MEA BREAKOUT GROUP

TOPICS

FOCUSED ON CCMs

- IONOMER
- CATALYST LAYER
- PERFORMANCE
- DEGRADATION
- FUNDAMENTAL STUDIES

IONOMER

- DEVELOP IMPROVED IONOMERS:
  - PERFLUORINATED IONOMERS (O2 SOLUBILITY)
  - HYDROCARBON IONOMERS
- ANODE FLOODING ISSUES, CATHODE DRYOUT ISSUES:
  - DEVELOP SEPARATE IONOMERS FOR ANODE/CATHODE
  - IONOMER CHEMISTRY
- IONOMER/CATALYST INTERACTION
- CL / MEMBRANE INTERACTION
- IMPROVED CL/M INTERFACES
  - IONOMER CROSSLINKING

CATALYST LAYER

- CATALYST CHALLENGES IN ANODE SIDE
- FOCUS ON NON-PGM CATALYSTS
- INK FORMULATION
- CCM VS. GDE
- DELAMINATION

PERFORMANCE

- BACKUP POWER APPLICATION
  - STATUS: 60C, 0.5V, 0.2W/CM2 (DEGRADATION ISSUES)
  - TARGETS: SHOULD BE SET CONSISTENT WITH DOE STATIONARY TARGETS (2015)

- AUTOMOTIVE APPLICATION
  - INCREASE POWER DENSITY TO >0.5W/CM2
  - INCREASE TEMPERATURE STABILITY TO >80C

DEGRADATION

- STATUS: ‘00 HOURS PERFORMANCE STABILITY
- TARGET: ‘000 HOURS
- NEED TO UNDERSTAND DEGRADATION MECHANISMS @ANODE, CATHODE, MEMBRANE, MEMBRANE/CL INTERFACES
- IONOMER/CL/INTERFACES CROSSLINKING
- DEVELOPMENT OF CCMs WITH IMPROVED WATER MANAGEMENT
- IMPROVED TEMPERATURE STABILITY