

**Soumission au BAPE
Concernant la modification des installations
d'entreposage des déchets radioactifs et réfection de la centrale
nucléaire de Gentilly-2**

Par le Sierra Club du Canada
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Table des matières

1. Preface – About the Sierra Club of Canada
2. Requested Disposition
3. Scope of the Project
 - 3.1 The Environmental Assessment Loophole
 - 3.2 Federal Regulations – A Semantic Game
 - 3.3 Avoiding the Licence Trigger
 - 3.4 Nuclear Power and Québec’s Environmental Regulations
4. Viability and Risks of the Principal Project
 - 4.1 The Need for a Plan B
5. Retubing Wastes
 - 5.1 Used Nuclear Fuel – Stop the Waste
6. The Ageing of Gentilly-2 – Ensuring Public Safety

1. Preface – About the Sierra Club of Canada

The Sierra Club of Canada is one of Canada's leading environmental organisations, working on issues as diverse as biodiversity, climate change and the transition to a sustainable economy. Its mission is to develop a diverse, and well-trained grassroots network working to protect the integrity of global ecosystems. The national office of the Sierra Club of Canada works with its chapters in British Columbia, the Prairies, Eastern Canada Ontario and, as of 2004, the newly founded Québec Chapter.

The Sierra Club of Canada also has a national youth arm, the Sierra Youth Coalition. The organisation is non-profit and membership based. Financial support comes from members and supporters. The Sierra Club of Canada is proud to be democratically governed, with elections for the board.

The Sierra Club of Canada has intervened in environmental assessment hearings in the early 1990s on the proposed Great Whale Hydro-electric project in Québec. The British Columbia Chapter has been active in opposing the proposed GSX pipeline to Vancouver Island, while the Atlantic Chapter has been very engaged in issues of off-shore and near-shore oil and gas development. SCC also intervened in hearings on Alberta oil sand projects, such as the Canadian Natural's Horizon project and Shell Canada's Jackpine mine.

The national office of the Sierra Club of Canada intervenes frequently at hearings of the Canadian Nuclear Safety Commission in Ottawa.

2. REQUESTED DISPOSITION

The Sierra Club of Canada (SCC) requests that the approval of Hydro-Québec's proposal to expand its nuclear waste storage site be denied, pending the decision of the government of Québec following broader public hearings on the desirability, feasibility and justification for the principal project – that is, the reconstruction of Gentilly-2.

It is the contention of the SCC that the application by Hydro-Québec be denied on the following grounds:

- A) **Project Scope and Transparency** – The Canadian Nuclear Safety Commission has defined the reconstruction of Gentilly-2 as 'maintenance.' This is a flagrant distortion of the magnitude and nature of the work needed to rebuild Gentilly-2 and, we submit, is unacceptable. The approval of the expansion of the nuclear waste site must not be approved until a full environmental assessment has been carried out on the principal project – the reconstruction of Gentilly-2.
- B) **The Viability and risks of the Principal Project** – Hydro-Québec has admitted that it will not finish its final economic and technical feasibility studies for the reconstruction of Gentilly-2 until 2005. Without access to these studies it is impossible for the Quebecers to determine whether Hydro-Québec's claim that the reconstruction of Gentilly-2 is either cost-effective or technically feasible. The SCC submits, then, that it is impossible to authorize the present project when its justification – the reconstruction of Gentilly - has not been publicly scrutinized.
- C) **Nuclear Waste** – The Québec government has maintained a policy against the location of a permanent high-level nuclear waste storage facility on its territory for over a decade. The SCC submits, then, that it incumbent on Québec to stop producing nuclear waste at the end of Gentilly-2's operational life. What's more, the reconstruction of Gentilly-2 will create a new category of high-level nuclear waste in Québec. Neither the federal government nor Québec have policies on how to manage this waste category. The Sierra Club of Canada submits that authorization of the current project be denied on these grounds alone.

It should be noted that the Canadian Nuclear Safety Commission (CNSC) is using these BAPE hearings to meet its obligations for public consultation under the Canadian Environmental Assessment Act on the screening report for the proposed expansion of Hydro-Québec's waste site.¹ Similarly, Natural Resources Québec stated during the present hearings the BAPE's decision will hope inform the government's decision on the future of Gentilly-2 and nuclear power in Québec.

