Army and Navy Visit PEEI in Mt. Pleasant

Representatives from the Army and the Navy met at Pittsburgh Electric Engines, Inc. (PEEI) in Mount Pleasant, to review the company’s development of the turbo fuel cell engine (TFCE) for military and commercial use. A next generation engine using TFCE technology being produced at the Mount Pleasant facility will save energy costs as well as provide easier field drop-in engine replacement.

The US Army Tank Automotive Command (TACOM) arranged for technical personnel from the US Navy Office of Naval Research (ONR) to visit PEEI in order to generate interest in the TFCE from other branches of the military. The Navy visitors concluded that the TFCE being developed by PEEI was cutting edge and that PEEI has solved numerous difficult and challenging technical and production problems in developing the turbo fuel cell engine for commercial use.

Representatives of the Navy were impressed with the length of time for the initial bundle test under loaded operation over 23000 hours. The typical life of a car engine is less than 4000 hours. During the latter part of this extensive period, the bundle test powered a DC-DC converter/drive for running a water pump. The test was run at different operating conditions to test control of an integrated system required for a vehicle drive system. The bundle test continues to operate under continuously loaded conditions with the converter/motor-pump drive operated briefly each work day.

The Army was impressed that PEEI continues to make steady and high-quality technical progress for long-range military and commercial alternative energy engines. PEEI’s innovative solutions solve the very tough problem of designing strong and durable structures for field and road engines to operate at high internal operating temperatures.

The TFCE combines the power generation of two different sources: tubular Solid Oxide Fuel Cell (SOFC) and turbo-alternator. The design is

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based on standardized modular building blocks: cell, bundle, and stack. Tubular cells are grouped together in a 6x6 array referred to as the multi-function bundle. Bundles are then connected together to form a stack; stacks can vary in size depending on the power requirement.

The turbo fuel cell engine is estimated to provide a 40% fuel savings over conventional diesel engines. If all US heavy highway trucks used this new engine, it would represent a savings of more than 7 billion gallons of diesel fuel each year. Additional alternative energy efficiencies come from the new engine’s ability to run on natural gas as well as diesel fuel.

PEEI’s stated goal is to get at least two of the major US diesel engine makers to build manufacturing plants in the Mt Pleasant area. The technology advantage of PEEI’s new engine provides the business leverage. Support from the local community, however, is critical for a small business tackling such a huge endeavor.

Community support has pushed the project from the beginning - with the Mt Pleasant Township Supervisors, the Mt Pleasant Borough Mayor Gerry Lucia, the Westmoreland County Commissioners, PA State Representative Mike Reese, PA State Senator Kim Ward, Congressman Mark Critz, and Senator Bob Casey.

With the continued interest of major military engine users, support from the community and technical excellence, PEEI is moving toward a new major manufacturing goal for Mt Pleasant and Western PA areas.