**Battery vs. Hydrogen Storage**

**General Objective**

Evaluate trade-offs in cost, efficiency, and long-term viability.

**General Guidelines and Potential Topics for Energy Storage Research**

Students will research and investigate the different benefits and tradeoffs between battery and hydrogen storage. Some topics that might interest students at this nexus include:

* Raw materials required for energy storage pathway
  + How the raw materials are acquired (i.e., mining and mining waste produced)
* Energy storage density of each medium
* Land area and/or volumetric scale required to deliver different amounts of energy
  + How much for a singular household vs. small city vs. large city
* Grid-scale and/or seasonal storage energy volumes and associated land area and/or volumetric scale
* Cyclability - how often would batteries vs. hydrogen have to be replaced?
* Existing infrastructure - can batteries and/or hydrogen use any of the existing energy infrastructure? Which infrastructure?

**Outcome**

Students will prepare a deliverable that outlines the benefits and tradeoffs between battery and hydrogen energy storage answering the following questions:

* What are the benefits and tradeoffs of each energy storage system you researched?
* What circumstances would you recommend one vs. other approaches for energy storage?
  + Can you think of specific conditions or regions where one approach may make more sense than others? Provide this example and explain your reasoning.
* If you were to take these findings and present them to policymakers, what do you think is the most important thing to get across to them, and why?