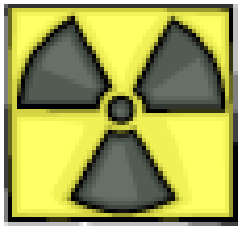
IRP2016 Draft Report

Nuclear issues



Missing Information
Nuclear Waste – High Level

An inevitable consequence of building nuclear power stations is the accumulation of high level waste, or spent fuel.

In order to participate meaningfully in this process, we need to know the details of how this waste will be managed, including:

- Where will the waste be transported to?
- How will it be transported? (30 x 9.6 / 1.8 = 160 tons p.a.)
- Where will the long term storage facility be?
- What are the plans for the construction of this facility?
- How long will this facility need to be maintained?
- What will this facility cost to build?
- What will the running costs of this facility be, including security?

Future generations of tax payers will need to pay for any shortfall. This is taxation without representation.

Major Nuclear Industry Accidents

December 12, 1952
A partial meltdown of a reactor's uranium core at the Chalk River plant near Ottawa, Canada, resulted after the accidental removal of four control rods. Although millions of gallons of radioactive water poured into the reactor, there were no injuries.

October 1957
Fire destroyed the core of a plutonium-producing reactor at Britain's Windscale nuclear complex - since renamed Sellafield - sending clouds of radioactivity into the atmosphere. An official report said the leaked radiation could have caused dozens of cancer deaths in the vicinity of Liverpool.

Winter 1957-'58
A serious accident occurred during the winter of 1957-58 near the town of Kyshtym in the Urals. A Russian scientist who first reported the disaster estimated that hundreds died from radiation sickness.

January 3, 1961
Three technicians died at a U.S. plant in Idaho Falls in an accident at an experimental reactor.

July 4, 1961
The captain and seven crew members died when radiation spread through the Soviet Union's first nuclear-powered submarine. A pipe in the control system of one of the two reactors had ruptured.

October 5, 1966
The core of an experimental reactor near Detroit, Mich., melted partially when a sodium cooling system failed.

January 21, 1969
A coolant malfunction from an experimental underground reactor at Lucens Vad, Switzerland, releases a large amount of radiation into a cave, which was then sealed.

Nuclear accidents have happened, and will happen again.

December 7, 1975
At the Lubmin nuclear power complex on the Baltic coast in East Germany, a short circuit caused by an electrician's mistake started a fire. Some news reports said there was almost a meltdown of the reactor core.

March 28, 1979
Near Harrisburg, Pennsylvania, America's worst nuclear accident occurred. A partial meltdown of one of the reactors forced the evacuation of the residents after radioactive gas escaped into the atmosphere.

February 11, 1981
Eight workers are contaminated when more than 100,000 gallons of radioactive coolant fluid leaks into the contaminant building of the Tennessee Valley Authority's Sequoyah 1 plant in Tennessee.

