



Energy Tracker

Better compared to a year ago but still a long way to go.

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Key takeaways

see money differently

Overview



Electricity supply has improved in H1 2024, with reduced load-shedding (LS) in Q1 and no LS in Q2.



The causes are weaker demand for energy combined with improved generative capacity from returning units to grid.



Electricity supply is still unstable, despite improvement in Eskom's EAF.



Generation capacity is still constrained. A more dramatic shift towards renewable energy (RE) is required to reduce the pressure on the national grid.



The evidence of continued energy insecurity is the ongoing reliance on the compensatory load and still significant levels of unplanned outages.



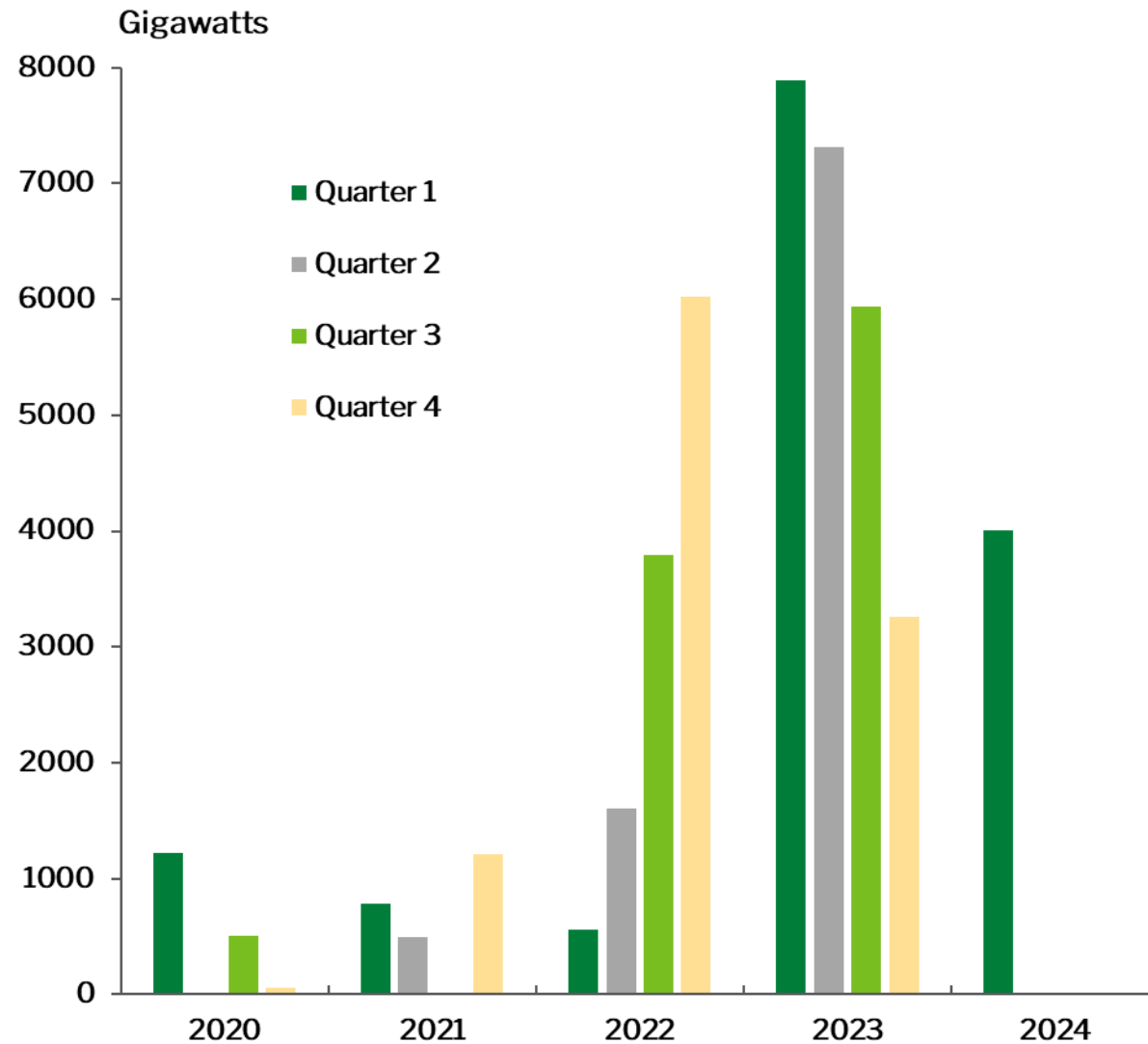
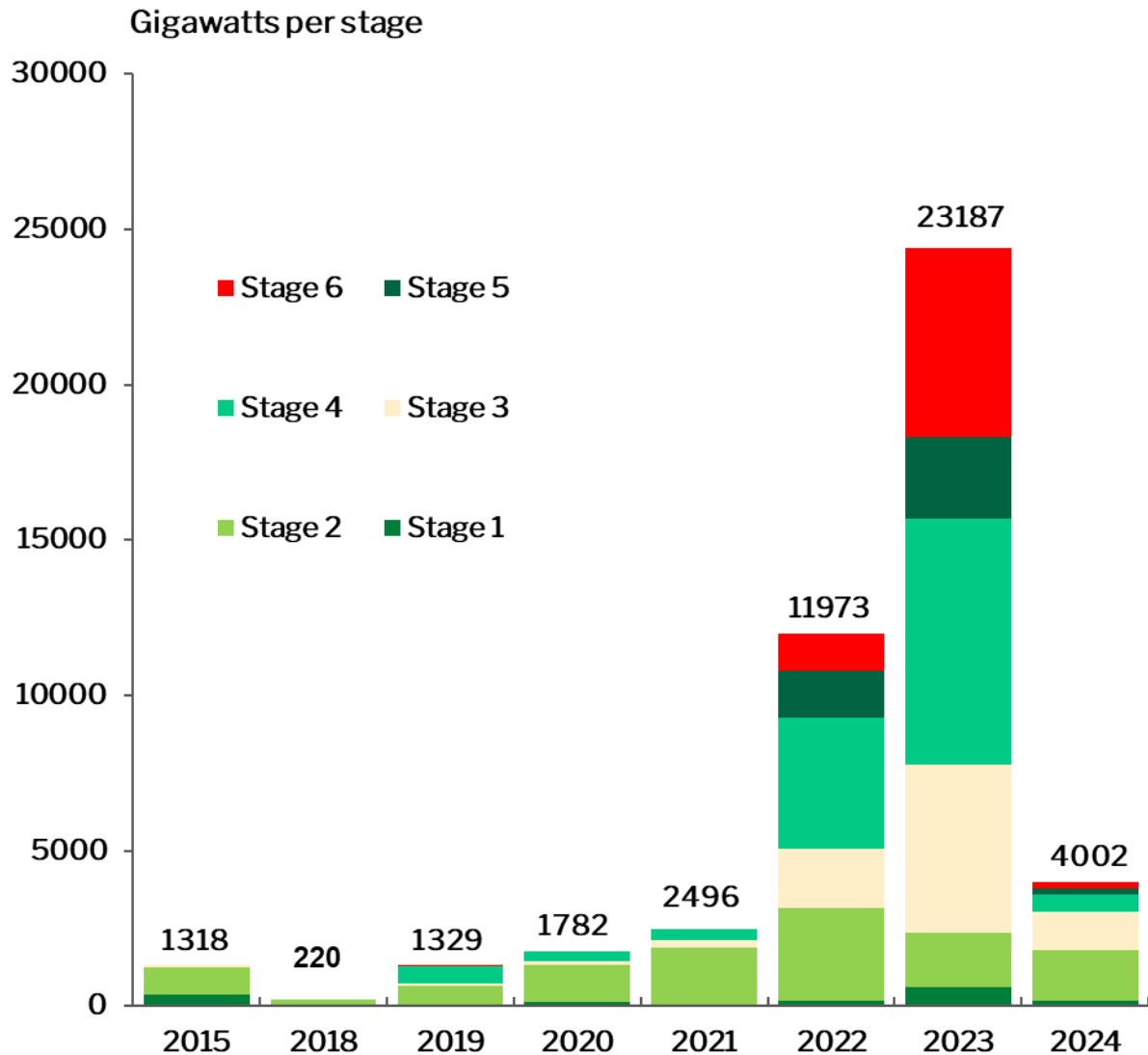
Expediting progress on the plethora of energy plans is required to bring about energy security.



