

Your ref: LSA 167385

Our ref: AP/Nuclear 1 EIA Appeal

The Appeal Authority
The Minister of Environment, Forestry & Fisheries
c/o Mr M Rakgogo
Director: Appeals & Legal Review
Department: Environment, Forestry & Fisheries

3 September 2020

**Re: SUPPLEMENTARY SUBMISSION: APPEAL NOTED AGAINST THE ENVIRONMENTAL
AUTHORISATION GRANTED IN RESPECT OF THE DUYNFONTEIN NUCLEAR POWER
STATION**
Authorisation registration number: (12/12/20/994)

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A. INTRODUCTION

1. This supplementary submission is made in response to an invitation by the Department of Environment, Forestry and Fisheries (DEFF) for appellants to make supplementary submissions in respect of appeals noted on or before 5 March 2018 against the

environmental authorisation granted on 11 October 2017 to ESKOM HOLDINGS (SOC) LIMITED (Eskom) for the construction of a nuclear power station and associated infrastructure (Nuclear 1) at Duynefontein, Western Cape Province.

2. The invitation states that at the time when the appeal was noted the Integrated Resource Plan 2010 (IRP 2010) was in existence, and that the IRP 2010 has since been replaced by the Integrated Resource Plan 2019¹ (IRP 2019).
3. It is assumed that the invitation to make supplementary submissions is intended to seek input on the relevance of the IRP2010 being replaced by the IRP 2019 to the Nuclear 1 environmental authorisation and to the appeals noted against it.
4. This supplementary submission is made on behalf of Greenpeace Africa, Earthlife Africa – Johannesburg and the Southern African Faith Communities' Environment Institute (SAFCEI) (collectively referred to as 'the appellants'), whose supplementary appeal was lodged on 5 March 2018². The appellants stand by the grounds set out in their appeal.
5. This submission commences by pointing out the obvious, namely that the IRP2019 was not in existence at the time when the environmental authorisation was granted, and could thus not have been taken into account by the decision-maker. Insofar as the Minister's appeal decision is concerned, the appellants submit that it would be irregular for the appeal authority to make a decision upholding the environmental authorisation which relied on what was then already a significantly outdated IRP2010 to justify the need for a new nuclear power station. To the extent that the appeal authority may be considering substituting the authorisation with its own decision, the appellants submit that it would be irregular for the appeal authority to do so given that much of the information contained in the Final Environmental Impact Assessment (EIA) Report is also significantly outdated. The submission goes on to explain the nature of the IRP 2019 as policy, and points out that it is section 34 of the Electricity Regulation Act³ (ERA) that operates as the legislative framework by which any decision that new nuclear electricity

¹ GN1360 of 18 October 2019: *Electricity Regulation Act (4/2006): Integrated Resource Plan (IRP2019) – October 2019.*

² Replacing the appeal submitted by the appellants on 1 December 2017 in its entirety.

³ Act 4 of 2006.

generation capacity is needed (and that no valid or lawful s34 nuclear determination exists). The submission then turns to the content of the IRP2019 relating to new nuclear power, showing that the IRP 2019 does not commit to a new nuclear power programme or make a policy decision that new nuclear power is needed, but instead includes a more limited policy decision to commence preparations on the development of a clear road map for a potential future nuclear expansion programme.

6. The submission proceeds to highlight that the limited policy decision in the IRP 2019 to 'commence preparations' for a nuclear build programme supports the appellant's appeal submission that the Nuclear 1 environmental authorisation was already based on outdated information and considerations in 2017, including (but not limited to) the reliance placed in Final EIA Report and environmental authorisation on the [even then] outdated IRP 2010 to justify the failure to consider alternatives (including cheaper renewable energy options) and the no go option, and to justify need and desirability. It is submitted that the Nuclear 1 environmental authorisation should be set aside, and that a new EIA should be conducted once the road map referred to in the IRP 2019 for any future nuclear expansion programme has been developed, and after a lawful determination has been in terms of s34 of the ERA that new nuclear generation capacity is needed. These submissions also highlight that the passing of time exacerbates the failure of the Final EIA Report and Nuclear 1 environmental authorisation to consider the town planning context when granting the environmental authorisation, and concludes with submissions made regarding the sequencing of decision-making relating to Nuclear 1.

B. IRP 2010 REPLACED BY IRP 2019

7. It is self-evident that the IRP 2019 was promulgated in October 2019, and was thus not in existence at the time environmental authorisation was granted to Eskom on 11 October 2017 (almost three years ago). The IRP 2019 was thus not a factor that could have been taken into account when making the impugned environmental authorisation. The appellants persist with their earlier appeal submission that it would be irregular for the appeal authority to make a decision upholding the environmental authorisation which relied on what was then already a significantly outdated and incomplete IRP 2010

to justify the need for a new nuclear power station, and stand by the grounds of appeal set out in their supplementary appeal lodged on 5 March 2018 (including their assertion that the environmental authorisation should be set aside).