Cognizant of this, we have stated concerns and made recommendations in this submission that are directed at both the CNSC and the Québec government.

¹ Séance tenue le 9 novembre 2004, 19h, volume 1, page 22

2. SCOPE OF THE PROJECT

The Sierra Club of Canada is deeply concerned that the reconstruction of Gentilly-2, a significant and billion dollar project, is not subject to an environmental assessment (EA) under the Canadian Environmental Assessment Act (CEAA) or *Loi sur la qualité de l'environnement*. Simply put, it goes against common sense that the billion dollar reconstruction of Gentilly-2 is not subject to an environmental assessment (EA) while the \$70 million expansion of Hydro-Québec's nuclear waste storage facility does trigger an EA.

The simple reason for this, according to members of the CNSC, is that the expansion of the waste site requires a modification of Hydro-Québec's license, which triggers CEAA, while the reconstruction of Gentilly-2, which is defined as mere maintenance, does not.

The SCC believes there must be an environmental assessment on the reconstruction of Gentilly. The aforementioned justification for excluding the reconstruction of a nuclear reactor from a full environmental assessment is but a bureaucratic excuse.

3.1 THE ENVIRONMENTAL ASSESSMENT LOOPHOLE

The SCC is deeply concerned that the reconstruction of Gentilly-2, a significant and billion dollar project, has not been subject to a review under the *Canadian Environmental Assessment Act*. SCC submits that to meet the intent, if not the actual regulations, of CEAA, the reconstruction of Gentilly-2 must undergo an assessment under CEAA.

After evaluating the various public statements made by the Canadian Nuclear Safety Commission, New Brunswick Power and Hydro-Québec, it is the position the Sierra Club of Canada that the regulator along with its nuclear licensees have colluded to avoid subjecting the reconstruction of Gentilly-2 and Point Lepreau a full environmental evaluation.

3.2 FEDERAL REGULATIONS – A SEMANTIC GAME

Under CEAA's Comprehensive Study List Regulations for Nuclear and Related Facilities "The proposed construction, decommissioning or abandonment, or an expansion that would result in an increase in production capacity of more than 35 percent, of a nuclear reactor" are triggers for a comprehensive study.

Because of their complexity and possible environmental effects, the federal government decided to stipulate through its regulations that the construction, decommissioning or the significant modification of a nuclear plant be a trigger for a comprehensive study under CEAA. Although neither reconstruction nor refurbishment were included in Comprehensive Study List Regulations, it is obvious that the intent of the regulation was for major projects to be subject to environmental evaluation and public consultation.

Despite the complexity of work involved in retubing a CANDU reactor such as Gentilly-2, however, the CNSC staff have formally defined the project as “un arrêt pour entretien,” thereby avoiding any language which could trigger CEAA.

During hearings of the Public Utilities Board of New Brunswick on the reconstruction of Point Lepreau, a representative of New Brunswick Power admitted that the disassembly of Point Lepreau during the retubing was very similar to the process of decommissioning, a trigger under CEAA. During the present hearings, Marc Aubry of Hydro-Québec summarized the next step in retubing well, stating: ‘Maintenant, on passe – excusez-moi – mais bêtement à la partie *reconstruction* (emphasis added) et on procède dans l’ordre inverse: tube de cuve, tube de force qui va venir avec un raccord d’extrémité, l’autre raccord d’extrémité et le Coeur est rebâti.’²

Environment Canada, furthermore, called the process of taking the reactor apart a “déclassement temporaire de la centrale durant les travaux de réfection” in its response to Hydro-Québec’s Environmental Assessment report. In response, Hydro-Québec stated that “Durant la réfection, la centrale de Gentilly-2 sera considérée comme étant à l’arrêt pour entretien. Le terme déclassement temporaire n’est pas approprié.”³

Who will call a spade a spade? The proposed reconstruction of Gentilly-2 is a complex and risky construction project, which, when one considers the nature of the work involved, closely resembles the decommissioning and re-commissioning of a nuclear reactor – both of which call for a comprehensive review under CEAA. Calling the billion dollar reconstruction of Gentilly-2, which will have taken 10-years to plan, a simple ‘arrêt pour entretien’ is a manipulation of the facts simply to avoid triggering an environmental assessment.

