

Evaluation Summary

Ashegoda Wind Farm

Country: **Ethiopia**

Sector: **Wind power**

Evaluator: **Economic Consulting Associates**

Date of the evaluation: **February 2018**

Key data on AFD's support

Project number: CET 1029

Amount: €45 million in non-sovereign loan

Disbursement rate: 99%

Signature of financing agreement: May 2009

Completion date: July 2014

Total duration: 5 years and 2 months

Context

Ethiopia sought to **diversify its renewable energy sources and to distance itself from hydropower.**

At the planning stage of the project there was a premium on new generation capacity that allow to **reduce load shedding and blackouts.**

Actors and operating method

The **contracting authority** was the Ethiopian Electric Power Corporation (EEPCo). During the project, it was replaced by the Ethiopian Electric Power (EEP).

The **contractor** was Vergnet.



Objectives

The project aimed at **increasing the production of new forms of renewable energy in Ethiopia, in order to:**

- **Reduce dependence on hydropower within the country.**
- **Produce a demonstration effect and incite follow-on investments in wind generation.**
- **Initiate a long-term AFD-EEP partnership.**

Expected outputs

The **construction of a 120 MW wind farm north of the country near Mek'ele, in an isolated area, as well as interconnection with the national grid.**

Performance assessment

Relevance

The Ashegoda project is **highly relevant to the national objectives** of increasing and diversifying the mix of renewable energy generation capacity in Ethiopia. The perceived success of the project has led to other wind farm projects being undertaken, and a strong relationship developing between AFD and EEP.

Effectiveness

Performance of the wind farm for the periods where data is available (2014, 2015, 2016 and the first ten months of 2017) **has fallen well short of expectations**. The gap in generation as compared to preconstruction estimates appears most likely due to an **overestimation of the long-term mean wind speed at the site**. The turbine availability exceeding contracted levels for all but the final part of 2017 when O&M contractor suspended due to non-payment.

The project has **admirably fulfilled its objective of being a demonstration project**, with Adama 1 and 2 being developed in its wake. Further wind power projects are being planned.

Efficiency

The first of a kind nature of the project and turnkey contracting basis would both contribute to higher costs. Taking these factors into account, the unit costs of Ashegoda are within **acceptable benchmark bands**.

Impact

The main positive impacts of the project are the **stimulus to the local economy during the construction phase** (also, but to a lesser extent, during the operational phase), and the **demonstration effect** which has led to other wind power projects being developed.

The positive impact anticipated for electricity consumers as a whole was in practice limited by the **significant delays in getting the units on line and concurrent development of additional hydro generation facilities**.

Sustainability

The withdrawal of the personnel of the O&M contractor as a result of lack of payment and the resultant rapid decline in turbine availability is testimony to **significant risk in the sustainability of the project**. This situation is being addressed, but the current surplus generation capacity on the system does not impose any sense of urgency on the government side. An **expansion in exports allied to bringing forward suppressed domestic demand** may serve to mitigate this risk.

Added value of AFD's contribution

AFD did not just provide a concessional non-sovereign loan, which clearly contributed to the project reaching financial close, but successive Project Managers also undertook to **help see through to completion** a project that was difficult to implement, thereby **fulfilling the objective of forging a strong link between AFD and Ethiopian Electric Power**.

Conclusions and lessons learnt

It was a significant achievement that by June 2014 **all of the turbines in Ethiopia's first grid-connected 120 MW wind project had been handed over**.

However, the **performance** of the wind farm has also been well **below the levels envisaged** in the Feasibility Study, most likely due to the long-term mean wind speed at the site being below that forecasted in preconstruction estimates.

The Ethiopian side considers the project to be **highly successful** and **praises the role that AFD played**.

Greater attention should have been paid to **ensuring that the O&M agreement would succeed** (e.g. that should be at least covered with the revenue obtained from the wind farm) and a sufficient number of EEP staff would be **trained and retained to take over at the end of the contract**.