8. The appellants' appeal was submitted to the appeal authority on 8 March 2018, over 2 ½ years ago. The IRP 2019 was published in October 2019, and it was some 10 months later that the appeal authority saw fit to invite appellants to make supplementary submissions on the IRP 2019. No information has been provided to appellants explaining why the appeal authority has been dilatory in deciding the appeal, why it waited over 10 months before inviting appellants to make supplementary submissions relating to the IRP 2019, or what the intention is behind the appeal authority inviting these submissions.
9. In the event that the appeal authority is considering upholding the environmental authorisation or substituting it with its own decision,⁴ it is submitted that it would be highly irregular for the appeal authority to do so in the absence of an updated⁵ and fully compliant EIA report that has been subjected to appropriate public participation. A new nuclear power plant is inherently hazardous, and to discharge its legal and constitutional duties the appeal authority should exercise extreme caution and diligence in ensuring that its decision-making process is constitutionally compliant and procedurally fair. As was held in *Seafront for All and Another v the MEC: Environmental and Development Planning Western Cape Provincial Government and Others* 2011 (3) SA 55 (WCC):

[t]he integrity of the environmental impact assessment process will be seriously undermined if decision-makers are to base their decisions on substantially outdated information.⁶

⁴ Noting that s43(6) of NEMA empowers the appeal authority to, among other things, 'make any other appropriate decision'.

⁵ Various material developments and changes have occurred since the decade-long Nuclear 1 EIA was conducted, since the environmental authorisation was issued three years ago, and since the appellants' lodged their appeal 2 ½ years ago. These developments and changes are discussed further in sections E, F and G below.

⁶ At paragraph 73.

C. THE NATURE OF THE IRP 2019

10. It is submitted that the IRP 2019 is non-binding policy that does not justify the need for a new nuclear power station at Duynefontein, nor can it serve as a lawful basis to make the assumption that need and desirability is adequately defined in the EIA (which the appellants dispute). It involves the formulation of policy by the executive.
11. In support of the submission that the IRP2019 is non-binding policy, it is pointed out that the term 'integrated resource plan' is simply defined in the ERA as meaning '*a resource plan established by the national sphere of government to give effect to national policy*'.⁷ Save for providing in that the National Energy Regulator (NERSA) must issue rules designed to implement the integrated resource plan⁸ and that applications for a license to operate any generation facility must include evidence of compliance with any integrated resource plan applicable at that point in time (or provide reasons for any deviation for approval of the Minister),⁹ the ERA does not further regulate or constrain the content of the IRP.
12. The integrated resource plan is also referred to in the Electricity Regulations on New Generation Capacity¹⁰ made under the ERA.¹¹ However, it is relevant to note that these Regulations stipulate that while they apply to the procurement of new generation capacity by organs of state, new generation capacity derived from nuclear power is specifically excluded from the application of these Regulations.¹²
13. In contrast, section 34 of the ERA empowers the Minister of Energy, in consultation with NERSA, to (among other things) determine that new generation capacity is needed¹³ and the energy sources from which electricity must be generated.¹⁴ On 26 April 2017, the High Court of South Africa (Western Cape Division) in *Earthlife Africa – Johannesburg & Another v. Minister of Energy & Others (Case No. 19529/2015)* held

⁷ Section 1.

⁸ Section 4(a)(iv).

⁹ Section 10(g).

¹⁰ GNR.399 of 4 May 2011: Electricity Regulations on New Generation Capacity (as amended).

¹¹ Regulation 4(1).

¹² Regulation 2.

¹³ Section 34(1)(a).

¹⁴ Section 34(1)(b).

that section 34(1) of the ERA ‘operates as the legislative framework by which any decision that new electricity generation capacity is required’ and that ‘any decision taken by the Minister in that regard, has no force and effect unless and until NERSA agrees with the Minister’s decision’.¹⁵ The Justices held further that ‘... a rational and fair decision-making process would have made provision for public input so as to allow both interested and potentially affected parties to submit their views and present relevant facts and evidence to NERSA before it took a decision on whether or not to concur in the Minister’s proposed determination’.¹⁶

14. In further support of the appellants’ submission that the IRP is non-binding policy, it is relevant to note that on or about 15 June 2020 the Department of Mineral Resources & Energy (DMRE) issued a Request for Information (RFI) in respect of its proposed nuclear new build programme.¹⁷ This RFI indicates that it was issued solely for information planning purposes and does not constitute a solicitation of bid, and states regarding the IRP 2019 as follows:

In October 2019, the Integrated Resource Plan, which determines South Africa’s energy mix for the 2030 planning horizon, was promulgated. **The policy decision** of the 2019 Integrated Resource Plan stipulates a capacity for nuclear as part of the energy mix, and in particular Decision 8: “Commence preparations for a nuclear build programme to the extent of 2500 MW at a pace and scale that the country can afford because it is a no-regret option in the long term”.¹⁸

15. While this statement errs insofar as it suggests that the IRP 2019 contains a policy decision that ‘stipulates a capacity for nuclear as part of the energy mix’ (see further section D below where the content of the IRP 2019 is discussed in more detail), it correctly characterizes the IRP 2019 ‘decisions’ as policy.
16. The nature of an integrated resource plan is referred to in the IRP 2019 as follows:

The IRP is an electricity infrastructure development plan based on least-cost electricity supply and demand balance, taking into account security of supply and the environment (minimize negative emissions and water usage).¹⁹

¹⁵ At paragraph 24.

