



Procuring the Canadian Patrol Frigates Lessons from History¹

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The distinguished historian David Bercuson once stated, “of all the interesting, dramatic, exciting aspects of defence policy and military operations, none is more dull than procurement. The very word seems to induce boredom.”¹ However, for those who enjoy the intrigues of politics, procurement programs are fascinating because they provide valuable insights into the inner workings of government, especially how defence policies are often guided by considerations that are non-military in nature. Canada’s procurement system has long been described as nothing short of a national tragedy due to its consistent inability to deliver quality equipment in a timely and affordable manner.² Notable failures such as the Avro Arrow and the numerous attempts to replace the Sea King helicopters represent the epitome of the flawed procurement system. Even projects considered to be successful such as the CF-100 Canuck fighter and the DDH 205 *St. Laurent*- class destroyers, were dogged by significant cost overruns and lengthy delays. The acquisition of the Canadian Patrol Frigates took fifteen years from the initiation of the project to the commissioned of the lead ship into the fleet. This was double the accepted norm for a major shipbuilding program at the time.

While the procurement of military equipment had never been smooth in Canada, the intervention of political interests created the nightmarish system in place today. At the heart of this dynamic was the fact that meeting the needs of the armed forces was not the prime objective of procurement. Instead, this was superseded by political considerations that originated from Cabinet. Canada’s military procurement system is unique in that all defence-related goods and services are required by law to be acquired through a competitive selection process.³ This was done to ensure both transparency and to determine the most cost-effective option meeting the Canadian Armed Forces’ (CAF) requirements. However, this arrangement also allowed Cabinet to control the distribution of industrial and regional benefits (IRB), which is used to achieve non-military, political objectives. Furthermore, of the many parties involved, only the Department of National Defence (DND) was concerned with the actual capabilities of the equipment; considerations such as costs and Industrial and Regional Benefits (IRB) distribution were more important than the actual capabilities of the equipment for Cabinet and other government departments involved.⁴

The result was a procurement program for the CPF that was both lengthy and expensive. While ultimately successful – in that it did deliver a fleet of highly capable warships – the process offers a lesson for Canadian procurement of major warships that should resonate with policy makers as they recapitalize the Navy and build the next generation of combatants.

The CPF Procurement Strategy

On December 22, 1977, the Pierre Trudeau government announced its decision to procure six new warships, termed the Canadian Patrol Frigates (CPF) for Maritime Command (MARCOM). The government chose to designate the new warships as frigates because they were designed for a specific mission profile, which in this case was anti-submarine warfare. In comparison, a destroyer was considered to be more of a general-purpose warship which also possessed a significant anti-air capability.⁵ Furthermore, the CPFs lacked the C3 (Command, Control and Communication) suite found on the DDH-280 destroyers. Nevertheless, they were to be massive warships as at a length of 134m with a displacement of 4,200 tons, larger than many First World War era light cruisers and comparable to the DDH-280 destroyers.⁶ The procurement of the CPFs was a landmark event in Canadian military history as this was the first naval procurement program since the end of the Second World War that was not designed and managed by the Canadian Navy. Instead, the domestic shipbuilding industry took on the lead role in the design, system integration and construction of Canada’s latest warships.

The new procurement strategy was introduced in response to the experience of the DDH-280 programs and other navy-major procurement projects.⁷ In previous DND-directed shipbuilding programs, significant cost overruns and delays were incurred because they operated on a “cost-plus” basis. The initial funding request was only for the base ship which was designed by the Director General Maritime Engineering and Maintenance (DGMEM) and his staff. DND officials would then return to Cabinet at later dates to request additional funds in order to bring the ship to operational standards.⁸ In addition to being the customer, MARCOM also functioned as the architects for the ships and was responsible for the acquisition of key components such as weapons, electronic systems, and software packages which were supplied to the shipbuilders for construction and integration. This allowed the navy to make unlimited modifications to the designs in pursuit of the best ship to meet the service’s operational requirements.⁹ Although the final products were technological marvels and top-of-the-line warships, there were large financial over-runs, delays in completion, and thus political costs. In the case of the DDH-280 destroyers, which was the final major naval procurement program undertaken by DND officials, they were not fully operational until four years after they were delivered.¹⁰

The experiences of the General-Purpose Frigate program, HMCS *Bonaventure* refit and DDH 280 destroyer program led to very little trust in the ability of the Navy to manage another major procurement.¹¹ The sentiment echoed by major stakeholders, such as Cabinet and the Treasury Board, was “no more till you convince us you can procure equipment without delays, cost overruns & embarrassing us.”¹² As such, a new procurement strategy was adopted for the CPF project and incorporated a number of new key features to ensure the failures of the past did not resurface. The project was divided into two phases: Project Definition (PD) and Project Implementation (PI).¹³

One of the major problems which plagued past procurement programs was that the project requirements were not explicitly defined. John Shepard, who was the project manager for both the Protecteur-class Auxiliary Oil Replenishment (AOR) ships and the CPF program at Saint John Shipbuilding (SJSDD) recalled that the former suffered from a lack of clarity on what the Navy wanted, which resulted in significant delays as the two sides negotiated a compromise to the technical problems. The CPF project had no such problems as the contract and stated requirements left no room for misunderstanding.¹⁴ This was the result of a thorough project definition stage undertaken by the CPF Project Management Office.

When Defence Minister Barney Danson submitted DND’s memo to Cabinet in 1977 on the Ship Replacement Program, he requested \$63M to conduct a Project Definition competition for the project. The purpose of the competition was to identify two potential contractors who would proceed to the Contract Definition stage, where \$20 million would be provided to each to develop not only the final ship designs but the total support package necessary to operate and sustain the vessels through their life cycles. This was known as “Total Package Procurement” and entailed all the supporting infrastructure such as training facilities and manuals to be included without additional capital expenditure in addition to the delivery of six fully operational ships.¹⁵ Some of the key deliverables which the Prime Contractor was responsible for included a Personnel Training Facility, a Gunnery Support Facility, a Propulsion Training Centre and a Combat Systems Training Centre.¹⁶ As life cycle and support costs made up half of the project cost, it was imperative that post-delivery expenditures were accounted for to avoid the very large increments in costs of past projects. The implementation of the CPF procurement strategy undoubtedly made the process far more challenging for the potential Prime Contractor. Nevertheless, it helped DND to present a fully costed, defined and supported proposal to Cabinet and ensured that the cost of the CPFs would be within the stated budget.

Pierre Trudeau, as well as several other Cabinet ministers, questioned the need to spend such a large amount of money for this purpose.¹⁷ Romeo LeBlanc, the Minister of Fisheries and Environment, was displeased by the request as Cabinet had previously said that it did not have \$1 million to spare for the construction of small ships to alleviate unemployment in the Atlantic provinces.¹⁸ Minister Danson replied that it was necessary to ensure the project proceeded without the costly delays and cost overruns which plagued past programs.¹⁹ Modern warships are extremely complex vehicles, consisting of over two hundred major and two thousand minor systems which must be operational and effective over the course of its 25-year operational life.²⁰ Furthermore, the CPF project was conducted at the same time as the New Fighter Project which meant that the cashflow of DND was extremely limited and overruns in either programs would affect the other, thus necessitating a fully costed proposal.