3.3 AVOIDING THE LICENSE TRIGGER

The Sierra Club of Canada is very concerned that the CNSC has no regulatory requirements to oversee the reconstruction or life-extension of nuclear reactors in Canada.

The CNSC’s response to Hydro-Québec’s initial statement of interest in rebuilding Gentilly-2 reveals the regulatory vacuum in which the CNSC has carried out its mandate under CEAA. In a letter to M.R. Pageau, Hydro-Québec’s Chef avant-projet réfection, CNSC staff stated:

“Vous nous avez avisés qu’Hydro-Québec envisage de prolonger la durée de vie utile de la centrale au-delà de ce qui était prévu à l’origine. **Nous vous signalons que la CCSN n’a pas d’exigences réglementaires établies concernant la réfection des centrales aux fins de prolongement de leur durée;** toutefois, comme vous le savez, nous discutons présentement avec la société d’Energie Nouveau-Brunswick d’un processus semblable pour la centrale nucléaire de Point Lepreau.”⁴

² Séance tenue le 9 novembre 2004, 13h, volume 5, p. 67

³ Hydro-Québec Production, “Modification des installations de stockage des déchets radioactifs et réfection de la centrale nucléaire de Gentilly-2 – Réponses aux autorités fédérales concernant l’étude d’impact” Mai 2004, p. 40.

⁴ J. D. Harvie à R. Pageau, “Réfection de la centrale nucléaire de Gentilly-2”, le 25 juillet 2001.

The parallel process regarding the reconstruction of Point Lepreau set important precedents which have led to the limited scoping of the current hearings.

During hearings of the Public Utilities Board of New Brunswick, Mr. White of New Brunswick Power explained the company's strategy for avoiding a full environmental assessment on the reconstruction of Point Lepreau. Given that the CNSC had no established regulatory guidelines for the reconstruction of a nuclear, Mr. White explained that:

“We proposed to the CNSC in terms of our licensing framework that this work that we were going to do would be treated as a maintenance outage and it would come under the current operating license, and that as such there wouldn't be a requirement for change under that operating license.”⁵

Other members of New Brunswick Power explained during the same hearings that the company's license renewal strategy was to avoid having Point Lepreau's license come up for renewal during the proposed refurbishment because if it did it may force the CNSC to modify the license, triggering CEAA. In 2002, New Brunswick Power asked the CNSC for a three-year license instead of a two year license in order to ensure that a license renewal would not be required during the refurbishment of the reactor, which was then scheduled to take place between 2006 and 2008.⁶

It is noteworthy that two nuclear stations in Ontario, the Pickering and Bruce stations, recently underwent screening reviews for their restart (which does not include the retubing of the reactors). Both stations were put into a shut-down state in 1997 and the CNSC modified their operating licenses to account for the shut-down state. The restart of Pickering and Bruce required an amendment to their licenses, triggering CEAA.

In spite of the fact that the CNSC has defined a retubing as a 'arrêt d'entretien,' it is plausible that if the renewal of either Gentilly or Point Lepreau came up for renewal while undergoing reconstruction that the CNSC would be forced to amend their licences, triggering an environmental assessment.

It is noteworthy that Hydro-Québec asked the CNSC for an unprecedented 5-year license in 2002, which would have enabled Hydro-Québec to renew its license at the end of 2007 and just prior to when it intended to begin the refurbishment of Gentilly-2. Despite the opposition of a number of public interveners, the CNSC gave Hydro-Québec a four-year license.⁷

It is clear that efforts have been made to intentionally avoid submitting the reconstruction of Gentilly-2 – and Point Lepreau – to an environmental assessment. CNSC staff deferentially

⁵ P 922, Transcripts of the Public Utilities Board of New Brunswick regarding the proposal for the Refurbishment of its facility at Point Lepreau, 2002.

⁶ Ibid, See the discussion on pages 923 – 924 and 976 - 978

⁷ La campagne sortir du nucléaire, 'La demande de renouvellement de la licence de la centrale nucléaire québécoise devrait être rejetée', communiqué. le 14 novembre 2002

accepted the proposition by New Brunswick Power that an 18 month reconstruction project could be defined as a mere maintenance outage. Furthermore, both New Brunswick Power and Hydro-Québec sought longer licenses to ensure that their reactors did not come up for re-licensing during the maintenance down.

