operatorship within the country's nuclear energy sector.

Ultimately, the UAE is not trying to simply replicate an existing nuclear program from another state within its borders but is attempting to take an evolutionary step forward in developing a peaceful nuclear energy sector that combines the strengths of its innovative model with the benefits of advanced Generation III light water reactors to create a program that sets new benchmarks for transparency, safety, security, nonproliferation, and sustainability. We believe that success in this endeavor will not only benefit the UAE, its economy, and its people, but will have benefits for the broader international community as well. ■