

SUBMISSION TO THE IRP2 PROCESS

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EXPANDING THE NUCLEAR COMPONENT OF THE COUNTRY'S ENERGY MIX




THE PROPOSAL IN THE IRP

The IRP2 proposes that the nuclear component of the energy mix be expanded from around 5% to 14%.

This involves a virtual tripling of the nuclear output in South Africa over the next 20 years.

In practice this will mean an extra 4 to 6 reactors roughly the size of each of the Koeberg reactors.



**THE CASE AGAINST
NUCLEAR EXPANSION**


1. INCREASING COSTS

- Nuclear 1 tendering process halted on the grounds of Eskom's finances**
 - Nuclear construction industry notorious for cost and time overruns**
 - Price of nuclear does not include a number of externalities (pollution, health, liability, insurance, subsidies)**
 - Capital costs will create debt**
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CURRENT AND PROJECTED COSTS IN 2030 OF ENERGY SOURCES, SOUTH AFRICA, IN 2010 US CENTS PER KILOWATT-HOUR (SOURCE: NERSA REFIT 2, OCT 2009)

Energy source	Current cost, 2010	Projected cost, 2030
Coal	8c	23c
Nuclear	10c	24c
Landfill gas	12.4c	10c
Biogas	12.8c	12c
Wind	17.2c	12.2c
Biomass	16.3c	12.2c
Open-cycle gas turbine	34.6c	58.3c
Solar PV	54.3c	49.5c
Concentrating solar	44c	26c

2. BAD TIMING

- New generation nuclear (EPR, AP1000) not yet operational**
 - EPR struggling in Finland (delay of 4yrs, cost overrun of €4bn), France**
 - Only 1 factory in the world for pressure vessels → bottlenecks**
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3. REGULATORY PROBLEMS

- National Nuclear Regulator already overstretched, under-budgeted, short of skilled staff**
 - Independence questioned**
 - Unable to regulate mining wastes effectively**
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Uranium One Mine, North-West Province





Uranium Mill

IN...

Koeberg Nuclear Power Station, Cape Town



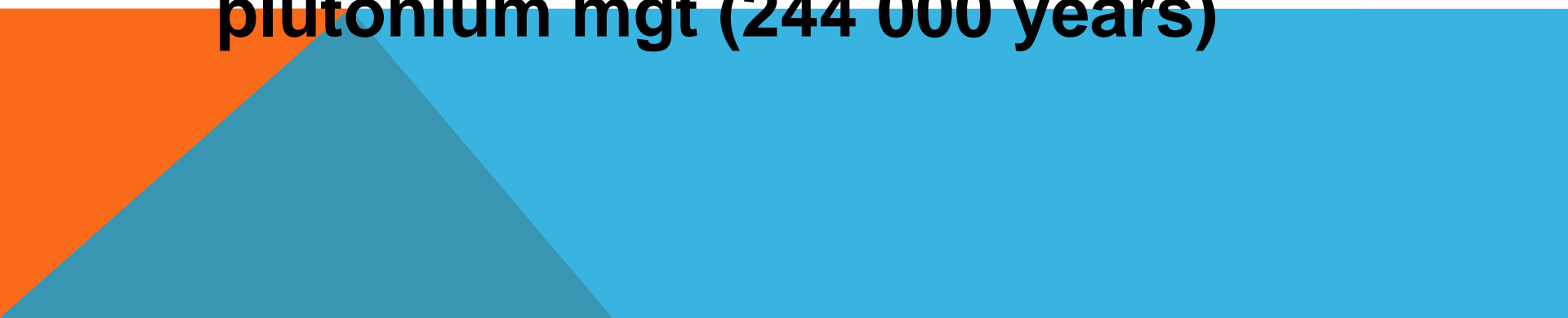
Pelindaba, near Pretoria, South Africa




Vaalputs Nuclear Waste Disposal Facility, Namaqualand



4. PROBLEM OF WASTE MANAGEMENT

- Legacy of 60 years of mining wastes**
 - Vaalputs for low + intermediate**
 - High-level waste stored on site at Koeberg**
 - Despite policy, no solution**
 - SA cannot afford reprocessing & plutonium mgt (244 000 years)**
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5. RISKS OF RADIOACTIVE CONTAMINATION

- Workers affected (e.g. recent contamination of 90 workers at Koeberg)**
 - Communities downstream of radioactive plume**
 - Sterilisation of environment and development**
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6. MISSING PARTS OF THE FUEL CHAIN

- Policy and ministerial statements on SA resuming conversion, enrichment and reprocessing**
 - Highly costly, questionable advantages**
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7. NO HELP WITH CLIMATE CHANGE

- 95% of current electricity still coal**
- True that little carbon emitted by reactors, BUT other parts of the chain are extremely carbon intensive**
 - U mining**
 - Conversion and enrichment**
 - Cement for reactors**
 - Decommissioning**
 - Reprocessing**


CARBON DIVIDEND?

