Develop a low-cost, energy-storage system with high power density at 80% efficiency

Use H2 and Br2 in a flow battery

No noticeable side reactions up to 1.8 V
No mass transfer limit at 4 A/cm2

Membrane Development

Stability

Br Crossover

Modeling

System Costs

Performance Optimization

Bromine resistant catalysts

Future Plans

Upgrade cell performance of system with low-cost chemicals with excellent kinetics

High peak power (1.4 W/cm²)
High power at high efficiency

Project 16 k+ cycles w/ < 20% power loss

Scale-up; cycleability and durability

Acknowledgements

Funding from ARPA-E GRIDS, USDOE

DuPont: Biswajit Choudhury (New membranes)

LBNL: Kyu Tae Cho (Cell studies); Paul Ridgway (Catalysis studies); Sophia Haussener (Transport modeling)

3M: Mark Debe (Catalyst structures)

Paul Albertus (Cost Modeling); Roel Sanchez-Carrera and Boris Kozinsky (Catalyst theory)

Proton OnSite: Kathy Ayers (Hydrogen compression, cost modeling)