



Canadian Nuclear Workers' Council

Conseil Canadien des Travailleurs du Nucléaire

2025 Look Ahead

National Director's Message

As we look ahead to 2025 we have a lot of good reasons to be optimistic.

2024 marked the end of operations at the Pickering A Nuclear Generating Station. For more than half a century Pickering A generated clean and reliable electricity for the people of Ontario and helped advance the evolution of Canada's successful CANDU technology. Celebrating Pickering's success story reminds us of the wealth of opportunities in front of us. As the world is challenged with transitioning to responsible and sustainable sources of energy, Canada can continue to draw upon our well-established nuclear sector and decades of nuclear innovation.

While the operational performance of our CANDUs is impressive, it's the on-schedule and within-budget refurbishment outages that are getting noticed. The proven success of Canada's nuclear sector and the demonstrated skills of Canada's Nuclear Workers present a strategic advantage.

There is interest from across Canada in increased electricity generation from nuclear as well as opportunities to decarbonize other energy-intensive activities such as steel-making and process heat.

A number of projects are already in progress. Refurbishment of 3 of [Darlington's](#) 4 reactors is complete, and the CNSC public hearing on OPG's application for a licence to construct an SMR at the site is underway. OPG also plans to refurbish [Pickering B](#), and is looking at potential locations for new nuclear. SaskPower is looking at possibly building an SMR in the Estevan area. NB Power is continuing to progress options for SMRs. [Bruce Power's](#) MCR continues, and BP is



CNWC National Director Bob Walker

looking to add 4,800 MW of new nuclear at a potential C site.

Alberta also continues to express interest in deploying nuclear for electricity generation and/or process heat.

There are other developments for new large nuclear. [Atkins Réalis is working on the next evolution of the CANDU Reactor, the 1,000 MW Monark.](#) [Westinghouse](#), owned by Cameco and Brookfield, is looking for opportunities globally, including in Canada.

The development of very small SMRs or Micro Reactors presents a number of new opportunities especially for remote and northern communities as well as national defence.

Research and development in nuclear fusion is in its infancy but it could place Canada at the forefront of a promising clean energy technology. [Institutions like AECL/CNL](#) are lending their expertise in this research.

The [Nuclear Waste Management Organization](#) are progressing their plans for the long-term management of Canada's used nuclear fuel and has selected Ignace, Ontario as the site for a Deep Geological Repository.

We can't talk about nuclear energy's advantages without mentioning the important role of medical isotopes in advancing human health and the important work being done by members of the [Canadian Nuclear Isotope Council](#).

In addition, Canada has abundant uranium resources, particularly in Saskatchewan, which support our domestic needs and position Canada as a significant player in the global nuclear fuel market.

In closing, supportive public policy and investment in nuclear education and workforce development are crucial. Canada is in a strong position to leverage our nuclear expertise to expand our supply of clean reliable nuclear energy, protect our environment, promote energy security, create high-quality employment opportunities, continue fostering innovation and be a global clean energy leaders.

Bob Walker



Alberta pipe dreams, and Poland's possibly Canadian-backed realism

Moonshine, Henuset wine, runnin' around re-tread: Son of CANDU-for-Alberta II, The Sequel In 2010, CNWC employer Bruce Power bought a startup called Energy Alberta that was pitching what looked like an interesting energy plan for that province. The pitch was, build a 1,200 MW-e Advanced CANDU reactor somewhere in Alberta's Peace Region, and sell electricity to the provincial grid and industrial process heat to "the oilsands."

Energy Alberta was co-founded by Wayne Henuset, a Calgary wine and liquor retailer. The other co-founder was Hank Swartout, an oil and gas well driller. The nuclear plan was really just a plan on paper, but what paper it was. Well presented and professional, the startup's promo literature sparkled with optimism and breezy logic. Who could really argue that displacing 1,200 MW of Alberta's gas-fired baseload electrical supply, and roughly 2,400 MW of gas-fired process heat, with equivalent amounts of non-emitting supply, would be a good thing?

