ROYAL NAVY'S TYPE 26 FRIGATE PROGRAM MOVING AHEAD – AND CANADA JOINS IN.

Source : Kym Bergmann APDR 25 October 2018

Until the future submarine program enters its construction phase several years from now, the biggest acquisition on the RAN's books by far is the future frigate purchase, which has a budget of $35 billion. After a detailed evaluation there was a clear winner, with the BAE Systems bid being judged the one most clearly in Australia's national interest. Contrary to some rumours at the time, the Department of Defence and the Navy were always solidly behind this proposal and the submission to Cabinet only required fine tuning on matters of detail.

On October 19, the Canadian Government announced that it was also buying the Type 26 – the design being offered by successful combat system integrator, the local subsidiary of Lockheed Martin. Canada is looking for up to 15 frigates, which means the Type 26 will certainly be the most successful – and capable – non-US frigate in the Western world, with the construction of around 30, albeit in different configurations depending on customer and local industry requirements. For BAE Systems to be almost simultaneously successful in the UK, Australia and Canada is a remarkable achievement – due in no small part to the support of the Royal Navy as well as being in the "sweet spot" on the design and manufacturing curve. Having said that, while contract negotiations with Australia are almost complete and seem uncontroversial, BAE Systems along with Lockheed Martin still need to go through the same process with the Canadian Government – and that is expected to take until the end of March 2019.

It is too early to tell what further opportunities might exist for Australian companies, but they could be considerable. The UK program is well advanced with contracts already in place for three Batch 1 ships, but there might be some further prospects for involvement in the five Batch 2 ships that will be contracted soon. If Canada follows a similarly transparent, value for money approach, there might be many more opportunities for Australian companies in that acquisition – though it should be noted that Ottawa often pursues protectionist industry policies, as has been pointed out repeatedly by no less an authority than US President Donald Trump.

It is not known to what extent the Australian selection of the Type 26 influenced the Canadians – but it certainly would not have hurt. We are regarded as a thorough and fair evaluator of defence equipment – and the Canadian Navy has had quite a bit of visibility of what has been taking place here. Australia, the UK and Canada are of course members of the Five Eyes intelligence sharing community and that might also have been a factor in the selection. All three nations – and their navies – recognise the critical importance of anti-submarine warfare in future conflicts.

One important reason the British Royal Navy's new Type 26 design was chosen for the nine 7000- tonne Hunter-class future frigates is that they are about five years ahead of the Australian program. The same logic must have also appealed to the Canadians.

This means not only will Australia and Canada receive an extremely modern ship optimised for anti-submarine warfare (ASW), but that if any problems emerge during the construction of the first UK frigate, there will be plenty of time to take remedial action and so de-risk the local program. It also allows Australians to be embedded in the design, engineering and construction teams to learn first-hand how the ship is built before transition back to Australia in advance of work by BAE Systems Australia.

As decided by the Government, all of the Australian frigates will be built at Osbourne in Adelaide by ASC Shipbuilding, which will become a 100% subsidiary of BAE Systems in the very near future. In Canada the prime contractor will be Irving shipyard, with Lockheed Martin the combat system integrator offering the Type 26 design. It should be noted that Lockheed Martin and BAE Systems are working closely together in Australia for SEA 5000 – which has 'Aegis' as the combat management system, so already there is a surprising amount of commonality across the three programs.

Steel was cut on the first Type 26 City-class in July last year at a ceremony attended by APDR and progress since then has been rapid and impressive. A visit by the author to the Govan shipyard is a way of seeing into the future because what is being built now is identical to what will start to take shape in Adelaide in the early 2020s.

While the superstructure of the Australian frigate will be different, the hull, main machinery items and the anti-submarine-warfare suite will be exactly the same as the City class — and it is those lower parts of the ship that are being built at the moment. Of the 14 large hull blocks currently being fabricated – many weighing several hundred tonnes – four of them have been linked up in the Ship Build Outfit Hall, meaning that a visible warship is beginning to emerge from all of the sparks, hammering and activity of overhead cranes. Seven more modules are due to commence manufacture before the year's end.

From an overall engineering perspective, the Critical Design Review has been completed. All major subcontracts for the first three ships, valued at around $1.8 billion, are in place – indicating that many supply chain risks have been reduced.

The Govan yard on the Clyde River is far older than the ultramodern facility being prepared at Osborne, but the fabricating techniques of digital design, laser measuring and cutting, automatic as well as manual welding, and daily updates of construction information to the BAE Systems data warehouse are among the most advanced in the world. For the Australian build, much of the equipment purchased for the construction of the Air Warfare Destroyers – plasma cutters and so on – will be reused for SEA 5000.

The first Royal Navy ship — which will be named HMS Glasgow — is being built with extraordinary precision, as befits a class optimised for extreme stealth to allow it to conduct anti-submarine warfare operations against the most skilled and modern potential enemies. The entire Type 26 already exists as a fully designed three-dimensional virtual ship that has been created in the company's visualisation centre.

This allows a complete image of the City class to be displayed on screens, complete with human avatars and colour-coded equipment, down to component level, that can be viewed at any angle.

The user can zoom in and out at will, examining everything from the layout of the bridge, crew-mess facilities, arrangements for pipes and cabling — and even simulate the removal of major items such as diesel generators to guarantee that everything can be done before construction begins.

This centre will be replicated at Osborne in 2019 and will be an invaluable tool for the builder, subcontractors and the Royal Australian Navy to check all of the dimensions of equipment and the full layout before a single piece of steel has been cut. Presumably a similar methodology will be followed by the Canadians.

The build forecast is that by the end of 2019 almost all of the first of class will have been assembled. The company follows a world's best practice approach of installing up to 80 % of the required equipment before putting it in the water, minimising the amount of work needed while it is afloat.

There is a great deal of commonality between the two classes, with the vast majority of compartments requiring no change and a small number such as the hangar for the helicopter and vertical-launch missile system needing some modification.

However, for Australia the radar mast, the bridge and the combat-management centre will be substantially different. This is because of the Australian-mandated requirements for the ships to carry the locally-developed CEAFAR radar suite and the US-supplied Aegis combat management system.

Everything else will remain the same — and it is worth noting that many major suppliers to the Type 26 such as Rolls-Royce and L-3 already have subsidiaries in Australia, which should make the job of technology transfer a relatively simple one for such a huge project.

As well as updating progress on the parent Type 26, the company also outlined how it will take a role in managing the very complex and software-intensive task of delivering the combat system, along with the ship that carries it.

The riskiest part of Sea 5000 is almost certainly the combat system which, while containing a large number of individually proven subsystems and technologies, has never existed in the configuration required by the RAN.

To assist in the task, BAE Systems has sought bids from the three local combat-system houses, the Australian subsidiaries of Lockheed Martin, Saab and Raytheon. All three are heavily involved in other RAN programs — everything from submarines and frigates down to support ships — and the roles of the first two have already been mandated.

BAE Systems itself is a major player in the Australian naval domain, having constructed, upgraded and supported the eight Anzac frigates that will be replaced by the Hunter class. Two additional ships were built for New Zealand and they are being upgraded – interestingly – by Lockheed Martin Canada. The Anzac frigates were built on time and budget. They have also been successfully undergone the Anti-Ship Missile Defence upgrade (ASMD) and are now going through a life extension program.

The company has hit the ground running for SEA 5000 and on October 4 signed a preliminary contract with Defence known as the advanced work arrangement (AWA). This AWA protects the design and prototyping schedule and allows mobilisation of resources in the UK and Australia. This provides continuity while the purchase of ASC Shipbuilding and the head contract are negotiated for the $35 billion program.