

Policy Report



Canada's Role in the New Nuclear Landscape

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The Nuclear Non-Proliferation Treaty (NPT) review conference is scheduled for [January 2022](#). Since its ratification in 1968 and the end of the Cold War, the nuclear landscape has changed dramatically. The growing geopolitical tensions of the current multipolar era have created a new sense of urgency for nuclear disarmament. With the challenges facing the international community now too numerous to be dealt with bilaterally, [multilateral dialogue](#) will play a key role in addressing the dangers surrounding nuclear weapons, their proliferation and potential use. Competing frameworks to the NPT have even emerged with the signing of the Nuclear Weapons Ban Treaty (TPNW) in 2017. Canada is a member of the NPT and, through the use of its forum and the development of a coherent foreign policy on counter-proliferation and nuclear risk reduction, could play a key role in building a safer world.

This policy report is divided into four sections. First, it sets out the current legal framework of the NPT and highlights its main weaknesses. Second, it assesses the two underlying factors that make more concerted action on proliferation and arms reduction necessary. Third, it identifies the three risks that make up the modern nuclear landscape. Fourth, it provides recommendations to the Government of Canada on how to moderately revise its role and chart a new, more prudent course with respect to nuclear weapons.

The Legal Framework of the Nuclear Non-Proliferation Treaty

Conceived during the Cold War, the NPT is the cornerstone of the non-proliferation regime. It brings together [191 states](#) and is based on [three pillars](#). These pillars [refer](#) to non-proliferation per se, the right of all parties to develop research, production, and use of nuclear energy for peaceful purposes, and finally, disarmament procedures. These require that all parties [commit](#) to “pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament.” While the NPT has been relatively successful in regulating non-proliferation for decades, the changes that have transformed the international system after the end of the bipolar world have generated fundamental questions and challenges about its effectiveness. The intensification of interconnections among states means that, in many respects, this Cold War treaty is now unable to cope with the current landscape. With respect to non-proliferation, the granting of a timeless monopoly to acceding states that already possess weapons has led many to describe the NPT as a “[grand bargain](#).” And even though most states have ratified it, the scope of its provisions is undermined by the very foundations of international law, namely the principle of state sovereignty. Since a treaty [cannot create obligations for third states](#), states such as [India, Pakistan or even Israel](#) have never been subject to the limits imposed by the NPT, even though they are now all public or secret nuclear powers. This illustrates the limits of the treaty in terms of non-proliferation. Although it

has provided a framework for states' nuclear weapons practices, its inapplicability to non-member states and its [lack of moral legitimacy](#) in granting monopolies have serious consequences.

Meanwhile, peaceful research, while entirely legitimate, has led to a greater diffusion of nuclear materials and technologies within the international system. Thus, as early as 2007, some 40 states were identified as "[possessing enough fissile material to produce a bomb](#)." While peaceful research activities should not be prohibited, they nevertheless complicate the calculation of the nuclear threat today, as we see an increase in the number of states using nuclear energy as part of their "clean" energy efforts. While it is true that nuclear power is a powerful energy source and can be central to the energy transition agenda, it is still relevant to assess the diffusion of nuclear technology through the lens of security and disarmament policies. While nuclear energy is not inherently bad, the fact remains that the diffusion of nuclear technology has proven too diffuse to be effectively supervised, as originally intended.

Finally, it is in the area of disarmament that the NPT seems most obsolete. Although the spread of nuclear weapons has been controlled horizontally, vertical proliferation has peaked far beyond [expectations](#). In this sense, the NPT refers more to an obligation of means rather than one of results and is particularly unspecific with respect to disarmament obligations. This is in [contrast](#) to treaties covering other weapons of mass destruction (WMD), such as those on chemical or biological weapons. While it is clear that the NPT has had a significant impact on controlling nuclear proliferation, the current dynamics reflect a significant disconnect between the context surrounding its conceptualization and the current state of power relations in the international system.

Although the [TPNW](#) recently entered into force, there is little doubt that nuclear powers and nuclear umbrella countries will not ratify it. The [Netherlands](#) shows this, as even in the face of strong public opinion in favour of joining the treaty, international pressure outweighed domestic concerns and kept them out of the treaty. What the current framework demonstrates is that self-monitoring is probably not the best way to achieve disarmament, nor to stop WMD programs, because it is the states [most in need of monitoring](#) that set the parameters, from which they continually evade.

At a more "micro" level, bilateral treaties are failing to keep pace with the current dynamics of the international disarmament system. There are now [multiple nuclear dyads](#) (US-Russia, US-China, US-People's Republic of Korea, India-Pakistan, India-China, and potentially others), and the links between them are more numerous than ever. As a result, arms restrictions through bilateral agreements are difficult to maintain, as countries may view them as a self-deprecation of their military capabilities against other competitors. This is evidenced by the recent withdrawal of the United States from the Intermediate-Range Nuclear Forces Treaty (INF) in response to [China's treaty-free military modernization](#). While still useful for the implementation of concrete disarmament policies, bilateral treaties alone cannot be the solution to nuclear disarmament. In light of this brief overview of the legal structure, it is fair to say that the current framework of international law has become ineffective, and that nuclear disarmament remains a modern challenge. It is in need of renewal.

