

Supply diversification

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Abdullah Al Mutawa explains how the UAE is preparing to meet future power demand.

The Ministry of Energy has its work cut out planning the future policies that will keep electricity flowing to homes and businesses across the sprawling United Arab Emirates.

Unprecedented development and population growth is putting immense strain on the country's power sector. According to the ministry, electricity demand is climbing by around 9% each year.

Consumption is expected to rise to more than 40 000 MW by 2020, against a committed generating capacity of 19 500 MW.

But Abdullah Al Mutawa, director of the ministry's electricity department, is adamant that there will not be a shortage of electricity come that date. "All types of energy will be placed in the UAE," says Al Mutawa, "Steps are being taken to address the problem and there are many projects in the pipeline.

The shortfall cannot be made up simply by constructing new conventional power stations, however. Studies have shown that the known volumes of natural gas that could be made available to the nation's electricity sector would be insufficient to meet the generating capacity required, with adequate fuel available for only 20 000-25 000 MW by 2020.

While the burning of liquid fuels such as crude oil or diesel is a viable alternative in logistic terms, this option has been ruled out on economic and environmental grounds. For this reason the UAE is working to adopt other sources of energy.

There is enough gas until 2010, after that we have to look at alternative energy supplies like renewables, the GCC interconnection project and nuclear power," admits Al

Mutawa.

The ministry believes atomic energy is an environmentally promising, commercially competitive and proven option that could make a significant base-load contribution to the UAE's economy and future energy security.

The government is proposing to establish a civilian nuclear programme and as part of that is setting up a Nuclear Energy Programme Implementation Organisation. As yet it is still undecided how many plants would be built, but the first facility would be unlikely to start up before 2015.

Aside from this, a feasibility study for a GCC-wide nuclear programme is also being undertaken.

The interconnection project to link the power grids of the six GCC countries is already in its final stages. The energisation date for the main phase of the scheme, which will join the systems of Kuwait, Saudi Arabia, Bahrain and Qatar, has been set for December.

The UAE has paid 15.4% of the US \$1.6 billion cost of the project and will be able to exchange energy and buy a maximum of 900 MW of power from the available stock.

"The reason for grid is to stabilise electricity supply across the region," explains Al Mutawa. "Energy will be imported and exported around the GCC through the interconnected grid.

"Later, there will be an Arab grid and through this we will be able to connect to Europe," he continues. "There will be an opportunity for all GCC countries to sell to Europe. I believe in the next few years there will be a market for trading and transferring this energy.

A feasibility study for the Arab grid is already in progress.

The third solution is renewable energy. As yet sustainable power does not make a significant contribution to the UAE's energy mix, but the ministry wants that to change.

"I think the government should support some new renewable energy generation projects, such as solar power and, in some places, wind power," Al Mutawa states. "We have studied some places - there is not that much wind, but it might be enough for a village, although not a city."

"I think there will be real interest in renewable energy over the next two years," he predicts. "The government should support new technology to apply solar power in the field and it should be subsidised."

The ministry estimates alternative energies including solar, biomass and wind power could supply 5-7% of the UAE's peak electricity demand by 2020.

The government has already pledged an initial investment of US \$15 billion for emissions-free power generation projects. Some of this will be used to support the hydrogen power plant, which is planned to be built in Abu Dhabi as part of the Masdar project.

Masdar City is a sustainable zero-waste, zero-carbon development that will house 50,000 people and will be completely car-free.

Returning to the present, Al Mutawa is confident that the UAE will be able to meet peak demand this summer and there will be no repeat of the outages seen earlier this decade. "All the authorities are working hard to fulfil their capacity for summer," he says, reassuringly.