

Contributions by Sebastian Tops to the Tentative Findings regarding Radioactive waste storage and disposal facilities.

Reported summary findings by Jacobs MCM (2016)

Liability transfer and following associated ownership: "payment for storage and disposal is made in full".

15% royalty to a state wealth fund ... The "Assumed facility deployment timeline" ... Figure 1 ... shows 120 years. Followed by "Long-term monitoring" (unspecified).

\$257 billion for 120 years' storage revenue minus \$145 billion preliminary estimated expenditure (likely not included interest on loans taken) = \$112 billion possible income gain (not revenue, as in net profit). With all its long term, and particular non-specified (past the 120 years mark) financial (and more importantly natural) risks. The focus in this Jacobs report was financial.

Many questions to consider, based on the Jacobs summary findings:

So what about (at least) the following 180 years (after the first 120 years) years?

- 1) Who will pay for the radioactive waste long term monitoring, re-handling, re-packing, and possible emergency response team costs there after?
- 2) What about the increased public health (treatment) costs with increased risks along the way for the environment, especially for the directly involved employees?
- 3) What about the continued inflated security costs and their associated risks?
- 4) What does this Nuclear Royal Commission know about future (attack) technologies, impacting risk management and security costs?

The average reportedly estimated \$5.6 billion annual revenue benefit "during the first 30 years of operation", and a further reportedly estimated \$2.1 billion over 43 years accumulates to: \$258.3 billion.

Around \$3,300 per person in South Australia per year, living now (disregarding inflation worth and all risks). I have not been able to establish anywhere near a "wow factor". In case one has been able to become really excited over 73 years to benefit only \$3,300 annually (at best), based on current (2016 estimates), worth not much in say 30 years, still the following question has to be answered:

- 5) But what about those persons after 73 years, who gain absolutely no financial benefit?

It has been shown that the storage facility, after *73 years of operations*, will run at a loss (Figure 2) for the planned next 47 years; say totaling \$33 billion. So assuming that the \$112 billion gain included the \$33 billion loss already; gives a possible, and only estimated net financial gain of less than \$1 Billion per year for the life of the actual storage facility (120 years). If all current estimates for the next 120 years would be correct – which in itself would be an engineering first since, say, year 2000.

But let us for now agree, on an average a \$1 billion financial annual gain at best, currently (2016) estimated, spread over the next 120 years only.

Specifically noting that that financial average gain counts only over that first 120 years' period. Assuming no incidents occur at all, anywhere, surrounding any activity associated with these storage facilities, specifically built to contain others radioactive waste only?

Every day after that first period 120 year; that particular quantity of radioactive waste can no longer attain any financially gain to the state and its peoples. The radioactive waste can financially only deliver lasting losses. On top of the environmental, health and safety risks.

- 6) What will this Nuclear Royal Commission advice to be a possibly realistic radioactive state ownership solution(s), to the creatures living say 151 years from now?

The possible small estimated revenue gains would have been spent, but the radioactive waste from another state would still be completely owned by the South Australian state (and its people). That radioactive waste still needs to be removed, re-packed, receive a total new high security storage facility somewhere (assuming no leaks or other disastrous events occurred).

- 7) At what cost will that new storage facility be built, and who will be financially liable then?

Knowing that South Australia would have accepted legal ownership of that radioactive waste forever.

This package, as presented by Jacobs MCM (2016) has shown that the radioactive waste storage proposal is not even close to be viable over the estimated life of the radioactive waste storage facility. Especially, if this commission would consider the many unknowns, yet undescribed financial solution(s) which are to be presented (by some 'expert' organization) for the many long term periods after the first 120 years of each waste storage facility.

Assuming still that those current (2016) estimates will be roughly correct.

- 8) Would only the (for now estimated at best) \$1 billion annual financial benefit, stretched over 120 years only, be realistically considered to be sufficient to cover all financial costs that last far past the 300 years' mark?
- 9) How much will inflation be impacting the holistic financial picture over the presumed 120-year period?

My findings on the holistic financial picture of other state's radioactive waste storage, presented by the summary findings of Jacobs MCM (2016):

It seems to me, that even to make it closely attractive, only for those people living in South Australia over the next 120 years, that the charged 'immediate handover costs' to any client, in Australian dollars; that figure would have to be multiplied at least twenty fold, to establish some 'long term future state radioactive waste storage, and possible disaster, risk fund'. That still would unethically ignore and disrespect the natural lively hoods for all the creatures now, and those to follow us long after.