The CNSC's lack of transparent regulations concerning the reconstruction of nuclear reactor is allowing nuclear licencees to circumvent CEAA.

The Sierra Club of Canada recommends that the BAPE encourage the CNSC to establish transparent regulatory requirements on the reconstruction of nuclear reactors that meet the spirit of CEAA. The Sierra Club of Canada also asks that the CNSC require an environmental assessment of the reconstruction of Gently-2.

3.4 NUCLEAR POWER AND QUÉBEC'S ENVIRONMENTAL REGULATIONS

'En fait, on se trouve dans une drôle de situation parce que, même si ce qui est assujetti c'est la modification, c'est sûr que tout tourne alentour de la réfection : est-ce qu'on fait la réfection ou non?'

Renée Loiselle, Ministère de l'Environnement du Québec⁸

According to the Québec's Ministry of Environment, the refurbishment of a nuclear reactor is not subject to an environmental assessment under article 2 of *la Loi sur la qualité de l'environnement*⁹. Given the small role of nuclear power in Québec, however, it is arguable that laws and regulations governing government permits and environmental assessments were never designed to deal with nuclear projects. Indeed, it was also admitted during the current hearings that even the decommissioning of a nuclear reactor would not trigger an environmental assessment under Québec's current regulations.¹⁰

As noted, it is the position of the Sierra Club of Canada that there should be an environmental assessment on the retubing of Gently-2. Despite the fact that the retubing of a nuclear reactor is not named in Québec's current regulations, the Minister of the Environment does have the discretion to strike an ad-hoc Commission of the BAPE to deal with projects of public concern.

The Sierra Club of Canada recommends that the BAPE encourage the Minister of the Environment to defer the approval of the present project until an ad-hoc BAPE has scrutinized Hydro-Québec's proposal to rebuild Gently-2 and reported to the Minister.

It was noted during the current hearings that the Ministry of the Environment foresees updating the Québec's rules governing environmental assessments.

⁸ Séance tenue le 9 novembre 2004, 13h, volume 3, page 57

⁹ Séance tenue le 9 novembre 2004, 13h, volume 2, page 55

¹⁰ Séance tenue le 9 novembre 2004, 13h, volume3, page 35

The Sierra Club of Canada recommends that the Québec government amend its environmental assessment guidelines to include all major nuclear construction projects.

4. THE VIABILITY AND RISKS OF THE PRINCIPAL PROJECT

“Et on a démontré très clairement, monsieur le président, qu’on pouvait faire retuber un réacteur nucléaire dans une façon efficace et rapide.”

Michel Rhéaume, Hydro-Québec¹¹

‘...la Commission conclut que le projet de remise à neuf proposé ne comporte aucun avantage économique important. De plus, elle considère qu’il existe d’autres aspects significatifs de l’option de la remise à neuf pour les retombées économiques sont incertaines. Ces aspects créent un risque économique additionnel qui la conduit à conclure que la remise à neuf de Point Lepreau, telle qu’elle a été exposé dans la preuve, est contraire à l’intérêt public.’

Commission des entreprises de service public du Nouveau-Brunswick¹²

Hydro-Québec is proposing to rebuild Gentilly-2 to extend its life for another 25 years. As the history of nuclear power in Canada attests, this should be viewed as a high-risk project.

Hydro-Québec admitted during the hearings that it has yet to complete all the technical and economic feasibility studies needed to move forward and approve the reconstruction of Gentilly-2. These studies are expected in early 2005.¹³ The fact that these studies are not available during these hearings makes it impossible for the public to comment in any meaningful way on the economic and technical risks of rebuilding Gentilly-2.

However, the complexity of the work involved in rebuilding Gentilly-2 as well as the nuclear power’s well documented history of cost over-runs and technical failures leads one to conclude that probability that Gentilly-2 will be rebuilt on time and on budget is doubtful.

