Medupi coal power plant  South Africa

Sectors: energy plants - coal

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Created before Nov 2016
Last update: Nov 22 2017

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Project website

Status

About Medupi coal power plant

The Medupi Power Station is a coal-fired power plant currently under construction in Lephalale, South Africa. The project comprises six 800 megawatt units to provide a total installed capacity of 4,800 megawatt. The plant is being built by Eskom.

Eskom is a state-owned enterprise. Established in 1923, it was corporatized from the start, being set up to run on business principles and to deliver cheap and abundant electricity primarily to mining and industry. Eskom is planning for 13,500 megawatt based on coal-fired power plants. The two new plants, Kusile and Medupi, are already under construction and will be the third and fourth largest power plants in the world. With these two new coal power plants the proportion of coal fired baseload will increase by about 95%.

South Africa is one of the most carbon intensive economies in the world. CO2 emissions for 2004 were estimated at 440 million tonnes with Eskom accounting for more than 40%. In the year to March 2008, Eskom burnt in excess of 125 million tonnes of coal and emitted 223.6 million tonnes of carbon, according to its 2008 annual report. The Medupi and Kusile will add another 30 million of metric tonnes and 35 million of metric tonnes per year of CO2 respectively. Medupi was meant to come online in 2013, but the first power to be produced by the plant has come from only one of its six units in February 2015. Eskom has adjusted its expectations for full synchronisation to the power grid of all six units to the year 2020.

Due to power shortages, in 2007 the South-African state-owned electricity company Eskom awarded contracts to build two identical coal-fired power plants. Known as Medupi and Kusile, each plant would have a generating gross capacity of around 4,800 megawatt. The combined output of the plants would represent about 25% of South Africa's power generation capacity. Both plants are currently under construction. The Medupi power plant is more advanced in terms of construction and finance.

The first unit of Medupi is scheduled to be commissioned in mid-2012, with the last unit scheduled for commissioning by 2015. The coal for the power plant will be sourced from Exxaro Coal’s Grootegeluk coal mine which will increase production by 14.6 million tonnes a year to supply the new power plant. Medupi has attracted widespread criticism in South Africa and has already been at the center of a local and international campaign targeting the World Bank at the beginning of 2010. If the plant is built to its full specification, it will emit more CO2 than 115 countries, and contribute to the destruction of the water system in Mpumalanga where new coal mines will be opened up to serve the two new power plants.

What must happen

South Africa has abundant renewable energy resources, including on- and offshore wind and solar power. Combined with energy efficiency measures and more decentralised energy provision, these resources offer the potential for South Africa to transition towards a low carbon power sector and economy, with appropriate financial support from developed countries.

The government has recently introduced a feed-in tariff system, designed to promote renewable energy generation. This policy is, however, at odds with the vision for power generation promoted by Eskom. It is considered a “fig leaf” in South Africa, and most research and development is still being directed to coal (e.g. futile carbon capture and storage schemes) and nuclear.

That is why the building of Medupi must stop immediately. All financial institutions involved have to end the financial services they contracted with Eskom as long they are used to build the Medupi power station. Banks should declare a moratorium on financing new coal-fired power plants as an urgent climate protection measure. Capital should instead be directed at energy efficiency and renewable energy financing opportunities.

The coalition of more than sixty South African groups made these points in February 2010. They argued that instead of expanding its coal and nuclear facilities, Eskom should engage in serious demand-side management, beginning by phasing out electricity to smelters that have little linkage with the...
Concrete plans should be made for a “just transition”, so as to provide alternative, well-paid “green jobs”, e.g. in subsidised thermal-solar geysers for every house, to those workers who are employed at the smelters. At the same time, the special purchase agreements should be disclosed to the public and opened for renegotiation.

The freed up energy should be redistributed to provide for a much larger "lifeline" supply of universal free basic electricity, with a rising block tariff to encourage conservation to improve spinning margins which will buy time for a switch into renewable energy technologies. By not expanding its coal and nuclear facilities and instead redistributing the electricity capacity it has, and by simultaneously switching to renewable sources, Eskom can survive the financial and electricity access crises, and help the world solve the climate crisis. At present it’s Africa’s main contributor to both crises.

