

# Demand for electricity to increase 6%



The UAE has six per cent surplus available in the worst-case scenario. (OSAMA ABUGHANIM)

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Overall demand growth for electricity will "average six per cent" in the 2009-2020 period, with supply struggling to meet demand in peak periods toward 2010, according to the latest Nomura "Middle East Energy and Power" report.

Although new capacity on-stream may lead to a more balanced market from early next decade before gradually tightening again, it said.

The analysis shows that the UAE power market is tight in the peak demand summer months in the next two years with only a six per cent surplus available in the worst-case scenario.

The report "forecasts \$12 billion (Dh44bn) per annum in new power projects required until 2020".

The Nomura power supply/demand analysis assumptions for delays to supply estimates have assumed that "60 per cent of projects fail to meet their deadline and are completed in the following calendar year".

It has also allowed "for delays to start-up".

The Middle East power market is one of the fastest growing sectors in the region. Saudi Arabia and Iran are the largest markets, accounting for more than 55 per cent of Middle East power generation in 2007, according to BP Statistical Review of World Energy June 2008.

With installed capacity of 152 GW, the Middle East represents 3.5 per cent of global electricity generation with 97 per cent thermal generation. Power demand growth has been minus six per cent year-on-year for the last decade relative to minus two per cent per annum for the United States and Europe.

Upstream investments may total \$225bn over the next 10 years and financing for specific industrial cities is unlikely to stop.

"We believe those projects within the power, water and infrastructure sectors linked to a key

industrial city backed by the government are likely to be seen as more secure and attractive to investors and hence progressed," it adds.

Despite the high demand growth, the sector still faces many challenges namely inefficient use of energy, substantial investment needs, limited experience in engaging with the private sector owing to monopoly structure and peak load management and limited inter-regional connectivity.

A supply/demand analysis for the Middle East power market shows the tightest power markets are Saudi Arabia and Kuwait in the near term, according to the report. Currently low power prices may still maintain Saudi's robust demand growth (six per cent per annum from 2009) despite Nomura's "expectation for a rise in prices". However, if new projects planned for 2015+ do not materialise, the market "may well struggle to meet peak load demand".

### TIGHT IN SUMMER

The analysis shows that the UAE power market is tight in the peak demand summer months in the next two years with only a six per cent surplus available in the worst-case scenario. The UAE accounts for 10 per cent (70.8 TWh) of the total Middle East market and has installed capacity at 15GW.

Electricity demand growth has averaged minus nine per cent per annum for the past five years. "We expect this demand to slow down to seven per cent per annum in the medium term as much of the high demand growth has been driven by real estate and robust population growth, particularly in Dubai. In 2020, we expect the demand (pre-losses) to be 172TWh with a peak demand of 31GW with thermal power the only source of generation in UAE. The primary fuel used for electricity generation was natural gas (98 per cent of electricity supplied) with the remaining source, oil.

"Natural gas is likely to continue as the main fuel used for generation because of the relatively low cost and imports from abroad (for example, the Dolphin projects imports gas from Qatar at minus \$1.50/mbtu into the UAE)," said the report.

It expects "average supply growth in Abu Dhabi and the Northern Emirates at five per cent per annum, while Dubai generation is likely to grow on average at seven per cent per annum".

"In contrast, we expect demand growth in Dubai to moderate, while Abu Dhabi and the Northern Emirates may remain more resilient to the UAE slowdown at six per cent per annum. This partly reflects Dubai's higher exposure to commercial real estate relative to the Abu Dhabi and the Northern Emirates. The latter also suffers from the lack of gas feedstock capacity for power generation, which is the main reason for the UAE gas project to be completed," it adds. Power demand growth will slow down in the UAE, although some Emirates such as Abu Dhabi and the Northern Emirates may still face shortages, it expects.

### POSSIBLE SHORTFALL

There is a possible shortfalls in power supply in Saudi Arabia especially in peak demand months in 2009, although it will be a more balanced situation by early next decade. Saudi Arabia is the second-largest power market in the Middle East with 27.5 per annum (190.5 TWh) market share (BP Statistical Review of World Energy June 2008) and installed capacity at 37.1 GW (Electricity and Cogeneration Regulatory Authority, ECRA).

Electricity demand growth in Saudi Arabia has averaged six per cent year-on-year for the last five years, which is mainly supported by new industrial infrastructure and water projects; with the Saudi budget indicating a higher growth of spending for these sectors.

"We forecast six per cent per annum average demand growth to 2020 with supply growth at four per cent per annum over the same period, although new capacity early next decade may ease peak demand tightness.

The primary fuel used for electricity generation is natural gas (more than 50 per cent of installed capacity) with oil and oil products such as diesel and heavy fuel oil (HFO), helping to manage the peak demand. Natural gas is likely to continue as the main fuel used for generation owing to its low cost (\$0.75/mbtu) and availability of supply in the region."

#### PEAK LOAD DEFICIT

Kuwait shows a peak load deficit for the 2008-2010 period, although this improves early next decade, it says.

"We forecast demand growth on average at five per cent per annum with peak load availability growth on average at six per cent per annum to 2015," it says.

