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TEMELIN IN 2003: ON – OFF – ON – OFF

Since the Czech nuclear power plant Temelin has become critical, Temelin-1 in December 2000 and Temelin-2 in June 2002, it has been plaged by incidents that repeatedly led to the shutdown of the both reactors. Also in the first half of 2003, the reactors „twinkled“ on and off. On 2 June, the 48th incident took place due to a leak in the secondary cooling circuit and Temelin-1 reduced its status to „standby“ (no electricity production, but critical).

(588.5519) WISE Czech Republic - Already on 2 January, there was again an indication of problems at the Temelin-1 reactor: while there was no news release provided by CEZ (Czech Energy Utility), the "daily overview" published at CEZ website (www.cez.cz) indicated that the power output suddenly dropped from 32 % to only 4 % of its nominal power (1000 MW). Later on the same day it was confirmed that Temelin-1 ran again at 55% capacity. Besides this short technical information on the web, nothing was reported to the press.

This event was later explained by problems in the plant's software, due to which the control rods moved in too fast and – as some insiders reported – caused a temperature shock in the reactor core.

When the event was discovered, both CEZ and SUJB (State Office for Nuclear Safety) downplayed it and argued that there was no reason to report it to public, because "it was not a classical scram" (an emergency shutdown).

Already two weeks later, on 20 January, Temelin-1 was shut down, due to oil leakage at its troubled, unique 1000 MW high velocity turbine. This was another blow to the claims of Temelin management that, starting in 2003, Temelin will operate without problems. According to the mamagent the causes would have been identified and repaired during the start-up phase. At the end of January, Temelin-1 was shut down for two months because of maintenance and (spent) fuel exchange.

In the meantime, Temelin-2 reached 100% power for the first time on 3 March, nine months after it reached criticality. As one could expect from the experience of past years at its sister Temelin-1, it didn't last long. Already three days later, on 6 March, it had to be shut down because of a leak in the welding in the secondary cooling circuit. CEZ reacted by announcement that nothing serious happened and that the reactor would be brought back to full power within 24 hours. Nevertheless, just few hours later, it admitted that it would take at least two weeks before restart.

At the end, the shutdown lasted three weeks and the reactor was restarted on 27 March. Under a kind of political pressure: it was just hours prior to an official visit of Czech president Vaclav Klaus.

Klaus chaired the Czech government in 1993 when it approved the plan to finish the construction of Temelin (see also *WISE News Communique* 534.5199: "Temelin: criticality after 17 years of construction?"). At that time, Klaus promised Temelin would be fully operational in 1995.

And guess what happened five days after Klaus' visit and the rapid restart of Temelin-2? The reactor had to be shut down again on 1 April. There was a failure during a simulation test of turbine outage, when the system did not react properly.

Similarly to previous events, the "open information policy" proudly announced by both CEZ and SUJB also had a blackout – there was no information released to media until NGOs urgeed for explanation.

IN THIS ISSUE:

Thanks Stuart!

We at NIRS and WISE Amsterdam would like to thank Stuart Field. Since 2000 he had been our editor and did his job with great devotion. Now he has decided to look for another job and leave us at the end of this month. We wish Stuart the very best of luck with a new job!

All at NIRS and WISE Amsterdam.

Goodbye!

After almost three years as editor, first of the *WISE News Communique* and then of the *Nuclear Monitor*, my time at WISE Amsterdam is coming to an end. In this time, I have learned a lot about editing, writing and translation, as well as things nuclear. It has been a challenging and often stressful task for me, keeping up with the latest news while at the same time meeting the publication deadlines. Now it is time for me to move on. I wish the new editorial team the best of luck, and hope that the *Nuclear Monitor* will move from strength to strength.

Yours for a nuclear free world,

Stuart Field.

The never-ending story of switching Temelin on and off had a nice point later in April. Temelin-2 entered a full power test for 144 hours (6 days at 100% capacity) on 12 April, after which it was expected that SUJB would approve the successful passage of the starting-up phase and would give CEZ a license for a full power testing operation. The fact is that SUJB gave this license already on 14 April, i.e. long before the 144 hours' test was even accomplished!

Possible motivation for this "curious" rapid approval was again to help the nuclear industry in troubled times. Temelin general supplier – Skoda Praha – was situated near the edge of bankruptcy (with no new contracts and huge penalties of US$20 million to pay for delayed start-up of Temelin-1) and there was possibly pressure not to delay Temelin-2 by any minute.

So on 6 May, CEZ could celebrate the fact that both Temelin reactors operated at full power, generating for the first time 2000 MW of electricity. It was almost exactly 10 years after the governmental decision from 1993, and 20 years since the construction started.

The happiness did not last long as next power drop took place at Temelin-1 on 12 May due to leaks in a pump. And next failure did not wait long - on 15 May a generator malfunctioned at Temelin-2 and the reactor was dropped to 5% power. People could start gambling on Temelin as a lottery: once it is on, once it is off, all the time around. (Surprise: on 25 May, Temelin-2 was shut down unexpectedly due to a pipe rupture on the turbine system. Because this was during weekend, CEZ did not bother to inform media, so on Monday it only released info about "successful passage of a self-power test that took place during weekend").

