



**CANADIAN GLOBAL AFFAIRS INSTITUTE**  
**INSTITUT CANADIEN DES AFFAIRES MONDIALES**

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by Ian Mack  
October 2019

# POLICY PERSPECTIVE

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**I**n 2010, the Canadian government announced the National Shipbuilding Procurement Strategy (NSPS) – subsequently rebranded as the National Shipbuilding Strategy (NSS). Less than two years later, two shipyards were selected – Vancouver Shipyards (VSY) and Irving Shipbuilding Inc. (ISI) – to be awarded sourcing arrangements to create strategic relationships to build the government’s large ships (over 1,000 tonnes).

In May 2019, the government announced that it would competitively select a third NSS shipyard. In early August 2019, the invitation to qualify was issued with an initial indication that the new shipyard could expect to build six icebreakers for the Canadian Coast Guard (CCG).

As one who was significantly involved in the conception, launch and early implementation years of NSPS (2012-2017), this struck me as a bold move that could be beneficial to Canada if it is managed carefully and enabled with clear thinking.

### **Benefits of NSPS Available Again**

When NSPS was launched at the end of the last decade, it was seen as providing a number of benefits:

- It was an opportunity to rebuild credibility with stakeholders;
- It could encourage government to make sustained progress in renewing the navy and coast guard fleets;
- It would lead to modern and productive shipyard capabilities;
- It would lead to greater investment in the broader Canadian marine industry by creating a more robust supply chain to outfit the new hulls;
- It could better enable Canadian shipyards to do longer term planning;
- It would allow earlier engagement between Canada as client and the shipyard as implementer from the design stage onward, thereby somewhat reducing uncertainty and risk;
- It could better enable design-to-cost through dialogue;
- It would foster more dialogue on risk sharing and on avoiding expensive risk premiums;
- It could enable more cost-estimate fidelity;
- It could lead to less technical risk for both parties at the decision point to start construction;



- It would provide more open-book visibility for Canada on where the money was being spent to allow greater efficiencies; and
- It could develop greater trust over time among all parties involved.

Many of these benefits were evident with the two NSPS shipyards during implementation, but five of them less so. The addition of a third shipyard provides another opportunity to improve on the efforts expended the first time around, where other people and I have yet to deliver as was anticipated:

- Many stakeholders viewed the terminated Joint Support Ship procurement process of 2008 as a major failure. Despite the expectation that the launch of NSPS would be seen as positive, stakeholders were soon equally skeptical about the likelihood of the strategy's success, probably for three reasons. The first was the improper management of expectations so that stakeholders would understand how complex this work is, the difficulties in predicting cost and timelines amid so much uncertainty, and the significant length of time it was taking each shipyard to get from conception to delivery of at least the first ship. The second was the impact of commissioning new facilities, new processes and many new workforce members on the modernized shipyards' schedule and start-up. The third was the insufficient transparency in public and media discourse. All of these could be better managed with the third NSS shipyard.
- NSPS shipyards can only do longer term planning for downstream shipbuilding if the government makes meaningful, early commitments to them. Being intrinsically risk-averse, the government has failed to do this as well as it could have. With this initiative, the NSS shipyards could be provided with more visibility on all of the ships that will be required, with a particular focus on the full extent of the CCG's fleet renewal requirements.
- Prior to NSPS, the CCG employed separate agents to design its ships and then to build them. NSPS provided the opportunity to work with one implementer from design conception through to delivery and initial in-service support – an approach that reduces risks and improves the probability for success. To date, this has been impossible as the design work for the early classes of ships was already underway before the launch of NSPS. It will be important as the new classes of ships are being assigned to both VSY and the third shipyard that serious consideration be given to the conduct of design and construction by the prime contractor for each shipbuilding project.
- The term “open book” has proven to be less useful than hoped in many jurisdictions, as it is not specific enough to ensure Canada, as the client, gets as much access as it desires at any time, audits aside. This could be improved in the Request for Proposals (RfP) for the third NSS shipyard.
- Relationships have become frayed in some quarters under the stress of implementing NSPS. Serious consideration should be given to the employment of relational contracting, making it a contractual and binding commitment on both parties to adopt the mindset,



behaviours and joint processes needed to better ensure a collaborative relationship, as is only recently prescribed under the ISO 44000 series.

