MENA power investment: finance and reform challenges

MENA governments are prioritising investments in the power sector to feed rapidly rising electricity demand. We estimate that in the period 2016-20, the region will need to invest $334bn in its power sector. Of this, $198bn will be needed to add 147GW of generating capacity, while the rest should be invested in transmission and distribution (T&D). In the GCC, governments have coped well with rising electricity demand. As well as adding capacity, some of these countries have recently introduced limited energy-reform programmes. In the Mashreq region, inadequate investments and instability have weighed on the power sector and persisting blackouts continue to put pressure on governments to act; while in the Maghreb region, renewable-energy projects are at the forefront of long-term government plans to diversify power-generation capacity. But governments will need to find solutions for lower budgets, security concerns and a more challenging environment to secure finance.

Electricity demand in the MENA region has been growing quickly, driven by factors such as population growth and urbanisation, improvements in income levels, industrialisation, and low electricity prices. Looking ahead, these factors will continue to place greater demand on electricity-generation capacities. MENA economic growth has slowed compared with historical highs, but the International Monetary Fund still expects expansion of 2.9% in 2016, rising to 3.7% in 2020. The region’s population is also expected to grow at an average annual pace of 2% in that period. To meet rising demand, we estimate that MENA power capacity will need to expand at an average annual pace of 8% between 2016 and 2020, which corresponds to additional capacity of 147GW. This would require $198bn of investment in generation capacity and a further $136bn for T&D. Governments have been accelerating their plans and our estimates show that 96GW of capacity additions are already in execution, with a combined investment of $117bn.

(See Vol.1 No.4 – Energy price reform in the GCC: long road ahead), Saudi Arabia increased electricity tariffs from SAR0.12/kWh ($0.03/kWh) to SAR0.20/kWh for consumption levels between 4,000kWh and 6,000kWh per month and unified prices at SAR0.30/kWh for consumption levels above 6,000kWh per month. The UAE also introduced electricity reforms, with non-nationals bearing the brunt, while Qatar also surprised by hiking electricity prices in October 2015.

As well as lifting tariffs, there are some plans to reform the power sector. For instance, the Saudi Electricity Company (SEC), the Kingdom’s largest power generator, recently announced that it would be broken up into four independent power-generating bodies and an independent transmission company by the end of 2016. Shares in these companies will be offered to both local and international investors, leading to a more competitive market. The region is also placing greater emphasis on renewable energy. Dubai is considering a $27bn green-power fund to aid its 2050 target of 75% power generation through clean energy. Solar power features heavily in its plans and is expected to account for 25% of the generation mix once a $13.7bn (5GW) solar park is fully commissioned in 2030. Kuwait also declared a 15% renewable-energy target by 2020. While progress has been slow, the region has seen some minor investments in this area with major additions not expected until after 2020.

Regional trends

Saudi Arabia leads the drive to make the necessary capacity additions by 2020. Estimated capacity stood at around 80GW in 2015, with SEC representing around 60GW. We estimate that the country will need to invest $71bn to increase capacity to 114GW. The Kingdom will meet rising demand with 28GW of capacity already in the pipeline. Major projects include the 3.1GW Yanbu 3 plant, expected on line in 2016, and the 2.6GW Shuaqiq plant. SEC secured a loan of $1.4bn from Japanese banks in January and raised $0.7bn in 2015 from local banks Samba and NCB to help with the expansion. The state utility has received government and capital-markets funding for more than $34bn since it launched its first sukuk in 2007. SEC is also planning a $3.3bn back-up credit facility.

The UAE needs to invest $34bn to meet the 17GW capacity addition needed over the medium term. The country experiences periodic blackouts and hopes to alleviate this by integrating the seven emirates’ natural gas-distribution networks. The UAE is pushing strongly to diversify its energy sources in the power mix;
we estimate that 9.4GW of capacity additions are already in execution. The majority of power is generated using natural gas. However, Abu Dhabi’s Barakah nuclear power plant will see four reactors come on line between 2017 and 2020 totalling 5.6GW. The project will cost approximately $20bn.

### Required GCC investment 2016-20 ($bn)

<table>
<thead>
<tr>
<th>Country</th>
<th>Generation ($bn)</th>
<th>T&amp;D ($bn)</th>
<th>Total ($bn)</th>
</tr>
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<tbody>
<tr>
<td>Bahrain</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Oman</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Qatar</td>
<td>6</td>
<td>3</td>
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</tr>
<tr>
<td>Kuwait</td>
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<td>4</td>
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<td>UAE</td>
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<td>14</td>
<td>34</td>
</tr>
<tr>
<td>KSA</td>
<td>43</td>
<td>28</td>
<td>71</td>
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Source: APICORP Research

Kuwait’s estimated capacity in 2015 was around 16GW but will need to reach 22GW by 2020, requiring $12bn of investment. In the medium term, the country has five power projects in the pipeline, which will add 5.8GW of capacity. They include Al-Zour North 1 and 2, each with a capacity of 1.5GW. Al-Khairan will add capacity of 2.5GW. The project is led by France’s Engie and represents Kuwait’s first public-private partnership. The Ministry of Electricity and Water will buy electricity supplied from the power plant for 40 years.

