



SA-TIED

Southern Africa – Towards Inclusive Economic Development

Request for research proposals

South Africa's electricity crisis: macroeconomic, macro sectoral, and fiscal consequences and policy actions required

Background

Since 2008, South Africa has been subjected to 'loadshedding' – a term used to describe planned power cuts intended to limit electricity demand to its constrained supply. However, as the Energy Availability Factor has fallen since 2017, days with loadshedding increased to over 200 in 2022, with loadshedding having deteriorated further in the first four months of 2023 and projected to become even worse over the next 18–24 months. In addition, many of South Africa's aging coal power stations are scheduled for decommissioning in the next decade, while the failures of Bid Windows 5 and 6 to secure a renewable energy supply has shown that South Africa lacks the transmission capability to transmit power from any newly built renewable power generation facilities in the Northern, Western and Eastern Cape.

Early in 2023, the governor of the South African Reserve Bank (SARB) said that SARB forecasts indicate that the electricity crisis will curtail economic growth with as much as two percentage points per year, reducing the forecasted real economic growth rate to 0.3% in 2023, 0.7% in 2024 and 1% in 2025. Note that with a population growth rate of 1.1% per annum, these growth rates imply a lowering of per capita real GDP. Bringing new electricity supply online will also take time, with some experts projecting a constrained electricity supply for years to come.

The constrained electricity supply does not have a uniform effect on the economy at large. For instance, while large supermarket chains have the funds to acquire generators and diesel to fuel the generators, smaller retailers do not have the financial means to

acquire such emergency capacity. Small businesses in general are affected more than larger corporates that have the means to buy their own generators and solar facilities. And though the supermarket chains can purchase generators and diesel, the cost of doing so will in all probability be partially or wholly passed through in higher prices to consumers. Poorer consumers will suffer more than well-off consumers.

Some sectors are also affected more than others. Manufacturers using heavy machinery are affected more than service companies. Loadshedding also affects food security as farmers experience problems watering crops via irrigation systems that require electricity to pump water. This will likely limit food supply and increase food prices. Moreover, the rate at which the cost of loadshedding increases accelerates at higher levels of loadshedding.

Thus, given the effect of loadshedding, many companies curtail production and operations or close down completely as a result of loadshedding. Attempting to soften the effect through subsidies will also be costly, particularly if these subsidies are raised through taxes on companies already affected by loadshedding.

The impact of loadshedding on the economy and its various sectors also holds implications for fiscal policy. Constrained GDP growth results in the constrained growth of tax revenue, which, in turn, further limits the government's spending envelope. The latter makes budgetary prioritising more difficult, especially if increasing expenditure on public infrastructure is one of the priorities. Fiscal policy is further impacted as limited economic growth results in higher levels of unemployment and poverty and, thus, more pressure to expand social expenditure.

To understand the impact of loadshedding on the economy as a whole, but also its asymmetric impact on economic sectors and companies of various sizes, will require detailed analysis. Such analysis will also assist in understanding which policy instruments can be used to soften the impact. The fiscal impact of constrained economic growth resulting from loadshedding — accompanied by increased pressure to expand government's social expenditure on the back of a shrinking tax base — also requires detailed analysis. The analysis will also point to the requisite policy steps that will increase electricity supply.

The above covers various aspects and dimensions of the South African electricity crisis. This request for research proposals therefore includes, inter alia, proposals that investigate:

- a The macroeconomic and sectoral impact of electricity constraints on economic growth, production, employment, poverty, income distribution, and the cost of living (inflation). This includes forward- and backward-looking analysis. Backward-looking analysis could include measuring what GDP, economic growth, employment, and other variables would have been in the absence of the electricity constraint since 2008, while the forward-looking analysis could measure the likely loss in GDP and employment in the next decade. A sectoral analysis would consider the asymmetric impact of the electricity constraint on the various sectors of the economy and firms of various sizes in these sectors. This should also assess the non-uniform impact of the intensity of loadshedding, both at a macro and micro scale.
- b The emerging production (and resultant consumer) inflation imposed by loadshedding. Is this permanently shifting the cost structures of production?
- c The fiscal and budgetary impact of electricity constraints, both on the revenue and expenditure side. This may also include the differentiated impact on the finances of different tiers of government as well as state-owned enterprises.

