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Energy Security and Canadian Foreign Policy: A Role for Nuclear Energy

by John Barrett

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POLICY PERSPECTIVE

ENERGY SECURITY AND CANADIAN FOREIGN POLICY: A ROLE FOR NUCLEAR ENERGY

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The global economy and energy markets are in a state of transition. Across the world and here at home there is growing concern over climate change and the environmental damage it wreaks. Many countries state that decarbonizing the economy and reducing greenhouse gas (GHG) emissions are a priority – and a global challenge for us all.

International security is buffeted by big power rivalries and trade disputes. The post-Second World War rules-based multilateral system is under attack and must be shored up as a matter of national interest – especially for countries like Canada that benefit from a liberal international order. Meanwhile, the numbers of poor and undernourished around the globe are growing. Development assistance cannot keep up. The world does not lack for challenges.

What role does energy play in this regard? Can the energy type be an asset in a country's foreign policy? Does it provide influence in global affairs, while helping to promote one's national interests (e.g., strengthening security, building relationships internationally, providing effective development assistance)?

To answer these questions requires a strategic perspective, if we are to understand how an energy type can advance national interests and to develop the policies to exploit this potential.

Looking at Nuclear Energy from a Strategic Perspective

Let's examine one such energy type – nuclear energy.

To successfully pursue its national interest and security, a country's foreign policy must have influence. To have influence, the foreign policy must rest on credibility that others recognize.

Canadian nuclear technology, research and regulatory standards give Canada credibility internationally. States listen to us not because the world needs more Canada. Rather, it is because we have successfully developed and exported our own CANDU technology; we have the biggest nuclear power operating site in the world (Bruce Power); we have world-class nuclear laboratories (Chalk River); our nuclear regulator is considered world class (Canadian Nuclear Safety Commission); we are one of the world's largest producers of uranium; and our CANDU reactors provide the world with Cobalt-60 and other essential medical isotopes.

These assets give us credibility and a prominent seat at the table in international forums dealing with nuclear-related issues. We have delegations and permanent missions abroad with the responsibility to deliver Canada's policies on nuclear energy. Canadian officials and industry experts keep up with developments in civil nuclear research, advanced reactor developments and best practices in emergency planning, waste management, radiation protection and so on.[1] They

[1] Not to mention nearly 30 bilateral nuclear co-operation agreements; trade commissioners to support Canadian exports in CANDU and other nuclear products and services; delegations to the International Atomic Energy Agency (IAEA) in Vienna, the Nuclear Energy Agency (NEA) in

contribute substantially to international rules and standards governing nuclear energy technology, materials, and trade.[2]

And Yet…

Despite the credibility and the many international meetings, we do not have a single, strategically focused nuclear energy policy in our foreign policy. Why is this? Because we do not have an over-arching civil nuclear policy in Canada.

Rather, we have a patchwork of separate policy approaches. Some come from government responses to parliamentary committees (e.g., the Standing Committee on Natural Resources). Others are in response to external reviews (e.g., international peer reviews of Canada's nuclear regulatory system or our system of physical protection of nuclear power plants, research reactors and radiological sources). Occasionally, an event (e.g., the Fukushima accident in 2011) pulls officials and departments – and industry – together. That lasts until the impact on Canada has been assessed, mitigated or deemed benign, then the whole-of-government coordination that's been assembled for common purpose slides back into separate departmental preoccupations.

Without government direction, such responses and events remain unconnected, like pieces of a puzzle without an overall picture to guide its assembly and therefore achieve greater, more coherent strategic purpose.

Why is this so? Why does the strategic importance of nuclear energy remain unrecognized and underappreciated by Canadian policymakers of both political stripes?

Over the past decade one can see policy choices and prevailing views that have ensured the nuclear energy puzzle pieces stay riven and transactional. We can start with the Conservative government's restructuring of Atomic Energy of Canada Limited (AECL), which sold off the CANDU reactor division to SNC-Lavalin in 2011 and created a "government owned, contractor operated (GoCo)" operation at Chalk River that became Canadian Nuclear Laboratories (CNL) at Chalk River. AECL was repositioned as the oversight body for the new private sector consortium selected to manage the national nuclear laboratories there.