What was missing was an electric utility that understood the business of selling nuclear power. That's where BP came in. BP bought the company, i.e., the pitch, i.e., the promo literature, and proceeded to pitch it themselves.

The effort failed. As soon as BP started canvassing the community of Peace River seeking support to locate an ACR-1000 there, anti-nukes mobilized, wheeled in the usual "green" groups like Pembina and Sierra to scare the locals with nonsense about how the plant would poison their water and kill the wildlife.

That's not what did it in though. Remember we said what was missing was an electric utility that understood the electric power business? Well, what was really missing was an electric utility that understood the power business *in Alberta*.

Bruce Power unfortunately was not that company. If you're one of the oilsands majors whose co-located power generation comprises most of Alberta's baseload electrical supply, there was plenty about the pitch with which to be supremely unimpressed. And, we hate to say because we love our employer, perhaps a bit amused.

The operative word is "co-located." Most of Alberta's baseload electrical supply is officially classified as cogeneration. In the province, a cogen plant is a steam plant where steam separates oil from sand and makes electricity for the grid.

And how does an Alberta cogen plant make steam? These days, by burning natural gas. In the case of Suncor's Base Plant near Fort McMurray, until very recently by burning petroleum coke. Which, when you look at Suncor's stock prices on the TSX and NYSE, didn't seem to have much effect on the capital markets. More about that in a minute.

Energy Alberta's pitch was inchoate, built around a paper reactor—never built, never licensed—that would have been twice as big as the biggest single generator on Alberta's grid at the time. The paper design envisioned power generation only, but Energy Alberta's pitch vaguely mused about oilsands process heat as well. In BP's hands, the plan remained inchoate: locations changed, and it was never settled whether it would have provided electricity only or also process heat, and, most critically, if the latter, how exactly it would provide process heat to a non co-located oilsands operation.

Cut to today, with a [early October CBC story about Wayne Henuset's son Scott, now president of what looks like a re-tread Energy Alberta, pitching a plan to build as many as five CANDUs in Peace country](#), also musing about co-locating them with oilsands. This time the pitch is built around a new CANDU design, the MONARK.

And in early October, the aforementioned Suncor, an oilsands major with co-located power generation classified as cogeneration, began generating much more power from Base Plant than it had previously. For most of its operating life, the powergen side of Base Plant reported at most 40 MW of output, from 50 MW of capacity. On October 10 2024, its reported capacity jumped to 453, and on November 9 it jumped to 856 MW.

Gas fired.

The problem with nuclear-in-the-oilsands ideas is, nobody in the oilsands seems interested. And there are excellent reasons for that, at least as far as Suncor is concerned. We mentioned that the capital markets have seemed unconcerned that Suncor is an oilsands company. Nor do they seem concerned that Suncor just upped Base Plant's powergen capacity to 856 MWe, implying a concomitant new process heat capacity three times that—the facility's CO₂-equivalent emissions will increase in spite of the switch from pet-coke ([over 7.7 million tons in 2022, according to Environment Canada's Large Emitters database](#)) to natural gas. Does this suggest Environmental, Social, and Governance (ESG) capital market activism had no effect on Suncor's ability to finance Base Plant expansion? Yes it does.

There are other, non environmental reasons Suncor is disinterested in nuclear energy. We discuss these reasons in "[By the Numbers](#)," below. Any Canadian nuclear utility perhaps mulling over whether to get involved in the new Energy Alberta, and avoid potential "springs to catch woodcocks," might want to give it a read.



Canadian dollars on the Baltic: worth the healthy bones of a single Pomeranian AP1000? It's an open question if there exists a nuclear company with a connection to Canada that does not require Canadian federal financial help. Whether or not that help is deserved is a separate question. Some reactor types deserve it, others do not. Unfortunately, federal support for the nuclear industry seems to assume all reactor vendors are equally viable and equally deserving.

What about Westinghouse, part-owned by CNWC employer Cameco? On December 9 Westinghouse announced that it had received [a letter of interest for \\$1.45 million from Export Development Canada](#) "to support the AP1000® project to build Poland's first nuclear power plant." Does Westinghouse fall into the undeserving category?

