Fuel Viability Matrix

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Category | Lithium Battery | Ethanol | Methanol | Diesel | Gasoline | Natural Gas | Propane | Methane | Hydrogen |
| Miles/kg |  |  |  |  |  |  |  |  |  |
| Miles/L |  |  |  |  |  |  |  |  |  |
| Cost/mile |  |  |  |  |  |  |  |  |  |
| ERoEI |  |  |  |  |  |  |  |  |  |
| Subtotal 1 |  |  |  |  |  |  |  |  |  |
| Carbon emission\* | 9 | 5 | 6 | 2 | 1 | 3 | 4 | 7 | 9 |
| Renew factor\* | 9 | 6 | 6 | 1 | 1 | 1 | 4 | 7 | 9 |
| Subtotal 2 | 18 | 11 | 12 | 3 | 2 | 4 | 8 | 14 | 18 |

\*Carbon emission and renewability factors have been ranked for you. These values are less quantifiable overall and it can be really tricky to differentiate between all of the inputs and outputs. The hydrogen and lithium battery rankings in these categories are assuming that the electricity needed to generate or charge them is sourced from a renewable sector like wind, hydro, or solar. Ethanol, methanol, and methane, while technically renewable and low-carbon, score just below hydrogen and battery power in both categories. All fossil fuels score equally low in the renewability category, as they are entirely non-renewable. Hydrogen scores just above lithium ion batteries in renewability because it can be generated indefinitely, whereas the recharging capability of batteries does degrade over time.