Issues

Social issues

South Africa has suffered several severe energy shocks in recent years, including rolling black-outs in 2008, which caused significant damage to the South African economy. This reflects many years of little or no investment in energy infrastructure.

However, the current proposal is seen by many as an attempt to sustain very low-cost energy supplies to South Africa’s intensive and extractive industries, dominated by a few multinational corporations, BHP Billiton, Anglo American, Arcelor Mittal and others, rather than an effort to address the underlying energy needs of communities. South Africa’s mines and smelting operations use around 40% of the country’s energy, supplied under contract conditions which make it the cheapest power in the world. They export their profits, contributing to South Africa’s huge current account deficit, for which South Africa was labeled the world’s most risky emerging market by The Economist.

Eskom and the South African Government have suggested that new coal-fired capacity will enable South Africa to guard against future energy shocks, support industry and sustain growth. This, in turn, they claim, will assist South African development and alleviate poverty.

In fact, the project will NOT support sustainable development and poverty alleviation, but instead will add costs onto ordinary South African energy customers. They already face higher charges, an average of 25% price increases from 2008-12, although in 2010 inflation was only 5%, and significant energy access challenges, including millions of electricity disconnections. The World Bank’s own analysis suggests that support for fossil fuel and extractive projects has little benefit for poverty alleviation.

Moreover, evidence from the historical operation of South Africa’s energy system shows that whilst it is the extractives who benefit from cheap electricity, the cost of constructing the coal plant is likely to be borne by all South African citizens, which will increase fuel poverty. Indeed, the beneficiaries, the largest industrial consumers, are exempt from price rises because of multidecade special purchase agreements offered to them during apartheid and in the 1990’s.

As a result, this will entrench suffering by imposing "cost recovery" on people who cannot afford it, with Eskom asking for a "typical township household" to face a 2009-2012 monthly price rise from ZAR360 (USD48) to ZAR1000 (USD130).

Environmental issues

According to the Centre for Global Development, the station would emit around 29 million tonnes of carbon dioxide per year, South African emissions in 2007 were around 452 million tonnes of CO2, according to data, supplied by the International Energy Agency to the Guardian. Friends of the Earth put the annual emissions of Medupi slightly lower - at 25 million tonnes per year. Medupi would then become the fourth most carbon intensive, as well as one of the largest, power plants in the world.

The South African power sector is already one of the most carbon intensive in the world. South Africa is responsible for 40% of the entire total of African emissions, with a per capita emission at around 9-10 tonnes per person, higher than that of many European countries and ten times that of most other African countries. Demand for coal is also likely to drive the opening and expansion of coal mines in South Africa, with devastating local environmental impacts.

If Eskom’s plans go ahead, including not just Medupi, but another even larger new coal-fired power station at Kusile, and a range of life-extensions and expansions, then the company’s own consultants anticipate that 35 new mines will be required to support them. Recent plans to expand South Africa mining operations into sensitive environments have caused international protests.

The proposed power plant would be extremely water-hungry, taking up essential water supplies in a country where scarce water resources are already compromised by mining activities. The impacts of mining on South Africa water supplies are well-documented. The Medupi coal power plant is is being built in the water-scarce region of Lephalale in the Limpopo province. One dam, the Mokolo Dam is currently providing the water supply for all mining, agricultural and power generating activities in the vicinity. The capacity of this dam is insufficient to also provide for the power generating activities required by the Medupi power plant. The leaked investigation report of the World Bank inspection panel, dating November 2011, confirms that there are significant water consumption issues due to the construction of the Medupi coal power plant. Both because of water scarcity and pollution in the local area.

Human rights

Health. A 2006 report by Eskom, which it was forced to disclose after the Centre for Environmental Rights filed a promotion of access to information act application in 2014, contained information about the health aspects of the Medupi power plant. It stated that when Medupi is operational, of those
living within 25 km of the power station, **1.4 people a year** will be killed and an additional 144 will be put in hospital. Health risks could be decreased, if flue gas desulphurisation technology would be used. The utility company has used this technology in their new power station in Kusile, but has asked for a delay in the implementation for Medupi until 2027.