Missing Information

Risks and costs of leak or accident

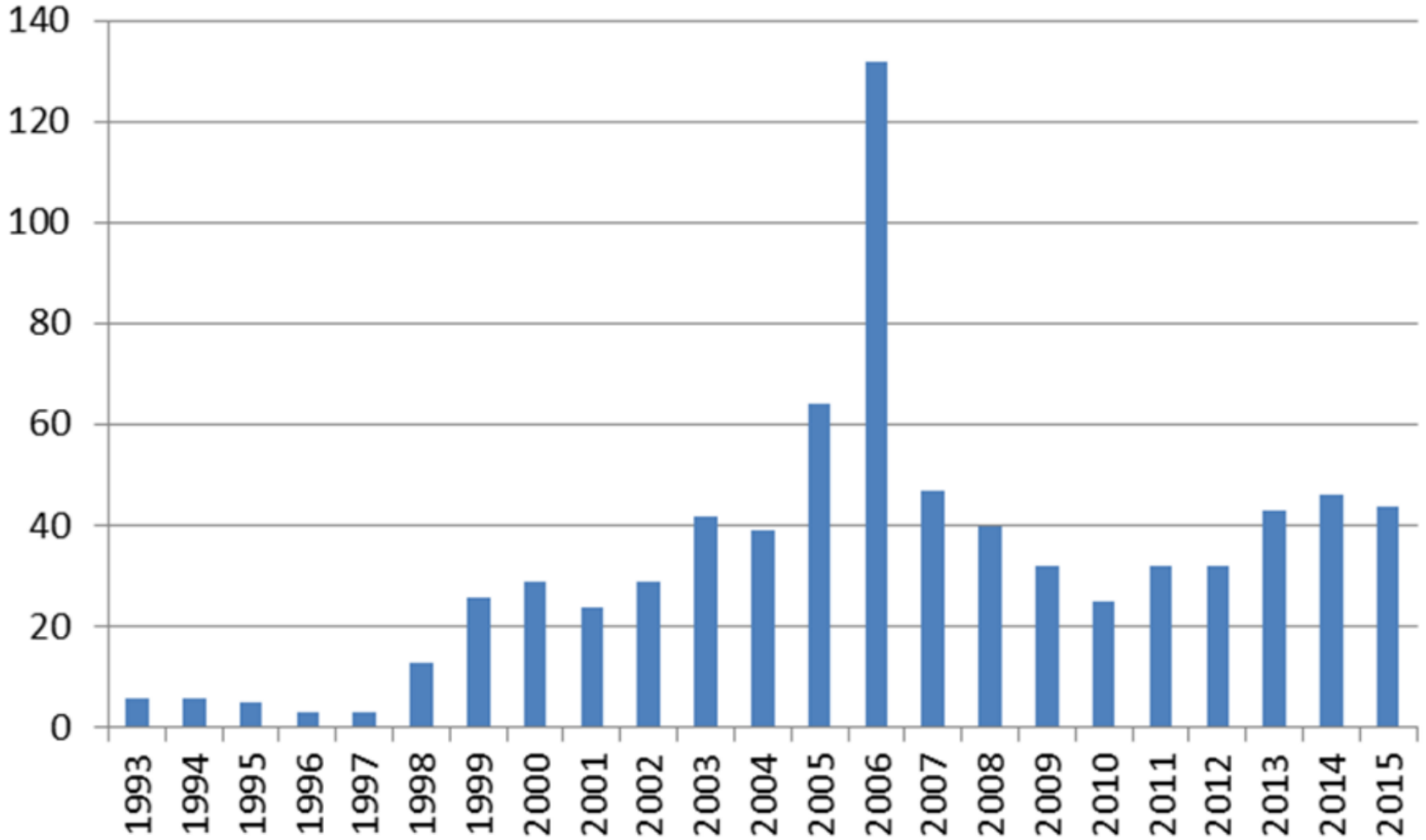
The costs of clean up and/or compensation required are omitted from the modelling. These should include:

- In depth risk analysis and probabilities
- Detailed costing of various incidents and accidents
- Cost of improving emergency and health services
- Cost of property devaluation compensation

These costs are not fully accounted for in the IRP2016.

IAEA Illicit Trade database

Confirmed incidents of theft/loss of nuclear material



The persistence of these incident reports indicates a continuing nuclear security concern.

http://www.iaea.org

Missing Information
Costs of nuclear security

The costs of maintaining security of is omitted from the modelling. These should include:

- Port security
- Transit security for transport of new fuel and spent fuel
- Specialised law enforcement training, staff, equipment
- Counter terrorism

These costs are ignored in the IRP2016.

Nuclear Costing
Consistently underestimated

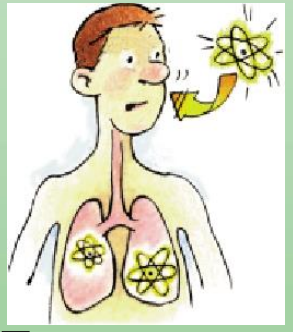
- “Availability of the nuclear plants is expected to be about 92%” - this is wildly optimistic (Koeberg cumulative average is about 70%)
- “it is expected that nuclear plants will have an economic life of 60 years or longer” - just wishful thinking
- Learning rates for nuclear: the historic trend is the opposite, so again wishful thinking
- Exchange rate is pegged at R11.55, which is about 20% too little – favours nuclear due to high capital cost
- Municipality specialised emergency equipment purchase, maintenance, and staff training
- Waste disposal levy (NRWDI): will this be retrospective (illegal) or double the international norm for Koeberg's past?

Other shortfalls

- Residential DSM appears to be artificially terminated in 2017
- The Rosatom VVR is explicitly excluded from the EPRI report (IAEA $6,215/kW)
- Maximum peak South Africa demand in MW not modelled? (Note: NOT in MW/h)
- Public participation not meaningful due to short notice and December meetings

Summary

- Insufficient modeling of cost of waste handling facility
- Insufficient modeling of costs of nuclear accident
- No modeling of increased security & safety costs
- Costing consistently skewed to inaccurately favour nuclear
- Public participation process has not been meaningful



WE REJECT THIS DRAFT AS INCOMPLETE