The Underlying Factors

Even within the current international legal framework for the possession and development of nuclear weapons, there are important underlying factors. While none of these risks are new, it is essential to take them into account. The last nuclear strikes occurred in 1945, more than 75 years ago. Yet the threat to human survival from nuclear war remains as great as it was during the Cold War: in 2021, the World Economic Forum still ranks the use of weapons of mass destruction as the [third most impactful risk](#) and

the greatest existential threat. In the context of belligerent nuclear rivals challenging each other in this new era of great power competition, the current level of risk is increasing, as even UNIDIR argues in its [2020 report](#). There are two underlying factors: the pervasiveness of perception bias in the international system and the destructive power of modern nuclear weapons. Combined with the dangerousness of the modern landscape, they fuel the disconnect between the positions of nuclear states and the actual threat they pose.

The possession of nuclear weapons makes it necessary to develop doctrines to effectively deter rival aggression. Yet these rivalries fuel mutual skepticism, which is compounded by the perception biases inherent in the international system. Because the system is “[multilateral and interactive](#)” and “[the notion of separate deterrence dyads may no longer be a useful framework](#),” the danger of misperceptions, *i.e.*, misinterpreting signals sent by another state, should not be underestimated. The [core](#) of the international system is that “many of the ways in which one state attempts to increase its security diminish the security of others”: the security dilemma. As states [perceive](#) through the “active process of reality construction,” their perception can be [distorted](#) by miscommunication, conflicting signals, incomplete information, and interpretation bias. For example, Charles A. Duelfer and Stephen Benedict Dyson have convincingly [argued](#) that perception errors were at the heart of the U.S.-Iraq conflict. Indeed, professional military organizations [tend](#) to be influenced in their behavior by organizational tendencies that often result in deterrence failure.

As it plays a role in conventional conflict, misperception could also be at the root of any nuclear conflict and deterrence dynamic. Something as simple as a misinterpreted statement, made increasingly likely by human error and the growing interconnectedness of nuclear deterrence dyads, could trigger the arsenals. This is a [feature](#) of China-U.S. relations, with competition over core interests compounded by status dilemmas. This is particularly important since studies have [found](#) that “public attitudes about the desirability of using nuclear weapons are largely driven by consequentialist considerations of military utility,” as “the willingness to use nuclear weapons increases substantially when nuclear weapons offer advantages over conventional weapons in destroying critical targets.” Since the NPT was originally founded on the doctrine of extended deterrence, [doubts by allies](#) about U.S. security commitments, if not reassured, could mean that more states may seek proliferation to ensure their security. Thus, perception bias between powers and its increasing probabilities of impact makes the current landscape, due to its volatile and multilateral dynamic, concerning.

The destructive potential of weapons of mass destruction has been ingrained in the world's consciousness by the image of the atomic mushrooms of Hiroshima and Nagasaki and the hundreds of thousands of deaths. With the technological advances that have taken place since then and the development of thermonuclear bombs, it is now plausible that a single bomb could result in the [deaths of millions](#). While the bombs that were dropped on Hiroshima and Nagasaki had a power of 15 kilotons and 20 kilotons of dynamite, respectively, modern thermonuclear weapons now have the equivalent of [at least](#) 100 kilotons of dynamite or more. The use of [less than 1%](#) of the [currently estimated 13,125 warheads](#) could even disrupt the global climate. As such, the increasing destructive power of nuclear weapons since their invention constitutes, in itself, an existential threat.

These two factors expose what should be considered a “disconnect” between the way nuclear-weapon states treat their arsenals and the actual threat they pose. Indeed, the way in which countries and actors view and calculate the [real risks](#) associated with nuclear weapons is based on [intuition and faulty data](#) that stems from the fact that these weapons were only used when they were far less destructive than today. The sub-strategic use of nuclear weapons in limited engagements was directly suggested by the United States in its 2018 [Nuclear Posture Review](#), which emphasized the role of limited nuclear warfare potential

for deterrence and [regional theaters](#) of engagement. While Cold War-era doctrines did raise this possibility, this ignores what has been a guiding principle of U.S. and Russian nuclear policy since 1985: the Reagan-Gorbachev agreement that “nuclear war cannot be won and must never be fought.” The risks posed by nuclear weapons are catastrophic, and the potential for even limited nuclear conflict is significant. Canada should therefore see the NPT review not only as an opportunity to engage in this debate, but also as a means to ensure its own long-term security through multilateral arms reduction treaties of the major powers.