A second notable aspect of the new procurement strategy was that the Prime Contractor would assume Total Systems Responsibility for the project. The concept of Total Systems Responsibility meant that the contractor, instead of the government, would assume responsibility for all aspects of the project from design, systems selection, project schedule

and cost.²¹ Due to the complexity in the design and integration of systems aboard a modern warship, it would not be possible to modify or exchange systems once the design had been finalized. This would prevent the past practice where naval design staffs were constantly making changes to the ship design even after construction began to incorporate new equipment and capabilities. In order to give the Canadian industry the greatest freedom to develop its proposal, the project operated under a Design to Cost principle. In practice, this meant that interested parties were only given minimum parameters for their proposals such as the project budget, the number of ships to be acquired and the basic capabilities desired from the vessels.²²

The Request for Proposals (RFP) was issued to the Canadian industry in August 1978 and asked interested contractors to submit two proposals: one for Source Qualification and another for Contract Definition. The former required the contractor to detail its methods of meeting the government's technical, management, industrial benefits, contractual and costing requirements of the project. The latter asked them to outline how it would approach the competitive Contract Definition (CD) phase which would be used to develop comprehensive proposals for the ship system design, production, quality assurance, product support, program management and Canadian industrial benefit.²³ It also provided bidders with three options for source qualification: 1) Procuring the ship entirely offshore; 2) Acquire a foreign design to build in Canada; 3) have the Canadian industry design and build the ships under DND's direction.²⁴ A fourth option, whereby DND officials would design the ships in partnership with the domestic industry and then build them in Canada, was not included in the final RFP because the degradation of DND's design and project management capability, which was a result of the manpower reductions from earlier in the decade, meant that it only possessed a minimal capability to administer such a program. It also did not align with the government's desire to use the program to stimulate the growth of critical managerial and design skills in the Canadian shipbuilding industry, necessary for its revitalization and long-term sustainability.

Five parties expressed initial interest and responded to the RFP. They were Genstar Marine Ltd, Pratt and Whitney Aircraft of Canada, a consortium led by Litton Systems with Davie Shipyard and Canadian Vickers, a consortium led by Sperry Rand Canada with Saint John Shipbuilding and Drydocks and Marine Industries Ltd and lastly, a consortium led by Canada Steamships Line Ltd. in conjunction with the Italian shipbuilder Cantieri Navali del Tirreno Riuniti.²⁵ In August 1981, this was whittled down to two finalists, a consortium led by Saint John Shipbuilding, and the other led by SCAN Marine. The selection of the finalists for the project was fraught with political interference and as a result, the victor of the CPF competition would not be announced until June 1983.

Political Considerations

In February 1982, Vice Admiral Andrew Fulton, the commander of MARCOM invited the prime minister and his children to visit the fleet in Halifax. Over the course of two days, the group participated in a tour of both the HMCS *Iroquois* and HMCS *Okanagan*. As the excursion came to its end, Pierre Trudeau invited the admiral to meet with him the next time he was in Ottawa. Several months passed before Vice Admiral Fulton met with the prime minister to present a photo album from the excursion. At the end of the meeting as Trudeau ushered Fulton to the door, he said "Admiral, you will get your ships."²⁶ This anecdote, while lighthearted, was the culmination of many years of work by defence officials leading to the procurement of the Canadian Patrol Frigates. This decision was rooted in clear military needs but, for Trudeau, it was driven by political considerations.

One of the overlooked aspects of Canada's 1970 Defence white paper, *Defence in the 70s*, was the use of the Canadian Armed Forces to produce socio-economic benefits for the country.²⁷ The procurement of equipment for the military had long been used by the government as a tool for economic growth, but the importance of industrial and regional benefits (IRB) increased significantly more under Trudeau. Notably, even as the rest of his foreign and defence policy fluctuated between 1969 to 1975, Trudeau's commitment to use the military for the betterment of Canada remained steadfast. He was even willing to consider the procurement of new aircraft and warships. However, this was always done under the context of promoting economic growth and not to increase the capabilities of its armed forces.²⁸

When Barney Danson initially announced the government's intent to acquire six frigates in December 1977, he remarked that

... we have directed that the shipbuilding program optimise the fullest utilisation of Canadian industrial capability. There is, in Canada, a large number of firms engaged in the design and manufacture of mechanical

and electronic systems for ships. Such firms in concert with Canadian shipyards and ship design agencies could provide the expertise required for the design and production phase of this shipbuilding program.²⁹

This point would be emphasized by members of Trudeau's Cabinet throughout the project.

On June 29, 1983, when the victor of the competition for the CPF program was announced, Danson's successor, Gilles Lamontagne, stated that "as the naval modernization program continues, hand in glove with the continuing modernization of Canadian industry, it is essential that the vital skills required are developed in a number of centres of excellence. Our overall maritime re-equipment program is therefore designed to develop and maintain modern capabilities and skills across Canada."³⁰ Jean-Jacque Blais, the Minister of Supply and Services (MSS) whose statement followed Lamontagne's, emphasized the fact that the project would create thirty thousand person-years of employment and that two-thirds of the project would be fulfilled by domestic firms.³¹ This point was further reinforced by Charles Lapointe, who had recently succeeded Blais as the MSS, on August 18, 1983 at the signing of the contract for the CPFs in Saint John.³² The reality was that the design of the CPF project was heavily shaped by political considerations in order to maximize industrial development objectives that would be favourable to the government.

Developing Canada's Indigenous Electronics Industry

The Trudeau government was eager to make use of the opportunity presented by the procurement of the CPF program to further the development of domestic industries. Modern warships are a collection of highly complex electronic and mechanical systems which requires numerous specialized technologies and capabilities to construct. The CPFs, which contained two hundred major electronic systems and two thousand minor subsystems were regarded as the perfect vessel to achieve this goal. One of the sectors which the government sought to expand was the electronics industry, as electronic systems was one of the fastest growing industries in the world, with special emphasis placed on the creation of a systems integration capability. In 1977, the global industry was valued at \$100 billion, 10% of which was from computer-based electronic systems alone.³³ In Canada, this subsector had just grown 26% from the previous year.³⁴ The development of an electronic systems integration capability was of particular interest to the government not only because of its industrial and economic potential to create well-paying jobs but also because of its application in a number of secondary fields such as energy management, communications, and defence. However, growth in this field was dependent not on the amount of investment into production capability but on the continued accrual of knowledge and experience.³⁵

The Minister of State for Science and Technology (MOSST) Judd Buchanan was especially keen to use the Canadian Patrol Frigate program to promote the development of the indigenous electronics industry. In 1978, the Department of Industry, Trade and Commerce identified the lack of a systems integration capability as one of the two major inhibitors in the growth of the fledging Canadian electronics industry. The other was domination of the field by foreign owned companies.³⁶ Due to the wide-ranging application and the sensitive nature of these technologies, there were already increasingly stringent restrictions on the export of these goods and capabilities by the countries of origin. If Canada was to maintain its status as a global leader in high technology, it was imperative that it devised the means to produce the required capabilities domestically, which could not occur without positive government intervention.³⁷