No. Unlike most of the SMR developers whose Canadian projects have enjoyed Canadian federal support, Westinghouse is a bona fide nuclear reactor vendor that has actually built plants based on the AP1000. If there's a serious prospect that Poland will actually build a major nuclear plant, and Canada can help a Canadian company win the contract, then Canada should, for three reasons.

First, it would put European energy on the right track, after decades of disastrous German leadership that seriously impaired the Continent's progress toward both emissions reductions and democratic development. A nuclear Poland, based on a strong western technology brand, would reassert competent energy leadership based on the proven French model. Together with France, the UK, and Finland, Poland's entry into civilian nuclear would be a sign of growing civilian atomic momentum in the North Atlantic community.

Second, it would further cement Cameco's growing position of leadership in global nuclear power. That's good for Canada and good for the world.

Finally, building new nuclear in Central and Eastern Europe is an absolute geopolitical necessity, vital for global security in terms of both armed conflict and climate change. Canadian federal dollars for a nuclear power project in Poland might not count toward Canada's NATO contribution, but definitely is in the spirit of the North Atlantic Alliance. Poland's grid is mostly coal-fired. As we mentioned in the [Fall 2024 edition of the Newsletter](#), Poland's residential heating baseload is roughly 4,500 MW, [met today mostly with gas and some fuel oil](#). It's high time that demand was met with non-emitting, non-Rosatom electricity generation. Electrification on that basis is good geopolitics.

We wondered in the Fall 2024 edition of the *CNWC Newsletter* about the location of Poland's first nuclear plant. A *Power Technology* article had said it would be at a site "close to the Baltic." The Westinghouse press release names the site: Lubiatowo-Kopalino in Pomerania, northwest of Gdansk, indeed close to the Baltic.

Our position in the *CNWC Newsletter* has long been very pro-CANDU. It still is. Ontario should base any new nuclear build on CANDU, and the feds, through AECL, which owns the IP rights to the technology, should provide a reasonable level of support. But Poland is not Ontario, and Poland appears to want LWR for its first nuke. Westinghouse is a Canadian company. We support EDC's support. Good luck in Poland, Westinghouse.

By the Numbers

Suncor's non-nuclear base case at Base Plant Over the years, there's been much talk, and unfortunately no meaningful action, about nuclear power in Alberta. The province's grid is nearly entirely fossil powered. A late November week showed a demand baseload of just over 10,200 MW. If you didn't know anything about Alberta's grid, you'd think a 10,200 baseload would present an easy decarbonization challenge: simply install 10,200 of nuclear generation capacity. That would avoid 53 million tons of CO₂ emissions per year.

But not so fast. The largest component of Alberta's baseload supply is "Cogeneration," which is gas fired. There are 41 cogen units connected to the provincial grid, and they range in electricity generation capacity from 5 to 856 MW. Half have a capacity of less than 95 MW; three quarters less than 202.

As recently as early October 2024, the Alberta cogen fleet median capacity was 45 MW, and three quarters of the fleet was less than 120, and the maximum was 510. So somebody added a lot of capacity to one plant. That somebody was Suncor, and the plant was their aforementioned Base Plant.

Alberta in 2023 produced roughly 1.2 trillion kWh of natural gas, [according to the provincial energy regulator](#). Oilsands processors used roughly 420 billion kWh of that. Yes, decarbonizing the process heat side of all oilsands would avoid 78 million tons of CO₂ annually. Added to the CO₂ avoided from decarbonizing the provincial baseload electrical supply, that's 131 million tons of avoided emissions each year. Totally possible, simply by building a fleet of nuclear power reactors.