There has been less LS so far in 2024 relative to 2023 and 2022

4002 GW have been shed from the grid over January - March

The last day of LS was 25-Mar-24, resulting in a LS-free Q2

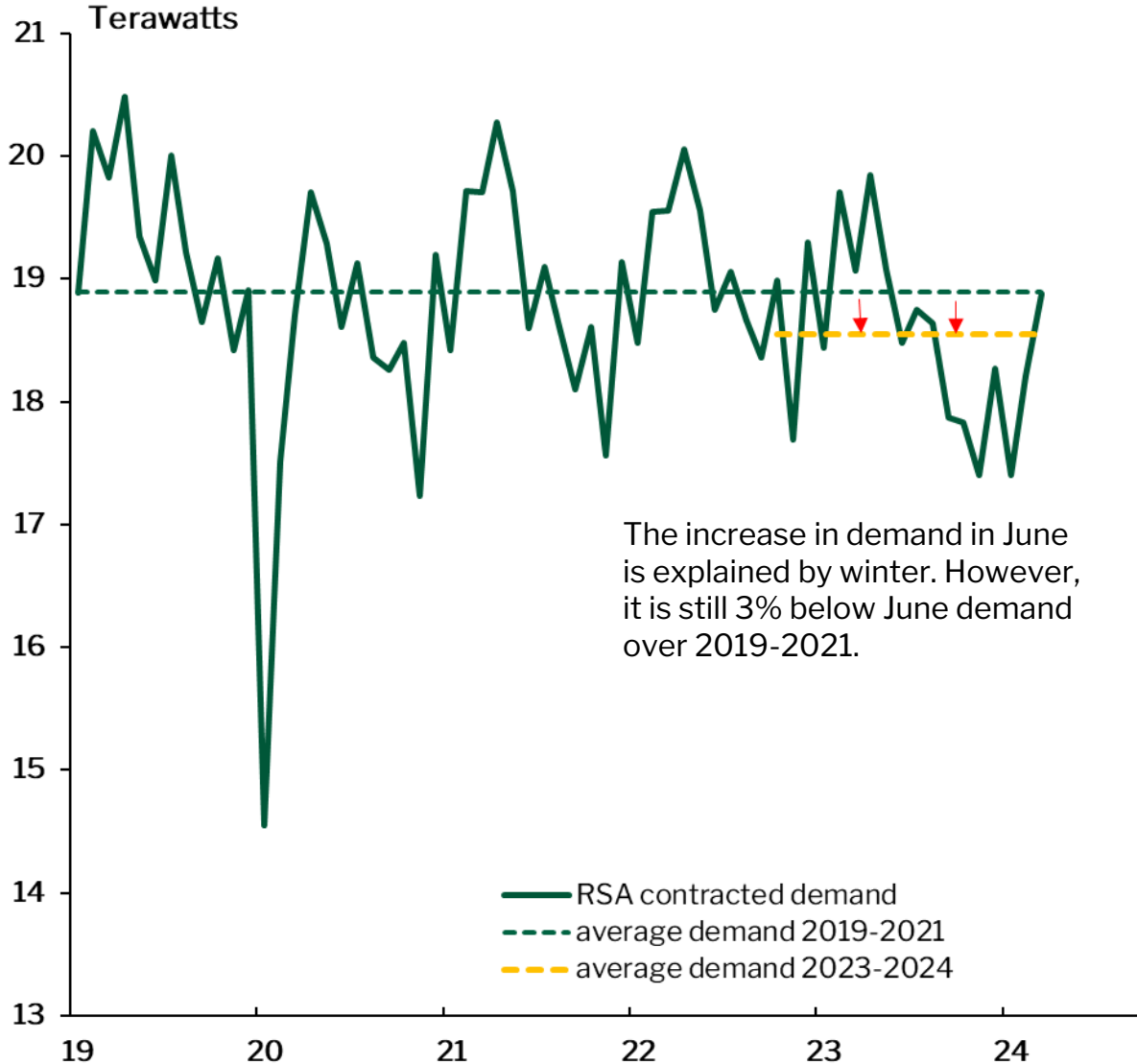


Source: EskomSePush & Nedbank calculations

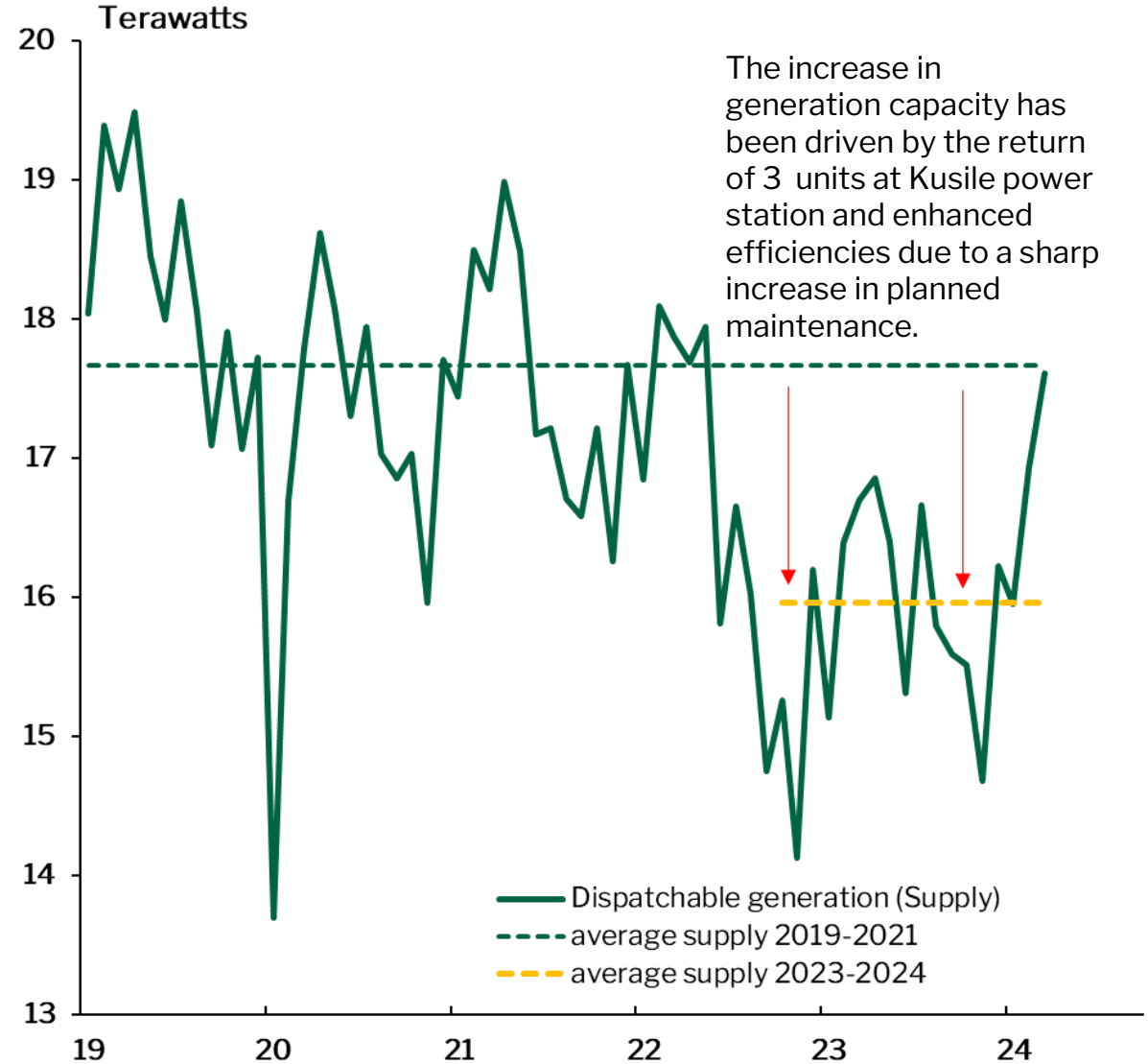
Improvements have been driven by falling energy demand and an uptick in supply



Demand has fallen below its 2019-2021 average, despite the recent uptick



Dispatchable generation ticked up to its 2019-2021 level in June but remains volatile and weaker on average.