Following from the last point on collaboration, this is one of many emerging practices relating to the execution of complex projects – a set of disciplines that were only being suggested a decade ago. Adopting such new practices should be a priority for working with all NSS shipyards and certainly with the third yard.

## **Genesis**

Much has been written and opinions offered about the rationale for this new initiative. Given the timing of its announcement just five months before a general election – complicated by what some have reported as resistance by some officials to this NSS reset – there may be elements of capital “P” politics and small “p” personalities at play in the decision to pursue a third NSS shipyard.

However, the government’s reported reasoning was related to capacity to keep up with demand, specifically relating to the CCG’s fleet renewal planning.

From past observations, it is my assessment our coast guard has been faced with tremendous challenges in determining needs and priorities. I liken this to having an ancient house and being unable to determine whether the roof, the flooring, the basement and foundation cracks, the questionable antique appliances or the creaking front steps need priority attention for the one handyman you have in town and who is new to the business. Where you focus your effort is likely to change, and if many things fail catastrophically, the one handyman will be overwhelmed trying to deliver all the required repairs ASAP. Therefore, the capacity of the two NSPS shipyards was adequate if the timelines to fleet renewal were extended, but the need to replace many types of vessels at the same time has rendered the initial assumptions of capacity inadequate.

To some extent and as mentioned in writing elsewhere, such concerns were considered personally when designing NSPS, based on what turned out to be a mistaken assumption that the two NSPS shipyards could choose to have ships’ hulls built in multiple shipyards in Canada (or abroad) and assembled in the NSPS shipyards. This consideration came into play with the realization that, in those early days, there were two ships competing for VSY attention in one period – the Joint Support Ships for the Royal Canadian Navy and the CCG’s Polar Icebreaker. My assumption turned out to be false – VSY did not develop its new facilities and capacity to cater to such an approach. As a result, a significant analysis and decision-making process had to be used to determine the sequencing of these two ships for VSY attention.

Could this have been done for the six icebreakers now needing attention in a third shipyard? More specifically, could VSY (essentially the non-combat shipyard having the CCG as its anchor tenant) have proceeded as prime contractor for the six icebreakers while concurrently delivering its existing order book? Was it offered such a possibility? Based on the online response from VSY, I suspect not. And noting the past challenges that VSY faced, I suspect that the government would



not have wanted to tax the leadership with a particularly ambitious icebreaker program for development elsewhere, while working on delivering an Offshore Oceanographic Science Vessel and three Joint Support Ships.

Therefore, faced with a number of priority icebreakers now in need of early planning for replacement in the late 2020s and 2030s, Canada would appear to have decided on a third shipyard. So from this point of view – and noting the potential for NSPS benefits more broadly – this is good news for the CCG, which desperately needs its fleet renewed. It is also good news for the many Canadians who rely directly and indirectly on its services every year. And, of course, it is also good news for Canadian marine sector suppliers.

### **Potential Risks Ahead**

With the decision made, it is important to soberly face the risks and work to mitigate them.

*A Potentially Devalued Deal for VSY* – It is important to consider what appears to be the VSY's state of play. Under NSPS, it was at least morally seen to be the CCG's shipbuilder, but the third shipyard also appears to be destined to build ships for the CCG. Under the non-combat shipyard package at the time of its selection, it also could expect to be building the Polar Icebreaker, but that too seems to be in question now despite the early work VSY already completed on that project.

Yet VSY has muscled through some very challenging issues with the Offshore Fisheries Science Vessels. It therefore seems to me to be only fair to it as a participant in a strategic relationship with Canada that there be a complete reset of its relationship going forward, guided by the recommendations of an external set of advisors and based on a fulsome review of its journey to this important juncture under NSS.

