

Comments by J.A.L. Robertson

on “Sustainable Development and Nuclear Waste”

by David Runnalls

[Page numbers refer to those in the Adobe Acrobat Reader version on the NWMO website.]

This paper is open to criticism for what it fails to tell readers. It is more a promotional paper for sustainable development than a well researched review of available responses to the various claims for sustainable development, and of available challenges to how the concept should be applied to nuclear wastes. The author quotes the Blair Seaborn (BS) Report but not my published criticism of it (“Malice in Blunderland?”, Canadian Nuclear Society Bulletin, 19, 2 & 3, available at www.magma.ca/~jalrober/Blunder.htm) for flawed conclusions from a flawed process: he shows no evidence of having examined the large volume of submissions to the BS Panel to reconcile this dispute. Substantiation for this opinion is provided in the following detailed comments.

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- 3 The tone of the paper is set by quoting the Brundtland Commission for many examples of environmental harm. It would be only fair to provide balance by citing examples of environmental improvements, e.g., reductions in air- and water-borne pollutants partly due to nuclear energy. It is now widely accepted by independent scientists that any “climate change” is due to natural phenomena, e.g., solar activity, rather than human activities. Since David Runnalls claims that the term “sustainable development” is widely misinterpreted, he should define clearly what he means by it. This section is largely concerned with what it does, or does not do, not what it is.
- 4 Runnalls, notes Maurice Strong’s role as head of Ontario Hydro (and admits his own role as adviser to Strong). Readers should be aware that Strong, by reducing Ontario Hydro staff by 30% without an adequate succession plan, caused the degeneration of the organization that led to the shutdown of some reactors to concentrate remaining resources in the others.

The author repeats the environmentalists’ shibboleth that energy use is a vice so that they demand energy conservation. Elsewhere (www.magma.ca/~jalrober/Chapter6b.htm) I have argued that the wise use of energy is a virtue: that it is polluting energy sources that harm the environment and expensive energy sources that harm the economy that should be curtailed. The case for reasonable “sustainable development” ought not to be weakened by unreasonable dogma.
6. The fact that some businesses support “sustainable development” in public statements does not prove that they believe in it. Businesses are in the business of providing what consumers want. If there is a market for “green” energy they will aim to satisfy it with products and in their advertising.
- 7 Not only air pollution but also water pollution is avoided by the use of nuclear energy. There should be recognition that many independent scientists, perhaps the majority,

doubt that climate change is a serious problem, let alone “the greatest problem facing sustainable development today”. The BS Panel provided no evidence that the subject of nuclear wastes is “highly contentious”. What it found is that about five hundred highly vociferous individuals protested the proposal; that about half of them demonstrated no evidence of having read even the Summary Report; and that all had reached their conclusion before hearing that the Scientific Review Group had found the concept to be adequately safe. The other 30 million Canadians were apparently not concerned enough to make submissions, even a hand written note.

- 8 A small fraction of the wastes are long-lived but many non-nuclear wastes, e.g., mercury, lead and asbestos, are, like diamonds, forever. Storage would require institutional arrangements in perpetuity but not geological disposal according to its proponents. This dispute should not be concealed. No evidence is presented to support the allegation that “Even its most ardent supporters have always been concerned about the need to safeguard decommissioned reactors”. The fact that one American scientist, however eminent, believed in the need for a “nuclear priesthood” does not prove the allegation. Security is, of course, a concern but again nuclear energy is not unique in this respect. History shows that skyscrapers and tourist resorts are more attractive targets for terrorists and many other facilities are more vulnerable than nuclear power reactors. An engineering analysis shows that an aircraft crashing into the metre-thick reinforced-concrete containment building of a CANDU reactor would not cause release of radioactivity.

Most of the paragraph on economics is highly selective and hence biased. Much of the so called “subsidies” is for research and development (R&D): for this, Canada is the most cost-effective of G-8 countries; nuclear is more cost-effective than “Renewables”; and the funding for nuclear R&D has to be compared with the exploration allowances and tax relief for fossil fuels. Cost escalation for the Darlington reactors was only partly due to poor project management: unexpected high inflation, reduced demand and political interference by governments of all three political parties contributed. When a government suspends construction interest charges continue without any compensating revenue; and when product prices are capped below production costs the utility can only add to its debt. It is only the fraction of the “debt” that exceeds the value of the assets that should be of concern: home-owners do not worry about their mortgage if they are able to pay it off from their earnings.

Runnalls selects the worst experiences in forty years of CANDU operation. He fails to inform readers of the good news. In Ontario, the Darlington Station has operated well and the performance of the Bruce Station has improved since Bruce Power took over its management from the decimated Ontario Hydro: the plant capacity factor has increased from 75% in 2002 to 88% in 2003. In New Brunswick, the Point Lepreau Station achieved a lifetime capacity factor of about 83% from its startup in 1983 to the end of 2002. Planning has started for a refurbishment in 2007 or 2008, i.e., after 25 years service, and this is expected to extend its life for another 25 or 30 years. After that, there is no obvious reason why another refurbishment could not be undertaken. The author completely ignores the excellent record of CANDU construction abroad: in the past ten years CANDU reactors were constructed in Romania, south Korea and China on budget and ahead of schedule. The CANDU reactor in Argentina has recently set an endurance record for the CANDU-6 model of 459 days of continuous operation. This may seem impressive but it is a long way behind the international record of 893 days set by a CANDU reactor at Pickering in 1994.