CEZ Becomes a Super Monopoly

The worse performance of Temelin, the harder are the attempts to structurally secure CEZ's position on the electricity market. After the failed attempt to "privatize" CEZ, by selling it to French state company EdF (Electricity Of France) last year (see also *WISE/NIRS Nuclear Monitor* 573.5438: "Temelin-1 off and on – Temelin-2 on and off"), the Czech Ministry of Industry took another strategy to secure CEZ monopoly on the domestic market. This was even admitted by CEZ top management as the only way to keep CEZ and its uncompetitive nuclear power plants alive on the more and more liberalized European energy market.

The plan was quite simple: "Let's build the Super Monopoly ourselves, without French." What the government did was to take its shares in regional distribution companies (there are 8 of them), sell them to CEZ (which itself also has a state majority ownership) at very low price. This helps CEZ to gather more than 50 % of shares in 6 out of 8 distributors and de-facto fully control electricity market in most of the Czech Republic.

In cases when the existing management of a distribution company was too critical of this plan, the government simply exchanged them – the most disturbing act of this way took place at the end of February at North-Moravian regional distributor, where the largest volume of electricity is sold.

It has been quite famous for its conflicts with CEZ and for daring but very successful market policy – it decided not to buy electricity from CEZ and rather preferred other

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Sorry! We apologize for this issue being so late. Although it had been planned to be mailed out on 30 May, we had to delay it by two weeks because of circumstances.

The next issue (589) will be mailed out 27 June 2003.

25 YEARS AGO

NIRS and WISE both celebrate their 25th anniversaries this year. This is the eight article in a series, "25 years ago", comparing anti-nuclear news "then" and "now", to mark our first quarter-century of anti-nuclear campaigning.

Then

In issue 2 of *WISE Bulletin* we wrote about a nationwide referendum in Switzerland: "The initiative was taken by the anti-nuclear movement. Voters will be asked to say 'yes' to a text defining in more detail the provisions of the Swiss constitution, under which a power plant can only be built if the protection of the population is ensured. In particular, it would require: an authorization voted by parliament (and subject to recall if safety conditions cease to be met); approval in a referendum of all citizens residing with a 30 km. Radius from the site; and a no ceiling insurance on the plant". (*WISE Bulletin* 2, July 1978)

Now

The referendum was held in February 1979 but was rejected as only 49% voted for the proposal. (*WISE News Communique* 518, 24 September 1999)

Since the 1979 referendum, three more nationwide referendums have been held on the future of nuclear energy. In 1984, 46% of the population voted for a 10 year moratorium on building new nuclear power plants and thus lacked a majority.

In 1990, the proposal for a 10 year moratorium on new reactors was more successful when 54.5% voted 'yes' to it. A second initiative for a phaseout of existing reactors (within 30 years) however was rejected when only 47% supported that.

On 18 May 2003, the latest referendum on nuclear energy was held. The Moratorium Plus called for another 10 year ban on building new reactors and a phaseout of existing reactors within 40 years of operation time. The Electricity without Nuclear initiative demanded a maximum lifetime of 30 years for the existing reactors and an end to reprocessing. (*WISE/NIRS Nuclear Monitor* 564, 8 March 2002)

Both proposals in the latest referendum were rejected. The Moratorium Plus was rejected by 58.4% of the voters and the Electricity without Nuclear by 66.3% of the voters. (*WNA News Briefing* 03.20, 14-20 May 2003)

An analysis of the outcome of the last referendum will be given by Sortir du nucleaire on page 4.

producers and imports from Poland. The government replaced its director and other top managers only because they were not cooperative enough with CEZ.

The final proposal the large fusion of CEZ with distributors was realized on 1 April, after prior approval of the Czech anti-monopoly office. The office that had been also critical of the plan was under serious political and media pressure to allow the fusion, so finally it only required CEZ to sell one of its 6 distribution companies under majority control. At this moment, it seems that CEZ will settle with another player, E-On in such a way that they will divide the market: CEZ will fully own five regional distributors and E-On the three remaining ones.

New Nuclear Energy Policy

Another offensive step taken by the government has been a new proposal for the state energy policy. Also drafted by the Ministry of Industry, it is based on six scenarios, but all of them are just versions of "business as usual" energy policy. They are all based on increase of electricity consumption, covered by different mixes of additional coal and additional nuclear power plants. None of them is seriously analyzed even from the aspect of CO2 emissions reduction.

Although these information and documents are still not officially released, Czech minister of industry already stated in early May that "Temelin has not been finished, because we will probably need to build additional two nuclear reactors on that site," adding that nuclear waste is not even a minor problem, because reliable technical solutions exist.

These statements almost perfectly collided with new announcements of localities "suitable for deep repository". It seems that Czech authorities are just not capable to learn from their own mistakes – this has already been for the fourth time since the 1990's when a list was announced without prior information of the mayors and villages affected.

After a storm reaction from environmental groups and public, the minister is now silent. But it is clear that the way of thinking among nuclear technocrats has not changed during the past 14 years. Let's see how the official public consultations will look like. At this moment, they represent a big challenge to Czech anti-nuclear and environmental groups, including newly reformed Green Party.