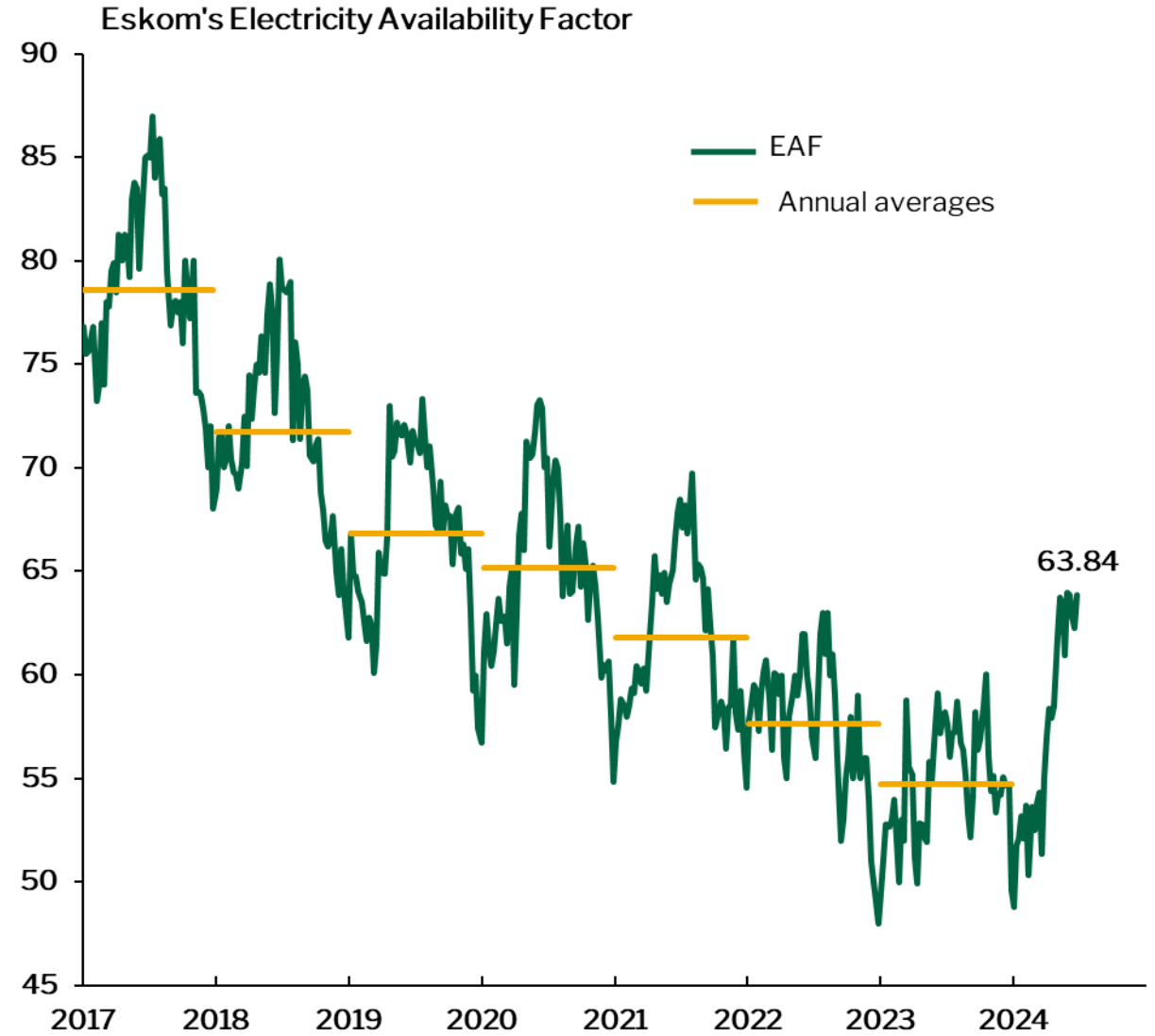
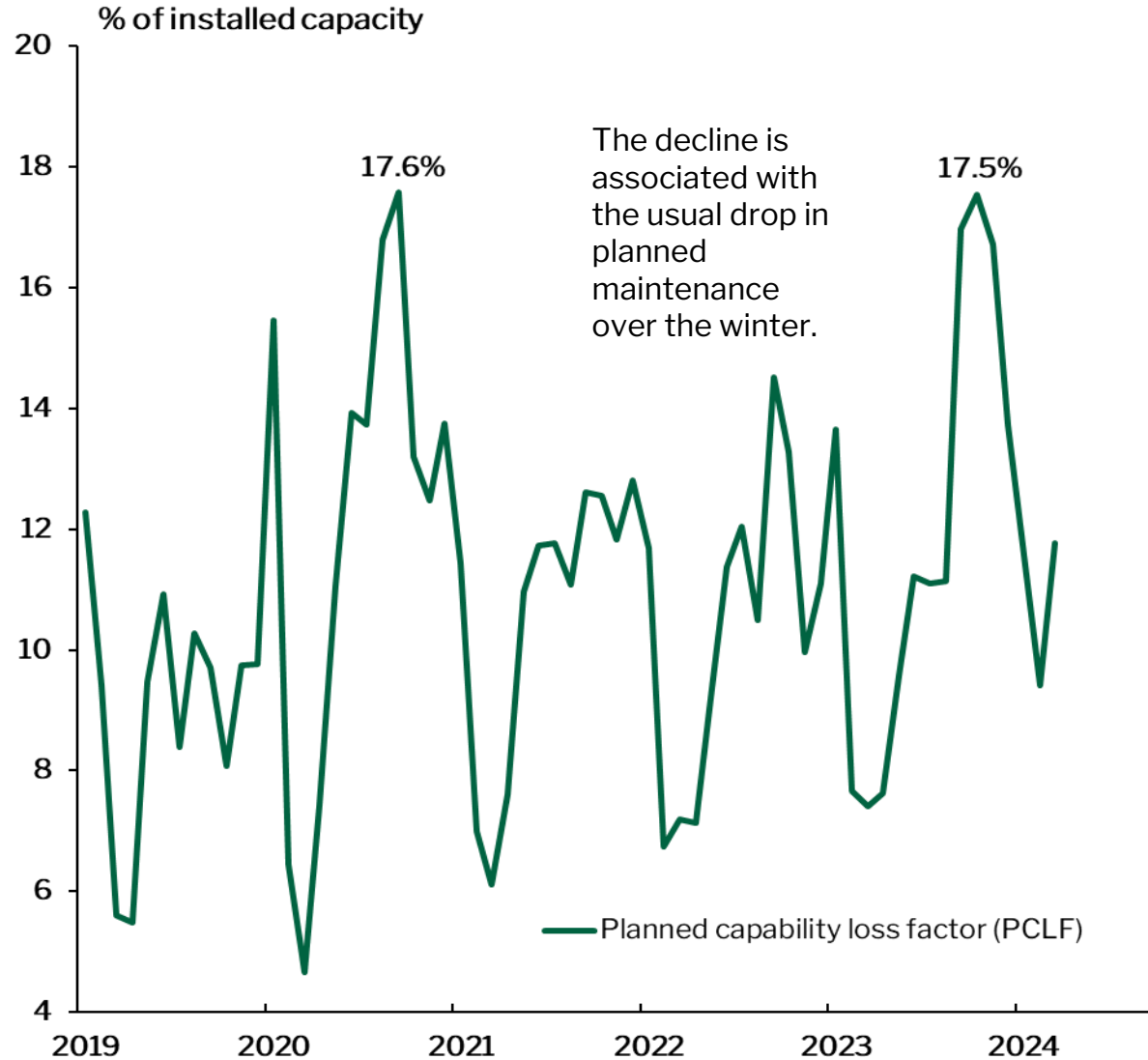


Falling demand has facilitated an increase in planned maintenance and an improvement in the EAF



The PCLF peaked at 17.5% in Jan-24, averaging 16% over Q1 and 11% in Q2

Which has arguably improved generative efficiency, resulting an enormous jump in Eskom's electricity availability factor (EAF)