During the formulation of the Request for Proposal for the CPF project in 1978, Buchanan and Jack Horner, the Minister of Industry, Trade and Commerce, submitted a series of memos to Cabinet to press for stronger language on the requirement for a Canadian-controlled firm to undertake the electronic systems integration aboard the Canadian Patrol Frigates. Systems integration was a key component of the project which made up nearly half of the project cost.³⁸ Buchanan acknowledged that an explicit demand for the systems integration to be completed by a Canadian-controlled company would lead to increased costs and decreased competition for the CPF program. However, he contended that the potential economic and industrial benefits were more than enough to justify the increased expenditure.³⁹ Furthermore, while systems integration was a vital component of the warships and failures by the contractor could derail the entire project, he believed that there were sufficient competencies within the Canadian electronics industry to meet the demands of the CPFs.⁴⁰

DND, and to a lesser extent, DSS were opposed to the requirement that a Canadian-controlled firm be responsible for the electronic systems integrations for the CPFs. C.R. Nixon, the long-time Deputy Minister of National Defence had significant reservations about the use of the CPF program as a vehicle for the development of a Canadian systems

integration capability and for other high-tech purposes because it offered no guarantees that the industries created through the project would be sustainable without continued government intervention.⁴¹ Furthermore, it would have significant implications for the management of the CPF project. The requirement not only added another level of constraints to an already complex shipbuilding program, but it also inhibited proposals based on foreign designs which in turn affected the competitive nature of the project and the ability for DND/DSS to procure a warship that met all the operational requirements at the lowest possible price.⁴² Such a ban in foreign participation on the systems integration aspect of the project could potentially trigger international repercussions.⁴³

Rear Admiral Jock Allen, the Associate ADM (Mat) concurred with Nixon and argued that such a Canadian content requirement went against the principle of letting the shipbuilding industry come up with the best designs and procurement strategy. It would have a significant impact on the formation of industry consortia as it would effectively force shipbuilders to collaborate with firms that had little experience in systems integration because of a government directive and would result in considerable unnecessary risks to the project.⁴⁴ Rear Admiral Allen recommended that if such a provision was to be mandated, it would be better to forego the RFP and instead to opt for a “DND-controlled engineering design and project control.”⁴⁵ Cabinet was unswayed by the objections posed by DND officials, with ministers agreeing that the integration of at least two of the major electronic systems must be completed by a Canadian-controlled firm.⁴⁶ The requirement for a Canadian-based company to be responsible for the integration of major electronic systems over the objection of defence officials, was a clear example of how government political interests superseded those of the military.

The Revival of Canada’s Shipbuilding Industry

Canada remains one of a select few nations that does not have a national shipyard system and instead relies on public-private programs for the construction of its warships. This means that the government acts as both a client and a patron of the shipbuilding industry.⁴⁷ Since the Second World War, the Canadian government had slowly nurtured an indigenous industry to ensure that its shipbuilding and maintenance needs were met. The RCN, in particular was eager to maintain a strong industry which could be quickly mobilized in times of emergencies. The massive shipbuilding program which took place after the Korean War epitomized this partnership. However, this arrangement also led the industry to be reliant on the government for new contracts. Historically, the domestic shipbuilding industry subsisted largely on government contracts as well as domestic commercial cargo vessels and fishing trawlers.⁴⁸ The Robertson Report commissioned by the Canadian Shipbuilding and Ship Repair Association (CSSRA) in 1970 noted that new construction work made up 50-60% of Canadian shipyards’ work between 1958-69. DND’s share of new construction ranged from 2% to 32% during this period with an annual average of 18%.⁴⁹ Therefore, while naval constructions alone were insufficient to sustain the industry, it nevertheless represented an important source of revenue. With the commissioning of the final DDH-280 destroyer in 1973, the construction of warships in Canada ceased.

The decline of the Canadian shipbuilding industry was the result of several factors, one of which was the lack of new military contracts due to fiscal austerity measures imposed on the Canadian Forces by the Trudeau government early in his first mandate. The shortfall in funding, had been a persistent problem for the Canadian military that disproportionately affected MARCOM. Ideally, capital investment should make up half of MARCOM’s budget to ensure that its equipment was modern and operationally effective. However, this level was never reached as the service prioritized its operational needs and the procurement of new warships became a luxury. The capital equipment budget averaged only 25% of total naval expenditure for much of the decade. Under Trudeau, MARCOM’s budget for capital equipment funding fell to dangerously low levels. In FY1969-70, MARCOM’s capital expenditure made up 26% of the Navy’s budget on account of the ongoing procurement of the DDH 280s and the Protecteur-class AORs.⁵⁰ By FY1975-76, this dropped to 9%, as inflation caused personnel and operating costs to soar.⁵¹

Globally, shipbuilding was a highly competitive but largely unprofitable enterprise. Most shipbuilders were dependent on government subsidies and protectionist measures such as tariffs or import restrictions to remain competitive and viable. From 1971 to 1975, there was a surge in demand for new commercial cargo vessels and 70% of all tonnage construction in 1974 – 1976 in Canada was marked for export.⁵² The 1973 Oil Crisis led a large number of businesses to reconsider their shipping needs.⁵³ This in turn resulted in a drastic reduction in new orders while numerous existing orders were cancelled. Competition for the few available contracts became fierce and the Canadian shipbuilding industry suffered immensely. Shipbuilding was a labour-intensive industry and the high cost of labour made Canadian shipyards uncompetitive on the global stage. The labour cost of a ship built in Canada could cost up to \$20 per man-

hour compared to \$2 to \$3 in a shipyard in South Korea.⁵⁴ As such, even the 25% tariff on imported vessels and a 20% subsidy to Canadian shipbuilders was insufficient to compete with foreign competitors.

