

# **An Early Conceptual Design and Feasibility Analysis of a Nuclear-Powered Cargo Vessel**

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Economic globalization has resulted in the tremendous growth of worldwide trade. Much of this trade is carried out via the various waterways of the world. The bulk of these trade goods are transported by merchant ships that burn diesel fuel to propel them through the water. With the cost of crude oil rising to record highs, the costs associated with operating these ships has been skyrocketing as well, indicating the need for the development of alternative sources of propulsion power.

This thesis focuses on the development of an early stage conceptual design for a nuclear-powered commercial cargo ship and the subsequent economic analysis of that ship in comparison to its conventionally-powered predecessor ship. In addition, this thesis will also analyze and propose solutions to the various non-technical issues that currently stand in the way of building and operating a nuclear-powered cargo vessel. The end result of this research clearly shows that a nuclear-powered commercial cargo ship, while being technically feasible, is still economically inferior to a conventionally-powered cargo ship.

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