Interestingly, the Conservative government under Stephen Harper was not ideologically against nuclear energy – indeed, several prominent cabinet ministers were previously in the Mike Harris provincial government in Ontario, where nuclear power produces 60% of the province's

Paris, the Conference on Disarmament (Geneva), NATO defence planning committees (Brussels) and the United Nations (New York). See the Global Affairs Canada website for relevant policy positions and international activities.

[2] They can be found participating in, often chairing, treaty negotiation and review conferences (Convention on Nuclear Security, Non-Proliferation Treaty, plus other conventions dealing with nuclear energy); capacity-building programming to assist developing countries with peaceful nuclear technology, while reducing the threat from uncontrolled fissile material (Global Partnership); meetings on counter-proliferation and counter-terrorism (GCINT), the promotion of responsible co-operation in nuclear energy (IFNEC), advancing safe and proliferation-resistant nuclear technology (Gen IV Forum), and on strengthening nuclear security (G7, Contact Group).

electricity. Their gripe was more with the costs to the crown of running the labs and the CANDU brand; they wanted industry to shoulder more of the financial burden and commercial responsibilities.

The Conservative government was not interested in funding a new national research reactor at Chalk River to replace the venerable National Reactor Universal (NRU),[3] a world-renowned source of medical isotope production and extensive applied research, much frequented by universities and industry at home and abroad.[4] The NRU was shut down in 2017, without replacement.

Enter the Trudeau Liberals in 2015. While not opposed in principles to spending money to expand government policy aims and priorities, the Liberal government, it is fair to say, has not really warmed up to nuclear energy. Part of this is due to the strength of opposition to nuclear energy within its own party base, its parliamentary caucus and political staffers, many of whom have came with environmentalist agendas and ENGO backgrounds. Even when it appears to be accepting a role for nuclear energy in reaching net-zero GHG emissions by 2050, caveats are expressed.[5]

The federal government has not, of course, abandoned all responsibilities in the nuclear sphere. It recently announced a review of legislation around nuclear waste management; it continues to provide funding to renew the national nuclear laboratories at Chalk River; and it is actively conducting environmental clean-up at various legacy site and areas under federal jurisdiction.

Furthermore, the division of federal and provincial responsibilities in energy also plays a role in preventing a clear vision of nuclear energy as a national strategic asset. In Canada, energy and natural resources are a provincial matter, although if the energy is nuclear, the federal government is involved through the national regulator (CNSC) and certain environmental assessment regulations, such as the recent *Impact Assessment Act*. These latter regulate use of this energy type; they do not explore its strategic potential.

Absent a Strategic Perspective

Without a strategic perspective uniting nuclear energy with foreign policy, opportunities are missed for growing influence through relationship building.

[3] Amelia Bellamy-Royds, The Tyee, 11 June 2009. https://thetyee.ca/Blogs/TheHook/Federal-Politics/2009/06/11/PMWantsOutIsotopes
[4] As Canada's Ambassador and Permanent Representative to the International Atomic Energy Agency (2009-2013) I witnessed first-hand how much of Canada's voice and credibility was supported by both the worldwide reputation of AECL Chalk River and its facilities such as the NRU and the expert research and analysis conducted there. It gave Canada heft and influence on a host of issues affecting our national interests and security – in particular on questions relating to Iran's nuclear program and on raising international standards on nuclear safety post-Fukushima.
[5] See Paul Wells' interview with Environment Minister Jonathan Wilkinson in a recent *Maclean's*. The minister squirmed away from saying the government supported development of small modular reactors (SMRs), even when his cabinet colleague, Minister of Natural Resources Seamus O'Regan, was quoted about the necessity of nuclear power in reaching net zero GHG emissions by 2050.

To illustrate: in 2011-2012, at the time of AECL restructuring, the Kingdom of Jordan was interested in buying a Canadian CANDU reactor, believed by Jordanian authorities to be ideally suited to their country's needs. I attended several meetings in which technical, regulatory and siting matters were discussed. The enthusiasm of the Jordanian officials for the Canadian technology was clearly evident. The only thing left was to put the financial package together.

