



THE PRESIDENCY
REPUBLIC OF SOUTH AFRICA

Ending the Energy Crisis

FREQUENTLY ASKED QUESTIONS

January 2023

Image: <https://i.pinimg.com/2018/09/28/the-african-space-dec/>



What is load shedding?

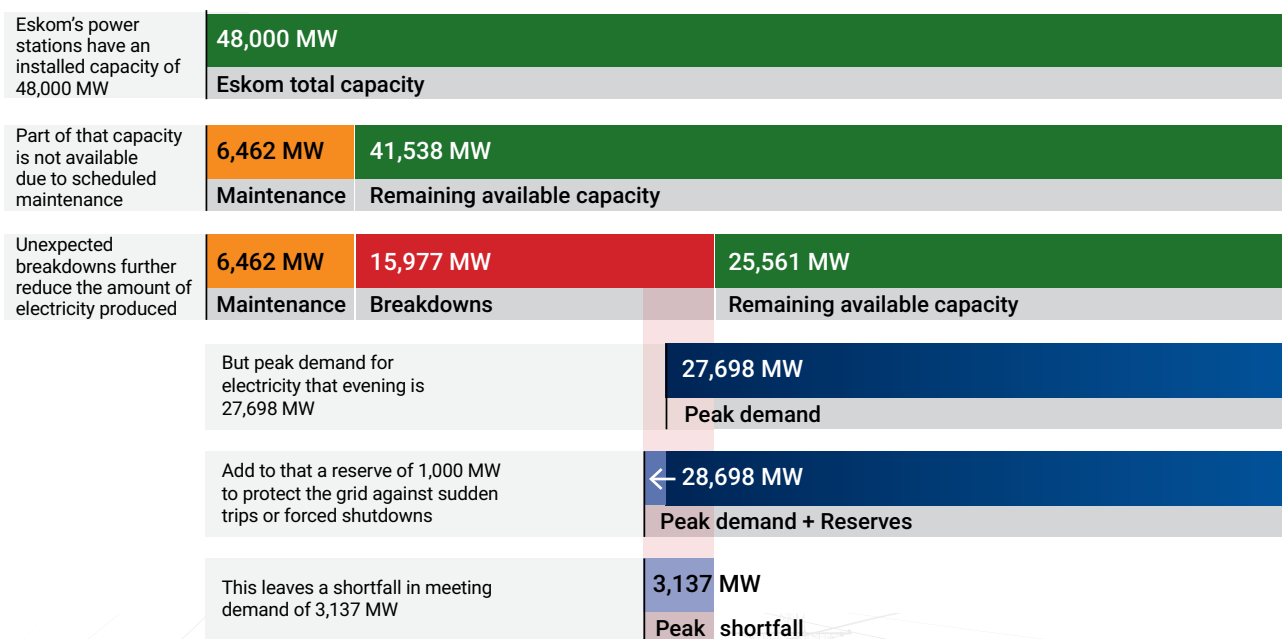
When the demand for electricity is higher than what Eskom can generate, it is necessary to reduce demand by 'turning off' electricity supply to certain areas in the country for a specified time.

If this is not done, the whole electricity system would go down and the entire country would experience an uncontrolled blackout. It could take days to get the system up and running again.

The stages of load shedding depend on the size of the gap between electricity demand and supply.

As the stages increase, load shedding happens more often and for longer.

Load shedding explained. Data from 25 January 2023.





Why can't Eskom produce enough electricity?

In the late 1990s, Eskom recognised that South Africa needed to build **new power plants** to meet demand as several existing plants were nearing the end of their lives. However, due to poor policy decisions, there was a **delay** in building new plants. By 2008, Eskom was not able to meet demand and South Africa experienced load shedding for the first time.

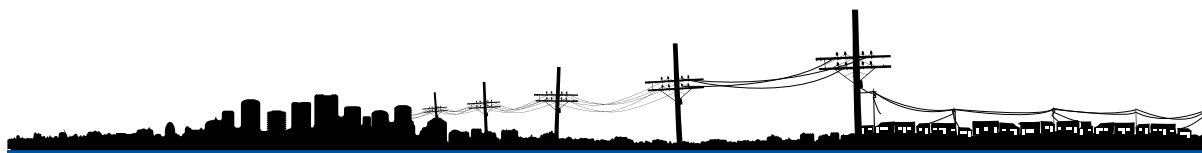
That is when construction started on **two new power stations**, Medupi and Kusile. But due to inadequate planning, a lack of technical skills and corruption, there were several flaws in the design and construction. These have badly affected the performance of these new plants.

To avoid load shedding, for many years the existing **power plants were run much harder** than they should have been and critical **maintenance was postponed** or didn't happen. This is why so many of the units at these power stations break down today.

Government introduced a very successful **renewable energy programme in 2011**, where independent power producers built solar and wind plants and sold the electricity to Eskom. But this was **stopped in 2015**, when the Eskom management refused to sign agreements to buy the power. It is estimated that this **prevented the construction** of 5,000 MW of generation capacity.

State capture and corruption at power stations made the situation worse. This increased the **cost of coal, spares and maintenance**. Billions of rand were **stolen**. Many experienced and skilled people left Eskom.

All of this means that many of the power plants, including the new ones, are **unreliable** and can break down without warning.



Why is it so bad now?

To reduce **unplanned breakdowns** and **extend the life** of power stations, Eskom has intensified its **maintenance programme**. Because a unit needs to be taken offline to do maintenance, there is less generating capacity in the system.

A number of large generating units are currently offline:

- There is a major overhaul underway on **Koeberg unit 1** to extend its life by another 20 years.
- **Medupi 4** is being repaired after a hydrogen explosion in August 2021.
- A technical fault at **Kusile 1** has also knocked out **Kusile units 2 and 3**.



