



## CLEAN FUELS & CHEMICALS

### PROJECT FACTS

UNIVERSITY OF KENTUCKY  
CENTER FOR APPLIED ENERGY RESEARCH

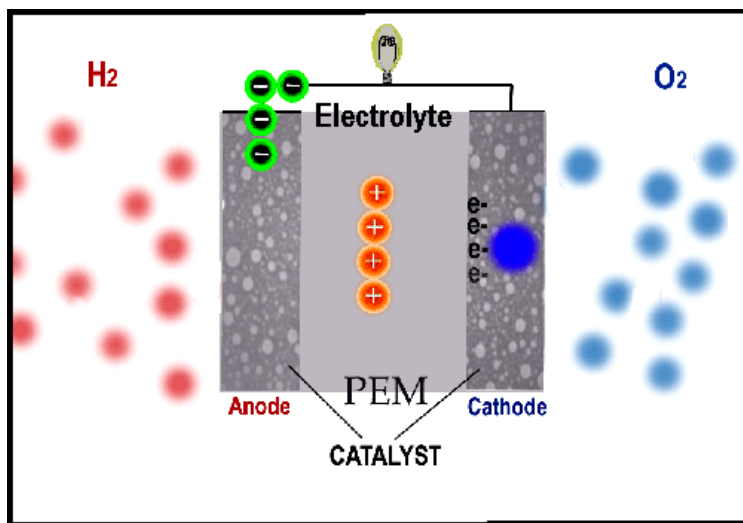
### Hydrogen Production for Polymer Electrolyte Fuel Cells

#### PARTICIPANTS

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The CAER focuses on both hydrocarbon reforming and also renewable energy systems (water and sunlight) as a source for making hydrogen that will be used in polymer electrolyte fuel cell applications.

The hydrogen supplied to a polymer electrolyte fuel cell (PEM) and the electrochemical conversion of hydrogen into electricity is demonstrate in the attached animation below:



Our current focus at the CAER is on making hydrogen catalytically via Water-Gas-Shift Reaction (WGS), or photo-catalytically with ceramic nanoweb precursors via Water-Splitting Reaction (WS). The PEM fuel cell combines either hydrocarbon reformers or photovoltaics/ electrolyzers (the electrolyser produces hydrogen at the cathode and oxygen at the anode). These two gases pass through different tubes into the gas/water separation tanks.

#### CONTACT

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