

R&D GREET Trains and Tractors 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. Complete the equation: [energy intensity per passenger mile] = [volumetric fuel use] x [_____] / [passenger miles]? There are two answers that are equally correct, but choose the one that is used by convention in R&D GREET *

Lower heating value (LHV)

4. What fuels can be modeled by rail vehicles but not a tractors in R&D GREET? *

LPG, LNG, and renewable gasoline

5. Rank the rail vehicles from lowest to highest **well-to-pump** (WTP) greenhouse gas (GHG) emissions? *

Heavy Transit Rail Vehicle (Electricity)

Commuter Rail Vehicle (Diesel)

Intercity Rail Vehicle (Diesel)

Light Transit Rail Vehicle (Electricity)

Light transit > heavy transit > commuter rail vehicle > intercity rail vehicle

6. Describe how tractor energy intensity is calculated within R&D GREET

Answers will vary* see slide 18 of the Trains and Tractors Intro slide deck

7. Which fuel has a NO_x emission ratio that is 50% of the baseline fuel in **tractor** operation? *

DME

8. Which fuel has a CH₄ emission ratio that is 2000% of the baseline fuel in **locomotive** (rail vehicle) operation? *

LNG

9. Model an BEV tractor using the **Midwest electricity generation mix** fueled by diesel in R&D GREET. All other settings are considered default. What are the well-to-pump (WTP) GHG emissions in g CO₂e/hour?

99,828 g CO₂e/hr

10. Model an HEV tractor fueled by **30% biodiesel** blended by volume and made from **algae**. What are the well-to-pump (WTP) GHG emissions in g CO₂e/hour? *

12,572 g CO₂e/hr

11. Model a commuter rail vehicle fueled by diesel. What are the pump-to-wheels (PTW) GHG emissions in g CO₂e/passenger mile?

202 g CO₂e/passenger mile

12. Model a light transit rail vehicle fueled by **oil-power-plant-generated electricity**. What are the well-to-wheel (WTW) GHG emissions in g CO₂e/passenger mile? *

401 g CO₂e/.passenger mile

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