

# Nationwide water supply needed

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The UAE stands in urgent need of water and electricity networks that cover the whole country and would be able to move fresh water and power round the country to where it is needed. At present, most water and electricity in the UAE comes from desalination plants linked to power plants which serve their particular emirate. But this devolved structure will not be able to handle the oncoming crisis, which is still at least a decade or more away but is inescapable.

The population of the UAE was 4.1 million in 2005 and is estimated at close to five million in 2009. The population is expected to double to 8.8 million by 2020, and even if that number slows down a little, thanks to the global economic recession, there are enough factors driving growth to bring the population close to that figure regardless.

When the UAE is double its present size, the new population will need domestic water and power; and the larger economy in which we will all be living, will need more industrial water and power.

There are several major obstacles to building a countrywide network. The most important is that the present technology which runs power stations and desalination plants is based on gas. And as the demand for both power and water double with the expanded population, this technology is going to become very expensive, before the gas reserves run low and are unable to fire the plants, before eventually the gas runs out completely.

Long-term, the UAE has to find another power source and while research into solar power is ongoing, it is not going to be ready in time to power an entire country. So, the only viable option for the 20 to 50 year period will have to be nuclear power.

The second challenge in building UAE-wide power and water networks is their huge cost, and how to charge for the power and water. New networks and new power station will be expensive, and while the government might find the capital to do this, there will have to be a major shift in the way that the UAE governments look at how they cost the process. At present, the gas which powers the generators in the various emirates is not normally charged to the emirates at full commercial rates. And this subsidized generation is matched by subsidized charges to the consumer. Some households get free water and power, while others pay rates which do not reflect the full commercial cost of generating or desalination.

So before any new power and water networks could work with existing emirate-based networks, a transparent pricing mechanism would have to be worked out so that they could transfer power and water to areas where demand is high. This would mean two things: that the present power and water generators would have to be transparent about their generating costs, and that there would probably have to be a UAE-wide cost to consumers, and if that was subsidized then it would also have to be done transparently. These are all business challenges, but for anyone to find the answers to them there has to be the political will to make such a system work across the country.

The successful creation of a UAE-wide power and water network based on nuclear powered desalination is a vast task, but it is only one half of the equation. The other half is ensuring proper use of these increasingly valuable resources: water is not there to be poured away, and electricity should not just be burnt off.

Both power and water will continue to be used by households for domestic use, and industrial use will also continue, but there is a vast question over how much water should be used for agriculture, which is a huge consumer of water. The UAE, along with other Gulf states, need to be sure that they can rely on imported food for ever, rather than growing it themselves. They need to be sure that world markets will continue to provide their need, and their precious and expensive water is used for better purposes.

Saudi Arabia has made a strategic decision to use its water resources for household use rather than agriculture, but rather than just relying on world markets, it is looking for alternatives. It has already started to make significant investments in infrastructure and agricultural productivity in Kazakhstan, according to the World Economic Forum, just as China has started in Mozambique, and South Korea in Madagascar.

A pattern is starting to emerge of cash-rich and water-poor countries, which might also be increasingly desperate, investing in water-rich countries to buy themselves secure food supplies. There are obvious political dangers of taking such a route, rather than relying on open markets and free trade, which allow a country to buy goods from anywhere at the best price. Investing in vast agricultural projects will inevitably breed local resentment from those who worked the land before, and many of these schemes may be quite vulnerable to potential political unrest.

The real challenge over water is not finding new supplies of water or food but in achieving better water use. Everyone has to realize that water is valuable and learn to treat it as something to treasure.