# Balancing economic risks: Tips for a well-structured deal

Ras Laffan C, now known as Ras Girtas, will be the largest IWPP in Qatar Source: Sidem

**The amount of infrastructure development currently underway worldwide is impressive by historical standards, especially in the Middle East. To offset the risk to private investors, governments are playing a major role through privatization and public-private partnerships, but spreading the exposure across multiple parties in a consortium does not eliminate the risks. This article proposes tools and techniques for owners and operators to minimize the economic risks of large capital projects in the Gulf Co-operation Council (GCC).**

The extent of infrastructure development in the Middle East and especially in Saudi Arabia is striking. In a ranking of global megaprojects, the top Middle East projects comprise nearly 20 per cent of the total.[1] The value of the projects in the region exceeds the amount in China by nearly 40 per cent and the United States by more than 10 per cent. Figure 1 lists major projects in the GCC – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE). Saudi Arabia's power projects alone total about $130 billion of investment between now and 2015.[2]

The Saudi grid is undergoing a $50 billion upgrade. To cite a few examples of the progress being made, Saudi Electric Company has been upgrading its high-voltage transmission equipment in Jubail, building new high-voltage gas-insulated substations and refurbishing remote substations to support the region's oil and gas, aluminum and power generation industries.

High-voltage substations have been built in recent years in Al Kudmi, to prepare for the southern region's integration into the Saudi grid, and in other locations, including some led by the Shuqaiq Water and Electricity Company. The country is upgrading its Central Province PP8 plant from 1850 MW to 2330 MW. Shuqaiq will come online in two phases between 2015 and 2020. The 2000–2400 MW Quarayyah power expansion is valued at $7.2 billion. Qurayyah will be fueled by heavy oil, as will the 1200 MW Rabigh independent power project (IPP). In addition to these upgrades, Jizan Economic City is building a multi-billion dollar 2400 MW power plant for an aluminum smelter.

In the UAE, Abu Dhabi is planning three large scale power and water projects. The government awarded a $20.4 billion contract for four nuclear reactors to a consortium led by Korea's Kepco last year. The first reactor is due to come on-stream in 2017, and all four will be producing electricity by 2020.

Kuwait is currently conducting a feasibility study for a $20 billion nuclear power project with France.

Qatar has been busy building more conventional power infrastructure. It is upgrading its power transmission network, including 54 new substations, for $5 billion, as well as building a $5 billion coal fired power plant in Raysut and a $5 billion solar power capability.

Qatar Petroleum's Ras Laffan IPP is budgeted at about $4 billion (not counting Ras Laffan C), and Kahramaa's West Coast independent water and power plant (IWPP) will cost about $3 billion.

In addition to projects in specific countries, two international projects are underway. First, the GCC power grid project will link the GCC's grid by 2011, creating the opportunity for a massive smart grid. And second, Saudi Arabia and Egypt are working on an $8 billion 1370 km interconnection project focused on overhead lines.

Outside the Middle East, only a few projects are as concentrated or extensive as the transformation in the GCC. In the USA, the Green Power Express project to transmit electricity generated by wind power in the Midwest is both large and transformational, and the Tres Amigas interconnection project has far-reaching potential.

China's CNPEC (China Nuclear Power Engineering Company) is busy building new nuclear power stations. The Malaysian government's Bakun hydroelectric dam project has been lurching along toward completion, while Pakistan and Bangladesh are equipping their electric and the refinery sectors with power plants. Canada has invested heavily in nuclear and hydroelectric plants, and Brazil has some large-scale development projects in Manaus.

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While the GCC spending spree is impressive, the current wave of investment will drop off, starting in 2015 (Figure 2). The rapid downshift may take some economic adjustment, and will provide a long period in which all parties will see how accurate their initial economic assumptions were.

Trends and shifts in power usage patterns will be carefully monitored, and there may be some pressure to revisit some economic aspects of the agreements, depending on the nature and magnitude of the gaps.

## New Models of Private Participation

Governments have been playing a major role in privatization, outsourcing and shared public-private investment, partly to offset the risks to private investors.

Oman, which was an early proponent of private ownership, intends to privatize up to two-thirds of the government entity that is now owned by Transco. Saudi Arabia is eliminating local subsidies on electricity in an attempt to curb the domestic consumption of oil, which is being consumed to feed its power generation plants.

