

Update of Vehicle Weights in the GREET® Model

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This memo documents changes to the weight of vehicles (passenger cars, sport utility vehicles and pickup trucks) within GREET2 2016. These changes reflect the current status of vehicle weight, and will be incorporated into GREET 2017.

1 UPDATED VEHICLE WEIGHTS

GREET2 2016 has been revised due to a mistake identified in a series of vehicle weight profiles. The mistake arose due to a calculation error in overall vehicle weight due to discrepancies between battery weight within the existing structure of GREET2 and the use of batteries within Elgowainy et. al (2016), which were incorporated within the 2016 updates of GREET. In particular, vehicles with large motive batteries (PHEV, and EV, in particular) have some large changes, while other conventional weight vehicles have minimal changes. Lightweight vehicle battery assumptions in Elgowainy et. al (2016) were slightly different than in GREET2 and this was not captured in the original release of GREET2 2016, but has been resolved in this document and in the revised GREET release. Importantly, the weight differences between vehicles modeled in Elgowainy et. al (2016) and the GREET revision are small and do not have a large impact on overall life cycle results.

The updated weights of all vehicles are provided below in **Table 1**. Passenger cars are presented as Car, sport utility vehicles as SUV, and pickup trucks as PUT, while conventional weighted vehicles are Conv. and lightweight vehicles are LW. The number 1 indicator differentiates between the two types of vehicles models available for each vehicle type within GREET2.

Table 1. Updated Conventional Passenger Car 1 Vehicle Weights (lbs)

	ICEV	HEV	PHEV10	PHEV20	PHEV30	PHEV40	EV100	EV300	FCV
Conv. Car 1 (lbs)	3,183	3,429	3,429	3,513	3,726	3,834	3,353	4,367	3,644
LW Car 1 (lbs)	2,692	2,839	2,837	2,895	3,035	3,102	2,723	3,452	2,930
Conv. SUV 1 (lbs)	3,882	4,191	4,168	4,297	4,549	4,679	4,122	5,461	4,471
LW SUV 1 (lbs)	3,315	3,500	3,482	3,566	3,728	3,821	3,402	4,342	3,639
Conv. PUT 1 (lbs)	4,491	4,843	4,834	4,990	5,297	5,468	4,832	6,517	5,243
LW PUT 1 (lbs)	3,851	4,059	4,040	4,143	4,332	4,441	3,974	5,103	4,261

2 UPDATED VEHICLE MILES TRAVELED

Lifetime vehicle miles travelled (VMT) are also changed in this update. The new VMT estimates, summarized in **Table 2**, are obtained from VISION (Argonne National Laboratory 2017). Note that these estimates are based on U.S. vehicle sales during 1991-2015. For electric vehicles (EVs) with an all-electric range (AER) of 100 miles, it is assumed that their lifetime VMTs are 70% of those for other vehicles, based on findings from the “EV Project” conducted by Idaho National Laboratory (Francfort et al. 2015).

Table 2. Updated Lifetime VMT for Vehicles

	Car	SUV	PUT
Lifetime VMT (miles)	173,151	183,363	183,363

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