¹⁶ At paragraph 42.

¹⁷ Request for Information in Respect of the Nuclear New Build Programme.

¹⁸ RFI, at p11.

¹⁹ IRP 2019, p8.

17. In summary, it is submitted that the IRP2019 is non-binding policy (an electricity infrastructure plan) that does not justify the need for a new nuclear power station at Duynefontein, nor can it serve as a lawful basis to make the assumption that need and desirability is adequately defined in the EIA (which the appellants dispute). It is section 34(1) of the ERA that '*operates as the legislative framework by which any decision that new electricity generation capacity is required*'. Nuclear determinations made under section 34(1) of the ERA (gazetted on 11 November 2013 and 14 December 2016) by the Minister of Energy with the concurrence of NERSA were held by the Western Cape High Court to be unlawful and unconstitutional, and were reviewed and set aside.
18. As things stand, no lawful determination made in terms of s34 of the ERA that new nuclear power is needed exists. This means that no lawful decision has been made that new nuclear electricity generation capacity is required.
19. As a consequence, the Nuclear 1 authorisation should be set aside and the appellants' appeal upheld.

D. IRP 2019 DOES NOT INCLUDE NEW NUCLEAR GENERATION CAPACITY

20. Notwithstanding the appellants contention that the IRP 2019 is policy, it is submitted further that the IRP 2019 does not include new nuclear in its '*[e]merging Long Term Plan (IRP 2019)*'²⁰ for the period 2019 to 2030. Nor does the IRP 2019 make a policy decision regarding a new nuclear programme post-2030.
21. The IRP 2019 contains a limited policy decision to commence preparations on the development of a clear road map for a future nuclear expansion programme (i.e. post-2030), as evidenced in the following paragraph:

5.3.6 Nuclear

...

Post 2030, the expected decommissioning of 24 100 MW of coal fired power plants supports the need for additional capacity from clean energy technologies including nuclear. Taking into account the existing human resource capacity, skills, technology and the economic potential that nuclear

²⁰ IRP 2019, p42. Reference to 1860MW of nuclear capacity in 2024 is indicated as referring to the [proposed] extension of [the existing] Koeberg Nuclear Power Station Design Life.

holds, consideration must be given to preparatory work commencing on the development of a clear road map for a future expansion programme. This IRP proposes that the nuclear power programme must be implemented at an affordable pace and modular scale (as opposed to a fleet approach) and taking into account technological developments in the nuclear space.

Taking into account the capacity from coal to be decommissioned post 2030 and the end of design life of Koeberg nuclear power plant, additional nuclear capacity at a pace and scale the country can afford is a no regret option.

Decision 8: *Commence preparations for a nuclear build programme to the extent of 2 500 MW at a pace and scale that the country can afford because it is a no-regret option in the long term.*²¹

22. This policy decision to commence preparations for a new nuclear build programme to the extent of 2 500 MW at a pace and scale that the country can afford contrasts with the policy option selected in the IRP 2010, in terms of which the Department accepted policy option 4.3.(a) 'committing to a full nuclear fleet of 9600MW'.²²
23. In light of the above, it is submitted that the IRP 2019 only commits (on a policy level) to commencing preparations for a nuclear build programme to the extent of 2 500MW at a pace and scale that the country can afford, and does not commit to a new nuclear build programme itself. It is submitted that if it was Cabinet's intention to provide policy approval for a 2 500 MW nuclear new build programme, this would have been clearly stated in the IRP 2019. Moreover, an 'incorrect' version of the IRP 2019 was initially published on 18 October 2019, which included:

Policy Position 8: immediately commence the nuclear build programme to the extent of 2 500MW because it is a no-regret option in the long term and in case the Inga project does not materialize'.²³

The replacement of this version of the IRP2019 with the corrected version clearly demonstrates that it was not Cabinet's intention to approve the commencement of a 2500 MW new nuclear build programme.

²¹ IRP 2019, p47-48.

²² GNR.400 of 6 May 2011: Electricity Regulations on the Integrated Resource Plan 2010-2030, at paragraph 4.4.

²³ GN 1359 of 18 October 2019: Electricity Regulation (4/2006): Integrated Resource Plan (IRP2019) – October 2019, as published in GG 42778 on 18 October 2019, at p43 (subsequently replaced by GN1360 as published in GG 42784 also on 19 October 2019).

24. Furthermore, the IRP 2019 recognizes that it is:

...developed within a context characterized by very fast changes in energy technologies, and uncertainty with regard to the impact of the technological changes on the future energy provision system. As we plan for the next decade, this technological uncertainty is expected to continue and this calls for caution as we make assumptions and commitment for the future in a rapidly changing environment. Accordingly, long-range commitments are to be avoided as much as possible, to eliminate the risk that they might prove costly and ill-advised.²⁴ (emphasis added)

The IRP 2019 also recognizes that that some technology options (such as nuclear) *'will require some level of long-range decisions due to long lead-in times'*, and thus *'[t]he IRP attempt [sic] to harmonize this dichotomy, especially with regard to nuclear, gas and energy storage technologies, which technologies require more consideration of future developments'*.²⁵ The IRP 2019 goes on to point out with regard to energy security that *'[g]eneration capacity must accordingly be paced to restore the necessary reserve margin and to be ahead of the economic growth curve at least possible cost'*²⁶, and that *'[i]n line with power system requirements, additional capacity from any technology deployed should be done at a scale and pace that flexibly responds to the economy and associated electricity demand, in a manner that avoids tariff shocks in particular; it is the user of electricity that ultimately pays'*.²⁷