- d The various short-, medium-, and long-term options to expand the supply of electricity and the options available in constituting the energy mix (including the cost of various renewables, gas, nuclear, coal, and other options).
- e In the face of a constrained fiscus, the possible case to use public–private partnerships, concessions, and other institutional models that potentially can be used to build, operate and finance electricity generation and transmission.

Dates

25 May 2023	Launch a Requests for Research Proposals (RfRP)
18 June 2023	Proposal submission deadline
10 July 2023	Target date for informing on funding decisions
15 November 2023	Target date for submission of first drafts of papers
Week of 1 December 2023	Target date for work-in-progress workshop
15 February 2024	Target date for submission of revised near-final draft papers and a one-page summary of key findings

Evaluation process and criteria

Each proposal will be reviewed for scientific merit and feasibility. Proposals will be selected on the basis of three criteria: (i) relevance to the research project, (ii) strength of empirical and policy contributions, and (iii) quality and clarity of writing. Based on this assessment, a pool of suitable proposals will be determined. From this pool, accepted proposals will be drawn considering additional criteria such as overall coherence of the envisioned book volume, diversity of topics addressed, and geographic diversity. Only the final decision on whether the proposal is accepted or not will be communicated to applicants. Applicants must not expect feedback on their proposals.

Other considerations

For successful proposals:

- 1 Researchers or their institutions (non-profit) will sign a consultant contract or an institutional contractual agreement with UNU-WIDER that follows the UNU conditions of service for Consultant Contracts (CTC), or Institutional Contractual Agreements (ICA).
- 2 Researchers/institutions will transfer copyright of research produced under the contract to UNU-WIDER. The purpose of this copyright transfer is to allow UNU-WIDER to effectively negotiate with top academic publishers in order to seek the most desirable possible publication outlet for a related set of papers/studies. If no (further) publication is to be expected by UNU-WIDER, the copyright can be transferred to the author(s). Any material published externally thereafter resulting from this body of work should carry due acknowledgement of UNU-WIDER as the original commissioning institute.

Inclusivity and support

Candidates from previously disadvantaged South African institutions are strongly encouraged to apply. We are committed to promoting inclusivity and diversity in research, and we recognize the importance of providing equal opportunities to researchers from institutions that have faced historical disadvantages. Therefore, we explicitly encourage submissions from these institutions. In addition, the evaluation of RfRP proposals will consider the originating institutions. This approach acknowledges the unique challenges and strengths of different institutions, fostering a fair and inclusive evaluation process. Appropriate support will be provided to researchers from diverse backgrounds, including those from previously disadvantaged universities, as required throughout the process.

Proposal submission procedure

The proposal should be no more than three pages of A4 paper in length, excluding cover page and references. Please use 12-point font, 1.5 line spacing, and standard margins. The proposal should clearly state the research objectives, study design and methods, data sources, and policy relevance. The cover page should contain the complete contact information of researcher(s), and a 120–150-word abstract summarizing the research question, main method, data, and expected contribution to the policy debate.

Submission of proposals is done electronically by using the online form on the RfRP announcement page. There are three forms to select from: one for individuals, another for groups of individuals, and a third for non-profit organizations. Details (such as address, gender, nationality, date of birth) of all researchers involved will need to be entered to the form and the cover page, the proposal, and short CVs (five pages or less) of researcher/s uploaded. Please familiarize yourself with the form in advance.

Submission of a budget is not required for the proposal

Any questions on the proposal process should be sent to researchproposal2@wider.unu.edu by 18 June 2023. All queries and responses will be published on the RFRP announcement page. Selected answers will be updated on a rolling basis.