

R&D GREET Electricity and Electric Infrastructure 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

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U.S. Department of
ENERGY

* Required

1. Name *

2. Email *

3. What is the electric transmission and distribution loss assumed in R&D GREET? *

4.9%

4. What is the 2022 U.S. electricity GHG intensity at the wall outlet in g CO₂e/kWh?

440 g CO₂e/kWh

5. What is the conversion factor for light water reactor nuclear power plants? Include units.

6.59 MWh/g U-235

6. What is the assumed lifetime of a nuclear power plant in R&D GREET? *

80 years

7. What is the primary **natural gas-based** technology used to construct a hydroelectric dam? *

NG Utility/Industrial Boiler

8. Define the capacity factor.

Answers will vary* (ratio of the average output and rated power)

9. What is the default share of installed capacity of U.S. average, onshore wind turbines? *

99.97%

10. Which state in 2022 has an electricity grid mix with 58% wind turbine generation according to EIA Form-923? Look for the answer in R&D GREET 1. *

South Dakota (SD)

11. Model a **2022 SUV BEV** using an **NMC622** battery *charged* with a **WECC** electricity generation mix in R&D GREET. What is the cradle-to-grave (**C2G**) result in g CO₂e/mile? *

257 g CO₂e/mile

12. Model a **2022 passenger car BEV** using an **NMC111** battery. Set the electricity generation mix for the vehicle's production, disposal, and assembly to be from the MRO region; however, set the electricity generation mix for the vehicle use to be from the WECC region. What is the **vehicle cycle** result in g CO₂e/mile? *

67 g CO₂e/mile

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