

Koudia al Baida wind farm repowering, Morocco

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Africa's first ever wind farm – the 50MW Koudia al Baida in the Tangier region of northern Morocco – will be rebuilt and doubled in size as part of a €138 million 'repowering' project signed by French power developer EDF and Morocco's Masen.

The asset started life in the year 2000 with 91 turbines spread over 10km, but now these will all be completely replaced through a 'repowering' process. As a result, the total installed capacity will be raised to 100MW via 20 new wind turbines supplied by Siemens Gamesa and produced in Tangier. These will replace the 91 Vestas and Enercon turbines that were put up around the turn of the century.

The €138 million deal was abruptly affected by the decline of the Euro against the US Dollar, falling by as much as €0.11 in the first six months of 2022 alone. Nonetheless, the European Bank of Reconstruction and Development (EBRD) took a lead role in the project financing and took on the balance left by the reduced tickets of the commercial bank tranche.

Financial close took place [earlier this month](#) (18 July 2022). Despite the revised debt totals resulting from the slide of the Euro in recent months, the successful conclusion of the deal represents the first wind repowering project in Africa.

Re-evaluating Koudia al Baida

The government had considered a 'repowering' project at the wind farm at Koudia al Badia since at least November 2012. Similarly, EDF's role on the project meandered over a period of 20 years via a series of company consolidations, which also involved another French power developer – Engie.

The project has its origins in 1993 when Morocco's Centre de Développement des Energies Renouvelables (CDER, now L'Agence Marocaine pour l'Efficacité or AMEE) identified the Koudia al Baida site in the Tangier region as a key area for wind potential.

Subsequently, Morocco's National Office of Electricity (*ONE*) is understood to have awarded a 20-year built, transfer, operate (BTO) contract in 1995 to a consortium named Compagnie éolienne du détroit (CED).

The 19-year PPA was signed with a then 2000 price of MDh0.65 per kilowatt hour (around MDh0.90 in 2022, or \$0.09). By contrast, elsewhere in 2000 the American Wind Energy Association stated at the time that the cost of energy from newly installed wind farms in the United States (2GW in 2000 alone) were contracted with tariffs as low as \$0.03 per kilowatt hour.

CED was owned by:

- EDF – 84.5%
- Compagnie du Vent – 15.5%

Compagnie du Vent was headed by wind industry veteran Jean-Michel Germa during this time. BNP Paribas was also a part-owner of CED through Paribas Affaires Industrielles (now PAI Partners) during the project financing phase but its stake is believed to have been bought out by EDF during an early stage of the project's commercial period.

The then-sponsors reached financial close on the project in late 1998 on a €50.3 million deal (€78.4 million in 2022 terms, or \$79.3 million). Around 30% of the project cost was put up as equity, while the debt (2000 terms) was provided by:

- European Investment Bank (EIB) – €18.9 million
- Proparco – €13.7 million
- Crédit Agricole Indosuez (now Crédit Agricole) – €2.7 million

The DFI loans had 12-year tenors. The above sums funded the construction of the first 84 turbines, while a separate €4.35 million (€6.8 million in 2022, or \$6.9 million) was provided by KfW to finance the construction of a further 7 turbines.

A total of 84 Vestas V44/600 turbines were installed over 10km in the Tangier region over 18 months from February 1999 to August 2000, followed by the additional 7 Enercon E40/500 turbines in March 2001. At the time, Koudia al Baida provided 1-2% of the country's energy supply.

The asset was operated during this time through CED. A majority stake in Compagnie du Vent was acquired by Suez (now Engie) for a sum of €321 million in November 2007 (€457 million in 2022 terms, or \$445.6 million – Engie completed its 100% takeover of the company in April 2017). Two months later (January 2008), CED was wholly acquired by yet another French firm – Theolia – for a sum of €42.5 million (€55 million in 2022, or \$55.9 million).

Theolia changed its name to Futuren in 2015. EDF then re-entered the Koudia al Baida scheme by acquiring a majority stake in Futuren in 2017 and then fully acquired the company 2 years later following a squeeze-out of the company shares in September 2019.

