Lummi Island Ferry Advisory Committee (LIFAC)
Special Meeting
9/16/19, 2:00 pm

Port of Bellingham, 1801 Roeder Ave., Galbraith Room, Bellingham, WA

CALL TO ORDER
Rhayma Blake called the meeting to order at 2:00 pm

ROLL CALL
Present: Rhayma Blake, Cris Colburn, Jim Dickinson, Judy Olsen
Excused: Charles Bailey, Patricia Dunn

ALSO ATTENDING:
WCPW: Roland Middleton
PORT OF BELLINGHAM: Rob Fix, Terry Ilahi
ALL AMERICAN MARINE: Matt Mullett, Jeff Sokolik
Mike McKenzie

MEETING WAS ARRANGED BY COMMISSIONER BRISCOE TO FURTHER EXPLORE PROPULSION OPTIONS OF THE REPLACEMENT FERRY:

- All American has built 2 hybrid electric passenger ferries, the *M/V Waterman* for Kitsap and the *Enhydra* in San Francisco. Matt said, "They are still working the bugs out." Jim agreed that hybrid options are still new and unproven.

- All-electric is the simplest propulsion. Norway's ferries can make 3-hour trips.

- Diesel Mechanical Hybrid (DMH) is not as easy to convert to all-electric as Diesel Electrical Hybrid (DEH).

- There is a loss of efficiency when converting diesel fuel to electricity.

- All-electric for Lummi Island could involve a battery bank on shore that trickle charges then charges the boat by inductive magnetic fields – very expensive. 1.0-1.2 megawatt capacity is needed to directly charge the ferry shore side. There is not enough power currently on Lummi Island since PSE has only 0.1 megawatts available. Therefore, all-electric is not possible for the foreseeable future.

- Diesel motors could possibly be replaced with hydrogen fuel cells in the future, but these cells have yet to be classified as safe by the US Coast Guard.

- Diesel emissions can be reduced with aftermarket products like DEF, and using more expensive biofuels. Jeff suggested making sure the engines can handle biodiesel fuel, although there is a lack of fuel availability. "Get your supply locked down before you commit to biodiesel."

- Jim suggests that the currently proposed diesel engines are too small. A Tier 3 C32 V12 750-800hp could run at a lower RPM, decreasing fuel consumption and, with less stress on the engine, increasing the life between rebuilds.

- Jim also recommends use of a controllable pitch propeller to lower fuel burn.

- Jeff said newer steerable propellers (Z—Drives) are being used successfully in Europe. More maneuverable. Our crew has not supported Z-drives because more complicated and found unreliable by Guemes. Newer versions are more reliable and easy to replace. Suggested following up with Foss and Crowley. Use of Z-drives leaves more room for conversions. Tugs prefer Rolls Royce Z-drives.

- Matt suggested WA State Ferries should have focused on "mosquito fleet" passenger ferries, especially with the advent of Uber, etc. He suggested that if Lummi Island wants a smaller carbon footprint, then consider a passenger-only ferry during the day and a vehicle run once in a while.

- Lummi Nation (LN) Marina project is no longer active as the Port has offered increased moorage options to LN.

- Matt thinks hydrogen fuel cells as well as better battery technology will be viable within 5 years. He commented that Corvus Energy has doubled the storage capacity of their batteries just within the last year. However Jeff warned that hydrogen is much greater in volume than diesel, and the vessel might have to be fueled every day.

- Matt warned against "green-washing" i.e., looking beyond emissions levels to the total environmental end-to-end impact. "Run on Demand" scheduling was suggested to reduce fuel use.

- All American can handle ferries up to 45' x 150'.

- At the end of the meeting, when asked for their recommendations, based on our constraints, Jeff suggested DMH and Matt suggested Diesel Mechanical.

- Roland said Whatcom County has a history of upgrading assets as appropriate, and Whatcom County Public Works no longer supports DEH propulsion.

The meeting was adjourned at 3:00 pm.