Additions and Corrections

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Carey King and Michael Webber*: The Water Intensity of the Plugged-In Automotive Economy

Table 1 should be corrected, with changes in the fifth and sixth columns and in the table footnote, as shown below.

The last paragraph of Section 2.9 should state as follows (given the new values in Table 1): "The water withdrawal for thermoelectric cooling is the primary component of the calculated water withdrawal rate of 7.8 gal/mile driven electrically by PHEVs. We estimate that for electric miles driven by PHEVs, the water consumption rate due to mining and processing is 0.07 gal/mile, and the consumption rate due to thermoelectric cooling is 0.17 gal/mile."

The first sentence of Section 3.2 should state "This water usage for converting transportation of light-duty vehicles from gasoline to electric presents a 2- to 3-fold increase in water consumption, but a 12-fold increase in water withdrawal."

The fourth sentence of the abstract should state "In displacing gasoline miles with electric miles, approximately 2−3 times more water is consumed (0.24 versus 0.07−0.14 gallons/mile) and over 12 times more water is withdrawn (7.8 versus 0.6 gallons/mile) primarily due to increased water cooling of thermoelectric power plants to accommodate increased electricity generation."

TABLE 1. Water Consumption and Withdrawal Contributions for Light Duty Vehicle Travel Powered by Electricity

electric miles	water consumption (gal H_2O/kWh)	water withdrawal (gal H_2O/kWh)	% of U.S. electricity mix	water consumption for travel (gal H_2O/mile)[a]	water withdrawal for travel (gal H_2O/mile)[a]
mining and processing	—	—	—	0.07	≥0.07
coal (avg.)	0.03	≥0.03	50.8	—	—
natural gas	0.08	≥0.08	18.6	—	—
nuclear	0.80	≥0.80	19.3	—	—
thermoelectric cooling (U.S. mix)	0.47	21.2	100%	0.17	7.7
total	0.65	21.4	100%	0.24	7.8

[a] To calculate gal H_2O/mile for electric miles, multiply gal H_2O/kWh by 0.336 kWh/mile (avg. for electric LDV fleet) to account for electricity input to the vehicle, and divide by an electric grid transmission and distribution loss factor of 92%, for an 8% loss (as discussed in Section 2.3).

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