



Life Cycle CO2 emissions for various vehicles and pathways

ZEV 2013

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California Air Resources Board
 October 24, 2013

Sao Paulo, Brazil Shell pump – two grades of gasoline, one of E100.
~80% of new cars sold in Brazil can run on E100.



<u>Vehicle</u>	<u>lbs CO2 emitted to manufacture and use fuel*</u>	<u>life-cycle lbs of CO2 emitted per mile</u>
Chevy Equinox – 26 mpg (combined) on gasoline	24.2 per gal gasoline	0.931
Honda Civic CNG – 4.84 miles per lb of NG	3.234 per lb NG	0.668
Chevy Volt – 37 mpg (combined) on gasoline**	24.2 per gal gasoline	0.654
Toyota Fuel Cell – 23 miles per lb of hydrogen	13.1 per lb H2	0.570
Chevy Volt – 100 miles per 35 KWHr**	1.29 per KWHr***	0.452
Nissan Leaf - 100 miles per 29 KWHr**	1.29 per KWHr***	0.374
E100 ¹ – 26 mpg (combined) on ethanol – corn	9.44 per gal ethanol	0.363
E100 – 26 mpg (combined) on ethanol – switchgrass	-1.60 per gal ethanol	-0.061
E100 – 26 mpg (combined) on ethanol – corn stover	-1.11 per gal ethanol	-0.081
* From GREET v1.0.0.8376 (Argonne National Lab)		
** From fueleconomy.gov		
*** Standard U.S. mix		
1 – 98/2/10ppm ethanol/iso-propanol/denatonium benzoate – CDA approved as motor fuel per 27CFR19.1005		

Summary

**Use E100 for 50% of light duty vehicles
and current ZEV regulations for other 50%.**