## 1AC---Full Text

### 1AC---BMD

#### Advantage 1 is BMD:

#### Biden will maintain pressure on North Korea---guarantees accelerating lash-out

Harry J. Kazianis 21, Senior Director of Korean Studies at the Center for the National Interest, 2/10/21, “Is President Biden daring North Korea to start a crisis?,” https://responsiblestatecraft.org/2021/02/10/is-president-biden-daring-north-korea-to-start-a-crisis/

News reports are breaking once again that North Korea stole hundreds of millions of dollars last year through cyberattacks to fund its growing nuclear weapons and missile programs — at the same time, keep in mind, the DPRK suffered through its worst economic crisis ever brought on due to a self-imposed blockade in response to the coronavirus.

While the headlines might seem disturbing on the surface, North Korea, even during a time of a global pandemic, has remained remarkably consistent in its approach to guaranteeing its own national security: nuclear weapons ensure the United States will never invoke regime change, and Pyongyang will pay any price to ensure that atomic insurance policy never lapses.

Of course, these days headlines on anything involving North Korea are rare — and for a very specific reason. When North Korea promised then-President Donald Trump and Secretary Mike Pompeo back in 2018 it would refrain from long-range missile and nuclear weapons tests, the interest in the so-called hermit kingdom faded. For it was pictures and video going viral on social media of ICBMs flying through the sky — something Trump said would not happen — that drove the United States and North Korea onto a path of confrontation back in 2017. It had many thinking in Washington that nuclear war might be in the offing.

With a lack of weapons tests to drive news, combined with a historic political crisis back home and coronavirus rampaging in nearly every corner of the globe, it seems clear North Korea has become a national security news orphan.

Unfortunately, we should not mistake Kim’s no-testing pledge — something he has revoked now on several occasions — for a freeze on building out his atomic and missile arsenals. Over the last few months, North Korea has shown off multiple new missile platforms that prove that, just because missiles aren’t being tested in the field, Kim’s labs haven’t been busy. Pyongyang is signaling over and over again that its nuclear deterrent will continue to get stronger unless some sort of deal can be reached with Washington. The longer that takes, the bigger the nuclear insurance policy Kim takes out.

Here is where things get dangerous for the new Biden administration. Outside of public relations-styled op-eds and over-the-top campaign rhetoric calling Kim Jong Un a “thug,” clearly the new team in Washington is lacking in interest when it comes to the DPRK. Instead of trying to pick up where Trump left off, something that could have been easily done by affirming the Singapore Declaration and committing to some sort of dialogue with Pyongyang, during the transition, North Korea has thus far been altogether ignored by the administration. And while it has committed to a lengthy policy review on the subject, that review seems centered on, as Secretary Blinken noted himself, “increasing pressure on North Korea to come to the negotiating table.”

History tells us that is where the détente of the last few years slowly breaks down. I expect the Biden administration to settle for a repackaged Obama-style “strategic patience” policy on North Korea. Biden will offer dialogue and minor sanctions relief — but in exchange for a big North Korean nuclear concession up front. There will be an effort to enforce sanctions on the books more rigorously and perhaps add new sanctions, but none of these actions will ever get Pyongyang to give up a single nuclear weapon. North Korea’s economic dependence on China means it is up to Beijing to enforce such sanctions — a laughable strategy in an era of growing U.S.-China confrontation.

All of this means only one thing: North Korea will match perceived pressure with pressure. The Kim regime will likely lash out, testing bigger and more advanced missiles as the months pass by. Heading into the summer, I would expect Kim to test his new so-called “monster missile,” the Hwasong-16. Tests of submarine launched missiles will come before or after. North Korea could even go back to nuclear testing, potentially making threats to conduct an above ground test, as it did at the height of the crisis in 2017.

#### Lack of Canadian participation blows a hole in U.S. missile defense---enables North Korean nuclear coercion which deters U.S. intervention in a crisis---that triggers SoKo and Japanese prolif

-- Canada’s non-participation is out of step with NATO

-- The U.S. wouldn’t fulfill A5 in a crisis because of our limited number of interceptors

-- Lack of BMD coverage of Canada means rogues can launch strikes against them to demonstrate resolve and deter U.S. intervention in a crisis (or deplete U.S. interceptors)

-- Rogues IL turns allied prolif because it raises the likelihood the U.S. won’t fulfill other alliance commitments

-- BMD confidence stabilizes crises by making the U.S. less likely to use nukes early

David S. McDonough 16, Research Fellow, Centre for Foreign Policy Studies, Dalhousie University, April 2016, “CANADA, NORAD, AND MISSILE DEFENCE: Prospects for Canadian Participation in BMD,” https://cdainstitute.ca/wp-content/uploads/Vimy\_Papers/images\_Vimy\_Papers\_Vimy\_Paper\_31.pdf

Canada’s refusal to participate in GMD has also created a curious anomaly, given that key allies in NATO, the Asia-Pacific, and elsewhere – including the UK, France, Germany, Australia, Japan, South Korea, Israel, among others – have moved quickly to develop and deploy missile defences, often in close cooperation with the United States. Canada is placed in a particularly awkward position as a member of NATO. While remaining outside of the continentally-focused GMD system, Canada effectively supports the alliance’s efforts at developing a BMD system capable of defending both deployed military forces and European population centres – a goal first outlined in NATO’s 2010 Strategic Concept and reiterated in its 2012 NATO Deterrence and Defence Posture Review. An interim operational capability was declared at the Chicago Summit in 2012, and the system itself is expected to become fully operational in 2025.

Missile defence over NATO-Europe will be reliant on the national radar and interceptor assets of individual NATO members earmarked for the alliance’s Active Layered Theatre Ballistic Missile Defence, as well American assets under its European Phased Adaptive Approach.19 The latter relies on Aegis and Aegis Ashore BMD systems using variants of the Standard-Missile (SM), designed to intercept shorter-range ballistic missiles, rather than GMD’s ground-based interceptors (GBIs) against the intercontinental ballistic missile (ICBM) threat used in North America. But NATO will have a commonly funded command structure, one that Canada can be expected to contribute.20 In this way, Canada has apparently accepted the logic of missile defences for its allies in Europe, but not for its own continent.

Canada’s anomalous position raises a crucial question that goes to the heart of whether the country should participate in missile defence – and that is the possible protection from ballistic missile attack afforded to our allies, due to their BMD deployments and/or participation in the US missile defence architecture, and which Canada may lack from refusing participation here at home. If discussion about NORAD is largely about interest, this issue touches on the very security of Canada’s populace and territory.

It is often falsely assumed that Canada would, irrespective of its position or lack of open involvement, be protected from the American GMD system by virtue of its geographic location and cross-border interdependence and integration with the United States – what R. J. Sutherland had said made for a “single target set” over fifty years ago.21 Yet, today, a BMD system can identify a ballistic missile trajectory and better distinguish between an attack against a Canadian target and one that would land in the continental United States. This situation is fundamentally different from the air defence mission during the Cold War, when a Soviet bomber attack would have to traverse the Canadian North before reaching the United States, making it necessary to halt an attack before it was in range of both US and Canadian population centres.22 Canada cannot therefore assume that it can rely on a US missile defence system to protect its territory from a ballistic missile attack.

The United States might have an interest in protecting its northern neighbour, given the inevitable fallout (from radioactive to economic) that would arise from a nuclear-armed ballistic missile attack on Vancouver or Toronto. But that interest would then have to be weighed against the possibility of an attack on the US homeland itself. It also needs to be considered in light of the limited number of interceptors available – expected to reach 44 GBIs by 2017 at Fort Greeley, Alaska and Vandenberg Air Force Base, California – as well as the few interception opportunities available against ICBMs. After all, with its shoot-look-shoot doctrine, the United States expects to fire a salvo of five interceptors for each target, undertake rapid assessment or success or failure, and then follow-up with another interception attempt, if possible (and time permitting).23 The US may therefore increasingly see a trade-off in protecting a Canadian city over an American one, especially as its warhead tracking capabilities improve.

Of course, this is not to deny the low likelihood of such a scenario, especially given the prospect of an American response (possibly nuclear) if a country like North Korea or Iran succeeded in developing nuclear-armed ICBM and launched such an attack. Yet such a threat remains an increasingly possible means for such a regime to minimize America’s coercive leverage against them.24 For example, Pyongyang might then take the calculated risk of limited conventional regional aggression against one of its neighbours, relying on its capacity to undertake nuclear blackmail and brinkmanship in order to deter the international community – and specifically the United States – from intervening to restore order.25 Indeed, North Korea has not only conducted multiple nuclear tests (2006, 2009, 2013, and 2016), but also has an active ballistic missile program that may be capable of flight-testing a working ICBM (the road-mobile KN-08) by next year.26 The possibility that Pyongyang might have the capacity for such nuclear blackmail is increasingly less hypothetical.

The United States may hope that its own nuclear retaliatory capabilities could dissuade a country like North Korea from acting in such a manner, and be sufficient for intra-war deterrence in the event that the US military intervenes. Yet the intra-war deterrence of such potential regional aggressors in the midst of a possible military intervention or regime change campaign is extremely difficult, if not altogether impossible.27 Coercive nuclear escalation would be a tempting option for a weak state facing the possibility of “catastrophic conventional defeat,” when the “superpower’s planes are bombing command and leadership sites, and when its tanks are seizing territory.”28 And the US would still face the imbalance in resolve that often arises in any extended deterrence scenario. Simply, Washington may be ill-inclined to risk the possible destruction of Seattle to save Seoul.

By offering some “damage limitation” insurance, a continental BMD system provides a way for the United States not to be held hostage to such a situation, making it more willing to act in crises and less able to be deterred or coerced by the nuclear blandishments of regional aggressors. In effect, it would buttress its deterrence-by-denial posture against potential adversaries that might not see punishment as sufficiently credible. Missile defences would also reinforce US extended deterrence guarantees to its allies, by reassuring allies that the United States would not be deterred by an aggressive neighbours’ threat of nuclear blackmail from “fulfilling its alliance commitments.”29 This might help dampen any allied inclination to either develop their own deterrent or act pre-emptively or preventively against such threats. Also often forgotten is that the United States would not be so reliant on the use of its nuclear arsenal as well, thereby injecting some much needed stability in any future crisis situation.30

Such a scenario remains perhaps most acute with North Korea but it is also a possibility with Iran, even following its recent signing of a nuclear deal. The Joint Comprehensive Plan of Action (JCPOA)31 resulted in a significant reduction of Iran’s enriched uranium stockpile, curtailed its capacity to enrich uranium by cutting the number of centrifuges, and established safeguards and verification measures that would give advance notice of cheating. Rather than eliminating the program, Iran was allowed to retain a frozen nuclear program, albeit one greatly constrained, partially dismantled, and with a breakout time to build a nuclear bomb extended from a few months to one year.32 Still, JCPOA may have only delayed Iran’s nuclear program by a decade, in which time its ballistic missile development efforts will be considerably advanced. Development on Iran’s Sajjil-2 solid-fueled medium-range missile remains ongoing, and former weapon inspectors like Michael Elleman argue that a follow-on intermediate-range missile than can target Western Europe could appear as early as next year, undoubtedly aided by Iran’s work on the Safir space launch vehicle. With Iranian work on satellite launch technology, Elleman further estimates a possible ICBM by the end of the decade.33

Canada cannot ignore the possibility that North Korea or Iran (and possibly others in the future) may acquire the means to launch nuclear-armed ballistic missiles against North America over the next decade. It should also not discount the possibility that the United States may find itself in direct conflict with such regionally aggressive states, which would open up more credible scenarios of a nuclear attack on the continent beyond a simple “bolt-out-of-the-blue.” Canada is unlikely to remain isolated from such incidents either, given the direct and indirect consequences of an attack aimed at the United States, not to mention that Canada may be seen as a safer and softer target by aggressive states eager to demonstrate resolve and warn the United States against intervening. Canada is in the “second inner ring” if not the “bullseye,” to borrow a phrase used by Senator Colin Kenny.34 With that in mind, Canadians might indeed find itself out in the cold in the event of a ballistic missile attack on North America – a very low-probability scenario to be sure, but one with potentially catastrophic consequences that cannot be discounted entirely.

#### East Asian prolif sparked by North Korean coercion causes nuclear war

The Economist 21, “The world is facing an upsurge of nuclear proliferation,” 1/30/21, https://www.economist.com/leaders/2021/01/30/the-world-is-facing-an-upsurge-of-nuclear-proliferation

In the past 20 years most countries with nuclear ambitions have been geopolitical minnows, like Libya and Syria. In the next decade the threat is likely to include economic and diplomatic heavyweights whose ambitions would be harder to restrain. China’s rapidly increasing regional dominance and North Korea’s growing nuclear arsenal haunt South Korea and Japan, two of Asia’s largest powers. Iran’s belligerence and its nuclear programme loom over the likes of Saudi Arabia and Turkey (see article). Proliferation is not a chain reaction, but it is contagious. Once the restraints start to weaken they can fail rapidly.

The nuclear omens are bad. Arms control between America and Russia, which saw cuts of 38,000 warheads—a 79% fall—in 1991-2010, has dwindled. On January 26th Presidents Joe Biden and Vladimir Putin agreed to extend the last remaining pact, the New START treaty, for five years. That is welcome, but prospects for a follow-on are dim. China, India, North Korea and Pakistan are all expanding and modernising their nuclear forces. There is dismal progress towards global disarmament, the ultimate aim of the Non-Proliferation Treaty (NPT), the cornerstone of the nuclear order. A new treaty banning the bomb, which was signed by 86 countries and came into force on January 22nd, channels the frustration among nuclear have-nots. It accomplishes little else.

If nuclear weapons are not going away, and security threats are worsening, some states will be tempted to pursue a bomb of their own. In decades past America kept nuclear aspirants in line, threatening to withdraw security guarantees from errant friends, like Taiwan, and using sanctions and military force to dissuade enemies, such as Iraq. Yet the currency of American power is weaker today. Donald Trump’s tempestuous term has sown doubts about America’s appetite to defend allies and enforce rules. They will linger, however much Mr Biden seeks to restore an orthodox foreign policy.

Consider the nuclear umbrella that America extends over Asian allies. It amounts to a promise that, should North Korea or China strike Seoul or Tokyo, America would retaliate against Pyongyang or Beijing. For decades, America could issue that threat confident that its own cities were out of range of North Korean missiles. Now they are not. An American strike on Pyongyang would put San Francisco at risk. That may make Mr Biden reluctant to act—a calculation that could embolden Kim Jong Un to attack Seoul. No wonder that, particularly in times of crisis, most South Koreans say that they would like to see a return of the American tactical nuclear weapons withdrawn from their soil in 1991 or, failing that, an indigenous South Korean bomb.

In democracies like South Korea, Japan and Taiwan, nuclear ambitions are tempered by political reality. The Middle East is different. The nuclear deal curtailing Iran’s nuclear programme is collapsing. Even if Mr Biden revives it, many of its provisions expire in a decade. Should Iran at any time look as if it is contemplating going nuclear, Saudi Arabia will not want to fall behind. Muhammad bin Salman, the Saudi crown prince, has few domestic checks on his authority and ambitious plans for nuclear technology. Turkey could well follow.

If the nuclear order starts to unravel, it will be almost impossible to stop. Hence the importance of acting today. America, China, Europe and Russia share an interest in stopping proliferation. Russia does not want a nuclear Iran any more than America does. The prospect of a nuclear-armed Japan would be among China’s worst nightmares. The Iranian nuclear deal in 2015 showed that rivals can muster a response to proliferation.

The nuclear states should start with the basics. America and Russia still have 90% of the world’s nuclear warheads, so any effort begins with them. Now that New START will be extended, they should begin work on a successor that would include other weapons, such as hypersonic gliders and lower-yield warheads, which Russia has in abundance. More radical ideas should also be discussed. America operates a triad of nuclear forces: silos on land, submarines at sea and bombers in the air. Retiring the land-based missiles would demonstrate genuine progress towards disarmament, without eroding deterrence.

