safcei SOUTHERN AFRICAN FAITH COMMUNITIES' ENVIRONMENT INSTITUTE

SAFCEI's submission to NNR Koeberg Unit 2

02 October 2025

Who we are

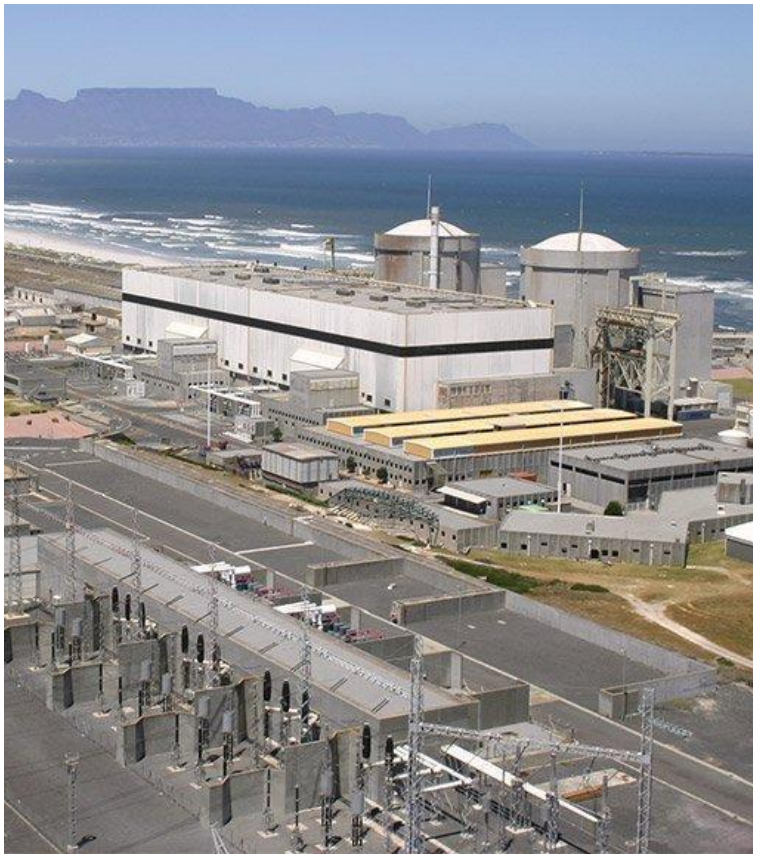
The Southern African Faith Communities' Environment Institute, SAFCEI, is a multi-faith environmental organisation committed to increase awareness, understanding and action on eco-justice, sustainable living and climate change.

We emphasise the spiritual and moral imperative to care for the Earth and the community of all life. We call for ethical leadership from all in power and speak out on issues of eco-justice, encouraging citizen action.

Overview

- The NNR does not have sufficient evidence to make a decision on Unit 2
    - Lack of monitoring data and extrapolation from Unit 1 data
- A decision to grant a licence for Unit 2 should only be made after vital tests and repairs are completed as per the License conditions:
    - Integrated Leak Rate Test
    - Impressed Cathodic Current Protection

- Culture of delay and lack of implementation at Koeberg has to stop



The NNR does not have sufficient evidence to make a decision on Unit 2 License Extension

- Eskom, the NNR and the IAEA all agree that Unit 2's containment monitoring system is broken and that it cannot provide adequate data to assess the health of Unit 2's containment structure.
- SAFCEI strongly rejects the extrapolation of Unit 1's data to Unit 2.
- Unit 2 is not the same entity as Unit 1 and, as such, the extrapolation provides no insight into the **actual status** of Unit 2.
- The NNR cannot make a decision on Unit 2 is the absence of data about Unit 2's containment structure.
- Unit 2's safety can only be proven with hard data from Unit 2.

A decision to grant a licence for Unit 2 should be made after vital tests and repairs are completed: Integrated Leak Rate Test

- The following slide shows how Eskom's own documentation (the original engineering report on Unit 2 and used in the LTO application) stated the need for an ILRT.
- In 2022, an ILRT was recommended **BEFORE** a licence decision. Now, an ILRT may only happen in 2026?
- In order for the NNR to have **ANY** knowledge of the containment structure an ILRT must be done prior to licence decision.

3.5.4 Tendon Condition

It is noted that the tendons form the core of the structural strength of the structures. As such the TLAA [1], previous numeric analysis [7] and Section 5.1 of this report carefully considers the tendons.

Furthermore, previous investigations conducted by Eskom and his appointed Inspector [8] indicated that, in general, the tendon ducts were in good condition at the time.

3.6 ILRT

An integrated leak rate test (ILRT) is a full-scale functional test to confirm the integrity of the containment structures by replicating the conditions of a loss-of coolant accident (LOCA). The test includes increasing the pressure inside the containment structures to 400 kPa.

The ILRT (and associated Structural Integrity Test (SIT)) is a method to determine the functional behaviour of the containment structures and can be used to provide confidence in the structural integrity of the structures, i.e., if any concerns exist, an ILRT shall confirm the behaviour of the structures under LOCA pressures and mitigates the risk of uncertainty that may exist for the short term from when the ILRT was performed.

