

WHAT LIES BENEATH JORDANIAN POWER

THE HASHEMITE KINGDOM OF JORDAN HAS BEEN AT THE FOREFRONT OF ENCOURAGING AND DEVELOPING A ROBUST IPP PROGRAMME, WHICH HAS ATTRACTED AND CONTINUES TO ATTRACT SIGNIFICANT PRIVATE SECTOR INVESTMENT. TO-DATE THERE HAVE BEEN FOUR IPPS TENDERED AND MORE THAN 14 RENEWABLE ENERGY PROJECTS THAT HAVE BEEN PROJECT-FINANCED. BY **ALI AYUB** AND **ADITYA THAKUR**, DIRECTORS, ALONG WITH **NEERAJ NISHAD** AND **MOHAMED HAMDOUCH**, MANAGERS, IN **ACWA POWER'S** ACQUISITION AND PROJECT FINANCE DEPARTMENT.

Jordan's energy sector is constrained by a lack of natural resources and the Ministry of Energy & Mineral Resources (MEMR) and the Jordanian National Electric Power Company (NEPCO) have crafted a balanced programme that encourages the development of cost-efficient renewable energy and fossil-fuel power projects.

For Jordan, encouraging the development of cost-efficient power projects is paramount, given that power subsidies are a significant driver of its budget deficit. To this front, renewable energy tariffs, which eliminate the need for costly energy imports, have decreased almost 64% since the renewable energy programme was launched in 2012. For fossil-fuel plants, efficiencies in gas consumption have also increased by almost 30% in addition to their having some of the lowest tariffs in the region.

Despite significant private sector interest in developing Jordanian power projects, the debt and capital markets are significantly constrained, which has hindered the efficient financing of many of the potential projects. To-date, the majority of power projects funded in the country have been financed on the back of either multilateral agencies, development financial institutions or export credit agencies. Due to these difficulties, many of the traditional larger power developers have

been unable to establish a platform of assets in Jordan and drive efficiencies that were to be expected given the nature of the evolution of the power market in the country.

ACWA Power is the first developer in Jordan to integrate the development of both renewable and fossil-fuel projects across its Jordanian platform. Having worked extensively with NEPCO and MEMR and understanding their needs and requirements, ACWA Power in 2016 was able to successfully close on the Mafraq solar project and Zarqa CCGT project, providing much needed support for the Jordanian energy sector, which also demonstrates cost leadership across the sector.

Mafraq PV IPP

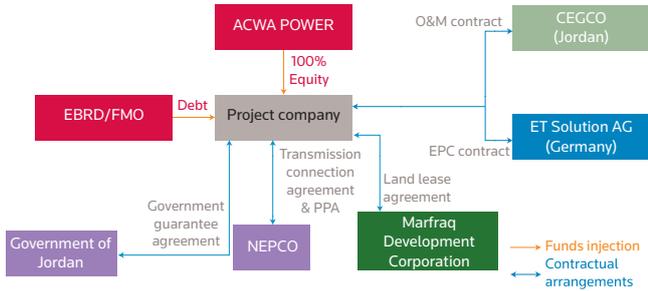
Located in the Mafraq development Area, 70km north of Amman, the Mafraq PV IPP is wholly owned by ACWA Power and is being operated by the Central Electricity Generation Company (CEGCO), Jordan largest utility company, under a long-term operations and maintenance (O&M) contract.

Following the enactment of the Renewable Energy & Energy Efficiency Law No (13) in 2012, MEMR embarked upon a plan to procure power from renewable energy-based projects. Round I of the programme was launched in 2011 and, after some delays, ultimately procured 450MW of renewable capacity.

TABLE 1 - THE TWO PROJECTS

	Zarqa IPP	Mafraq IPP
Type	Combined Cycle Power Plant (485MW Net)	PV Power Plant (50 MW Net)
Description	Greenfield gas combustion turbines and steam turbine	Solar photovoltaic with single axis trackers
Location	Zarqa, Hashemite Kingdom of Jordan	Mafraq development area, Hashemite Kingdom of Jordan
Fuel	Primary – Natural Gas Secondary – Light Diesel Oil	N/A
PPA	Offtaker – NEPCO (National Electricity Power Company), Jordan	Offtake – NEPCO
	Tenor – 25 years from ICOD	Tenor – 20 years from COD
EPC	SEPCO III and Power China – Standard Lump Sum Turn Key (LSTK)	ET Solutions
O&M	CEGCO	CEGCO
LTSA	NOMAC	
COD	ICOD – December 2017 for 315 MW (open cycle) COD – June 2018 for 485 MW (combined cycle)	COD – January 2018

FIGURE 1 - MAFRAQ CONTRACT STRUCTURE



Round I was based on fixed feed-in tariffs varying with technology. Round II of the programme for 200MW, focused only on solar PV projects, was launched in 2013. Pre-selected sites were offered and developers were required to bid for the capacity based on the reverse auction method.