As a sign of the near-term tightness in the Kuwaiti power sector, the country is likely to start importing LNG this summer, according to media reports. With LNG prices being sold to Asia over \$10/mbtu and gas prices in the Middle East typically no more than \$2/mbtu, "this is a heavy premium to pay for the country".

Kuwait accounts for 6.5 per cent (45.1 TWh) of the Middle East power market and installed capacity stands at 11GW, said the Ministry of Electricity and Water).

"Electricity demand growth has averaged four per cent year-on-year for the past five years, and we expect a similar level based on the high population growth, which has averaged six per cent per annum for the past five years with having struggled to maintain the same levels; however, with the Al-Zour and North Shuaiba power stations coming onstream, we see a more balanced market post 2010," says Nomura.

#### OVERALL SURPLUS

Qatar's power generation will grow "on average by 14 per cent pa to 2015 partly owing to QEWC's Ras Girtas and Mesaieed projects, which are expected to increase the country's generation capacity from 5.8MW in 2009 to 8.5MW by 2015".

Nomura sees "robust demand at, on average, 10 per cent per annum to 2015 owing to continued population and GDP growth and development within the industrial and infrastructure sectors. This creates an overall surplus on a capacity basis (minus 30 per cent per annum) with the country able to meet peak demand in the summer months except 2009, which may be tight as projects gradually ramp up".

The report expects "a surplus in power generation capacity in Qatar, although in the near term peak periods may be tight".

Qatar accounts for 2.4 per cent (16.3 TWh) of the total Middle East power market with installed capacity at 3.3GW, said Qatar Electricity and Water Company..

Electricity demand growth in Qatar has averaged eight per cent per annum for the last five years.

"We expect long-term demand growth at 10 per cent per annum driven by new liquefied natural gas and petrochemicals projects as well as industrialisation in the country (Qatar plans to invest \$29bn in petrochemical projects during 2005-2010, which we still believe is on track

despite the recent liquidity crisis)," it said.

Thermal power is the only source of generation in Qatar and the primary fuels used for electricity generation are natural gas (80 per cent) and oil (20 per cent).

#### DEMAND TO INCREASE

Though Iran is the largest power market in the Middle East with 28 per cent (193.3 TWh) of Middle East power market demand and installed capacity at 47,300 MW, according to Tavanir.

Electricity demand growth in Iran has averaged six per cent to seven per cent per annum for the past five years." The sanctions imposed in the country mean private investment is a challenge and we see supply growth at only two per cent to three per cent per annum," said the report.

#### GCC INTERCONNECTION

Overall in the Middle East, the tariffs have been on the lower side owing to cheap availability of fuel and government subsidies (in case of Iran the electricity is heavily subsidised) said the report.

The six GCC countries – are to be electrically interconnected by GCC interconnection grid, which will supply electricity during emergencies, reduce generation reserves for the countries, improve efficiency and provide a basis for electrical power exchange.

The first phase of the grid, which begins operations at the end of 2009, is about 80 per cent complete and will supply 1.5GW to the region at a cost of \$1.2bn with Saudi Arabia funding 40 per cent of the cost for phase one of the grid.

Phase two will connect the UAE to Oman and the third phase will link the first two sections of the grid.

In UAE, the Emirates National Grid has been constructed to interconnect the four operating emirates in 2006. A further GCC interconnection grid will allow the UAE to import or export a maximum of 1300 MW (900 MW to/from Kuwait, Bahrain, Qatar and Saudi Arabia and 400 MW to/from Oman) under emergency conditions.

Saudi Arabia may also benefit from the grid (in particular, the Eastern operating area) to import or export a maximum of 1,800 MW.

#### **Unbundling Monopolies**

The tightness in the power sector has prompted some governments to rethink policy over introducing competition into the industry and liberalising mostly state-run monopolies. The report said: "We expect Saudi Arabia to gradually unbundle its power monopoly, Saudi Electric, eventually creating competing companies in generation and distribution. Saudi Arabia is most at risk of power shortages in the summer months.

Hence, we believe regulatory changes to introduce efficiencies and competition are likely to be backed by governments, so they are immune to project-financing requirements."

The operating areas in Saudi for SEC are divided into Eastern, Western, Central and Southern Region with installed capacity split of 38 per cent, 33 per cent, 21 per cent and eight per cent respectively.

The operating area in UAE is divided into regions managed by Adwea, Dewa, Sewa and Fewa, with the installed capacity split of 48 per cent, 32 per cent 13 per cent and seven per cent respectively. The UAE Government is gradually reducing the restrictions on private investments.

Abu Dhabi and the Northern Emirates opened their power sectors to private investments in 1997 and 1999, respectively. Since then, seven privately run power plants have been established in the Abu Dhabi region. But Fewa has "not been able to attract private investors owing to its low power tariffs and as a result, a severe shortage of power is forecasted" in its area of operations.

The regulatory power environment of Kuwait is controlled by the Ministry of Electricity and Water with "no appreciable progress made towards privatising the sector", said the report.

The main participant in Qatar power market is QEWC and Qatar General Electricity and Water Company (Kahramaa) is the sole transmission and distribution company for Qatar. The power market in Qatar has "minimal regulations with private participation in major downstream projects, such as Ras Girtas Power Company and Ras Laffan Plant (B) projects".