25. It is evident from that the above that, rather than committing (even on a policy level) to a new nuclear programme post-2030, the IRP 2019 takes a far more cautious approach. It recognizes the existence of uncertainty relating to the impact of rapidly evolving technology on the energy system, cautions against making assumptions and commitments for the future in a rapidly changing environment, and indicates that long-range commitments are to be avoided as much as possible to eliminate the risk that they might prove costly and ill-advised. While also recognising that 'some level of long-range decisions are required' having regard to technologies with long lead-in times (such as nuclear), the IRP 2019 simply indicates (somewhat inelegantly) that such technologies will *'require more consideration of [sic] future developments'* and that

²⁴ IRP 2019, p10-11.

²⁵ IRP 2019, p11.

²⁶ IRP 2019, p12.

²⁷ IRP 2019, p12.

'upfront planning is requisite'.²⁸ The IRP 2019 reiterates that any additional capacity should be done at a scale and pace that flexibly responds to the economy and electricity demand, but in a manner that avoids tariff shocks in particular (having regard to the user of electricity who ultimately bears the burden of increased tariff shocks).

26. It is relevant to note that while the IRP 2019 does not specifically include a cost comparison of nuclear technology, it indicates that nuclear technology costs are based on a DMRE-commissioned Ingerop study.²⁹ The draft IRP 2018³⁰ (the precursor to the IRP 2019 and which was subject to public comment) reveals that the overnight capital cost associated with nuclear technology meant that it was by far the most expensive technology option, and also showed much higher costs in 2017 relative to the assumed values in the promulgated IRP 2010–2030.³¹
27. It is also telling that in response to input received on the draft IRP 2018, the IRP 2019 indicates with regard to nuclear that:

Due to the relative marginal costs of generation, in comparison to other technologies, no new capacity comes through before 2030 but there is a scenario that builds new nuclear capacity post 2030. **This will be looked at in detail as part of the post 2030 energy mix**³² (emphasis added)

This again clearly demonstrates that the IRP 2019 does not provide policy approval the commencement of a 2500 MW new nuclear build programme before or after 2030, and indicates that new nuclear capacity 'is a scenario' that will be looked at in a future iteration of the IRP that plans the post-2030 energy mix.

28. It is also relevant to note that the RFI issued by the DMRE reveals that consideration is still being given to nuclear power plant technologies and to financial and technical aspects, while also acknowledging that 'financing options and related ownership models for such a high capital cost programme is of great importance'.³³ The RFI also

²⁸ IRP 2019, p12-13.

²⁹ IRP 2019, at p31.

³⁰ <http://www.energy.gov.za/IRP/irp-update-draft-report2018/IRP-Update-2018-Draft-for-Comments.pdf>

³¹ Draft IRP 2018, p24.

³² IRP 2019, response to comment 41, at p70.

³³ RFI, at p13.

indicates that that *'consideration will be given to the complete range of such options for any future South African nuclear build programme'*³⁴:

The Department of Mineral Resources and Energy is issuing this Request for Information (RFI) to the market to make an assessment of Nuclear Power Plant (NPP) technologies which could be considered under the South African Nuclear Power Programme... The purpose of this Request for Information (RFI) document is to provide an improved understanding of the experience of different Nuclear Power Plant vendors and obtain information from NPP vendors relating to the financial and technical aspects. These will include costing and financing of respective NPP technologies; plant design features, license ability of plant design in South Africa; feasibility for construction at sites in South Africa; and a detailed project management plan; as well as indicative contracting models (such as Engineering Procurement Contract (EPC), Engineering Procurement Contract Management (EPCM), Build Own and Operate (BOO), Build Own and Transfer (BOT) and Build Own Operate and Transfer (BOOT)).³⁵

29. Having regard to the fact that the IRP 2019 does not include Cabinet approval of a policy decision to commence with a 2500 MW new nuclear build programme, it is submitted that any decision to provide justification for the Nuclear 1 environmental authorisation (or to replace it with a new approval on appeal) based on the IRP 2019 would be both premature and irregular.
30. In light of the above, it is submitted that the Nuclear 1 authorisation should be set aside and the appellants' appeal upheld.
31. The policy change in electricity generation planning reflected in the IRP 2019 signals a significant change of approach by government in electricity planning and supports a number of the grounds of appeal, as discussed in more detail below.

E. THE IRP 2019 CONFIRMS THAT THE ENVIRONMENTAL AUTHORISATION IS BASED ON OUTDATED INFORMATION AND CONSIDERATIONS

32. In terms of section 43 of the National Environmental Management Act (NEMA)³⁶ read with regulation 66(2) of the Environmental Impact Assessment Regulations, 2010³⁷ (EIA

³⁴ RFI, at p13.

³⁵ RFI, at p13.

³⁶ Act 107 of 1998.