Arms control between America and Russia might persuade China that its existing arsenal could survive an attack, helping avoid a destabilising surge in its forces. Chinese restraint would, in turn, reassure India and Pakistan.

America’s most important role in calming nerves over North Korea and Iran remains its value as an ally, and here Mr Biden has already promised to repair ties. Even if one presidency is not enough to restore confidence completely, Mr Biden should make a start by reaffirming and strengthening America’s nuclear umbrella over Japan and South Korea. That includes the role of American troops on the ground, who serve not only as a line of defence but also as an assurance to allies and a warning to enemies that America could not sit out a conflict.

Stopping proliferation also requires spotting it. Intelligence agencies have understandably focused on the familiar gallery of rogues, like Iran. Their gaze should widen to include early warning of shifts in nuclear technology, public opinion and political intentions in such places as South Korea or Turkey. The International Atomic Energy Agency, the world’s nuclear watchdog, does a commendable job of monitoring civilian nuclear sites and policing Iran’s programme with the strongest inspections regime ever instituted. Yet the agency is overburdened and underfunded, and needs to keep up with technological change.

Heed the doomsday alarm clock

The world has plenty on its mind. Even so, it cannot afford to downplay the dangers of nuclear proliferation. Today’s nuclear diplomacy may seem a slog, but it is as nothing compared with the lethal instabilities that arise whenever regional nuclear-armed rivals confront each other. There is no time to lose.

#### North Korean war causes nuclear winter

Dr. David Wright 17, physicist and co-director of the Global Security Program at the Union of Concerned Scientists, interviewed by Bob McDonald, national science commentator for CBC, 09/15/17, “Explainer: North Korea's nukes, missiles and nuclear winter,” https://www.cbc.ca/radio/quirks/saturday-september-16-2017-1.4289985/explainer-north-korea-s-nukes-missiles-and-nuclear-winter-1.4289993

Part 1 - North Korea's bombs

So now that North Korea has this bomb and new long range missiles, what kind of threat does this add up to? Bob McDonald spoke with Dr. David Wright, a physicist and co-director of the Global Security Program at the Union of Concerned Scientists, about calculating the immediate threat of a North Korean attack.

This interview has been edited for length and clarity.

Bob McDonald: What's your estimate for how strong the the bomb was that North Korea tested on Labour Day weekend?

Dr. David Wright: The estimates I've seen suggests it's probably around 150 kilotons, but maybe bigger than that or maybe a little smaller. And that's to be compared to something on the order of 20 to 25 kilotons for the bombs that were dropped on Hiroshima and Nagasaki at the end of World War II. So this is a much bigger bomb than anything that North Korea has tested before, which were on the order of those Hiroshima and Nagasaki bombs.

B M: North Korea says it was a hydrogen bomb. What is that?

DW: There are basically two divisions of bombs, fission and fusion. The early bombs, like those in Hiroshima and Nagasaki, used heavy elements, in particular either plutonium or uranium isotopes. And you can create a chain reaction where those heavy atoms break him the smaller atoms and in the meantime release huge amounts of energy. So that's called a fission bomb because you're fissioning these heavy elements into lighter elements. There are some limits to how big you can make a bomb with that because you just have to have more and more material and the process becomes less efficient.

A hybrid type bomb, for example, is if you have a sphere of plutonium that's being compressed in order to explode and you put some material some lightweight hydrogen isotopes in the middle. Those lightweight atoms under those conditions will actually fuse together and that not only releases energy, but it releases neutrons, which is really the key to the fission and can make the fusion reaction much more effective.

A true hydrogen bomb requires two stages, the fission bomb, which is essentially the igniter, and then you use the energy from that to compress and heat up a bunch of these hydrogen isotopes that then fuse together release information release energy, but also release a tremendous number of neutrons that you can then use to cause another fusion layer. It has essentially unlimited power as you continue to scale it up.

BM: So how convinced are you then that what North Korea detonated was a hydrogen bomb?

DW: A friend who studies China pointed out to me that by China's sixth nuclear test, back in the '60s, they had developed a working hydrogen bomb. So this was North Korea's sixth underground test, which says to me it's not inconceivable that in fact they did exactly what they said they did, which they had managed to figure out how to do this complicated process of a real two-stage hydrogen bomb.

BM: So the other threat that people are worried about is the delivery mechanism to get that hydrogen bomb across the Pacific Ocean potentially to the United States. Tell me about the missile tests North Korea did in July.

DW: North Korea has been launching its tests on unusual trajectories for about the last six months, which is that it shoots them almost directly straight up, so that they come down not very far away from the launch site. When I sat down and calculated how far that same missile could go on sort of a standard trajectory, I got something in excess of ten thousand kilometers. Now that could reach the U.S. west coast, probably reach Chicago, and might even reach Boston.

And so that was a big big step beyond what we'd seen before. Now the caveat is that we don't know how heavy a payload that missile carried. And so the question then is how heavy is a warhead that North Korea can actually mount on a weapon? And that remains a source of a lot of discussion within the expert community. The general consensus is that if North Korea is not to the stage yet that they could put a pretty powerful warhead on a missile and deliver it to the United States, that they will get there soon - within a year or so.

Part 2 - The Environmental Catastrophe of Nuclear War

Any nuclear bomb — whether it be atomic or hydrogen — dropped on a densely populated city, would have catastrophic local effects. But after the fire and fury abate, the cold, darkness, and starvation would set in on a global scale.

The concept, which Dr. Alan Robock — a climate scientist at Rutgers University has been studying for decades, is known as nuclear winter. "The smoke from the fires get heated and lofted into the stratosphere, which is the atmospheric layer above where we live, which is called the troposphere. The troposphere has rain, which washes particles up at the stratosphere doesn't. And so these tiny particles fall very slowly, get blown around the world, and get heated by the sun and locked into the upper stratosphere, so they just float around for a long time because they're black and the sun keeps them up there."

Dr. Robock studied what would happen if two nuclear nations, like India and Pakistan, with smaller arsenals got into a nuclear skirmish. If they launched 50 smaller atomic bombs each, it would produce five or six million tons of smoke, which would last in the atmosphere for more than a decade blocking out the sun, making our planet colder and darker.

"It wouldn't be nuclear winter, as in the temperatures wouldn't get below freezing in the summertime in the northern hemisphere, but it would be climate change unprecedented in record human history. There would be huge impacts on agriculture. For example, in Canada, the soybean and corn production would go down by about 30 percent for the first five years and wheat production would go down about 10 percent. So it would have a huge impact on agriculture around the world so there would be a huge threat to the world's food supply." - Dr. Alan Robock

In the current geopolitical situation, what really concerns Dr. Robock is if North Korea attacks and a nuclear holding nation with even bigger bombs retaliates, potentially leading to a full scale nuclear war.

We still have enough nuclear weapons to produce nuclear winter even though the total arms are going down. We could have temperatures below freezing and the grain producing regions and that would sentence most of the world to death by famine. So it's a very scary thing.- Dr. Alan Robock

#### Lack of Canadian BMD coverage creates EMP vulnerability---extinction

Peter Pry 15, Executive Director of the Task Force on National and Homeland Security and Director of the U.S. Nuclear Strategy Forum, 10/22/15, “The EMP Threat To Canada,” <https://mackenzieinstitute.com/2015/10/the-emp-threat-to-canada/>

Canadians may be even less aware than the average U.S. citizen of the existential threat posed by a natural or manmade electromagnetic pulse (EMP). An EMP is like a super-energetic radio wave, caused by a solar storm or by the high-altitude detonation of a nuclear weapon or by non-nuclear radiofrequency weapons that can black out electric grids, in the worst case for months or years, or perhaps permanently. An EMP induced protracted blackout would collapse all the critical infrastructures–for example, transportation, communications, industry and commerce, food and water–that sustain modern civilization and the lives of millions.

The U.S. Congressional EMP Commission estimated that a nationwide blackout lasting one year could kill up to 9 of 10 Americans by starvation, disease and societal collapse.

Canada, unlike the United States, is not usually thought of as the primary target for attack by terrorists, Iran, North Korea, China or Russia. But where EMP is concerned, Canada and the U.S. are in the same boat, because they are literally wired together, both nations living off of the North American Power Grid.

Moreover, Canada has some unique characteristics that make it potentially more vulnerable to EMP than the United States, yet also more easily protected.

Natural EMP

The sun can cause a natural EMP, called by electric utilities a Geo-Magnetic Disturbance (GMD). Coronal mass ejections traveling over one million miles per hour strike the Earth’s magnetosphere, generating geomagnetic storms every year. Usually these geo-storms are confined to nations at high northern latitudes and are not powerful enough to have catastrophic consequences.

Canada is more susceptible than the United States to natural EMPs or GMDs because it is located at a higher northern latitude, where geomagnetic storms are more common. In 1989, natural EMP from the Hydro-Quebec Geo-Storm blacked-out half of Canada for a day causing economic losses amounting to billions of dollars.

Most worrisome is the rare solar super-storm, like the 1921 Railroad Storm, which happened before civilization became dependent for survival upon electricity. The U.S. National Academy of Sciences estimates that if the Railroad Storm were to recur today, there would be a blackout of the North American grid with recovery requiring 4-10 years, if recovery were possible at all.

The most powerful geomagnetic storm on record is the 1859 Carrington Event. Carrington was a worldwide phenomenon, causing forest fires from flaring telegraph lines, burning telegraph stations, and destroying the just laid intercontinental telegraph cable at the bottom of the Atlantic Ocean.

If a solar super-storm like the Carrington Event recurred today, it would collapse electric grids and life-sustaining critical infrastructures worldwide, putting at risk the lives of billions.

The U.S. National Aeronautics and Space Administration (NASA) in July 2014 reported that two years earlier, on July 23, 2012, the Earth narrowly escaped another Carrington Event. A Carrington-class coronal mass ejection crossed the path of the Earth, missing the planet by just three days. NASA assesses that the resulting geomagnetic storm would have had catastrophic consequences worldwide.

Recurrence of another Carrington Event, expected roughly once every 100-200 years, is overdue. NASA estimates the likelihood of such a geomagnetic super-storm is 12 percent per decade. This virtually guarantees that Earth will experience a catastrophic geomagnetic super-storm within our lifetime or that of our children.

Radio-Frequency Weapons (RFWs)

Radio-Frequency Weapons (RFWs) are much less powerful than nuclear weapons and much more localized in their effects, usually having a range of one kilometer or less. Terrorists, criminals, and even disgruntled individuals have already made localized EMP attacks using RFWs in Europe and Asia. Probably sooner rather than later, the RFW threat will come to North America.

Reportedly, according to the Wall Street Journal (March 12, 2014), a study by the U.S. Federal Energy Regulatory Commission warns that a terrorist attack that destroys just 9 key extra-high voltage (EHV) transformer substations (out of a total of 2,000) could cause a nationwide blackout of the United States lasting 18 months.

Canada is probably more vulnerable than the U.S. to nationwide blackout by Radio-Frequency Weapons, because Canada has many fewer EHV transformer substations. Accordingly, an attack on fewer substations may more easily trigger a chain reaction of cascading failures that overwhelms all or most of the EHV transformers, causing a rolling blackout that engulfs the whole of Canada.

RFWs can also pose a significant threat to nuclear reactors by damaging control systems that could conceivably, in a worst case scenario, result in a meltdown of fuel rods in cooling ponds or within the nuclear reactor itself. Steam explosions and the release of radioactive contamination could result, as happened with the nuclear reactors in Fukushima, Japan, because they were blacked-out for several days, with no electricity to drive cooling pumps, following a tsunami.

Canada has 18 nuclear power reactors at three locations. All of these are in the east, located near major population centers. Radioactive contamination from fuel rods undergoing meltdown will follow prevailing winds and weather patterns–in the case of the Canadian reactors the weather moves eastward over populous areas–creating radioactive plumes covering potentially thousands of inhabited square miles.

According to the U.S. 9/11 Commission Report, one of the targets originally considered for attack by jetliner on September 11, 2001 was a U.S. nuclear reactor.

Canada is no stranger to terrorist plots against the power grid and nuclear reactors. In August 2003, the Royal Canadian Mounted Police arrested 19 suspected terrorists in Toronto, some of whom allegedly conducted ground reconnaissance against Canada’s Pickering nuclear reactor and also conducted flight training, overflying Pickering.

Months before the Toronto arrests, a reliable source with information on Iran’s support of international terrorism, alleged there was a terror cell in Toronto planning to hijack a jet to crash into the Seabrook nuclear reactor, located about 40 miles north of Boston. The plotters allegedly hoped to create a radioactive plume that would contaminate New England. This alleged plot, that might have been part of a more ambitious “12th Imam Operation” meant to eclipse and surpass in destruction the 9/11 attacks, is detailed in the book Countdown To Terror by then Rep. Curt Weldon. Weldon was Vice Chairman of both the House Armed Services Committee and the House Homeland Security Committee in the U.S. Congress.

Canada’s “homegrown” terrorists who might think about attacking the power grid could get help from their nearby U.S. counterparts in Minneapolis, Minnesota and Buffalo, New York that are known recruiting grounds for terrorists.

Radio-Frequency Weapons might well become the weapon of choice for terrorists, instead of hijacked jetliners, for attacking nuclear reactors and power grids, if only because they are easier to obtain. They can be built by an individual with some knowledge of electronics, using design information available on the internet, and parts available from any electronics store. Powerful EMP generators, intended for industrial use as a diagnostic tool, but useable as a weapon of mass destruction, can be purchased mail order by anyone.

RFWs offer significant advantages over guns, bombs, or crashed jetliners for attacking electric grids. EMP fields can cause widespread damage of electronics, so precision targeting is much less necessary. And unlike damage from guns, bombs, or a crashed jet, an attack by RFWs is much less conspicuous, and may even be misconstrued as an unusual accident arising from faulty components and systemic failure.

Some documented examples of successful attacks using Radio-Frequency Weapons, and accidents involving electromagnetic transients, are described in the U.S. Department of Defense Pocket Guide for Security Procedures and Protocols for Mitigating Radio Frequency Threats (Technical Support Working Group, Directed Energy Technical Office, Dahlgren Naval Surface Warfare Center):

–“In the Netherlands, an individual disrupted a local bank’s computer network because he was turned down for a loan. He constructed a Radio Frequency Weapon the size of a briefcase, which he learned how to build from the Internet. Bank officials did not even realize that they had been attacked or what had happened until long after the event.”

–“In Russia, Chechen rebels used a Radio Frequency Weapon to defeat a Russian security system and gain access to a controlled area.”

–“In the late 1980s, a large explosion occurred at a 36-inch diameter natural gas pipeline in the Netherlands. A SCADA system, located about one mile from the naval port of Den Helder, was affected by a naval radar. The RF energy from the radar caused the SCADA system to open and close a large gas flow-control valve at the radar scan frequency, resulting in pressure waves that traveled down the pipe and eventually caused the pipeline to explode.”

–North Korea used a Radio-Frequency Weapon, purchased from Russia, to attack airliners and impose an “electromagnetic blockade” on air traffic to Seoul, South Korea’s capitol. The repeated attacks by RFW also disrupted communications and the operation of automobiles in several South Korean cities in December 2010; March 9, 2011; and April-May 2012 as reported in “Massive GPS Jamming Attack By North Korea” (GPSWORLD.COM, May 8, 2012).

Nuclear EMP

The EMP Commission found that virtually any nuclear weapon–even a primitive, low-yield atomic bomb such as terrorists might build–would suffice to make a catastrophic EMP attack. The electric grid and other civilian critical infrastructures have never been hardened to survive EMP.