However, the Canadian government at that time was pulling back from supporting Canadian nuclear reactor exports, either through the Export Development Corporation (EDC) or the Canada Account. The latter is a government loan-guarantee facility that the Chrétien government had successfully used in the 1990s to backstop CANDU sales to Romania.[6]

I recall the Jordanian ambassador telling me how much his government regretted not being able to close the deal, due to the lack of our financial support. Instead, they turned, reluctantly, to Russia, which happily stepped in to offer its AES-92 reactor, complete with financing and operation provisions.[7] An opportunity lost; a strengthened Canada-Jordan relationship foregone.

How ironic it appeared a few years later to hear Conservative voices lament the absence of Canadian influence in a moderate Arab country such as Jordan, given the turbulence of Middle East politics and conflict. Had the Canadian government connected our nuclear technology and foreign policy needs, we would have used the Canada Account to seal the deal with Jordan. But, absent a strategic perspective, the geopolitical pay-off went unseen.

Nexus of Nuclear Energy and Geopolitics

If Canada is not actively considering the nexus of nuclear energy and geopolitics, other countries are. Of course, commercial interests are also at the root of the explicit efforts to obtain new markets for one's nuclear technology exports. But what is increasingly evident is that geopolitical interests are running in parallel or even leading the charge. That is the nature of international competition, one might say; however, at heart it is driven by strategic considerations.

This we can illustrate with reference to China and to the United States.

First, China. In 2017-2018, I participated in an informal energy dialogue between China and Canada. The idea was to find ways to enhance co-operation and trade between our countries in the energy sector. (This was before the Huawei affair).

When we got to the topic of nuclear technology and, especially, the market potential of advanced small reactors (SMRs), the Chinese side wanted to know how best to get Chinese SMRs licensed and deployed in Canada. In representing the Canadian nuclear industry at the time, I tried to

[6] Duane Bratt, The Politics of CANDU Exports. Toronto, University of Toronto Press, 2006, p.81.
[7] IAEA Country Nuclear Power Profiles 2016 Edition: Jordan, Section 2.3.1. Future Development of Nuclear Power. https://www-pub.iaea.org/MTCD/publications/PDF/cnpp2016/countryprofiles/Jordan/Jordan.htm The Jordanian government chose Rosatom's AES-92 PWR reactor, which came with government-backed financing support and Rosatom's commitment to operate the reactor. Interestingly, the power plant was never built. Jordan has re-evaluated its needs and is now looking at grid-scale SMR reactors instead. See presentation by Jordan Atomic Energy Commission in 2019. https://nucleus.iaea.org/sites/INPRO/df17/VI.9-Jordan_Sinamees%20Hajarat.pdf

discuss the Chinese market for Canadian-built SMRs. Total silence. There was no interest on the Chinese side to offer the infamous "win-win" outcome to which China so often pays lip service. Rather, their plan was clear: to obtain the Canadian regulatory stamp of approval for Chinese SMRs through access to the Canadian market. This would give their SMRs much-needed bona fides to gain SMR markets world-wide. There was no mutual co-operation in the Chinese approach, which is geopolitical, competitive, and strategic.

Why does this matter – apart from losing potential commercial opportunities for Canadian SMRs? It means China will have the upper hand in influencing evolving SMR safety and non-proliferation standards internationally via its products and its level of quality. Moreover, it creates a foreign policy advantage when a country establishes a foothold in another country through the offer of one's nuclear technology at state-subsidized prices and financing. It introduces a new relationship between supplier and host country.

We've seen this already. China is looking to take its CANDU experience (two reactors at Qinshan) to muscle in as the sole builder and provider of CANDU reactors in international export markets. Romania, a country looking to add to its CANDU fleet, recently extricated itself from an impending deal where China was to finance and build two additional CANDU reactors, leaving Canada with a comparatively small return from ownership of CANDU intellectual property.

As for the United States, both the Executive Branch and Congress now speak of the need to maintain Western (and U.S.) leadership in civil nuclear technology and counter the prevalence of government-backed, highly subsidized reactor exports from Russia and China.[8] The U.S. government clearly recognizes the strategic nature of this competition and its geopolitical nature.

