

Development of a New Generation, High Efficiency PEM Fuel
Cell Based, Combined Heat and Power System Including an
Integrated Hydrogen Generation System in Collaboration with
International Partners (Topic 7)

Intelligent Energy, Inc.

- Funding

DOE Cost Share	Recipient Cost Share	TOTAL
\$2,193,433	\$2,193,433	\$4,386,866
50%	50%	100%

- Project Description: The objective of this project is to develop and demonstrate a 2 kW polymer electrolyte membrane (PEM) fuel cell based combined heat and power (CHP) unit that provides the foundation for commercial, mass produced units which achieves over 40% electrical efficiency, greater than 70% overall efficiency, has the capability to achieve 40,000 hours durability on all major process components, and can be produced in high volumes at under \$400/kW capital cost. The fuel cell and hydrogen generation subsystems will be based on and will leverage Intelligent Energy's existing technology platforms. The project will involve validation of the technology feasibility, followed by development and delivery of the CHP unit, and finally site installation and unit operation. Three alternative demonstration sites have been defined including the Hydrogen Demonstration Center at West Beacon Farms (UK) where Intelligent Energy (IE) is currently field testing its 2kW CHP unit; E-On Gas (Malmö, Sweden) where IE's Hestia system will be used for H₂ refueling; or HYTREC Centre (Norway) where IE is discussing a refueling installation for a fleet of its fuel cell powered bikes.
- Timeframe: 3 years

Sub-Contractors

Institutions
SeQual, Incorporated
Argonne National Laboratory
Tufts University