*The Deal for a Prospective Third Shipyard* – For starters, it is important to ensure that the third shipyard will be fairly selected and treated. From the formal release of the invitation to qualify, this seems to be Canada's intent. Interested bidders will be required to accept the assessment of First Marine International against international standards to determine facility, process and workforce improvements needed to adopt best practices for an appropriate level of productivity. This process was used in selecting the two NSPS shipyards. Similarly, improvements to physical infrastructure must be at the winning third shipyard's expense. The use of an umbrella agreement seems to be similar, as does the government's governance system, which will likely be that of NSS more broadly. So in general, there would appear to be important parallels between the selection of the two NSPS shipyards and what will be the third shipyard being procured under NSS. One area yet to be defined is the industrial and technological benefits (ITBs) requirement in the RfP and the inclusion of the NSPS value proposition – the re-investment of a percentage of every contract dollar that the respective shipyards use in developing shipbuilding-related benefits for Canada.



*People Challenges* – With the launch of NSPS, both shipyards have struggled to find or develop sufficient numbers of skilled blue collar workers, experienced foremen and capable white collar expertise (including the senior leadership team) to mould into a cohesive complex enterprise. Likewise, government officials have been equally challenged in fielding a slate of knowledgeable people to represent the clients – this involves Defence; Innovation, Science and Economic Development; Public Services and Procurement; and the CCG (part of Fisheries and Oceans).

The creation or growth required in a third shipyard workforce will not be easy; the two NSPS shipyards have already attracted executives and workers worldwide and are still recruiting. Of equal concern is likely to be the necessary augmentation of the CCG's large-ship project management and technical support team, already very busy working with VSY. In the short term, they will likely also be involved with the delivery from ISI of two Arctic Offshore Patrol Vessels, and will very soon have a third shipyard to engage. I was involved for five years concurrently with both VSY and ISI work for National Defence, so I know the toll is quite demanding.

*Relationships* – Aside from developing collaboration between the client and the third shipyard, there is value in minimizing animosity and competition among the shipyards. The use of what some have interpreted as an aggressive posture by potential third shipyard bidders may have soured relations with both NSPS shipyards and disappointed many government officials. If this is the case, it will be important to mend fences relatively quickly and put in place strong mechanisms to allow for productive relationships to be created. The mention earlier of embracing relational contracting and ISO 44000 is therefore even more germane.

*Financial Impact* – Ship construction is a labour-intensive activity and very expensive. It potentially involves some 2,000 people drawing paycheques for years at a time when all three shipyards are constructing ships. This is a very substantial government commitment of taxpayers' discretionary funding, which will be felt for decades as a non-discretionary draw on successive federal budgets, particularly if the current approach of avoiding gaps in blue collar work at all three shipyards prevails.

*Approvals* – The Treasury Board has always treated procurements as separate and discrete projects. As NSPS entered implementation, officials in the client departments attempted to improve the return on investment and decision-making agility by managing NSS as a program that would allow savings by working across projects for such things as equipment in larger quantities for economy of scale purchases. The proposal also included empowering NSS governance bodies to lean forward with agility when addressing funding requirements where time was important – instead of continual trips to Treasury Board for approvals with the introduction of too many complications to list here. Such efforts failed to gain traction and I suspect no progress has been made. As NSS encompasses three shipyards, the pressure to work smarter will increase by another factor, and the inefficiencies of making no changes will rightfully gather that much more attention.

*NSS Viability* – From a strategic perspective, NSPS was created to try to end the government shipbuilding boom-and-bust cycle by providing a drumbeat of almost continuous shipbuilding for



the selected shipyards. With the addition of a third shipyard, it is difficult to see all three being fully employed beyond 2040, thereby requiring rationalization. The shipyards could view this as an ultimate battle or even a betrayal, with efforts taken over decades to be winners in the expected endgame competition. If it has not yet been done, the government would be wise to provide the NSS shipyards with clarity on the longer term vision for work that could extend NSS beyond 2040.

### **Lessons from Last Time Around**

The opening portion of this paper addressed the lessons learned by revisiting the anticipated benefits of NSPS as suggestions for consideration as the third shipyard is selected and gets underway. However, a number of other lessons were learned as well during implementation that are worthy of mention.

