

Paul Beckwith: Q: does the nuclear industry intentionally low-ball costs knowing they will overrun by 120%

Paul Beckwith: Q: what are barriers to an Ontario region contracting with China to get solar wind batteries for their grid power?

Guy Brodsky: which IESO report showed wind solar and batteries could meet 24/7 demand at 14-29% lower cost than new nuclear?

Vlad Bunea: Q: Canadians are in a massive electricity over-consumption pattern vis-a-vis their global fair share of ecological footprint. All green energy grids have a significant material footprint. What would be a just pathway to DEGROW the electricity consumption of Ontarians / Canadians?

Peter MacKinnon: C: A big issue in my view wrt Ford's nuclear program is he wants to create electricity to generate residential, industrial, etc., heat; when in fact the nuclear plants produce enormous amounts of waste heat that could be feed into large scale district heating. Pickering Nuclear alone could heat metro Toronto (e.g., business opportunity for operators to sell heat and natural gas companies provide heat to customers as they sell gas today. Less stranded asset in the transition, too.

Richard van der Jagt: fact of interest: the Fukushima disaster happened on Mar 11, 2011

Raymond Leury: A good book on the topic is Nuclear is Not the Solution: The Folly of Atomic Power in the Age of Climate Change: Ramana, M.V.: 9781804290002: Books - Amazon.ca

David Pollock: Could Ford not do his sweetheart deals with renewable operators too. Not sure why his and other's biases are so much in favour of nuclear. Presumably they have access to the arguments outlined in your slides too. Why so much resistance?

Peter MacKinnon: C: Regarding thermal networks and nuclear power see this study, and BTW several participants in the study are in this meeting: <https://www.world-nuclear-news.org/articles/canadian-study-looks-at-nuclear-s-potential-to-dec>

Paul Beckwith: q: how many US sites do uranium enrichment?

Pamela Laidler: Q: why would Ontario require uranium from the US? I understand is that Canada exports uranium to the US, and elsewhere in the world?

Guy Brodsky: Replying to "C: Regarding thermal networks and nuclear power se...": would love to see more TN/TENS, i think its the answer to above question on consuming less electricity overall

Paul Beckwith: China has new grid storage Na batteries, great new tech. China is an engineering state, US is a lawyerly society... read Dan Wang's new book Breakneck: China's Quest to Engineer the Future

Vlad Bunea: There are massive concerns that current consumption patterns cannot be sustained from a materials perspective, including the requirement for storage. See: Michaux, S. P. (2021): Assessment of the Extra Capacity Required of Alternative Energy Electrical Power Systems to Completely Replace Fossil Fuels.

https://tupa.gtk.fi/raportti/arkisto/42_2021.pdf

Guy Brodsky: Replying to "C: Regarding thermal networks and nuclear power se...": do you think advances in drilling from the nascent geothermal power industry might make geexchange based TNs more feasible? i imagine using nuclear waste heat would take a decade to permit and commission?

Meg Sears: Replying to "Q: why would Ontario require uranium from the US? ...":

Those reactors require enriched uranium, which is not produced in Canada

Pamela Laidler: Replying to "Q: why would Ontario require uranium from the US? ...":



Vlad Bunea: Replying to "There are massive concerns that current consumptio...":

Also https://tupa.gtk.fi/julkaisu/bulletin/bt_416.pdf

Richard van der Jagt: China is building solar arrays in unpopulated areas such as in large plains

Paul Beckwith: q: does OCAA do any work on indoor air quality? Belgium has a new law to monitor indoor CO2 levels in all buildings...

Pamela Laidler: Replying to "Q: why would Ontario require uranium from the US? ...":
Knowing nothing about uranium ... can Canada produce enriched uranium in the future?

Raymond Leury: Replying to "Q: why would Ontario require uranium from the US? ...":
@Pamela Laidler enriching uranium is prohibited under the nuclear non-proliferation treaty. Russia is the other supplier in addition to the US.

Martin Green: Replying to "Q: why would Ontario require uranium from the US? ...":
France also has the capability of supplying fuel with enriched uranium.