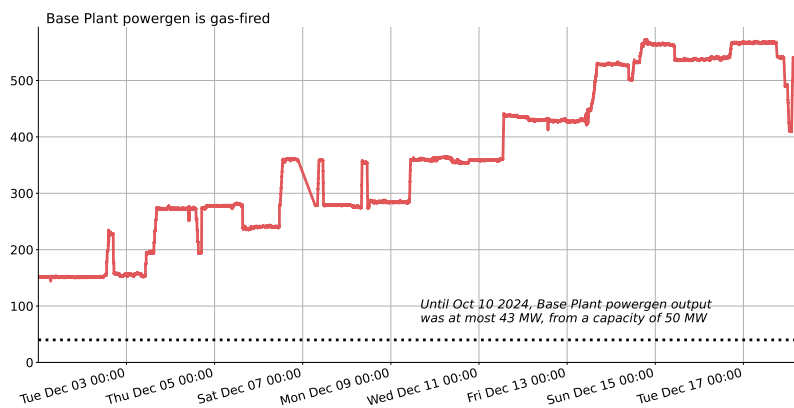


Suncor is an integrated oil patch major. By [trailing twelve-month revenue, it is the second-biggest oil patch company in Alberta, with \\$50.73 billion as of September 2024 \(Cenovus is #1, with TTM revenue of \\$55.99 billion\)](#).

Suncor makes money by selling bitumen and related value-added products, which it produces at several locations in the Athabasca oilsands. It also sells electricity generated at the same locations. Of the 41 cogen units connected to the Alberta grid, Suncor owns and/or operates five. Two, Firebag and MacKay River, are co-located with in-situ bitumen extraction based on steam-assisted gravity drain (SAG-D), which [requires roughly 2,480 kWh \(226 cubic meters\) of natural gas to make the steam to produce 11,900 kWh \(1 cubic meter\) of bitumen](#).

If Suncor didn't cogenerate electricity at its SAG-D operations, i.e., if it only produced bitumen, then that ratio would be just under 2,100 kWh of gas per cubic meter bitumen produced (0.174 kWh gas per kWh bitumen). So the additional roughly 386 kWh of gas for cogen with SAG-D, which generates maybe 115 kWh of grid electricity, must be worth it. At the 2024 [average Alberta pool price](#) of 6.4 cents per kWh, the 115 kWh of energy sold to the grid per cubic meter of bitumen produced at a SAG-D cogen operation fetched \$7.36.

Alberta oilpatch interest in nuclear, in a picture: Suncor Base Plant output, Dec 1 to 18 2024, MW



Suncor also extracts bitumen at surface mines. Its gas-to-bitumen ratio with cogen at those sites is roughly 0.131 kWh gas per kWh bitumen (142 cubic meters of gas per cubic meter bitumen). Base Plant is co-located with a surface mining operation, which might explain the big powergen capacity increase. Cogen with surface mining yields roughly 141 kWh of electricity per cubic meter of bitumen produced—\$9.06 at the 2024 average price. For the gas, the company paid an average of [0.48 cents per kWh in the nine months up to October 2024](#). For the 423 kWh of gas used to make the 141 kWh of

grid electricity with surface mining cogen, Suncor paid \$2.05. So the powergen fuel cost was 1.45 cents per kWh.

How would nuclear-generated steam compare cost-wise with the “purchased gas” that Suncor uses at its bitumen-processing operations? Nuclear fuel costs are cheap, less than what Suncor paid for purchased gas in 2024. But capital cost, and capital payback duration, is where it gets you. There are no nuclear plants in Alberta (see previous sentence), so somebody would have to build one. Co-located at a Suncor oilsands operation? Then Suncor would have to build it, or buy it, and get a license to build/install and operate. If not co-located, then the heat for steam would be electric, from the Alberta grid. Heat pump is viable for process heat, but the powergen part would obviously be superfluous.

If nuclear was ever in consideration at all as the energy source for the expanded Base Plant, it likely took Suncor several seconds, possibly minutes, to rule it out.

Our major employers

Lepreau back online after 8 months of expensive frustration New Brunswick's cheapest electricity generator is its most expensive when it's not running. Pt Lepreau was down from early April to Dec 11 2024. Initially the outage was planned but during start-up following the planned outage a hitherto-unknown major issue was discovered on the non-nuclear side of the plant. [NB Power described the issue as “critical.”](#) Six stator bars on the main generator required very complex disassembly, repairs, then reassembly and extensive testing. That carried the outage to December 11.

