

R&D GREET ICEVs, HEVs, PHEVs, EVs, and FCVs Quiz

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Answer these questions using R&D GREET 1,
R&D GREET 2, a calculator, and your notes from
the session.



GREAT PLAINS
INSTITUTE

Argonne
NATIONAL LABORATORY

U.S. Department of
ENERGY

* Required

* This form will record your name, please fill your name.

1. What vehicle powertrain has an internal combustion engine and battery but can run on electric power alone?

- ICEV
- BEV
- HEV
- PHEV
- FCV

2. How are CO₂ emissions from vehicles estimated in R&D GREET? *

3. Rank the powertrains modeled in a 2022 sport utility vehicle (SUV) from lowest to highest **feedstock** greenhouse gas (GHG) emissions? *

BEV (Electricity)

ICEV (Gasoline)

HEV (Gasoline)

FCV (Gaseous Hydrogen)

PHEV (Gasoline and Electricity)

4. Explain why fuel cell vehicles have non-zero feedstock emissions by default in R&D GREET.

5. What is the operation all-electric range for a grid-connected SI PHEV passenger car fueled by gasoline by default in R&D GREET? *

6. What is the default traction battery type for a fuel cell electric vehicle modeled in R&D GREET?

7. Model a PHEV SUV built and modeled in 2022 running on a NMC811 battery in R&D GREET
2. What are the WTP emissions in g CO₂e/mile? *

8. Model a PHEV passenger **car** built and modeled in 2022 running on a **NMC532** battery in R&D GREET. What are the WTP emissions in g CO₂e/mile? *

9. Model a FCV SUV built and modeled in 2022 fueled by gaseous hydrogen produced from wind-powered electrolysis. Include the embodied emissions of the wind turbine infrastructure. What are the fuel emissions in g CO₂e/mile? *

10. Model a FCV SUV built and modeled in **2015** fueled by gaseous hydrogen produced from wind-powered electrolysis. Include the embodied emissions of the wind turbine infrastructure and **hydrogen production electrolyzer emissions**. What are the fuel emissions in g CO_{2e}/mile? *

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