Pamela Laidler: Replying to "Q: why would Ontario require uranium from the US? ...":
Thank you @Raymond Leury & @Martin Green

Art Hunter: (Q) microgrids and virtual power plants were not mentioned. Do you encourage these means of efficiency, resilience and low cost.

John Hollins: The Candu reactors in Ontario work without enrichment of the uranium used as fuel and use heavy water as the moderator, all sourced in Canada. That was a deliberate decision decades ago. Why the government of Ontario plans to switch and become dependent on the USA is hard to understand on that ground alone. I have been under the impression that Ford understands the tangerine toddler.

Vlad Bunea: Average consumption per capita must decrease significantly. Current levels cannot be sustained from a materials requirements perspective even if we do a full transition to green energy including for our industrial capacity (which btw is impossible with current tech because we cannot make steel or concrete without fossil fuels). This means concerted, planned degrowth.

Martin Green: Replying to "Q: why would Ontario require uranium from the US? ...":

The IESO's most significant challenge is ensuring the supply of RELIABLE power, whenever it is needed. Wind and solar are not reliable. The cost of additional facilities, including storage and also other components to maintain frequency and other aspects of power system stability, makes large-scale solar and wind much more expensive than nuclear.

Paul Beckwith: Replying to "Q: why would Ontario require uranium from the US? ...":
q: wondering about kickbacks to Ford family from his dealings?

Brian Kelly: Replying to "Q: why would Ontario require uranium from the US? ...":
In addition to Jack's excellent arguments, I am also worried about two other effects from the nuclear plan:

Richard van der Jagt: Replying to "Q: why would Ontario require uranium from the US? ...":
the latter point is false when wind and solar are combined with battery backup and is what the nuclear industry wants us to believe

Letitia Charbonneau: Amazing presentation! Thanks so much!

Pamela Laidler: **Why is PM Carney such a strong supporter of nuclear in ON?**

Guy Brodsky: Replying to "Q: why would Ontario require uranium from the US? ...":
@Martin Green what do you think about the timing? I mostly agree an 100% WWS+battery is incredibly hard but at the moment we still have a mostly firm power system, couldn't we have increased variable (and cheaper) generation another 10-20% for now and then see later on about new firm?

Brian Kelly: Replying to "Q: why would Ontario require uranium from the US? ...":
It will make the transition to an electric future much more costly than it needs to be.

Brian Kelly: Replying to "Q: why would Ontario require uranium from the US? ...":
With rising power rates due to nuclear it will be impossible to attract new companies

Peter MacKinnon: C: Note that the latest AI data centres are being powered by off-grid sources such as nuclear power

Charles Hall: Replying to "Q: why would Ontario require uranium from the US? ...":
How much does a KWHr of electricity cost in Ontario?

Charles Hall: Replying to "Q: why would Ontario require uranium from the US? ...":
Why don't you keep the gas plant to deal with intermittency of sun and wind??????? Gas turbines can be brought up and down rapidly and are very flexible and you have them!

Art Hunter: Replying to "Q: why would Ontario require uranium from the US? ...":
Ontario's current electricity cost for households on the Regulated Price Plan (RPP) is roughly 11–17¢/kWh depending on the time of day, based on the latest Ontario Energy Board (OEB) price report for Nov 2025–Oct 2026.

Guy Brodsky: <https://oeb.planview.ca/Ontario-capacity-map/>

Charles Hall: Replying to "Q: why would Ontario require uranium from the US? ...":
thank you Art

Martin Green: @Guy Brodsky The Boltzmann Institute (bi-ib.ca) has done detailed analysis of how future demands can be met, including all generating options. The major concern is cold winter weather. Wind can contribute a modest percentage to peak reliable power, but solar is useless for early winter mornings. Capacity established for the winter will still be available in the summer, so adding solar would actually be a total waste.

Charles Hall: Replying to "Q: why would Ontario require uranium from the US? ...":
In southern Oregon I pay only 7 cents per kWhr (plus an unknown number of salmon killed by dams) --

Vlad Bunea:
Replying to "@Guy Brodsky The Boltzmann Institute (bi-ib.ca) ha...":

Does this include decreasing volumes of consumption?