- Any carbon saving will be delayed until after construction, & will be minimal**
- Nuclear is therefore not as 'low-carbon' as it claims to be**


8. TRANSPORTATION

- Currently waste transported from Pelindaba and Koeberg to Vaalputs**
 - Fuel is currently imported**
 - With the multiplication of nuclear power stations, roads will be full of nuclear transport**
 - Municipalities ill-prepared for spills**
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9. ENERGY SECURITY

- We will become dependent on the vendors (parts, training, operational systems, repairs, upgrades)**
 - Little indigenisation of supply**
 - Mimics situation of oil dependency**
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10. JOBS

- Nuclear offers few jobs, mostly high-end, mostly need extensive skills training, not labour intensive, many employees imported**
 - Renewables industry needs no special expertise, could have jobs diffused around the country, with small amount of training thousands of S Africans could be employed in installation, testing, maintenance, repairs**
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11. CENTRALISED ENERGY

- When things go wrong, they go badly wrong for millions of people (e.g., Western Cape 2005-6, whole country 2008)**
 - Renewables decentralised, easily repaired**
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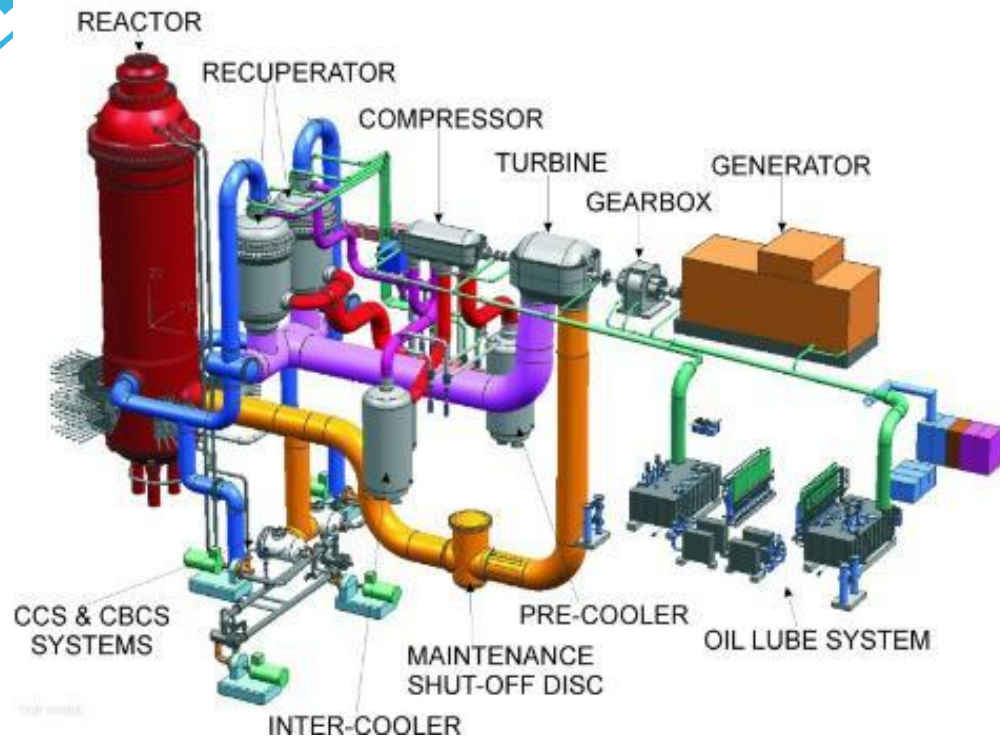
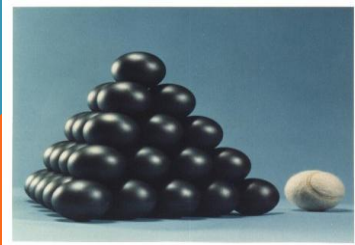
12. PROLIFERATION

- Former members of S African bomb programme implicated in trafficking**
 - Once we again have local enrichment, it will be possible to build bombs**
 - Treaty of Pelindaba currently makes Africa a nuclear weapons-free zone**
 - No guarantees that future regimes may not wish to proliferate WMD**
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13. POOR GOVERNANCE

- Legacy of secrecy in relation to the apartheid bomb programme**
 - Continued vigilance needed against trafficking and terrorist use of nuclear materials**
 - Corruption and the revolving door syndrome**
 - Industry overthrows values enshrined in our Constitution and laws (transparency, environmental rights, precaution)**
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PEBBLE BED REACTOR CANCELLED



PEBBLE BED CANCELLED

- Not part of integrated energy planning**
 - No final design, too little electricity per reactor (80MW)**
 - No customers or new investors**
 - State spent R9bn before closure 2010, to deliver the demonstration plant the state would have had to spend a minimum of an extra R24bn**
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CONCLUSION

- Let us cancel all further nuclear reactors and make our energy renewable; let us become cutting edge in renewable energy as foreseen in IPAP and NGP**
 - Let us avoid further exacerbating an already toxic legacy of 60 years of radioactive waste and contamination**
 - Let us honour the next generations by ending our involvement in all aspects of the nuclear fuel chain**
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Thanks!

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