Source and contact: Jan Beranek at WISE Czech Republic

SWISS REFERENDUM: RESULTS AND ANALYSIS

In 1990, the Swiss electorate voted by a majority of 55% for 10 year moratorium on the construction of new nuclear power plants. Recently, on 18 May 2003, the score fell to 42%, too less to have a moratorium for another 10 years. In 1990, in the same referendum it came close to a majority (by voting by 47%) for a phaseout of nuclear energy (maximum lifetime of 30 years for the 5 NPPs). On 18 May, the score for a soon phaseout fell to 34%!

(588.5520) Sortir du nucleaire - How can this regression be explained? There are a number of reasons why the outcome of the referendum was not so successful.

Money, fuel for public opinion
In 1990, anti-nuclear groups had 3.7 million Euros for the "2xYes" campaign and the nuclear lobby had not expected the 10 year moratorium to be adopted. This time around, we had 2.2 million Euros, while the nuclear lobby injected 11.5 million Euros in innumerous and continuous campaigns in the media, billboards, internet, cinema etc. Their presence was overwhelming, showing the limits of a theoretical "fair public debate".

During the campaign I often heard people saying it was useless to battle against such an advertisement roller-coaster. It also discouraged many usually active groups, political parties and activists. The poor results we obtained in the vote confirm the political disenchantment trend.

Nevertheless, active committees held many information booths during markets and in many cities. During these encounters with diverse segments of the population, we often heard people repeating the catch phrases posted by the pro-nuclear campaign on posters and press advertisements. Political persuasion is indeed made easy when you can afford an unlimited quantity of money.

Reflex vs. reflection
In 1990, we were only 4 years away from Chernobyl. This time, 17 years and much disinformation on the health consequences of the catastrophe separated the collective mind from the events. It has also been a long time since the federal government has pushed for a new NPP. The French Superphenix breeder reactor was finally closed in 1995 by the french government, taking away an important subject of anti nuclear mobilization in Switzerland. Generally, nuclear energy is perceived as a gradually declining issue in Switzerland.

Democratic overfeed
The federal council decided to include 9 different referendum issues on 18 May, creating a confusion amongst the people and mostly, creating a general fed-up sentiment that induced a majority of 9 times "no" votes.

In Switzerland this reaction is well known as the "Neinsager syndrome" (tendency to say "no"). All the proposals voted on 18 May were clearly rejected, even the more moderate proposals such as four car-free Sundays a year for a 4 year period and facilitated access to public buildings for handicapped people.

Shameless pro nuclear arguments
The nuclear lobby did not hesitate to use the most ruthless arguments (dependency on nuclear, greenhouse effect, costs), knowing very well that we could financially never respond to spread counter-information. Unfortunately, the media generally did not transmit our press releases or attend our press conferences.

Still, some positive aspects to retain:
For the first time, the conservative political parties have been divided between a classical pro-nuclear stance and a new generation of anti-nuclear conservative politicians. They federated in a new committee calling for a 2 times "yes" vote (moratorium and phaseout). They represented approximately 30% of the conservative electorate.

On the other hand we observed the social democratic party and other left wing forces much less enthusiastic and active than in 1990. The wide number of votes on the same day did much to weaken our traditional supporters.

Second, many voices are now calling for a strict limitation of campaign budgets and a public control over the financial resources for these campaigns. We need to save the semi-direct Swiss democratic rights, by limiting the financial factor.

As a temporary conclusion, we were many to observe that where the democratic rights are the most developed, the means to control/ influence the public opinion are even more developed.

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NETHERLANDS: FIGHT AGAINST BORSSELE NPP NOT OVER

The new coalition government of The Netherlands (Christian-Democrats, Liberals and Democratic-Liberals), installed at the endof May, has decided to keep the last Dutch NPP, Borssele, open until at least 2013. Officially, the government agreement reads: "The nuclear power plant Borssele will be closed when its technical design lifetime has ended (at the end of 2013)".

(588.5521) WISE Amsterdam - For environmentalists it had been exciting months after the 22 January parliament elections. A coalition of Social-Democrat PvdA and Christian-Democrats CDA appeared to be evident, seen the outcome of the elections (both won and could gain a clear majority coalition). The Social-Democrats had a very out-spoken promise on the table to get Borssele closed as soon as possible.

However, coalition talks failed when the Christian-Democrats withdraw after several weeks of talks. Within a few weeks a coalition was formed between CDA, Liberals (VVD) and Democratic –Liberals (D'66). D'66 was also in favor of closing Borssele but gave up this position in the talks.

Although not surprising (but nevertheless wrong) The Netherlands are still being considered one of those countries who decided to step out of nuclear energy. Already in 1994, the government decided that Borssele was to be closed at the latest before 1 January 2004. It followed a parliament decision which voted in majority for this closure date.

The implementation of the parliament vote was also a coalition agreement (the Netherlands have at least 12 parties in parliament and almost always a government based on a coalition with three parties) and the Liberals in the government made very clear they did actually not support the decision.

As one of the Liberal ministers was responsible for implementation of the decision (initiating – on time! –, amendments to law etc.) the government failed to do so correctly. The utility successfully went to court and won the case; in a much more liberalized energy-market is was not up to the government to take a decision in the way it had been done (it could have been done otherwise) to close the reactor.

After the disastrous outcome of the elections in May 2002 (short after the assassination of the very popular right-winged politician Fortuyn by a radical environmental activist), a massive majority for the conservative parties was established, including Christian-Democrats, Liberals and the Fortuyn Party.