The Modern Nuclear Landscape

The current nuclear landscape must also be seen as a source of concern. Even today, heads of state and government have [little incentive](#) to implement policies to abandon their nuclear arsenals. Although their respective arsenals have generally declined since the NPT came into force, nuclear weapons still pose a current risk to the international community. There are currently [nine states](#) that possess nuclear weapons: China, the United States, Russia, France, the United Kingdom, North Korea, Israel, India, and Pakistan. Only the first five are subject to the provisions of the NPT. Notwithstanding the small number of nuclear-weapon states, any argument that reduces the nuclear threat to an outdated issue must be systematically rejected for several reasons.

The first is that some states are on the so-called “nuclear threshold.” These states, which possess the capability to [develop nuclear weapons](#), if necessary, represent a significant proliferation risk in the current nuclear landscape. Not all of these states pose a threat: research [suggests](#) that states that pursue economic liberalization are more likely to embrace moderation and latency than “their inward-looking, nationalistic, and sectarian radical counterparts.” It is when such a threshold state adopts a hostile stance toward its neighbors or rivals that the current weakness of the non-proliferation regime is highlighted. The most important and concerning threshold state is [Iran](#). Despite international pressure and sanctions, as well as the 2015 agreement, it is estimated that by September 2021, Iran was [one month away](#) from having enough enriched uranium to make a nuclear warhead. With [Iranian leaders](#) unwilling or reluctant to return to the negotiating table with the United States, this untenable situation calls into question the strength of the non-proliferation mechanisms currently in place and opens the door to further crises. Moreover, because Israel perceives this as an existential threat, it openly warns that [it will not hesitate to strike](#). To work, the NPT needs all participants to act in good faith and to be reliable. The unreliability of the United States, due to its changing domestic politics and the competing foreign policy goals of the Democratic and Republican administrations, has made agreements under the current framework much more difficult.

Another key issue is the modernization of nuclear weapons. Although the overall number of nuclear warheads is [declining](#), this is primarily due to the campaign to dismantle retired warheads by Russia and the United States. Nevertheless, every country that possesses nuclear weapons is currently modernizing its inventory. In this regard, the case of China is the most worrying. Nevertheless, every country that possesses nuclear weapons is currently in the process of modernizing its [inventory](#). In this regard, the case of China is the most worrisome. Since its first nuclear test in 1964, China has maintained a doctrine of minimal deterrence, aimed only at a [credible second-strike capability](#). However, recent developments regarding China's nuclear capabilities raise many questions about its commitment to this doctrine. However, recent developments regarding China's nuclear capabilities raise many questions about its commitment to this doctrine. It currently has about 250 silos under construction at Yuman and Hami, which is the [largest expansion](#) of China's nuclear arsenal to date. China is not the only country following this specific path either: the United States and Russia are [simultaneously](#) modernizing their nuclear

warheads, missile and aircraft delivery systems, and nuclear weapons production facilities. Moreover, the [recent technological developments](#) in the field of hypersonic missiles only seem to have exacerbated this dynamic. In a context of intensifying great power rivalry, the lack of trust between the actors seems to encourage active reinvestment in nuclear weapons, which calls into question the NPT and makes it increasingly obsolete and difficult to enforce.

Finally, a third reason is the increasing dependence of states on nuclear-powered weaponry. The new trilateral AUKUS partnership between Australia, the United Kingdom, and the United States is the most recent example of this phenomenon. The first project of the partnership will be to “[deliver a fleet of nuclear-powered submarines to Australia](#).” This new development and the associated normalization of possession of nuclear material outside the International Atomic Energy Agency (IAEA) inspection system [challenges](#) the non-proliferation regime by introducing a loophole that other states could exploit. If nuclear technology and equipment become globally widespread and part of the conventional arsenals of most states, this could bring an [increasing amount](#) of enriched uranium into the current landscape without any international safeguards. While all of these issues make the current nuclear calculus considerably more complex, the fact that the shortcomings of the NPT are exacerbated by the underlying nuclear dynamics of the international system inevitably plays a role in the emergence of these new issues.

Reframing Canada's Role and Interests

As a member of NATO, Canada has long been involved in the international nuclear discourse. However, it has maintained an ambiguous position: while it does not seek to possess its own weapons and supports their elimination in principle, it [supports](#) the continued possession of WMD by its allies and relies on them to ensure its security through NATO and NORAD. In particular, developments within NATO on this issue may be imminent. Observer status in the TPNW by Norway and Germany could have significant impacts on the alliance's cohesion. With nuclear deterrence once again becoming a common strategic tool and “[arms control diplomacy running out of steam](#),” Canada has an opportunity to review its strategy in moderation and define a new, cautious but proactive foreign policy on nuclear weapons. One that protects its interests and strategic objectives, and maintains a necessary ambiguity, but also promotes greater security within the international system.