In very stark terms, Hydro-Québec must carry out a heart transplant on Gentilly-2 in an effort to extend its life for another 25 years. The 380 pressure tubes in the reactor core, or heart of the reactor – which, it must be noted, are highly radioactive – must be disassembled and stored in a new waste facility. To extract these tubes, Hydro-Québec will use recently designed robotic equipment controlled by operators in a radioactive environment. This process would then be repeated to extract the 380 calandria tubes. Hydro-Québec would then attempt to construct the complex lattice work of 380 fuel within the Calandria.

Mr. Rhéaume admitted in cross-examination that there has never been a full refurbishment and life-extension of a CANDU reactor. Mr Rhéaume, however, cited the experience gained at Ontario’s Pickering nuclear station as an assurance that Gentilly-2 could be rebuilt on time and on schedule.¹⁴ A closer examination of the experience gained from retubing Pickering, however, is revealing.

In 1983, a pressure tube rupture occurred in Pickering reactor 2. All 4 reactors were shut down.

¹¹ Séance tenue le 10 novembre 2004, 13h, volume 4, page 23

¹² *Décision -Une Proposition de remise à neuf de la Centrale de Point Lepreau*, Commission des entreprises de service public du Nouveau-Brunswick, le 24 septembre 2002.

¹³ Séance tenue le 10 novembre 2004, 13h, volume 4, page 21

¹⁴ Séance tenue le 10 novembre 2004, 13h, volume 4, page 23

The pressure tubes of each reactor were replaced in succession over a ten-year period. After two years of planning, it took 26 and 18 months respectively to replace only the pressure tubes at Pickering units #3 and #4. Notably, the retubing of units #3 and #4 took place after Ontario Hydro had gained from experience retubing units #1 and #2. The retubing of all four reactors cost about 1 billion (dollars of the year), which was more than Pickering's original capital cost.

Despite this investment, the Pickering reactors were shut down just a few years later in 1997 because of safety and performance problems. The cost estimate for restarting the 4 reactors has climbed from \$800 million to \$4 billion. Pickering shows, then, that retubing of a CANDU reactor is no guarantee of good performance.

What's more, every nuclear reactor in Canada has undergone massive cost over-runs and delays. Gentilly-2 was 3 – 4 times over budget. After 50 years of existence Atomic Energy of Canada Limited, which will be contracted to do the retubing work at Gentilly-2, still has problems – the two small Maple reactors it has been contracted to build at its Chalk River Laboratories are massively over budget and behind schedule.

Will history repeat itself, then? Most likely. No CANDU-6 reactor has ever been rebuilt. Pickering, which was cited as a CANDU that has been retubed by Hydro-Québec, has not performed well since it was rebuilt. It is very difficult, then, to put any confidence in Hydro-Québec's claim that the reconstruction of Gentilly-2 makes economic sense, especially when the final technical and economic studies are yet to be completed.

And again, the public has been given insufficient data on the costs and technical aspects of rebuilding Gentilly-2 for any meaningful assessment. What explains, for instance, the difference between consulting group Hagler Bailly's estimate for rebuilding Gentilly at cost \$ 2.3 billion(1998 dollars) with the present estimate of \$1.1 billion(2004 dollars)? Hydro-Québec says that it has not signed any contracts with Atomic Energy of Canada Limited(AECL).¹⁵ What will be the nature of the contracts that Hydro-Québec signs with AECL for the retubing? As revealed during the hearings of the Public Utilities Board of New Brunswick, New Brunswick Power signed risk sharing agreements with AECL, which stipulated that New Brunswick Power pay AECL a bonus for every year that Point Lepreau operated over a certain capacity factor. Will Hydro-Québec sign a similar agreement and pay bonuses to a federal crown corporation?

Here, it is important to note that the Public Utilities Board (PUB) of New Brunswick, after several months of public hearings, recommended against rebuilding Point Lepreau – a nuclear station almost identical to Gentilly-2. Because of the high risks cited by the PUB, the New Brunswick government stated that the reconstruction of Point Lepreau will only go ahead if a private investor can be found. In April of this year, a government-hired consultant, Robin Jeffery, boosted the cost estimate for rebuilding Point Lepreau to \$ 1.4 billion from \$ 845 million (confirming a prediction of the PUB) and recommend that the

¹⁵ Hagler Bailly, "Gentilly 2 Strategic Assessment – Summary Report Final" September 9, 1998 p S-5.

province renegotiate its risk sharing agreements with AECL so that the federal corporation assumes the majority of the risk for rebuilding the reactor.¹⁶

At present, we have no indication what sort of risk sharing agreement Hydro-Québec may or may not sign with AECL. Interestingly, Laval University economist Jean-Thomas Bernard stated in 2003 that the reconstruction of Gentilly-2 would be cost effective if the cost did not surpass \$ 800 million.¹⁷ Hydro-Québec's current cost estimate for rebuilding Gentilly-2 is \$ 1.1 billion.