Koeberg (WC)



Medupi (LP)



Kusile (MP)



What has government done to fix the problem?

Since 2018, much has been done to fix the problems in our electricity system:

Eskom's board and executive leadership, which had been **compromised by state capture**, was **replaced by qualified individuals**.

Changes to Eskom's structure to create a **separate state-owned transmission company** were started. This company will be able to **buy electricity from different producers**, including Eskom, at a competitive price. This will improve the reliability of supply.

The **renewable energy programme was revived**, with 2,200 MW connected to the grid to date and another 6,800 MW at various stages of procurement.

Regulations were changed in July 2021 to exempt private embedded generation projects of less than 100 MW from having to obtain a licence. This is where companies produce electricity for their own use and to sell on to other users. As a result of these changes there are now about 100 such projects in the pipeline with a total capacity of more than 9,000 MW. In December 2022, the 100 MW limit was removed completely.



What more is being done to fix the problem?

In July 2022, President Cyril Ramaphosa announced a **series of measures** to, firstly, **improve the performance** of Eskom power stations, and, secondly, to bring **new generating capacity** onto the system as quickly as possible.

- **To improve the performance of its power stations**, Eskom has increased its maintenance budget and recruited skilled specialists, including former Eskom plant managers and engineers. It is focusing on the six power stations that have the most breakdowns.
- **To get additional electricity onto the grid quickly**, Eskom has started importing electricity from neighbouring countries and will buy surplus power from companies that already generate their own electricity.
- The other part of the response, which will both ease load shedding and ensure energy security into the future, is to **enable the construction of substantial new generating capacity**.
- Some of this power will be bought by Eskom through the **renewable energy programme**, which has been expanded and accelerated. In the last six months, agreements have been signed with independent power producers for 26 projects, which together will generate around 2,800 MW.
- **By removing the licencing restrictions** on private power projects, companies will be able to generate electricity for themselves and sell it across the grid to other users. So far, there are more than 100 such projects in the pipeline with over 9,000 MW of capacity. To bring these projects online faster, the time it takes to get the necessary approvals has been dramatically reduced.

- Another major source of new generating capacity will be **solar panels on the roofs of houses and businesses**. Work will soon be completed on a pricing structure that will allow customers to sell surplus electricity from rooftop solar panels into the grid. That way, they can meet their own power needs and help increase the amount of electricity on the grid.



How long can we expect load shedding to continue?

It is not possible to say with any certainty.

New generating capacity takes time to build and it will be a year or two before power projects that are given the go-ahead now will be able to supply electricity to the grid.

So the **priority** now is to make load shedding **less frequent** and **less severe**. Over the coming months, as Eskom produces and buys more electricity, there should be fewer days of load shedding. Where there is load shedding it should be at lower stages.



What is the problem with Eskom's finances?

Eskom has a **huge debt** that is largely the result of the **cost of building Medupi and Kusile**. The final cost of these power stations is expected to be about three times higher than originally budgeted. Poor management, state capture and corruption have contributed to the growing debt.

Eskom is also **owed about R57 billion by municipalities**, a figure that has kept growing.

As a result, Eskom has been spending much of its revenue **paying off its debt** and has not been able to recover all the money that it is owed. As a result, it has not been able to invest in new plants, ensure effective maintenance and has run out of money for things like diesel.

The **Minister of Finance** has announced plans to take over some of **Eskom's debt** and there are efforts to find ways for municipalities to pay their bills. There is also greater scrutiny of all contracts Eskom enters into. Eskom has **recovered R3 billion from companies** implicated in state capture and is seeking to recover R5 billion more through the courts.



What is the issue with diesel?



Most of Eskom's plants use coal. These are designed to run most of the time to provide the 'base load' of the country's power. However, at times of peak demand there are a few diesel stations that can be started up quickly to meet the increased need for power. These are called **peaking plants**.

Because of the poor performance of the coal fleet, these diesel plants have been used to fill the gap either to prevent load shedding or to make it less severe. As a result, Eskom has **exhausted its budget for diesel**, which is much more expensive than coal.



Ankerlig (WC)

Are we closing down all our coal plants?



No. In terms of the Integrated Resource Plan 2019 (IRP19), several **coal-fired power stations are due to be decommissioned** between now and 2030. This is necessary not only to reduce carbon emissions, but to address the deteriorating performance of older coal plants which are nearing their end of life. Most of our coal-fired power stations, including Medupi and Kusile, will **remain in operation** and will continue to **provide the 'base load' supply**.

What does this mean for our energy mix?



South Africa's future mix of energy sources is outlined in the IRP19. It envisages a **diversity of energy sources, including coal, renewables, nuclear, gas and storage**. Over time, the proportion of coal in the energy mix will decline and the proportion of renewable energy will increase. The IRP19 is currently being reviewed to take account of the declining performance of Eskom's old power stations, the lower cost of renewable energy, the funds available for the just transition and other factors.

How can there be an electricity tariff increase in the middle of severe load shedding?



The National Energy Regulator of South Africa (NERSA) is an independent body responsible for setting electricity tariffs. Earlier this month, NERSA approved a **electricity tariff increase for Eskom of 18%**. In arriving at this amount – which is lower than what Eskom asked for – NERSA said it was trying to find a balance between the sustainability of Eskom and the economic well-being of the consumers and the economy.

For more information of the [Energy Action Plan](https://www.stateofthenation.gov.za/assets/downloads/Update_on_energy_action_plan_JAN23.pdf) (www.stateofthenation.gov.za/assets/downloads/Update_on_energy_action_plan_JAN23.pdf)