

# CHEM**ELECTRO**CHEM

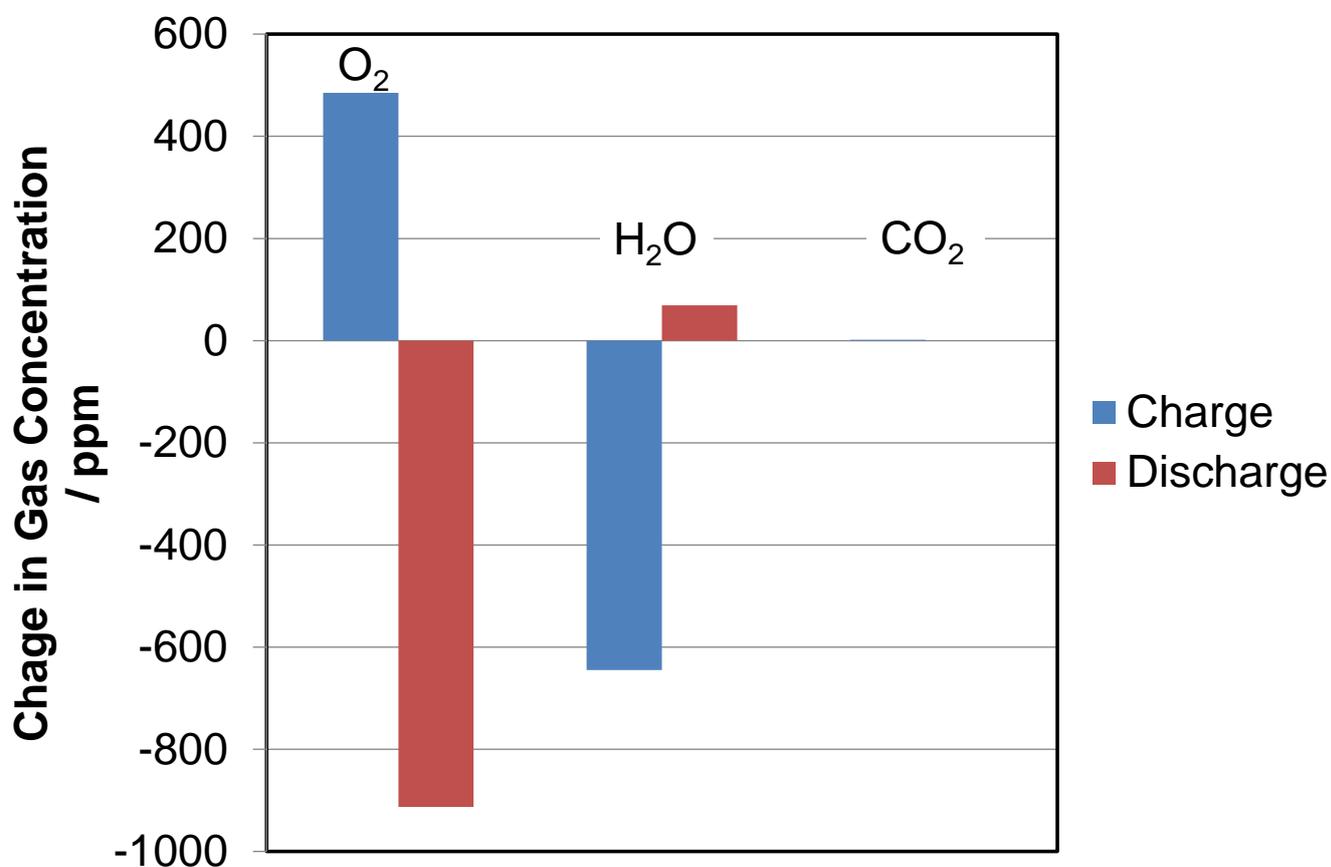
## Supporting Information

### **Rechargeable Metal–Air Proton-Exchange Membrane Batteries for Renewable Energy Storage**

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**Figure S1.** Change in the O<sub>2</sub> and H<sub>2</sub>O concentrations over the RuO<sub>2</sub>/C cathode during charge and discharge at room temperature, where the current density was set at 10 mA cm<sup>-2</sup>.



The O<sub>2</sub>, H<sub>2</sub>O, and CO<sub>2</sub> concentrations in the outlet gas from the electrode during charge and discharge were analyzed using online gas chromatography (GC; Varian CP-2002). The validity of Reaction (2) was confirmed by analyzing the outlet gas from the RuO<sub>2</sub>/C cathode. Although the accuracy of this analysis is not high, especially for H<sub>2</sub>O, because the measurement was conducted at a low current density of 10 mA cm<sup>-2</sup>, the H<sub>2</sub>O concentration decreased and the O<sub>2</sub> concentration increased during charge, and vice versa during discharge