We propose that Canada approach the NPT Review Conference as an inflection point and an opportunity to moderately reframe its contradictory nuclear position. The interrelationship of the two underlying factors noted above with the modern nuclear landscape makes the danger of increased proliferation and the associated risks too great to simply ignore. Future instabilities within NATO with respect to nuclear weapons also mean that the current Canadian strategy of maintaining the status quo will not be entirely sufficient. As nuclear modernization makes the principle of "deterrence by punishment" more costly, and as the current debate is about adopting a posture of "deterrence by denial," it seems clear that the risk of an increase in the speed of the arms race and technological innovation among the major powers is not inexistent—indeed, we are arguably already in one. The Canadian government should engage in a multilateral nuclear disarmament campaign to try to prevent further proliferation and manage the growing risks. We suggest three ways in which the Canadian government could do this.

1. Promote Nuclear Arms Reduction and Progressive Disarmament

There is currently a [lack of trust](#) between the non-nuclear-weapon states and the nuclear weapon states parties to the NPT, particularly with regard to disarmament commitment. Although the number of

nuclear-weapon states represents only 3% of the NPT membership, the concerns of non-nuclear-weapon states have yet to be heard. Although [polls](#) show that a strong majority of Canadians would like to see Canada join the TPNW, Canada would likely face repercussions from its allies by doing so, which severely limits its flexibility. However, as Canada is already a member of the NPT, it could benefit from being part of this existing platform.

In the context of the upcoming review conference, Canada must play a facilitating role. Since Canada cannot spontaneously harden its position on nuclear weapons, it should at least seek to promote a transparent dialogue between the NPT-nuclear weapon states (P5) and the non-nuclear-weapon states. As bilateral agreements are more easily abandoned, multilateral agreements should be the [new path forward](#). [To avoid nuclear war](#), arms control must accompany deterrence. Canada could argue for the renewal of arms control policies. In practice, this would mean Canada opposing the expansion of nuclear weapons storage within NATO beyond what is necessary to maintain its current deterrent capabilities. This would also involve supporting the negotiation and implementation of new treaties to limit the number, scope and destructive potential of nuclear weapons technologies and promoting sanctions against any country that abandons these new treaties.

2. Bridging the Gaps and Rebuilding Confidence in the NPT

The NPT framework has become, in some respects, outdated and ill-suited to the growing challenges it faces. At the upcoming review conference, Canada should advocate for the introduction of new safeguards and supervisory control over the possession of nuclear materials as part of states' conventional arsenal. Bringing the NPT back under the IAEA inspection system could be a positive step to prevent the setting of a new damaging precedent, to make it impossible for "[potential proliferators to use naval reactor programs as cover for nuclear weapons development](#)." It is possible that Canada [will have](#) to acquire nuclear-powered submarines to [replace](#) its aging Victoria-class vessels, given that [maintaining](#) the operational capabilities of its navy is one of the objectives of Canadian national defence. Thus, the promotion of this new measure could be a preventive show of good faith that would considerably strengthen its credibility if it were to go down this path, even if there is no chance that it will acquire nuclear weapons. Of course, if Canada decides to acquire nuclear-powered submarines, the impact would be limited, but closing the oversight gap is essential to restoring confidence in the NPT.

The increasing importance of nuclear energy for many countries' transition plans toward a low-emission economy could be a positive phenomenon. Yet, increasing the monitoring of peaceful energy programs could also reduce distrust and avoid rogue states using those programs for covert motives. Finally, energizing the NPT by introducing enforcement mechanisms to penalize states that do not respect its provisions, or withdraw from them, should seriously be considered. The weakness of the current regime is partly exacerbated by policy reversals from major players, as it relies on them to initiate non-proliferation initiatives and measures. Systematizing sanctions and consequences could be one way of addressing this concerning development.

3. Strengthen Existing No-Use and No-Test Standards

Nina Tannenwald [argued](#) that, since 1945, the norm of non-use of nuclear weapons has been "the most important phenomenon of the nuclear age. This norm "[has stigmatized nuclear weapons as unacceptable weapons of mass destruction](#)." Although it has been upheld to date, the fact that it is a normative principle means that it could also be broken since it has no enforcement mechanism of its own and [aversion to nuclear weapons](#) is relative among the population. The Reagan-Gorbachev principle, though Cold War-

era, should be renewed and promoted by Canada. Some dyads, such as the [United States and Russia](#), have recently recommitted to it. Encouraging other states to follow suit would be an important step. Preventing states from seriously considering first-use strategies and limited engagement is another step needed to strengthen this standard. In addition, the nuclear test ban standard should also be strengthened, as it “[signifies recognition of the dangers associated with use](#).” In practice, this means that Canada should use its influence and forum to promote the engagement of all nuclear powers on these issues, and their recommitment to those two norms.