



GCC power markets: reliance on IPPs set to grow

Over the next five years the private sector will be responsible for adding more than 20GW of generating capacity in the GCC, giving state utilities a chance to catch a breath. This reliance on Independent Power Producers (IPPs) is set to increase as GCC governments face increasing deficits and lower budgets because of lower oil revenues. While private sector involvement eases financial burden on the states, governments need to ensure that IPPs fit in the larger picture of reformed markets, and not just a short-term solution to rising demand.

Electricity demand in the GCC has risen sharply driven by factors such as population growth, urbanisation, improvements in income levels, industrialisation, and low electricity prices. These factors will continue to place greater demand on power-generation capacities. We estimate that GCC power capacity needs to expand at an average annual pace of 8% between 2016 and 2020. To meet rising demand, the GCC will need to invest \$85bn to add 69GW of new generating capacity over the next five years (See Vol. 1 No. 7 – MENA power investment: finance and reform challenges). But declining oil revenues mean that GCC governments can no longer continue to support the provision of cheap power – and have looked towards IPPs to play an increasing role in power generation.

The structure of the electricity market has witnessed little change over the past few years, but reforms are gradually picking up throughout the GCC. At the heart of recent reforms were recent price hikes (See Vol. 1 No.4 – Energy price reform in the GCC: long road ahead). Governments have increased water, electricity and fuel prices to ease the burden on state budgets. These efforts are part of a broader programme that aims to liberalise domestic energy prices over the medium-term.

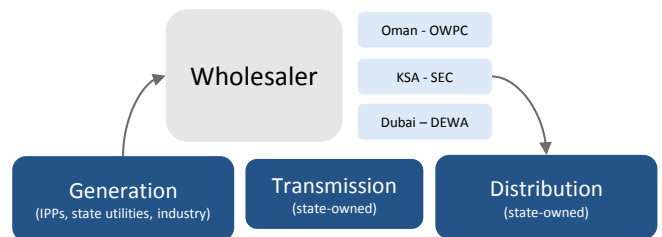
Structural reforms are also taking place. Oman is leading GCC efforts to unbundle the power sector by privatising most of its generating assets and is considering to privatise transmission and distribution. The country will become the first GCC country to introduce spot trading in the electricity market by the end of the decade. In Saudi Arabia, state utility Saudi Electricity Company (SEC) has recently announced plans to break up into four independent power-generating bodies and an independent transmission company by the end of 2016.

The single-buyer model will remain

The region still relies on the single-buyer model where a state-owned entity is the only wholesale purchaser from power-generating companies. The single buyer is responsible for selling the electricity to distribution companies which then sell to the final consumers. While the power-generating sector is open to the private sector, governments still have monopoly over transmission and distribution networks. The current market structure in the GCC has served IPPs well as governments assume most of the risks. IPPs are usually offered 15 to 25-year Power Purchase Agreements (PPA) where the government agrees to buy the electricity at a 'take it or leave it' basis at a previously agreed price for the duration of the contract, thus mitigating demand-side risk. Most IPPs also sign fuel supply agreements with governments to mitigate feedstock price

fluctuations. These favourable terms came at a time when GCC governments were desperate to bring IPPs and quickly increase capacities. But it is unclear if these terms will continue, as prospects of liberalising the market and governments' desire to reduce its off-taking risk may result in terms becoming less favourable. Yet IPPs know that lower government revenues and rapidly rising demand mean that their involvement in the sector is crucial, giving them strong negotiating power.

The single-buyer model



IPPs a quick solution for governments

The introduction of IPPs in the GCC has been instrumental in meeting rapidly rising electricity demand. Oman was the first country to open up its power-generating sector. Today, IPPs represent the majority of new capacity and continue to replace government power plants. Although there are potential implications of over-reliance on this strategy going forward, we can discern several benefits to the GCC power sector.

