

SECA Core Technology Program Peer Review



***Breakout Session – Balance-of-Plant
(BOP)***

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Priority BOP Items

1. High-T HEX issues

1. Cost
2. Effectiveness (metallic versus ceramic)
3. Size (even stationary apps – system implications)
4. Pressure Drop
5. 3-10kW Product Void (due to capacity and delta T)
6. Materials Durability (metallic problems over 700C)
 1. Look to new generation of Austenitic SS
 2. Ceramics
 1. Thermal shock
 2. Manifolding
 3. Crossover
7. Thermal cycles – focus on design plus materials
 1. 100 stationary
 2. 1000's APU

Priority BOP Items

2. Blowers

1. Cathode air

1. Efficiency !!! (large parasitic)
2. Reliability
3. Largely an engineering problem

2. Recirc Blowers

1. Motor isolation/design
2. Turndown
3. Sealing
4. Safety
5. Cost

Priority BOP Items



3. Power Electronics

1. Efficiency
 1. “flat” curve
 2. approx. 95% overall
2. Cost
 1. \$50/kW
3. Reliability
4. PES interaction with stack and BOP control



Priority BOP Items



4. Insulation

1. To date, insulation requirements not a priority in system design.
2. Space requirements and thermal conductivity / cost trade drive choice between fiber, microporous, others.
3. Ability to withstand vibration and shock (APU apps).