These three formed a government coalition. There was little hope that the NPP would ever be closed. But the government managed to blow itself up after less than 3 months.

WISE has been continuously pressing for closure of Borssele. Besides political (lobby)work, WISE also campaigns against the owner of the plant, Essent, the largest electricity utility in the country. They want to keep Borssele open as long as possible. Essent is also the largest importer of nuclear electricity from other countries (France, Germany and Belgium).

Since 18 months the domestic market for so-called green electricity is free for private consumers; everyone can switch to another retailer. The aim of the WISE campaign was to make Essent known as the nuclear retailer.

In this way WISE put pressure on Essent as quite some people – at least those who decided to buy green electricity - do not want to support a utility which owns a nuclear reactor.

The campaign itself has been quite successful, although there was little support from other – much bigger – environmental organizations. Most of them do not consider nuclear energy as an important issue anymore and quite some of them work closely together with Essent (like the Dutch branch of WWF) as Essent successfully markets itself as the retailer which does the most to promote green electricity.

On 27 May, WISE was invited by the CEO of Essent to have a round-table conversation. The opportunity was also used to hand over the more than 10.000 signatures of people asking Essent to stop selling nuclear energy.

The meeting appeared to be a waste of time. The Board of Essent in no way feels itself responsible for issues as whether nuclear energy is dangerous for the environment and mankind. As Borssele has been economically written-off this year it is a good money-maker for Essent.

Essent says it is up to the politicians to decide on the future of nuclear energy, but they also made clear their believe that nuclear would still have a bright future ahead.

As of 1 January 2004, the whole electricity-market in The Netherlands will be opened (green, coal, nuclear, etc.). Everyone can switch from one retailer to the other. This will open new opportunities for campaigning efforts by WISE.

To be continued.

Source and Contact: WISE Amsterdam

CANADA: RESTARTING ITS TROUBLED REACTORS

There are 22 CANDU power reactors in Canada, of which 20 are in the province of Ontario, one in Quebec and one in New Brunswick. As these CANDU reactors have aged, they have experienced increasing technical problems and dramatically poorer performance. Although it was assumed that reactors would last for 40 years, they are typically experiencing serious operational problems much earlier. At the end of 1997 and the beginning of 1998, a number of reactors was temporarily shut down. The shutdown was followed by expensive upgrades and the first reactor is about to restart this summer. [All cost figures are in CDN$ (1 CDN$ = 0.75 US$)].

(588.5522) Sierra Club of Canada -
As a consequence of the problems, Ontario Hydro (the generating wing of which is now Ontario Power Generation — OPG) announced in August 1997 that it would temporarily shut down its oldest seven reactors because of poor performance and safety concerns.

This included four 515 MW reactors at the Pickering "A" nuclear power station, just east of Toronto, and three 848 MW reactors at the Bruce "A" nuclear power station on the shore of Lake Huron near the town of Kincardine. Ontario Hydro had already shut down reactor 2 at the Bruce "A" station in October 1995.

The four Bruce "A" reactors lasted on average less than half of their expected 40-year lifetimes, before being shut down for long-term repair work. The Pickering "A" reactors lasted only 25 years, despite having been re-tubed at a cost of CDN$1 billion following a disastrous pressure tube break at Pickering reactor 2 in 1983.

Fuel in CANDU reactors is placed in "tubes", channels through which the coolant water flows inside a big tank of heavy water (the so called calandria). The replacement of tubes has been characterized as a 'heart transplant' for a CANDU reactor — essentially the reactor is re-built, requiring an extended outage for the plant, at an extremely high cost.

The shutdowns left Ontario Power Generation with 12 reactors in operation — four at the Pickering "B" station; four at the Bruce "B" station; and four at the Darlington station. The closure of the eight reactors at Pickering "A" and Bruce "A" was the largest single long-term nuclear shutdown by any nuclear utility in the world.

Pickering "A"
The case of the four Pickering A reactors provides an instructive lesson as why nuclear refurbishment is ill-advised. In August 1983 a disastrous pressure tube rupture occurred in Pickering Reactor 2, and all four reactors at the Pickering A station were shut down.

The cost for restarting reactor 4 alone will be CDN$1.255 billion, with a likely additional CDN$1.2 billion for the other three reactors, totaling CDN$2.455 billion.

The pressure tubes of each reactor were replaced in succession between 1983 and 1993. The retubing of the four reactors cost about CDN$1 billion (dollars of the years '83-'93) — more than their original capital cost.

As noted above, despite this enormous investment, the reactors were shut down just a few years later at 31 December 1997 because of technical and performance problems.

A controversial low level ('screening') environmental assessment was conducted by the Canadian Nuclear Safety Commission (CNSC) from 1999-2000, and approved in February 2001. That assessment was condemned by environmental groups as a whitewash for failing to deal with vital issues such as severe accidents, the need for restart, financial cost, and energy alternatives.

When the four old Pickering A reactors were shut down on 31 December 1997, the first reactor (Unit 4) was supposed to restart in June 2000, with the remaining three to be restarted at six month intervals (to be completely operational by June 2002).

