

Ferries Division Liquefied Natural Gas

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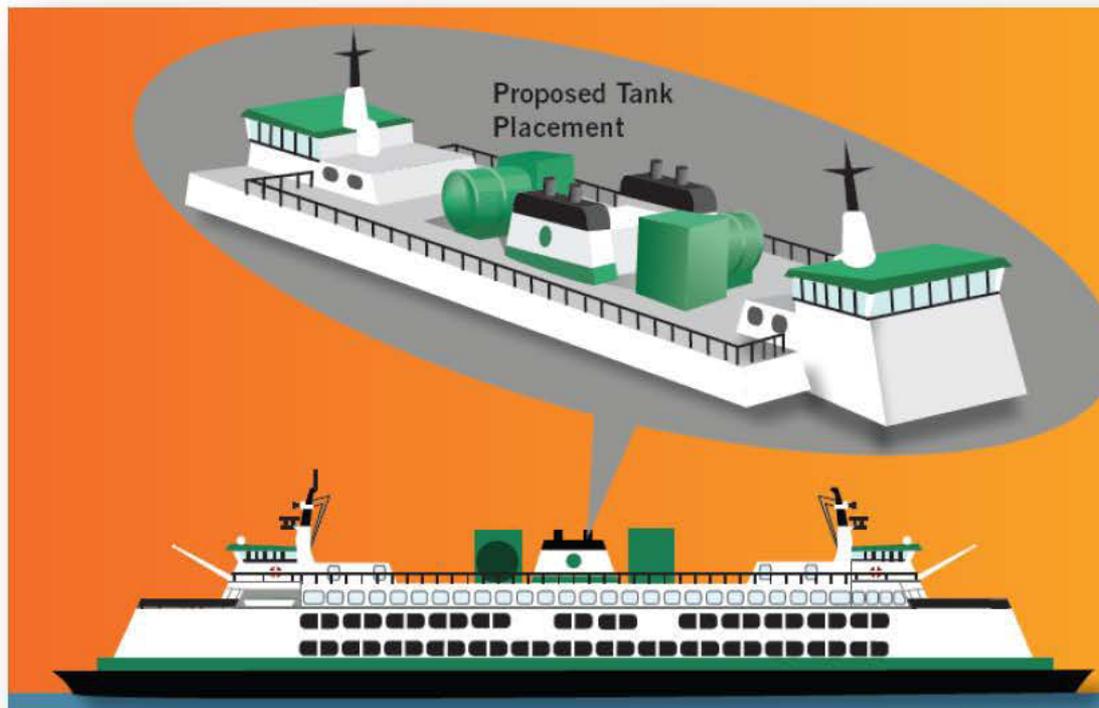
WSDOT Assistant Secretary
Washington State Ferries



Washington State Transportation Commission
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Proposal

WSF proposes retrofitting 6 Issaquah Class vessels to burn LNG fuel



What is LNG?

- In its gaseous state, LNG is the same fuel used to heat our homes and cook our meals. LNG is natural gas that has been cooled to -256 degrees Fahrenheit, at which point it is condensed into a colorless, odorless, non-toxic and non-corrosive liquid. In its liquefied form it occupies 1/640th of its original volume, which makes it easier to transport and store.

Worldwide examples

Use of natural gas in transportation has been steadily increasing for the last decade. LNG is fast becoming a transportation fuel for transit buses, semi-trucks and ferries.

- Since 2000 the Norwegian government has allowed the construction and operation of LNG passenger ferry vessels. There are currently 20 car and passenger ferries operating in Norway that are fueled by LNG.
- Both BC Ferries and Staten Island Ferries are studying options to retrofit their vessels from diesel to LNG fuel.
- The Quebec Ferries Company has contracted for three new LNG ferries.
- There are LNG passenger ferry vessels currently under construction or in design for service in Argentina, Uruguay, Finland, and Sweden.
- There are commercial LNG ships in use. Locally, TOTE is in the process of converting large vessels to LNG.

Opportunities - Cost

- WSF burns more than 17 million gallons of fuel annually
- Fuel represents 23 percent of FY13-15 operating budget (compared to 11 percent in FY00-01)
- Moving from diesel to LNG propulsion could save 40-50% at today's pricing

Opportunities – Pollutant Reduction

- WSF is the largest single source of greenhouse gas and particle emissions in Washington state government
- Significant emissions could be achieved:
 - 89 percent reduction in particulate matter
 - 61 percent reduction in nitrous oxide
 - 28 percent reduction in carbon dioxide
 - 59 percent reduction in sulfur dioxide

LNG Evaluation Timeline

WSF has conducted nearly four years of analysis, evaluation and detailed studies on LNG

- March 2010: Glosten Associates report, [LNG Use for WSF](#)
- Feb. 2011: WSF decision to explore options for use of LNG
- Sept. 2011: WSF submits conceptual design proposal to U.S. Coast Guard for review
- Dec. 2011: USCG issues letter of approval for the conceptual design
- Jan. 2012: JTC commissions feasibility study from the Cedar River Group
- March 2012: Legislature appropriates funds for safety and security planning processes. WSF hires Det Norske Veritas (DNV) to conduct a waterways suitability assessment (WSA) with safety, security, and operations components
- Nov. 18, 2013: WSF submits the WSA to USCG for approval
- Nov. 20, 2013: WSF publishes WSA online for public review

Findings of WSA (safety and security assessment)

- Placement of the LNG tanks on the top deck of the ferries is inherently safe.
- If a person stood at the location with the greatest risk, on the busiest route, their maximum potential individual risk is at the level of 1 in 1,000,000 per year (0.000001 per year)
- Societal risk from LNG fueled passenger ferry deemed as Low as Reasonably Practicable
- Security assessment evaluated eight threat scenarios. These threats are included as separate appendix designated as Sensitive Security Information and is only releasable by the U.S. Coast Guard.

Request for proposal process for design/build LNG propulsion

- March 2012: Legislature appropriates funds for design/build RFP
- Sept.- Oct. 2012: RFP package issued; and pre-proposal conference
- March 2013: Proposals received from Rolls-Royce Marine (RRM) North America, Inc. and Wartsila North America, Inc.
- May 2013: WSF issues proposal deficiency letters to proposers, to enable correction of proposals
- June 2013: Removal of Wartsila proposal from further consideration due to Wartsila's inability to correct proposal deficiencies
- July 2013: RRM submits first proposal corrections
- Dec. 2013: RRM submits second revised proposal
- Jan. 2014: WSF informs RRM of problematic financing provision in proposal; requiring removal prior to the proposal moving forward

Next steps

- Awaiting decision on RRM's response to financial issue
- Awaiting approval of the WSA from U.S. Coast Guard
- Final determination of LNG design/build RFP
- Develop final design for Issaquah Class conversion, pending funding from state legislature
- WSF values LNG as a transitional fuel to save money and reduce emissions

Contact

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