This prolonged outage will likely lower PLNGS's 2024 capacity factor to 32 percent, according to [CBC News, citing NB Power](#). Last year's CF was 52 percent.

We remind readers that wind turbines' best annual CF is typically 33 percent. That answers the question why the prolonged PLNGS outage will prove to have been quite expensive. NB Power called on the Bunker C–fired 978 MW Coleson Cove power plant during the outage. The [Bunker C price at New York was reported](#) to be about US\$77 per barrel. Per kWh, that works out to a nominal 4.2 U.S. cents per kWh, and factoring in power conversion (it's a steam plant) over 14 U.S. cents



per kWh fuel cost at Coleson Cove. Wind is “free” but wind’s CF is 33 percent, meaning NB needs plants like Coleson Cove to keep the power flowing 24/7 when a much-cheaper alternative non-emitting 24/7 source, i.e., Pt Lepreau, is not available.

Ignace the place that put the smile on our face In the most unsung victory the Canadian nuclear industry has produced since the refurbished Darlington/Bruce units began returning to service on time and budget, NWMO announced the town of Ignace and Wabigoon Lake Ojibway Nation agreed to continue the process to host the western hemisphere’s first SNF repository. The process is not final, and it’s not a sure thing. But we should not understate the significance of this.

We understand that many inside the Canadian nuclear community (and outside it as well) wanted the repo to be sited in South Bruce. The choice of a site would be an incredible boost to the economy and society of any host community; this is why Ignace and South Bruce vied for it. But the very fact that communities competed for the repo illustrates how far the nuclear industry has come in the past 20 years. In the early 2000s, anti-nuke activism would have ruined any community engagement, no matter how respectful and fact based on the part of NWMO and other representatives and of course community members who were willing to listen to the proposal. Today, each community understands and agrees that hosting such a site represents a hugely positive assumption of land stewardship. We’re grateful that Ignace and WLOK took the time to study the proposal from all angles. We congratulate them, and NWMO, on a respectful, fact-based, and excellent process, and wish them the very best for the future.

Bruce Power “C” station Impact Assessment gathers momentum We still don’t know what technology would go into the possible Bruce C station. Bruce Power [replied](#) to a number of inquiries about what Bruce C would entail. There is no decision to date regarding this. AP1000, EPR, BWRX300, ABWR, and MONARK were all mentioned.

Specifically, one section in the response to the summary of issues beginning page 19 of the above-linked document asked the company to “clarify the relationship between Bruce Power and other parties related to the transportation of nuclear fuel, and whether Bruce Power can direct or influence the activity of new fuel transportation.”


The reply (p. 20) was “... [f]uel will be transported to the site by the supplier by roadway in accordance with ... [the US nuclear regulator] if the fuel originates from the US.”

Could a politically motivated US government player cause a halt or delay in the delivery of US-origin fuel to the Bruce? Or, for that matter to *any* Canadian nuclear site relying on US-origin fuel? Fifteen thousand western Canadian softwood industry workers used to ask a similar question regarding US tariffs on Canadian softwood lumber. They don’t ask that question any more. They know the answer is yes.

In the next sentence after pointing out there is no enrichment capability in Canada, BP says a curious thing: “The fuel used by the MONARK is expected to be an incremental increase to the fuel used by the existing CANDU fleet at Bruce Power.” We were under the impression MONARK is pure CANDU—natural uranium fueled, heavy water cooled/moderated. What does “incremental increase” mean? Physical mass of unenriched CANDU fuel? Or ratio of U-235 to U-238?

AtkinsRéalis’s effort to be recognized as a reactor vendor continues We are encouraged by ATR’s campaign to make people aware they have committed big time to MONARK development, in the way of new high skilled employee hires and persistent calls for federal assistance toward a final licensable—and implementable—design. The MONARK is another of the deserving technologies we mentioned in “Canadian dollars on the Baltic” on page 3 above.

It is difficult to stay the course and continue to publicly commit resources in the face of a difficult situation. Here, the situation is the biggest near-term customer for a MONARK remains OPG, the only Ontario nuclear utility to have begun a new build. OPG still has signaled no inclination to revisit its LWR SMR decision for Darlington. It should, given what we discussed in the Bruce Power section. That it hasn’t (yet), and ATR presses ahead with its campaign, reflects well on ATR.

