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JOURNEY TO ALL-ELECTRIC FERRY DEVELOPMENT

(Bremerton, WA) – Art Anderson Associates and partner EESImarine have been developing concepts for an all-electric ferry and are now teaming to generate funding for the implementation of the concept for Skagit County's Guemes Island-Anacortes passenger and car ferry replacement. After careful study of the Guemes Island Ferry route, Art Anderson Associates proposed to the Skagit County Board of Commissioners the all-electric ferry as a viable replacement for their aging ferry with additional benefits of reducing the lifecycle costs and environmental impacts a traditional diesel ferry would have. The Skagit County Board of Commissioners signed a resolution on December 29, 2015 directing its Public Works Department to conduct an all-electric ferry feasibility study with Art Anderson Associates.

The all-electric ferry being developed will be a practical alternative for operators of shorter run ferries throughout the world who want to accomplish zero emissions and achieve a reduction in overall costs of operations. It is projected the all-electric ferry will reduce owner costs by up to $170,000 per year and provide an overall breakeven cost after five years of operation compared to an engine driven vessel.

The vessels propulsion and power would be supplied by two "battery banks" using low maintenance technology. The battery banks can be easily arranged around required structural support, significantly simplifying vessel arrangements due to the elimination of many engine and fuel support systems.

The power system design requires no exotic hull materials or design and can also be used to retrofit an existing vessel. New all-electric vessel construction costs are estimated at approximately 5% more than an engine-driven version.

"This design concept has the potential to be a true differentiator in the marine industry as an alternative form of vessel propulsion. With demonstrated performance and future advances in battery technology, this propulsion system can be scalable and ultimately contend with other means of propulsion for cost of construction and operation, and having zero environmental impact," stated Eric Engelbrecht, Vice President at Art Anderson Associates.

Funding is being sought through a variety of public and private sources. Skagit County has committed funds to conduct a propulsion study on the current ferry route and Art Anderson Associates is developing technical content for further funding outreach. Currently, Art Anderson Associates is supporting Skagit County as it submits a proposal for a grant from Washington State's Clean Energy Fund among other opportunities.

If successful, this project would be the first all-electric, battery-powered vehicle ferry in North America. "We are extremely excited to be working with Art Anderson Associates to conduct a feasibility analysis

for this innovative technology that can have so many positive impacts to the citizens of Skagit County, Washington state's marine industry and the environment," said Captain Rachel Rowe, Ferry Operations Division Manager for Skagit County.

Joseph Payne is the owner of EESImarine and an expert in the design of vessel electrical systems and hybrid technology. He has been designing commercial marine electrical systems since 1993. Joseph is leading the development of the battery banks and electrical system in the ferry. Art Anderson Associates is developing initial design concepts, mechanical systems, port design and leading the funding effort.

Art Anderson Associates is a Bremerton-based multidisciplinary engineering services firm offering diverse expertise in the marine and landside environments. Areas of emphasis include new and renovation design for marine vessels, waterfront infrastructure engineering, environmental and energy consulting services, and engineering services in support of US government facilities. For more information, visit www.artanderson.com.

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