³⁷ GN R.543 of 18 June 2010 (as amended), read with the transitional arrangements set out in Regulation 10(2)(b) of the National Appeal Regulations, 2014 (GN R.993 of 8 December 2014 (as amended)). In terms of the transitional provisions contained in the National Appeal Regulations, 2014, an appeal lodged after 8 December 2014 against a decision taken in terms of the Environmental Impact Assessment Regulations, 2006 must despite

Regulations, 2010), the appeal authority must reach a final decision on an appeal within 90 days of receipt of all relevant information pertaining to the appeal. The appellants' appeal in this case was lodged on 5 March 2018 and has still not been decided. Over 2 ½ years have passed since this date. The 90-day limit for making a decision on an appeal is presumably intended to ensure that decisions are made on the basis of current facts and up-to-date information. This intention has been thwarted by the inordinate delay in considering the appeal.

33. The appellants' appeal refers to the fact that in several respects the Final EIA Report was based on outdated or incomplete information. For example:

- The appeal refers to the fact that Ministerial Advisory Council on Energy (MACE) report, which was based on up-to-date information as to the least cost option for electricity power generation, had been submitted to the Minister of Energy on 1 October 2016. This report had concluded that a least cost IRP model, free of any artificial constraints and before any policy adjustments does not include any new nuclear power generators.³⁸ However, incomplete and outdated information from the IRP 2010 was instead relied upon by the competent authority in granting the authorisation.³⁹
- The appeal also refers to the fact that the authorisation is based on outdated information as to the population demographics in the vicinity of the Duynefontein site, a highly relevant consideration in planning for nuclear disaster management.

34. The appeal argues that as a result the decision is fatally flawed, citing the judgment of *Sea Front For All* where the Western Cape High Court considered the issue of a failure to take into consideration changed circumstances. In this case the MEC's decision was based primarily on information contained in the final scoping report some 4 ½ years before the MEC took her decision. It was held that

the repeal of the regulations... be dispensed with in terms of the Environmental Impact Assessment Regulations, 2010 as if those regulations have not been repealed.

³⁸ Appellants' 5 March 2018 Nuclear 1 EIA Appeal, paragraphs 41 and 42.

³⁹ Ibid, paragraphs 31-33.

...the information in the final scoping report ought to have been augmented by a comprehensive current environmental impact assessment. In failing to call for such updated assessment, the MEC took her decision on the basis of irrelevant considerations (information which was out-of-date and no longer correct), and failed to have regard to relevant considerations.⁴⁰

35. The further delay of over 2 ½ years in making the Nuclear 1 appeal decision has rendered the information on which it was granted even more out-of-date. Population increases in the areas to the south of Duynefontein have continued, as will be discussed below. The IRP 2010 policy position on nuclear power that was used to justify the granting of this authorisation in the absence of an assessment of cost-effective alternatives, need and desirability and the ‘no go’ option has been supplanted by the IRP 2019 which reflects a significant change in energy policy. No longer is nuclear power unconditionally required as part of the future energy mix, but must be considered in a planning process that involves considerations of affordability and other factors. These changes are highly relevant considerations pertinent to the assessment of socio-economic and potential nuclear disaster impacts that must be considered by the appeal authority. Failure to do so will render the appeal decision reviewable.
36. The changed electricity generation policy environment, as reflected in the IRP 2019, which no longer unconditionally mandates procurement of nuclear power generation is relevant to several issues raised on appeal, which will be discussed in more detail below.
- a) Failure to consider alternatives and the no go option is justified by out-of-date and therefore irrelevant considerations**
37. The Final EIA Report did not consider alternatives to the nuclear power plant or the ‘no go’ option, which are mandatory requirements in terms of the EIA Regulations, 2010 applicable to this authorisation process. This approach was justified in the Final EIA Report and correspondence from consultants on the basis of the electricity planning policy at the time, the IRP 2010, which required 9600 MW of electricity to be generated by nuclear power, even though there had been a significant fall-off of demand for electricity since the IRP 2010 was promulgated.⁴¹

⁴⁰ Ibid, paragraph 149.

⁴¹ Ibid, paragraph 66.

38. The Final EIA Report had conceded that *'the fact that current demand does not meet that projected in the IRP2010 questions the need for the proposed NPS'*. The Final EIA Report sought to justify (unconvincingly) that *'while these various comments on the lower demand are fully acknowledged and recognised, it is beyond the remit of an EIA to second-guess national policy decisions... [t]he "no-go" alternative, with respect to energy mix is thus firmly rooted in the dictates of the IRP, and not in the EIA process'*.⁴²
39. It was argued in the appellants' appeal that not only is reliance on the outdated IRP2010 irregular, the requirement to investigate and assess the option of not implementing the activity is a mandatory requirement of section 24(4)(b)(i) of NEMA.⁴³
40. The IRP 2019 replaces the IRP 2010 but does not contain a commitment to building new nuclear power infrastructure for the generation of electricity, apart from committing to considering the development of a "road map" for nuclear power, which is also conditional on a number of factors, including affordability (see paragraph 21 above).
41. As a consequence of the promulgation of the 2019 update in electricity planning policy, the environmental authorisation is based on energy policy considerations which are now *officially* out-of-date, and as such have become legally irrelevant considerations for the appeal authority when considering the appeal. The Nuclear 1 environmental authorisation should be set aside, and a new EIA should be conducted once the road map referred to in the IRP 2019 for any future nuclear expansion programme has been developed, and after a lawful determination has been in terms of s34 of the ERA that new nuclear generation capacity is needed. This new EIA should (among other things) include the consideration of alternatives and the 'no go' option, as well as any future iteration of the IRP (as may then be applicable).
- b) Need and desirability is justified by out-of-date and therefore irrelevant considerations**
42. The environmental authorisation was also appealed on the basis of the failure of the Final EIA Report to adequately describe and evaluate need and desirability of the

⁴² Final EIA Report, 5.9 p5-39.

