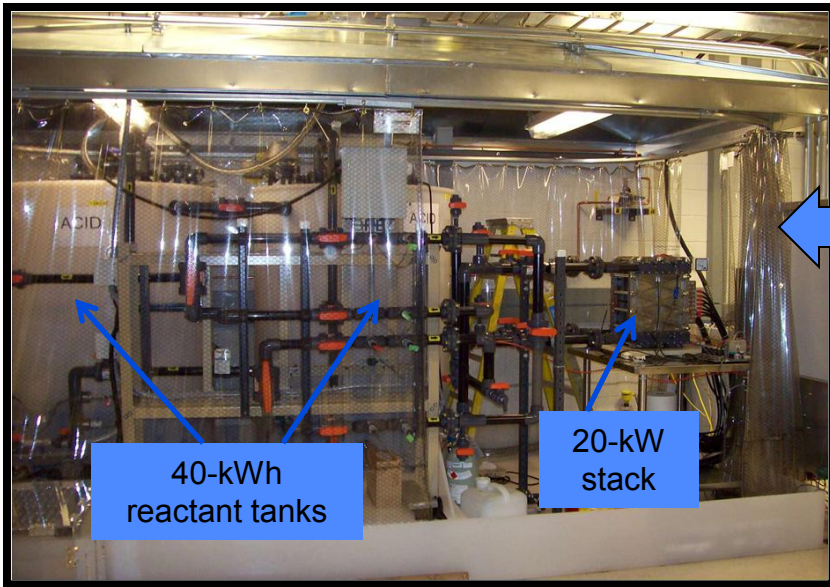
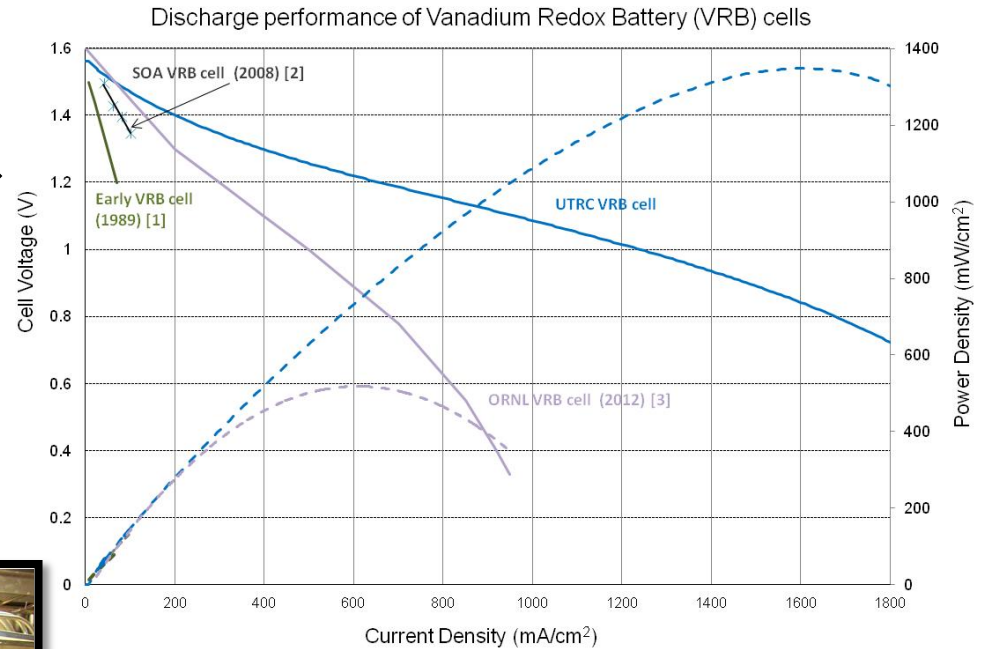
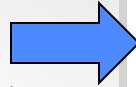


Enabling commercially-viable Flow Battery Systems (FBS)

UTRC has demonstrated breakthrough in high power density flow cells

- Achieved using conventional flow-battery cell materials
- Applicable to any FBS chemistry
- Enables substantial reduction in Stack cost, which dominates total System cost in conventional FBS



- Demonstrating this breakthrough cell technology in Advanced Prototype System
- Have also begun work on Advanced FBS Membranes with *3M Corporation*

Cell performance sources:

1. M. Kazacos, et. al., *J. Electrochemical Society*, **136** (1989).
2. B. Yi, et. al., *J. Power Sources (JPS)*, **175** (2008).
3. T. Zawodzinski, M. Mench, et. al., *JPS*, **206** (2012).