The iconic EMP attack detonates a single warhead about 300-500 kilometers high over the center of the U.S., generating an EMP field over all 48 contiguous United States. Such an EMP attack could be made by a missile or nuclear-armed satellite. North Korea and Iran have both apparently practiced this scenario, orbiting satellites on the optimum trajectories and altitudes to evade U.S. National Missile Defenses and, if the satellites carried a nuclear weapon, make an EMP attack.

Canada would also be affected by this iconic EMP scenario. A nuclear warhead burst 300-500 kilometers high over the centre of the U.S. will cover most of Canada with an EMP field too.

Another EMP scenario detonates a nuclear weapon 30 kilometers high anywhere over the eastern half of the U.S., which would collapse the Eastern Grid. The Eastern Grid generates 75 percent of U.S. electricity and supports most of the national population. Such an attack could be made by a short-range Scud missile launched off a freighter, by a jet fighter or small private jet doing a zoom climb, or even by a meteorological balloon.

North Korea and Iran have also apparently practiced making a nuclear EMP attack using a short-range missile launched off a freighter. Such an attack could be conducted anonymously to escape U.S. retaliation–thus defeating nuclear deterrence.

Canada would be affected by this scenario too. Collapse of the Eastern Grid would no doubt set in motion cascading failures, far beyond the EMP field that would reach into Canada, probably causing a protracted blackout of at least Ontario and Quebec, the most populous provinces.

In another scenario, an adversary makes an EMP attack on the U.S. National Missile Defenses in Alaska. In yet another scenario, U.S. missile defenses fail to intercept a nuclear warhead until it is near or over Canada, and then the warhead is salvage-fused for EMP attack. In these scenarios, Canada inadvertently becomes the focus of a nuclear EMP event.

In still another scenario, during some supreme international crisis between the U.S. and a nuclear-armed adversary, the adversary deliberately makes a nuclear EMP attack on Canada as a demonstration of its resolve, to deter the U.S. and “de-escalate” the crisis.

#### Canadian BMD facilitates global naval partnerships that uphold norms and check A2/AD bubbles, which risk nuclear war in every hotspot

Adam P. MacDonald 19, PhD candidate in Political Science at Dalhousie University and Deputy Director of the Centre for the Study of Security and Development, 2019, “The Case for Canadian Naval Ballistic Missile Defence,” Canadian Naval Review, Vol. 14, No. 3, p. 4-9

The cornerstone of the National Shipbuilding Strategy (NSS) – the multi-billion-dollar program to recapitalize major aspects of Canada’s navy and coast guard – is the development of the Canadian Surface Combatant (CSC). The CSC will become the principal surface warship of the Royal Canadian Navy (RCN), which as outlined in the navy’s strategic planning document (Leadmark 2050) must be comprised of multi-role, multi-purpose and globally deployable assets able to operate in high-end combat environments. 1 In determining the suite of capabilities and capacities to achieve such requirements, serious consideration should be given to including ballistic missile defence (BMD) functions or acquiring a platform which could easily be modified to incorporate these in the future.

Naval BMD would serve three interconnected defence interests: accessibility; adaptability; and alliance maintenance. Accessibility refers to preserving the ability and confidence of the RCN to sail and operate in areas of the world which are increasingly contested militarily and defined by the proliferation of ballistic and cruise missiles meant to intimidate access to and manoeuvring within these areas, specifically at sea. Naval BMD, furthermore, would contribute to the adaptability of the CSC to conduct multi-role missions and operate within increasingly complex, multi-threat environments. Finally, naval BMD would strengthen interoperability with allies procuring such systems, and could offer a portal of entry into the US North American BMD system.

The Emerging Military Environment

Western military primacy, specifically sea and air superiority, is eroding as a number of states augment their military power in large part to target Western regional bases and forces. This changing military balance has not yet resulted in the expulsion of Western, specifically American, forces from these regions, the erosion of alliance partnerships, or the assumption of complete sea and air dominance by another power. The era, however, of Western military primacy defined by in-theatre assets and forces coming into and operating in these spaces without concern about being vulnerable to the forces of other states is coming to an end.

In particular, several adversarial and peer-competitor states are employing a myriad of weapons and strategies to target American and allied forces at greater distances to induce caution in their deployments and operations. These tactics, known as anti-access/area denial (A2/AD), are meant to challenge access to and manoeuvrability within a region by holding opposing forces at risk of attack at increasingly further distances, denying them sea and air supremacy but not necessarily establishing control over these spaces. One of the most important weapons of such an arsenal is missiles, both cruise and increasingly ballistic variants. In the last two decades there has been a horizontal (number of states possessing them) and vertical (size and diversity of arsenal held by each state) proliferation of ballistic missiles, specifically in East Asia and the Middle East between antagonistic dyads of states competing over disputed territorial claims, historical grievances and/or spheres of influence. Examples include Iran-Saudi Arabia, Pakistan-India, North Korea- South Korea, China-Taiwan and China-Japan. Given that many of these pairs include American allies or close defence partners, limiting US power projection and eroding American willingness to defend these states is a key objective for competitor/adversarial states. Cruise and ballistic missiles are also desirable weapons because they are relatively cheap, have the potential to penetrate defensive systems and are symbols of national power.2

Iran around the Straits of Hormuz, Russia in Eastern Europe and North Korea in Northeast Asia are areas of Western concern with respect to A2/AD. By far, however, the most important in terms of comprehensively jeopardizing Western power is East Asia due to the increasing military power of China. China is quickly becoming the new centre of global economic power in East Asia but the region is also home to several ongoing and outstanding territorial disputes and historical grievances, many involving China directly. Beijing is attempting to gain greater control over the trajectory of East Asia by using a mixture of economic, political and military instruments of power to shape the region to its benefit. One of the key aspects of China’s approach is using military power to break US dominance and invulnerability throughout the Three Island Chains surrounding China with an ever-expanding arsenal of missiles (including deploying the world’s first anti-ship ballistic missile) from the Chinese mainland, an expanding naval fleet and several new bases in the South China Sea.3 China’s military is being prepared to fight in combat if needed, but Beijing prefers a gradual and nonviolent change to the region’s balance of power shifting to its advantage thereby diminishing American power and resolve to uphold existing security commitments.

Where does Canada fit into this picture? Canada is active throughout East Asia on several fronts, including a growth in defence and security relations and activities which have historically been absent from previous trade-centric approaches to the region. Current and future deployment cycles of the RCN signal a growing interest in the region militarily, including a near continuous naval presence scheduled there for the next few years.4 The RCN`s approach in Asia is largely defined by maritime diplomacy, visiting and operating with a number of regional militaries, including China’s, to build Canada’s status in the region as a committed security partner.5 In view of its desire to build relations, the government has largely been silent on several outstanding maritime and territorial disputes and non-committal about its specific views towards and policies pertaining to freedom of navigation (FON) patrols.

China`s increasing presence and capabilities in these waters, however, is a military development to which the RCN must adjust in planning deployments and operations there. The plan to develop good relations has been tinged with concern about Chinese actions, including being shadowed by Chinese forces.6 Being familiar with such tactics by Russia in the Black and Mediterranean Seas, Canada has experience in and thus is well-suited to prepare for and act accordingly. It should be noted that there are as yet no explicit indications that China will become increasingly aggressive in attempting to evict foreign naval forces from its claimed waters.

With RCN ships expected increasingly to sail through such disputed waters – the vastness of the area which is disputed makes it difficult to avoid – and increasing FON patrols by the United States and others including Japan and some European states, whether Canada can remain completely ambiguous on this matter is questionable.7 Nevertheless, the RCN should be equipped with the capabilities required to operate confidently in disputed spaces, operate with allies and partners, and further the Canadian maritime diplomatic approach of being a trusted and present security partner in the region. Such an approach is not an attempt to re-assert American primacy or contain China8 but rather to ensure global maritime spaces in all regions, including those closer to home such as in the Arctic, remain free and open to naval and commercial vessels. As well, it would support local allies and partners facing conventional and nuclear ballistic missile threats.

#### Canadian engagement on maritime norms prevents cascading crises in Asia from wrecking global stability

Stephen Nagy 21, senior associate professor at the International Christian University in Tokyo, fellow at the Canadian Global Affairs Institute, and visiting fellow with the Japan Institute for International Affairs, 2/25/21, “Japan’s Indo-Pacific vision is a template for Canada,” https://www.japantimes.co.jp/opinion/2021/02/25/commentary/japan-commentary/covid-19-indo-pacific-china-canada-foip/

Since the Abe administration, Japan’s Free and Open Indo-Pacific (FOIP) vision continues to evolve as conditions demand but at its core it stresses the pursuit of a rules-based order in the region, including the maritime security domain. It also aims to contribute to the region’s stability through supporting its sustainable, transparent and rules-based development. It includes supporting infrastructure and connectivity, strengthening good governance and championing human rights.

These goals are consistent with Canada’s middle power identity and longstanding commitment to development making a FOIP vision with Canadian characteristics essential for engaging in the Indo-Pacific region.

Misconstrued interpretations

Detractors of FOIP conflate Japan’s FOIP Vision with the Trump administration’s confrontational and unilateral approach to China. They argue that Japan and Canada, because of their proximate relationship with the U.S. would not be able to avoid being entrapped in a U.S.-led containment strategy under the umbrella of an Indo-Pacific Strategy. They also suggest that the FOIP vision is merely a de facto alliance of U.S. allies and partners including Australia, Japan and India to stem China’s rise.

This argument is problematic at several levels. First, it willfully dismisses the reality that the largest trading partner of allies of the U.S. in the Indo-Pacific is China. An anti-China coalition is just not feasible or desirable. This is evidenced in Japan, Australia, South Korea and Southeast Asian states signing in November 2020 the Chinese-led Regional Comprehensive Economic Partnership (RCEP). Simply, they do not want or have a zero-sum view of their relationship with Beijing.

Second, the suggestion that Japan, Canada and other like-minded states cannot say no to the U.S. is not borne out in fact. Despite former President Trump’s insistence that Japan sign a free trade agreement with the U.S. or succumb to its exorbitant demands to increase Japan’s contributions to the alliance relationship, Japan said no. The same is with the Canadians, French and Germans saying no to the second Gulf War, and the Japanese and Canadians spearheading multilateral trade agreements such as the CPTPP as a successor to the TPP.

Third, these views assume that a Biden administration would take the same approach to the region as the Trump administration. The latter was inexperienced in foreign policy, did not value alliances, international norms or expertise. The former on the other hand has a long track record of support for multilateralism, alliances and expertise.

This is reflected in his recent speech at the Munich Security Dialogue in which he stressed, “The trans-Atlantic alliance is a strong foundation — the strong foundation — on which our collective security and our shared prosperity are built. The partnership between Europe and the United States, in my view, is and must remain the cornerstone of all that we hope to accomplish in the 21st century, just as we did in the 20th century.”

Biden’s calls to Japanese Prime Minister Suga, Australian Prime Minister Morrison and South Korean President Moon giving assurances that their alliances and each respective partners’ security concerns are a US priority, the return to the Paris Climate Accord and WHO and even an offer to return to the Iran nuclear deal demonstrate leadership does matter when it comes to foreign policy tone and practice.

Lastly, it plays directly into how China’s narrative about what alliances are about, the purpose of multilateralism and why states want to formulate their strategic engagement in the Indo-Pacific. It is not about containment but about building new institutions that are needed to deal with 21st century challenges that will increasingly be centred in the Indo-Pacific region. FOIP advocates need to ensure they are telling their own story and not fall into CCP narratives that stoke Chinese nationalism and concerns about another century of humiliation.

Why the Indo-Pacific region

The Indo-Pacific’s transformation into the center of global economic growth has occurred without the development of robust, rules-based institutions. Critically, it is home to consequential traditional and non-traditional security challenges that threaten the region’s resilience, prosperity and stability. Without proactive multilateral engagement, the region’s stability and prosperity could be easily derailed. A consequence that would have negative repercussions at the global level.

Climate change and the dearth in infrastructure and connectivity are immediate challenges that require multilateral, sustained engagement. Traditional security challenges such as the proliferation of weapons of mass destruction, states that eschew international law as we saw in July 2016 with China rejecting all the Permanent Court of Arbitration’s decisions on its claims in the South China Sea (SCS) and regular, illegal incursions into the contiguous zone or intrusions into the territorial sea surrounding the Senkaku Islands in the East China Sea (ECS) challenge the post-World War II order.

Aside from maritime challenges to a rules-based order in the SCS and ECS, the region has also witnessed a coup in Myanmar, the calcification of military rule in Thailand, an authoritarian tilt in the Philippines and Hindu nationalism resulting in intra-religious strife in India between the Hindu majority and Muslim minority.

It goes without saying that the COVID-19 pandemic has demonstrated the fragility of the Indo-Pacific region in terms of the needs of development, infrastructure and connectivity and good governance such that they can become more resilient, stable and prosperous

Instability, arrested development and a region that is characterized by a “might-is-right,” Machiavellian set of rules is not in Japanese or Canadian interests, nor of our friends in the region. It would make trade engagement less predictable; it could lead to the balkanization of trade, technology, and the digital economy making it more difficult to seize the economic opportunities that exist in the region.

Erosion of a rules-based order in the Indo-Pacific would also make it more difficult to deal with regional challenges such as climate change, development, militarization of the region, among others. All of which have the potential to cascade into unprecedented humanitarian and economic crises that would not remain in the region.

Advocating for a “free” and “open” Indo-Pacific region does not mean not supporting diversity or being exclusive as some have argued. Quite the contrary, the free and open pillars of Japan’s FOIP vision and a likely Canadian vision are consistent with Japan and Canada’s middle power identity, longstanding commitment to development and support for a rules-based order that strengthens and supports their national interests and the interests of our friends and allies. These are mutually beneficial and reinforcing.

Arguably, a “free” and “open”, inclusive and rules-based approach to the Indo-Pacific that encompasses trade, infrastructure and connectivity, the management of sea lanes of communication in the SCS and ECS, pandemic warning and coordinated responses, climate change mitigation among other issues facing the region would inculcate more stability, not less into the region.

Both Japan and Canada have a vested interest in being part of how the Indo-Pacific region evolves. The conundrum for both states is how to work with like-minded states in the Indo-Pacific to build a rules-based, inclusive order that robustly defends and protects democracy and human rights, contributes to resilience, prosperity and stability, while balancing the opportunities and challenges of an increasing authoritarian China under Xi Jinping.

### 1AC---NORAD

#### Advantage 2 is NORAD:

#### NORAD plans to modernize domain awareness through the Strategic Homeland Integrated Ecosystems for Layered Defense, or SHIELD---but, lack of Canadian BMD will break it down

Jason Sherman 21, reporter for Inside Defense, 1/25/21, “Forging a SHIELD for the Homeland,” <https://www.airforcemag.com/article/forging-a-shield-for-the-homeland/>

A pair of F-22s scrambled into the arctic sky Oct. 19, in hot pursuit of two Russian bombers that had just penetrated the Alaskan Air Defense Identification Zone. It was, the 14th such incursion of 2020—a potentially record-setting, post-Cold War pace. It also highlighted growing concern among U.S. and Canadian commanders over domestic air defense.

The Tu-95 bombers, escorted by two Su-35 fighters and supported by an A-50 airborne early warning aircraft, were merely testing U.S. and Canadian responses, executing a dry run for a notional conventional strike on critical infrastructure in order to impair U.S. power-projection capabilities.

“The strategic threat to the homeland has entered a new era,” Air Force Gen. Terrence J. O’Shaughnessy warned Congress before he retired last summer, in the sharpest terms of his tenure as the dual-hatted head of U.S. Northern Command and the bi-national North American Aerospace Defense Command (NORAD).

Russia and China, he said, have a range of new capabilities to hold the U.S. and Canada at risk with more than just nuclear strike options, including advanced long-range cruise missiles, maneuvering hypersonic strike weapons and cyber attacks to offset U.S. military power-projection advantages, and limiting U.S. diplomatic options in a crisis.

