

KHALLADI CEMENTS MOROCCAN WIND

THE KHALLADI WIND PROJECT IS LOCATED IN JBEL SENDOUQ-KHALLADI, 50KM EAST OF TANGIER IN THE KINGDOM OF MOROCCO. THE PROJECT IS ONE OF THE FIRST TO BE DEVELOPED UNDER THE 13.09 RENEWABLE ENERGY LAW FRAMEWORK. BY **THIERRY TARDY**, EXECUTIVE DIRECTOR, **YUNHE LU**, SENIOR MANAGER AND **ISMAIL CHAKOUR**, MANAGER, ACQUISITIONS AND PROJECT FINANCE, **ACWA POWER**.

The framework, promulgated in 2010, enables private entities to sell power produced from renewable sources to private industrial customers. This legal framework allows the Khalladi wind project to connect to the Office National de l'Electricite et de l'Eau (ONEE) – the National Electricity & Water Company – grid and to transmit the power generated to the off-takers in return for a transmission fee.

Under the current version of the 13.09 Renewable Energy Law, the sale of power produced by private entities is limited to high voltage (HV) and very high voltage (VHV) customers. However, an amendment of the Law is under preparation to extend the sale of electricity generated under the 13.09 Renewable Energy Law to medium voltage (MV) customers as well.

Therefore, the Khalladi wind project has entered into power purchase agreements (PPAs) with three private industrial customers, large cement manufacturers, connected to the HV and VHV grids. Indeed, approximately 80% of the wind farm's expected output will be sold on the back of long-term PPAs to Holcim Morocco, Asment and Cimat.

The remaining output will be sold through short-term PPAs with other HV and VHV private industrial customers in a first stage, and potentially to MV private industrial customers after the 13.09 Renewable Energy Law amendment. Any residual output will be allocated to ONEE, which acts as a default off-taker.

Under the 13.09 Law, the generation licence and grid access are granted for up to 25 years starting from the project completion date. The Khalladi wind project is being constructed on a build, own, operate and transfer (BOOT) basis. Indeed, at the end of the licence period, the project will be transferred to the Moroccan state, except if the licence is extended.

The 120MW green-field wind farm comprises Vestas V90-3MW turbines. The total investment amount for the project is approximately US\$180m and is being funded by senior project debt and equity in a ratio of 77.25/22.75. Financial close was reached in December 2015 and the wind farm is scheduled to start generating electricity in Q2/2017, reaching full commercial operation in September 2017.

Contractual structure

The development of the Khalladi wind project started following the establishment of the 13.09 Renewable Energy Law in 2010. The initial developer, UPC Morocco Wind Partners, part of the UPC Group of companies, sold the project development rights, keeping an ownership of 5%.

ACWA Power, a Saudi-based IPP/IWPP developer, with 17GW of capacity – in construction or operation – in the MENA and Sub-Saharan African regions, acquired 70% of the development rights in October 2014. The remaining 25% was acquired earlier by Argan Infrastructure Fund, a close-end investment fund dedicated to infrastructure projects and assets in Africa. The development of the Khalladi wind project was given a fresh impetus after ACWA Power entered the shareholding and took the lead on the development from the summer of 2014.

The construction solution undertaken for the Khalladi wind project holds four part split packages – turbines supply, electrical works, civil works and transport-crane-erection. In this EPCM (engineering, procurement, construction and management) structure, while the project company is managing the different construction and supply contracts, the project company is having an experienced, owner-driven, construction organisation set up in order to ensure seamless coordination of the various construction contracts.

The wind turbine generators and commissioning services are supplied by Vestas, the Danish manufacturer, vendor, installer and servicer of wind turbine generators. Vestas has installed over 48,000 wind turbines for a total capacity of 55GW in more than 70 countries on five continents.

The electrical works are carried out by Cegelec Morocco, one of the largest subsidiaries of the Vinci Group. Cegelec Morocco has been involved



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A Moroccan wind farm

in a number of substation and transmission line projects of ONEE, in particular for wind power projects.

The civil works are conducted by Stam, a Moroccan company leader in civil engineering that is active in Western African countries as well. The transport-crane-erection of the wind turbine generators is managed by AGTT, which has been particularly specialised in the transport and handling of heavy and exception cargoes. AGTT has also important experience in the transportation of wind mills.