Round II turned out to be a huge success, not only in terms of the interest it evinced but also in the tariffs that were offered. Some 24 pre-qualified local and international companies competed for the 200MW on offer across four sites. The prices dropped from US\$16.9 cents/kWh of feed-in tariff in Round I for solar PV projects to US\$6.13 cents/kWh, the lowest tariff in Round II – a drop of almost 64%!

ACWA Power acquired the rights for development for the Mafraq PV project in early 2016 and signed with NEPCO a 20-year power purchase agreement (PPA). At US\$6.13 cents/kWh tariff, Mafraq PV set a new benchmark for competitive procurement in the Hashemite Kingdom of Jordan.

Zarqa IPP

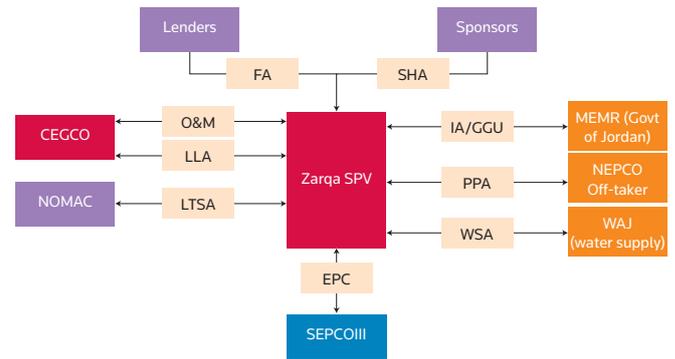
The Zarqa combined cycle power project, for 485MW, is located in the region of Zarqa, 40km north-east of Amman. The 485MW green-field facility comprises three gas combustion turbines and one steam turbine. The project is located at the existing Hussein power station that is under decommissioning.

The total investment amount in the project is approximately US\$490m and is being funded by debt and equity in a ratio of 75:25. Financial close was reached in December 2016 and the CGCT project is scheduled to start generating early power in December 2017 in open cycle mode, for 315MW, before reaching the combined cycle mode in June 2018 of 485MW.

The development of the Zarqa CCGT project started in 2012 when ACWA Power presented an alternative offer, in the form of a closed envelope, along with its bid for the IPP3 and IPP4, to develop, finance, refurbish and operate the existing Hussein thermal power station.

During the early stages of the negotiations, still in 2012, NEPCO demanded a primordial condition that to consider ACWA Power’s offer: the levelled energy cost (LEC) has to be as

FIGURE 2 - ZARQA CONTRACT STRUCTURE



competitive as the LECs of the previous IPPs. This condition was an essential element to allow NEPCO to receive the required approvals from the Jordanian Government and Parliament, as also the energy regulator, to sign the PPA and the Implementation Agreement (IA).

Since 2012, ACWA Power has worked in very close collaboration with NEPCO to achieve a competitive LEC under a strong and bankable scheme. ACWA Power also provided strong support to NEPCO in the analysis of the country’s electricity needs and the optimal fuel for the new project.

This cooperation between ACWA Power and NEPCO resulted in an offer with a different plant configuration, dual-fuel instead of tri-fuel, a very high efficiency, and an LEC as competitive as the LEC of IPP1 and much lower than the LEC of IPP2 and of IPP3 without adjusting for inflation despite the passage of time.

Contractual structure

The Zarqa Project output will be entirely sold to NEPCO under a 25-year PPA. The offtaker is responsible for the supply of fuel, in terms of quality and price. The risk on the latter is passed through to NEPCO via a fuel charge component in the tariff. The PPA of Zarqa is in line with the PPA of the previous IPPs and provides required comfort to international lenders in terms of bankability and in particular in relation to payments currency, the termination amounts and the government guarantee.

A full suite of financing and security documents underpinned the long-term non-recourse project financing, with lenders benefiting from direct agreements with NEPCO, CEGCO, NOMAC and the EPC contractor.