This radioactive storage facility proposal has been shown to not be financially viable at all, for any state. Even if one could be willing to ignore all the previously mentioned, and described warnings by many comment entries. Which involve many more serious issues to consider first, before only considering the actual financial losses, and associated social, cultural, and economic issues, inflicting budgetary stress for centuries. One has to regard all topics, including the long future ahead of us, surrounding, and associated with nuclear and radioactive waste storage and handling. Even if all 'expert' considerations are correct.

- 10) Will the 'experts' be liable in any form?

Remember that this radioactive material is only less than half insurable (according to the 'experts' themselves).

- 11) How so (is it less than half insurable), if the 'experts' report radioactive waste technologies are so extremely safe?
- 12) Why are the nuclear associated insurance premiums so high, but possible insurance payouts limited to an amount so relatively low?

Financially radioactive waste storage (including nuclear power as a whole) does not add up to be a viable long term business plan at all, from various perspectives. At least, the storage facility plan presented cannot not be accepted to be financially attractive anywhere near, to accept the many high risks.

Delivering (and that specific answer has been avoided by many nuclear 'experts' for decades) that nuclear power will be, all realistic long term aspects considering, the most expensive, with the highest environmental long term polluting risks, to produce electric energy.

Logic

This nuclear debate has presented how eager radioactive waste creators must be, to dispose of their own waste, to create a very cheap 'forever gone' solution, to only (selfishly) suit themselves.

- 13) Who would realistically consider, for many centuries to come, effectively only apparently reducing 'others' carbon emissions, to accept full responsibility for all future associated budgetary financial risks

associated with produced radioactive waste by others, for an extremely low price now, considering that, unspecified, but real long term inflated high financial loss cost factors will apply?

Carbon emission count

Adding the high carbon emissions this state would have to emit to build those four proposed, and centuries following, storage facilities. Additionally, all the actual security and transport costs (and carbon emissions) to get the radioactive material shipped from far away.

- 14) To whom will all future associated carbon emissions, to build several storage facilities, transport, monitor, re-pack radioactive waste, be attributed too? Will it be to South Australia, or the radioactive waste producing state?
- 15) Can nuclear power 'experts' holistically, over its total high risk impact period, including storage, re-packing, and imperfections (leaks, explosions), still actually claim that it reduces carbon emissions for centuries to come?
- 16) Is this possibly the carbon emission reduction trick, to make nuclear power look so attractive; to reduce carbon emissions accounting from other states only?

Assuming that, ethically, all applicable clean-up costs, financial losses, negative health impacts (including soil, fish and water pollution), and all the long term associated carbon emissions will actually be counted, in 'expert estimates, to the life emissions of any of the applicable nuclear energy plants, following the trial of its produced radioactive waste, and other caused (like concrete) pollutions.

Natural well-being

Looking at Japan – their (by nuclear 'experts' estimated 'extremely unlikely'; like 1 in a million chance) nuclear disaster:

- 17) How 'happy' are those local people now, and if happy, or not; for how much longer?
- 18) Are there any nuclear 'experts', or any of the financial gaining participants, now living and mostly residing with their possible families inside that region?
- 19) Are there any real holistic gains (discounting short term selfish financial gains for a relative few), anywhere in nuclear power, even in the total carbon emissions count over the whole realistic life span of its produced wastes?

- 20) How are the actual financial insurance payouts coming along to recover at least the directly affected regions in Japan on land, and the seas?

Maybe planting an extra tree, here or there, would have been a much better, and more pleasant philosophy.

Nuclear Royal Commission

I suggest again, but now more urgently, for the commission to consider (respect) the creatures residing in South Australia over the next hundreds of years, not just the next short term (73 or even) 120 years. The for now estimated (at best) pure, but only minor in relative value, short term financial benefit (averaging only at best \$1 billion Australian dollars per year over just 120 years, even if one could ignore actual inflation), can only become a huge financial state budgetary liability, especially for all periods after the first 120 years of the life span of any particular quantity of radioactive waste. The radioactive material ownership causes, and maintains to be far past the 300 years' mark, a high risk and financially costly material to any state and its many creatures.

Your integrity is at stake, as a Nuclear Royal Commission, to report, based on all the presented facts, to deliver an honest reliable determination, for the better of this beautiful nation, Australia, over many centuries to come.