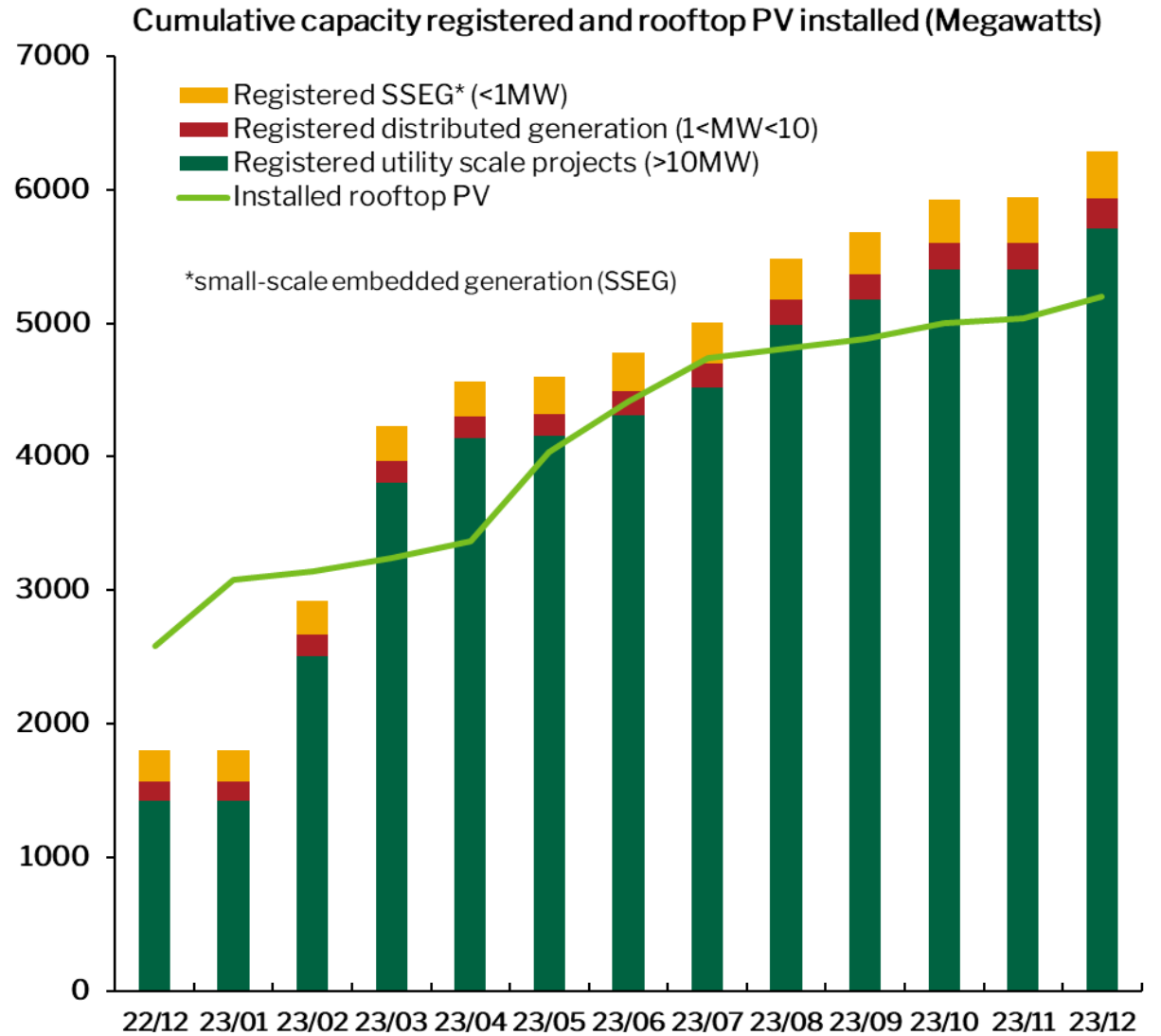
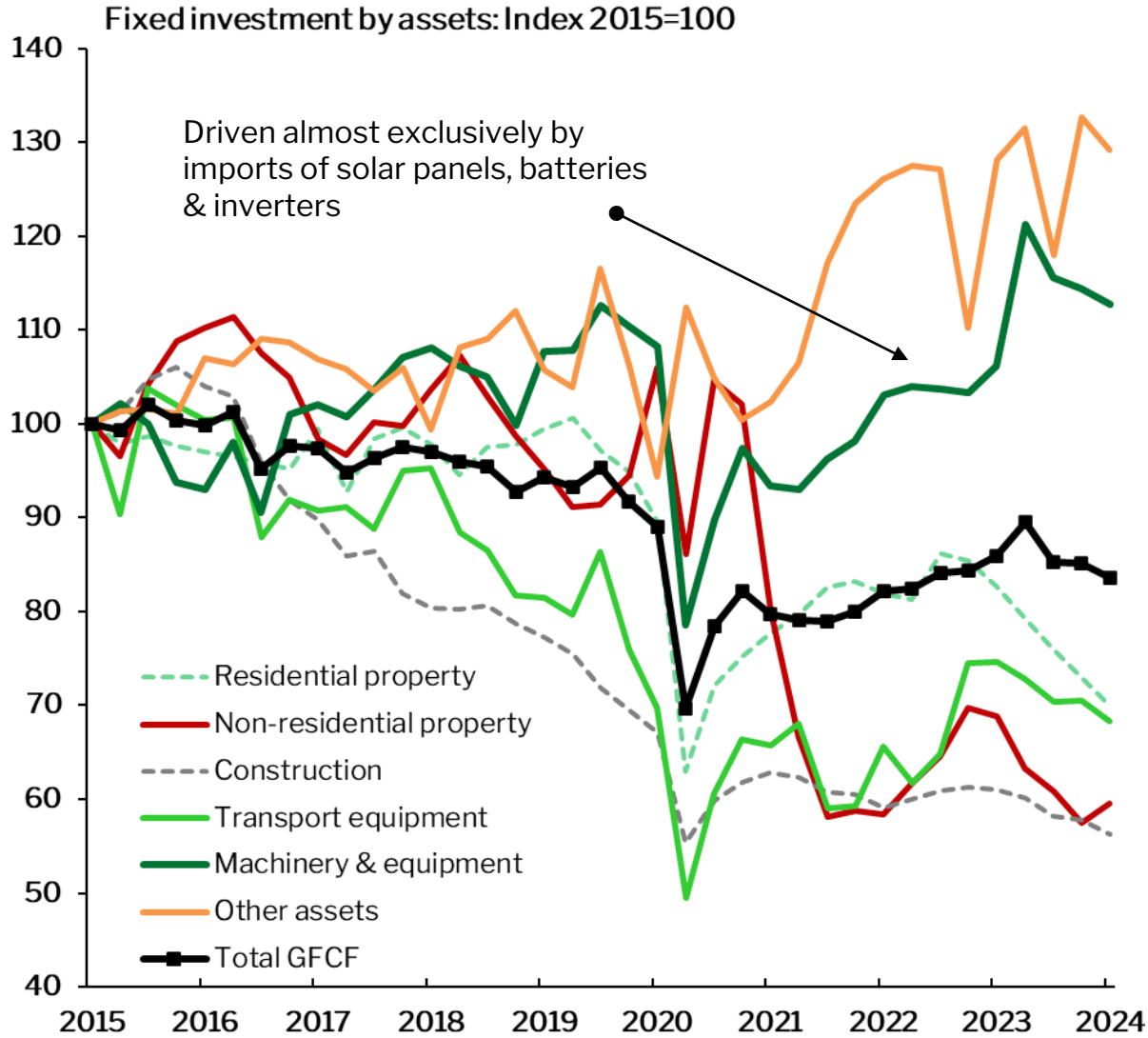


The shift to solar by households and businesses in response to the power crisis has led to the drop in energy demand.



Fixed investment into machinery and equipment (including solar panels, batteries and inverters) reflects the shift to RE.

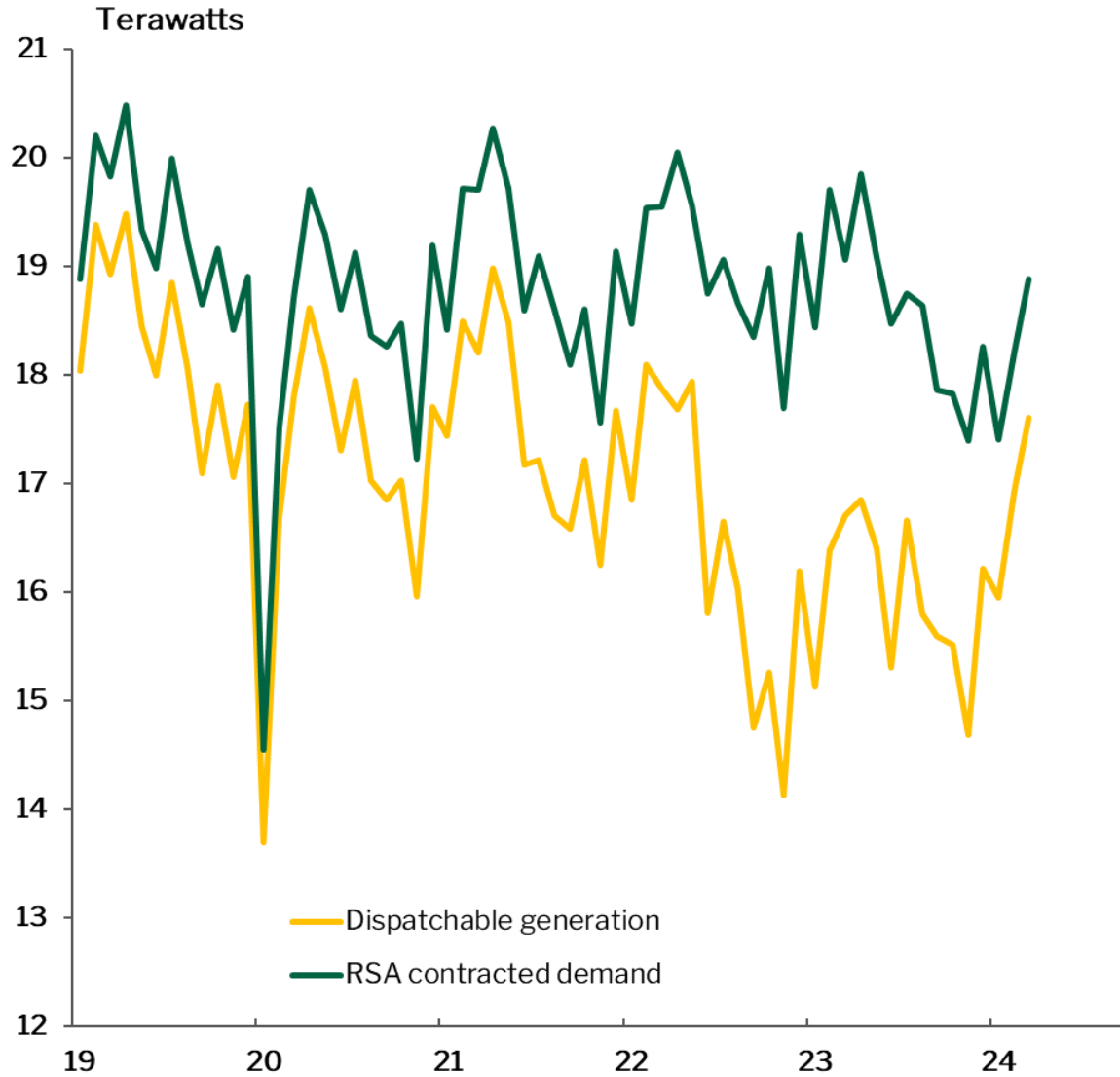
SSEG registrations have increased by 250% and solar PV installations by 101% between Dec-22 and Dec-23