The UAE's Abu Dhabi Water and Electricity Authority (ADWEA) is viewed as a model for constructive government co-ordination. ADWEA maintains a 50–60 per cent stake, with remaining private equity held by operators that have been awarded 20–25 year operating contracts. ADWEA's involvement acts as a stabilizer and buffer against financial volatility and risk. For example, ADWEA helped GDF Suez obtain financing for the Shuweihat II IWPP in 2009 by brokering an agreement to offer half of its stake to Marubeni, which in turn stimulated a $1.1 billion export credit from the Japan Bank for International Co-operation (JBIC).

Qatar's IWPP model, based on mixed public-private ownership and hands-off government management style, has helped the country build a dual capacity for both electricity and water. Ras Laffan started

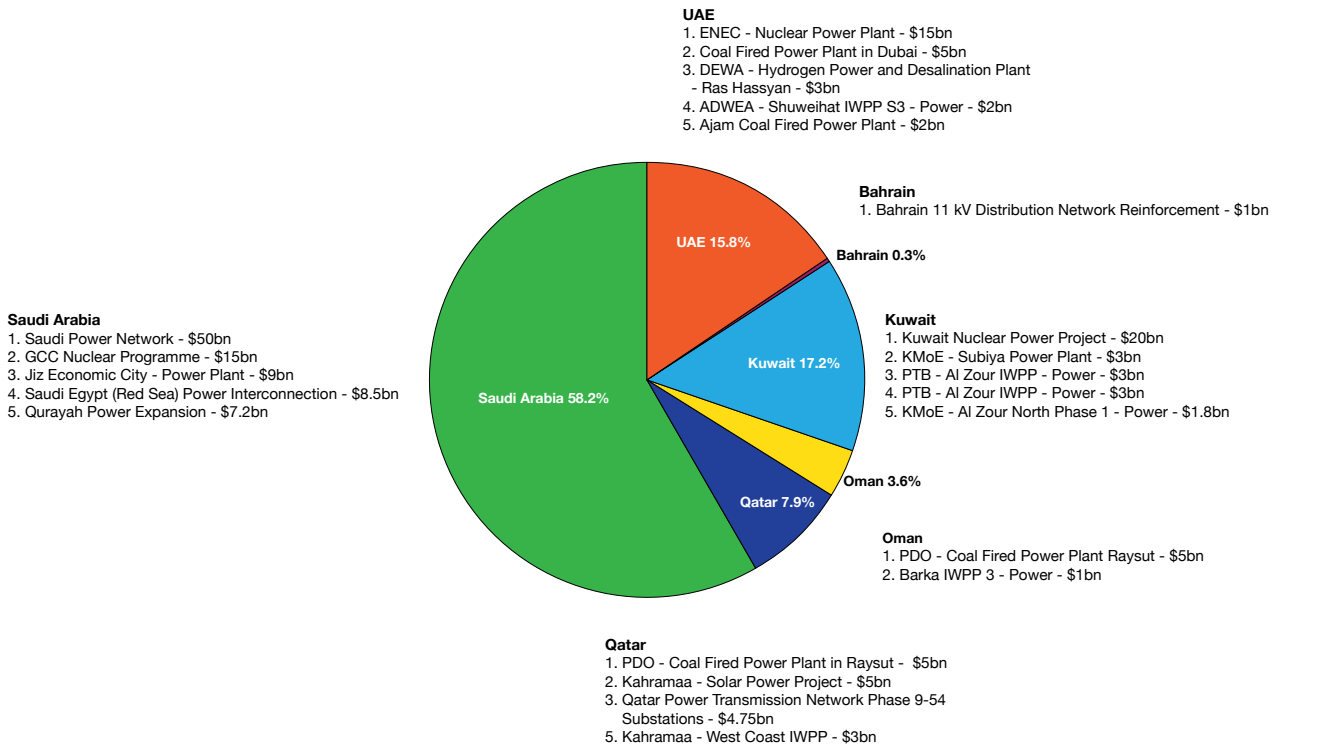


Figure 1: Distribution of value of contracts by country

Source: Proleads, Boston Strategies International

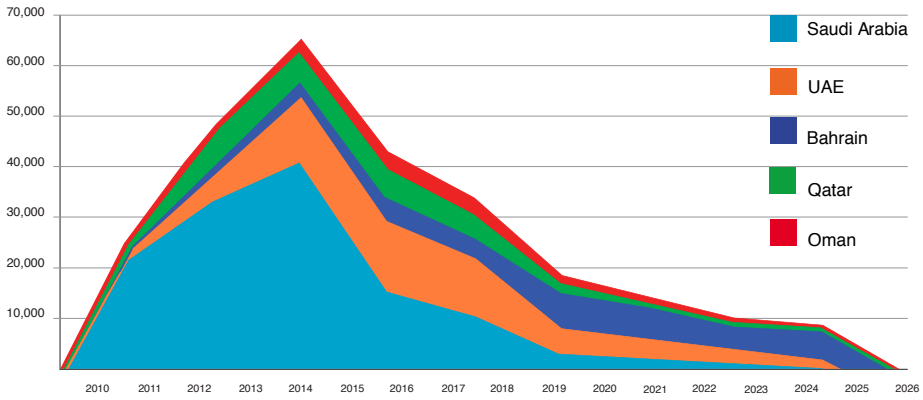


Figure 2: Value of active projects by year ($ million) Source: Proleads, Boston Strategies International