Working conditions. The project has been subjected to several strikes over the years, with workers demanding better working conditions and wages and complaining about discrimination. The most recent strike in March 2015 led to contract termination of 1,000 employees.

**Governance**

**Updates**

**Eskom contractors fire more than 1,000 workers over "illegal Medupi strike"**

Mar 25 2015

More than 3,000 contract workers went on strike today to complain about poor pay and discrimination. As a response to the strike, Eskom has halted operations on the power plant for safety and security reasons.

**First unit of Medupi power plant online**

Mar 2 2015

According to Eskom: Medupi has achieved a significant stage in its construction by the synchronisation of its first unit on 2 March 2015 to the National grid. Within the next three to six months, South Africa will see Medupi unit 6's full potential of 794 megawatt being fed into the South African national grid.

**Delay of first unit**

Jul 8 2013

In July 2013 Eskom announced that synchronization of the first unit of the power plant to the South African electricity grid would be delayed until 2014, and full operation by 2017, due to rising costs.

**World Bank report**

Nov 21 2011

An investigative report of the Inspection Panel of the World Bank has reported several issues in regards to the Medupi power plant: significant water consumption, raising issues of both scarcity and pollution in the local area; emission of gases and particulates causing increased health problems in the local area; added burden on the limited institutional and financial capacity of local authorities that have to cope with rapid industrialization of the area, especially as related to public and social infrastructure and environmental management; and emissions of greenhouse gases by the Medupi Power Plant. **Read more ...**

**Operations resume**

May 26 2011

After weeks of protests at both Medupi and Kusile, the Medupi power plant resumed operation on May 23, 2011. Operations on Kusile have only been partially resumed while talks continue to end the protests. The protests began when foreigners were hired as welders while other local contacts were being ended. To read more about the protests **go here.**

**Eskom confirmed** in April that the first of six 800 megawatt units, Unit 6, at its Medupi coal-fired power station should start supplying power to the national grid in the third quarter of 2012. In September 2010, they acknowledged that the commissioning of the unit faced a three-month delay and that it would not be commissioned by June 2012.

In the summer of 2010, the World Bank Inspection Panel, the grievance mechanism of the World Bank, was authorized to launch a full investigation in the approved loan for the Medupi Coal plant. In particular, the investigation is centred on the alleged policy violations of the World Bank's USD3.75 billion loan to Eskom. The decision was driven by the local opposition to the plant and the formal complaint filed by local NGOs. Many civil society groups commended the decision for the investigation, as many worry of the negative public health and environmental impacts, as well as impacts on community members' economic opportunities and standards of living. The World Bank reviewed its Energy Strategy, with the aim of putting in place a new strategy in 2011 to guide its energy lending portfolio for the next decade. The hope is that the findings from the Inspection Panel will convince the World Bank that fossil fuels must not receive limited financial resources. **Click here for more information.**

The World Bank has already approved USD3.75 billion in April 2011 for Medupi along with USD1.25 billion from African Development Bank. In 2010 the US abstained from voting on this funding application to the World Bank of Eskom for the Medupi plant, but one year later the US Export and Import Bank approved USD800 million for financing the Kusile coal power plant.

