The Proposed Lamu Coal Plant: The Wrong Choice for Kenya

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Key recommendation: cancelling the Lamu Coal Plant would save Kenyan ratepayers billions of dollars, and investing in renewables would stimulate economic growth while meeting Paris targets

Times have changed

The energy outlook has changed since Amu Power won the contract for the Lamu Coal Plant in 2015. According to two reports sponsored by the Ministry of Energy (MoE), Amu Power's projections for the plant no longer hold true.

In 2015 Amu Power claimed:

1. Coal would cost $50USD/ metric tonne
2. Kenya's demand for electricity would grow at 13% annually
3. The plant would be utilized at 85% capacity
4. Electricity would cost ratepayers $0.072 [7.2 KES] per kilowatt-hour

Two, more recent, MoE-sponsored reports demonstrate that:

1. Coal is expected to cost closer to $100USD/metric tonne in 2020 and $108 in 2040
2. Kenyans require less electricity than Amu Power projected (demand has grown at 6% annually)
3. If built, the plant will be grossly underutilized, running at 5-34% capacity and producing far less power than Amu Power claims
    - Amu Power maintained the plant would generate an average of 7,305 gigawatt-hours in each single year of operation.
    - IEEFA utilized the MoE reports' estimates for electricity generation, and calculated that the Lamu Coal Plant would generate 7,750 gigawatt-hours of electricity in total in all of the years between 2024-2027.

The numbers don't add up

The new MoE reports project that the plant will operate less due to "unfavorable costs" - that the electricity from the plant will be more expensive than other sources of electricity in Kenya.

IEEFA calculated that electricity from the plant could cost ratepayers from $0.22 - $0.75 [22 - 75 KES] per kilowatt-hour - three to ten times more than the price Amu Power proposed. And this does not include the costs of port upgrades to bring coal to the plant or the expansion of transmission lines to bring the electricity from the plant to Kenyan consumers.

In addition, ratepayers need to pay over $360 million USD per year in capacity charges [over $1MM USD or 101MM KES per day] - whether or not the plant generates electricity or stands unused.

The cost of the plant will put pressure on Kenya to increase its GHG emissions and spill electricity

If the plant operates at a low capacity or not at all (which makes the price of electricity per kilowatt-hour significantly higher), then the plant will not prevent Kenya from keeping its commitments to the Paris Accord.

But due to political pressures to operate the plant (including that Kenyans ratepayers collectively pay a minimum of $360MM USD/year for the capacity of the plant, even if it does not generate one kilowatt hour), IEEFA estimates that the plant may be used more than is economically justified. In this case, the carbon emissions from the plant will make it very difficult, if not impossible for Kenya to meet its commitments to the Paris Accord.

Lamu will displace electricity from existing renewable resources. Under this scenario, Kenya Power will be forced to spill or waste electricity from existing sources - including kilowatts that Kenya committed to purchase from Ethiopia - in order to balance the system. Kenya Power will most likely not be able to export any of this power because Ethiopia is quadrupling its generating capacity, Tanzania is doubling its capacity, and Kenya already imports electricity from Uganda.

There is no need for a coal plant in Kenya

The MoE reports found that - given Kenya's renewable energy potential - there is no need for any coal plant until 2029, at the earliest. The University of California, Berkeley found that if geothermal development is not constrained, there is no need for coal until 2035 and if geothermal development is constrained, there is no need for a coal plant until 2030, at the earliest.

IEEFA's analysis found that if the Lamu Coal Plant were built and operated, it would:

1. Increase electricity rates for consumers
2. Increase Kenya's greenhouse gas emissions
3. Slow the development of less expensive and cleaner geothermal, wind, and solar
4. Make it very difficult, if not impossible for Kenya to comply with the Paris Accord
5. Be in direct opposition to President Kenyatta's 2018 pledge to move the country to 100% renewable energy

In 2017, the MoE determined that if the Lamu Coal Plant is to be built, it should be constructed in phases with 150MW units in order to reduce the risk of over-capacity.

IEEFA concluded that Kenya should cancel the project entirely.

"Cancelling the project would save Kenyan ratepayers billions of dollars and give the country's nascent solar and wind power developers a chance to build capacity on a level playing field instead of competing against Lamu's onerous take-or-pay contract." - David Schlissel, IEEFA

Download the full report here.

Referenced Ministry of Energy reports:

- Kenya Regulatory Commission. Power Generation and Transmission Master Plan, Kenya Long Term Plan 2015-2035 Vol. I – Main Report. October 24, 2016.
- Republic of Kenya. Updated Least Cost Power Development Plan Study Period: 2017-2037, June 2018.

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