Nuclear Policy and the Changing Dynamics of Decision-Making

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Abstract

Under the apartheid regime nuclear policy was decided by the president, with most of the cabinet being in the loop. The African National Congress (ANC) in exile sought to discover the facts, and to campaign against the apartheid regime acquiring nuclear weapon capabilities. Between 1991 and 1994, the ANC's Science and Technology Policy group played a role in lobbying on nuclear policy issues, alongside some NGOs, culminating in the February 1994 conference on nuclear policy.

After the came to power in April 1994, inaugurating democracy, the nuclear lobby within the bureaucracy and parastatals influenced the relevant ANC directors-general, cabinet ministers and one president. Statutory and regulatory agencies were compromised. Civil society organisations alone took the lead in opposing nuclear energy, and were partly successful.

Introduction

Under the apartheid regime nuclear policy was decided by the president, with most of the cabinet being in the loop. The ANC in exile sought to discover the facts and to campaign against the apartheid regime acquiring nuclear weapon capabilities. Between 1991 and 1994, the ANC's Science and Technology Policy group played a in lobbying on nuclear policy issues, alongside some non-governmental organisations, culminating in the February 1994 conference on nuclear policy. With the dawn of democracy in April 1994, the nuclear lobby within the bureaucracy and parastatals influenced the relevant ANC directors-general, cabinet ministers and one president. Statutory and regulatory agencies were compromised. Civil society organisations alone took the lead in opposing nuclear energy, and were partly successful. This paper reflects the author's observations and his research of press reports.

Pre-1990

Former apartheid president F.W. de Klerk wrote how he only learnt about the nuclear bomb project, which started in 1974 as a peaceful nuclear explosive (PNE), by chance, in his capacity as deputy minister of mining. The project was kept secret from most of the cabinet and the State Security Council (De Klerk, 1999: 273). Nuclear policy was made by the president. Subsequently, as State President, De Klerk in late 1989 ordered the country's six and a half nuclear bombs to be dismantled.

Under apartheid, the nuclear censorship went much further than just the six and a half nuclear bombs. It was, for example, a crime punishable by imprisonment to reveal that South African uranium was exported to the United Kingdom, where it was used to manufacture their atomic bombs during the Cold War (Williams, 1994: 73).

This author did spot a one sentence news report in either the *Cape Times* or the *Cape Argus*, in the late 1960s or 1970, where the mining industry announced that they had started to convert uranium oxide into uranium hexafluoride (this is corroborated on 19 August 1970, by a *New York Times* report[1]). He assumed that the sole industrial use of uranium hexafluoride is for uranium isotope enrichment, and that therefore a nuclear bomb project had started. Also, after the Koeberg nuclear power station project was announced in 1974, the author assumed that these two nuclear reactors were to act as camouflage for the primary military destination of the enriched uranium.

Opposition to the nuclear power project became organised as 'Stop Koeberg', later changed to the NGO 'Koeberg Alert' (Koeberg Alert, n.d.). It was founded in 1983. Koeberg Alert affiliated to the United Democratic Front. This indicated the broad sympathies of its founders towards the liberation movement. Equally significant, it indicated that the UDF was sympathetically disposed to NGOs opposing nuclear power stations. Around the same time, two playwrights wrote the satirical musical *Up 'n Atom*, which performed to a sold-out season at the provincial-owned theatre today called Artscape, and then went on a further run at the Baxter Theatre, which required re-designing of the stage set to fit onto a smaller stage.

1990 – 1994

After its unbanning in 1990, the ANC set up a number of policy groups, which ran until they were replaced by parliamentary portfolio committees after the April 1994 election. Their role was to advise on drafting policy. The author joined the ANC Science & Technology Policy (S&T) Group towards the end of 1991. While the ANC intended to found S&T Policy groups in each province, in practice they were only founded in Johannesburg and Cape Town. The Johannesburg group soon faded out, leaving the S&T Policy group in the Western Cape as the only one standing. The majority of scientists who joined the S&T group lobbied only to get their discipline included in the list of those meriting government support. As soon as they had achieved this, they dropped out, and did not come to further meetings. They had no interest in S&T policy as a whole. One praiseworthy exception was Professor Iqbal Parker of the UCT Medical School.

In February 1994, 240 delegates participated in a conference to debate nuclear policy for a democratic South Africa. This was co-hosted by the Western Cape sections of the Environmental Monitoring Group (EMG) and the ANC Science & Technology Policy Group. In brief, its main recommendations were that South Africa should:

- Oppose nuclear weapons and strengthen the Nuclear Non-Proliferation Treaty
- After historic over-investment, give no further subsidies to the atomic industry, but let those parts of it which make a profit, continue
- Research electricity generation through solar, hydro, wind, and other renewables (EMG & ANC, 1994: 228, 231, 234).