Since Hydro-Québec's plan for enlarging the radioactive waste site at Gentilly is directly linked to the reconstruction of Gentilly-2, the feasibility of the reconstruction needs to be assessed first. This must include the financial risks and uncertainties associated with the project.

The Sierra Club of Canada recommends that there be a thorough and transparent review of the economic and technical feasibility of rebuilding Gentilly-2 once Hydro-Québec finishes its economic and technical studies in 2005. As noted, this could take place through a federal and provincial environmental assessment on the reconstruction of Gentilly-2.

The Sierra Club of Canada also recommends that, once completed, Hydro-Québec's technical and economic feasibility studies on the reconstruction of Gentilly-2 be released to the public, preferably on its web site.

This recommendation is in line with the BAPE's 1994 recommendation that:

...la commission estime que le processus décisionnel, quant aux éventuels travaux de réparation des tubes de force, requiert la transparence. Elle estime aussi qu'en raison de leur aspect évolutif dans le temps et de la périodicité des inspections, les études techniques et économiques sur le retubage doivent être rendues publiques, davantage documentées et traitées dans le rapport annuel de la centrale Gentilly 2¹⁸.

4.1 THE NEED FOR A PLAN B

Hydro-Québec stated during the current hearings that it had planned for Gentilly-2 to be offline for 18 months between 2010 and 2012 in its 'bilan énergétique.' During cross examination Hydro-Québec admitted that it had developed no 'Plan B' in the event that Hydro-Québec's board of directors decides against rebuilding Gentilly-2 in 2007.¹⁹

Québec has, then, 7 years to develop alternatives to Gentilly-2.

¹⁶ Voir le rapport de Robin Jeffery, Point Lepreau Refurbishment Report

¹⁷ Pierre Couture, 'Une aubaine à 800 millions \$' Le Nouvelliste, vendredi 24 janvier 2003, p. 7.

¹⁸ Le Bureau d'audiences publiques sur l'environnement, 'Stockage à sec du combustible nucléaire irradié de la centrale Gentilly 2' 1994, p. 38.

¹⁹ Séance tenue le 10 novembre 2004, 13h, volume 2, pages 50 – 55.

Given high risks involved in rebuilding Gentilly-2 and Québec's historic opposition to nuclear power, the reconstruction of Gentilly-2 should not be taken as a fait accompli. Indeed, given these risks Québec should be prepared for the closure of Gentilly-2 in 2012.

Hydro-Québec has spent approximately \$ 60 million examining and planning for the reconstruction of Gentilly-2 since 2000.²⁰ Québécois should not be forced to accept the reconstruction of Gentilly-2 simply because Hydro-Québec has committed a great deal of time and money to the reconstruction of Gentilly-2 and not to developing green energy alternatives for its replacement.

The Sierra Club of Canada recommends that Hydro-Québec and the government of Québec develop plans as soon as possible for replacement of Gentilly-2 in 2012 with renewable energies and energy efficiency.

5. RETUBING WASTES

The proposed reconstruction of Gentilly-2 will create a new category of high-level nuclear waste that neither the federal government nor the Québec government has a policy framework for its management.

Hydro-Québec stated during the hearings on November 9th that it could potentially send these wastes to Ontario Power Generation's low and intermediate waste site at Kincardine in Ontario, or transfer these wastes to Atomic Energy of Canada Limited.²¹

The SCC contacted Ontario Power Generation (OPG) to clarify this claim made by Hydro-Québec. In response, Ken Nash, OPG's director of nuclear waste management, stated that OPG's waste facility at Kincardine specifically excludes radioactive wastes from Hydro-Québec and New Brunswick Power.²²

In response to further questions from the BAPE, Hydro-Québec stated that le plan préliminaire de déclasserment '...est basé sur l'hypothèse que tous les déchets radioactifs générés acheminés vers le même site (colocation) pour être enfouis dans une autre installation nucléaire à faible profondeur.'²³

It must be noted, however, that the Nuclear Waste Management Organisation (NWMO) is not responsible for consulting the public on or making recommendations to the federal government on waste management options for the long-term management of retubing wastes. The NWMO is solely responsible for used nuclear fuel.

