Recent Fuel Cell Research Activities at Florida Solar Energy Center


2014 Florida Energy Systems Consortium Workshop
May 12-13, 2014
Gainesville, Florida
Membrane Durability: Impact of EW

- Equivalent weight of the membrane impacted durability

Membrane Durability: Impact of Ceria in the Membrane

- Ceria in the membrane improves durability
- With ceria, the Pt particles are larger and fewer
  - Extend further into the membrane

TEM Research supported by ORNL's Shared Research Equipment (ShaRE) User Program, which is sponsored by the Office of Basic Energy Sciences, the U.S. Department of Energy
• CCMs with Pt/C and PtCo/C in the electrodes were OCV tested
  - Improved cell durability with PtCo/C rather than Pt/C
  - The different catalysts resulted in different Pt profiles in the PEM:
    • Pt/C resulted in Pt band formation and larger Pt particles
    • PtCo/C results in Pt distributed throughout the membrane
Impact of Pt Loading in the Membrane

- 10 mol% Pt resulted in similar degradation as Pt/C CCM although Pt distribution after testing was different.