September 12, 2019

WTW Analysis of Hydrogen Fuel Cell Trucks with the GREET® Model

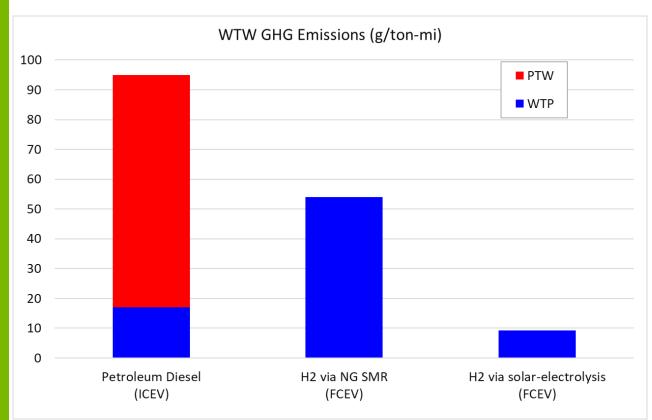
Amgad Elgowainy, Ph.D.
Electrification and Infrastructure Group Leader

System Assessment Center Energy Systems Division Argonne National Laboratory



ENVIRONMENTAL IMPACTS: GHG EMISSIONS*

-DRAYAGE TRUCKS



Acronyms:

WTW: Well-to-Wheels GHG: Greenhouse Gas WTP: Well-to-Pump

PTW: Pump-to-Wheels

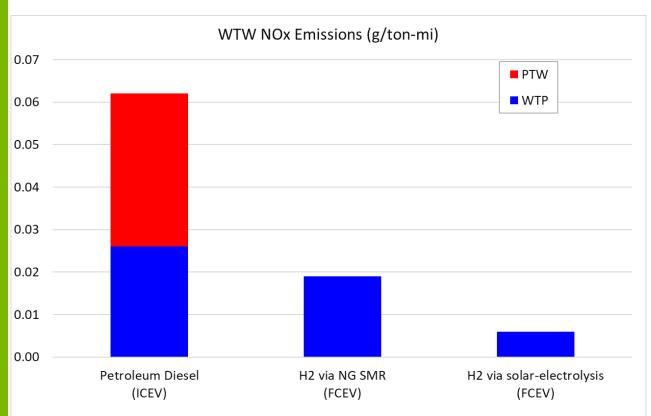
ICEV: Internal Combustion Engine Vehicle

H2: Hydrogen NG: Natural Gas

SMR: Steam Methane Reforming FCEV: Fuel Cell Electric Vehicle



ENVIRONMENTAL IMPACTS: NO_X EMISSIONS* -DRAYAGE TRUCKS



Acronyms:

WTW: Well-to-Wheels

NOx: Nitrogen Oxides WTP: Well-to-Pump

PTW: Pump-to-Wheels

ICEV: Internal Combustion Engine Vehicle

H2: Hydrogen NG: Natural Gas

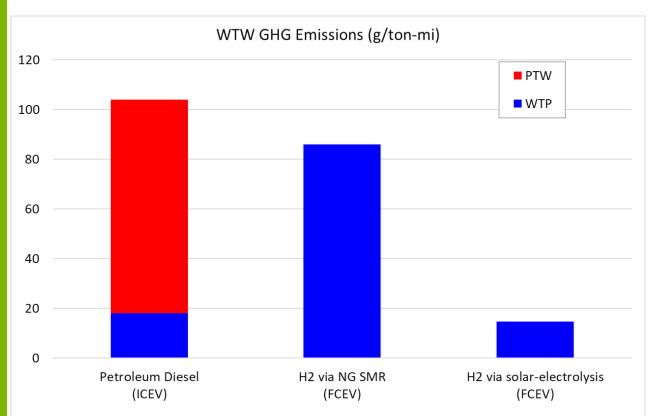
SMR: Steam Methane Reforming FCEV: Fuel Cell Electric Vehicle

*Using Argonne National Laboratory GREET® (2019) model https://greet.es.anl.gov/



ENVIRONMENTAL IMPACTS: GHG EMISSIONS*

-CLASS 8B COMBINATION LONG-HAUL TRUCKS



Acronyms:

WTW: Well-to-Wheels GHG: Greenhouse Gas WTP: Well-to-Pump PTW: Pump-to-Wheels

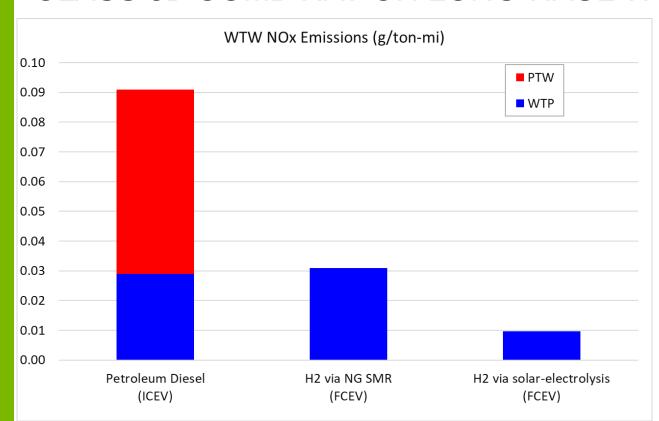
ICEV: Internal Combustion Engine Vehicle

H2: Hydrogen NG: Natural Gas

SMR: Steam Methane Reforming FCEV: Fuel Cell Electric Vehicle



ENVIRONMENTAL IMPACTS: NO_X EMISSIONS* -CLASS 8B COMBINATION LONG-HAUL TRUCKS



Acronvms:

WTW: Well-to-Wheels

NOx: Nitrogen Oxides

WTP: Well-to-Pump PTW: Pump-to-Wheels

ICEV: Internal Combustion Engine Vehicle

H2: Hydrogen NG: Natural Gas

SMR: Steam Methane Reforming FCFV: Fuel Cell Flectric Vehicle

*Using Argonne National Laboratory GREET® (2019) model https://greet.es.anl.gov/