Such a prospect has prompted a rethink over the last year at the highest levels of the Pentagon about the need for a robust domestic air defense capability to protect the entire nation—which has long relied on two vast oceans and airborne defense against adversaries attacking the continental United States.

In the future, more will be needed, warned Mike Griffin, then Pentagon chief technology officer in an October 2019 memo. “Increasing adversarial capability and capacity challenge the United States to provide homeland air defense for our nation,” Griffin wrote. “Proliferation of enemy weapon systems with global reach dictate that the United States can no longer presume domestic sanctuary.”

Griffin, who departed the Pentagon in July, directed the influential Defense Science Board to dig into the matter. The panel’s classified work is not yet complete, according to a spokesman, but a senior Air Force official said its early findings are already shaping plans, budgets, and modernization strategies at NORAD, specifically its new construct for domestic air defense.

SHIELD

Growing Russian and Chinese threats—specifically new long-range, conventional strike weapons designed to hobble critical domestic infrastructure—have NORAD seeking unprecedented air and maritime sensing capabilities, linked to joint all-domain command and control tools to guide a new array of anti-missile systems.

NORAD’s Strategic Homeland Integrated Ecosystems for Layered Defense (SHIELD) aims to harden maritime and air approaches to the United States to create a more capable, credible deterrent and complicate attempts to thwart U.S. force projection by attacking American airfields, ports, utilities, and economic significance.

“Our approach in the past has been to fight over there so that they don’t attack us here,” Air Force Brig. Gen. Pete M. Fesler, NORAD’s deputy director of operations, said in an interview. “Our adversaries recognize that, and they specifically developed methods to avoid our fielded forces and attack us in the homeland. So, this is no longer a choice of what type of fight we’re going to fight; our adversaries have made that decision for us. So we have to defend along the whole continuum from all the way forward in the other theaters to all the way back here where forces originate.”

SHIELD builds on nearly two decades of work on Homeland Defense Design, a NORAD project launched in the wake of the Sept. 11, 2001, terrorist attacks that aimed to improve the U.S. military’s ability to find, fix, track, target, and engage growing air threats, such as those posed by cruise missiles, low-slow aircraft, and long-range aviation.

Homeland Defense Design was used to forge new air defense packages for the National Capital Region, with an original goal to scale that capability and replicate it across the nation to defend locations deemed critical.

However, plans to proliferate around the nation Homeland Defense Design Block 3 air defense capabilities were canceled because the cost of the sensors and guided missile systems needed to protect the national capital was too great to expand that to defend the rest of the country. Instead, NORAD is now proposing that SHIELD can provide a new conceptual backbone for future domestic air defense modernization.

Fesler said the need is urgent. Russia and China are exploiting seams in U.S. and Canadian domestic defenses, including sensor networks that detect approaching threats as well as the allies’ ability to coordinate command and control across their many disparate systems.

The new SHIELD strategy calls for improving air defenses through a combination of existing and new equipment in combination with new technologies across three areas: domain awareness, join all-domain command and control, and defeat mechanisms.

NORAD is keeping many details of the specific technologies that would constitute SHIELD under wraps. “As you can imagine, a lot of the stuff that we have, we talk about—specific capabilities and specific programs—immediately gets into the classified realm,” Fesler noted.

Still, he outlined the contours of the new concept and other senior leaders in various forums over the last year have pointed to new capabilities that are slated to be part of SHIELD.

Domain Awareness

The SHIELD vision for homeland domain awareness calls for sensors—originally designed to provide information in a unique format to a designated platform—to instead feed data to a central repository where it is then available for access by all users across the enterprise.

“What SHIELD does differently than our previous approaches is really focused on not a single threat, but a range of threats,” said Fesler. “When I say multiple threats for a single sensor, that’s not to suggest we want to buy one gold-plated system that can do all things for all people. Rather, it’s the layering part of that, that really makes this unique. It’s a combination of using things like old systems that are being repurposed from their original design spec to give us data. It’s taking old technology and then using it not only in creative ways, but putting [new] computers on the back end of it, they help us pull more [data] out of those old systems. And in some cases, it’s the purchase of new systems and fill gaps that aren’t covered by any of those other things. That’s not the approach we’ve taken in the past. And I think that’s what’s maybe a little bit revolutionary rather than evolutionary when we look at SHIELD.”

A pilot project paired new computer processors with legacy Federal Aviation Administration (FAA) radars and proved able to detect and track very small unmanned aircraft without any modifications to the sensors.

“One of the things that we’re finding particularly interesting is its ability to breathe new life into existing sensors by putting better processing power behind the sensors that already are out there,” Fesler said. “You can imagine what the computers looked like if they’re attached to a radar that was built in 1985. Now take modern computer processing and put it against that same radar. You get a pretty significant increase in capability.”

JADC2

DOD’s recent adoption of joint all-domain command and control as a collective, joint-service goal is critical to NORAD’s strategy. JADC2 technologies will be needed to tie together independent systems and then direct the best possible response, be it from the Air Force or Space Force, or the Army, Navy, Marines, Coast Guard, or Canadian forces.

The first two in a series of Air Force Advanced Battle Management System on-ramp events were conducted with NORTHCOM. The events focused on defending against cruise- missile attacks on U.S. territory. Fesler said both events aimed to showcase an ability to detect, track, and identify incoming weapons and then hand those tracks to a fire unit to destroy the incoming cruise missile.

“One of the things that we learned is, in order to enable that, you really need that robust command and control system that we talk about in SHIELD,” according to Fesler.

Defeat Mechanisms

The third element of the SHIELD strategy deals with “defeat mechanisms” to blunt an attack. NORAD relies on weapon systems optimized for deployment overseas and capable of working in rugged environments, features that add cost. The SHIELD strategy seeks ways to reduce costs by optimizing for defense of domestic locations.

Patriot surface-to-air missile defense systems, for example, were originally designed to protect Army units while on the move. They’re built to travel over rough terrain and hardened to operate through chemical or biological attacks. NORAD believes it can cut costs by stripping out some of those features while retaining its advanced fire-control system.

In addition, SHIELD calls for adopting new, nonkinetic technologies, such as high-powered lasers and microwave weapons.

NORAD’s current Integrated Air Defense System (IADS)deployed in the National Capital Region—featuring the National Advanced Surface-to-Air Missile System that utilizes an AIM-120 interceptor and its expeditionary system, the Deployable-IADS (D-IADS)—is an Avenger short-range air defense system.

Canadian Buy-In?

In the past, the U.S. and Canada have not seen eye-to-eye on missile defense policy, which is one reason ballistic missile defense of the U.S. homeland is the domain of U.S. Northern Command, not NORAD. As SHIELD works to integrate guided missile interceptors or directed-energy weapons into the air-defense equation, the kinetic dimension could raise thorny issues for the two nations.

“If this works, it will be a great step forward,” said Christopher Sands, director of the Wilson Center’s Canada Institute. “If it generates the kind of pushback that it might from Canada, we will have to retool it to see if we can figure out a way to make something like this work.”

#### BMD cooperation’s key to all-domain awareness that modernizes NORAD against emerging threats

Nancy Teeple 20, Ph.D., post-doctoral fellow at the North American and Arctic Defense and Security Network, 8/7/20, “Canada and Missile Defence: A New Strategic Context Requires Revisiting Participation,” https://www.naadsn.ca/wp-content/uploads/2020/08/20-August\_Teeple\_Policy-Brief-Canada-Missile-Defence.pdf

However, with the advent of new threats to North America through advances in missile technology (new hypersonic missiles, advanced cruise missiles, and standoff ballistic missiles with unpredictable trajectories) designed to evade early warning detection, tracking, and interception by current systems, the evolving concept of North American defence and its requisite architecture requires a reevaluation in Canada of its willingness to join missile defence; or provide some form of contribution to the system in return for receiving protection under US Ground Based Interceptors.1 This is particularly necessary in light of emerging concepts for increasing the integration of defence systems for an all-domain awareness capability, as the US develops its role as an Arctic nation and pursuit of a military footprint in the North.

Canada and the US are partners in North American defence through the binational NORAD and bilateral agreements, related to Canada’s geostrategic position at the top of the continent. Considerations under study of the evolution of North American Defence (EvoNAD) 2 include new deterrence concepts with the advent of emerging domains (space and cyber) posing a complex array of threats to the US and Canada. Deterrence concepts involving responding to new missile threats include integrating defensive and offensive measures to deter, disrupt, degrade, and destroy threats before they reach their targets. The 2019 Missile Defence Review outlines four missions: deterrence, passive defence, active defence, and attack operations – the latter involving targeting the platforms (i.e. the archers) rather than the missiles themselves (or arrows). 3 This moves beyond BMD towards a broader Missile Defence 4 concept, responding to the spectrum of threats posed by new systems with deterrence-by-denial (part of US nuclear doctrine combining deterrence by denial and punishment), providing an assortment of offensive and defensive options. Layered concepts involving supplementing GMD (including the planned new GBIs) with Aegis and THAAD for more comprehensive defence of North America have been recently proposed.5

In light of the increasing uncertainty and complexity of the global security environment, and particularly the threats posed to North American – as the continent is no longer a sanctuary according to the current NORAD Commander 6 – Canada might reconsider how it views requirements for strategic stability and to ensure national security. Canada has demonstrated a decline in its advocacy for nuclear disarmament over the past two decades, and particularly since 2014, aligning its national security and defence interests more closely with those of the US. To that end, Canada should now reverse this trend and embrace its role as a key partner in North American defence within the new integrated system-of-systems concept, through increased contribution to missile defence; or consider making a deal with the US in order to receive protection.

Framework

The framework for assessing Canada’s role in binational missile defence from a political-strategic approach rests on the real and perceived benefits of participation; namely a “piece of the action” and a “seat at the table.” 7 Participation provides opportunities for Canada to be a stronger partner in the binational command structure and bilateral defence of North America. In a time of increasing strategic uncertainty of advances in missile technologies by great power and rogue state adversaries, Canada’s security may best be guaranteed by joining the US missile defence program. Indeed, with an observable shift in Canada’s approach to nuclear issues8 – a formal role that aligns with the defence interests of the United States is likely to direct Canadian national interests towards participation in missile defence, as part of evolving North American Defence. One of the greatest obstacles, however, is that the initiative is treated by political parties and candidates to as a partisan issue, rather than a national security priority. This has to change.

Recommendations

• Renew the dialogue with US on the requirements and benefits of cooperation for Canada in the current North American security and defence context.9

• The dialogue should include a public debate on the benefits and costs of participation versus nonparticipation in the program in light of the increasing strategic threats to the West and North America.

• Consideration of Canadian niche capabilities and geographical advantages in how it can best contribute to missile defence. This includes exploring kinetic and non-kinetic options:

• A non-kinetic role can involve offensive cyber operations to detect, disrupt, or deter adversaries’ launch capabilities – these can be can be tantamount to kinetic effects.

• Binational cooperation with the US on cruise missile defence by providing interceptors by air, ground, and sea-based platforms. There is an established framework in NATO for this (Art. V) and consistency with BMD in Europe.10

• A dedicated co-located radar enhancing Canada’s early warning role in both NORAD and a formal participation in missile defence. One proposal in 2005 suggested and X-band radar site in Goose Bay – this would be a timely option for consideration with developments in Iran’s longrange ballistic missile capabilities.11

• Enhanced space situational awareness directly linking US-Canada space cooperation with missile defence.12

• Consideration of incremental steps in the level of Canadian participation from an enhanced early warning/detection role (such as hosting a radar on the East Coast), to cruise missile defence and potentially hosting ground-based interceptors in the future.

Benefits to Canada

• Access to new emerging technology and claiming a niche (such as space sensor or imagery capability).

• Having a seat at the table and being a part of the action involving decisions on how to respond to the range of threats to North America.

• Economic and commercial: Canadian industry would be involved in developing the capabilities comprising Canada initial and ongoing contribution to missile defence.

• Participation could provide a way to offset US criticism for not paying the minimum 2% of GDP on defence.

• Participation would increase the credibility of Canada’s military contribution to North American defence, in light of delayed procurements and aging systems. This addresses the Strong Secure Engaged second pillar and commitment to be “secure in North America.”

#### New Russian and Chinese conventional capabilities allow strikes in North America.

Terrence J. O’Shaughnessy 20, USAF General, the former Commander of U.S. Northern Command and North American Aerospace Defense Command; and Peter M. Fesler, USAF Brigadier General, the Deputy Director of Operations for North American Aerospace Defense Command, September 2020, “Hardening the Shield: A Credible Deterrent & Capable Defense for North America,” <https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Hardening%20the%20Shield_A%20Credible%20Deterrent%20%26%20Capable%20Defense%20for%20North%20America_EN.pdf>

**Acronym added in brackets for readability**

The brief respite from great power conflict in the late 20th and early 21st centuries is over, and the Homeland is no longer a sanctuary. The National Defense Strategy (NDS) concisely articulates a shift in the security environment, away from one dominated by the threat of violent extremism, toward one in which peer adversaries, possessing the capability to generate catastrophic effects globally, are the paramount concern for the United States. These adversaries have developed the capability and intend to hold critical sites in the United States and Canada at risk with conventional strikes. Recognizing this, the NDS specifically makes direct defense of the Homeland against a peer the number one priority for the Department of Defense. Canada’s national defense policy articulated in “Strong, Secure, and Engaged” provides similar guidance.

In response to the changing security environment and guidance from national leaders, the men and women of U.S. Northern Command and the North American Aerospace Defense Command are enhancing their ability to defend against a peer threat. The two commands act as North America’s shield, deterring attack, and defending the populations and critical infrastructure of the United States and Canada. Improving defensive capabilities in the face of a growing threat, while accounting for fiscal realities has required the two commands to fundamentally rethink the way they think about defense. Effective Homeland defense against a peer will not be achieved simply by a return to Cold War postures and plans, nor will it be achieved with current post 9-11 counter-terrorism forces. Homeland defense requires a fundamentally new approach and steps are being taken today toward making that approach a reality.

We cannot expect to have the same success defending our homelands against a peer competitor, using the same resources, organization, and focus that we applied to defending against violent extremist organizations that have no ability to hold the homeland at risk.

The Changing Security Environment

Despite the clear shift in the global security environment, there are those that hold to the defense concepts of a bygone era. This is understandable. For more than 30 years since the collapse of the Soviet Union, war for America has been dominated by counter-insurgency and counter-terrorism conflicts. Defense planners have been focused on the difficult challenges associated with defeating insurgencies in largely ungoverned spaces in an effort to prevent terrorist groups from building a base of operations from which to launch the next 9-11 style attack. The American way of war became defined by battles in places with familiar names like, Mogadishu, Korengal, Tora Bora, Fallujah, and Ramadi.

Out of necessity, and due to a lack of a peer, or even near peer military threat, funding for major high-end acquisition programs was shifted to the sustainment of current operations in the war against violent extremism. Gradually, almost imperceptibly, America’s Cold War and Desert Storm winning conventional military was transformed into a lethal and effective counterinsurgency force. Like the generations before them, military professionals today (the authors of this paper included) are shaped by their own experiences, and in these experiences the Homeland was, with few exceptions, a secure base from which to launch operations in conflicts on the other side of an ocean.

How Has the Security Environment Changed?

While U.S. and Allied forces fought, learned, and won on the battlefield, America’s old adversaries also learned. They deliberately designed strategies and acquired systems intended to circumvent the military strength of the West. Today, the oceans that were formerly the moats that defended the arsenal of democracy have become a means of approach, the Arctic is no longer an icy fortress wall protecting the northern flank, and the skies in which American airmen operated with impunity for the last three decades have become contested and the preferred domain for adversary kinetic attacks on the Homeland. At the same time the American military was abandoning training for large-scale warfare and retooling for counter-insurgency, her enemies were preparing for a force-on-force fight with the United States, and in doing so they discovered a weakness.