The previous ILRTs (2015) confirmed elastic behaviour and structural integrity of both 1HRX and 2HRX.

ILRTs are performed 10-yearly in accordance with in-service inspection requirements and the next planned ILRTs was planned for outages X27. It was however decided that if the ILRTs were to be conducted in X26, it would give KNPS sufficient time to mitigate risks. It was subsequently decided that the ILRT may be moved to X26 to mitigate these risks, which include

1) LTO risks,
2) provide KNPS with time to solve issues that may exist, and to
3) provide KNPS with sufficient time to develop the safety case.

The following was presented to management during a senior review board meeting:

> *"By the time that the LTO Safety Case is due in 2022, Koeberg will not meet all the NNR requirements for ageing management to provide confidence of the long-term integrity of the containment civil structures. It is likely that this situation will remain at 40 years of operation. Before the expiration of the current license variation therefore, Koeberg will have to provide a Justification for Continued Operation to exceed 40 years. Successful ILRT results on the containment buildings are required before 40 years (in X26 Outages) to provide confidence of containment integrity in the short term."*
>
> *"This strategy provides Koeberg with improved arguments for exceeding 40 years operation (in the short-term) while actions to achieve the remainder of the NNR ageing management requirements are due."*

It is reiterated that the ILRTs will confirm structural integrity of containment structures, however there are no statutory requirements to perform the ILRTs during x26. Therefore the ILRT might be moved back to x27 to mitigate other organizational risks.

Impressed Cathodic Current Protection

- The urgent need for ICCP has been know since 2015, according to a panel of experts convened by Eskom
- ICCP addresses a known problem within Koeberg and can prevent corrosion spreading throughout the containment structure
- Yet, the implementation of ICCP has been delayed year after year.
- In order for safety to come first, ICCP should be installed BEFORE a licence decision on Unit 2

Licence Conditions

In Dec. 2024 and as part of condition of its licence for Unit 1, the NNR laid out a series of actions Eskom is required to do. As these modifications and/or repairs are vital for the plant as a whole, the success of such has a direct bearing on Unit 2's licence.

The NNR, in order to have sufficient information to make an informed decision, requires the result of all of the following BEFORE licence decision.

Please see the next three slides.

- Hardened Water External Connection Points (Modification 12004). (Due: Oct. 2025)
- Hardened Water Supply (Modification 12008). (Due: January 2025)
- Review CASK PSA subsumed initiators to identify LUHS/SEC pipe damage initiators and remodel. (Due: 30 Nov 2025)
- Revise current internal flooding methodology to align with International Best Practise and update model. (Due: 30 Nov 2025)
- Update Internal Hazards (fire and flooding) in the Spent Fuel Pool PSA. (Due: 30 Nov 2025)
- Review and Update PSA reports to reflect the latest plant specific data. (Due: 30 Nov 2025
- Improve processes and procedures for estimation of radioactive discharges and associated public dose. (Due: 15 Dec 2025)

- Submit to the NNR the external events Level 2 Probabilistic Safety Assessment (PSA) and update of the Emergency Plan Technical Basis (EPTB) with the results of the external events Level 2 PSA. (Due: December 2025)

- Validate the seismic assessment of the plant in the 15 - 45 Hz frequency domain of the updated seismic response spectrum (USRS) by developing and submitting for regulatory approval the updated floor response spectra (UFRS). (Due: December 2025)

- Develop a seismic probabilistic safety assessment (Seismic PSA) to demonstrate fulfilment of the seismic safety goals specified in PP-014. (Due: December 2025)

- Use representative samples (or in the case of a lack of representative samples, manufacture new samples) for aseismic bearings and perform accelerated ageing tests to ensure that their condition is representative of the in-situ bearings. Evaluate the impact of these test results on the shear modulus and the potential impact on global plant safety and also evaluate the safety margins of the material properties. (Due: December 2025)

Licence Conditions continued

- Evaluate and justify that there are adequate remaining safety margins to cover the seismic demand resulting from requirements coming from post-Fukushima re- assessment. (Due: December 2025)

- Re-assess the surveillance procedures including surveillance frequencies, calculation methods, and acceptance criteria. (Due: December 2025)

- Complete the process of cable testing originally initiated for the re-qualification of qualified cables. (Due: December 2025)

Licence Conditions continued

- Conduct an assessment of the effectiveness of the Koeberg Nuclear Emergency Plan and a review of the existing nuclear disaster management infrastructure in conjunction with the City of Cape Town. (Due: December 2025)

In Conclusion

- Regulation of Eskom's performance and delivery is inadequate.
- The role of the NNR is to ensure safety and effective functioning of Koeberg, this needs to be strengthened.
- The operator, Eskom, has an known history of delays to repairs at Koeberg. These delays and other inactions have brought to us to a perilous situation: for example, a complete lack of dome data for Unit 2. This is not the mark of a responsible operator.
- Eskom cannot be allowed to continue in such an unsafe manner.
- The NNR needs to enforce safety standards upon Eskom and granting a licence to operate in the current circumstance would be to only reward Eskom's delays.