**Financiers**

**Banks**
<table>
<thead>
<tr>
<th>Bank</th>
<th>Country</th>
<th>Profile</th>
<th>Type</th>
<th>Amount</th>
<th>Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BHF</strong></td>
<td></td>
<td></td>
<td>Debt – corporate loan</td>
<td>USD 740 million</td>
<td>May 2009</td>
<td>Proceeds were used to fund part of the Medupi boiler contract with Hitachi. At the time of the loan BHF was a wholly owned subsidiary of Sal. Oppenheim. &lt;br&gt; &lt;br&gt; <em>source:</em> Eskom Secures Loan from European Banks to Fund Expansion in South Africa, Global Insight, 22 May 2009.</td>
</tr>
<tr>
<td><strong>BNP Paribas</strong></td>
<td>France</td>
<td>profile</td>
<td>Debt – corporate loan</td>
<td>EUR 1.185 million</td>
<td>December 2009</td>
<td>ECA/Coface-covered loan to fund turbine contracts with Alstom for the Medupi and Kusile plants &lt;br&gt; &lt;br&gt; <em>source:</em> <a href="#">link</a></td>
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<td><strong>Commerzbank AG</strong></td>
<td>Germany</td>
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<td><strong>Credit Mutuel-CIC</strong></td>
<td>France</td>
<td>profile</td>
<td>Debt – corporate loan</td>
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<td>December 2009</td>
<td>Part of €1,185 million syndicated loan (December 2009) ECA/Coface-covered loan to fund turbine contracts with Alstom for the Medupi and Kusile plants &lt;br&gt; &lt;br&gt; <em>source:</em> Agence France Presse, “S.Africa power firm gets loans from French banksâ€ ”, Agence France Presse, 28 December 2009.</td>
</tr>
<tr>
<td><strong>Crédit Agricole</strong></td>
<td>France</td>
<td>profile</td>
<td>Uncategorised</td>
<td>EUR 63.7 million</td>
<td>August 2010</td>
<td>Export credit - ECA/Coface-covered loan used for the control and instrumentation contract supplied by Alstom &lt;br&gt; &lt;br&gt; <em>source:</em> <a href="#">link</a></td>
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<td><strong>HypoVereinsbank</strong></td>
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<tr>
<td><strong>JPMorgan Chase</strong></td>
<td>United States</td>
<td>profile</td>
<td>Advisor</td>
<td></td>
<td>April 2010</td>
<td>Advising Eskom on its funding options &lt;br&gt; &lt;br&gt; <em>source:</em> <a href="#">link</a></td>
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<tr>
<td><strong>KfW IPEX-Bank</strong></td>
<td>Germany</td>
<td>profile</td>
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</tbody>
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### Export credit agencies

#### Coface
- **Debt – corporate loan**
  - EUR 1,185 million
  - December 2009
  - Covering a 5 French banks syndicated loan
  - Source: [link](#)

#### Investment funds

#### Public Investment Corporation (PIC)
- **Approached, interested**
  - USD 1.2 billion
  - May 2010
  - No recent information/confirmation could be found on these investment plans. (March 2015)
  - Source: [link](#)

#### Multilateral development banks

#### African Development Bank
- **Debt – corporate loan**
  - USD 1.86 billion
  - November 2009
  - Funding was used to fund the supply and installation of boilers and turbo-generators
  - Source: [link](#)

#### Development bank of Southern Africa
- **Debt – corporate loan**
  - USD 2.17 billion
  - November 2010
  - This loan will be drawn over five years and does not utilize guarantees from the South African Government. The loan was mainly used for the Medupi and Kusile coal-fired power stations and the Ingula Pump Storage scheme with its associated transmission infrastructure.
  - Source: Development bank of Southern Africa

#### World Bank (IBRD, IDA)
- **Debt – corporate loan**
  - USD 3.05 billion
  - 8 April 2010
  - Source: [link](#)

Eskom has currently (March 2015) already secured USD13.4 billion for its Medupi project. To complete the financing cost, approximately USD 1.5 billion is still needed. Part of this amount will probably be supplied by Eskom through its own capital reserves. The amounts provided so far are divided as follows; Eskom has provided USD7.575 billion, the multilaterals USD5.883 billion and the remainder of USD2.020 billion has been provided by other financial institutions.

### Related companies

- **Alstom** France [show profile]
  - Contractor

- **Eskom** South Africa [show profile]
  - Energy plants - coal | Energy plants - nuclear

- **Evonik Industries** Germany
  - Evonik is working on the construction of the Medupi power plant.

- **Exxaro** South Africa
  - Coal from Exxaro’s Grootgeluk mine will fuel the Medupi coal power plant.
<table>
<thead>
<tr>
<th><strong>Hitachi Japan</strong></th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Siemens Germany</strong></td>
<td>Took over from Alstom on the control and instrumentation works for the Medupi power plant</td>
</tr>
</tbody>
</table>