If the traditional American way of war is the deployment of overwhelming force to a fight overseas, then the way to defeat the United States military in the next war, in the minds of her adversaries, is to prevent deployment in the first place. Either through the threat of attacks on economic targets designed to constrain options, or direct strikes on mobilizing forces, the deployment of the American military must be stopped before it starts. The economic engine and carefully orchestrated multi-modal logistical movements that enable the world’s preeminent military are now a target.

Growing Adversary Capability

Such a strategy requires new weapons; weapons with sufficient reach to allow for their delivery without directly facing the still very dangerous American military, bypassing its fielded forces completely. This is a significant departure from the past, where great effort was made to keep regional conflicts just that, regional. In this approach, driven by the recognition that building a force sufficient to prevail on the battlefields of Europe or the Western Pacific would be cost prohibitive, the new generation of weapons would be specifically designed for horizontal escalation to strikes against largely unhardened targets in North America.

Most importantly, these weapons would need to be conventional. Both China and Russia have long been able to range any target in North America with nuclear payloads, but the threat of immediate and devastating retaliation by the nuclear triad of United States Strategic Command limited their utility in hemming in the American military. Using nuclear weapons against targets in North America in an attempt to alter the outcome of a regional conflict would be suicidal, and so they set out on a deliberate path of conventional long-range weapons development.

China’s approach has been, as would be expected for the Middle Kingdom, patient. In a methodical and steady manner that is difficult for the West to comprehend, Beijing has developed the economic and technological backbone necessary to challenge the United States and its allies. Its weapons of choice: economic coercion and control, and cyber intrusion. Beijing’s recent flexing of its economic muscles, and its conduct of a sophisticated and systemic approach to industrial espionage are well documented. Further, the growing indications that Chinese cyber actors have moved beyond data exfiltration to planting leave behind capabilities for future conflict, has earned the close attention of the operators and planners at United States Cyber Command.

Beijing has not limited itself, however, to the development of non-kinetic weapons. Over the past decade, the Chinese People’s Liberation Army, or PLA, has fielded a wide array of new systems including solid fueled road mobile ICBMs, hypersonic glide vehicles, quieter submarines, and air refueling capability, the latter of which will likely place targets in the western United States and Canada within range of air launched cruise missiles[ALCMs] by the mid-2020s. These systems have dramatically increased to ability of Chinese forces to project power beyond a range needed for defense.

The opaque nature of the Chinese Communist Party makes it difficult to determine Beijing’s intent, but Chinese military leaders have not been shy in stating that they believe they must be prepared for war with the United States. Much of Beijing’s weapons development is designed to prevent the United States military from deploying into the Western Pacific in a crisis, and military leaders in the PLA frequently speak of a strategy designed to deny access to the theater through attacks at range. If their words are to be believed, cyber and long-range precision strikes on key locations in the United States will be part of this strategy.

To an even greater degree, Russia has invested in the capability to strike targets in North America while remaining below the nuclear threshold. Russian nuclear forces have long possessed the capability to strike targets in North America. More recently, however, the Kremlin has dedicated significant resources toward the creation of a long-range precision conventional strike capability. The development, acquisition, and deployment of stealthy air and sea-launched cruise missiles[A and SLCMs], and the modernization of the aircraft and submarines that deliver them, has given Russian military planners their first true conventional capability to strike the Continental United States[CONUS].

Russian political and military leaders have repeatedly made it clear in public statements that they intend to attack targets in the United States in the event of a conflict elsewhere. Unlike China, there is nothing opaque about the Kremlin’s position, and the logic behind the strategy is sound. Russia enjoys a favorable balance of forces in the European Theater at steady state. Russian forces can mass more quickly on their frontier than their NATO foes, but once the West mobilizes, the balance irreversibly shifts in favor of the United States and its allies.

To counter this inevitable shift, a key component of the Kremlin’s strategy is the prevention, or at least delay of NATO, and specifically, American military mobilization and deployment into the European Theater. That mobilization funnels through a limited number of air and sea port facilities and installations in the Continental United States, and these are the sites that Russia’s new generation of weapons appear designed to strike.

Russia has also ramped up training for these attacks, with repeated submarine deployments to the Western Atlantic and long-range aviation sorties into the Arctic approaches to North America. Russian activity is no longer limited to the predictable strategic messaging patrols of the mid-2000s, intended to visibly convey the Kremlin’s displeasure with Washington and demonstrate relevance in the wake of the its Cold War defeat. Tupolev bombers and ultra-quiet nuclear powered submarines now frequently conduct mission rehearsals for strikes on the United States and Canada in areas that are outside of the North American Aerospace Defense Command[NORAD]’s radar coverage, and in a manner designed to defeat U.S. Northern Command’s maritime Homeland defense forces. Armed with their new generation of longrange weapons, these submarine and bomber crews quietly maneuver to positions where they can hold virtually every point in North America at risk. This is not messaging. The Kremlin’s stealthy operations are designed specifically to remain undetected, and what good is a strategic message if it is not received.

Adversary Logic of Horizontal Escalation and Their Balanced Approach

The strategies developed by Russia and China are not without precedent, rather they are the natural progression of military strategic thinking, and their technology development is simply following a very predictable path, one that the United States walked decades ago. Since the late 1980s, American air and naval forces have possessed the capability to conduct long-range, conventional, precision strikes. Every conflict in which the United States has participated since the end of the Cold War has featured live television coverage of the near simultaneous impacts of dozens of land attack cruise missiles launched from U.S. Air Force and Navy platforms more than one thousand miles away.

Bombers of U.S. Strategic Command regularly prowl the skies in the approaches to both China and Russia, and no other country in the world comes close to the American Navy’s command of the seas. The United States military’s dominance in the air and at sea provides control of the global commons and largely unfettered access to launch locations within range of virtually every point on the globe. Long-range precision strike is a key component of any American military campaign, and consistent with airpower doctrine, planners consider adversary logistical hubs as lucrative targets. America’s adversaries have watched and learned.

To counter what it perceives will be the opening salvos of war with the United States, Beijing has gradually expanded its defenses in an attempt to deny access to the Western Pacific. China’s well documented anti-access and area-denial efforts include the fielding of missiles specifically designed to kill the American carriers, and large quantities of cruise and ballistic missiles intended to hammer U.S. forces deployed to regional bases. Beijing has also invested in increasingly sophisticated and dense air defense systems designed to blunt strikes by American aircraft and long range-cruise missiles.

From their increasingly secure territory, Beijing has sought to develop the offensive kinetic and nonkinetic capability to strike American forces at ranges as far away as North America. China’s bombers are operating at ever greater ranges, now holding targets in Alaska at risk, and its submarines roam well beyond the confines of the second island chain, creeping ever closer to North America. This balanced approach to offense and defense is designed to deter and if necessary defeat U.S. forces that they perceive will attempt to intervene in Beijing’s sphere of influence.

Similarly, the Kremlin has sought to deny American airpower the ability to conduct long-range strikes against key infrastructure by fielding the most modern and capable integrated air defense system in the world. Featuring over fifty battalions of the latest SA-10, 20, 21, and 23 missile systems, which the Kremlin claims have counter-stealth capabilities, Russian air defenders believe they are well equipped to defend against the West’s long-range strikes.

Russia’s enhanced defense is coupled with an ever increasing capability to strike at range, impeding U.S. force flow and destroying critical infrastructure well outside of the European theater. Conventional attacks on targets deep in the United States and Canada are now firmly entrenched as a necessary component of any war winning strategy in a conflict with the West. The Kremlin has chosen this strategy because it has few other options, and because the United States has given it an opening. This is not supposition. The Kremlin has openly communicated its intent.

Over the past two decades, Russia has set out on a deliberate path to circumvent the West’s military superiority. Turning a strategy into doctrine, and doctrine into reality, the Kremlin has modernized its entire air defense network and fielded longrange conventional cruise missiles in sufficient numbers to make the threat of strikes on North America feasible. Some have suggested that these new long-range weapons are intended for regional conflicts. They could, in fact, be used within the confines of the European continent, but it is improbable that the Kremlin would procure weapons with four to five times the range needed for their intended purpose. It is also unlikely that they would pair these weapons with bombers specifically designed for round trip intercontinental flight if their intended targets could be reached by far more numerous and lower cost shorter range aircraft or ground-launched systems.

Russian planners are not stopping with new weapons. Their fleet of bombers is well into a decade-long modernization program, and plans have been drawn for the development of an entirely new generation of long-range aircraft. In the maritime domain, recent media reports out of the Kremlin highlighted the laying of the keels of additional Severodvinsk class guided missile submarines, similar to the one that now challenges maritime forces on both sides of the Atlantic. Over the next decade the Russian Navy’s fleet of these highly capable submarines will increase nearly tenfold.

Military Focus Out of Balance

In stark contrast to the balanced approaches of both China and Russia, the United States has adopted a purely offensive approach that relies on the ability of the American military to mobilize and mass forces at a time and place of its choosing. Very little attention has been focused on defending the Homeland because the basic assumption in the American strategy is that “we will fight the enemy over there so that we don’t have to fight them here.” That philosophy was reinforced by the nearly three decades of the fight against violent extremism and insurgencies, and in that context, it was a reasonable assumption.

This approach is no longer sufficient in light of the threat now posed by Russia and China. Implicit in the current American strategy is the assumption that Washington will be allowed to fight the purely overseas fight that it desires, but Beijing and the Kremlin do not intend to contain conflict at the regional level. In fact to the contrary, they plan to take the fight to North America so that they don’t have to fight in Europe or the Western Pacific, or at least to ensure that any fight will be against one with reduced participation by the United States military.

This is not the first time that the pendulum has swung too far in the direction of the offense. In the early days of the Cold War, Washington recognized a similar imbalance, and set out to reorient the Department of Defense. In fact, it was this realization that was responsible for the creation of the North American Aerospace Defense Command in the waning days of the 1950s.

The history of the American military provides multiple examples of imbalance and rebalance, and in each, there was an accompanying hesitation. Stasis is easier than change. The whole of an organization is typically designed for the world as it was and not as it is, but change must and does occur. It occurs either by choice, or out of necessity in crisis, and when it is the latter, that change is often too late to avoid unnecessary losses. From Bull Run, to the skies over North Vietnam, to the 21st century wars in Iraq and Afghanistan, history provides numerous examples of the results of slow recognition and adaptation to changes in the character of war.

Deterrence Out of Balance

Deterrence is the act of discouraging an action or event through instilling doubt or fear of the consequences. Both during and after the Cold War, when the primary threat to the homeland from China and Russia was nuclear, our nuclear forces provided an effective and credible deterrent. Because our forces were postured to ensure a survivable retaliatory capability, no nuclear strike on the United States could prevent a nuclear response, and the consequences of such a response were unpredictable and potentially devastating. In the terms of deterrence theory, this is deterrence by punishment. The credibility of any deterrent threat depends on capability and will. In the context of a nuclear attack, the United States undoubtedly had (and still has) the capability to deliver a devastating response, and it would be dangerous to question Washington’s will.

The promise of devastating retaliation in response to a nuclear first strike is credible. The threat of a nuclear retaliation as a response to a limited, precise conventional strike is less so. Washington would be challenged to find a way to make an adversary believe that in response to a small-scale conventional strike, kinetic or otherwise, it would unleash its nuclear arsenal, and the threat of conventional retaliation against Russia or China would not promise the level of damage necessary to deter. Sole reliance on deterrence by punishment is insufficient to deter the full range of attack options available to Beijing and the Kremlin. A more balanced approach to deterrence is required.

That approach requires both the promise of punishment and the capacity to resist an adversary attack. The ability to punish exists, but making an adversary believe that a sufficiently capable defense exists may alter his cost-benefit calculus by creating the impression that an attacking force would incur significant loss or have insufficient impact, therefore making launching an attack an undesirable option. If an adversary does not fear punishment and does not believe defense is possible, there is no disincentive. Lack of a defense invites attack, and conversely, the ability to defend and resist deters it. In the words of General George Washington, “To be prepared for war is one of the most effectual means of preserving peace,” and in this case preparedness comes in the form of the ability to defend the Homeland as part of a balanced strategy.

#### That goes nuclear

Charles A. Richard 21, Admiral, U.S. Navy, February 2021, “Forging 21st-Century Strategic Deterrence,” Proceedings, Vol. 147/2/1,416, https://www.usni.org/magazines/proceedings/2021/february/forging-21st-century-strategic-deterrence

I bristle when I hear the DoD accused of “being stuck in the Cold War.” The department is well past the Cold War; in fact, a large part of our challenge lies in the fact that we no longer view our environment through the lens of potential enemy nuclear employment. The United States has sustained global counter-terrorism efforts for two decades—and has grown accustomed to ignoring the nuclear dimension. Our recent experiences against non-nuclear-armed adversaries have allowed us to believe nuclear use is impossible and not worthy of attention. At the U.S. Strategic Command, we assess the probability of nuclear use is low, but not “impossible,” particularly in a crisis and as our nuclear-armed adversaries continue to build capability and exert themselves globally. Further, assessing risk is more than just assessing likelihood; it also involves accounting for outcomes. We cannot dismiss or ignore events that currently appear unlikely but, should they occur, would have catastrophic consequences.

While DoD’s focus has been on counterterrorism, Russia and the People’s Republic of China (PRC) have begun to aggressively challenge international norms and global peace using instruments of power and threats of force in ways not seen since the height of the Cold War—and in some cases, in ways not seen during the Cold War, such as cyberattacks and threats in space. Not surprisingly, they are even taking advantage of the global pandemic to advance their national agendas. These behaviors are destabilizing, and if left unchecked, increase the risk of great power crisis or conflict. We must actively compete to hold their aggression in check; ceding to their initiatives risks reinforcing their perceptions that the United States is unwilling or unable to respond, which could further embolden them. Additionally, our allies may interpret inaction as an unwillingness or inability to lead. Remaining passive may deny us opportunities to position in ways that underpin one of our greatest strengths: strategic power projection. The moment an adversary’s initiative becomes a fait accompli, the United States would be forced to decide whether to accept their “new normal,” employ military force to reestablish the status quo, or set our own “new normal.”

The strategic capabilities of our competitors continue to grow, and they are sobering. More than a decade ago, Russia began aggressively modernizing its nuclear forces, including its non-treaty-accountable medium- and short-range systems. It is modernizing bombers, intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), nuclear-powered ballistic missile submarines, warning systems, command-and-control (C2) capabilities, and the doctrine to underpin their employment—in short, its entire strategic force structure. This modernization is about 70 percent complete and on track to be fully realized in a few years. In addition, Russia is building new and novel systems, such as hypersonic glide vehicles, nuclear-armed and nuclear-powered torpedoes and cruise missiles, and other capabilities. And its leaders have not been reticent to leverage these capabilities to coerce its neighbors. During the annexation of Crimea in 2014, President Vladimir Putin reminded the world of Russia’s nuclear weapon capabilities, both through words and deeds, to warn against any attempts at reversing the outcome.1

Increased nuclear capability and technologically advanced weapons development are not the only ways Russia challenges the world’s stability. Its military forces often engage in unsafe actions in close proximity to U.S. military forces—actions reflected in headlines such as “Russian Su-35 Fighter Makes ‘Irresponsible’ Intercept of Navy P-8A over Mediterranean,” and “Russian Destroyer Put U.S. Cruiser at Risk with ‘Unsafe’ Maneuver.”2 Russia also constantly challenges norms in cyberspace, as demonstrated by last year’s cyberattack on Georgia’s government and its recent penetrations into U.S. government systems.3 According to U.S. Secretary of State Mike Pompeo, “This action contradicts Russia’s attempts to claim it is a responsible actor in cyberspace.”4 Then, in early 2020, Russia conducted an antisatellite test, threatening international assets in space. Together, these actions demonstrate Russia’s willingness to compete aggressively and ignore international norms.

