

Options for Extending the Submerged Endurance of the new Canadian Submarines.

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Abstract: The Royal Canadian Navy have purchased recently several Type 2400 diesel-electric submarines from the British Government. Like all diesel-electric conventional submarines the submerged endurance and range of these vessels is limited by battery capacity and vulnerability to detection when snorkeling. However, in recent years several navies have developed and sometimes retrofitted Air Independent powerplants (AIPs) into conventional submarines in order to enhance their underwater performance. These developments include closed cycle dynamic heat convertors using liquid fuel and metal combustion and non-combustion devices such as fuel cells and semi-cells.

In this paper the options that could be used in for the former Type 2400 submarine are identified and discussed and an analysis is presented of the level of extended endurance which could be expected from the use of various AIPs.