Elsewhere in Morocco, 10 years after the start of commercial operations in 2000, the government outlined the nation's renewable energy ambitions by establishing the Moroccan Agency for Solar Energy (Masen) – a private company with state funding. The 's' was switched out for "sustainable" in 2014 to reflect the company's wider focus on renewables as well as solar PV.

ONE's impending ownership (after the end of the 20-year BTO) Koudia al Baida is understood to have been transferred to Masen around 2010 or 11. During this time, ONE planned to implement a new project at the site – the [300MW Koudia al Baida 2 wind farm](#), with an estimated cost of \$755.9 million (\$995.7 million in 2022 terms).

This sequel project was part of a \$2 billion investment plan for 950MW of new power projects submitted to the African Development Bank (AfDB). The African DFI approved a €373 million (€460.9 million in 2022, or \$466.7 million) loan for renewable energy projects in November 2011 but the 300MW Koudia al Baida 2 scheme was dropped.

The original 50MW Koudia al Baida is already stretched to 10km and was built on rugged terrain in an area with a high population density, thus the concept of expanding the site yet further is likely to have run into environmental and planning issues.

The now-current sponsors mandated an advisory team featuring Allen & Overy and Clifford Chance in early-2019 ahead of a March 2019 call for EPC tenders, however this new plan was yet again revised as it originally called to expand Koudia al Baida from 50MW to 120MW.

The repowering project instead will bring up the project from 50MW to 100MW, with a new special purpose vehicle named Nassim – owned by:

- EDF Renouvelables – 50%
- Masen – 50%

As part of the country's Masen-led strategy to achieve a 52% share of renewables in the energy mix, the government finally opted for a 'repowering' scheme for Koudia Al Baida's future, by replacing all 91 turbines with 20 new, locally-produced alternatives.

Redoing the financing

The final project cost is €138 million, as confirmed by an EBRD spokesperson. The €49 million (\$49.5 million) debt package was approved on 22 March (2022) after the terms of the deal were first revealed earlier in the year in [January \(2022\)](#).

However, in just a 6-month period from January to [July \(2022\)](#) the Euro declined significantly against the US Dollar. The EBRD had been considering a €35 million loan in January. However as the Euro continued to slide, the European DFI instead signed an increased €44 million loan of its own account and the size of the commercial debt tranche was cut from €13.5 million to €5 million in local currency equivalents (MDh52 million).

Regardless of the reduced size of the commercial tranche, the 4 lenders involved nonetheless remained committed to the deal:

- Attijariwafa Bank
- Bank of Africa
- Banque Centrale Populaire (BCP)
- Société Générale

The EBRD had previously approved a €24.8 million loan in [May \(2022\)](#) to BCP for onlending to renewable energy projects, which may have proved vital for the commercial tranche.

In addition, the Climate Investment Fund (CIF) provided a €4.5 million loan to Masen to part-finance its equity contribution in Nassim.

The energy from the wind farm will again be sold through a 20-year PPA – standard for wind projects in Morocco – and the offtake will be backed by a letter of credit from the government. The new tariff is said to be “competitive,” per a source close to the deal, at least compared to the equivalent of the \$0.09/kWh tariff agreed back in 1998.

Re-repowering

Masen hasn't forgotten the spirit of the original idea from 2011 to build out a 300MW sequel to Koudia al Baida. The government agency said that – following the conclusion of the €138 million deal – it is now drawing up a plan to expand the wind farm yet again by a further 200MW, thereby bringing the power plant up to the aforementioned 300MW.

A feasibility study for the expansion is expected to begin in Q3 2022, and the start of commercial operations could occur between 2025 to 2026, Masen said. This could potentially extend the shelf-life of Africa's oldest wind farm by a further 20 years.

The repowered Koudia al Baida wind farm is expected to begin commercial operations by Q2 2024.

The government is aiming for a 52% share of renewables in the national energy mix.

Advisers

The sponsors were advised by

- Allen & Overy – legal
- Clifford Chance – legal

The lenders were advised by:

- DLA Piper – legal
- DNV – technical

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