The People’s Republic of China is also on a trajectory to be a strategic peer and should not be mistaken as a “lesser included” case. Like Russia, it acts aggressively to challenge democratic values and shape the global economic order to its benefit. China continues to make technological leaps in capabilities in every domain. Across its conventional weapons systems, it continues to invest significant resources in hypersonic and advanced missile systems, as well as to expand its space and counter-space capabilities. Its advances in space provide better C2 of its forces worldwide and enhance their situational awareness. It created islands in the South China Sea and placed multiple weapons systems on them. Like the Russians, People’s Liberation Army (PLA) Air Force and Navy forces harass U.S. and allied aircraft and forces operating in international airspace and waters. The PRC also continues to invest heavily in its nuclear capabilities. Its strategic dyad of ICBMs and SLBMs will soon become a triad, with the completion of a nuclear-capable long-range bomber. China is building new land-based, road-mobile ICBMs, providing its forces more flexibility and capability. The PLA Navy Jin-class ballistic-missile submarines carry up to 12 SLBMs each. China has built new warning and C2 capabilities and improved its readiness. Further, China’s nuclear weapons stockpile is expected to double (if not triple or quadruple) over the next decade.

Acting in a responsible manner is incumbent upon any great power. For China, we must pay attention to PRC’s actions more than its stated policies. While the PRC has maintained a “No First Use” policy since the 1960s—contending it will never use a nuclear weapon first—its buildup of advanced capabilities should give us pause. This policy could change in the blink of an eye. Beijing is pursuing capabilities and operating in a manner inconsistent with a minimum deterrent strategy, giving it a full range of options, including limited use and a first-strike capability.

Faced with Russia and China’s growing threats and gray zone actions, the United States must take action today to position itself for the future. We must start by acknowledging that our most fundamental assumption—that strategic deterrence will hold, even through crisis and conflict—is going to be tested in ways not seen before. This assumption is the foundation on which we built strategies, plans, and capabilities. Unfortunately, our opponents invested in nuclear and strategic capabilities designed to constrain U.S. actions, test our alliances, and, if necessary, escalate past us—to include nuclear use. There is a real possibility that a regional crisis with Russia or China could escalate quickly to a conflict involving nuclear weapons, if they perceived a conventional loss would threaten the regime or state. Consequently, the U.S. military must shift its principal assumption from “nuclear employment is not possible” to “nuclear employment is a very real possibility,” and act to meet and deter that reality. We cannot approach nuclear deterrence the same way. It must be tailored and evolved for the dynamic environment we face.

#### Plan solves---BMD coop integrates stove-piped systems to provide domain awareness and thwart adversary attacks

**[NWS = North Warning System]**

Camille Raymond 20, Emerging Scholar at the Network for Strategic Analysis, 11/24/20, “Thinking About the Modernization of NORAD,” <https://ras-nsa.ca/publication/thinking-the-modernization-of-norad/>

As the world shifts from unipolarity to great power competition, the new technological and military capabilities of China and Russia are real threats to the security of North America. The modernization of the North American Aerospace Defense Command (NORAD) is therefore no longer up for debate. It is necessary, especially as the lifespan of many of its facilities, including the North Warning System (NWS), is coming to an end. What are the modernization processes that are underway and what should Canada’s priorities be?

Three observations emerge. First, there is a consensus on several NORAD modernization processes within the Canadian military apparatus, Canadian industry and the Canadian scientific community. Second, the United States appears to be stressing the need for NORAD to have offensive capabilities in the future, but Canada historically has supported NORAD only for its defensive capabilities. Finally, obstacles to the modernization of NORAD are to be expected in Canada, even though Canadian public opinion currently seems to be receptive to greater investment in defence.

The Multiple Avenues of Modernization

The modernization of NORAD has been an issue that has preoccupied Canadian experts for several years, and many options are being studied. The context of new Chinese and Russian capabilities, however, puts Canada and the United States in a race against time to modernize North American defence facilities.

First, there is a consensus among Canadian experts on the modernization of the NWS in the Arctic. Designed at the end of the Cold War to detect low-flying planes and missiles, the NWS is no longer able to detect the new generation of Russian and Chinese missiles. US General Terrence O’Shaughnessy, former commander of NORAD, has been warning for several years that new nuclear-armed cruise missiles and hypersonic missiles go undetected by the NWS. Several experts are of the opinion that the new system, in order to be effective, should be based on a combination of radars combining air, space and even submarine and marine capabilities (in a 360-degree approach). Since the NWS’s detection capabilities are already inadequate, but time and money are scarce to replace it, its modernization could involve an upgrade to new capabilities and a more integrated system.

There is also a consensus among the military hierarchy, industry and the academic community on the need to implement detection capabilities that cover all domains. Indeed, the new Chinese and Russian weapons exploit the lack of interaction (the “seams”) between the various detection networks of NORAD, namely the NWS, the anti-ballistic missile defense system (BMD) of US Northern Command, and the maritime detection network. To overcome these threats, Brigadier General Peter Fesler suggests that the new system will have to combine infrared radars with radio frequencies and acoustics. An important capability of a modernized NWS will be to detect the threat at its source and be able to track it afterwards. The majority of the technologies that will make it possible to develop these all-domain detection capabilities are under development and Canadian industry can easily participate in the development of these technologies, in particular through its expertise in artificial intelligence and machine learning.

Canadian defence experts believe that offensive capabilities are needed to modernize NORAD and respond to new threats. NORAD could thus be modernized by adding capabilities to destroy the platforms of its adversaries even before the launch of missiles. The current context of the return of competition between great powers is, moreover, reminiscent of the beginning of the Cold War. Since its inception in 1958, NORAD must continually adapt to an ever-changing geostrategic and technological context. Whether developing a first-strike capability, or a conventional or nuclear response capability, NORAD’s role has always evolved to meet new threats. The present situation therefore updates the debate on NORAD’s offensive capabilities. In particular, Canadian industry sees opportunities to develop non-kinetic defence mechanisms, but some experts are skeptical of Canada’s ability to do so.

An Offensive NORAD?

In their September 2020 report, US General Terrence J. O’Shaughnessy and US Brigadier General Peter M. Fesler suggest that a new approach to defence is needed to deal with threats to North American territory. Faced with China’s capabilities, ranging from cyberattacks to hypersonic glide vehicles, and Russia’s conventional long-range precision strike capabilities, the purely offensive US strategy of projecting power outside US territory is no longer sufficient to deal with extant threats. The United States itself has signaled, in numerous recent documents, that it feels more vulnerable. NORAD therefore takes on particular importance in developing a new North American approach.

The siloed operation of the current approach is a significant weakness already exploited by China and Russia, which have designed strike forces capable of acting simultaneously. NORAD and Northern Command have therefore developed the SHIELD strategy (Strategic Homeland Integrated Ecosystem for Layered Defense), an ecosystem that provides a multi-layered threat detection capability. Protection in all areas and data analysis are at the heart of this new system, which is already starting to be tested with the “Pathfinder” initiative.

The O’Shaughnessy and Fesler report therefore suggests a more offensive, and no longer exclusively defensive, NORAD command, as evidenced by their use of the terms “engage the archer instead of the arrow”, that is to say, “target launch vehicles rather than missiles”. However, Canada supports participation in a purely defensive NORAD, which contributes to warning, and has refused in the past to participate in the anti-ballistic missile defense program (BMD), the only significant effort to modernize North American defence over the past two decades. As mentioned, a number of experts are calling for NORAD to develop deterrent capabilities to deal with new Chinese and Russian weapons. Canada, however, has never encouraged this type of positioning and it is likely that a disagreement will arise between the two countries. Experts note, however, that Canada would have every interest in joining the BMD programme.

In the same vein, the Joint All Domain Awareness Command and Control (JADC2) is an initiative of the US Department of Defense to connect all the sensors of all its military domains – Air Force, Army, Marines, Navy, Space Force – in order to quickly detect threats and alert decision makers. As Lee Obst argues, Canada has technical capabilities (such as artificial intelligence) that it could use for the development of this system. However, Canadian political will, as well as its procurement practices, prevent Canadian industry from participating in JADC2. JADC2 could be an advantage for NORAD and continental defence, but also an infrastructure project that would promote connectivity to the remotest corners of the North.

The new 2019 Arctic strategy of the US Department of Defense therefore emphasizes the importance of deterrence, but also the competition between great powers in the Arctic, especially in relation to new Russian capabilities. It recognizes the importance of modernizing NORAD capability in all areas, but also of cooperating with Canada to ensure the defence of the continent. Despite this, the strategy emphasizes the need to build an Arctic deterrent independent of its allies, again signaling the US offensive will in the defence of the Arctic.

Several American initiatives are therefore underway to modernize continental defence and NORAD, demonstrating a more offensive turn, which hardly represents the Canadian strategic position.

Considerations for Canada

Several obstacles will have to be overcome in order to modernize NORAD, the most notable being the high financial costs and the lack of time. Likewise, the Arctic also poses constraints, whether in order to respect the wishes of the Indigenous peoples who inhabit it, its hostile environment, or the melting ice and permafrost. The need to replace radars and to act in all domains poses the challenge of a series of different platforms to be managed (one can assume at the maritime, air, land, space and cyber levels) in addition to an extraordinary effort to upgrade radars in an almost non-existent timeframe. Canada does not have the budget right now to do this.

Canadian political will and domestic concerns could also be a barrier to modernizing NORAD, especially if it turns out to be more offensive than defensive. According to a survey conducted last August by Nanos Research and a group at the University of Calgary, Canadians recognize China as the main threat to Canada’s security. Additionally, 41% believe Canada should increase spending on national defence and 39% believe the budget should stay the same. This poll shows a shift in Canadian public opinion, which seems more inclined than before to see their government investing in defence. The Canadian government could thus test the waters with its constituents in order to establish an adequate budget for the modernization of NORAD.

Recommendations for Canada

In light of these findings, Canada must invest in NORAD’s defensive capabilities. The lack of budget allocated to its modernization, despite the allusion of this need repeatedly in Canada’s defence policy of 2017, Strong, Secure, Engaged, will have to be revised, because, in light of the Chinese and Russian threats, Canada can no longer escape this modernization.

#### Technological revolution in military situational awareness creates countless vectors for nuclear escalation---NORAD domain awareness solves

Rebecca K.C. Hersman 21, director of the Project on Nuclear Issues and senior adviser in the International Security Program at the Center for Strategic and International Studies; and Reja Younis, program manager and research associate with the Project on Nuclear Issues in the International Security Program at CSIS, 1/15/21, “Surveillance, Situational Awareness, and Warning at the Conventional-Strategic Interface,” http://defense360.csis.org/wp-content/uploads/2021/01/Hersman-and-Younis-ISR-Nuclear-Nexus.pdf

For much of the nuclear age, the concepts and tools of strategic warfare—including command, control, and communications and detection, warning, and situational awareness capabilities—were distinct and highly compartmentalized from those designed to support conventional warfighting. Moreover, the systems that provided strategic nuclear warning operated at long range, from outside adversary territories, and generally in ways that were not visible or particularly concerning to an adversary because they offered little in terms of first-strike advantage. Countries had limited incentives to target strategic warning and situational awareness systems in a conventional conflict, as doing so would not limit an adversary’s ability to conduct conventional operations and would unambiguously signal the advent of a nuclear attack.

These physical and structural separations created a perceived firebreak—a barrier along the escalation ladder designed to slow or prevent accidental or automatic escalation to nuclear conflict in a conventional crisis. This notion of “firebreaking” has been integral to the theoretical underpinning of deterrence and escalation theory— including the concepts of strategic stability, secure second strike, and even the “stability-instability” paradox used to explain the coexistence of nuclear restraint and conventional aggression. Today, however, the expansion of dual-capable delivery systems and the diversification of strategic forms of warfare to include cyber, space, and advanced high precision conventional strike capabilities have sharply eroded these structural firebreaks. Just as significant, but perhaps less appreciated, are the dramatic changes in intelligence, surveillance, and reconnaissance (ISR) and the full range of systems that support strategic warning, tracking, and targeting that are increasingly combined into a single, highly capable situational awareness ecosystem that is both precise and persistent. Fueled by advances in robotics, artificial intelligence/machine learning, advanced sensor technologies, and massive growth in computing power, these highly networked, dual-capable technologies contribute to a situational awareness picture that is far more capable. But, it is also murkier and more complex in terms of understanding and managing escalation risks along the conventional/nuclear threshold. Better understanding the ways in which this new situational awareness ecosystem intersects with the nuclear mission and the benefits and risks of these emerging capabilities will be important for managing escalation under a nuclear shadow.

Is strategic situational awareness changing?

Over time, distinctions between the upper echelons of conflict have become blurry, and pathways to escalation may be far less easily understood or defined. There are several factors driving this change. First, the capabilities designed to provide situational awareness and support senior decision-makers in crises and conflicts are more and more consolidated into a single conventional-nuclear architecture, and these cannot be disaggregated.

Dual-use strategic situational awareness (SA) capabilities may be tasked to conduct both conventional and nuclear missions in an integrated fashion. This blurring effect between the conventional and nuclear potentially creates nuclear missions for what were previously considered conventional-only capabilities. As Keir Lieber and Daryl Press suggest, increasingly capable unmanned aerial vehicles, like the Global Hawk and its advanced successors, coupled with advanced stealth and sensor capabilities may also be useful to track a small country’s mobile missiles— whether nuclear or conventional—and create counterforce opportunities along the conventional/nuclear seam.

Tom Mahnken’s work on “Deterrence by Detection” puts yet another spin on this challenge—suggesting that the extensive peacetime use of unmanned aircraft systems (UAS) surveillance may help “deter” conventional acts of aggression by China or Russia. However, if such persistent capabilities deliberately or inadvertently detect and observe strategic assets, an adversary may believe that their nuclear assets are at risk, potentially escalating a crisis.

Even as modernized NC3 systems seek to ensure a “thin line” of capability is reserved exclusively to support nuclear missions under the most extreme circumstances, the vast majority of nuclear and conventional missions will rely on shared or dual-use capabilities for situational awareness, warning, and communications. This reliance on strategic warning and communication assets in conventional conflicts is on the rise. For example, conventional missile warning currently relies on dual-use surveillance capabilities, increasing the risk that the dual-use capabilities could be targeted in a conventional conflict for conventional purposes but with potentially profound strategic implications. As advanced, long-range, and often dual-capable missile systems have proliferated dramatically in recent decades, including among a range of nuclear-armed adversaries, such reliance on comprehensive and integrated warning systems now must figure significantly into the planning and execution of conventional conflicts, especially when long-range strike capabilities are considered.

In addition, these systems are no longer as physically “firewalled” as in the past between conventional and nuclear systems, including for strategic warning and communications that might counter or disrupt escalatory pressures. This is significant as the dual-use nature of such capabilities means attacks on a warning or communications system for strictly conventional purposes could be misconstrued as an effort to “blind” the target before launching a nuclear strike. Evolving technology has also made space-based systems more vulnerable to a range of disruptive capabilities vis-à-vis spoofing, blinding, disabling, as well as with kinetic ground-based anti-satellite weapons. In addition, the conventional missions of space-based capabilities suggest they could be seen as fair game for targeting in a conventional crisis or conflict. For example, the U.S. Space-Based Infrared System (SBIRS) is a constellation of integrated satellites that enables such varied missions as providing early missile warning, cueing missile defenses, delivering technical intelligence, and supporting situational awareness.