OPG now hopes to have Pickering Reactor 4 in commercial service in July 2003, and is no longer making any public commitment for the restart of reactors 1, 2, and 3. If they are restarted at all, it has been suggested that reactors 1, 2, and 3 might be restarted at one-year intervals.

The cost of the Pickering A restart has escalated from CDN$800 million in 1999 to CDN$1.025 billion at the end of September 2002. It is estimated that the start-up of Reactor 4 will cost another CDN$230 million, and the additional three reactors will cost CDN$300 to CDN$400 million each. Thus the cost for restarting reactor 4 alone will be CDN$1.255 billion, with a likely additional CDN$1.2 billion for the other three reactors, totaling CDN$2.455 billion.

On 30 May 2003, the Government of Ontario appointed a tribunal to review the delays and cost overruns on the refurbishment of the Pickering "A" station. The Sierra Club of Canada has condemned the review

as a whitewash. The head of the review is former federal energy minister Jake Epp, notorious for his support of nuclear power. Another member of the tribunal is Robin Jeffrey, who oversaw the financial collapse in 2002 of British Energy, the United Kingdom nuclear company.

Bruce "A"

The case of the Bruce "A" reactors also provides cause for concern about nuclear refurbishment. The eight reactors at the Bruce nuclear complex on the shore of Lake Huron in Ontario were leased from Ontario Power Generation in May 2001 by Bruce Power for eighteen years.

The Bruce complex includes four 769 MW reactors at the Bruce "A" station and four 860 MW reactors at the Bruce "B" station. While the four Bruce "B" reactors continue to operate, reactor 2 at the Bruce "A" nuclear station was shut down in October 1995, and reactors 1, 3 and 4 were shut down in March 1998 because of technical problems and poor performance.

In November 2000, Bruce Power hired Atomic Energy of Canada Limited (AECL) as the general contractor to lead an internal "inspection and condition assessment" of 70 fuel channels as well as steam generators for Bruce A reactors 3 and 4. The assessment cost CDN$30 million and was intended to determine if the re-commissioning of the reactors was economically justified.

On 6 April 2001, Bruce Power announced that it intended to restart reactors 3 and 4 at the Bruce "A" station. At that time, Bruce Power expected that the reactors would be restarted in the summer of 2003 at a total cost of about CDN$340 million.

The estimated refurbishment cost has escalated to CDN$550 million, and the restart schedule has been speeded up to have reactor 4 restarting this summer, and reactor 3 shortly afterwards.

There are serious safety concerns with restart of the two Bruce reactors. There have been at least two cases of catastrophic pressure tube ruptures in Ontario reactors: August 1983 at Pickering 2 and March 1986 at Bruce 2. All fuel channels at the Pickering A station reactors were replaced after the 1983 accident. Bruce reactors 1 and 2 will require complete retubing if they are ever to be restarted.

Some individual tubes at Bruce reactors have been replaced in the past, but Bruce Power is taking a calculated risk, trading off safety against profit by arguing that complete replacement of fuel channels is not necessary at Bruce reactors 3 and 4.

Bruce Power has taken this controversial position despite having inspected only 7% of tubes. Complete retubing of the reactors would more than double the estimated CDN$550 million restart cost as well as extending the outage time.

Other reactors

Outside of Ontario, there are only two nuclear power reactors in Canada — one operated by Hydro Québec

Table: status, plans and costs of Canadian reactors

		First criticality	Status (2003)	Plans	Costs	Remarks
Pickering "A"	-1 -2 -3 -4	1971 1971 1972 1973	closed (1997) closed (1997) closed (1997) closed (1997)	-1/3: restart between 2004-2006 -4: restart July 2003	-1/4 tube replacement (1983-1993) at CDN$ 1 billion -restart 1/3: CDN$ 1.2 billion -restart 4: CDN$ 1.255 billion	-1983: tube rupture reactor 2 -1999-2000: environmental assessment on restart -2003: tribunal to review delays and cost overruns
Pickering "B"	-5/8	1982-1985	operational	--	--	--
Bruce "A"	-1 -2 -3 -4	1976 1976 1977 1978	closed (1998) closed (1995) closed (1998) closed (1998)	-1/2: restart unknown; need tube replacement -3/4: restart summer 2003	-restart 3/4: CDN$ 550 million	-1986: tube rupture reactor 2 -2003: no retubing planned at reactor 3/4
Bruce "B"	-5/8	1984-1987	operational	--	--	--
Darlington	-1/4	1989-1993	operational	--	--	--
Gentilly	-2	1982	operational	-refurbishment 2008-2009	--	--
Point Lepreau	-1	1982	operational	-1998: decision for complete tube replacement 2006-2008	-estimated CDN$ 845 million	-2002: utility board proposes cancelling tube replacement

(Gentilly-2) and one operated by New Brunswick Power (Point Lepreau).

Both nuclear stations are single unit CANDU-6 reactors, i.e. 635 MW reactors, designed by Atomic Energy of Canada Limited (AECL). They both reached criticality in 1982, and at twenty years of age both reactors need full-scale refurbishment if they are to continue operating.

Point Lepreau
The Point Lepreau Nuclear Generating Station is owned and operated by New Brunswick Power, and was designed by AECL. Like other reactors of the period, the Point Lepreau plant was intended to run for 40 years, however, after less than twenty years, the reactor experienced serious performance and safety problems.