In the same manner, the Mafraq project output will be sold to NEPCO under a 20-year PPA. The PPA and the government guarantee are in line with the Round 1 PPAs, which have already been banked by the Development Financial Institutions (DFIs).

Financial structure

- *Mafraq IPP* – Having signed up to a tariff 20% cheaper than the next successful bidder, ACWA Power had to structure an aggressive but

TABLE 2 - FINANCIAL STRUCTURE

	Mafraq IPP	Zarqa IPP
Debt/equity ratio	75:25	75:25
Maturity of senior debt	18 years and 9 months	19 years
Lenders	The European Bank for Reconstruction and Development ("EBRD") and FMO (the Dutch Development Bank)	The European Bank for Reconstruction and Development ("EBRD"), the International Finance Corporation ("IFC"), the OPEC Fund for International Development ("OFID"), Europe Arab Bank, the Industrial and Commercial Bank of China ("ICBC") for USD and China Construction Bank ("CCB").
Lenders counsel	Clifford Chance	Shearman & Sterling
Sponsor counsel	Chadbourne & Parke	Chadbourne & Park
Lender technical adviser	OST Energy	Lummus
Model auditor	KPMG	KPMG

bankable EPC, O&M and financing packages to make the project economically viable.

The Mafraq PV transaction has been structured around a non-recourse senior loan with an 18 years and 9 months maturity door-to-door. The EBRD and FMO participated equally in providing the required debt funding for the project, circa US\$27m each.

To optimise the structure further, the sponsor introduced a substantial balloon payable on maturity. The sponsor worked with lenders to put in place a truly unique mechanism whereby the balloon is repaid through a cash sweep mechanism from the project company cashflows, sized on a more probable generation scenario to ensure that the lenders are fully repaid on maturity even in case the project under-performs.

The equity in this project is being injected in the project company pro rata to the debt drawdowns. Unlike the Jordanian power precedents, where the equity was backstopped by letters of credit, the equity in this project is backed by a sponsor corporate guarantee, which is a first in this market.

The debt service reserve account (DSRA) was funded neither through cash nor a bank L/C guarantee. Instead, the sponsor opted for a debt service reserve facility with 75% recourse to the project and 25% recourse to the sponsor through a parent company guarantee. This facility was provided by Arab Bank, which also provided a working capital facility with full recourse to the project company.

- *Zarqa IPP* – The senior loan is structured with tranches on a 100% uncovered basis and tranches with 95% political risk insurance (PRI) through Multilateral Investment Guarantee Agency (MIGA) cover, and all tranches are in US dollars. The debt package includes circa US\$490m of long-term non-recourse project financing and is funded by the EBRD, IFC, OFID, Europe Arab Bank (EAB), Industrial & Commercial Bank of China (ICBC) and China Construction Bank (CCB).

Half of the EAB commitment comes under an IFC B Loan structure, the other half under an EBRD B Loan structure. OFID enter the transaction as a parallel lender to the EBRD and IFC for the uncovered tranches. ICBC and CCB

benefit from MIGA PRI cover. This project is one of the first for which Chinese banks have used MIGA cover and gives those banks a strong precedent with MIGA that can be replicated in other jurisdictions.

The senior loan has a 19-year door-to-door tenor. Interest rate risk is managed during the construction period by entering an interest rate swap for 90%. The hedging rate decreases over the debt maturity. The IFC and EBRD are the hedge providers. The project has a reasonable level of contingency with no sponsor support, which proves lenders' confidence in the risk profile of the transaction.

Financial close was achieved on December 2016 on a real fast-track basis, which has demonstrated the high level of the efficiency of lenders, and also the strong deliverability of ACWA Power as lead sponsor.

Conclusion

Jordan has been able to attract significant investor demand for its power sector assets by recognising the need to structure project documents that represent a fair risk allocation that facilitates the successful financing of critical projects.

Building on this success will rely on attracting debt from commercial lenders. The plethora of multilateral agencies (MLAs), DFIs and export credit agencies (ECAs) will be unable to support all the projects slated for development as they will be constrained by capacity and country limits.

Unfortunately, given the current political and economic environment, commercial lenders have limited capacity for the long-dated debt required to support such projects. The MLAs, DFIs and ECAs need to be more creative in how they are willing to work with local and regional banks in supporting the projects. ■



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