Moreover, emerging digital technologies coupled with advanced sensor and surveillance capabilities integrated across space and cyber domains can provide vast amounts of data more quickly and precisely than ever before, including information about strategic threats that may prove elusive to traditional warning systems. The United States may have to rely on conventional situational awareness systems, including systems that are more visible or intrusive to detect and warn of threats involving hypersonic weapons, boost-glide systems, long-range cruise missiles, and other capabilities that are specifically designed to elude traditional U.S. early-warning systems (e.g., radars and satellites), reduce confidence in strategic warning, and defeat U.S. missile defenses. Advanced sensor technologies and the platforms for their deployment coupled with high-bandwidth networks, quantum computing, data fusion, and artificial intelligence (AI) tools are accelerating the speed, precision, lethality, and survivability of conventional tools of warfare, potentially providing knowledge of adversary forces, deployments, and actions sooner than was previously possible. Inside this dynamic situational awareness ecosystem, the already thin line between conventional and strategic stability effects—especially in terms of preserving secure second-strike confidence—is likely to erode further.

New technologies are likely to exacerbate this trend. The integration of certain artificial intelligence capabilities into the ISR fleet is already well underway. Advanced drone technology and swarming along microsatellite constellations will fundamentally change the world of surveillance. On the one hand, AI-enabled reconnaissance systems could be employed to analyze significant amounts of data and AI-augmented autonomous weapon systems will soon be deployed for surveillance and strike missions—even if used solely for conventional operations, this could create destabilizing outcomes. And on the other hand, when AI enhances autonomy and sensor fusion, it may subsequently enable breakthroughs in tracking and targeting in antisubmarine warfare, or make it easier for highprecision conventional munitions to destroy hardened ICBM silos. These advancements might erode the means by which nuclear powers guarantee survivability of their nuclear forces.

What does this say about escalation and stability when crises occur under a nuclear shadow?

Whether such advanced surveillance, detection, and warning capabilities enable strategic missions or enhance strategic effects of conventional missions, these dual-use capabilities contribute to the blurring of the line between conventional and nuclear spheres. They also challenge traditional notions of stability in cases where vertical and horizontal escalation converge, potentially opening unexpected gaps in escalatory restraint. Also, the intrusive or covert employment or availability of AI-enabled surveillance, reconnaissance, or weapon systems could heighten tensions and increase the chances of inadvertent escalation in a crisis, especially if the state being observed discovers, disables, or destroys a surveillance asset. AI will prove to be particularly problematic due to its precipitous technical progress and intersection with nuclear strategy. Countries such as Russia and China both appear to believe that the United States is trying to leverage AI to threaten the survivability of strategic nuclear forces, exacerbating mistrust that could be dangerous in a crisis. As Paul Bracken observes, ongoing improvements in technology such as AI threaten to “undermine minimum deterrence strategies” and “blur the line between conventional and nuclear war” by dramatically improving the speed and effects of nonnuclear strike capabilities.

For most of the nuclear age, the ability to characterize the operating environment, identify nuclear and conventional strategic attacks and discern real attacks from false alarms has been regarded as a benefit to crisis stability. By improving the accuracy and timeliness of warning, improving overall visibility and clarity on adversary actions, and increasing decision time, enhanced situational awareness and strategic warning seemed to reduce the risk of nuclear miscalculation and the use-it-or-lose-it pressures that could incentivize a nuclear first strike. In conventional conflicts, information dominance—much like air superiority—has been a fundamental component of precision warfare and a central feature of U.S. conventional military superiority in the post-Cold War period. In the conventional arena, information dominance has been essential to ensuring U.S. military effectiveness, sustaining the credibility and assurance of military alliances, and stabilizing or reducing the risks of miscalculation or collateral damage.

For the most part, the United States has enjoyed the benefits of information dominance and the asymmetric advantage it offered. In other words, we could largely have our cake and eat it too. The question is, can we continue to do so? Given the stakes involved, it is difficult to imagine that in a conflict between nuclear powers, adversaries could accurately discern U.S. intentions and allow such information dominance to proceed unchecked.

The days of clear delineations between nuclear and nonnuclear situational awareness capabilities—which help maintain a sharp firebreak between conventional and strategic conflict—seem limited at best. Future decisionmakers may have to weigh the benefits of rapid, decisive military victory afforded by information dominance against the high-stakes risks of nuclear escalation.15 To effectively manage crisis escalation, decision-makers must understand how the strategic SA ecosystem has evolved; appreciate the dynamic relationship between improved strategic SA and crisis stability; and recognize the complex interplay between technology, escalation, and decisionmaking.

This suggests we may need new tools, concepts, strategies, and policies to help guide us through this increasingly complex terrain. Of particular concern, as unpacked in our On The Radar project, are three potential escalation pathways—provocation, entanglement, and information complexity—that may be triggered or exacerbated by the use of emerging strategic SA-enhancing capabilities. Although multiple pathways may be activated during an actual crisis either simultaneously or sequentially, examining each of these escalatory pathways individually provides insight into the interplay of strategic SA technologies and stability risks.

Provocation

Provocation pathways generally emerge from the inability to discern “defensive behavior” from actions that are more offensive in nature, including actions that could indicate first strike intentions or make second-strike options less secure. They often involve heightened risk-taking by either an observing or an observed state and perception dynamics associated with high-stakes security dilemmas—namely situations in which one party’s efforts to lower perceive risks in turn raise risk perceptions for the competing state.

For the observing state, such precise and time-sensitive situational awareness may create powerful first strike incentives—in part to prevent or preempt highly threatening actions by the observed state. For the observed state, such surveillance efforts may seem far more offensive than defensive in nature and therefore incentivize or justify a kinetic response, especially if the surveillance is intrusive in nature. Boundaries for these types of interactions and responses are very unclear. For the observed state: What is the adversary trying to detect or monitor, and why? Do they merely intend to observe? Is surveillance intrusive or beyond territorial limits? For the observing state: How should it consider counterattacks on surveillance assets? Does the type of attack matter? Non-kinetic? Tampering? Disablement? Spoofing? What are the thresholds and what constitutes an appropriate response? What role is there for transparency and risk reduction? If an adversary were to discover and target these surveillance systems, would such an attack be considered conventional or strategic?

This dynamic can be illustrated with an example scenario, such as the deployment of a HALE UAV over adversary territory. Consider this scenario: State A introduces an intrusive risk to which State B may feel compelled to respond to militarily either because it perceives the violation of its territory as an act of war itself or because it believes the surveillance is a precursor for an attack by State A. The UAV deployment, if successful, can introduce a preemptive or action-enabling risk by producing information that incentivizes State A to escalate militarily in hopes of capturing a strategic advantage or terminating the conflict before State B is able to take further action. Such firstmover incentives may be viewed by State A as controllable or conventional, at least initially, which may contribute to their appeal. On the other hand, the HALE UAV is vulnerable because it is detectable and easily targeted with advance air defense assets. If it is targeted by State B and shot down, State A chooses whether to accept the loss or escalate—in essence, drawn into further conflict by an intrusive and vulnerable asset.

The inability of countries to delineate offensive and defensive intentions of capabilities that may directly challenge legal and political concepts of sovereignty could produce a spiraling sequence of actions and reactions, resulting in a loss of escalatory control along the conventional-nuclear seam.

Entanglement

Most research to date on this second pathway, entanglement—the commingling of conventional and nuclear forces, capabilities, or support systems—has focused on dual-use delivery systems capable of carrying both conventional and nuclear payloads, the integration of nuclear and conventional support structures such as command and control, and nonnuclear threats to nuclear weapons systems. Far less work has been done on the informational aspects of conventional-nuclear entanglement and the implications for unexpected escalatory effects, especially with regard to situational awareness, surveillance, and warning capabilities.

We should expect states to have strong incentives to target command, control, warning, and surveillance systems early in a crisis to ensure conventional dominance, which will also threaten nuclear-related systems whether intentionally or unintentionally. But beyond this, we will need to wrestle with not just the dual-use nature of specific systems, but also the existence of an entirely comingled information ecosystem—warning, detection, surveillance, and targeting as well as the communications and decision support systems that support it—creating a highly networked, real-time, dual-use landscape that is both more precise and more complex across all levels of conflict—sub-conventional, conventional, and strategic.

The lack of distinction between the conventional and nuclear domains will only intensify as new surveillance and warning systems come online. Consider the case of the North Warning System (NWS) which is reaching the end of its service life. NWS is comprised of 11 long-range and 36 short-range missile warning radars operated by the United States and Canada under the auspices of the North American Aerospace Defense Command (NORAD).

NORAD must select a notional successor early warning system by 2021 so that it is operational by the mid-2030s. Some call for all-domain awareness (through new sensors capable of dual-use data and information collection in multiple domains including land, space, maritime, subsurface, and aerospace) and action, requiring dual-use technology.20 Furthermore, some have called for the integration of advanced machine learning and other techniques to better anticipate or predict inbound threats. Ostensibly, such an approach could expand decision time and open response windows earlier. What is not clear, however, is how such a transformation of our homeland early warning systems might undermine targeting disincentives of warning systems or exacerbate first-mover incentives in escalatory ways.

Information Complexity

The final pathway involves escalation through information complexity. Escalation through information complexity results from decision-makers’ inability to seek, manage, and interpret information effectively. Emerging technologies for strategic situational awareness have the potential to fundamentally transform the information domain and, if used effectively, to help decision-makers manage crises more effectively with lower levels of risk. The U.S. Air Force has defined this new information environment by four “Vs”—greater volume (collection of magnitudes more data points), greater velocity (the volume of data is acquired at extreme speeds), variety (numerous formats of information from diverse sources), and veracity (the volume, velocity, and variety of data includes a significant amount of noise and irrelevant data). In a similar vein, the U.S. Navy has reported being overwhelmed by the floods of data generated from its existing information-gathering systems. According to a RAND Corporation study, the amount of data being collected by the U.S. Navy increased at an exponential rate between 2000 and 2015. The combination of increasingly complex information sources, unfamiliar technologies, and the high-stakes/high-stress nature of nuclear crises suggests that the escalatory risks associated with information complexity may be a growing concern.

To evaluate some of the risk assessments identified in research and to explore the decision-making process of policymakers and technical experts in the throes of crises under a nuclear shadow, the Project on Nuclear Issues developed and conducted a series of tabletop exercises on two fictitious regional scenarios. Through these exercises, it was evident that the precise, rapid, and persistent information that will be made available through emerging technologies is only as good as the decision-making process it supports. Policymakers were highly attuned to the escalatory risk associated with intrusive technologies, often weighing their concerns about the potential provocation risks to be more important than the SA benefit that capabilities may provide. Excessive caution may avoid unnecessary provocation. It may also force decision-makers and military operators to “fly blind” in a crisis in ways that contribute to miscalculation, either resulting in escalation or de-escalation on highly unfavorable terms.

Faulty decision-making may result from the existence and interplay of several conditions, including cognitive processing limits, unacknowledged belief or value systems regarding information sources, and cognitive biases. The interaction of these factors may work to potentially impair effective crisis management and increase escalation risks. Processing limits, poor information management, and cognitive biases are longstanding risks in crisis management. This suggests that psychology, particularly in the form of pre-held beliefs and cognitive biases, is underappreciated when examining the relationship between crisis decision-making and emerging technology. New technologies should be socialized with policymakers well before the onset of a crisis to improve the likelihood that policymakers will trust and use them appropriately, as well as properly grasp their benefits and limitations.

Further, technologists and operators accustomed to a conventional-only battlefield, where information dominance and precision warfare are prioritized, may not fully appreciate the concerns of decision-makers when such a crisis or conflict occurs under a nuclear shadow. From a nuclear decision-making standpoint, almost any action, including those designed to enhance situational awareness, will be viewed and construed through the lenses of signaling, perceived provocation, and escalation management.

Takeaways and Recommendations

In this environment, there is no realistic path to “disentanglement” of the nuclear and conventional components of warning and ISR or the dumbing down of information and situational awareness. Firebreaking, and the “escalation ladder”-based thinking on which the concept depends, may be a relic of the past. Many technologies (e.g., AI, advanced sensors, and autonomous unmanned platforms) will be comingled and integrated on single platforms, as well as interchangeable across platforms, requiring new frameworks and lexicons to understand the potential strategic risks and benefits of using them appropriately. Understanding failure modes and improving risk-benefit assessments of emerging technologies, especially in terms of artificial intelligence and machine learning is critical. Future nuclear and conventional missions will be distinguished less by the capabilities used and more by the missions to which they are assigned. Thus, risk reduction approaches that emphasize resiliency, redundancy, and transparency may prove more fruitful both operationally and in terms of their stabilizing value.

This will require a better-shared understanding of triggers and thresholds for escalation across the information and situational awareness space along the conventional strategic seam. This should be a focus area for conventional-nuclear integration planning, exercising, and capability development. The strategic SA ecosystem may be combined across the conventional and nuclear realms, but so far, the communities responsible for planning, policy, and crisis management in these two operational areas are not. That needs to change. Communication and collaboration across both communities are essential to understanding the trade-offs, risks, and benefits of conventional-nuclear integration in the strategic SA arena.

In addition, there needs to be a careful reexamination of how we build, explain, and manage warning systems of the future. There will be a need to carefully consider the application of predictive systems for strategic warning. As mentioned earlier, NORAD renewal might also place a greater emphasis on predictive analysis to manage multidomain conflict rather than relying on “traditional stovepiped systems.” This may be right and even inevitable, but we need accompanying tools to inform and communicate associated escalation risks.

The divide between technology and policy regarding the benefits, risks, and requirements for strategic situational awareness capabilities has to be bridged. Information complexity and a lack of familiarity with strategic surveillance and warning capabilities introduce underappreciated risks, especially in high-stakes, high-stress scenarios under a nuclear shadow. Technical, operational, and policy communities lack common views on the utility of some capabilities, the risks of disclosure, and the provocation involved in their use, as well as their vulnerability to tampering or manipulation. Moreover, we can expect that decision-makers will bring high levels of escalation anxiety to any crisis between nuclear-armed adversaries. Socializing technical capabilities and operational requirements now—through training, exercises, and simulations as well as day-to-day use for strategic SA—is essential to reducing information risks, minimizing cognitive biases, and improving crisis management. As Admiral James Alexander “Sandy” Winnefeld, Jr. argued earlier this year, “there should be a virtuous cycle between ways (i.e. the strategic and operational concepts we use to accomplish our ends) and means (i.e. the things we buy to breathe life into those concepts)”—or constant dialogue between technologists and strategists.

#### Independently, NORAD monitoring is key to respond to a slew of unpredictable threats to global stability

Stephen Fuhr 16, Member of the Canadian House of Commons, September 2016, “CANADA AND THE DEFENCE OF NORTH AMERICA: NORAD AND AERIAL READINESS,” https://www.ourcommons.ca/Content/Committee/421/NDDN/Reports/RP8406082/nddnrp02/nddnrp02-e.pdf

During its meetings with both academics and military and government officials, the Committee was told that the international security environment is both unpredictable and in constant evolution. Since the beginning of the 21st century, there has been a significant increase in the number of armed conflicts fought around the world, such as those in Afghanistan, Iraq, Syria, and Ukraine.4 In fact, the Stockholm International Peace Research Institute (SIPRI) reported in 2015 that “there were more wars in 2014 than any other year since the year 2000.”5 And the situation does not appear to be improving, according to the Heidelberg Institute of International Conflict Research, which reported 223 violent conflicts around the world in 2015, including no less than 43 wars.6

Aside from the global instability caused by the worldwide rise in armed conflicts over the past decade and a half, the emergence of new and complex threats has heightened insecurity globally and caused strain in international relationships. Some of these emerging threats include: transnational and domestic criminal and terrorist networks; violent extremism; rogue states; cyber-attacks; the proliferation of ballistic and cruise missile technology; the acquisition and potential use of weapons of mass destruction (chemical, biological, radiological, and nuclear) by state and non-state actors; international power shifts; and the aggressive rhetoric and actions of China, Iran, North Korea, Russia, and other regimes worldwide, among other things. Moreover, climate change and its impact on the Arctic and other regions, global competition for energy and resources, territorial disputes and sovereignty issues, population growth and mass migrations of people due to wars, poverty, environmental degradation and other factors could, among other things, cause instability, exacerbate tensions between states, and potentially result in unrest, violence or humanitarian crisis in several parts of the world, not to mention lead to a global rise in search and rescue incidents.7 At the same time, military spending has been steadily increasing in many regions of the world, from a global total of US$839 billion in 20018 to US$1,675 billion by 2015.9 In particular, the rapid militarization of Russia in recent years has been a source of concern to many countries, including Canada, the U.S., and their North Atlantic Treaty Organization (NATO) allies.10

Canada is not immune to changes in this evolving international security environment. While Canada might appear to be well protected from foreign threats by the Arctic, Atlantic and Pacific Oceans and in sharing the longest international border in the world with the U.S., which happens to be its closest friend, military ally, and trading partner, our country nonetheless remains exposed to the volatility and unpredictability of the international security environment. We also share an Arctic border with Russia. “North America is no longer protected by distance and oceans,” the Committee was told during its visit to NORAD headquarters. “Technology and interconnectedness have given state and non-state actors the ability to reach us militarily and asymmetrically.”11 Several witnesses, for example, told the Committee that conflicts and disputes overseas do have reverberations on the security of Canada and North America, either directly or indirectly, as rising tensions with Russia since 2014 over the Ukraine crisis can attest.