In most countries, government subsidies covered over 30% of production costs in order to attract contracts for their national shipyards. In Canada, this was initially set at 50% and 40% for trawlers and commercial vessels respectively during the early 1960s.⁵⁵ However, as the argument that a strong domestic shipbuilding industry was necessary for national security reasons lost political appeal, these subsidies were reduced significantly. The Shipbuilding Industry Assistance Program (SIAP) introduced by the Trudeau government in 1975, provided only a 14% subsidy for orders placed that year. The value of the subsidy was planned to decrease by 1% annually until it reached 12% in 1977. However, in March 1977, it was raised to 20% in an emergency measure to prevent the mass layoff of workers as a large number of orders were completed concurrently at multiple shipyards.⁵⁶

Studies by the Department of Industry, Trade and Commerce (DOI) suggested that to maintain the level of employment at fourteen thousand workers, the industry would require a minimum of \$350 million annually in new orders. The \$70 million subsidy provided by SIAP reduced the requirement to \$280 million which allowed the government to stave off the collapse of the industry and prevent the loss of thousands of positions. Nevertheless, the outlook remained bleak. As the Project Definition phase of the CPF program took place, the industry subsisted on lesser orders such as oil rigs and small vessels. By June 1983, when the Prime Contractor for the CPF project was announced, the situation was critical as only two shipyards had any construction work scheduled for beyond November of that year.⁵⁷ The collapse of Canada's shipbuilding industry led Vice Admiral (ret'd) J.C. O'Brien to lament "I see our navy being starved to death because Canada has abdicated its responsibility of maintaining a self-sufficient industrial base from which to produce the necessary equipment."⁵⁸

Admittedly, the Canadian shipbuilding industry was a relatively minor contributor to the economy, accounting for 0.2% of the GNP.⁵⁹ In 1976, the industry employed approximately fifteen thousand people which amounted to just 1% of all construction positions in Canada.⁶⁰ While it supported an additional forty-five hundred positions through its supply chains, it was hardly a core industry which the government should devote resources to sustain. However, from a public policy perspective, the survival of the Canadian shipbuilding industry was vital for both national security and political reasons. DND relied heavily on civilian shipyards to assist in ship refits and repairs, as its own facilities were unable to keep up with demand.⁶¹ Despite such needs, it was ultimately political considerations that made the need to keep the domestic industry afloat a necessity.

The shipbuilding industry had a disproportionate impact on several regions. Many of the major Canadian shipyards were located in the Maritime Provinces, Quebec, and British Columbia in communities which otherwise had few other well-paying alternatives.⁶² The unemployment rate in the Maritime Provinces, Quebec and British Columbia ranged from 7% to 12% and the collapse of the shipbuilding industry would have caused a significant ripple effect.⁶³ There were also wider economic consequences as shipyards supported many secondary industries, most notably the steel industry centered around Hamilton and the Niagara Peninsula. Pierre Trudeau's return to power in 1980 was largely based on the strong showing of the party in these regions, which created a need to create economic benefits in exchange for continued political support.

The decline of the Canadian shipbuilding industry had significant impact on the CPF program. It was common practice in the industry to lay off workers between shipbuilding projects. Furthermore, unlike other nations, senior staff members and technicians were not retained, leaving the shipyards to deteriorate after each project.⁶⁴ This meant that each time a shipbuilding program was initiated, significant time and expenditure was required to rebuild expertise and refurbish the physical plant. The large gaps between the various naval shipbuilding programs of the 1950s and 60s, the DDH 280 destroyers, and the CPFs meant that a substantial amount of talent was lost during the intervening years. The degradation of these essential capabilities and infrastructure was what prompted the Minister Judd Buchanan to argue that it was inconceivable for DND and the Canadian shipbuilding industry to carry out such a project in 1977.⁶⁵

The prolonged depressed state of the shipbuilding industry also meant significant investments and time were necessary to prepare the shipyards for the construction of the CPFs. Due to a dearth of contracts for traditional commercial and government ships between 1977 to 1983, most of Canada's major shipyards had been reconfigured for the construction of oil rigs and small support vessels. As such, significant retooling was necessary to reconfigure the chosen shipyard to construct a large warship such as the CPF. Government studies predicted that based on the economic conditions and sustained demands from the energy sector, the earliest that construction could commence in a Canadian shipyard

would be 1985, even if the CPF contract was awarded in 1983.⁶⁶ The Trudeau government willingly accepted this delay as it ensured that the warships would be designed and built within Canada.⁶⁷

The CPF Bid Evaluation

On August 15, 1981, Jean-Jacques Blais, the Minister of Supplies and Services, announced that Scan Marine (SCAN) based in Montreal, QC and Saint John Shipbuilding (SJSDD) from Saint John, NB as the two finalists, which would proceed to the Contract Definition Stage of the CPF Program. The selection of the two consortia was not without significant political drama. In 1979, the CPF PMO recommended the selection of the consortia led by Litton and Sperry to proceed to the Contract Definition Stage. However, this plan went awry with the defeat of the Joe Clark government in March 1980. When Pierre Trudeau and the Liberal Party returned to power, the new Minister of Supply and Services, Jean-Jacques Blais notified the five contenders for the CPF project that they were insufficiently Canadian and would be given one month to adjust their bids to comply with the new requirements.⁶⁸

Several of the leading contenders for the project, Sperry, Litton and Pratt & Whitney, made significant changes to remain in the process. Litton turned over the Prime Contractor position to its partnered shipyard, Canadian Vickers from Montreal.⁶⁹ Pratt & Whitney, which did not partner with any Canadian shipyard instead created a company, 99299 Quebec LTE, which later became Scan Marine, to become its candidate for Prime Contractor position. Lastly, Sperry made a similar change to its proposal with its major subcontractor, Saint John Shipbuilding, which became the lead in its proposal.⁷⁰ Furthermore, Sperry created a wholly owned subsidiary, Paramax Electronics, to be responsible for the integration of electronic systems in order to strengthen the Canadian content of its proposal. As the PMO prepared to resubmit its recommendations, a lobbyist for Pratt & Whitney contended that the bid by Vickers should be disqualified due to a conflict of interest as Vickers-Stanwyck, a partially-owned subsidiary of Canadian Vickers, had hired T.A. Arnott, the first project manager of the CPF program as its new president. Though his employment had been approved by the government's conflict of interest office, Trudeau's Cabinet made it clear that it would not approve of Vickers' involvement.⁷¹ As a result, SCAN replaced Vickers as one of the finalists to participate in the final phase of the competition for the CPFs.

During the Contract Definition stage, which took place over the course of fifteen months, the two-finalist consortia each received \$20 million to develop not just the final designs of the warship but also detailed management plans, industrial benefits distribution proposals and lifecycle support arrangements. To ensure the transfer of critical design and managerial skills from DND to the shipbuilding firms, the Contract Definition stage operated under a "negative guidance" basis whereby the PMO would comment and advise the shipbuilders on problems in their submissions but would not provide solutions to them. In practice, DND officials would reject a concept or proposal without explanation or how to fix it to their liking, much to the displeasure of the shipyards' design staffs.⁷² The final submissions were due on October 2, 1982 which was then assessed by a committee from DND, DSS, DOI and other relevant government departments. Notably, the PMO, recognizing the inherently biased nature of the office chose to abstain from the evaluation process and instead relied on naval officers not associated with the project to conduct the evaluation of the technical elements of the bids.⁷³

The bids from SCAN and SJSDD were assessed based on their compliance with the project and government requirements, the risks involved in their proposal, and the ability of the consortium to undertake the project.⁷⁴ The specific areas in which the bids were evaluated were: the operational capability of the proposed warship, the ship design, the integrated logistics plan, the industrial benefits distribution plan, the financial soundness of the bidding consortium and the management plan and team.⁷⁵ In nearly every aspect evaluated, SJSDD's bid was equal to or superior compared to those of its competitor. SJSDD's bid was especially strong in two key determinants: overall project risk and cost.⁷⁶

The risk management factor was one of critical concerns of the CPF PMO. The confidence of Cabinet, other government departments and the public in DND's ability to manage major procurement programs was already exceedingly low. The Trudeau government had witnessed the cost overruns in HMCS *Bonaventure's* refit and the acquisition of the CP-140 Aurora LRPA turn into a political embarrassment. A third failed project would only cement DND's legacy of failures with devastating consequences for MARCOM. Both SCAN and SJSDD were mandated as part of their bids to make arrangements for large and comprehensive insurance policies which would cover the ships

against all risks until their delivery; this ensured that the government would be financially compensated if the program went awry.⁷⁷ However, no such guarantees were available to the Navy if the ships failed to be delivered.