In Oman, rising demand will require generation capacity to grow at an annual rate of 9.6%. The country will need to add 4.8GW in the medium term, involving investment of $8bn. Current medium-term plans are for development of plants with combined capacity of 3.3GW. Two major projects are the 3.2GW Ibi & Sohar 3 independent-power producer (IPP) and the 445MW Salalah 2 IPP, both due on line towards the end of the decade. The country also plans to integrate renewables in the power mix; contracts have already been awarded for the 50MW Harweel wind farm.

### GCC capacity additions 2016-20 (GW)

<table>
<thead>
<tr>
<th>GCC 2015 Capacity</th>
<th>GCC 2020 Capacity required</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>+18</td>
</tr>
</tbody>
</table>

Source: APICORP Research

Our estimates suggest that Qatar will need to invest around $9bn to add 5.2GW to meet rising demand in the medium term: $6bn in generation and $3bn in T&D. Qatar has not built additional capacity over the past five years because it already boasts adequate capacity of 8.8GW. But with increasing demand and peak load reaching a record 7.1GW in 2015, the country sanctioned two new projects that will add nearly 4.5GW in the medium term. The first is the Umm Al Haul power and desalination project with capacity of 2.5GW and costing $3bn. The plant will be built by K1 Energy and owned by QEWG, K1 Energy, Qatar Petroleum and the Qatar Foundation. The second is the 2GW Ras Laffan D independent water and power project. These planned investments should keep the country on track to meet demand growth.

In Bahrain, capacity will need to grow at 6% per annum. While this is a high growth rate, it is nevertheless one of the lowest by MENA standards. As a result, we anticipate that $3bn needs to be invested over the next five years to meet capacity additions of 1.4GW, bringing the total to 5.6GW by 2020.

### Iran and Iraq

In Iran, much uncertainty still surrounds the country’s ability to attract foreign investment as it re-emerges from sanctions. Iran is one of the Middle East’s largest electricity producers with capacity exceeding 70GW. But the country will need another 23GW over the next five years – roughly $63bn for generation and T&D. Currently, 4GW worth of projects are in execution but Iran will need to accelerate its progress to meet rising demand. Iran and Russia in 2014 signed agreements for the construction of two large nuclear reactors in Bushehr. The government has also signed a $6bn agreement with a European company to develop 4.3GW of power capacity, including 1GW of wind. The government also plans to install 5GW of renewable capacity, including hydro, wind and biomass, as well as a 50MW geothermal pilot plant. Additionally, a consortium of Iranian, Indian and South Korean companies is seeking to set up an energy park in Khuzestan province, in a project worth $10bn, including 1GW of solar power.

Security concerns and a tight budget continue to threaten investments in Iraq, where foreign investment is needed to develop the power sector. The country is playing catch-up to meet existing demand and faces challenges moving forward. We estimate that Iraq will need another 14GW of power-generation capacity over the next five years, amounting to $40bn of investment. Estimated capacity at the end of 2015 stood at 15GW, but the government has increasingly prioritised power generation at the expense of T&D, meaning that the grid will only be able to deliver 3.5GW of this new capacity. T&D will need to be prioritised to ensure adequate power delivery and a reduction in power outages – which in Baghdad can last for half the day.

### Egypt and the Mashreq

Power financing in many parts of the region is becoming increasingly difficult. Investors are concerned about political instability and persistent low oil prices—putting many projects on hold. Egypt, for example, suffers from low reserves of hard currency; its reserves dropped to $16bn last year, driving the Egyptian pound down to a record low against the dollar. The government also provides little assurances to power companies about the availability of foreign currency, which has kept some investors at bay.

Our estimates suggest that Egypt will need to invest $28bn in power generation and a further $15bn in T&D. This would increase capacity in MENA’s most populous country by 21GW to reach 56GW in 2020. In 2015, Egypt announced plans to invest $43bn in the power sector over the medium term and approached China and Russia for funding. The country suffers from shortages of gas – typically prioritised for power generation
– but the discovery of the giant Al-Zohr field, coupled with BP’s West Nile Delta upstream developments and several LNG import contracts should ensure gas supply security. Orascom and Siemens are currently constructing three 4.8GW combined-cycle gas-power plants, which will be among the largest in the world.

Egypt has also signed memoranda of understanding with several companies for the construction of 12GW of coal plants, which should displace 1.3bn cubic feet per day of future gas demand. All told, 20GW of capacity is in execution and ready for commissioning by the end of the decade, leaving Egypt a little short of what is required for the same period.

