GREET® Introduction Workshop

By Systems Assessment Center
Energy Systems Division
Argonne National Laboratory

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E1100/1200 Building 402, Argonne National Laboratory

Moderator: Michael Wang

2:00 Amgad Elgowainy: GREET LCA model overview

An overview of the GREET model, covering different GREET platforms, scope of LCA system boundary and approach, sustainability metrics, fuel pathways, transportation modes and vehicle classes, data sources, documentation and publications, tutorial resources, and summary of updates in GREET 2019 release.

2:10 Zifeng Lu/Pingping Sun: petroleum-based fuels

Overview of the GREET's methods and capabilities to model well-to-product energy and environmental impacts of various petroleum-based fuels/products including gasoline, diesel, jet, residual oil, LPG, Coke, asphalt, propane, butane, and propylene

- Impacts of different crude sources and types (conventional and unconventional)
- Refinery-process-level allocation for product-specific refining efficiencies and emission intensities of GHGs and criteria air pollutants
- Impact of allocation methods on product-specific results

2:30 Uisung Lee/Hoyoung Kwon: biofuels and land use change GHGs

Overview of well-to-wheels energy and environmental impacts (GHG emissions, fossil energy use, and water consumption) of various biofuel production pathways included in GREET 2019.

- 1st generation biofuels, cellulosic biofuels and algal biofuels
- Waste-derived fuels production pathways
- CCLUB: land use change and land management effects
- Applications of GREET for ICAO Fuels Task Force
- Marine applications of GREET

3:15 Amgad Elgowainy: electricity and hydrogen

Overview of LCA of vehicle electrification, including plug-in battery electric vehicles and hydrogen fuel cell vehicles in LDV and M/HDV applications.

- Electricity pathways: regional/national grid mixes, and technology-specific pathways
- Hydrogen pathways: gaseous and liquid forms with different feedstocks

3:45 Q&A and GREET simulation demonstration

4:00 Wrap up