⁴³ Op cit note 38, paragraph 66.

proposed NPS, as a result of a key assumption of the report that the need and desirability for the Nuclear Power station is adequately defined by the IRP 2010.

43. It was conceded in the Final EIA Report that the case for nuclear power needs to be supported by the revised IRP, and that the assessment of need and desirability had been based on the IRP 2010. It also confirmed that demand in electricity has not increased as predicted in the IRP 2010.⁴⁴ It was stated further that:

If [in] the future IRP does not include the option for nuclear power as a result of a change in demand patterns and supply option then the need and desirability will fall away.⁴⁵

44. The promulgation of the IRP 2019 provides support for this ground of appeal.⁴⁶ The conclusion of the Final EIA Report in regard to need and desirability of the nuclear power plant was based on out-of-date and therefore irrelevant considerations. That information has only become more out-of-date and irrelevant with the passage of time and the advent of the IRP 2019. As a result, the appeal should be upheld and the Nuclear 1 environmental authorisation set aside.
45. The appellants' appeal deals extensively with the failure of the Final EIA Report to comply with requirements contained in the EIA Regulations, 2010 for the assessment of need and desirability of the nuclear power plant.⁴⁷ It was pointed out in the appeal that Regulation 32(2)(f) requires:

... a description of the need and desirability of the proposed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity.

46. It is stated in the appellants' appeal that the Final EIA Report failed to adequately describe and evaluate the need and desirability for the construction and operation of a Generation III PWR type nuclear power station of up to 4000 MWe (comprising of two or three reactor units) at Duynefontein. It is submitted in the appeal that the EIA's

⁴⁴ Ibid, paragraph 36.

⁴⁵ Final EIA Report, Executive Summary, p3.

⁴⁶ Op cit note 38, paragraph 46.

⁴⁷ Ibid, paragraphs 28 to 46.

reliance on the IRP 2010 to make the assumption that need and desirability is adequately defined constitutes a fatal flaw in the EIA. The IRP 2010 was incomplete and outdated, and not could serve as a rational basis for a decision on authorisation. In particular the IRP 2010 had conceded that it was incomplete in regard to the critical issue of cost of the decommissioning and storage of spent fuel generated by the nuclear power station.⁴⁸

47. The Final EIA Report had also relied on this out-of-date and incomplete information when more up-to-date information was readily available, contained in the draft IRP 2013, which at the time had been published for comment on the Department of Minerals and Energy website. This draft update had indicated that the demand projections that were used to justify 9600 MW of additional nuclear energy had been reduced by 6600 MW, effectively eliminating the need for the nuclear fleet.⁴⁹
48. The decision on authorisation had thus been based on irrelevant considerations, and the decision-maker could not apply his or her mind to relevant considerations, rendering a decision based on the Final EIA Report judicially reviewable in terms of section 6 of the Promotion of Administrative Justice Act, 2000.⁵⁰
49. The updated IRP 2019 provides a clear basis for the conclusion that the need and desirability of further nuclear power plants has yet to be determined. It adopts a flexible approach which sets out a number of conditions for procurement of new nuclear power generation. These include (among other things) affordability, which in turn is to be qualified by time, scale, and nature of technological developments. None of these factors are explored in any detail in the IRP 2019 and therefore will depend on future studies.
50. The IRP 2019 states that *consideration* must be given to preparatory work commencing on the development of a “clear road map” for a future expansion program. When and how such consideration will take place is left open to the executive. The need and

⁴⁸ Op cit note 38, paragraph 31.

⁴⁹ Ibid p32.

⁵⁰ Act 3 of 2000, section 6(2)(e)(iii).

desirability for new nuclear power generation has been fundamentally altered by the change in policy that the IRP 2019 represents. Whether nuclear power stations will be built in the future or not is now a matter which has yet to be determined.

51. The impugned environmental authorisation remains a decision based on a Final EIA Report that failed to properly consider need and desirability - as required by the EIA Regulations and Guidelines - at the time of submission of this report to the competent authority. The report failed to disclose relevant information to the decision-maker and its recommendations were based on outdated and therefore irrelevant considerations. As is conceded in the Final EIA Report under the need and desirability component:

...the case for nuclear power needs to be supported by the revised IRP which is expected to be published in 2016. This chapter on need and desirability is based on the 2010 IRP...⁵¹

It is submitted that the case for new nuclear power plants is not supported by the IRP 2019, and the environmental authorisation should be set aside.