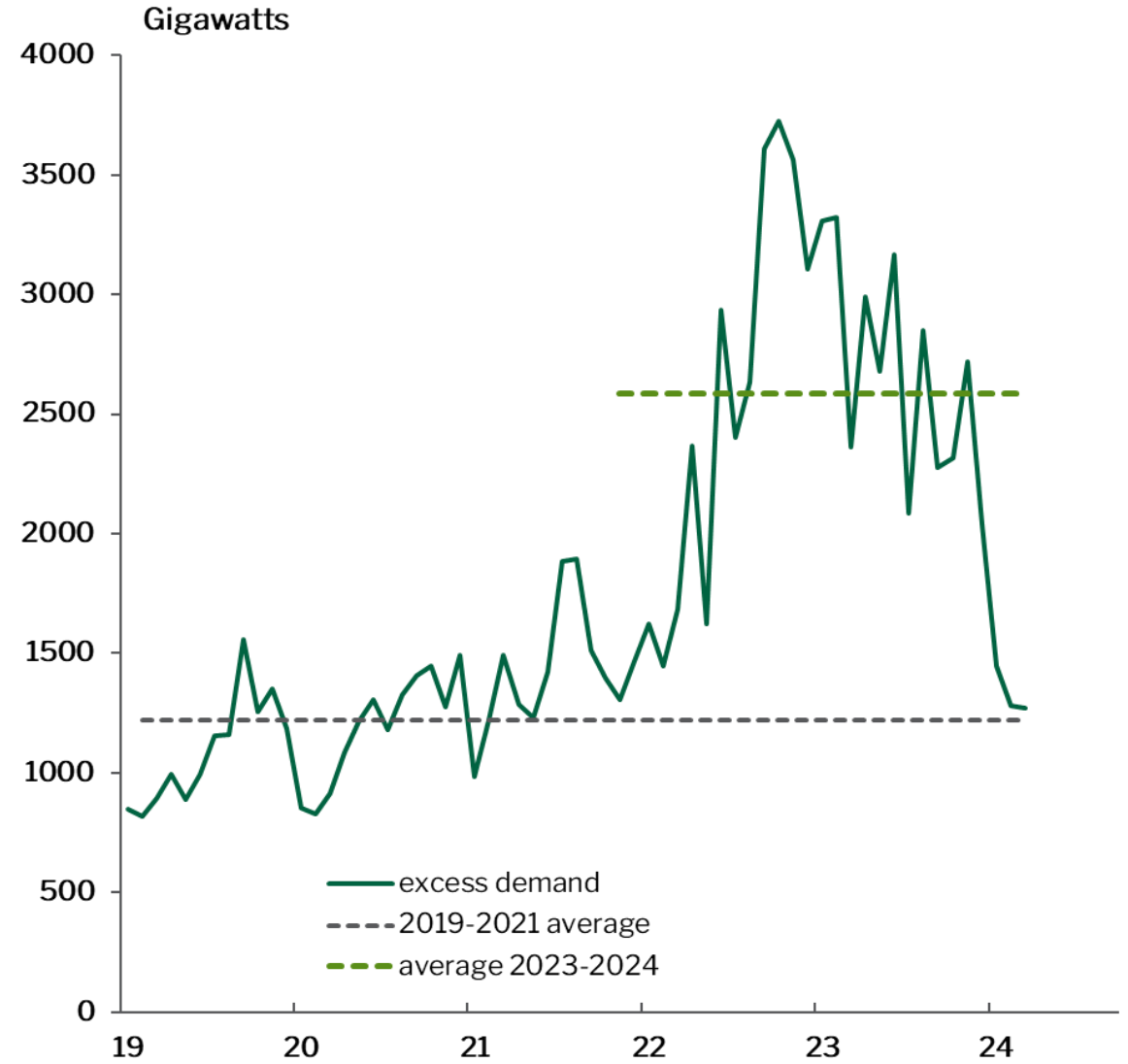
Despite the progress made excess demand over supply remains a pressing concern



Demand remains greater than supply...



...and we are yet to see a sustained drop in excess demand

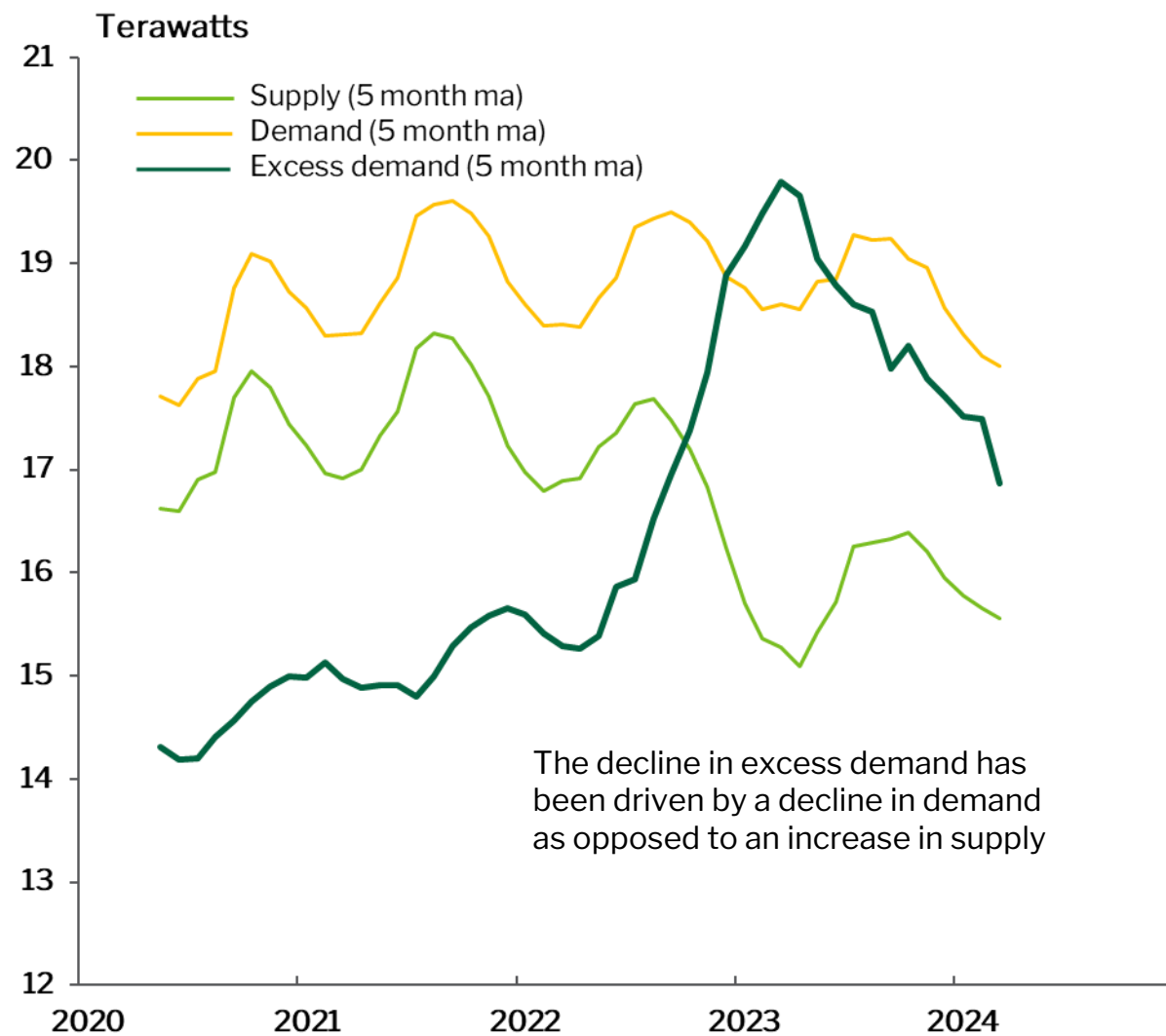
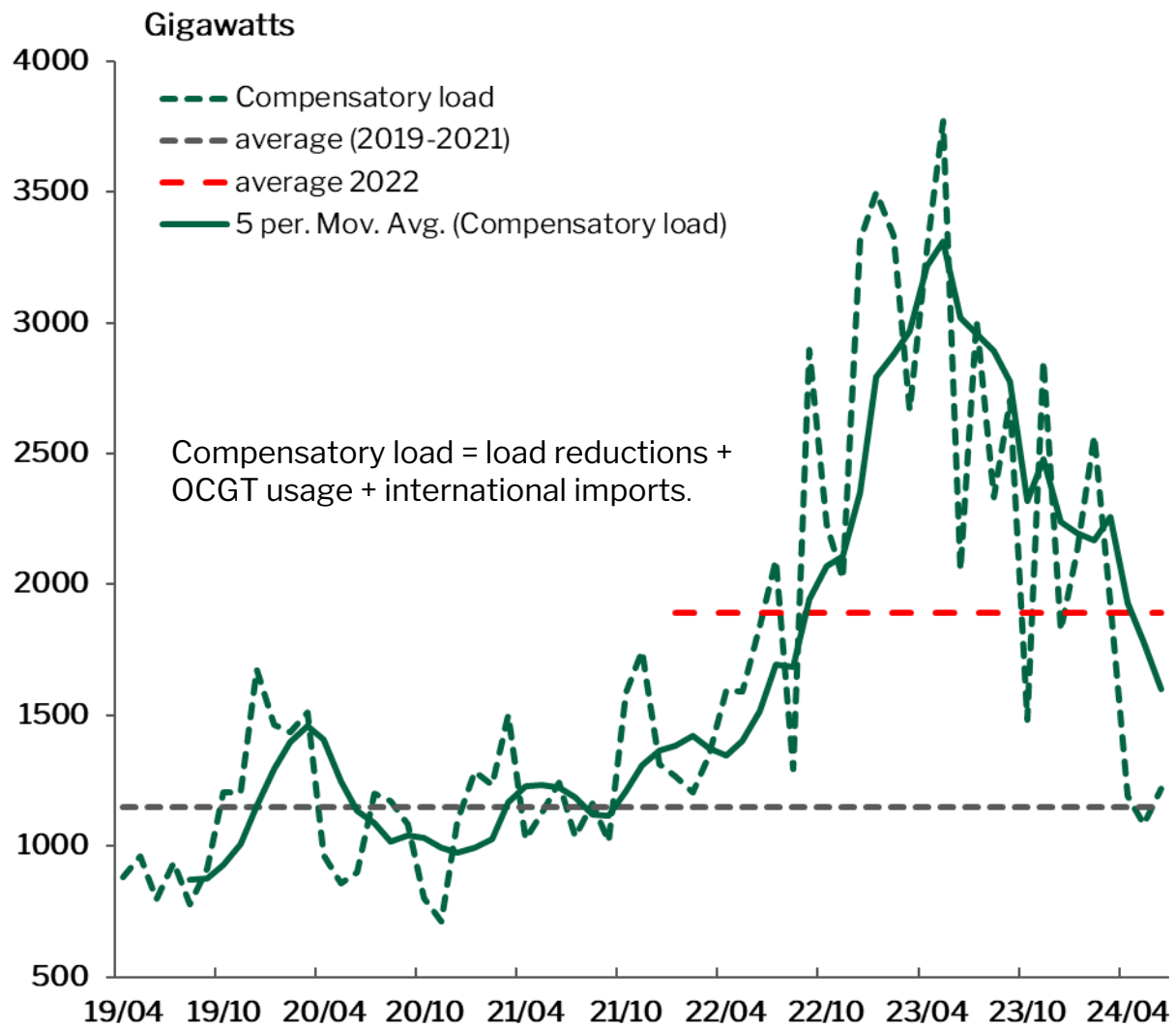