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Canadian Nuclear Workers’ Council
The collective voice of organized labour in the nuclear industries
 The Canadian Nuclear Workers Council (CNWC) is an umbrella organization of Unions representing workers in all sectors of the Canadian nuclear industry. Founded in 1993, it represents sectors including electric power utilities, uranium mining and processing, radioisotope production for medical and industrial purposes, nuclear research, construction and trades in Ontario and labour councils in host communities.

Members include Locals of: International Association of Firefighters ● Canadian Union of Public Employees ● International Brotherhood of Electrical Workers ● International Association of Machinists & Aerospace Workers ● International Federation of Professional and Technical Engineers ● Power Workers’ Union ● Provincial Building and Construction Trades Council of Ontario ● Professional Institute of The Public Service of Canada ● Public Service Alliance of Canada ● Society of United Professionals ● Society of Professional Engineers and Associates ● United Steel Workers ● UNIFOR ● District Labour Councils (Grey/Bruce, Durham, Lindsay, Northumberland, Ottawa, and Saint John).



What others are saying

Google search finds SMR for data centres

“Since pioneering the first corporate purchase agreements for renewable electricity over a decade ago, Google has played a pivotal role in accelerating clean energy solutions, including the next generation of advanced clean technologies. Today, we’re building on these efforts by signing the world’s first corporate agreement to purchase nuclear energy from multiple small modular reactors (SMRs) to be developed by Kairos Power. The initial phase of work is intended to bring Kairos Power’s first SMR online quickly and safely by 2030, followed by additional reactor deployments through 2035. Overall, this deal will enable up to 500 MW of new 24/7 carbon-free power to U.S. electricity grids and help more communities benefit from clean and affordable nuclear power.

This agreement is important for two reasons:

- The grid needs new electricity sources to support AI technologies that are powering major scientific advances, improving services for businesses and customers, and driving national competitiveness and economic growth. This agreement helps accelerate a new technology to meet energy needs cleanly and reliably, and unlock the full potential of AI for everyone.
- Nuclear solutions offer a clean, round-the-clock power source that can help us reliably meet electricity demands with carbon-free energy every hour of every day. Advancing these power sources in close partnership with supportive local communities will rapidly drive the decarbonization of electricity grids around the world.

...

This agreement is part of our efforts to [develop and commercialize](#) a broad portfolio of advanced clean electricity technologies to power our global data centers and offices. This approach will complement our use of variable renewables, like solar and wind, and help us reach our ambitious 24/7 carbon-free energy and net-zero goals.

...

Investing in advanced nuclear technology can also provide direct economic benefits to communities across the U.S. Nuclear power has the highest economic impact of any power generation source, according to the U.S. Department of Energy (DOE), and creates high-paying, long-term jobs. The agency estimates reaching 200 GW of advanced nuclear capacity in the U.S. by 2050 will require an additional 375,000 workers.”

Source: *The Keyword*, Google, “New nuclear clean energy agreement with Kairos Power”

<https://blog.google/outreach-initiatives/sustainability/google-kairos-power-nuclear-energy-agreement/>

Worth repeating

“The yes vote does not signify approval of the project; rather, it demonstrates the nation’s willingness to enter the next phase of in-depth environmental and technical assessments, to determine safety and site suitability.”

...

“WLOM views our role as the potential host for Canada’s used nuclear fuel as one of the most important responsibilities of our time. We can not ignore this challenge and allow it to become a burden for future generations. Our membership spoke with a clear voice in our willingness decision that we have the bravery and courage to continue to the next phase of this project.

Source: “NWMO to proceed with Site Characterization Process in Wabigoon Lake Ojibway Nation Territory,” *Wabigoon Lake Ojibway Nation press release*, November 28, 2024

https://www.wabigoonlakeon.ca/_files/ugd/04fe7b_2ec4c7b04a2b45c0bdf8c78ce967478a.pdf