Read Me

1. **inputs folder**

The inputs folder contains input files for the “cafeProject.r” code. Data is loaded from the inputs folder throughout the code to generate figures and to run the incentives emission model.

* 1. **2009\_compliance.csv**

This csv file contains the sales, footprint, vehicle type, manufacturer, and emissions rate for every vehicle model sold in 2009.

* 1. **2012complianceCars.csv**

This csv file contains the sales-weighted footprint adjusted emission rate for passenger cars for each manufacturer and the associated footprint required standard in 2012.

* 1. **2012complianceTrucks.csv**

This csv file contains the sales-weighted footprint adjusted emission rate for light-duty trucks for each manufacturer and the associated footprint required standard in 2012.

* 1. **abcd\_cars.csv**

This csv file contains all of the “abcd” coefficients used to calculate the step-wise footprint based CAFE/GHG standard requirements for passenger cars in 2012 through 2025.

* 1. **abcd­\_trucks.csv**

This csv file contains all of the “abcd” coefficients used to calculate the step-wise footprint based CAFE/GHG standard requirements for light-duty trucks in 2012 through 2025.

* 1. **aeoTotal.csv**

This csv file contains annual total vehicle sales projections from EIA’s Annual Energy Outlook 2012 and 2013 projections from 2012 through 2025.

* 1. **car\_footprints.csv**

This csv file contains the CAFE/GHG passenger car standards requirement from 2012 through 2025 as a function of footprint of the vehicle. A discretized value is provided for every .5 ft2 increase in footprint size.

* 1. **constants.csv**

This csv file contains weight and multiplier incentive values for all vehicle technologies from 2012 through 2025 as well as the projected GHG emission rate standard.

* 1. **eia\_projection.csv**

This csv file contains projections of vehicle sales of the four technologies: flex fuel vehicles, plug-in hybrids (10 mile range), plug-in hybrids (40 mile range), and battery electric vehicles (100 mile range). The projections are made by EIA’s Annual Energy Outlook (2012, 2013, 2014, 2015) respectively and a final projection by EPA in their regulatory impact assessment. Sales are from 2012 through 2025.

* 1. **em\_rate\_example.csv**

This csv file contains a set of 7 example alternative fuel vehicles that cover the categories of technologies from EIA AEO projections. Each model has an associated technology type, footprint, two-cycle gas efficiency, five-cycle gas efficiency, two-cycle alternative fuel efficiency, five-cycle alternative fuel efficiency, proportion of time spent on alternative fuel drivetrain, and vehicle type (car vs truck).

* 1. **index.csv**

This csv file contains index values used in the coding procedure to associate technologies with an id.

* 1. **input.csv**

This csv file contains a set of example vehicles: their associated gasoline emissions, alternative fuel emissions, proportion of time spent on alternative fuel drivetrain, and vehicle technology type.

* 1. **input3.csv**

This csv file contains an overview of life-cycle emissions from production of batteries. Each entry has a source (last name of the first author of the paper), the battery technology source in the study, energy density, and emissions as a function of the weight of the battery.

* 1. **mileageByAge.csv**

This csv file contains average annual VMT in the US as a function of the age of the vehicle from NHTS data.

* 1. **newcar\_lca.csv**

This csv file contains additional data of the alternative fuel vehicles in “em\_rate\_example.csv” excluding the flex-fuel vehicle. For each vehicle model, there is an associated technology type, average emissions weighted from gasoline and alternative fuel emissions rates based on proportion of time spent on alternative fuel. Lastly, the battery size information is also included.

* 1. **oldstandards.csv**

This csv file contains the CAFE standard values for passenger cars and light-duty trucks from 1978 through 2011. The actual fleet fuel efficiencies are also provided (by passenger car, light-duty trucks, and combined).

* 1. **standards.csv**

This csv file contains the average expected GHG emissions standard for passenger cars, light-duty trucks, and combined requirements from 2012 through 2025.

* 1. **truck\_footprints.csv**

This csv file contains the CAFE/GHG light-duty truck standards requirement from 2012 through 2025 as a function of footprint of the vehicle. A discretized value is provided for every .5 ft2 increase in footprint size.

1. **cafeProject.r**

This file contains the R code used for producing figures in associated paper and for calculating the emissions results in the associated paper. Code is commented throughout for clarity, further information can be requested at [headisbagent@gmail.com](mailto:headisbagent@gmail.com).