operations in 2004 as a joint venture between AES Corporation (55 per cent), Qatar Electricity and Water Company (QEWC) (25 per cent), Qatar Petroleum (10 per cent) and the Gulf Investment Corporation of Kuwait (10 per cent). Ras Laffan B is also partly privately owned, by UK's International Power (40 per cent) and Japan's Chubu Electric Power (5 per cent). Ras Laffan C, now known as Ras Girtas, will be the largest IWPP in Qatar. It includes ownership by GDF Suez and Mitsui, and is due to become operational in April next year.

Similarly, private interests own 57 per cent of QEWC, and the country is exploring outsourcing the running and maintenance part of its water utility – it commissioned a three-year feasibility study that is currently ongoing. Qatar awarded a wastewater treatment operating contract to Veolia in 2009.

## Minimizing Risk via Better Contracting

Even in a consortium, however, there exist many types of significant economic risks. Considering them in lifecycle sequence:[3]

- In the Financing and Planning stages, the demand or revenue forecast risks being wrong.[4] At this stage, owners and financiers may also make erroneous assumptions about the cost of disposal of used fuel and radioactive waste.
- In the Construction stage, estimates of materials and services costs may be off, and so may assumptions about exchange rates, bottlenecks at EPCs and subcontractors, and the extent and cost of design changes.
- In the Operation phase, volume, seasonality, and growth curves may not be on target. Volatile and escalating electricity tariffs and fuel costs are hard to forecast. The rate of return on invested working capital and earmarked funds may be more or less than anticipated. Government regulations such as the laws governing investment and repatriation of profits, and institutional frameworks such as the mechanics and limits for trading electricity on the open market may change.

There are approaches, tools and techniques for minimizing the risks, but owners and operators do not always probe deeply enough to think about them, and may implement them too late.

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At the Financing stage, split ownership models can limit exposure to multiple risks. Shared ownership models often include floating a portion of the equity onto the market. Many owners have settled on 30–40 per cent private ownership as a target, while Oman has set a target of 65 per cent private ownership and some countries now allow 100 per cent.

The time-frame for initial public offerings (IPOs) can be negotiated in advance, thereby providing predictability and stability to revenue flows. Even without private equity, however, co-financing, credit guarantees, financial hedging and insurance can provide some risk-sharing benefits, and major power users are often high-potential candidates for such collaborations.

In the Planning stage, scenarios and simulations can be used effectively to plan for unpredictable market conditions. For example, Boston Strategies International has a Monte Carlo simulation model that determines the optimal contract length. It uses the model to determine optimal volume and term commitments, and the price concessions that they are worth.

During the Construction phase, many techniques help to minimize the cost of EPC contracts, including:

- Indexing prices of commodities
- Buying options and futures contracts for supplies like fuel
- Joint planning of the need for materials and services among operators and maintenance providers[5]
- Capping liability for supplier work done on the buyer's site
- Shared or mutual indemnification
- Penalties for late delivery or delay liquidated damages (DLDs) and performance liquidated damages (PLDs)
- During Operation, owners and operators can minimize risk by locking in minimum levels of usage in exchange for performance guarantees; by forming long-term supply contracts – for example, for key materials such as uranium – to minimize supply price risk; and by layering supply and demand contract lengths to create a balanced portfolio of terms (natural hedging).

Owners and operators need to enter contracts fully aware of the economic risks. In addition to the usual risks, some OECD countries may be entering a double-dip recession or a longer slow-growth phase partly induced by large public debt burdens and the effect may be felt even in the GCC.

Those with long-term contracts in the power generation business will gain rewards from careful study, prudence and the wisdom of experience. **MEE**

## References

1. According to CGLA Infrastructure
2. According to Boston Strategies International analysis of data from Proleads.
3. The European Commission has a useful framework for identifying risks, on which this is partly drawn.
4. *The Guide to Supply Chain Management* (*The Economist*, 2009) contains a useful framework for managing risk, on which this draws.
5. *Bullwhip in the Oil and Gas Supply Chain* provides some insight into multi-tiered inventory management.

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