In 1998, an NB Power consultant decided that the plant would require total replacement of all 380 fuel channels in the 2006-2008 period. As the first phase of a plan to retube and refurbish Point Lepreau, NB Power retained AECL in January 2001 to conduct a two-year assessment of the project at a cost of CDN$40 million.

According to the original schedule devised by AECL, Work Commencement was supposed to begin in February 2003. The plant would be shut down for an estimated 18 months beginning in April 2006, with project completion in September 2007. The total estimated cost of the project is CDN$845 million.

In January 2002, New Brunswick Power filed an application to the New Brunswick Board of Commissioners of Public Utilities (known as the Public Utilities Board or PUB) to hold a public hearing on the refurbishment of the Point Lepreau nuclear station. The PUB released its decision on 24 September 2002.

The PUB noted that its review was made from an economic perspective, but with a public interest viewpoint. The decision was a stunning rejection of AECL's refurbishment proposal as put forward by NB Power.

"The Board [...] finds that there is no significant economic advantage to the proposed refurbishment project. In addition, the Board considers that there are other significant aspects of the refurbishment option [which] is not in the public interest. The Board, therefore, will recommend to the Board of Directors of NB Power that it not proceed with the refurbishment of Point Lepreau."

In November 2002, NB Power retained a consulting firm to seek a purchaser or equity partners for Point Lepreau. The New Brunswick government and NB Power have also been seeking additional federal support for the refurbishment project. No decision has yet been made to proceed with the refurbishment.

Point Lepreau was intended to run for 40 years, however, after less than twenty years, the reactor experienced serious performance and safety problems.

Gentilly-2
Hydro Québec undertook an agreement in 1973 with the federal government to build Gentilly-2 — a standard AECL-designed CANDU-6 built at Bécancour, near Trois Rivières.

The federal government agreed to finance 50% of the estimated CDN$302 million capital cost of Gentilly-2 at a special low interest rate.

However, Hydro Québec was solely responsible for the billion dollar cost overrun which saw the capital cost of the plant soar to CDN$1.36 billion by the time it achieved first criticality in September 1982 — quadrupling the original estimate. Not surprisingly, the Québec government declared a moratorium on nuclear power plant construction in 1978.

In the 2001-2002 fiscal year, AECL signed contracts with Hydro Québec for the Gentilly-2 refurbishment pre-engineering work. In February 2002, Hydro Québec gave a 'notice of project' for the refurbishment of Gentilly-2 to the Quebec Ministry of the Environment.

A decision is expected by the Hydro Québec Board of Directors in 2003, followed by the filing of an environmental impact study in the fall of 2003, which will allow engineering and tendering to take place by 2005.

Enlargement of the radioactive waste facility would take place in 2006 and 2007, and the plant would be shut down for an 18 month period for the main refurbishment work from April 2008 to September 2009.

Given the position against the refurbishment of the Point Lepreau nuclear station taken by the New Brunswick Board of Commissioners of Public Utilities, it is logical that Province of Québec should reconsider its commitment to refurbish Gentilly-2.

The Point Lepreau and Gentilly-2 plants are virtual duplicates, built at the same time with the same technology.

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IN BRIEF

Protest against "nuclear promotion" in European Union draft Constitution. Greenpeace and other NGO's held a protest action on 29 May outside the ceremony of the "Karlspreis" that was awarded to Giscard d'Estaing in the German city of Aachen. Dressed in Rococo style costumes the activists tried to hand over a golden nuclear power plant to Giscard, with a banner in the background, reading "No nuclear EU constitution". The protest was against the proposal by Giscard to include the outdated Euratom Treaty in the draft constitutional text which, thus requiring the EU to promote nuclear power. Giscard d'Estaing is head of the Praesidium, the body which produced the draft text. "Giscard d'Estaing must not endanger Europe's future through the promotion of a highly risky, outdated form of energy", said Greenpeace. The Euratom Treaty is one of the founding Treaties of the European Community. Signed in Rome in 1957, the main aim of Euratom is to undertake various measures to promote and regulate nuclear energy in Europe. According to Greenpeace: "this Treaty is entirely inappropriate to the times and in no way reflects the actual circumstances in the EU today" (see *also WISE/NIRS Nuclear Monitor* 585.5501: "Back to the Fifties; European Convention supports Euratom"). **Greenpeace Germany, 29 May 2003**

Sellafield still pollution 'threat' Irish Sea. Radioactive discharges from Sellafield continue to be the dominant source of contamination of the Irish Sea, says a study by Ireland's nuclear watchdog, the Radiological Protection Institute of Ireland (RPII). The RPII marine monitoring report was produced after analyzing about 300 fish, shellfish, seaweed and water samples from the Irish Sea. Samples were analyzed for radio-nuclides, specifically caesium-137, carbon-14, technetium-99, americium-241 and plutonium. The consumption of fish and shellfish is the main way the Irish public is exposed to radiation from Sellafield. The doses due to eating fish and shellfish (1.20 ìSv in 2001), appear to have reached a plateau in recent years. The Institute has been monitoring radioactivity in the Irish Sea since 1982 and has built up an invaluable database of information which demonstrates the trends over that period. Caesium-137 is the radionuclide of greatest radiological significance, accounting for approximately 60-70% of the total radiation dose. Increased discharges of technetium-99 from Sellafield since 1994 have resulted in corresponding increases in the contribution of this radionuclide to the doses to seafood consumers during the period 1994-2001. Technetium-99 currently contributes up to 30% of the radiation dose.