In a recent webinar sponsored by the U.S. Nuclear Industry Council, the head of the Export-Import (EXIM) Bank and senior representatives from the State Department and the Department of Energy described how the U.S. was integrating civil nuclear commercial interests with national security policy. Just a day later they were in Romania and Poland signing Nuclear Cooperation Memoranda of Understanding (NC-MOUs) and new Intergovernmental Agreements (IGAs) to bring U.S. industry into a deeper relationship with the respective host governments.[9]

[8] "A New Approach to Civil Nuclear Cooperation Policy", Remarks by Christopher Ford, Assistant Security, Bureau of International Security and Non-Proliferation, Department of State, Washington DC, 26 February 2019. See: https://www.state.gover/a-new-approach-to-civil-nuclear-cooperaton-policy.html See also EXIM Bank's "Program on China and Transformation Exports" https://www.exim.gov/who-we-serve/external-engagement/program-on-china-and-transformational-exports

[9] Remarks by Kimberly Reed, President & CEO, EXIM Bank; Aleisha Duncan, Deputy Assistant Secretary for International Nuclear Energy Policy and Cooperation, Department of Energy; and James Warden, Director, Office of Nuclear Energy, Safety and Security, Department of State. US Nuclear Industry Council-sponsored webinar, "New Nuclear Capital (NNC 2020), 9 December 2020. Each speaker explicitly noted that China and Russia were using nuclear power as a matter of national security, and it was time to counter this by bringing U.S. government support, including project-focused export guarantees and financing, to the U.S. nuclear industry in accessing traditional and new markets for its technology and products. Above all, it would be integrated with building government-to-government relationships and embedded more deeply in U.S. foreign policy.

Scattered Puzzle Pieces

Canada is the only nuclear nation with a proven home-grown and exportable reactor technology, supported by extensive expertise, capabilities and experience that does not appear to recognize, let alone capitalize on, the nexus of nuclear energy and geopolitics. If one looks for a comprehensive policy on Canada's civil nuclear sector and how it can be used to leverage our foreign policy interests – the government is missing in action.

This is not implying there aren't scattered pieces of good intentions and useful activity – but assorted bits do not constitute a strategic vision.

Yes, pieces do exist and have sporadically surfaced during Liberal government tenure. When they do surface, it results not from deep strategic analysis or planning; instead, it stems partly from ad hoc international activities and partly from practical imperatives connected to the government's climate change ambitions.

In 2015, while at the Paris COP 21 meeting, the newly arrived Trudeau government signed up to "Mission Innovation", a global initiative of 22 countries plus the European Union pledging to double their investment in clean technology innovation over five years. Upon returning home, the government was asked whether this commitment to invest in clean energy innovation included nuclear energy. For two years, the government hummed and hawed until finally it said yes.

In 2017, the Parliamentary Secretary for Natural Resources announced at the IAEA General Conference in Vienna that Canada was joining the U.S. and Japan in requesting that nuclear energy be added to the agenda of the Clean Energy Ministerial (CEM) group (comprising some thirty countries). At the following 2018 CEM meeting in Copenhagen, the three countries launched NICE Future – "Nuclear Innovation for a Clean Energy Future". To date, however, this initiative remains largely separate from Canada's nuclear industry and has not markedly enhanced the government's domestic support of the sector.

In parliament, the House of Commons Standing Committee on Natural Resources (NRRC) report of June 2017 made recommendations in support of Canada's nuclear sector.[10] The government's response to the report (October 2017) noted that Budget 2017 had established several clean tech innovation funding programs which had "greater flexibility" – but made no specific mention of nuclear sector eligibility for such funding. Despite the response's generally positive tone, one looked in vain for evidence of any real support, such as elaboration of a coherent policy towards the sector.

To be fair, a couple of paragraphs in the response were suggestive: "The Government recognizes that nuclear energy provides Canada with a unique asset in forging and deepening global relationships that go beyond trade. Further, industry's nuclear expertise, competence, and experience give Canada status and weight at the global diplomatic table on issues of nuclear security, non-proliferation, and related matters. It is in the country's and the Government's

[10] "The Nuclear Sector at a Crossroads: Fostering Innovation and Energy Security for Canada and the World", 9 June 2017 (42nd Parliament, 1st Session).

interests to develop and use this asset."[11] However, what then followed was a listing of various diplomatic activities undertaken (e.g., bilateral Nuclear Cooperation Agreements) and government agencies at hand to help (e.g., Export Development Canada (which traditionally shied away from providing support to the nuclear sector)).

