



LNG fuelling: Orcas, Marlins and membrane barges

LNG fuelling of vessels has been all over the shipping trade press. It was recently the subject of the Connecticut Maritime Association's monthly luncheon series, with a presentation by Peter Keller, a true industry veteran who is now Executive Vice President of TOTE. The speaker began by noting that many people talk about LNG fuelling, at conferences and the like, and said "What you are going to see today is not the future of LNG, but the present...the future of LNG is today..."

While viewing the presentation (thanks to the CMA's President, Mr. Ian Workman, who got me a seat at the Captain's table), it struck me that what I was viewing was a template for how shipping will go in the next decades. As industrial shipping supply chains go to LNG-charterers, with deeper pockets and concerns about their "image"-might arrange LNG supplies; owners will no longer be able to bemoan the lack of fuel for LNG power.

Environmental concerns (which I believe to be genuine, on the part of TOTE) are certainly a big driver. But so are worries about what regulators might do. Indeed, we are already seeing blow-back from the inconclusive MEPC meetings two weeks ago at the IMO- which is struggling as it tries to get out of the way of EU. The price of oil, and of natural gas, of great interest to me, barely made it into the discussion, except with a note that TOTE had secured LNG on a secure long term basis.

Mr. Keller, (inducted into the "Maritime Hall of Fame" in the mid 2000s during his NYK days) is spearheading all aspects of the LNG project at TOTE-. Unlike many "veterans", he is looking way ahead, not in the rear view mirror. Two vessels will see their engines re-fitted to burn LNG, and two newbuilds, with LNG propulsion, will join the fleet. Importantly, TOTE will be creating its own supply chains for fuel procurement, (part of the secure long term supplies of fuel mentioned above).

Totem Ocean Trailer Express, serving the Pacific Northwest to Alaska trades, will be re-engining two existing "Orca Class" ships for LNG fuelling (with dual fuel capability), while the Sea Star division (linking Jacksonville, Florida with Puerto Rico) is currently building two new "Marlin Class" vessels, to be primarily fuelled by LNG, at NASSCO.

The company has operated from Tacoma to Anchorage for about a dozen years. Several years ago, the company, wholly owned by longtime maritime investor Saltchuk, added Sea Star- one of several players in the highly competitive Jacksonville to Puerto Rico trades. It operates 1970's built ships on these trades- to be replaced by the two newbuilds.

TOTE (along with competitors- with Crowley probably the best known) is in the bull's eye of regulatory fervor, where recently enacted restrictions on particulate emissions have dramatically raised costs, as shipping lines are forced to comply. One now defunct competitor, Horizon Line- with its 1960s built ships, finally threw in the towel, even after negotiating numerous timeline extensions from regulators. Cruise lines traversing waters along the

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West Coast, and maneuvering around Florida and the Caribbean, have invested in scrubbers that clean sulphur from heavy marine fuel. Many commercial interests are going the opposite way, burning ultra low sulfur fuels available at premium price points- leading to fears of a shortage several years out, when IMO sulfur rules tighten up.

Mr. Keller stressed that LNG was the most viable alternative for TOTE in the environmentally sensitive regions served by the carrier, after an extensive study phase that also examined the viability of scrubbers. Mr. Keller described LNG as "...the only alternative that we saw that addressed the core problem...the fuel itself "...."and one which would lead us well beyond what the most aggressive regulators could dream up..."

The presentation came five weeks after the launching of the LNG powered containership *Isla Bella*, the first of the Marlins, at the NASSCO yard in San Diego. The vessel is expected to enter the Jacksonville / Puerto Rico service later this year, in October, after going on sea-trials in August. TOTE has done its homework- a presentation slide showed the attendance of prominent labor, military and political figures at the launching ceremony. Indeed, TOTE has succeeded where others (including OSG) did not; the U.S. Maritime Administration (MARAD) is providing guarantees on some \$324 million of debt finance for the vessels, under its Title XI loan guarantee program.

Rather than showing slide after slide of engines and fuel injectors (the usual fodder at such events), a holistic corporate approach was conveyed in Mr. Keller's slides. Other Saltchuk companies are finding their way into a bigger picture plan; Foss will pushing an LNG barge for fuelling on the West Coast (on an interim basis). The LNG fuel supply chain, acknowledged to be one of the biggest challenges for TOTE, will utilize the new barge being built at Conrad Shipyards (in Orange, Texas)- a listed company (hint to investors- there are hopes of replicating this supply chain and building other barges).

TOTE's approach also utilizes state of the art financial engineering to complement the ground-breaking designs of the actual equipment (or connections on Capitol Hill). Ownership of the barge gets more attention than privately owned TOTE. The unit, with a membrane type LNG tank, is owned by a group that includes Wespac Midstream (tied to Oaktree Capital, well-known for investments in multiple maritime sectors). It will first be deployed in Tacoma (on the West Coast) to serve TOTE's existing but soon to re-engined "Orca Class" vessels. The 2,200 M³ barge will then be shifted to Jacksonville and will serve the "Marlin" newbuilds, but only after an LNG production plant is completed at Tacoma, by the utility Puget Sound Energy. The ownership structure of the barge (and others that might follow) includes some new names-most notably Clean Marine Energy (tied to a group of successful Jones Act tanker investors).

When completed, circa 2018, the Tacoma production plant will fuel vessels via a cryogenic pipeline. On the East Coast, permitting has begun at Jacksonville for a new liquefaction facility (with Pivotal LNG, owned by Wespac Midstream and AGL Resources, symbol "GAS", as the supplier) that will some day serve multiple customers. And, if all the stars align, Tropical Shipping (the latest Saltchuk acquisition) will play a role in a contemplated LNG distribution operation around the Caribbean. "Holistic" at its best!