UK national newspaper *The Guardian* wrote on 27 May that Cabinet ministers were warned that a £ 100 million (US$ 171 million) package is urgently required to protect public safety at Sellafield and prevent a radioactive leak from a 50-year-old waste storage facility. The confidential warning was written by the chairman of the UK environment agency and send to the UK's environment and health secretaries. It reveals that British Nuclear Fuels (BNFL) wants to increase dumping of technitium-99 into the Irish Sea until 2007 to avoid spending money on the storage tanks. BNFL has 240 terabecquerels (240 TBq), or 2,000 cubic meters of technitium-99 containing wastes in aging tanks. They must be emptied by July 2007. BNFL proposes to discharge the technitium-99 into the sea in about four lots, starting with a 70 TBq discharge in September this year. This plan has angered the Irish government and Norwegian governments. Norway wants a moratorium on discharges of technetium-99 because it is damaging the fishing industries. The Irish governement started on 11 June legal action under the UN Convention of the Law of the Sea (UNCLOS) at an international

STOP THE U.S. ENERGY BILL

The U.S. Senate is debating the S. 14 Energy Bill at this moment. One of the provisions would authorize federal loan guarantees to finance half the cost of 8,400 MW of new nuclear reactors, amounting to a taxpayer subsidy of tens of billions of dollars. Another provision would fund the construction of a gas-cooled high-temperature reactor for the production of hydrogen (see *WISE/NIRS Nuclear Monitor 583.5491*: "U.S. Budget Request: tax dollars for nuclear utilities").

On 10 June, an amendment (to strike the 8,400 MW reactor plans) by Senators Wyden (Dem.) and Sununu (Rep.) was rejected with a close vote of 50-48. Soon, the Senate will vote on Senator Bingaman's amendment (to strike the hydrogen-nuclear funding). After amendments have been voted upon, final passage of the S. 14 Energy Bill has to take place.

You can still ask Senators to reconsider their position, and to vote against final passage of S. 14!

What can you do:
-Call Senators through the Capitol switchboard at 202-224-3121 (U.S. only)
-Send a free fax to your Senators at www.stopenergybill.org
-Send your own fax (updated fax numbers at www.visi.com/juan/congress
-Send letters to your local newspapers

More information on the S. 14 Energy Bill can be found at www.nirs.org, which will be regularly updated. Send your name, address and email address to nirsnet@nirs.org and you will be included in the NIRS' email Alert List.

tribune in The Hague, Netherlands. The confidential document also mentions that "recent work [...] has indicated that the load-bearing capacity in part of the roof has weakened and that there is some corrosion of the stressing steel in the structural beams". According to BNFL, fixing the roof would cost £ 100 million.
***BBC News*, 21 May 2003; *The Guardian*, 27 May 2003; *Independent on Sunday*, 1 June 2003**

Nuclear industry Japan seeks government compensation for spent fuel reprocessing facility. Japan's nuclear power generators want government compensation for much of the costs of the Rokkashomura spent fuel reprocessing facility. The Federation of Electric Power Companies (Fepco) officials are saying in a report that the total costs involved in the Rokkashomura plant for a planned 40-year liftetime will be about US$ 125 billion. Fepco will ask the Ministry of Economy, Trade & Industry (METI) to introduce legislation that would require the national government to pay an estimated US$ 69 billion of the costs of actually operating the facility for 40 years. Some costs may be covered by by higher electricity prices,but the decommissioning and waste management costs should be funded by the government, officials said. The legal changes would be in place next year, one year before the Rokkashomura plant is scheduled to begin operation. Fepco's cost estimate for a 40-year liftetime of the reprocessing plant is based on the assumption of the reprocessing of 32,100 metric tons (MT) of spent fuel.
***Nucleonics Week*, 5 June 2003**

PAKS fuel event critized by HAEA. The Paks' utility management's report (*see WISE/NIRS Nuclear Monitor* 587: "In brief") on the 10 April fuel damage event at Paks-2 was "incomplete" and "one-sided", the Hungarian Atomic Energy Authority (HAEA) said in its first assessment of the incident that left 30 assemblies severely damaged in a special chemical cleaning tank. According to the HAEA the technical cause of the event was the tank's inappropriate design by Framatome ANP. Furthermore the HAEA identified a long series of noncompliances by Paks management and staff in quality management, including failure to sufficiently consider safety aspects in preparing and executing the cleaning job. Hungarian environmentalists have called on the International Atomic Energy Agency (IAEA) to cancel its planned review of the Paks-2 fuel damage incident, saying the Vienna agency couldn't make an independent assessment because its investigation is to be based on documentation prepared by the very organizations involved in the incident. The IAEA announced on 23 May that it had accepted a request from the Hungarian government to review the circumstances of the incident and is assembling an expert team to conduct a mission in June. On 20 May, Paks also announ-ced disciplinary measures. Some directors were placed to lower positions.

