Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Paraquinone-Hydroquinone Couple for Flow Battery SARAF NAWAR, Harvard College, BRIAN HUSKINSON, MICHAEL AZIZ, Harvard School of Engineering and Applied Sciences — At present, there is an ongoing search for the storage of energy from intermittent renewable sources like wind and solar. Flow batteries have gained attention due to their potential viability in inexpensive storage of large amounts of energy. Because of its high reversibility, low toxicity, and low component costs, the paraquinone/hydroquinone redox couple could be a viable candidate for use in a grid-scale storage device. In this report, we will present half-cell data for the 1,4-parabenzoquinone/1,4-hydroquinone redox couple and related couples in sulfuric acid. We will present results from a flow battery with maximum current density of up to 200 mA/cm2 using a mixture of 1,4-parabenzoquinone and 1,4-hydroquinone as the cathode material and hydrogen as the anode material. We report the effects of reactant concentration, reactant flow rate to the electrode, and temperature on the performance of the fuel cell.

Saraf Nawar
Harvard College

Date submitted: 09 Nov 2012 Electronic form version 1.4