If nuclear plants are sensitive to forecasts of interest rates, fossil plants are sensitive to forecasts of fuel costs. Natural gas prices have been highly volatile over recent years and are expected to increase over the life of new plants.

CANDU reactors are capable of operating much longer than the 30 years used for economic calculations but, like other engineering structures, they require periodic maintenance and renovation. Unlike their U.S. competitors, they were designed for replacement of components for containing the pressurized coolant, and that is what is now being done. As already mentioned, the poor operating record that resulted in the lay-up of some reactors to allow concentration of available resources on the others was largely attributable to the disastrous years of Maurice Strong's stewardship (the environmentalist fox in charge of the nuclear hen-coop). All analyses show that the Chernobyl accident is not relevant to CANDU reactors licensed to Canadian standards.

- 9 While there has been no new construction of nuclear power reactors in the U.S. or Canada recently this is mainly due to an overall lack of demand for electricity in the 1990s due to the economic recession. The U.S. government is currently involved in actions to encourage new construction of nuclear power reactors, while here in Canada we are suffering from the failure to anticipate recovered demand.

If "the sustainable development community" is suspicious about nuclear energy it may be because it is receiving its information from sources such as this paper that report only one side of the debate.

As already discussed, the BS Panel encountered opposition from only a miniscule fraction of the Canadian population, most of whom were uninformed or misinformed about the proposal.

The President of the Canadian Nuclear Society has recently been quoted in the media as favouring a review of Canadian energy policy; and so do I. This supposes, however, that all options would be given fair treatment in a review: this paper does not encourage such a belief. Since many aspects of energy policy, particularly electricity generation, are within provincial jurisdiction, requiring the NWMO to await the outcome of an energy-policy review would simply constitute another excuse to postpone a decision on the management of nuclear wastes.

- 10 Runnalls quotes recommendations of the BS Report but ignores my published criticism of it as noted in my introduction. I have proposed an improved process for such inquiries in the final section of my book "Decide the nuclear issues for yourself: NUclear need not be UNclear" at www.magma.ca/~jalrober/Chapter16.htm. "Sustainable development" is just one of the factors that would have to be considered in any process.
- 12 The author proposes ten questions related to sustainable development that should be discussed. Some of the questions are worded in a prejudicial manner but mainly it is the editorializing under the question that is objectionable in failing to inform readers of the discussion that has already occurred, much of it in submissions to the BS Panel.
- Q1. Engagement. The process should ensure that communities have an *opportunity* to participate but cannot be expected to ensure that decisions are understood and agreed by these communities. No process can be expected to be "satisfactory to all". Reasons why

taxpayers should not have to pay for intervenor funding are given at www.magma.ca/~jalrober/Chapter16.htm.

- Q2. People. Elaboration of this question assumes implicitly that “the process” will combine concept approval and siting. This should be an explicit decision. There is no logical reason why the involvement of communities “implies assistance” to these communities: the “voluntarism principle” should be considered here – see www.magma.ca/~jalrober/Chapter9b.htm for both topics.
- 13.Q3. Environment. Better wording of the question would be: “What are the expected effects of any proposal, adverse and beneficial, on the environment; and to what extent can any adverse effects be mitigated?”.
- Q4. Economy. While a cost/benefit analysis should be required for any proposal, it should be presented in the context of comparable analyses for alternatives, including do-nothing. Ensuring local and regional economic benefits is strongly desirable but should not be a requirement, since it is not one for other projects.
- Q5. Traditional and Non-market Activities. Such activities are normally considered as part of the “environment” in Environmental Impact Statements, and so should be treated under Q3.
- 14.Q6. Institutional Arrangements and Governance. The wording of this question is based on the implicit and unjustified assumption that “social and governance structures (would be) necessary ... for thousands of years” for geological disposal. The author quotes one source in support of this assumption, but he ignores arguments to the contrary. He should not try to answer his own questions.
- Q7. Overall Integrated Assessment and Continuous Learning. If “Overall Integrated Assessment” means anything more than what is in these ten questions it should be explained here. Otherwise, it is an opening for interveners’ red herrings to swim through. Continuous learning and periodic re-evaluation are motherhood desiderata, but in a project lasting decades there is a limit to which changes of mind can or should be implemented.
- Q8. Security. Readers should be made aware that ensuring adequate security, not restricted to North America, is an absolute requirement of the Canadian Nuclear Safety Commission before it licences a project.
- 15.Q9. Ethics. Ethics is being discussed much more fully in Section 2 of the Background Papers. The two opinions quoted here selectively do not do justice to the discussion.
- 16.Q10. Risk and Precaution. Risk perception should be recognized but it is *not* “necessary” to understand its mechanisms: social scientists will still be arguing over the mechanisms for decades. The Precautionary Principle is reasonable if applied even-handedly, i.e., if the possible risks of doing nothing are also assessed. That is why I prefer my Principle of Alternatives and Consequences in my paper, “Nuclear Energy – An Ethical Choice” in Section 2 of these Background Papers: identify the available alternatives, assess their consequences, then choose between them. The decision should be “informed by experts”, and by an assessment of risk perceptions, but should *not* be made by citizens directly. In our form of government this is the responsibility of our

elected politicians, who should then be accountable. “Citizens”, as a collective, are fickle and unaccountable.

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