Many countries in the region already suffer regular blackouts because of insufficient infrastructure and acute gas shortages. Inadequate investments in previous years have put pressure on governments to prioritise development plans and reduce social discontent. This is a serious issue for Egypt where, in some instances, outages can occur more than three times a day. Blackouts are also persistent problems in Iraq, Libya, Lebanon and Yemen, leaving many to rely on expensive generators for at least three hours per day.

The rest of the region will need another 5.4GW within the next five years, amounting to $12bn of investment. In Sudan, much of the existing and future power is likely to be met through hydro, adequate T&D infrastructure to alleviate frequent power outages. In Yemen, the country will have to grow capacity by at least 9% each year but the current conflict will continue to hinder the development of the sector.

**Maghreb**

In the Maghreb region, renewable energy will be at the forefront of governments’ plans to increase power capacity. We estimate that 2.7GW of renewables will be added in our outlook period. Morocco and Tunisia are moving steadily to diversify away from costly fuel imports. Algeria, on the other hand, is still struggling to kick-start its ambitious solar programme.

Algeria is one of a few countries in the region that has more power-generation capacity construction underway than is needed by our estimates. It raised capacity by a third between 2011 and 2013 and announced plans to add a further 30% in 2015-18. Required capacity over the period is 7.5GW, needing $19bn of investment for both generation and T&D. Currently, 14GW is in execution with the gas-fired Mostaganem plant among the largest of these projects. Algeria is also committing to renewable energy with its 12GW solar project expected to be completed by 2030, significantly increasing the share of renewables in the power generation mix. However, Sonelgaz will need foreign loans to bridge a $10bn funding gap needed for capacity expansions.

In Morocco, estimated capacity in 2015 was 8.3GW, up from 5.3GW in 2008. Renewable energy features heavily in the country’s power plans. Morocco’s expected capacity requirements by 2020 are around 12GW and expansions will cost up to $9bn. The country plans to increase solar and wind capacity to reduce its fuel imports. It has set a target of 26GW of solar and 26GW of wind by 2020, and is likely to reach this target. The country relies on international and development institutions like the European Bank for Reconstruction and Development and the European Investment Bank for financial support. As for Tunisia, $4bn is required to bring capacity from 4.6GW in 2015 to 6.1GW in 2020. Like Morocco, the country will prioritise the development of its renewable sector.

**Challenges and constraints**

While countries in the region are pushing for investments in the power sector, several challenges and constraints will prove pivotal in the medium term.
First, energy-exporting countries — mainly in the GCC — are reducing expenditure and shelving many projects. Countries will rationalise spending and prioritise critical projects, particularly within the power sector.

Second, changes to market structures will be important in the power sector’s evolution. Saudi Arabia announced its plans to reform its power sector. The breakup of the SEC monopoly will allow more competition in power generation. It is too early to see how this will play out but the outcome will determine whether investors are attracted to the sector.

Third, financing power projects has become more challenging. Ratings agency Standard & Poor’s earlier this year lowered the credit worthiness in MENA to an average of ‘BBB’. But further downgrades have since taken place in the region. Although recent efforts to attract foreign investment have seen some success, political and economic concerns mean investors will be cautious. However, this environment also creates opportunities, as players are forced to seek external finance.

Fourth, many countries are accelerating their price-reform plans. While these programmes will aim to reduce the fiscal burden on governments, they will also put downward pressure on power demand. We expect this trend to continue as tariffs across the energy sector increase. Investors will closely monitor the outcome of these reforms as they make investment decisions.

Finally, the region is in turmoil. Persistent conflicts in Syria, Iraq, Yemen and Libya are reshaping MENA’s geopolitical landscape. Conflicts and instability in these countries have already resulted in the destruction of existing generation capacity and the countries have been unable to attract necessary investments. Regional instability is unlikely to recede in the immediate future, and investors will be wary of spill-over effects in neighbouring countries.

Despite 2015 being an unsettling year for the region, governments in the region are continuing to prioritise critical investments in their power sectors. We estimate that in the period 2016-20, the Arab world will need to invest $334bn in their power sectors. But success in implementing key power projects and attracting the necessary investment will vary across the region. The GCC governments will continue to cope well with rising demand and energy-price reform will help temper demand rises. Although GCC governments have announced budget deficits and indicated that government expenditures will be tightened in response to lower oil prices, investments in the power sector should not be affected and will be given priority. But even in these countries, there is a clear realisation of the importance of restructuring the power sector and establishing a regulatory framework to spur greater participation from the private sector. In the Maghreb region, renewable energy projects will continue to be at the forefront of long-term government plans to diversify generation capacity. However, in other parts of the region, the challenge to meet electricity demand is grave. In countries like Iraq, Yemen, Libya, Lebanon and Syria, political instability and inadequate investments will continue to result in power shortages, damaging their economies and frustrating their citizens.