First, IPPs allow investments in power generation without the need for governments to pay the entire upfront cost. While fiscal buffers and substantial export revenue has allowed governments to invest heavily, governments are becoming increasingly constrained, as falling revenues need to be allocated towards other vital sectors such as education, health, and infrastructure. Low oil prices mean that cash will not flow easily from governments to state utilities. This is particularly the case for SEC, which is aggressively tapping local and foreign debt markets. This year alone, SEC secured a loan of \$1.4bn from Japanese banks and a \$1.5bn financing deal with the Industrial and Commercial Bank of China. Overall, the state utility has received government and capital-market funding for more than \$34bn since it launched its first sukuk in 2007. SEC is also planning a \$3.3bn back-up credit facility.

Second, IPP projects are usually more cost effective than government power plants. Contracts under the IPP model are usually awarded to developers who provide the lowest levelised

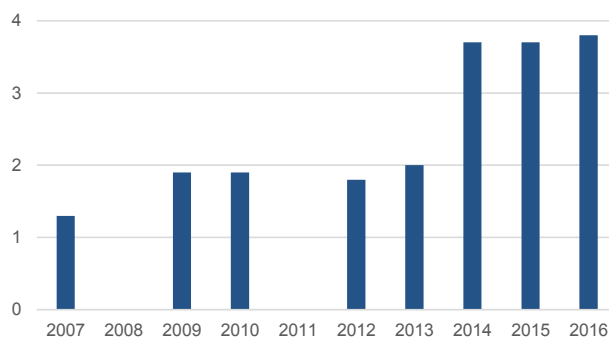
cost of electricity (LCOE) - the price per kWh that represents all fixed and variable costs of a project throughout its lifetime. Developers are therefore encouraged to maximise efficiency. Since the ability of developers to cut costs and improve technology differ, IPP bidders can have costs that vary by large margins. For example, the Dubai solar park phase III received five bids for the 800MW project ranging from 2.99 ¢/kWh to 4.48 ¢/kWh. A consortium of Abdul Latif Jameel, Fotowatio Renewable Ventures, and Masdar broke the global solar record with 2.99 ¢/kWh. This comes after phase II of the same solar park broke the then world-record when a consortium of Acwa Power and TSK offered 5.85 ¢/kWh. Tendering projects to IPPs based on competitive bids will continue to reduce costs and prices for governments and consumers.

Third, IPP projects are quicker to execute. With an additional 69GW that needs to be added in the next five years, projects must be implemented swiftly. IPPs provide governments with the flexibility to identify projects and capacity needs while leaving developers to execute. On average, an IPP takes 3-4 years to be commissioned after tendering. Unlike government projects that usually face delays due to technical specification changes and conflicting roles of various government entities, it is in the interest of IPPs to bring on line the project as soon as possible – given that delays translate into higher costs.

Saudi Arabia: more IPPs on the way but financing a challenge

The Kingdom announced long-awaited reforms this year. The plans centre around splitting up SEC to create four power-generating companies and establish a separate transmission company. SEC is the Kingdom's vertically integrated electricity company that owns most power-generating assets and almost all transmission and distribution networks. The government allows the private sector to enter the generating sector. As a result, most ongoing and future projects will be IPPs, but SEC will hold major equity stakes. The current environment has been very favourable to the private sector. IPPs have benefited from cheap fuel and priority access to the grid. However, with government plans to increase competition and privatisation, future terms might be less favourable.

SEC finance market funding (\$bn)



Source: MEES, Apicorp research

Estimated capacity stood at approximately 80GW in 2015, with SEC representing around 60GW and the remaining 20GW operated by the private sector. The Kingdom will meet rising demand with 28GW of capacity already in the pipeline. Of this, 12GW are SEC projects while the rest are IPPs, Saudi Aramco,

and Saline Water Conversion Company (SWCC) projects. Major IPP projects include the 2.1GW Rabigh 2 and the 1.5GW Fadhili cogeneration plant, expected on line in 2017 and 2019. So far this year, the 1.5GW Fadhili cogeneration plant was the only IPP awarded to an Engie-led consortium at an expected cost of \$1.5bn. A joint venture between SEC and Saudi Aramco will hold a majority equity stake, with the remaining owned by the private sector. The electricity will be sold on a 20-year power, water and steam purchase agreement, although prices have not been disclosed. The IPP model is also expected to prevail in the Kingdom's latest 3.5GW renewable-energy target by 2020, and 9.5GW by 2030. SEC aims to attract the private sector to develop 50MW solar at Al-Jouf and another 50MW at Rafha.

