The Haber-Bosch process is used for industrial production of ammonia (NH_3) from atmospheric N_2. Despite ammonia being integral to feeding the world's population, due to its role as a fertilizer, the Haber-Bosch process contributes heavily to climate change by releasing CO_2 and consuming a large amount of fossil fuel-sourced energy usage. We aim to sustainably produce NH_3 via electrocatalysis by sourcing our hydrogens from a renewable source, such as H_2O. Modeling our work on previous molecules which were proven to fix atmospheric N_2, we have synthesized a dioxo-rhenium complex and investigated its electrochemical and chemical reactivity. A chemical reduction results in the possible formation of an N_2-bridged Re-Re dimer, a key step towards production of NH_3. Electrochemical data suggests the possibility of a PCET or PCET-like mechanism for the reduction of the rhenium(V) center to rhenium(I), along with a change in the axial ligands, leading to conditions which are typically suitable for N_2 binding.