

# Low-Cost Manufacturable Microchannel Systems for Passive PEM Water Management (Topic 5)

## Pacific Northwest National Laboratory

- Funding

<b>DOE Cost Share</b>	<b>Recipient Cost Share</b>	<b>TOTAL</b>
\$999,957	\$0	\$999,957
100%	0%	100%

- **Project Description:** The objective of this project is to develop and validate a humidification device that will cost \$2/kWe, operate passively, virtually eliminating parasitic losses, reduce volume by a minimum of 40% at mass parity or below, and is fabricated using a proven robust microchannel architecture. In the device, condensation and evaporation occur simultaneously, and wicks are used to convey water between the streams. In the first phase, a single channel, 1 kWe device will be fabricated and tested under specific polymer electrolyte membrane (PEM) fuel cell operating conditions. Relevant high-volume manufacturing and assembly methods, low-cost materials, and manufacturing cost models will be developed and validated. In the second phase, a 10 kWe device will be fabricated and tested on an appropriate fuel cell.
- **Timeframe:** 2 years, starting in FY07

### Sub-Contractors

<b>Institutions</b>
Hydrogenics Corporation