Excess demand is compensated for by load reductions + increased imports + open-cycle gas turbines



There has been a decline in the compensatory load, driven by the reduction in excess demand.

The more sustained decline in the compensatory load has been fuelled by the decline in excess demand over supply

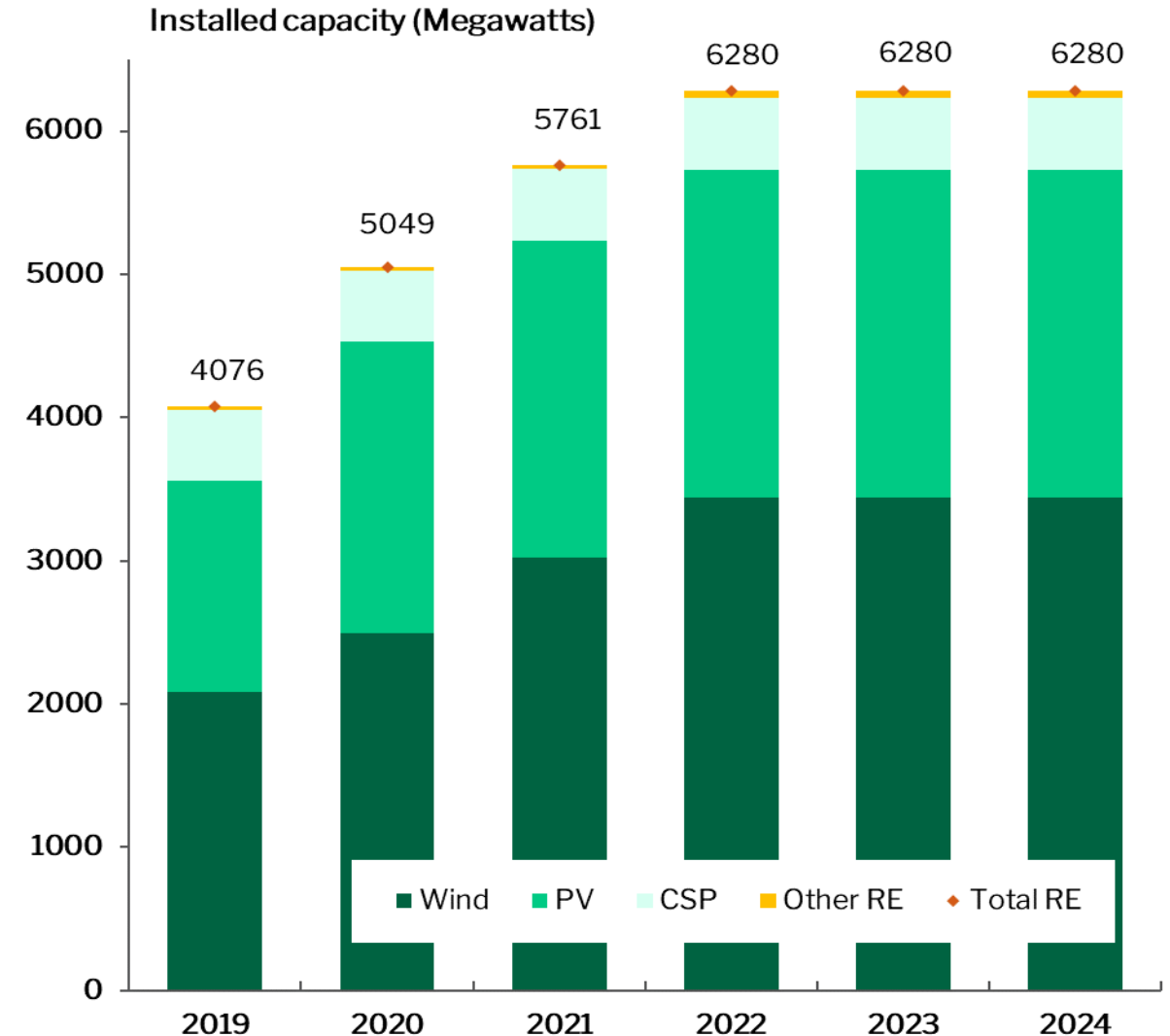
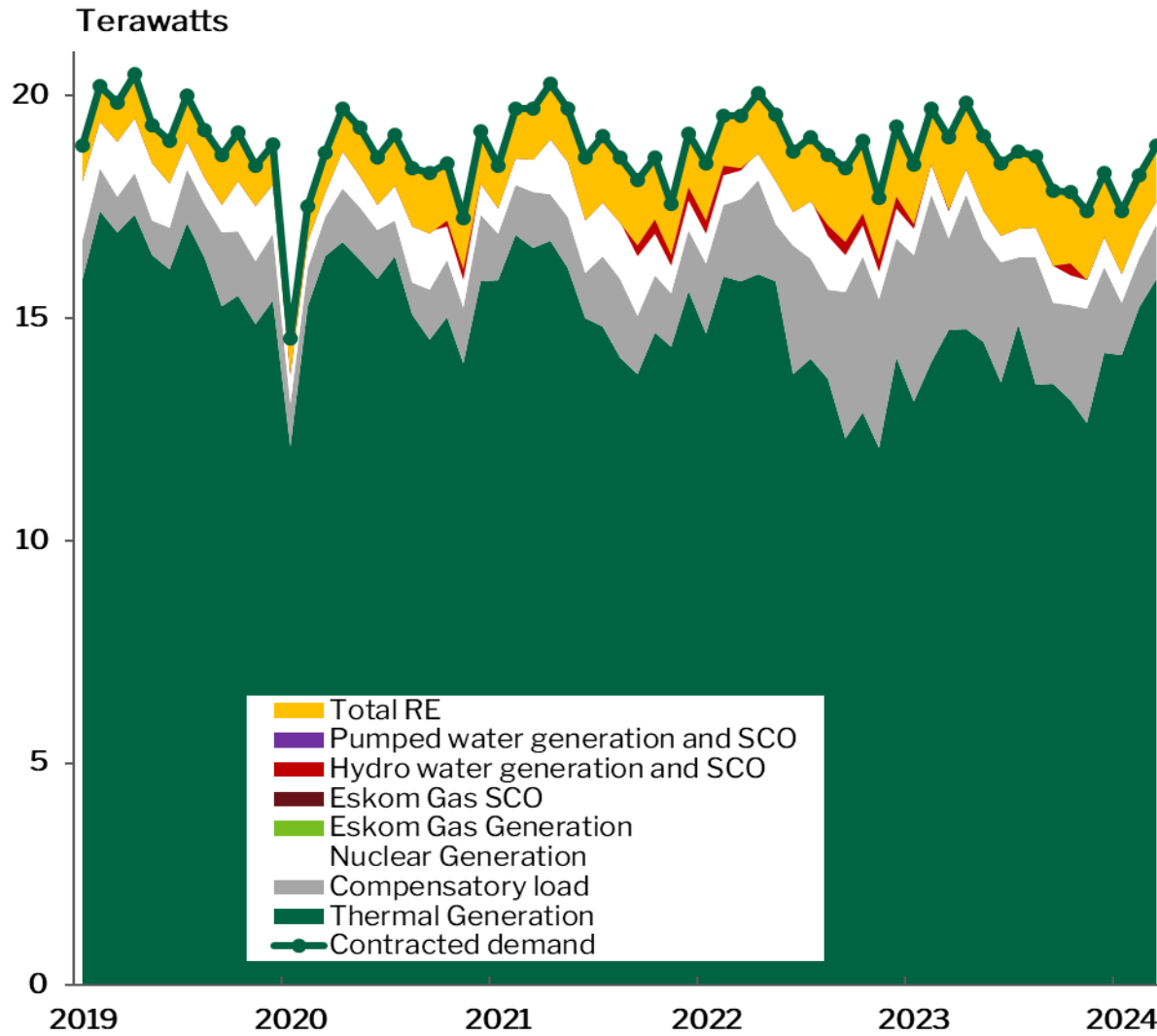