The bulk of Canada's surface warships – all but the four DDH 280s – were near the end of their expected life. Not only were the destroyers operationally obsolete but both operating and maintenance costs had spiralled due to the advanced age of the vessels as well as the lack of readily available spare parts. Comprehensive Destroyer Life Extension (DELEX) refits, which started with the original St.-Laurent class destroyers in the late 1970s, extended the life of the destroyers by another decade. These refits were largely a desperation measure to extend the life of vessels that were now more than twenty years old until the CPFs could enter service.⁷⁸ In the event the CPF project collapsed, a new shipbuilding program would have to be initiated thereby further delaying the delivery of MARCOM's latest warships by several more years. In such a scenario, the impact on the operational capability of MARCOM would be disastrous, and for this reason, the risk assessment was a critical factor in the bid evaluation.

The difference in the risks associated with SJSDD and SCAN's proposals were glaring as illustrated in Annex B. Nearly every aspect of SCAN's bid were judged to be of high risk with only the projected operational capability of the ships and the integrated logistics plan considered to be of medium risk. In contrast, SJSDD's proposal was rated to be of significantly lower risk with several elements (ship design and integrated logistics plan) deemed to be of low risk.⁷⁹ Furthermore, not only was SJSDD's bid considered to be of lower risk but it would provide the warships at a significantly lower cost.

The CPF project operated under a two-tier pricing system. The target price was the price which the Prime Contractor would strive to keep while the ceiling price acted as a hard cap for the project. A reward system was established based on the final cost of the project.⁸⁰ If the cost of the project was below the target price, the prime contractor would receive 20% of the savings under the target price as a bonus. Conversely, 20% of the overage would be deducted as a penalty if the target price was exceeded. Lastly, if the final cost exceeded the ceiling price, the contractor would receive no profit.⁸¹ SCAN Marine's final proposal called for a target price of \$5.791 billion and a ceiling price of \$6.062 billion. By contrast, SJSDD's target price was \$4.702 billion with a ceiling price of \$5.373 billion.⁸² The difference between the two offers was nearly \$1 billion at the target price and \$671 million at the ceiling price.

As part of the submissions for the CPF contract, SCAN and SJSDD were both asked to detail the cost and industrial benefit breakdown for alternative construction arrangements. Both bidders presented three possible construction options for the CPF PMO's consideration: (1) to build all six ships in a single shipyard, (2) three ships each in the Atlantic Provinces and Quebec, and lastly, (3) two ships each in shipyards located in the Atlantic provinces, Quebec, and British Columbia.⁸³ From a project management perspective, there were no significant advantages to be gained from choosing either Options Two or Three other than to more equally distribute industrial and regional benefits (IRB). Not only would the government have to pay a significant construction premium, it would introduce unnecessary management burdens and risks as more parties became involved in the project.⁸⁴ However, their inclusion demonstrated that the distribution of IRBs was a top priority for Cabinet.

The distribution of industrial and regional benefits among the four primary Canadian regions was the most contentious issue in the CPF program because it was largely political in nature.⁸⁵ Given the immense monetary value and the socio-industrial potential of the project, it should be of no surprise that the CPF commanded significant political attention. One senior official involved in the project recalled that he would receive numerous phone calls or meeting requests from Member of Parliaments eager to have their constituents participate in the project.⁸⁶ The project was designed to provide maximum industrial benefits for Canadian businesses and as such, at least 65% of contents in the ships had to be Canadian.⁸⁷ Furthermore, if components needed to be acquired from a foreign source, the value of those parts would have to be offset by creating economic benefits of equal value within Canada. Another requirement of the CPF project was that the economic benefits generated from the project must equal to 100% of the project cost.⁸⁸ After it had won the competition, SJSDD committed to offset the \$700 million worth of equipment and supplies it would acquire from abroad with additional Canadian contents and services.

The only advantage that SCAN held over SJSDD was in the value of its proposed IRB package. SCAN's bid proposed to generate \$2.535 billion in industrial benefits compared to \$2.373 billion for SJSDD. However, it heavily favoured Quebec where SCAN was based and where much of the design, construction and systems integration would occur. The IRB distribution of its single shipyard option by region was as follows: \$1.569 billion for Quebec, \$149 million for the Atlantic provinces, \$669 million for Ontario, and \$148 million for the Western provinces. In contrast, SJSDD's

proposal was much more balanced: \$710 million for Quebec, \$887 million for the Atlantic provinces, \$695 million for Ontario, and \$91 million for the Western provinces. SJSDD's bid was assessed to not only be significantly cheaper than SCAN whilst being far less risky, but it would also provide more evenly distributed benefits under its IRB proposal. On June 29, 1983, defence minister Gilles Lamontagne, announced SJSDD as the victor of the CPF competition and that construction of the warships would be split between shipyards in Saint John and in Quebec.⁸⁹

DND officials had noted that while the decision to select SJSDD as the Prime Contractor and to build all the ships in Saint John would be the most cost-effective and least risky option, it would inevitably lead to significant backlash from Quebec as the difference in industrial benefits were enormous.⁹⁰ SCAN's single shipyard option would have produced \$1.198 billion in IRB for Quebec compared to just \$640 million in SJSDD's proposal. The resulting \$558 million shortfall in industrial benefits for Quebec was deemed to be politically unacceptable for reasons which will be discussed later. However, as SCAN's proposal cost \$709 million more than SJSDD's, it was not a viable alternative and attention then turned to the two-shipyard option. Saint John Shipbuilding's two-shipyard option would have seen half of the frigates built in its own drydock in Saint John, NB whilst the other three would be subcontracted to a Quebec-based shipyard. The arrangement would entail a \$57 million construction premium. However, it would also largely bridge the IRB difference between the competitors to a mere \$83 million, a price that the government was more than willing to pay.⁹¹ The decision to split the construction of the vessels between two different shipyards despite the added premiums and additional risks it posed to the project once again demonstrated that political considerations were the foremost concern to Cabinet during the CPF project.