Greenpeace Hungary sees two problems concerning those measures: "all of them are still working at the plant" and "there is no single department responsible for the incident. Almost all the departments made mistakes or were lazy". Referring to an increase in incidents from 1999-2001, Greenpeace argued that this trend was associated with the "instability" of Paks' management. According to Greenpeace, "there was a big change of style" in the 1990s, after Hungary shed its communist regime. The Hungarian plant started to buy more services and equipment from the West, in anticipation of its entry into the European Union in May 2004: "At the same time, there was an increase in the number of failures and carelessness". Also lots of Hungarian people are predominantly sceptical about the reliability of the information provided by politicians and executives concerning safety and events in the Paks plant. An opinion poll, held among 1,200 people, pointed out that 61% believed the executives and the officials try to hide information from the general public and only 29% said they believed what they were told.
***Nucleonics Week*, 29 May 2003; *Hungarian News Agency*, 10 June 2003**

Belgium: nuclear phaseout law may be abrogated after elections. The defeat of Belgium's Green parties in the 18 May general elections has to speculations that the country's nuclear phaseout law might be abrogated by the incoming government. Ecolo, the French speaking ecologist party lost 7 of its previous 11 legislators and Agalev, which had 9 seats, was eliminated from the new parliament. The previous government, which included the Green parties in the coalition, laid down a nuclear phaseout law, which was adopted by parliament in December 2002 (see *WISE/NIRS Nuclear Monitor* 579.5474: "Belgian parliament approves nuclear phaseout"). The law limits the lifetimes of Belgium's seven PWRs to 40 years, with the oldest (Doel-1) to be closed in 2015 and the youngest in 2025. Former energy minister Olivier Deleuze said that the Greens could make a comeback in the government in 2007, and if so would force re-adoption of the phase-out law.
***Nucleonics Week*, 22 May 2003**

South African Eskom reaffirms PBMR support. South African state-owned utility Eskom reaffirmed in May its support for the Pebble Bed Modular Reactor (PBMR), a move insiders said was expected to pave the way for shareholders in the multinational company PBMR Ltd. to commit to construction of the high-temperature gas-cooled reactor at its Koeberg site. In a statement issued on 16 May, Eskom said it "is ready to proceed to the next stage of South Africa's PBMR project, subject to the required statutory approvals being obtained". PBMR Ltd. CEO David Nicholls would go to Washington D.C. (US) in the first week of June to talk to companies about investing in the project. One source said Nicholls is expected to meet with officials from outside of the energy industry.
***Nucleonics Week*, 22 May 2003**

France: parliament commission proposes to build EPR. A French parliament commission of the Office for the evaluation of scientific and technological choices has recommended "without delay" the building of a new European Pressurized Water Reactor (EPR). The EPR was designed in the 1990's by French Framatome and German Siemens companies. To prevent capacity problems after 2020, Bataille and Birraux recommend the EPR: "the government has to adopt the decision to build an EPR in the new Energy Law, which is expected next autumn."
***Le Figaro*, 15 May 2003**

French security lapses. Events in the past weeks have shown that security at French nuclear installations is often defective to the point of being almost non-existent, according to the French Nuclear Phase-out Network (Réseau "Sortir du nucléaire). On two occasions, aircraft flew over the Civaux reactor without identifying themselves on 2 and 5 June. On 19 May, a nuclear waste train passed through the city of Bordeaux without any obvious security measures, and an activist was able to take photos and measure radiation levels without being challenged.
Réseau "Sortir du nucléaire press release, 9 June 2003

New safety fears Lucas Heights reactor, Australia. The Australian Nuclear Science and Technology Organisation (ANSTO) admitted in May that "twenty crucial holes for pipework in 2 primary safety containments do not line up" in the new research reactor at Lucas Heights. The problem was known to the contracted builders, Argentine INVAP, in February and is the latest problem in a long line of incidents and irregularities at the site. Environment groups have feared the problems that now have arisen, based on INVAP's poor track record of their Egyptian ETRR-2 reactor.
Taller Ecologista, 30 May 2003

Al Gore opposes LES enrichment plant. Former U.S. Vice President Al Gore took a public stand on 29 May against the proposed LES uranium enrichment plant in Trousdale County, Tennessee. "... I can say with no hesitation that this facility is not in the best interest of Middle Tennessee", Gore said. Gore, who owns a farm in neighboring Smith County, echoed the concerns of many local residents about longterm storage of depleted uranium tails: "The accumulation of hazardous, radioactive waste may become a neverending problem for local citizens, and I don't believe we can be assured that sources of drinking water, like the Cumberland River, will be adequately protected".
Tennessean.com, 29 May 2003

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THE NUCLEAR MONITOR

The Nuclear Information & Resource Service was founded in 1978 and is based in Washington, DC. The World Information Service on Energy was set up the same year and is housed in Amsterdam, Netherlands. NIRS and WISE Amsterdam joined forces in 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy.

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HAVE A PARTY WITH NIRS!

On Saturday, June 28, people in the Detroit area are invited to a NIRS membership/benefit party. There will be live music, wine, cheese and other refreshments, and a presentation by Paul Gunter of NIRS' staff. Call us at 202-328-0002 for more information. And why not throw your own benefit party for NIRS? We'll help you set it up and provide a speaker. It's a great way to meet like-minded people in your area, and a great way to help NIRS celebrate our 25th anniversary. Call us or e-mail to nirsnet@nirs.org for more information.

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