F. FAILURE TO CONSIDER THE TOWN PLANNING CONTEXT WHEN GRANTING THE ENVIRONMENTAL AUTHORISATION

52. One of the grounds of appeal in the appeal submitted by the appellants' was the failure of the Final EIA Report to assess the socio-economic impacts of the authorisation of the construction of a further nuclear power generation plant at the Duynefontein site. Such impacts include the consideration of how the construction of a further nuclear power station at Duynefontein would impact on the development and expansion of Cape Town and surrounding areas such as Atlantis⁵² The Final EIA Report, had made contradictory statements in this regard. On the one hand the report stated that:

[t]he proposed development will have an impact on future development of the region in terms of land that can be utilised for future development.⁵³

But elsewhere it was also stated that:

It is therefore foreseen that the development of the power station is unlikely to result

⁵¹ Final EIA Report page 4-20.

⁵² Op cit note 38, paragraph 132.

⁵³ Ibid, paragraph 132.2 to 132.4.

in the restriction of land uses, which cannot be appropriately dealt with through existing planning tools / legislation.⁵⁴

53. It was submitted in the appeal that this failure meant that the Final EIA Report had failed to place a relevant consideration before the decision-maker, in a matter of high importance to the City of Cape Town and its residents. This concerned a very significant socio-economic impact, as the city had (and has) a rapidly increasing demand for housing and is landlocked by mountains and ocean, placing pressure for development on the zone to the north of the city between Cape Town and Duynfontein, as well as to the north of Duynfontein. In addition, Atlantis, which is 23 km north of the Koeberg, has a critical need for investment in job-creating industries in order to address the legacy of apartheid planning which put this residential area very far from economic activity.⁵⁵ The planned building of addition nuclear power, and its subsequent decommissioning, will constrain development around the northern suburbs of Cape Town, a large metropolis, for another 80 (eighty) or more years (affecting many future generations).⁵⁶
54. It was also submitted in the appeal that the decision on authorisation is based on outdated demographic and other information pertaining to the description of the receiving environment. The Social Impact Assessment of the EIA describes Blaauwburg (where the site is located) as one of the fastest growing districts in the City of Cape Town metropolitan area.⁵⁷ It was argued in the appeal that it can therefore be expected that significant numbers of people currently, and in future, will live in close proximity to the reactors, and will be faced with various significant risks and the need to evacuate based on proximity to the site in the event of any potential nuclear disaster. For this reason, and based on the requirements of the plan of study for the EIA, there should have been a detailed up-to-date study of the demographics of the areas around the site, at different distances. These figures should have been linked to an assessment of the emergency response capability now and in the future.

⁵⁴ Chapter 10 p236.

⁵⁵ Op cit note 38, paragraph 132.6.

⁵⁶ Ibid, paragraph 132.5.

⁵⁷ Environmental Impact Assessment for the Proposed Nuclear Power Station ('Nuclear 1') And Associated Infrastructure - Social Impact Assessment January 2016 (SIA), at para 2.2.5.

55. Since the lodging of the appeal in 2018, population densities in Cape Town have continued to increase, with an estimated growth of 2.4% per annum.⁵⁸ Parklands, which is about 17km from the Koeberg Nuclear Power Station (KNPS), is currently described as one of the fastest growing residential areas in the western Cape.⁵⁹
56. As regards the issue of population densities: In 2011, the population density of Atlantis as 2,300/square km (6,100/square mile) and du Noon as 30,000/square km (77,000/square mile).⁶⁰ Developments at Duynfontein, Parklands and Blouberg have all significantly increased their population densities within 16 km of the KNPS. The distance from the reactor to the nearest settlement, Duynfontein (population 1549) is 1.5 km. The next dense settlement is Melkbosstrand, the boundary of which is about 5 km away from the reactor with a population of around 11, 600 and population density of 840 per square km. The boundary of Blouberg and Parklands is about 15 km away. There are therefore populations who live within the Nuclear Precautionary Action Zone with densities of 991 persons per square km. In the area less than 16km there would be an estimated 50 – 100 000 people based on the 2011 census. Beyond that, the entire population of the greater Cape Town metropolis falls within an 80km radius.
57. The IRP 2019 states:
- Taking into account the existing human resource capacity, skills, technology and the economic potential that nuclear holds, consideration must be given to preparatory work commencing on the development of a clear road map for a future for a future expansion programme.⁶¹
58. The IRP 2019 therefore requires that preparatory work for a road map for future nuclear power generation must still be undertaken. It must take into account various factors that still have to be quantified, such as the economic potential and risks of nuclear. A comprehensive road map or plan of this nature will have to consider relevant national and international guidelines on the siting of nuclear reactors. These include a consideration of population densities in relation to disaster management and the

⁵⁸ <https://worldpopulationreview.com/world-cities/cape-town-population>

⁵⁹ https://en.wikipedia.org/wiki/Parklands,_Western_Cape

⁶⁰ 2011 SA Census.

⁶¹ IRP 2019, p47-48.

proximity of vulnerable and disadvantaged communities.⁶² As stated above, these issues were not considered in the Final EIA Report. It follows that the appeal should be upheld.