The Quebec Caucus Crisis

Trudeau's return to power in the 1980 was largely due to gains in Ontario and the Atlantic provinces, but it was support in Quebec, long the bedrock for the Liberal Party, which made victory possible. Between 1965 and 1980, the party won no less than fifty-six seats in the province during federal elections.⁹² The significance of Quebec to Trudeau was more than just its importance to the stability of his government or the fact that he was born there. Pierre Trudeau was a fervent federalist who was determined to keep the province a part of Canada.⁹³ Despite the defeat of the referendum for sovereignty association proposed by the Parti-Québécois provincial government in May 1980, the intensely nationalist premier René Lévesque still enjoyed great popularity and led a determined campaign against Trudeau's repatriation of the Canadian constitution in 1982 that sharpened tensions between Quebec and "the rest of Canada." Trudeau was acutely aware of the need to demonstrate the benefits of federalism, and the procurement of the Canadian Patrol Frigates was a clear opportunity.

Indeed, the procurement of the Canadian Patrol Frigates led to a full-blown political crisis which has largely gone unnoticed in Canadian history. While details are scant, it was a widely known fact amongst those familiar with the scene in Ottawa that the decision to award the contract for the CPFs to SJSDD had nearly led to a revolt of the Quebec caucus of the Liberal Party. At this point, there are two different narratives over what occurred. A senior naval official recalled that in a desperate final attempt, SCAN lowered its bid to match those of SJSDD within a day of the bids being opened.⁹⁴ This last-ditch maneuver was deemed to be in violation of the conditions of the tender by Treasury Board officials and resulted in SCAN Marine's bid to be deemed non-compliant.⁹⁵ However, another equally well-placed participant in the CPF project maintained that this did not occur and that the decision to select Saint John Shipbuilding was based purely on the merit of its proposal.⁹⁶ In May 1983, when it became apparent that SJSDD was the far superior option, the Cabinet Committee, Foreign and Defence Policy requested an additional analysis to be completed by the Committee of Deputy Ministers, Foreign and Defence Policy on the distribution of industrial benefits.⁹⁷ It was evident that Cabinet was aware of the impending political fallout given how strongly the MPs from Quebec and the provincial media advocated for SCAN to be awarded the contract the warships, particularly since the difference in IRB for the province between SJSDD and SCAN's bids were significant.⁹⁸ DND officials were keenly aware of the political situation and used it to their advantage.

At the time, there were two other major maritime projects which were in development alongside with the CPF program: the Tribal Refit and Update Modernisation Program (TRUMP) refit for the DDH 280 destroyers and the construction of the Type 1200 Icebreaker for the Department of Transport. The former had been in development since 1977 and was intended to convert the four Tribal-class destroyers into area-air defence warships to fill a sorely needed capability gap. The value of the program was estimated at \$1.4 billion and would have provided an additional \$160 million in industrial benefits to the region in which it was awarded and would significantly narrow the IRB difference

between the two proposals for the CPFs. The idea to link the CPF project and the TRUMP refit was the brainchild of Hans Hendell, a member of the CMDO staff.⁹⁹ Hendell's proposal was that the region which lost the CPF program would be awarded the contract for the DDH 280 destroyer refit while the construction of the icebreakers would be reserved for a west coast shipyard.¹⁰⁰ This was a politically acceptable solution as it ensured that all regions of Canada would benefit from the government's shipbuilding programs.

Upon learning of the decision to award the contract to SJSDD, the Quebec caucus of the Liberal Party was furious and threatened to defect from the party, a move which would have triggered the collapse of the Trudeau government.¹⁰¹ It did not matter that the province stood to gain the most from the distribution of industrial and regional benefits in SJSDD's plan, the mere fact that the Quebec-based SCAN Marine was not the victor of the competition had them livid.¹⁰² In response, a number of measures were adopted by DND officials and recommended to Cabinet to placate the party's Quebec caucus. The TRUMP program was awarded to Litton Canada and completed by Davie, a Quebec-based shipyard. Furthermore, it was decided that the construction of three of the CPFs would be subcontracted to Versatile Vickers Inc. who then further subcontracted MIL shipyards to do the construction to ensure that Quebec received a share of the construction jobs. This decision resulted in a myriad of technical and legal problems which plagued the project long after the Trudeau government had left power.

After the decision to split the construction equally between Quebec and Saint John was agreed upon, Rear Admiral Ed Healey, the Project Manager of the CPF project at the time was approached by Andre Ouellet, the Minister of Labour about the feasibility of further subdividing the construction of the three Quebec frigates between two shipyards. This was an inadvisable and costly proposition which from a project management perspective, made little sense as it added additional risks and costs to the program for no tangible gains. However, Minister Ouellet had made it clear that if the project were to receive approval from the Treasury Board, it would have to be implemented.¹⁰³ This arrangement, which cost an additional \$40 million, was problematic as no additional funds were given to address this unforeseen complication. SJSDD was still expected to complete the project within the agreed to price ceiling and would be held liable for the failure to abide to the terms of the contract even if it was not at fault.¹⁰⁴ Fortunately for both the navy and SJSDD, any potential crisis was averted when the two Quebec shipyards, MIL and Davie, merged in 1986.

The split nature of the construction of the Canadian Patrol Frigates nevertheless resulted in significant manufacturing delays. Build times for a ship class were generally supposed to decrease with each subsequent ship as the builders learned from past experience. When SJSDD began the construction of the lead ship in 1987, the drawings of the ships had yet to be finalized and as a result, production had to be halted until the designs caught up.¹⁰⁵ However, as construction of the CPFs was completed simultaneously in two different shipyards, the same mistakes were repeated by MIL-Davie when the latter began construction. According to John Shepard, the Project Manager at SJSDD, the construction of the CPFs took an additional eight to nine million man-hours to complete as a result.¹⁰⁶

The decision to subcontract the construction of the CPFs also led to a number of legal issues which involved the Prime Contractor (SJSDD), sub-contractor (Versatile Vickers and its successor, MIL-DAVIE) and the Canadian government. Between 1983 to 1993, SJSDD (now renamed SJSL) initiated a number of claims against the Crown for a sum in excess of \$800 million to recoup additional costs as a result of and not limited to uncompensated design changes, interference with subcontractors, unanticipated development work and wrongful interpretation of contract. Furthermore, the relationship between SJSL and MIL-Davie had deteriorated significantly.¹⁰⁷ In 1991, SJSL sought to terminate the subcontract with MIL-Davie for non-performance in addition to the growing cost overruns. Although both matters were eventually resolved, they would not have occurred if not for the original decision to subcontract the construction of three of the CPFs to a Quebec-based company for political reasons. Learning from this experience, the six follow-on frigates of Phase II were awarded to SJSL without competition in 1988.

This episode clearly demonstrated the enormous amount of influence that Quebec wielded in Canadian politics as well as the lengths to which the government was willing to go to placate the province. The Canadian government had initially paid a \$57 million premium for the construction of the warships to be completed by two shipyards.¹⁰⁸ Paramax Electronics, which was responsible for the integration of major electronic systems aboard the CPFs, was also based in Quebec to create a high-tech industrial capability in the province. However, neither was enough for the Quebec Liberal Caucus. To prevent the looming crisis, the Trudeau government took additional steps to satisfy the demands of its party members at the cost of significant problems downstream. Fortunately for all parties involved, the resolution was to everyone's satisfaction. The Trudeau government survived a major internal crisis while the Province of Quebec

gained significant economical benefits from the CPF project. MARCOM also received far more than they initially bargained for. Not only did they receive six top-of-the-line patrol frigates, but the DDH-280 destroyers were modernised and converted to area-air defence destroyers to fill an important capability gap.