Alas, hinting at potential geopolitical influence through nuclear cannot substitute for a strategic approach, underpinned by coherent whole-of-government policy. In fact, when it came federal budget funding of clean energy technologies, mention of nuclear was nowhere to be seen.[12] At Global Affairs Canada, the Trade Commissioner Service does not include nuclear in the clean tech trade sector.[13] In 2017-2018, NRCan embarked on a much-ballyhooed "Generation Energy" initiative and report, which barely mentioned the nuclear sector, its advanced technologies, or real and potential contribution to Canada's emissions-reduction targets. Maybe this was not surprising, as the industry was effectively barred from the Generation Energy Council and its deliberations.[14]

More recently, there are signs that the government is adopting a more pragmatic approach to the sector, beginning with the NRCan-sponsored "Canadian SMR Roadmap" in late 2018.[15] Recent massaging by the government suggests it now accepts that Canada's nuclear sector might be essential to achieving its strategic climate change and decarbonization objectives.

First clear indication came from NRCan Minister Seamus O'Regan's speech to the CNA Conference in February 2020, in which he stated there were no credible scenarios for decarbonization that did not include nuclear in the mix. More recently, in the Fall Economic Statement to Canada's Parliament, the Government of Canada made its first explicit reference to nuclear and SMRs as part of the government's climate change agenda and efforts to net-zero-emissions by 2050. This was followed almost immediately by the government's "Climate Action Plan", which repeated the message in the FES. Days later, the release of "Canada's Hydrogen Strategy" also included positive references to nuclear and SMRs as potential sources of hydrogen production.[16]

Capping off this flurry was the release on 18 December of the much-heralded "SMR Action Plan", which assembles the plans of a wide range of stakeholders to undertake recommendations set out in the SMR Roadmap – activities held to be instrumental in advancing the technological development, regulation, commercial manufacture and deployment of SMRs in Canada and in export markets. This is without doubt useful in bringing key pieces together. But it does not commit the government in any substantive policy or financial way to SMR

[11] "Government of Canada Response to Recommendations in the Standing Committee on Natural Resources' Report", 5 October 2017, p.13
[12] All budgets in the Liberal Government's first mandate (2015-2019) excluded mentioning nuclear as a clean technology and, in many instances, earmarked federal clean energy funding explicitly to "renewables".
[13] Nuclear energy was originally included by the Trade Commissioner Service in the life sciences trade sector; then it was moved to the infrastructure sector. Requests to move it more properly to the "clean technology" sector, which has gained considerable government support recently, have not been successful. https://www.international.gc.ca/investors-investisseurs/assets/pdfs/download/vp-clean_technology.pdf
[14] https://www.nrcan.gc.ca/20380
[15] https://smrroadmap.ca
[16] Fall Economic Statement, 30 November 2020; "Heathy Environment, Healthy Economy" Climate Action Plan, 11 December 2020; "Canada's Hydrogen Strategy", 16 December 2020.

success.[17] As laudable and welcome as these pronouncements are, they do not constitute or herald a strategic perspective on the nuclear sector.[18]

Where to Begin?

Not long ago, the importance of embarking on post-pandemic strategic planning was pointed out. One of the lasting implications from the COVID-19 virus, the authors suggested, would be "geopolitics" – i.e., the rise in nationalism and decline in multilateralism.[19] To deal with this, we will need to reinvigorate our foreign policy, equip it with strategic vision, and undertake new forms of influence and relationship-building – all in the service of Canada's security and well-being.

Let us look first at international trade and investment. In a de-globalizing world, we want to preserve and expand mutually beneficial sectoral arrangements where flows of goods and services are protected by a strong governance regime.

Seen in this light, Canada's nuclear energy sector has the right characteristics for this challenge. All countries with which Canada co-operates, trades, supplies and performs research across the nuclear sector must have a bilateral nuclear co-operation agreement (NCA) in place. These agreements assure us (and the world) that Canadian nuclear exports will be used only for peaceful end-uses, that they will be fully safeguarded by the International Atomic Energy Agency (IAEA), and that we retain control over any Canadian exports that may be re-transferred to a third party.