Eurogrues Morocco will act as a subcontractor of AGTT for wind turbines generations installation. Eurogrues Morocco is a major crane company in Morocco that has been involved in several major infrastructure projects in the country, including thermal and wind power projects. ACWA Power led the negotiations with the contractors and put in place the construction management organisation.

The balance of plant operations and maintenance (O&M) contractor for a period of 20 years is Nomac Morocco, a wholly owned subsidiary of ACWA Power. The wind turbine generators' scheduled and unscheduled maintenance is undertaken by Vestas, which has entered a 20-year service agreement with the project company. However, the service agreement can be terminated for convenience at the end of year five, at the earliest at which point of time Nomac Morocco would take over Vestas' scope of the Wind Turbine maintenance, accordingly.

The 13.09 Renewable Energy Law enables the Khalladi wind project to connect to the ONEE grid under a connection agreement that allows the project company to build a 225kV transmission line to connect to the national grid in accordance with the specifications of ONEE. A second agreement, the grid access agreement, sets the terms and conditions under which the power generated by the project company can access the public electrical grid. Under this agreement, ONEE charges a transmission fee to the power carried through the national grid.

The Khalladi wind farm output will be mainly sold to three large cement manufacturers: Holcim Morocco, Asment, and Cimat. The choice of the offtakers was firstly based on the nature of the connection to the ONEE grid – indeed, the 13.09

Renewable Energy Law limits the sale of power to HV and VHV customers.

The second selection criterion was the creditworthiness and the ability to produce bankable PPAs under a take-or-pay scheme with adequate guarantees and sufficient termination amounts. The third selection criterion was the capacity to commit to a minimum annual offtake for long-term periods to ensure that the wind farm (P90 output) is entirely covered by several industrial offtakers under long-term PPAs.

The first PPA signed was with Holcim Morocco, which operates three cement factories, one grinding facility and 10 concrete plants in Morocco. The second PPA was signed with Asment Morocco, which has an operating cement factory and a second cement factory under construction in Rabat, Morocco.

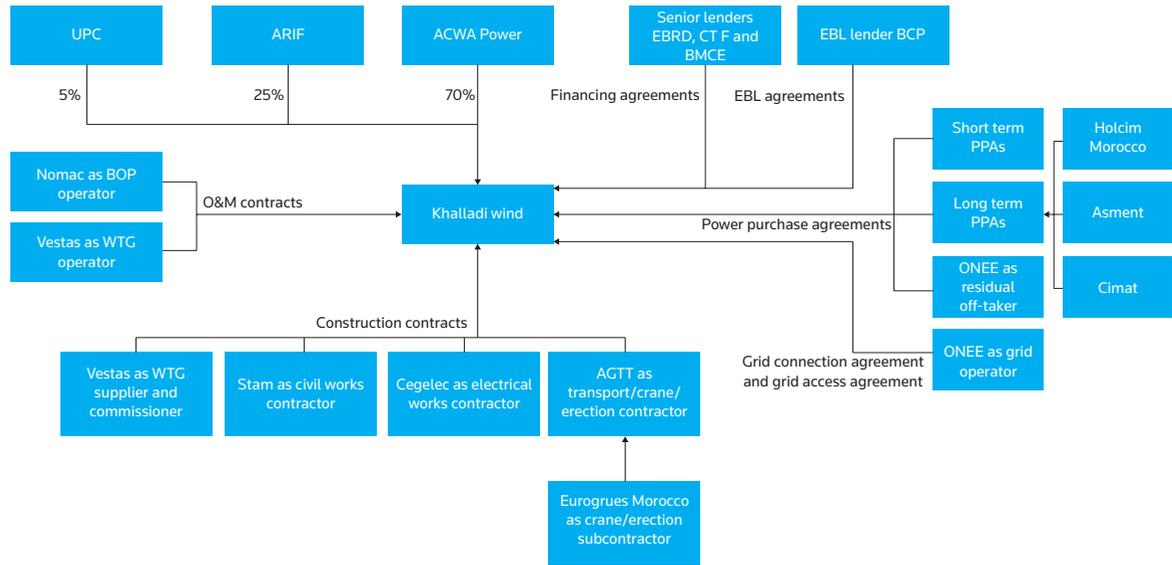
The sponsors decided to approach lenders on the basis of these two PPAs, considering the construction of the Khalladi wind project in two phases: a first phase of 80MW and a second phase of 40MW once a third PPA is signed.

