

## MEMO

**TO:** Alliance of Automobile Manufacturers  
**FROM:** NERA Economic Consulting  
**DATE:** 10 April 2019  
**SUBJECT:** **CAFE Standards Analysis: Data Back Up**

This memo summarizes the information provided as data back-up for the report authored by NERA Economic Consulting and Trinity Consultants entitled “Evaluation of Alternative Passenger Car and Light Truck Corporate Average Fuel Economy (CAFE) Standards for Model Years 2021-2026” and dated October 26, 2018 (“NERA/Trinity Report”).

## I. Data Submission Materials

### A. Data files

#### 1. Inputs (all Excel format)

##### a. Parameters file

- Copies of NHTSA parameter information used in the analysis (e.g., fuel import assumptions; gasoline price forecast; etc.).
- Non-NHTSA parameters from other sources (e.g., benefit-per-ton values from literature, historical fuel economy information).

##### b. MOVES baseline fleet

- Baseline fleet information (2016-2050 cars, trucks, and car/truck VMT by model year) as provided by Trinity.

#### 2. Fleet results

##### a. Fleet and VMT projections

- Projections of fleet population (cars, trucks, and total vehicles) and VMT (total non-rebound; overall and by class) by model year, calendar year, and scenario.

##### b. New vehicle information

- Aggregated information on new vehicles in model years 2017-2029, including increases in cost, reductions in dollar-per-mile, and average adjusted MPG in each scenario.

### **3. MOVES output**

#### **a. MOVES model output (tailpipe emissions)**

- MOVES output (received from Trinity, with minor re-formatting): tailpipe emissions by calendar year, scenario, model year, class, and fuel type.

#### **b. MOVES activity summary**

- MOVES information on vehicle counts and VMT by fuel type.

### **4. Fuel consumption and emissions**

#### **a. Fuel consumption**

- Total fuel consumption (gallons) by scenario, model year, and calendar year.

#### **b. Fuel consumption by fuel type**

- Fuel consumption broken out by fuel type.

#### **c. Tailpipe emissions**

- Tailpipe emissions (re-formatted from Trinity information).

#### **d. Upstream emissions**

- Upstream emissions estimated based on fuel consumption and assumptions about fuel import, extraction, and refining.

## **B. Stata do files**

### **1. Modeling**

#### **a. Fleet models (NVMM, Scrappage, Rebound) code**

- Do file that runs NVMM (including calibration, second stage regression, and new vehicle sales forecasting), scrappage regression, fleet effects, and rebound effect.
- The code only runs one alternative scenario at a time (i.e., must be run three times, once each for scenarios 8, 5, and 1 vs. baseline).

#### **b. Fleet summary code**

- Re-formats and appends output from fleet models before converting to Excel spreadsheets.

## **2. Intermediate estimations**

### **a. Fuel consumption code**

- Estimates gallons of fuel consumed in each scenario (by model year and calendar year).

### **b. Fuel consumption by fuel type code**

- Proportions fuel consumption across the three fuel types in the MOVES data based on MOVES VMT by fuel type information.

### **c. Tailpipe emissions code**

- Cleans and re-formats tailpipe emissions information as received from MOVES to match format of upstream emissions estimates.

### **d. Upstream emissions code**

- Estimates upstream emissions based upon fuel consumption by fuel type and fuel import/refining assumptions.

## **3. Net benefits codes**

These do files use the inputs above (Sections I.A.2-I.A.4) to estimate the social costs and benefits of the alternative CAFE standards compared to the augural standards.

### **a. Tech costs and valuation of fuel economy changes**

### **b. Noise and congestion**

### **c. Safety**

### **d. Mobility**

### **e. Refueling time**

### **f. Petroleum market externalities**

### **g. Emissions damage reductions**