Conclusion

The first Canadian Patrol Frigate did not enter service until 1992, nearly fifteen years after the project was initiated. Despite the long timeline, the procurement of these warships was arguably the most successful Canadian military procurement project to date. Not only were twelve state-of-the-art frigates, designed and built in Canada to meet the country's specific needs, delivered to MARCOM but the project was completed well below the ceiling price and, more importantly to the government, all of the IRB goals were exceeded.¹⁰⁹

Clearly, the fate of Canada's military, and especially its maritime service, are tied to the support of its political masters. The fortunes of MARCOM finally changed in 1975, once again for political reasons. Relations with the United States, Canada's principal trade partner, were strained at a time of an international economic downturn. The attempts by the Trudeau government to establish closer trade relationships with the EEC had been stalled due to the perception that Canada was unwilling to contribute to the collective defence of NATO. As Helmut Schmidt made it clear, "no tanks, no trade."¹¹⁰ To sustain the confidence of its allies, given the material state of the CAF, required more than just tanks but also new fighters and warships. The acquisition of the latter could not have come at a more opportune time for Trudeau, as in addition to the military need for new warships, there was a glaring domestic requirement to both rebuild the shipbuilding industry, then in crisis, and to promote broader industrial growth. As noted in Chapter Five, the Contract Definition phase of the CPF project was largely shaped by these considerations. From the new procurement strategy, which saw Canadian shipbuilders take charge of the project in an effort to avoid the political scandals that had been caused of projects managed by DND, to the IRBs policies and the significant premiums paid to ensure that the ships would be built in Canada with maximum Canadian content, all of this was done to fulfill the political objectives of the Trudeau government. The Canadians Patrol Frigates are undeniably the products of an intersection of military and political needs.

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Notes

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- ³ Alan Williams, *Reinventing Canadian Defence Procurement: A View from the Inside*. (Montreal and Kingston: Breakout Educational Network. 2006): 5.
- ⁴ Aaron Plamondon, *The Politics of Procurement: Military Acquisition in Canada and the Sea King Helicopter*. Vancouver: UBC Press (2010), 9.
- ⁵ “Question and Answer – Charles LaPointe at the signing of the CPF contract with SJSDD,” (August 18, 1983), Vol 165, File 1, 6, Romeo LeBlanc Fonds, R12069-65-1-E, LAC.
- ⁶ The CPFs were larger ships dimension-wise; the *Tribal*-class destroyers had a higher displacement due to the command and control center as well as a larger helicopter hanger.
- ⁷ The CPF project also occurred concurrently with the air force’s New Fighter Project which meant that cashflow was extremely tight and any cost overruns with either project would inevitably affect the other. DND, *CPF Project Completion Report*, 21.
- ⁸ Ed Healey, “Patrol Frigate Procurement Strategy.” *Frontline Defence* Vol 14, No.2 (2017). <https://defence.frontline.online/article/2017/2/6946-Patrol-Frigate-Procurement-Strategies>
- ⁹ Bowering. “Military/Naval Procurement in Canada: A Flawed Process,” 2.
- ¹⁰ Healey, “Patrol Frigate Procurement Strategy.”
- ¹¹ Ibid.
- ¹² Ed Healey, Email to author, July 26, 2020.
- ¹³ Refer to Chapter 0.2 for the nine steps of government procurement. PD consists of Steps 1-7; PI are Steps 8-9.
- ¹⁴ John Shepard interviewed by Roger Chiasson, *Canadian Naval Technical History Association* 8-C17, (2007-2008): 11.
- ¹⁵ Healey, “Patrol Frigate Procurement Strategy.”
- ¹⁶ DND, *CPF Project Completion Report*, 9.
- ¹⁷ “Cabinet Conclusion (51-77CBM),” (November 15, 1977), Vol 26843, 27, RG2 Series A-5-a, LAC.
- ¹⁸ Ibid, 27.
- ¹⁹ Ibid, 27.
- ²⁰ “Discussion Paper – Maritime Forces Surface Requirements (DND-8-77DP),” Vol 74, File 11, 169, Barney Danson Fonds, R13905-1415-0-E, LAC.
- ²¹ Department of Supplies and Services Canada, “Request for Proposal for Canadian Patrol Frigate,” Vol 74, File 12, 6, Barney Danson Fonds, R13905-1372-8-E, LAC.
- ²² Healey, “Patrol Frigate Procurement Strategy.”
- ²³ Department of Supplies and Services Canada, “Request for Proposal for Canadian Patrol Frigate,” Vol 74, File 12, 6, Barney Danson Fonds, R13905-1372-8-E, LAC.
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- ²⁷ Minister of National Defence. *Defence in the 70s: White Paper on Defence* (Ottawa: Information Canada, 1971), 14.
- ²⁸ Bothwell and Granatstein, *Pirouette*, 235.
- ²⁹ “Announcement by the Minister of National Defence on the DND Ship Replacement Program.” (Dec 22, 1977), Vol 74, File 16, 3-4, Barney Danson Fonds, R13905-1372-8-E, LAC.
- ³⁰ Gilles Lamontagne, “Statement announcing the awarding of the CPF project,” (June 29, 1983), Vol 213 File 1, 3-4, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ³¹ “Notes for a Statement by Jean-Jacque Blais on the Approval of the Project for the Construction of 6 Patrol Frigates,” (June 29, 1983), Vol 165, File 1, 1, Romeo LeBlanc Fonds, R12069-65-1-E, LAC.
- ³² “Notes for a Statement by Charles Lapointe on the signing of a contract with SJSDD for the construction of Six Patrol Frigates,” (August 18, 1983), Vol 165, File 1, 1, Romeo LeBlanc Fonds, R12069-65-1-E, LAC.
- ³³ Judd Buchanan. “Appendix 1 of Memo to Ministers – Canadian Patrol Frigate Program,” Vol 74, File 12, 1, Barney Danson Fonds, R13905-1372-8-E, LAC.
- ³⁴ Ibid, 1.
- ³⁵ Ibid, 1.
- ³⁶ Judd Buchanan, “Memo to Cabinet – DND Ship Replacement Program: Establishment of a Canadian-controlled Electronics Systems Capability,” (May 3, 1978). Vol 74, File 12, 1, Barney Danson Fonds, R13905-1372-8-E, LAC.