The second and third of these recommendations were not only rejected by the ANC, but simply vanished without a trace. There seems to be four reasons that lay behind this result. The first is formalistic. The recommendations from a conference had no standing within the ANC, unless they were subsequently adopted by its national policy conference or by the National Executive Committee or other structure. But even then, governmental backing was possible only with the approval by a Director-General or cabinet minister.

Secondly, before 27 April 1994, the bureaucracy of Afrikaner nationalists was considered hostile to the ANC. What civil society did not realize was that, after

April 1994, ANC ministers, deputy ministers, and other political appointees, would grant daily access to existing civil servants who wished to advise them on policy issues. By contrast, intellectuals and activists in ANC support groups and the NGOs were marginalized. They were treated as outsiders, who had to request an appointment to see any political appointees, and even then, they were more frequently turned down, or ignored, than granted an appointment. Even when the new decision-makers granted activists occasional space and time to make presentations, the results were minimal, as incoming ministers slowly meshed with the bureaucracy, which used its insider status to counter activist proposals.

The third reason is illustrated by the fact that within a month, the *Financial Mail* published a half-page 'nuclear feature', which concluded: "The ANC is doing its best to be polite to all past allies. But the case for sending the nuclear nutters packing after the April general elections is unanswerable" (*Financial Mail*, 11 March 1994: 43). By 'nuclear nutters' the *Financial Mail* meant not the nuclear industry, but those opposed to it, who advocated renewable electricity generation. In short, the atomic industrial lobby had already won over most of the mainstream media, including editors, columnists, and journalists. Newspapers repeatedly, after 1994, uncritically published Eskom's pro-atomic articles verbatim, but their editorial and other pages were often rationed to those advocating renewable sources of grid electricity. When Eskom's nuclear division paid for a series of full-page adverts across all major newspapers, for example (*Cape Argus,* 2003; *ThisDay*, 2003; *Sunday Argus*, 2004; *Cape Argus*, 2005), grateful media responded accordingly.

The fourth reason is that a public relations firm hired by Eskom in 1994 recommended setting up a Koeberg Task Team; that Eskom's Nuclear Division should engage with ANC officials outside the conference; and that it should lobby members of the ANC National Executive Committee. All of this they diligently did, with success.

The former atom bomb team, now incarnated as the Pebble-Bed Modular Reactor (PBMR) team, and all kept on the state payroll, fought hard for two decades to claw-back from this reversal of their fortunes. They all worked to steer the thinking of the Parliamentary portfolio committee on energy.

Post-1994

In the 21st century, Koeberg Alert was re-organised as Koeberg Alert Alliance, predominantly a Facebook group (https://koebergalert.org/about). It was joined by the Southern African Faith Communities Environment Institute, founded in 2005, (https://safcei.org/about-us/) and the Coalition Against Nuclear Energy, founded before 2007 (https://cane.org.za/about).

The nuclear division within Eskom paid for a major and extensive advertising campaign. With this campaign, the atomic industry lobby in South Africa achieved two world records. This was the first time in the history of advertising, and in corporate history, that a company paid for full-page advertisements in mainstream newspapers to publicly marginalize and denigrate the research and development work of its renewables division in favour of the nuclear division of the same company. This clearly illustrated the power of the atomic division within Eskom, and the powerlessness and defencelessness of its renewables division. Simultaneously, the Department of Minerals and Energy (DME) created an additional post: Deputy Director-General for Nuclear Energy, which it swiftly filled.

Along with the media campaign, the atomic industry lobby extensively lobbied cabinet ministers, deputy ministers, ANC members of parliament and National Executive Committee members. One such example was the 'highly confidential' South Africa Power Project Strategic Implementation Proposal of 2007, which recommended that spending on nuclear power stations should be ten times higher than on all renewables combined (TSAPRO, 2007). In fact, their spending on nuclear power research was in the end four hundred times higher than their budget for all renewable electricity modes combined (Greyling, 2014).

After seventeen years, from 1993 to 2010, the PBMR team admitted that they would need a further thirty billion rand. The then Minister for Public Enterprises, Barbara Hogan reacted by terminating the project. Her reasoning was that the PBMR team: consistently missed deadlines; failed to find any customers for their reactor; failed to get an opportunity to participate in the United States Nextgen nuclear plant round of research and development funding; and failed to secure private

sector financing (bar miniscule shareholdings of Westinghouse, 4.9%, and, Exelon, 1.1%, before it withdrew). Within months, President Jacob Zuma dismissed Hogan from the cabinet, and her political career was over.