59. Among other things, the following information in terms of population should be assessed in any future EIA relating to the Duynefontein site and before any environmental authorisation is considered again:

- (i) An up-to-date estimate of population growth within a 20 km radius of the Duynefontein site since application was made for the authorisation of a nuclear power plant;
- (ii) The need for affordable housing in the Du Noon, Atlantis and Blouberg areas; and
- (iii) The impact of increased populations in the suburbs surrounding Duynefontein on disaster management at the nuclear site.

G. INCORRECT SEQUENCING IN DECISION MAKING

60. The appellants' appeal points out that the Final EIA Report relies on future NNR processes and safety standards to cure the EIA's fatal flaw of failing to assess the health and socio-economic consequences of a catastrophic nuclear incident. It is asserted in the appeal that this amounts to an unlawful delegation of authority and/or an unlawful

⁶² The International Atomic Energy Association safety guideline, which South Africa is bound to follow refer specifically to suitability from a siting perspective of locating a new nuclear installation at an existing site. Safety related criteria include:

4.5 (d) **Population density and population distribution and distance to centres of population, including projections for the operating lifetime of the nuclear installation.**

4.6. *The fourth set of criteria is linked to the third set but it relates mainly to the demonstration of the feasibility of implementation of the emergency plan for the nuclear installation. In this context, the following phenomena should be considered:*

- (a) *Physical characteristics of the site that could hinder implementation of the emergency plan (in particular, geographical features such as islands, mountains and rivers);*
- (b) *Infrastructural characteristics relating to the implementation of the emergency plan (especially local transport infrastructure and communications networks);*
- (c) **Considerations of populations (e.g. special population groups with regard to protective actions in the event of a nuclear or radiological emergency, such as elderly and disabled persons and hospital patients and prisoners), and land and water use considerations;**
- (d) *Specific requirements of the regulatory body for special zones, such as emergency planning zones and distances;*
- (e) *Industrial facilities that could involve potentially hazardous activities;*
- (f) *Impacts of concurrent external hazards on infrastructure."*

See <https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1690Web-41934783.pdf>

fettering of the DEA's statutory powers and obligations. In addition, it is asserted that the co-operative agreement between the DEA and NNR is misrepresented by the EIA, and does not provide a lawful justification for the EIA's failure to assess the significance and impacts of a catastrophic nuclear incident.⁶³

61. The question arises in regard to this ground of appeal – how should the EIA process have gathered the necessary information to determine the potential for and impact of a catastrophic nuclear incident, and what mitigation measures could have been suggested in an attempt to minimise the possibility that this could take place?
62. Although detailed mitigation of potential radiological impacts is part of the safety function of the NNR, the environmental authorisation process needs to consider mitigation measures as part and parcel of considering the issue of alternatives (Regulation 32(2)(f) and (h)). If the consequences of a catastrophic nuclear incident at site A cannot be mitigated, Site B might be more appropriate. If it is not appropriate or feasible for the EIA process to assemble the relevant information as to mitigation of impacts, then the correct sequencing of authorisations is for the NNR to consider mitigation measures and to put this information at the disposal of the EIA process, prior to the issuing of the environmental authorisation. Other mitigation can (and we submit must) also be considered at this point, such as alternative site locations. This is the approach adopted in other jurisdictions to the licensing of new nuclear power stations such as the United Kingdom.
63. The IRP 2019 has the effect of deferring any policy decision to build a new nuclear power station until (among other things) a road map has been drawn up. The exact requirements for this road map are not spelled out in the IRP 2019, and it is submitted that upholding the Nuclear 1 environmental authorisation in the absence of this road-map - and in the absence of a lawful s34 ERA determination that new nuclear generation capacity is needed - would be irregular.

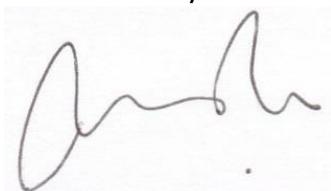
⁶³ Op cit note 38, paragraph 79.4.

64. Subsequent to the granting of the environmental authorisation, a policy decision has also been taken in the IRP 2019 to extend the life of the KNPS (which reaches its end-of-design life in 2024). Draft Regulations have been published for comment which intend to govern the extension of life process.⁶⁴ By the time any new nuclear power station is considered for licensing by the NNR, considerable further time will in all likelihood have elapsed - and the information on which the Nuclear 1 environmental authorisation was granted will be even more out-of-date. It follows that the authorisation should be set aside in order to enable the future planning envisaged in the IRP 2019 to take place, and in order to enable the NNR to consider the safety case for any proposed new reactor. This will in turn generate the requisite information for a proper environmental impact assessment (and consideration of appropriate mitigation measures) to take place. The process must also include consideration of the cumulative impact of the siting of a new reactor on a site where the life of the existing KNPS is planned to be extended for a further period of at least two decades.

H. CONCLUSION

65. In light of the appellants' earlier appeal submissions and having regard to the further submissions made by the appellants relating to the replacement of the IRP 2010 by the IRP 2019, it is submitted that the appeal must be upheld and the decision on authorisation set aside.

Yours sincerely



Adrian Leonard Pole

Acknowledgments:

Submissions co-authored by **Angela Andrews** (Sections E, F and G).

⁶⁴ Draft Regulations on the Long Term Operation of Nuclear Installations GNR.694 of 19 June 2020.