The achievement of stable electricity supply requires a sustained improvement in generative capacity and less dependence on the compensatory load



80% of Eskom's supply is from old coal-fired powered stations

New installations of renewable energy has stalled due to the lack of grid capacity



Source: Eskom & Nedbank calculations

Relying on aged energy infrastructure is disconcerting: The Opera Assessment Report underscores the need for comprehensive reforms and upgrades to Eskom's infrastructure



The report highlights the following issues at Eskom:

- 1. Deteriorating plant conditions** – The report highlights that many of Eskom's coal-fired power plants are in poor condition due to years of inadequate maintenance and operational practices. Specific issues include the poor state of water treatment plants at Medupi, Matimba, and Kendal, which, if not addressed, could result in significant power outages.
- 2. Low Energy Availability Factor** – When writing the report, Eskom's coal fleet had an EAF of around 51%, well below the international benchmark of 78%. An indication that Eskom's infrastructure is not operating efficiently due to mismanagement and sub-standard maintenance practices.
- 3. Risk of severe load-shedding:** The report warns that if Eskom does not improve its infrastructure, the country could face load-shedding levels as high as stage 13 due to the potential loss of 13 000 megawatts of generation capacity from critical power stations like Matimba, Kendal, and Medupi.

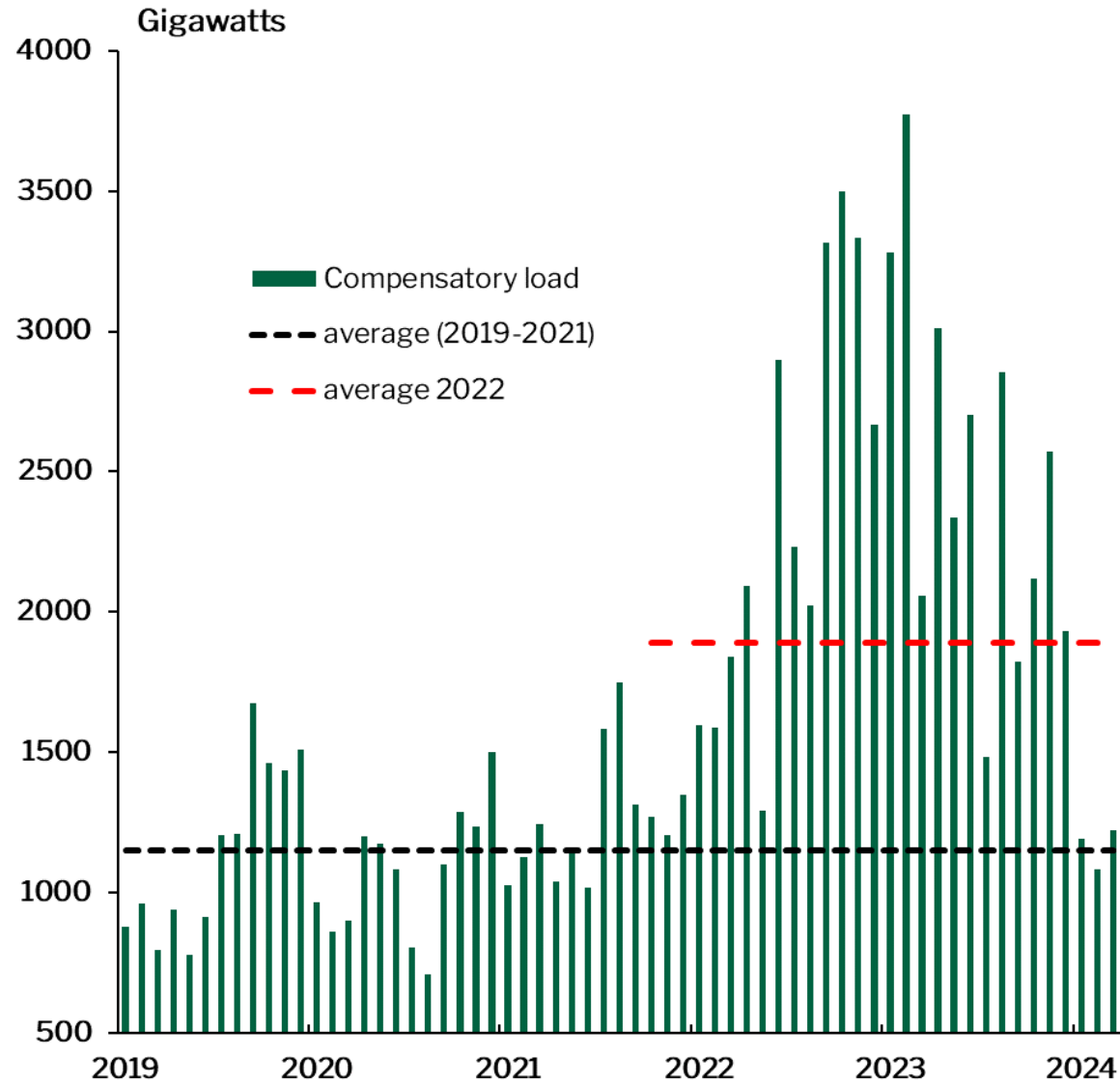
The report makes the following recommendations:

- 1. Need for an infrastructure overhaul:** A complete overhaul of Eskom's centralised organisational structure to improve decision-making and operational efficiency. It recommends adopting a model like European utilities, which involves decentralising operations and granting more authority to plant managers.
- 2. Emergency maintenance and upgrades:** Urgent maintenance and upgrades are needed for critical components, such as water treatment plants and flue gas stacks, to prevent large-scale power outages. The report suggests that bringing in private contractors with expertise in running similar plants could significantly improve the performance of Eskom's infrastructure.
- 3. Addressing design issues:** The report acknowledges that while some design issues contribute to the poor performance of plants like Medupi and Kusile, the primary problem lies in Eskom's deviation from prudent operation and maintenance practices. It suggests that addressing these design and operational flaws is crucial for improving plant availability and efficiency.

