

# **Production Capability and Capacity Assessment of Hydrogenics**

## **EXECUTIVE SUMMARY**

The United States and Canadian military are seeking a solution to provide “silent watch” capability on Light Armored Vehicles (LAV). A particular technology that could solve this problem is fuel cells. A key issue of the fuel cell industry is that it is still in its infancy. Most manufacturers, although proficient in research and development, have not had much experience with volume production. The purpose of this report was to assess the current production capabilities of the Hydrogenics Corporation and its Multi-service Regenerative Fuel Cell (MREF) Auxiliary Power Unit (APU) product line.

Major competitors in power systems (fuel cells) are Ballard Power Systems, Cellex Power Products, Intelligent Energy, Plug Power, Proton Energy Systems, Nuvera Fuel Cells and Lynntech. Hydrogenics’ customers include American Power Conversion (APC) Company, US Army Tank Automotive Research, Development and Engineering Center (TARDEC), General Motors (GM), John Deere, Canadian Government, and Dow Corning. Hydrogenics is a member of the GM fuel cell alliance.

Hydrogenics has a total of 270 employees worldwide and maintains a non-union work force of skilled technicians and engineers, as well as project managers and support personnel. Hydrogenics’ in-house capabilities include assembly, integration and testing.

Hydrogenics has 95,000 square feet of floor space at the Mississauga, ON location to support production workloads including 32,000 square feet for PEM fuel cell production.

## **CONCLUSION**

The MREF APU will need to be reduced in size to meet the military’s requirements. The current MREF APU configuration is a Commercial off-the-Shelf (COTS) version and not ruggedized for military use.

## **RECOMMENDATIONS**

DCMA recommends proceeding with Phase II of this study to analyze the industrial capabilities of additional North American fuel cell companies. Phase II could start as early as the completion of Phase I in the 2<sup>nd</sup> quarter of FY06. Phase II would look at alternate sources of supply for the MREF APU.

1. Explore Defense Production Act (DPA) Title III Program (<http://www.acq.osd.mil/ott/dpatitle3/>) to assist in expanding domestic capacity.
2. Look at DoD ManTech (<https://www.dodmantech.com/>) funding possibilities to fuel cell improve producibility and affordability..
3. Explore Manufacturing Extension Partnership (MEP) (<http://www.mep.nist.gov/>) possibilities.

## **Production Capability and Capacity Assessment of Hydrogenics**

4. Investigate Technology Partnerships Canada (an agency of Industry Canada) Hydrogen Early Adopters Program (h2EA) (<http://tpc-ptc.ic.gc.ca/h2/epic/internet/inh2ea-aph2.nsf/en/Home>).

Contact Frank Sokolowski, DCMA Industrial Analysis Center, 215-737-0588, [francis.sokolowski@dcma.mil](mailto:francis.sokolowski@dcma.mil) to request a copy of the full report.