

Support for Portable Power Systems

Increasing use of electronic equipment has caused the Army to consume large quantities of single-use batteries which generate extraordinary acquisition and disposal costs. Portable fuel battery chargers could make use of rechargeable batteries in the field possible. Many technologies being considered for portable generators, including fuel cells, miniature internal combustion engines, and direct energy conversion techniques, face common problems in pumping, atomizing, and controlling very small fuel flows – in some cases as low as 6 grams/hour. Early prototype generators used fuel supply systems as large and heavy as the generators themselves. Mesoscopic Devices has developed miniature pumps and atomizers that enable compact battery chargers by efficiently providing very small fuel flow rates in highly compact packages.



Miniature generators using this Army SBIR technology would be up to ten times lighter than the single-use batteries they replace. The components also support portable power systems, including fuel cells, miniature diesel engines, and other advanced generators needed in Future Combat Systems.



PHASE III IMPACT

- 5 units sold to date, generating over \$80,000 in sales.
- \$1,757,497 in DoD and commercial Research and Development funds.
- Army SBIR Quality Award winner.
- Five teams in the DARPA "Palm Power" are currently using these fuel supply system components.