*Future Sourcing* – Many of us failed to understand that we were not contracting out for services under NSPS, but rather we were “future sourcing”. This is a term I first ran across after NSPS was launched, but it explained so much. When the capability that you want to source is not available, then you are actually selecting a supplier with the right pedigree to develop the desired outcome at some point in the future. In 2009, we concluded that vibrant and sustainable shipyards which could be benchmarked as highly productive had substantially atrophied. The selection and award of umbrella agreements were strategic future-sourcing arrangements whereby we wanted the NSPS shipyards to spend considerable energy and expense over years to develop the desired capability. To do this, these shipyards might have benefitted from the equivalent of a start-up or head-start contract to get up and running before any important services were delivered. For the third shipyard, the degree of future sourcing should be assessed and an appropriate arrangement considered.

*Cost and Schedule* – Certain phases of the Offshore Fisheries Science Vessels and Arctic Offshore Patrol Vessels failed to deliver against budget and schedule. This is not uncommon among our allies when attempting to build the first ship of a class of vessels of a new design, but it is even more likely when doing so in new facilities with new equipment, processes and workforce. If hard targets are set, the shipyards will likely be seen to fail repeatedly as new schedules and budgets are required with contract amendments. The worst case scenario is that the shipyard may declare bankruptcy on its first time out.

Such complexity requires a much more nuanced contracting approach. The nature of the work means that cost estimates for construction of ships must be based on production estimates to complete thousands of different functions. These estimates are typically referred to as process norms (the time it takes to do a type and quantity of work, which equates to a cost). In a shipyard with new equipment, new processes and/or new trades personnel, the cost estimate for the first ship to be built will be an educated guesstimate. If not accounted for in the contract, the first ship almost always will be well over the budgeted cost – and it is understood that this may have happened in aspects of the first ship deliveries of NSPS. A better contract approach is the use of what essentially is a pot of risk money for the first ship to be built, something that may have been



raised by at least one of the shipyards but not implemented. Such an approach would not so directly put at risk the first ship's target cost and would better address the uncertainty related to such norms.

As for schedule, it should never be a hard contractual milestone with penalties if missed for the first ship to be built in new (or extensively upgraded) facilities.

*Canadian Content* – NSPS was launched with high expectations regarding the degree of Canadian companies that could supply equipment to the ships to be built. Many surprises followed, in that there were far fewer Canadian marine companies in business after a 15-year drought. As well, we virtually insisted on competitions for all major equipments and systems but made few provisions for paying premiums to buy Canadian. We also found that there were challenges to achieving product commonality across ship classes because of the project-by-project approach to funding and approvals. Finally, it is understood that many foreign companies were selected over Canadian suppliers because they offered ITBs that were hundreds of per cent more than required, based on options such large foreign companies had which smaller Canadian defence contractors did not.

Since NSPS was implemented, Canada has adopted a more useful set of key industrial capabilities. Just as NSPS sought to put in place long-term strategic sourcing and relationships with those who construct ships, it may be is time to look hard at going to the next stage – with selected Canadian equipment suppliers or joint ventures for government fleets where common requirements exist. Aside from supporting Canadian companies, it could enable much greater economies of scale. As we move ahead with the third shipyard as a bold commitment, and as we mature our approach to designing and building ships for government fleets, we should be more serious about moving into the equipment and systems strategic sourcing business as well.

*Industrial Skills Development* – The challenges of finding and sustaining a capable shipbuilding workforce have been mentioned above. It is interesting that when Australia launched its naval shipbuilding plan, aimed at continuous shipbuilding for its navy, it included a government-sponsored strategic skills development program as a parallel activity. As we move to a third shipyard under NSS, it is time to look more carefully at the industrial workforce requirements – for ship design, ship repair and ship construction skill sets – and launch an appropriate government-subsidized skills development program.

*Enhancing Canada's Smart Customer Capability* – As NSPS rolled into implementation, officials often promised to increase the capacity of knowledgeable people in the business of designing and building complex commercial and naval ships. If the situation has not improved, the creation of a third shipyard is akin to adding an additional demand of about 50 per cent. A separate and focused endeavour, to improve capacity and capability as clients, may still need attention within all core government departments – and with tailored learning curriculums developed for all senior leaders with stakeholder and governance roles in NSS. As a final related point, when noting the considerable additional work that the CCG will face as a third shipyard comes on line, the CCG should be first to enhance its capacity, culture and structure to deal with NSS's future demands.



