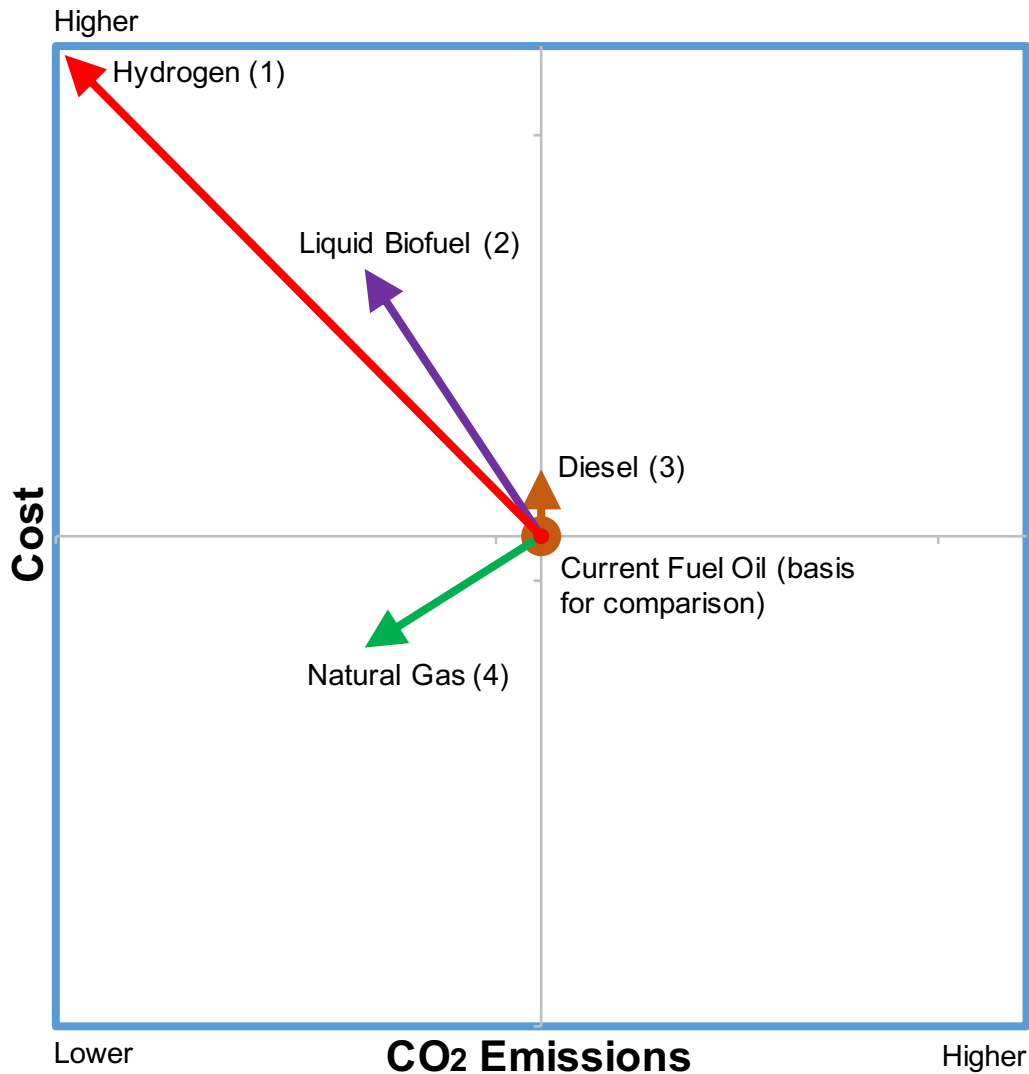


Generating Cost vs. CO₂ Emissions for Alternative Fuels

Since prudent and acceptable renewable sources of power on Oahu will be insufficient to meet demand, what fuel should be used?



1. Hydrogen: not including CO₂ emissions to produce; if other than from a renewable resource, the hydrogen vector moves significantly right.

2. Liquid Biofuel: emission level based on “out the stack” in Hawaii; if CO₂ emissions to produce the liquid from feedstock and if forest acres are cleared to grow feedstock (loss of CO₂ absorption) are taken into consideration, the liquid biofuel vector moves significantly right.

3. Diesel: reflects diesel having a higher refinery costs vs. fuel oil; if burned in an efficient combined cycle power plant, the diesel vector moves down to possibly being less costly than fuel-oil steam units.

4. Natural Gas: shipped to Hawaii as LNG and gasified offshore or onshore, with gas pipelines connecting to generating plants. Excludes CO₂ emissions to liquefy; if included, the LNG vector moves to the right.

Source: Practical Policy Institute of Hawaii (PPIH) analysis, February 2024.