Energy security thus remains compromised

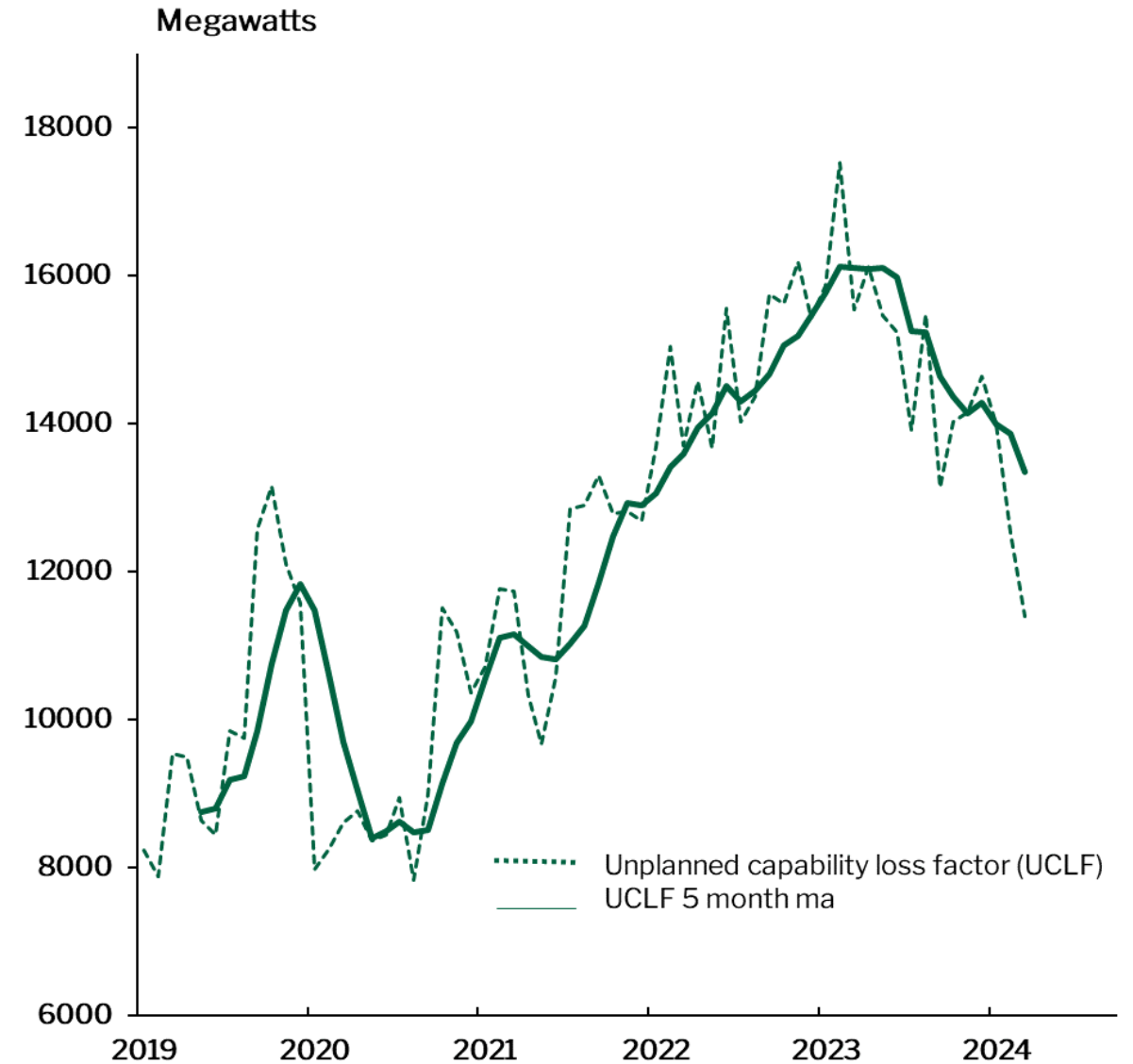


Reliance on the compensatory load is evidence thereof



Source: Eskom and Nedbank calculation

While unplanned outages remain extraordinarily high.



There are multiple plans and programs in place to address the power crisis although traction is needed in expediting them _1



Plans in place to address the electricity crisis include:

1. The Integrated Resource Plan (IRP):

- The IRP could be considered the overarching blueprint of the country's energy objectives. The 2023 revision outlines the country's electricity generation plan up to 2050. It emphasises a diversified energy mix to ensure **security of supply, reduce emissions, and promote economic growth**.
- The plan acknowledges the need for a balanced approach that includes renewable energy sources like coal, nuclear, and gas. It also highlights the importance of energy efficiency and demand-side management.

**The IRP is under review following public commentary and is yet to be finalised.*

2. Renewable Energy Independent Power Producer Procurement Programme (REIPPP)

- It is a government initiative that aims to increase electricity capacity through private sector investment in renewable energy projects. It is a competitive bidding process, where independent power producers (IPPs) submit proposals for renewable energy projects. The government selects the most competitive proposals and awards them contracts to supply electricity to the national grid.

3. Risk Mitigation Independent Power Producer Procurement Programme (RMIPPP)

- This is a programme designed by the government to address the country's short-term electricity supply constraints. It procures new generation capacity from various energy technologies to reduce reliance on expensive diesel generators. Unlike REIPPP, which focuses on renewables, RMIPPP considers various sources of energy, including renewables, gas and coal. Its primary objective is quickly adding new capacity to the grid and reducing reliance on expensive peaking plants.



3. The Energy Action Plan (EAP)

- A comprehensive strategy to address the country's energy crisis and achieve long-term energy security. It aims to:
 - Increase electricity supply through various means, including renewable energy sources,
 - Reduce reliance on Eskom, by enabling private sector investment in generation capacity, and
 - Encourage energy efficiency among businesses and households.

4. Transmission Development Plan (TDP)

- This plan outlines a 10-year roadmap for expanding the transmission grid. It envisions adding roughly 8 400 km of high-voltage lines and 119 transformers to the network by 2031. The expansion aims to accommodate a surge in renewable energy sources like wind and solar, often far from existing grid infrastructure. The plan prioritises fast-tracking grid connection projects to expedite the integration of new generation capacity.

5. Just Energy Transition Investment Plan (JET IP)

- The plan outlines a 5-year roadmap (2023-2027) to achieve a low-carbon economy while ensuring a smooth transition for workers and communities reliant on fossil fuels. It focuses on:
 - Decarbonisation: shifting away from coal-fired power plants to cleaner energy sources like renewables.
 - Economic development: creating new job opportunities in the green energy sector.
 - Social justice: supporting communities affected by the transition, including coal mine workers.
- The JET IP is a collaborative effort between SA and international partners who have pledged financial support.

According to the March 2024 update on the EAP, key achievements over the past six months include:



- 1. Eskom Improvements:** The return of three units at Kusile Power Station ahead of schedule and intensive maintenance efforts, have improved the availability of Eskom's existing fleet and reduced load-shedding.
- 2. Rooftop Solar Expansion:** Due to tax incentives and financing mechanisms, the installed capacity of rooftop solar by businesses and households has more than doubled to over 5000 megawatts, alleviating some pressure on the grid.
- 3. New Generation Capacity:** In December 2023, three bid-windows were opened for 7 615 megawatts of new capacity from solar, wind, gas, and battery storage. Additionally, seven preferred bidders for the risk mitigation programme have closed, with some of the world's largest solar and battery-storage hybrid projects now connected to the grid.
- 4. Battery Energy Storage:** The first project from Eskom's Battery Energy Storage System (BESS) programme is operational, providing 100-megawatt hours of storage capacity, with seven more projects under construction, aiming for a total of 833 megawatt hours.
- 5. Cross-Border and Standard Offer Programmes:** Eskom has launched the Cross-Border Standard Offer Programme to procure up to 1000 megawatts from neighbouring countries. The Eskom Standard Offer Programme has exceeded its target, approving 1 136.5 megawatts to date.
- 6. Grid Capacity and Regulatory Changes:** An additional 3 400 megawatts of grid capacity has been unlocked in the Cape region through curtailment. The National Transmission Company of South Africa (NTCSA) is nearly operational. The Electricity Regulation Amendment Bill has been passed by the National Assembly, aiming to establish a competitive electricity market, and the National Wheeling Framework has been finalised to standardise access and charges for electricity wheeling.

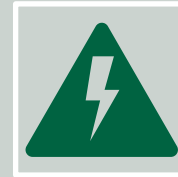


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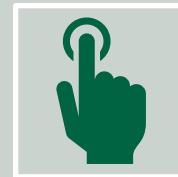
Conclusion



The demand for energy has fallen, while the supply has increased. Nonetheless, excess demand remains high compensated for through load reductions, OCGT usage and international imports.



Despite the yoy improvements in the EAF and load-shedding, energy supply is still insecure given the poor state of infrastructure.



The crisis has spurred the establishment of multiple plans and programs. Implementation of these plans are underway, however at a slow pace.

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