## **Concluding Thoughts**

I must start by emphasizing that I have presented my perspectives based on my nine years with NSPS/NSS. Clearly, much may have changed in the two-and-a-half years since I retired from the shipbuilding portfolio. Some of my opinions may be inappropriate when officials now tasked with NSS scrutinize them. There will also be others who will rightfully ask why I did not do better when I was in harness. They will say they do not need another armchair quarterback, whether I once played on the field or not. I certainly was never the quarterback. But I raise these considerations in an attempt to encourage improvements, because NSS is facing dramatic growth with the intent to select a third shipyard.

I accept that it is early days in the launch of a third NSS shipyard. If this initiative was motivated even in part by politics, it may not survive the 2019 federal election. But if it does, it provides what are likely to be seen as threats to some and opportunities for others.

From my perspective, the third NSS shipyard is undoubtedly the first significant change to the NSS passage plan. If handled adroitly, it could serve as the catalyst for a positive paradigm shift with benefits for all, but especially for the CCG. If addressed as just one more challenging project along the way for those assigned to its execution, it could instead have deleterious effects on the NSS's overall success, on the government fleets and on Canada's commercial marine sector.

As the client who ultimately owns all the risks, the government should mitigate them while seizing the opportunities – to the degree possible and largely based on willpower, leadership, knowledge, transparency and adequate dedicated resources.

In reality, the third shipyard option could be an important driver towards a more effective NSS if it leads those who are accountable to develop a more strategic program view. And based on the current government's agenda, innovation programs are now in place in most departments. However, accountability for programs like NSS has been generally fragmented, so innovation across multiple departments has often been too big a hill to climb.

In the case of NSS, I sense that innovations and adjustments within government have had difficulty gaining traction. There have been occasional discussions about significant potential improvements such as the creation of a shipbuilding agency. In that case, the transition churn and impact on momentum to such a dramatic change to government machinery were judged as too large a risk to take to achieve improved accountability and to enable efficiencies.

Hence, the execution of an end-to-end and meaningful NSS program reset has not occurred. But there is a glimmer of hope that change may be possible.

An interdepartmental marine committee (IMC) of directors-general across all government departments is engaging the Canadian ship repair industry (associations and shipyards). Although its stated purpose relates to improving ship repair processes and approaches, it is wrestling with innovation in general and specifically with concerns regarding the significant HR challenges in every facet of the business.



If the work of the IMC and its many subcommittees could be supplemented by a group of international and independent shipbuilding experts led by and/or of the pedigree of Steve Brunton (the current external advisor on NSS), significant progress might be possible. Since similar NSS endeavours have faltered in the past, decision-making and resource allocation would best be implemented well above the fray at the Privy Council level – something that seems unheard of in modern times in Canada. However, the U.K. has employed this approach to deliver quite amazing results in the execution of complex government projects over the past decade.

A third NSS shipyard is a big idea. If done right, it requires the NSS enterprise to grapple with a number of other important big ideas. As NSS faces another crossroads, the question to those responsible is clear.

## ► About the Author

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*After a 38 year career with the Royal Canadian Navy, **Ian Mack** (Rear-Admiral Retired) served for a decade (2007-2017) as the Director-General in the Department of National Defence responsible for the conception, shaping and support of the launch and subsequent implementation of the National Shipbuilding Strategy, and for guiding the DND project managers for the Arctic Offshore Patrol Ships, the Joint Support Ships and the Canadian Surface Combatants. He also had responsibility for four vehicle projects for the Canadian Army until 2015. Since leaving the government, he has offered his shipbuilding and project management perspectives internationally. Ian is a longstanding Fellow of the International Centre for Complex Project Management. He also is allied with Strategic Relationships Solutions Inc. He is married to Alex, and has three grown children. With few accommodations for impaired mobility, he remains active. Upon retirement, he founded a small business, Xi Complexity Consulting Inc. in Ottawa Canada.*

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