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