NCA agreements must be in place for the export of Canadian CANDU technology and products to continue, for Canadian uranium to be exported or for Canadian medical isotopes and Cobalt-60 to go abroad. Currently, we have 30 NCAs in place with 48 countries (the NCA with Euratom covers several European Union countries).[20]

Co-operation and trade in Canada's nuclear export sector is thus well-governed. It should stand the test of potential fragmentation of markets in a de-globalizing world and keep appropriate standards intact. Any exports of Canadian nuclear technology (e.g., SMRs in future) to countries in need of clean energy will have to have an NCA with Canada before an export licence can be granted.

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[17] https://smractionplan.ca See also Matthew McClearn, "Ottawa holds back on new funding for small nuclear reactors". Globe & Mail, 21 December 2020.
[18] Other recent evidence suggests a change of heart – or at least an opening of taxonomy – on including the nuclear sector in climate change, sustainability, and clean energy programs. See, for example, the "Final Report of the Expert Panel on Sustainable Finance" (2019) which mentions (once) small modular reactors; the "Report from Canada's Industry Strategy Council" (2020) which also mentions SMRs in a couple of places. Recently, representatives from the Canadian Infrastructure Bank (CIB), Business Development Bank of Canada (BDC) and Export Development Canada (EDC) confirmed at an NRCan information session that their respective agencies now include the nuclear sector.
[19] Kevin Lynch and Paul Deegan, *Globe & Mail,* April 2, 2020.
[20] See the Global Affairs Canada website for more information about Canada's nuclear co-operation agreements, including the Canada Treaty Information database.

Connect Climate, Exports and SDGs

The fight against global warming and climate change is paramount for many countries. The Paris Agreement (2015) and subsequent COP meetings are proof positive of the enormous importance of growing the global supply of clean energy. This is central to reaching the United Nations' Sustainable Development Goals (SDGs).

However, it is important also to realize that the supply of energy is necessary for a country's economic development, regardless of type. If it's clean, so much the better; but if not, it's used anyway. Reaching out to developing countries to ascertain and help supply their energy needs is therefore a form of development assistance.

Developing countries have the right, should they so decide, to enjoy the benefits coming from the peaceful use of nuclear energy. Such benefits would be power (heat and electricity) to supply growing economic and development needs and it would be pollution-free clean air, thanks to no harmful emissions. It would include radiological isotopes for medical diagnoses and cancer treatment, sterilization of foods and materials (public health), and combating pests and crop diseases. Further, the energy type can produce sufficient power to desalinate water in countries affected by drought.

It is more likely that smaller, less costly and simple-to-run SMRs may be appropriate to the needs and capacities of a recipient. The benefit here is access to advanced nuclear technology with inherent safety and versatility in application. The possibilities for small and micro-reactors to suit development needs are almost endless.

Were Canada to supply such technology, backed by operational experience and support and founded on an NCA, we would have the foundation for building a special relationship with recipient countries. Other elements of development assistance would ensue.[21]

Moreover, the chances are greater that such a relationship would enhance a developing country's capacity for peaceful uses of nuclear energy, thereby strengthening the grand bargain underlying the Non-Proliferation Treaty: namely, that by foreswearing nuclear weapons, a country will have access to the many benefits of nuclear technology.[22]

[21] There are other means of using nuclear technology through Canadian assistance. The Harper government put its maternal and child health policy at the forefront of its development assistance. In 2010, this was unveiled at the G7 meeting in Canada. At that time, the IAEA was launching a program to study how maternal health in developing countries could be improved through the use of isotopic techniques from nuclear technology. They were also looking to understand through similar techniques the causes of malabsorption of nutrition in children. As Canada's ambassador to the IAEA, I suggested the government announce a contribution of $2 million to the IAEA to support the program – as part of the government's new policy. It would most certainly have gained considerable attention and plaudits from the more than 130 IAEA member states. Had we been thinking strategically and using our nuclear knowledge, we would have seen the advantage and influence this modest contribution would bring. I received no response and the opportunity passed by.