John Hollins: Cost overruns on big projects are routine. The Sydney Opera House overrun was 1,400%. Makes Ontario Candu look good! OC Transpo's light rail is incurring big cost overruns, on the scale of Candus. Solution: choose technologies that scale easily.

Richard van der Jagt: I have coauthored a publication in the Hill Times with Geoff Strong and Senator Galvez, subsequently posted on CACOR on why we should move forward with renewable energy development and compared what we are doing in Canada with other countries. We are far behind

Angela Bischoff: Here's the briefing note that Guy asked about: New IESO Report on Wind & Solar Energy Combined with Battery Energy Storage vs SMRs
<https://www.cleanairalliance.org/briefing-note-new-ieso-report-on-wind-solar-energy-combined-with-battery-energy-storage-vs-smrs/>

Guy Brodsky: Replying to "@Guy Brodsky The Boltzmann Institute (bi-ib.ca) ha...":

I don't think wind is that modest though, if you look at IESO market data from the last several months in this first winter of the renewed market, it seems like just a few thousand MWs of wind production majorly displaces gas and brings the clearing price down. Of course its variable but paired with some batteries or not, I just wonder if its so many billions on nuclear why not first double the wind contribution. We have so many inerties that excess could still be sold off.

Guy Brodsky: Replying to "@Guy Brodsky The Boltzmann Institute (bi-ib.ca) ha...":

@Vlad Bunea re decreasing consumption i think greater efficiency investments and retrofits, and district heating/thermal networks rather than solely switching to heatpumps is kind of the way to do that

Guy Brodsky: Replying to "@Guy Brodsky The Boltzmann Institute (bi-ib.ca) ha...":

Efficiency Canada has great work out on looking at energy efficiency investments as a nation building project

Martin Green: Geothermal is not viable as a source of heat in Ontario. The ground is used only to store heat/cold. If more heat is taken from the ground than returned each year then the ground keeps getting colder until the system stops working. The U of T is producing heat with

electric boilers. There are much better sources of clean heat, including the waste heat from thermal power stations. Large scale heat transmission from Pickering to Toronto would indeed be economical.

Richard van der Jagt: Q: have you looked at waste energy transfer as a source of energy?

Martin Green: China has and is expanding both their hydroelectric and nuclear power. They will continue to supply significant fractions of China's electricity. See https://en.wikipedia.org/wiki/Electricity_sector_in_China

Meg Sears: Replying to "Geothermal is not viable as a source of heat in On...":

I would disagree with blanket dismissal of ground source heat pumps. My field is the location of a pioneering direct-couple heat pump for my home, installed in 1990. The unit in the basement has been replaced, but the pipes and refrigerant are apparently fine. I've much lower electricity bills than neighbours, and no fossil fuel inputs.

Raymond Leury: There are lots of comments, but if you have questions ask away. I have lots of backup questions

Martin Green: Replying to "Geothermal is not viable as a source of heat in On...":

GSHPs are great for rural areas, but most city dwellers don't have enough space and thermal networks are much more efficient. (A few GSHPs in the city are okay, but if they are too close together they collectively cool the ground.)

Guy Brodsky: Canada's own Cascade Institute has done great recent work on (ultradeep) geothermal power <https://cascadeinstitute.org/technical-paper/technoeconomic-analysis-of-enhanced-geothermal/>

Guy Brodsky: as baseload power (at least for the western provinces)

Jon Legg: Thanks, Jack. I must leave. Jon

Pamela Laidler: Very informative session. Thank you Jack, Raymond, and other participants :
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David Smith: Thanks

Raymond Leury: Again, if you want to read a very good book on the subject, see Nuclear is Not the Solution: The Folly of Atomic Power in the Age of Climate Change: Ramana, M.V.: 9781804290002: Books - Amazon.ca

Vlad Bunea: Apologies, I had step out quickly. This was a great meeting!