Hydro-Québec, then, has no viable long-term strategy for the management of the high-level wastes created by the retubing of Gentilly-2. On these grounds alone, **the Sierra Club of**

²⁰ Michel Rhéaume à Ann-Lynne Boutine, 'Réponses aux questions de la commission suite aux audiences publiques' le 6 décembre 2004, p. 2

²¹ Séance tenue le 9 novembre 2004, 19h, volume 3, pages 46 - 47

²² Personal Communication, email, Ken Nash to S.P Stensil, Sierra Club of Canada, November something.

²³ Michel R. Rhéaume à Anne-Lyne Boutin, 'Modification des installations de stockage des déchets radioactifs et réfection de la centrale nucléaire de Gentilly-2' le 6 décembre 2004, p. 25.

Canada recommends that there be no authorization for the reconstruction of Gently-2 or the expansion of the nuclear waste site until the Québec government has established a policy framework for high level nuclear wastes that are not covered by the Nuclear Waste Management Organisation (NWMO).

It is noteworthy that the NWMO's Citizens' Dialogue, which brought together 462 unaffiliated Canadians to discuss the long-term management of used nuclear fuel, found that 'Dialogue participants were surprised and upset that the decision to use nuclear fuel was made 30 or more years ago without a plan in place to manage the used fuel for the long term.'²⁴

Québec has the choice not to repeat this mistake. Hydro-Québec has no substantive or acceptable plan for the long-term management of its re-tubing wastes. Hydro-Québec must, then, not be permitted authorization to rebuild Gently-2 and create a new category of high-level nuclear waste.

The Sierra Club of Canada would also encourage the BAPE to rephrase its 1994 recommendation to include re-tubing wastes. Said recommendation is the following:

La commission estime que le gouvernement du Québec devrait établir une politique en matière du stockage de combustible irradié et mandater à cette fin les autorités des ministères de l'Environnement et de la Faune et des Ressources naturelles.

4.1 USED NUCLEAR FUEL – STOP THE WASTE

Gently-2 has produced over 2,500 kilograms of high level nuclear waste (irradiated fuel) since it began operating in 1983. Humans living in North America for hundreds of thousands of years to come will be forced to deal with the legacy that Gently-2 has created in 25 short years.

In the 1980s, the Bourassa government stated that Québec would never accept a permanent high-level nuclear waste repository within Québec or near its borders. Manitoba has a similar policy that it has enacted as law.

The difference between Québec and Manitoba, however, is that Québec produces high-level nuclear waste at Gently-2 while Manitoba has chosen not to develop nuclear power. There is an obvious contradiction between Québec's policy of not accepting a permanent repository for the high-level nuclear waste on or near its territory and its acquiescence to Hydro-Québec's desire to continue producing nuclear waste.

In regard to the ethical ramifications of rebuilding Gently-2, the Nuclear Waste Management Organisation's background paper by the Roundtable on Ethics is pertinent. The ethicists contend that there is no ethically optimal solution to managing Canada's

²⁴ The Nuclear Waste Management Organisation, *Understanding the Choices: The Future Management of Canada's Used Nuclear Fuel*, August 2004, p. 19.

current stockpiles of irradiated nuclear fuel – we can only strive to find a ‘least-bad’ solution. That is to say, we have created an intractable problem for generations to come. In contrast, the Roundtable states that in order ‘to justify new nuclear power plants or even replacing the ones now in place when they reach the end of the serviceable life, one would have to have an ethically sound waste management method, not just a least bad one.’²⁵

Gentilly-2 is reaching the end of its operational life. We have not ethically sound waste management method.

The Sierra Club of Canada submits that on these grounds Québec should close Gentilly-2 at the end of its operational life.