[22] This positive impact on the NPT, and the role of Canada and our nuclear industry in this regard, is explored in "How Industry Can Help Strengthen the Nuclear Non-Proliferation Treaty." See "John's Musings" blog at Portolan Global Inc, www.portolanglobal.com

Strengthen the International Rules-Based System

A straight line connects international governance to national security. Here, we enter the multilateral architecture of treaties, institutions and organizations dealing with nuclear energy, technology and materials on a global level. How do we connect this to our national interest and security?

As mentioned earlier, we are on the cusp of new advances in nuclear technology – from generation III+ and generation IV reactors, to small modular reactors, to newer types of medical isotopes. But what of nuclear technology governance?

Russia and China are vigorously cultivating new markets, eager to export their nuclear reactors and technology around the globe. In the absence of other supplier countries, they could easily dominate such markets – and extend their technological and political influence throughout many regions.

More to the point: in the absence of other credible players, the standards and rules governing the export and use of nuclear technology may increasingly bend toward the specific interests of these two countries. Others – Iran, North Korea, India and Pakistan – create pressure on governance by having national nuclear programs which are not exclusively devoted to peaceful ends.

We do not have to abandon the field of nuclear governance entirely to such countries. Canada and like-minded friends and allies have played a leading role in creating the norms, treaties, regulatory standards, guidelines and compliance expectations that make up the international governance of civil nuclear technology.

We need to stay actively engaged at the forefront of global nuclear governance. Using our credibility in nuclear technology – from CANDU reactors to isotopes to new fuel cycles and SMRs – is the best means for influencing and shaping governance norms and structures.

If the rules-based international system indeed is under duress, then it is better for us to sharpen our geopolitical and strategic acumen. We can work with like-minded countries – the U.S., U.K., France and Japan to start with – to maintain and strengthen our collective influence in the governance of existing and emerging nuclear technology. That way, we reduce our vulnerabilities, bring the clean energy benefits of nuclear technology to humanity and protect the safety, security and prosperity of our citizens.

Putting Things Right

To put things right, we need to identify the right pieces and get them in place. Here are some suggestions that we could undertake now:

- Cabinet-level discussion of a civil nuclear energy policy for Canada – to bring political direction, inspire whole-of-government effort, and produce strategic coherence to disparate pieces of activity
- Support in Parliament for the civil nuclear sector – via causes and cross-party support, as well as through parliamentary committees and working groups to analyze the sector as a strategic asset and produce recommendations
- Strategic policy-planning from government officials – too often, the bureaucracy shies away from strategic thinking with respect to nuclear technology and industry - that connects the sector with Canada's national and security interests
- A PCO-led "whole-of-government" exercise to lead strategic thinking – commission papers from inside and outside government
- Interdepartmental coherence – bring together all aspects of Canada's nuclear energy credibility (e.g., technology, security, safety, non-proliferation, technical and operational expertise, regulations, markets, exports, relations with other countries, foreign policy and influence)
- Involvement of nuclear industry – capacity in government for civil nuclear policy and its role in foreign policy is scattered and weak; industry can help strengthen that capacity.
- Civil nuclear policy more strategically integrated into the government's climate change policies and programs – beyond just recognizing that the sector produces carbon low-emissions
- Include nuclear more strategically in taxonomies of sustainable finance; in eligibility requirements for clean infrastructure financing; in post-COVID industrial and economic recovery strategies
- Underpin the new strategic policy approach with line items in the federal budget, thereby giving it standing and resources

Recommendations

- Recognize explicitly that Canada's nuclear reputation and civil nuclear capabilities are strategic assets that directly support credibility and influence of our foreign policy in areas of energy, climate and geopolitics impacting international security.

- Integrate into policy-making and strategic policy planning the key bilateral interests and broader international security interests for Canada that are supported and enhanced by nuclear technology, expertise and R&D co-operation/collaboration.

- Integrate nuclear's strategic importance and the interests it promotes into Canada's international trade policy, energy export policy and international security policies (non-proliferation, safeguards, safety) and into key bilateral relationships.

- Support Canada's advanced nuclear technologies because domestic success and new builds replenish the credibility capital.

- Promote the use of EDC and the Canada Account to provide an equal footing for our nuclear industry to compete successfully with all other international vendors of nuclear technology and power reactors, including SMRs.