This is why NORAD, in particular, pays close attention to security concerns around the world. Keeping an eye on security developments worldwide is all the more crucial considering that many of the global threats that are emerging today know no boundaries, such as terrorism and cyber-attacks. Doing so will continue to be of critical importance “as we look at the future and are confronted with a threat environment that remains volatile, unpredictable, chaotic and ambiguous,” explained Rear-Admiral Scott Bishop, DND’s Director General, International Security Policy.12

### 1AC---Plan

#### The United States federal government should limit the activation of its North Atlantic Treaty defense pact with Canada in circumstances in which the government of Canada does not agree to substantially participate in the defense of North America, including in-kind participation in missile defense.

### 1AC---Solvency

#### Conditioning Article 5 on Canadian participation in continental defense is key to spur BMD participation

Danny Lam 17, Research Associate at the Waterloo Institute for Sustainable Energy, Ph.D. from Carleton University, 2/16/17, “Canada, National Defense and Article III of the NATO Treaty: Canada in Default?,” https://sldinfo.com/2017/02/canada-national-defense-and-article-iii-of-the-nato-treaty-canada-in-default/

Canadians have long enjoyed the security and comfort of belonging to NATO: a robust military alliance that won the cold war. Today, Canada, a founding member of NATO, is in default of our treaty obligations under Article 3 of the NATO treaty.

Article 3 of the NATO treaty states:

“In order more effectively to achieve the objectives of this Treaty, the Parties, separately and jointly, by means of continuous and effective self-help and mutual aid, will maintain and develop their individual and collective capacity to resist armed attack.”

Failure to meet our obligations under Article 3 calls into question any (or all) obligations NATO members have to Canada under Article 5. This issue is coming to a head with the emergence of North Korea as a belligerent, unstable, and nuclear armed regime.

North Korea’s latest test of a solid fueled cold launched Pukguksong-2 ballistic missile demonstrate how far and fast the regime progressed from testing a nuclear device to fielding a credible nuclear arsenal.

While DPRK have not demonstrated conclusively their ICBM’s capability to deliver a nuclear warhead to the continental USA, this latest development adds a new twist to the problem. Pukguksong-2 is a solid fueled missile mounted on a tracked transporter-erector-launcher (TEL), it is capable of being rapidly launched from anywhere in North Korea. But there is more.

North Korea purchased 12 Foxtrot and Golf (Project 641 & 628) submarines from Russia as “scrap” in the 1990s. It is plausible that parts and subsystems cannibalized from these vessels are being used to build a North Korean ballistic missile submarine. When North Korea acquire a capability to launch ballistic missiles from a submarine, which they have been working on, it greatly complicates allied abilities to detect and counter missile launches.

Experts in the United States believe that North Korea’s ICBMs are either already capable of reaching CONUS with a nuclear warhead or will be able to reliably do so within as little as 5 years. Within this timeframe, a submarine launched ballistic missile with sufficient range to reach CONUS is achievable.

The severity of the threat is demonstrated by Secretary Mattis publically warning North Korea of “effective and overwhelming” (Feb. 3) response to their use of nuclear weapons.

Contrast this with the Liberal regime of Canada who have not taken the North Korean nuclear ballistic missile threat seriously. Anti-missile capability is not specified for the Canadian replacement fighter, the “One Class” surface combatants, nor is the exiting NORAD system tasked for ballistic missile defense.

Frank and candid comments about the North Korean nuclear threat by President Trump and Secretary Mattis to Canadians officials during the Trudeau-Trump visit failed to result in any noticeable change in the Liberal regime’s defense policy. Notably, there has been no effort to update the Statement of Requirements (SOR) for major defense procurements after being clearly and publically warned by the US and allies about the North Korean threat.

Vice President Pence and Secretary Mattis reiterated at the NATO meeting in Brussels that the Trump Administration cannot be indifferent and sit idly by while allies free ride like Canada is doing on the US ballistic missile defense program.

Canada is not a participant in the US Ballistic Missile Defense Program and show no inclination to join. Thus, Canada does not contribute to the present limited defense against NORK ballistic missiles that involved an extensive, layered system of sensors, sea and shore based interceptors from Japan to Alaska to CONUS.

While Canada do have modest anti-submarine resources on the west coast, it is nowhere near sufficient to credibly patrol the large expanse of ocean from which a North Korean submarine can launch nuclear ballistic missiles once they slip past the chokepoints guarded by allies.

The Arctic opening is a major strategic shift confronting Canada with a new set of defense and security challenges for the 21st century. Not meeting them leaves a serious gap for other NATO nations.

This raises questions as to what obligations Canadian allies like South Korea, Japan, and the US have to defend Canada, either by intercepting ballistic missiles aimed at Canadian targets early on or by preventing NORK ballistic missile submarines from breaking out.

By not participating in the Ballistic Missile Defense Program in the face of a clear, indisputable, obvious threat from North Korea, Canada is in effect, presuming that allies will defend Canada.

Canadians are naïve as to how little capability there is for ballistic missile defense in South Korea (who is getting their first THAAD battery this year) and Japan. Their capabilities must be reserved for the much more numerous threats from NORK short and medium range missiles and potentially, a Chinese nuclear first strike. Defense of CONUS will not be a priority even if they are willing.

What about the US? There is only a handful (fewer than 30) of land based anti-ballistic missiles in Alaska. That doesn’t go far with a probability of kill of .5 requiring two interceptors per target if the attack used multiple missiles with decoys.

Finally, that leaves sea based ABMs launched from US Aegis destroyers or cruisers since Canada has none. This option is possible only if the vessels are in the right place at the right time and have sufficient missiles available. But with the potential for ballistic missile submarines prowling about, anti-submarine resources (both surface and air) will be stretched thin.

With a new set of threats facing Canada, solutions to defense loom large. And any investments need to build toward enhanced capabilities; not just check a platform box for the defence force.

Canada, by not having Aegis capable vessels equipped for missile defense or having significant anti-submarine assets, is in effect counting on the US to stretch their minimal anti-missile resources to include Canada.

What obligates the US to do so when Canada is in violation of our treaty obligation to “maintain and develop their individual and collective capacity to resist armed attack.” (Article 3)?

Canadians, and the Trudeau regime, need to recognize that Canada is in breach of our NATO treaty obligations, and as such, can expect no aid from allies under Article 5 until such a time as when Canada meets our obligations under Article 3.

#### Canadian strategic culture prioritizes sovereignty, which means only the threat of losing American security guarantees can prompt deep defense integration and BMD coop

Justin Massie 9, doctoral candidate in the department of political studies at Queen's University and associate researcher at the Canada Research Chair in Canadian foreign and defence policy at l'Université du Québec à Montréal, Summer 2009, “Making sense of Canada's "irrational" international security policy: A tale of three strategic cultures,” International Journal, Vol. 64, No. 3, p. 625-645

Identity saliency is the core organizing principle underlying strategic culture. The hierarchical organization of state identities – that is, the relative importance of a particular identity in a given situation - provides the basis for the value selection process, and hence for consistent strategic behaviour. From a constructivist perspective, seeking relevance within alliances is not an irrational international security policy; it merely reflects the values and identities underlying a strategic rationale.

Let us first consider the proposition that Canada's primary strategic goal is to be relevant in Washington. Canada's relationship with the United States is arguably the backbone of its foreign and defence policy. Many (implicit or explicit) identity-based conceptualizations of the Canadian-American relationship have focused on the degree of political independence the Canadian government enjoys vis-à-vis Washington. On one side are those who argue that political independence - the capacity to choose and act - is the primary value of Canada's international security policy, epitomized by Ottawa's leadership in the establishment of the International Criminal Court and its refusal to formally support the Iraq War. The result would be a balancing national strategy vis-à-vis the United States. Others contend that Canada's contribution to international security through the North American Aerospace Defence Command (NORAD), the North Atlantic Treaty Organization (NATO), coalitions of the willing, and United Nations peace operations amount to supporting and strengthening American hegemony. In other words, Canada is bandwagoning with the United States.

The real issue, however, is not whether Canada has (or should have) adopted what detractors call a naive, Utopian, romanticized approach aimed at defying the United States, or a realist, interest-based, bandwagoning defence strategy. In fact, what is at stake in this debate is the hierarchical position of two contending external state identities and their corresponding interests. Canada's internal, corporate identity as a North American country has indeed generated two seemingly dichotomous (some would say schizophrenic) external identities: Canada as a sovereign state and Canada as a reliable neighbour of the United States. The former valued safeguarding (at least appearances of) national control and authority over policy, territory, and people (including the military), while the latter valued reassuring the US that Canada is not a direct or indirect threat to US national security. The resulting strategic culture can be best characterized as "soft-bandwagoning."16

The relative saliency of each of these two identities provides an explanation for most of Canada's continental security and defence policy. Sovereignty has historically been Canada's most salient state identity in relation to the defence of North America. More than "defence against help," it is about securing the image of a sovereign state neighbouring the US.17 This is mostly the result of longstanding concerns, real and imagined, about inordinate pressure from the US on Canadian sovereignty. It is also because Canada benefits from America's involuntary security guarantee, provided it contributes only modestly to continental defence and security. Though most evident during the Cold War, there are no reasons why these concerns do not apply to real or imagined contemporary threats posed by great powers, rogue states, and terrorist organizations.

Moreover, fully reassuring the United States is an impossible task. As political scientist Frank Harvey aptly observed, "[n]o matter what Ottawa has accomplished so far, the next failure will create the overwhelming impression (even if false) that more could and should have been done.... [I]t really doesn't matter... how much we've enhanced border security while protecting the free flow of goods and services." In other words, none of Canada's efforts towards continental security and defence "will carry much weight in Washington after the next failure, whether or not these programs are essential, produced significant successes in the past, or ultimately contribute to saving lives after the next attack."18 Furthermore, it would necessitate a tremendous and unbearable amount of resources for Canada to effectively and independently secure its own territory. Thus Canada's continentalist strategic culture has traditionally consisted of a minimal contribution to continental defence and security, supplying greater efforts when pressured by Washington to do more. This allows Canada to play a marginal, yet not insignificant, role in continental defence and ensures the recognition of Canadian sovereignty.

Canada's continental soft-bandwagoning does not, however, prevent potential violations of Canadian sovereignty by the United States. Nor does it provide discernible material benefits, such as influence over US continental defence strategy. Indeed, the argument that Canada's seat at the table allows it to influence Washington is unfounded. Canada simply lacks the ability to make the United States do something it would rather not do. Nor does Canada have an alternative continental defence strategy to present to Washington. Most defence analysts thus conclude that Canada's primary motivation is to reassure, not influence, Washington. Given that perfect reliability is impossible, and that Canada's contribution to continental defence has not stopped the US from criticizing Ottawa's laxity, Canada's continental defence strategy is mostly about the psychological benefits of sovereignty protection and alliance relevancy.

Martin's "no" to ballistic missile defence is a prime example of Canada's soft-bandwagoning continental defence strategy. Canada is playing a de facto part in missile defence, thanks to an August 2004 agreement allowing NORAD to continue transmitting missile warning and assessment data to missile defence command and control. Nonetheless, during the 2006 federal elections, Martin repeatedly claimed a Conservative government would have Canada "join" the missile defence program. Although Conservative leader Stephen Harper did not formally commit to reversing the Liberals' refusal to endorse the program, he did specify under what conditions Canada would formally "participate." He claimed that if North Korea - or any other "rogue state," one can presume - were to develop the capacity to strike North America with a nuclear weapon, he would reconsider Canada's position on missile defence.19 Therefore, the successful development of Pyongyang's strike capability could incite the Conservative government to negotiate greater Canadian participation in ballistic missile defence.

Such a decision could represent a historic breaking point for Canada's continental strategic culture, therefore it is unlikely. The ballistic missile issue has been framed - with great resonance in Québec - as one involving the protection of Canadian sovereignty. According to Martin, Harper's position amounts to saying "c'est à Washington de faire la politique internationale du Canada."20 The Liberal party's 2008 electoral platform built on the same line of argument, stating proudly that Canada had acted on principle and taken a "stand contrary to the policies and wishes of other governments."21

The benefits of formal participation in missile defence would be marginal, but the political costs of appearing subservient to the United States would be high. Furthermore, Canada's minimal participation in the missile defence program has allowed NORAD to retain its missile warning and assessment functions, and with them Canada's (modest) relevance in continental aerospace defence. But the fact that these functions are being phased out is not a preoccupation for Canada. Only if NORAD's existence (and hence Canada's relevance) were in jeopardy because of Canada's half- in, half-out position, would the Canadian government be strongly inclined to formally support North American missile defence. Despite all its contradictions, frustrations, and consequences, Canada's lukewarm, de facto involvement in ballistic missile defence illustrates the dominance of a soft- bandwagoning continental strategic culture.

#### But, they’ll say yes to the plan---BMD’s a small price if the alternative is losing NORAD

Joel Sokolsky 14, the 2013-14 Killam Visiting Professor of Canadian Studies at Bridgewater State University, former Principal of Royal Military College of Canada, May 2014, “U.S. Ballistic Missile Defense, NORAD and the Canada Conundrum,” Bridgewater Review, Vol. 33, No. 1, p. 8-11

However, notwithstanding the 2006 renewal and accommodation, the Canadian decision to stay out of BMD still leaves NORAD ’s future as a binational command in jeopardy. This is because, as James Fergusson of the University of Manitoba points out in his 2010 book Canada and Ballistic Missile Defence, 1954-2009, “NORAD ’s early warning mission appear[s] at risk of becoming a redundancy.” Known as Integrated Tactical Warning and Assessment or “ITT /WA ,” wherein air and missile warning and attack assessment functions are brought together, early warning is at the very heart of NORAD ’s mission. And very recently, the stakes have been raised. The Obama administration’s policy reversal on BMD and Secretary Hagel’s announcement of an expansion of the system indicates a new seriousness about missile defense that highlights the differences between Washington and Ottawa on BMD. If the U.S. proceeds with a more extensive BMD system, the existing accommodations within NORAD to the continued Canadian aversion to BMD may not be possible nor in the United States’ best interest. Americans may in other words get over their habit of cooperating with Canadians and decide to effectively gut NORAD by unilaterally taking ITT /WA away from the bi-national command.

Giving Up the Anti-BMD Habit

Today, the Harper government has given no indication that it is considering pulling its own about face on BMD. But as the Obama administration and its successor move forward in expanding America’s ability to intercept missiles, Ottawa may have no choice if it wishes to maintain NORAD as a permanent and relevant substantive and symbolic fixture of American- Canadian security cooperation. The price of sustaining the United States habit of cooperating with Canada in matters of continental defense is that Canadians give up their habit of rejecting ballistic missile defense. Given the stakes involved, it seems a small price to pay.