The third PPA with Cimat – which has two cement factories in Morocco – was finalised a few months after the discussions with banks had started, which allowed the Khalladi wind project to be constructed in one phase for a capacity of 120MW. The three PPAs account for approximately 80% of the wind farm output, the remaining generation will sold under a merchant scheme through short-term PPAs. Any residual generation will be allocated to ONEE, acting as a default offtaker.

The three main offtakers' tariffs are set on the basis of a discount to the ONEE tariffs, with a partial indexation on ONEE tariff increases. The short-term PPAs' tariffs will be set on the same structure through framework PPAs on a non-firm basis.

In the unlikely event that power would remain unsold after the additional offtake envisaged under the above schemes, ONEE will offtake such residual power under a PPA. The tariff at which ONEE will be purchasing such power is, however, at a substantially discounted price (around 40% discount). Hence the project company will have a sales strategy to avoid any residual generation allocated to ONEE.

FIGURE 1 - THE PROJECT STRUCTURE



A full suite of financing and security documents underpinned the long-term limited-recourse project financing, with lenders benefiting from direct agreements with ONEE, offtakers, EPCM contractors and O&M contractors.

Financing structure

The senior loan is structured on a 100% uncovered basis, with a Moroccan dirham tranche and a small US dollar tranche. The debt package includes circa US\$140m of long-term limited-recourse project financing funded by the European Bank for Reconstruction & Development (EBRD) together with the Clean Technology Fund (CTF) and Banque Marocaine du Commerce Extérieur (BMCE).

The senior loan has a 20 year door-to-door tenor, including a construction period of 21 months. The Moroccan dirham tranche is provided by EBRD and BMCE with a project risk margin over the Moroccan reference rate (TMP), the US dollar tranche is provided by the CTF and comes with a 10-year grace period and is priced at a nominal coupon rate. The project has a reasonable level of contingency with no additional sponsor support, which demonstrates lenders' confidence in ACWA Power's capabilities to manage the construction under the EPCM structure that involves interface risk management.

The lenders' base case is based on P90 generation assumptions. The amortisation profile is sculpted to meet a minimum debt service cover ratio (DSCR). Lenders have accepted to include the short-term PPAs in the base case revenue assumptions, which again demonstrates lenders' comfort in ACWA Power's ability to attract offtakers under a merchant scheme: 50% of the excess energy – the output unsold beyond the three-long term PPAs – is expected to be sold under short-term PPAs, the remaining 50%

is allocated to ONEE, which acts as a default offtaker under the 13.09 Renewable Energy Law.

Financial close was achieved on a real fast-track basis, which has demonstrated the high level of the efficiency of the club of lenders, and the deliverability of ACWA Power as lead sponsor. It has demonstrated that the Khalladi wind project has been well structured, both from construction and offtake perspectives, to meet the high bankability requirements for a project that is a pioneer under the recent 13.09 Renewable Energy Law. The deal involved various challenges that included finding the most appropriate risk allocation that could satisfy the requirements of senior lenders regarding the EPCM structure.

Fifty percent of the equity will be injected through an equity bridge loan structure, provided by the Banque Centrale Populaire (BCP), the remaining equity will be put as hard capital. The equity is drawn upfront, followed by the drawdown of the senior debt.

Conclusion

The Khalladi wind project is a significant milestone in the rooting of the 13.09 Renewable Energy Law framework and the implementation of the Moroccan government's wind programme, which targets the installation of 2,000MW of wind power capacity by 2020, equivalent to about 28% of Morocco's current installed generation capacity. ACWA Power has solidified its footprint in Morocco, reaching a total capacity of 630MW of renewables assets.

The project fits well into the Kingdom's strategy and is also consistent with ACWA Power's long-term objective to develop a platform of renewable assets to contribute to Morocco's long-term Renewable Energy Program. Lenders' legal adviser was Allen & Overy with Barlovento acting as the lenders' technical adviser. Chadbourne & Parke acted as sponsors' legal adviser. ■