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SIA Features

- SIA established in 1999.
- Broad membership provides skills and experience in a range of areas:
 - o Submarine operations;
 - o Submarine engineering;
 - o Submarine design;
 - o Defence science with a focus on the submarine area;
 - o Defence Industry;
 - o Marine archaeology and museum operations; and
 - o Offshore oil and gas industry.
- Wide and informed network of people and companies with submarine knowledge and experience.
- Access to well-respected engineering personnel within the submarine field.
- A significant number of members with Defence security certification.
- A membership with an established reputation in the Defence Departments of Australia, USA, UK, Sweden, Germany and France.
- Awareness and dialogue with the offshore resources science, technology and industry communities.

To join the SIA or enquire about sponsorship, visit the website or email contact@submarineinstitute.com

Submarine Institute of Australia Inc



Background to the SIA and Frequently Asked Questions on Australia's Future Submarine

Contact:

president@submarineinstitute.com
+61 448 410 101
<http://www.submarineinstitute.com>

What are the unique characteristics of submarines?

- They are able to operate undetected in areas far away from their home base for long periods of time.
- They exploit the advantage of surprise:
 - *Able to gather a wide range of information while unobserved.*
 - *Able to wait undetected then deliver a very powerful punch when ordered.*
 - *Demand highly disproportionate effort to counter the threat they represent.*
- They deliver a very powerful effect from comparatively small numbers of people.

Why does Australia need submarines?

- **"...Our home is girt by sea..."** Submarines are part of the balanced maritime force that our maritime nation requires to deter would-be aggressors and to build Australian influence.
- Our national prosperity depends on continued access to the sea.
- History has taught us the effectiveness of submarines in Australia's defence:
 - *1942 to 1945: Over 150 US, British and Dutch submarines operating from Australia cut invading forces' supply lines throughout our region.*
 - *Post 1970s: Australian submarines have conducted unique surveillance activities.*
- They allow Australia to play its strengths:
 - *A small number of smart people undetected, packing a powerful punch at great distance from Australia.*

Why does Australia need 12 submarines?

- Submarine warfare is essentially a war of probabilities and uncertainty.
 - *Australia seeks to minimise the probability that its submarines are detected and maximise the effort required of an aggressor to combat them.*
- Should be able to sustain at least 3 submarines on patrol to maximise uncertainty.
- Need 3 - 4 submarines for every 1 on patrol = 12.

How can we crew 12 submarines?

- Submarines are inherently efficient in crewing terms; only one third the crew size of a frigate.
- Navy recognises the need to attract more people to serve in submarines.

- Navy is implementing a significant development program for the submarine workforce.
- With effort and priority there is no reason why there will not be sufficient crews for 12 submarines in the future Navy.

Why diesel-electric submarines?

- The Collins program has shown:
 - *Australia has the capacity to build large world class conventional submarines, and*
 - *That these boats meet Australia's unique requirements.*

Why not nuclear powered submarines?

- Australia does not yet have the scientific and industrial infrastructure to build and support nuclear submarines.
- The cost of establishing a nuclear industry for submarine systems in advance of its adoption for national energy and environmental purposes cannot be justified.

Is there a suitable "Military Off The Shelf" (MOTS) submarine design?

- The Government's Defence White Paper Force 2030 identified specific requirements for Australia's Future Submarine. As was our experience with the Collins class submarines, only a new design built for the range, endurance and capability that Australia's geography dictates will deliver on these requirements.

Why should we build the submarines in Australia?

- Because undersea warfare is essentially a war of probability and uncertainty, a capacity to repair and replace submarines in operation reduces the impact of attrition and increases the effort required of an aggressor to guarantee that it has removed all Australian submarines from its path.
- The build program will develop the capacity and quality of marine and electronics engineering and systems integration in Australia.
- Submarines built in Australia will have the potential for more effective supportability and better adaptability for emerging Australian requirements.
- Australia can undertake the building and systems integration at the time of our choosing and can continue it indefinitely into the future. In time of national emergency, the building program could be accelerated or even duplicated.

Where is the money going to come from?

- The build program will be spread over many years representing a balanced proportion of the planned Defence budget (<20% of annual capital equipment).
- A very high percentage of the expenditure will go to employment and further research and development here in Australia, and this will contribute to a dynamic economy.

Why do we need to start the build in 2016?

- HMAS Collins reaches the end of her planned life in 2025.
- In order to sustain the submarine force numbers, the first of the new submarines must enter service in 2025 following a period of sea trials to confirm design characteristics.
- Therefore, the first delivery must be in 2022; only six years from contract award in 2016.
 - *To support contract award in 2016 there must first be a process to define the characteristics and to select the designer for the new boat. This process started in 2009.*
 - *Then there must be preliminary and contract design stages that will be based on cost-capability trade-offs and the results of extensive applied research and development, much of it by Australia's own DSTO.*

What are the economic benefits of the Future Submarine to Australia?

- The Future Submarine program will be a nation-building undertaking of a similar magnitude and significance to the Snowy Mountains hydro-electric scheme or the North West Shelf program.
- The Collins program generated several thousand jobs, new skills and, above all else, engendered the confidence and competence to take on the Future Submarine program.
- Analysis of more recent major Australian naval programs indicates that every \$10 million that Defence spends on an Australian-built Future Submarine would generate:
 - *~\$19.5 million in national output.*
 - *~102 Australian jobs per annum.*
- Much of this benefit comes from engagement of subcontractors and suppliers in Australia to support a local build. These subcontractors and suppliers, in turn, engage local suppliers. An offshore build would have a significantly lower economic benefit.