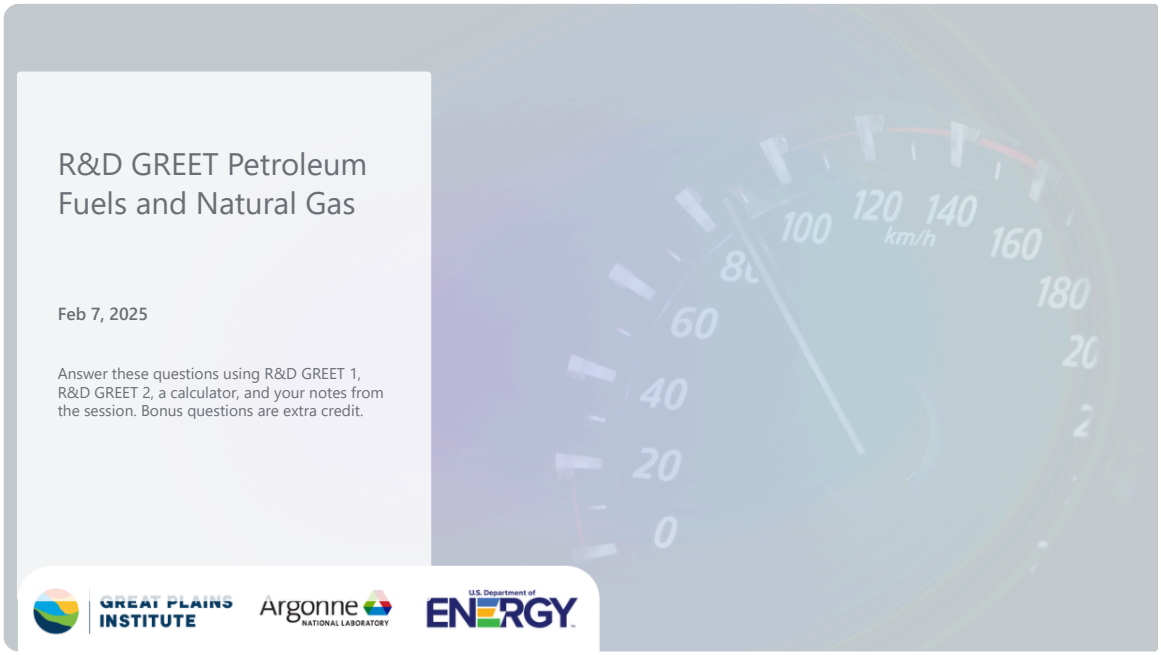

* Required

1. Name *

2. Email *

3. What is the default volume fraction (%) of blended ethanol (blending level) in R&D GREET gasoline? *

10%

4. What are the default volumetric fractions of Bitumen and Diluent for Dilbit in R&D GREET?
   a. % of Bitumen
   b. % of Diluent *

a = 70%, b = 30%

5. In your own words, why is a diluent used in Canadian shale oil extraction?

Answers will vary* see slide 18 of the Petroleum Fuels and NG Intro slide deck

6. For Liquified Petroleum Gas (LPG) fuel used in a spark-ignited light-duty vehicle, what fraction (share) of the LPG is produced from the natural gas pathway vs the crude oil pathway? **Bonus question**: is this an energy share? *

86.6%; Bonus question: yes

7. What is the default inlet temperature (degrees F) for a CO_2 compressor for carbon capture and sequestration (CCS) that is not specific to any given industry? *

75 degrees F

8. What is the assumed distance North American natural gas travels from the extraction field to a refueling station for compressed natural gas production? Include units in your response. *

750 miles

9. What are the methane (CH_4) emissions (in g/mmBtu) that come from gasoline blendstock distribution? *

0.109 g CH4/mmBtu

10. How many grams of CO_2 per mmBtu of gasoline blendstock are emitted from intermediate product combustion within gasoline blendstock refining? **Bonus question:** convert your answer into CO_2 (w/ C in VOC and CO) per mmBtu of gasoline blendstock?

8,043 g CO2/mmBtu; Bonus question: 8,053 g CO2 (w/ C in VOC and CO)/mmBtu

11. Model a spark-ignited internal combustion engine (SI-ICE) light-duty vehicle (LDV) passenger car fueled by gasoline using a low API, high percentage of sulfur scenario for petroleum refining efficiency. What are the well-to-wheels (WTW) GHG emissions in both g CO_2e/mile and g CO_2e/MJ? *

91 g CO2e/MJ and 412 g CO2e/mile

12. Model a spark-ignited internal combustion engine (SI-ICE) light-duty vehicle (LDV) passenger car fueled by gasoline using a **high API, low percentage of sulfur** scenario for petroleum refining efficiency. What are the well-to-wheels (WTW) GHG emissions in both g CO_2e/mile and g CO_2e/MJ?

90 g CO2e/MJ and 406 g CO2e/mile