Since democracy started in 1994, South Africa has had eleven ministers responsible for energy.[2] With the exception of Roelof 'Pik' Botha, the rest of the politicians had no previous record or any interest in the atomic industry. Yet, each minister, within a week or fortnight of appointment, issued a statement reaffirming the government's commitment to atomic power stations. This implies first, that this strategy is considered more important than any other policy under their domain; and, second, that someone invisible to the public has the power to pressure each new minister to issue such statements. Such a bureaucrat is unlikely to be lower than the rank of a Deputy Director-General.

The roll-back offensive against the 1994 ANC Science and Technology Policy conference resolutions steadily mounted. The Government's 1998 White Paper on Energy Policy pledged it would investigate atomic power. In 2007, the DME published a Draft Nuclear Energy Policy for comment, and the cabinet promulgated the final version in 2008. Principle 1 was that nuclear energy shall be used (DME, 2008: 7). The Government was again committed to the re-development of an end-to-end nuclear industry, which would entail: the development of a fuel fabrication capacity; investigating the re-establishment of a uranium enrichment capacity; and starting the construction of nuclear power plants between 2011 and 2015 (DME, 2008: 26-29).

One key strategy was for the atomic lobby to set up a National Nuclear Energy Executive Co-ordinating Committee (NNEECC), headed by the Deputy President, to drive it at the highest level and to ensure a majority of atomic power station supporters from the DME, the Department of Trade and Industry, and others could outvote the Minister of Finance. The political strength of the atomic lobby soon became tangible. Renewable energy managers in the DME publicly announced at a 2010 solar energy conference that they would found a 5 000 MW Solar Park in Upington, which later morphed into a 5 000 MW "solar corridor". But when the Integrated Resource Plan 2010-2030, endorsed by cabinet, was published in 2011, it proposed 9 600 MW of atomic power (DME, 2013). The Upington solar park or solar corridor was never built; there is no trace of it thirteen years later.

The competing nuclear companies escalated their lobbying in South Africa. A vice-president of the French firm AREVA (now Framatome) in South Africa joined the ANC, and stood as an ANC ward candidate in municipal elections. The AREVA president and chief executive officer oversaw their corporate sponsorship of the 2012 and 2013 'French seasons', which paid for extensive cultural events throughout South Africa (www.france-southafrica.com). Their business rival, Westinghouse, appointed a former AZAPO president, subsequently a Director-General of the then Department of Arts, Culture, Science and Technology Department, Itumeleng Mosala, as its regional vice-president for South Africa (Westinghouse, 2010).

The Gaby Shapiro branch of the ANC, and other branches, submitted policy motions to the ANC 2017 national policy conference, calling for nuclear power, including disposal of high-level radioactive waste, to be costed and compared with the cost of other sources of electricity. All such resolutions were suppressed at the national level (author observation). Only litigation by NGOs stopped President Zuma's intention to spend one trillion Rand on purchase of Russian VVER nuclear power stations (Earthlife Africa vs. Minister of Energy, 2015).

Time and time again, the atomic industry's choices, instead of being cost-effective and simple, ended up more complex and expensive. For instance, the most cost-effective production of medical radio-isotopes is by using a cyclotron, as the 200MeV cyclotron at the iThemba lab at Faure has done for decades. The same choice predominates overseas. The 2013 decision to build another reactor at Pelindaba for increased production of medical radio-isotopes, instead of a second cyclotron, was not cost-optimal, but could only be explained as part of a stratagem to rebuild a large atomic establishment. Similarly, global practice is to use lead containers for shipping industrial radio-isotopes. The Valindaba choice of depleted uranium for radio-isotope containers can only be explained by the intention to build capacity for producing both depleted and enriched uranium.

Intra-Institutional Conflict Of Interests

Nuclear safety in South Africa is intrinsically flawed. It is entrusted to the National Nuclear Regulator (NNR), which is answerable to the DME — not the Departments of Health or Environmental Affairs. This is a clear conflict of interest. The conflict was aggravated when the minister appointed a former senior employee of the PBMR as the chief executive of the NNR. Similarly, the NNR makes provision for one NNR representative to represent civil society. At the start of democracy, the civil society representative was in fact an ex-Eskom employee who had worked at Koeberg (Fig, 2005: 60). When all civil society organizations active in nuclear-related issues nominated a delegate, the cabinet rejected this and instead appointed someone in 2012, from the ANC-allied SA National Civics Organization (SANCO).

