

**Presentation to NERSA:
Ministerial determination of October 2020 on
new nuclear generation capacity**

Anton van Dalsen

Helen Suzman Foundation

23 February 2021

General comment on nuclear energy

This presentation is neutral as far as the desirability, in principle, of nuclear energy is concerned.

The approach taken is that of an analysis of the rationality of the ministerial determination and the document it is based on (the IRP2019), specifically in relation to alternative sources of energy.

The defects and omissions of the ministerial determination are dealt with in some detail.

Defects and omissions of the ministerial determination

1. No-regret option as the sole justification

Reliance is placed on Decision 8 of the IRP2019, whose sole justification for 2500MW of new nuclear capacity is that it is a “no-regret option in the long term”. In a climate change scenario, this is taken to mean an option that generates benefits, irrespective of whether climate change occurs or not.

No reference is made in the Decision to cheaper renewable options, which would equally be not only “no-regret options”, but immensely cheaper.

Defects and omissions, continued

2. New nuclear capacity is massively more expensive than alternatives

The IRP2019, referring to the Draft IRP2018's analysis, states that “[d]rawing from the conclusions of the scenarios analysed, the scenario of Renewable Energy without annual build limits provides the least cost path up to 2050.”

The IRP2019 confirms that the cumulative tariff path of a power generating mix including nuclear, would be R500 billion more expensive by 2050 than the least cost option (consisting of a mix of solar PV, wind and flexible power generation). Even if that model is adjusted to cater for 2500MW of new nuclear capacity, it would still be almost R200 billion more expensive by 2050.

It is obviously non-sensical to describe an option as “no-regret” if it is massively more expensive than available alternatives.

Defects and omissions, continued

3. A continuation of the practice of placing arbitrary and unexplained limits on new renewable projects

The ministerial determination effectively continues the approach taken in the IRP2019, where arbitrary limits are placed on the annual addition of renewable energy - with no explanation, leading to the inevitable perception of a process that was intentionally manipulated for undisclosed purposes.

Defects and omissions, continued

4. Decommissioning cost of nuclear plants

Estimates of the decommissioning costs for nuclear plant need to be included in any cost comparison.

German estimates of €1.4 billion per GW are referred to in a recent paper prepared by the Minister's own Department - so for 2500MW, this would amount to about R63 billion.

Defects and omissions, continued

5. Storage of spent nuclear fuel

The question of the storage of spent nuclear fuel needs to be addressed in any nuclear project.

Temporary storage facilities around the world have in effect become the permanent solution, in the absence of any other option.

The Koeberg storage facility was expected to be full in April 2020 and public statements on the resolution of this issue do not seem to be available.

Defects and omissions, continued

6. System stability and base load levels

NERSA's Consultation Paper creates the impression that only nuclear power can deal with any decrease in base load levels (following decommissioning of coal plants).

Given the increasing share of renewable energy in national electricity systems globally, it is assumed that ways have been found to address the question of system stability.

This nevertheless requires further research and a reasoned conclusion.

Recommendation

Our recommendation to NERSA is that the defects and omissions of Decision 8 of the IRP2019 and the subsequent ministerial determination must be brought to the Minister's attention.

It must be emphasised that these defects and omissions are obvious and of a major nature.

It can therefore be expected that an approval of the ministerial determination by NERSA will be seen by a court as irrational and unreasonable, in any legal proceedings.

Such a finding by a court will lead to the determination being set aside.