Conclusion

We started with the question of whether an energy type can be an asset in a country's foreign policy. More specifically, we asked whether an energy type such as civil nuclear can be used to defend and promote our national interests and security.

Answering the question took us into an emerging strategic challenge for Canada and many other countries, some of whom do not share our interests and values – namely, the interplay of energy, climate, and geopolitics. This nexus that should be at the forefront of our policy planning.

In looking at Canada's civil nuclear capabilities, we see an energy resource that can play a role to advantage in the nexus. But first it requires strategic awareness, hard-headed, interest-based policy thinking and resolute intra-governmental coordination.

Successive Canadian governments have shown reluctance to approach the nuclear sector – its technology, low-carbon energy effectiveness, and longer-term future as a policy priority. Despite recent signs of acknowledgement, the approach goes only as far as assembling stakeholders and cheering them on from the sidelines.

The result is to separate the sector from today's – and tomorrow's – geopolitical challenges. If the will is not there to support nuclear *per se*, then one must appeal instead to raw calculation of interest and connect the nuclear sector to other political and policy priorities of the government.

The existential threat of unmitigated climate change has absorbed the government's policy attention. But climate change is ultimately a consequence of, and beholden to, energy use and type (carbon-emitting or not). The phenomenon is global in nature, not just domestic. It therefore will be a feature of international relations and foreign policy for decades to come.

There will be geopolitical competition and challenges over climate change policies and politics; over commercialization of clean energy technologies and markets; over resilience, adaptation and who pays; over international taxonomies, sustainable finance, and what is eligible for government export guarantees and credits.

In entering this bubbling cauldron of international interests and geopolitical competition, we have a strategic asset on our side: Canada's civil nuclear energy capabilities. But do we see it? And will we use it?

About the Author

Dr. John Barrett's *professional career spans the federal public service, international organizations, policy think-tanks and universities, the nuclear industry – with a focus on international security and the peaceful uses of nuclear technology.*

He is President of Portolan Global Inc., an Ottawa-based consulting firm offering navigational advice and expertise in the nuclear and clean energy sector. Portolan Global specializes in government & stakeholder relations; international governance and geopolitical risk; and policy advice that integrates climate change, national security, non-proliferation, and advanced small reactors (SMRs).

Between 2013-2019 Dr. Barrett was President & CEO of the Canadian Nuclear Association, where he revitalized Canada's nuclear industry as "New Nuclear", a source of clean energy solutions to climate change and energy security. From 2009-2013, he served as Canada's Ambassador to the International Organizations in Vienna (United Nations, International Atomic Energy Agency, Comprehensive Nuclear Test Ban Treaty Organization). He chaired the IAEA Board of Governors (2012-2013) and the UN Commission on Crime Prevention and Criminal Justice (2011) and had the honour of being appointed Canada's Ambassador to Austria and Slovakia.

Canadian Global Affairs Institute

The Canadian Global Affairs Institute focuses on the entire range of Canada's international relations in all its forms including (in partnership with the University of Calgary's School of Public Policy), trade investment and international capacity building. Successor to the Canadian Defence and Foreign Affairs Institute (CDFAI, which was established in 2001), the Institute works to inform Canadians about the importance of having a respected and influential voice in those parts of the globe where Canada has significant interests due to trade and investment, origins of Canada's population, geographic security (and especially security of North America in conjunction with the United States), social development, or the peace and freedom of allied nations. The Institute aims to demonstrate to Canadians the importance of comprehensive foreign, defence and trade policies which both express our values and represent our interests.

The Institute was created to bridge the gap between what Canadians need to know about Canadian international activities and what they do know. Historically Canadians have tended to look abroad out of a search for markets because Canada depends heavily on foreign trade. In the modern post-Cold War world, however, global security and stability have become the bedrocks of global commerce and the free movement of people, goods and ideas across international boundaries. Canada has striven to open the world since the 1930s and was a driving factor behind the adoption of the main structures which underpin globalization such as the International Monetary Fund, the World Bank, the World Trade Organization and emerging free trade networks connecting dozens of international economies. The Canadian Global Affairs Institute recognizes Canada's contribution to a globalized world and aims to inform Canadians about Canada's role in that process and the connection between globalization and security.

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