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- ⁴⁴ J. Allen, "Aide Memoire to Minister of National Defence on Canadian Patrol Frigate Program," (April 21, 1978), Vol 74, File 12, 1, Barney Danson Fonds, R13905-1372-8-E, LAC.
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- ⁴⁶ "Cabinet Conclusion - DND Ship Replacement Program: Establishing of a Canadian-Controlled Electronics Systems capability (27-78CBM)," (June 1, 1978), Vol 26844, 15, RG2 Series A-5-a, LAC.
- ⁴⁷ Michael Hennessy. "Some Observations on Canada's Experience Building Warships". *Canadian Naval Review* 12, No.4 (2017), 4-5.
- ⁴⁸ "Jack Horner, "Discussion Paper - The Canadian Shipbuilding and Repair Industry (ITC-18-77-DP)," (October 5, 1977), Vol 75 File 17, 1, Barney Danson Fonds, R13905-1396-0-E, LAC.
- ⁴⁹ DMEM, "DND Position Paper: Foreign versus Canadian Build Canadian Patrol Frigate Project," (Nov 8, 1977), 11900-CPF-901 (8166), 5, Project Management Office Canadian Patrol Frigate Fonds, R112-702-1-E, LAC. Acquired through ATIP.
- ⁵⁰ Annex A - Figure 2: RCN/MARCOM Expenditure 1961/62 to 1983/84.
- ⁵¹ Ibid.
- ⁵² Jack Horner, "Discussion Paper - The Canadian Shipbuilding and Repair Industry (ITC-18-77-DP)," (October 5, 1977), Vol 75 File 17, 1, Barney Danson Fonds, R13905-1396-0-E, LAC.
- ⁵³ "Appendix 3 – Government Assistance to Shipbuilding of The Canadian Shipbuilding and Repair Industry (ITC-18-77-DP)," (October 5, 1977), Vol 75 File 17, 2, Barney Danson Fonds, R13905-1396-0-E, LAC.
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- ⁵⁶ Ibid, 1.
- ⁵⁷ "Industrial Benefits and Federal Government Ship Requirements, 1983 to 1992," (May 16, 1983), Vol 213 File 1, 1, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁵⁸ Gerald Porter. *In Retreat: The Canadian Forces in the Trudeau Years*. (Ottawa: Deneau & Greenberg, 1978), 74-75.
- ⁵⁹ Jack Horner, "Discussion Paper - The Canadian Shipbuilding and Repair Industry (ITC-18-77-DP)," (October 5, 1977), Vol 75 File 17, 1, Barney Danson Fonds, R13905-1396-0-E, LAC.
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- ⁶³ "Appendix 4 - Impact of Government Procurement Policy on Navy Replacement Program: An Economic Analysis of The Canadian Shipbuilding & Repair Industry (ITC -18-77-DP)," (October 5, 1977), Vol 75, File 17, 3, Barney Danson Fonds, R13905-1396-0-E, LAC.
- ⁶⁴ Michael Hennessy. "Some Observations on Canada's Experience Building Warships". *Canadian Naval Review* 12, No.4 (2017), 6.

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- ⁶⁷ J.K. Wilson. "The Politics and Economics of Shipbuilding in Canada: Lessons for Naval Planning." (MDS Assignment, Canadian Forces College, 2009), 30.
- ⁶⁸ Ed Healey, Email to author, September 1, 2020.
- ⁶⁹ Carey French. "Shipyards withdraw from groups bidding on frigate." *The Globe and Mail* (December 23, 1978): B2.
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- ⁷⁴ D.S. Wright. "Assessment Note on Maritime Surface Ship Requirement – Canadian Patrol Frigate Project." (May 11, 1983) Vol 213 File 1, 4, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁷⁵ Annex B - SJSDD vs SCAN Proposal Evaluation Summary.
- ⁷⁶ Ibid.
- ⁷⁷ Healey, "Patrol Frigate Procurement Strategy."
- ⁷⁸ Richard Greenwood. "An Engineer's Outline of Canadian Naval History, Part III (1970-2014)," *Canadian Military History* 23, No.3&4, (2014): 278.
- ⁷⁹ Annex B - SJSDD vs SCAN Proposal Evaluation Summary.
- ⁸⁰ "Question and Answer – Charles LaPointe at the signing of the CPF contract with SJSDD," (August 18, 1983), Vol 165, File 1, 12, Romeo LeBlanc Fonds, R12069-65-1-E, LAC. The pricing incentive was later removed in June 1994 with the signing of the Overall Amending Agreement. DND, *CPF Project Completion Report*, 12.
- ⁸¹ Ibid, 12.
- ⁸² "Canadian Patrol Frigate, Supplement to Memo to Cabinet (256-83MC)," (May 11, 1983), Vol 213, File 1, 1, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁸³ Ibid, 2.
- ⁸⁴ "Canadian Patrol Frigate – Additional Analysis," (June 10, 1983), Vol 213, File 1, 3, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁸⁵ The four regions of Canada are the Atlantic provinces (NB, NS and NFLD), Quebec, Ontario and the West (MB, AB, SK and BC).
- ⁸⁶ Ed Healey, Email to author, July 26, 2020.
- ⁸⁷ "Briefing for the Honourable Romeo LeBlanc." (June 20, 1983). Vol 213 File 1, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁸⁸ Williams. *Reinventing Canadian Defence Procurement*, 64.
- ⁸⁹ Gilles Lamontagne, "Statement announcing the awarding of the CPF project," (June 29, 1983), Vol 213 File 1, 1, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁹⁰ "Canadian Patrol Frigate, Supplement to Memo to Cabinet (256-83MC)," (May 11, 1983), Vol 213, File 1, 1, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
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- ⁹² Based on an examination of the results of Canadian federal elections from 1964 to 1980.
- ⁹³ Bothwell and Granatstein, *Pirouette*, 6-7.
- ⁹⁴ Milner, *Canada's Navy*, 289.
- ⁹⁵ Milner, *Canada's Navy*, 289.
- ⁹⁶ Ed Healey. Email to author. September 1, 2020.
- ⁹⁷ Committee of Deputy Minister, "Canadian Patrol Frigate: Additional Analysis," (June 10, 1983), Vol 213, File 1, 3, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ⁹⁸ The difference in IRB between SJSDD and SCAN's bids for Quebec was \$850 million and \$400 million for the one shipyard and two shipyard options respectively. Annex D - Construction Options and IRB Distributions.
- ⁹⁹ Milner, *Canada's Navy*, 289.
- ¹⁰⁰ "Annex G – Public Affairs Consideration of Canadian Patrol Frigate: Additional Analysis." (June 10, 1983), Vol 213, File 1, 1-2, Romeo LeBlanc Fonds, R12069-3185-4-E, LAC.
- ¹⁰¹ Milner, *Canada's Navy* Milner, *Canada's Navy*, 289.

¹⁰² Ed Healey, Email to author, July 26, 2020. By both the value of economic benefits and person/year employment, Quebec far exceeded the other provinces and regions of Canada. Refer to Annex D - Construction Options and IRB Distributions.

¹⁰³ Ed Healey, Email to author, July 27, 2020.

¹⁰⁴ John Shepard interviewed by Roger Chiasson, 7.

¹⁰⁵ Ibid, 8.

¹⁰⁶ Ibid, 8.

¹⁰⁷ DND, *CPF Project Completion Report*, 12.

¹⁰⁸ Annex B - SJSDD vs SCAN Proposal Evaluation Summary.

¹⁰⁹ DND, *CPF Project Completion Report*, 20-21.

¹¹⁰ Maas, *The Price of Alliance*, 107.