Financing is a growing challenge for the Kingdom. SEC's growing reliance on external finance might provide more opportunities for IPPs to dictate better terms. The state utility has already borrowed more in the first half of 2016 than it did in 2015, surpassing the record \$3.7bn set in 2014 and 2015. The latest loan announced earlier in July was a \$1.5bn five-year commercial financing from the Industrial and Commercial Bank of China. This takes SEC loans in 2016 to \$3.8bn. SEC, which has always preferred to have a complete monopoly on power generation, realises the need to rely on non-government funds for its expansion programs, and is increasingly relying on domestic and international financing, as well as IPPs to fill in the gap.

UAE: IPPs dominate

The UAE boasts one of the most advanced power sectors in the region - with the seven emirates given control over their programmes and strategies. Abu Dhabi took its first steps to unbundle the sector in 1998 when it pushed to privatise power generation and adopt the single-buyer model. More than 90% of power generation in Abu Dhabi is provided by IPPs today although the Abu Dhabi Water and Electricity Authority (ADWEA) holds major equity in all projects. The first independent project came on line in 2000 and was an Independent Water and Power Producer (IWPP). All subsequent projects were also IWPPs until Shuweihat 3 was tendered in 2011, becoming the first IPP in the emirate. In the medium term, ADWEA expects the GDF Suez-operated Al-Mirfa power plant to add 1.6GW of generating capacity once completed in 2017. ADWEA will also offer its 350MW solar project under the IPP scheme. In total, ADWEA holds 60% equity in 10 IWPPs and Fujairah and 80% of Al-Mirfa.

In Dubai, the Dubai Electricity and Water Authority (DEWA) is also increasing its reliance on IPPs. In 2015, the first clean coal power plant - the 1.2GW Hassyan plant – was awarded as an IPP after a consortium of Acwa Power and Harbin Electric offered a LCOE of 5.01 ¢/kWh. DEWA will hold a 51% stake in the project. Dubai's large solar park is also offered under the IPP model. Phase II of the solar park is being built after Acwa Power and TSK provided a bid of 5.85 ¢/kWh in 2015. While the 800MW phase III of the same project received a global record bid of 2.99 ¢/kWh. Although DEWA and ADWEA allow for IPPs in the sector, the two state utilities participate as major equity shareholders. Private investment continues to attract interest due to rising demand and low country risk. This allows the government to lock long-term contracts at very competitive rates.

Oman: first to introduce IPPs, now eyeing spot trading

The single buyer model also dominates Oman's electricity sector. Unlike its richer GCC neighbours, the country was early to involve the private sector in power generation. The first IPP in the region was implemented in Oman. In 1996, the 270MW Al-Manah power plant was the first IPP to be financed, built, and operated by the private sector. Today, more than 70% of power generation in the country comes from IPPs. Like the rest of the GCC, Oman state utility (OPWP) holds majority equity stakes in all IPPs and usually offers 15-year PPAs. Medium-term plans will focus on the IPP model with the 3.2GW Ibri & Sohar 3 IPP and the 445MW Salalah 2 IPP, the two major projects expected on line by 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.

Major IPP's in the medium term

| Project | Location | Capacity (MW) | Type | Start up |
|--------------|-----------|---------------|------|----------|
| Al-Zour 1 | Kuwait | 1,500 | IWPP | 2016 |
| Solar Park 2 | Dubai | 200 | IPP | 2017 |
| Mirfa | Abu Dhabi | 1,600 | IWPP | 2017 |
| Rabigh 2 | KSA | 2,060 | IPP | 2017 |
| Salalah 2 | Oman | 445 | IPP | 2018 |
| Umm Al-Houl | Qatar | 2,520 | IWPP | 2018 |
| Fadhili | KSA | 1,500 | IPP | 2019 |
| Ibri | Oman | 1,510 | IPP | 2019 |
| Sohar 3 | Oman | 1,710 | IPP | 2019 |
| Ras Laffan D | Qatar | 2,000 | IWPP | 2019 |
| Solar Park 3 | Dubai | 800 | IPP | 2020 |
| Al-Zour 2 | Kuwait | 1,500 | IWPP | 2020 |
| Al-Khiran 1 | Kuwait | 1,500 | IWPP | 2020 |