In 2021, the Minister of Mineral Resources and Energy (now the Minister of the new Electricity and Energy department) appointed Peter Becker from Koeberg Alert, to the NNR, as representative of civil society organisations. He dismissed Becker around his first meeting at the NNR, explicitly on the grounds that Becker expressed opposition to nuclear power. The High Court ruled in 2022 that the Minister had acted illegally (Becker vs. Minister of Mineral Resources and Energy, 2022).

When secrecy legislation is applied to nuclear safety, public concern is more than merited. The NNR refused to release its emergency plans when asked by NGOs. It even rejected two Promotion of Access to Information (PAIA) applications for their release. When the plans finally came to light after an appeal in 2011, the reasons for the NNR defensiveness became apparent: the emergency plans were both inadequate and out of date. Subsequently, the NNR has adopted the procedure of refusing *all* information as a matter of principle, so compelling the public to submit laborious, time-wasting and sometimes expensive PAIA applications for any data on anything (Becker, 2013).

The environmental legacy of uranium mining is another concern evaded by the NNR. This has been investigated by the Water Research Commission, focusing on Gauteng Province, and written up in the Coetzee Report. The NNR suppressed the 2006 Coetzee Report, because this Water Research Commission team proved that the level of radioactive contamination throughout the Wonderfonteinspruit catchment area (it flows through the richest gold mining region in the world) posed a significant threat to the health of all who lived there or consumed its produce: there are 2 200 tons of uranium in its sediments. It took two years of 'relentless pressure' from environmentalist Mariette Liefferink to get this report published. All told, the highveld mine dumps contain 600 tons of uranium dust blowing in the air when dry, and leaching into streams and groundwater when wet (*Noseweek,* 162: 11-12).

The NNR has a severely inadequate budget and human resources for its current tasks, such as tracking all radio-isotopes used industrially, and remediation of radioactive mine dumps. Its then head, advocate Boyce Mkhize, described it as 'mickey mouse' and then resigned. Since the NNR is so under-resourced for even current needs, it lacks the capacity and capability to ensure safety for the proposed three extra atomic power stations containing six nuclear reactors, plus the concomitant re-building of an end-to-end atomic industry.

The safety functions of the NNR are compromised by its very statutory and institutional structures. The International Atomic Energy Agency's visiting team recommendations of 2013 were that the NNR must be transferred to fall under the Environmental Department, not the Mineral Resources and Energy Department, because the mandate of the latter is to promote nuclear electricity. In 2022, the IAEA expressed concern that their decade-old recommendations had been ignored. More alarmingly, the explicit cabinet performance agreements for the Minister of Mineral Resources and Energy are that he must procure an extra nuclear power station, and secure the twenty-year life extension of Koeberg before 2024 - and he will be judged to have failed in his job if he does not. This is the minister whose duties include hiring and firing all members of the board of the National Nuclear Regulator (Becker, 2013). The NNR chair (i.e., the minister) expressed concern about the anti-nuclear perspective of civil society representative

Peter Becker. That he could be outvoted eleven to one on the board was not sufficient for the chair. This indicates a chillingly authoritarian mindset, reminiscent of the apartheid regime. It is also unconstitutional, because Article 24 of the Bill of Rights requires that a safe environment be maintained for future generations.

This compromising of nuclear safety entities is an international problem. The Japanese Diet investigation into the Fukushima disaster, recommendation 5, was that the regulatory entity had become captured by the industry, and this needed to be remedied. South Africa has signed the 1996 International Convention on Nuclear Safety, and so is legally obliged to comply with its requirements.

Conclusion

The nuclear bomb project, which was a commitment of financial and engineering resources against the wishes of then General Constand Viljoen, shows how the prestige of nuclear bombs mesmerised politicians, even when it detracted from contemporary military priorities.

The nuclear power project all too often appeals to politicians regardless of the fact that the nuclear electricity's overall costing in South Africa is higher than alternative sources of power. It is a textbook case of an industrial lobby capturing the state, both bureaucrats and politicians. Opponents of nuclear electricity had to resort to NGOs and civil society outside the state, and resort to the law, for their cause to survive.

Endnotes

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[1] The author's is indebted to Professor Anna-Mart van Wyk for this reference.

[2] Pik Botha, Penuel Maduna, Phumzile Mlambo-Ngcuka, Lindiwe Hendricks, Buyelwa Sonjica, Dipuo Peters, Ben Martins, Tina Joemat-Petterson, Mmamolobo Kubayi, David Mahlobo, Gwede Mantashe.

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