**Calculations of CO2 Emission Reductions**

**Average US Gas Car: 411 grams CO2 per mile [1]**

 Based on average fuel economy rating of 21.6 MPG

**OPPD – Bellevue and Nebraska City**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Energy Source [2] | Percentage of Total Energy Production |  | Grams of CO2 Emitted per kWh [3] |  | Contribution to Total CO2 Emitted per kWh |
| Coal | 50.3% | x | 1022g | = | 514g |
| Natural Gas | 23.3% | x | 516g | = | 120g |
| Landfill Gas | 0.16% | x | 1358g | = | 2.17g |
| Nuclear | 12.9% | x | 0 | = | 0 |
| Wind | 11.1% | x | 0 | = | 0 |
| Hydroelectric | 2.2% | x | 0 | = | 0 |
|  |  |  | Total | = | 636g per kWh |

 2014 Nissan Leaf Fuel Economy [4]

 City/Highway = 126/101 MPGe

 1 gallon of gas = 33.7 kWh

|  |  |
| --- | --- |
| City – 126 MPGe  | Highway – 101 MPGe |
|  126 MPGe / 33.7 kWh = 3.7 miles per kWh |  101 MPGe / 33.7 kWh = 3.0 miles per kWh |
|  636g CO2 / 3.7 = 172g CO2 per mile |  636g CO2 / 3.0 = 212g CO2 per mile |
|  CO2 Savings = 411g-172g  |  CO2 Savings = 411g-212g |
| **City Driving = 239g CO2 saved per mile** | **Highway Driving = 199g CO2 saved per mile** |

**NPPD – All other cities**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Energy Source [5] | Percentage of Total Energy Production |  | Grams of CO2 Emitted per kWh [3] |  | Contribution to Total CO2 Emitted per kWh |
| Coal | 55.7% | x | 1022g | = | 569g |
| Natural Gas | 2.3% | x | 516g | = | 11.9g |
| Nuclear | 34.1% | x | 0 | = | 0 |
| Wind and Hydro | 7.9% | x | 0 | = | 0 |
|  |  |  | Total | = | 581g per kWh |

|  |  |
| --- | --- |
| City – 126 MPGe  | Highway – 101 MPGe |
|  126 MPGe / 33.7 kWh = 3.7 miles per kWh |  101 MPGe / 33.7 kWh = 3.0 miles per kWh |
|  581g CO2 / 3.7 = 157g CO2 per mile |  581g CO2 / 3.0 = 194g CO2 per mile |
|  CO2 Savings = 411g-157g  |  CO2 Savings = 411g-194g |
| **City Driving = 254g CO2 saved per mile** | **Highway Driving = 217g CO2 saved per mile** |

[1] United States. Environmental Protection Agency. Office of Transportation and Air Quality. *Greenhouse Gas Emissions from a Typical Passenger Vehicle*. N.p., May 2014. Web. 29 May 2014. <http://www.epa.gov/otaq/climate/documents/420f14040.pdf>.

[2] *Powering Our Future: A Clean Energy Plan for Omaha Public Power District*. Publication. Omaha Public Power District, Mar. 2014. Web. 29 May 2014. <http://www.cleanenergynebraska.org/wp-content/uploads/2014/03/OPPD-Clean-Energy-Plan-4.1Footnoted.pdf>.

[3] "Air Emissions." *EPA*. U.S. Environmental Protection Agency, 22 May 2014. Web. 26 May 2014. <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html>.

[4] *Model Year 2014 Fuel Economy Guide*. Rep. Environmental Protection Agency, 15 May 2014. Web. 29 May 2014. <http://www.fueleconomy.gov/feg/pdfs/guides/FEG2014.pdf>.

[5] *Renewable, Efficient & Sustained*. Rep. Nebraska Public Power District, 2012. Web. 29 May 2014. <http://www.nppd.com/assets/EE\_Renewables\_Report.pdf>.