Source: Apicorp research

The sultanate is looking to operate a spot market by the end of the decade, with early trials by 2017. This will allow power generators to sell electricity through a different channel than the traditional PPAs. With several PPAs expiring soon, the spot market will allow OPWP to decide if they want to renew PPAs or make them sell on the spot market. The spot market could also be an advantage as increased competition could force future IPPs to provide better terms. This also comes at a time when many government-owned power plants are reaching the end of their lifetime. In the long term, Oman aims to liberalise the transmission and distribution sector, but no clear plans are announced.

Qatar and Kuwait: Letting in the private sector

Qatar is also pursuing its own programme. Most power generation comes from IWPPs and IPPs but with the Qatar Electricity and Water Company (QEWC) holding majority shares. The last project to come on line, Ras Laffan C, was an IWPP owned by QEWC and QP (60%) and an Engie-led consortium (40%) - operating under a 25-year PPA. In the medium term, the country will rely on IWPPs to add capacity and has recently sanctioned two new projects that will add nearly 4.5GW. Umm Al

-Houl IWPP is the major project with a capacity of 2.5GW at an estimated cost of \$3bn. It will follow the IPP model and will be developed by a consortium of QEWC (60%), K1 Energy (30%), QP (5%) and Qatar Foundation (5%).

Kuwait's electricity market has long been closed to the private sector. The Ministry of Electricity and Water (MEW) is responsible for generation, transmission and distribution. Although the country has been slow to reform its sector, progress is taking place as the country looks to attract foreign investors. In January 2013, the Partnerships Technical Bureau (now the Kuwait Authority for Partnership Projects) was established to oversee the government's Public-Private Partnership (PPP) program. Al-Zour North gas-fired power plant is the first project to be built under the program. The 1.5GW plant is led by a consortium of Engie (17.5%), Japan's Sumitomo (17.5%), AH Al Sagar and Brothers (5%), while the Kuwaiti government owns 60% of the project. The plant will supply the MEW on a 40-year agreement. Kuwait is set to rely heavily on IPPs in the medium term and already has big plans for the next two years. Three projects are expected to be awarded in 2017: the 1.5GW Al-Zour North 2 IWPP, the 1.5GW Al-Khiran IWPP and the 280MW Al-Abdaliya ISCC.

IPPs should be managed carefully

While the advent of the IPP model in recent years has been beneficial to the electricity market in the GCC, the current trajectory of IPP growth can prove distorting and inefficient in the longer term if not properly managed. Allowing greater share of IPPs relieves governments from a large financial burden, thus freeing cash for other vital sectors in GCC economies. But there is a downside; IPPs usually sign long PPAs that can range from 20-30 years, meaning that governments are obliged to buy the produced electricity over the duration of the contracts. In theory, this is fine as long as demand continues to rise. However, after years of unprecedented growth in electricity demand in the region, demand growth is expected to slow beyond 2020. GCC governments could find themselves with overcapacity and costly obligations. But in the medium term, this is less of an issue.

The single wholesale buyer characterises GCC electricity markets; but governments like Oman and Saudi Arabia have plans to privatise the power sector and implement reforms which will result in a more liberalised market. The current trend in IPP involvement can complicate such efforts. As more IPPs are introduced, their respective generating assets will be tied to long-term PPAs – which could impede the desired progression towards market liberalisation.

GCC governments have limited options in the medium-term and IPPs will continue to be at the forefront of governments' strategies to add generating capacities. But as they pursue their own paths towards market reform and liberalisation, they need to ensure that the new IPPs fit into the broader picture, and are not just a quick fix to the problem of rising electricity demand.

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