6. THE AGEING OF GENTILLY-2 – ENSURING PUBLIC SAFETY

Even during the BAPE hearings 1994, the public stated their concern regarding the ageing of Gentilly-2, highlighting that its possible effect on the safety and operating costs of the reactor.

In response, the Commission made the following recommendation:

La commission estime qu’il serait important que la CCEA établisse un indice qui représenterait l’état de vieillissement d’une centrale nucléaire et dont elle se servirait lors de l’évaluation des demandes de renouvellement des permis d’exploitation.²⁶

Neither the CNSC nor its predecessor, the Atomic Energy Control Board has responded to this recommendation.²⁷

Meanwhile, based on the state of Gentilly-2’s pressure tubes, Hydro-Québec originally planned to rebuild Gentilly-2 in 2008. Mario Désiliets of the Hydro-Québec told the CNSC in 2002 that ‘L’état des tubes de force demeure une préoccupation importante pour tous les réacteurs CANDU. Parmi tous les paramètres qui font l’objet d’un suivi, le déplacement des ressorts espaceurs et le taux de capture de deutérium sont ceux qui nécessitent le plus d’attention.....Le programme de suivi de l’amincissement des tuyaux d’alimentation à la sortie des tubes de force se poursuit. Aucune action corrective ne devrait être nécessaire d’ici 2008, date à laquelle la réfection de Gentilly-2 pourrait avoir lieu.’²⁸

Since then, the date for retubing has been pushed back until 2010. Hydro-Québec stated that it decided to move back the date in 2003 ‘...compte tenu des données additionnelles provenant des inspections et du plus petit intervalle de projection, nous avons pu diminuer l’incertitude de notre projection. Nous avons estimé que les canaux de combustible actuels

²⁵ Roundtable on Ethics, ‘Background paper’, Nuclear Waste Management Organisation, 2003

²⁶ BAPE hearings 1994, p. 104.

²⁷ Personal Communication, Judith Daoust, Inquiries Officer, Canadian Nuclear Safety Commission to Shawn-Patrick Stensil, Sierra Club of Canada, Wednesday, October 6 2004.

²⁸ Premier Jour d’Audience – CCSN, ‘Hydro-Québec : Demande visant le renouvellement du permis d’exploitation de la centrale Gentilly-2’ pages 9-10.

seront tout à fait adéquats jusqu'en 2010, date à laquelle nous devrons procéder à leur remplacement.²⁹

Given that this was an internal decision by Hydro-Québec, it is difficult to tell if this decision was in the best interest of public safety or simply politically expedient. The CNSC apparently has no approval mechanism for such a decision.

It is noteworthy that Public Utilities Board of New Brunswick ruled against rebuilding Point Lepreau in the Fall of 2002. It is plausible that Hydro-Québec, which stated during the current hearings that Point Lepreau to be rebuilt before it proceeds with the reconstruction of Gentilly-2, is waiting to see what happens with Point Lepreau and what contracts New Brunswick Power signs with AECL.

In explaining why the decision on Gentilly-2's future has been pushed back to 2006 or 2007, André Caillé, CEO of Hydro-Québec, said: 'On regarde ce qui se fait ailleurs dans la modernisation des centrales de même type.'³⁰

Before the decision of the PUB, Point Lepreau was originally to be retubed in 2006. In order to keep Point Lepreau operating after 2006, New Brunswick Power reduced Point Lepreau's production earlier this year.³¹ If a private investor is found, to be rebuilt in 2008.

The Sierra Club of Canada feels that the same concerns note in the BAPE's 1994 report still remain unresolved. It is disturbing that the CNSC has decided to given out longer licenses when Canada's nuclear reactors are reaching the end of their operational life and have undergone premature ageing. As Gentilly-2 approaches the end of its operational life there should be more regulatory surveillance and more public disclosure of the state of the reactor.

²⁹ Michel Rhéaume à Ann-Lynne Boutine, 'Réponses aux questions de la commission suite aux audiences publiques' le 6 décembre 2004, p. 5

³⁰ Pierre Couture, 'Le sort de Gentilly 2 ne sera pas fixé avant 2006,' Le Soleil, vendredi 22 octobre 2004, p. C2.

³¹ Mac Trueman, 'Nuclear plant's capacity reduced to extend life,' Telegraph-Journal, October 26, 2004