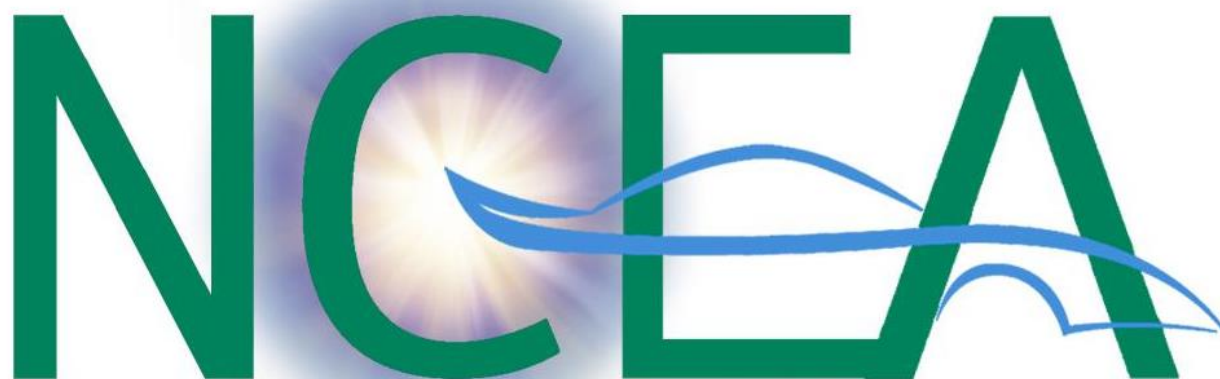


Nebraska Community Energy Alliance
Electric Vehicle Infrastructure Report
February 2022 Edition



Nebraska Community Energy Alliance

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This report includes the following documents:

- Project Executive Summary
- Project Description and Summary savings
 - Introduction
 - Data Analysis
 - Unique User Data (Commercial and Utility/Residential)
 - Economic and Environmental Savings (Commercial and Utility/Residential)
- Appendices
 - Appendix A : Detailed Economic Analysis- Commercial
 - Appendix B : Detailed Economic Analysis- Utility/Residential
 - Appendix C : Detailed Environmental Emissions Data Analysis – Commercial and Utility/Residential
 - Appendix D : Detailed Greenhouse Gas Calculations
 - Appendix E : Detailed Analysis for Charging Stations- Monthly Detailed Data- February 2022

Executive Summary

The mission of the Nebraska Community Energy Alliance (NCEA) is to build and promote advanced technologies for housing and transportation that save energy, reduce CO₂ pollution and cut costs, (<http://www.necommunity.energy/mission/>). NCEA believes that demonstrating these technical advances at the local level is the best way to accelerate the market in Nebraska. Establishing the economic and environmental benefits of advanced technologies, such as electric vehicles and smart charging stations, at this level will serve the mission of the NCEA and the mission of the Nebraska Environmental Trust (NET), a grant funder. NET offers funding under the Air Quality category, requiring CO₂ emissions reductions and economic benefits in return for funding this category. NCEA, in compliance with grant requirements, publishes monthly electric vehicle charging data from the NET-funded projects.

NCEA is in the sixth phase of building a statewide charging infrastructure for electrified transportation through the award of its sixth grant from NET. When completed, an estimated total of 55 electric vehicles (EVs), nine compressed natural gas vehicles (CNG), one refueling CNG station, 92 Level-2 ChargePoint™ networked charging stations, and 7 DC fast charging stations will be deployed across Nebraska. In addition, in partnering with Omaha Public Power District (OPPD), Nebraska Public Power District (NPPD), and Fremont Municipal Utility, as part of a rebate program, an additional 293 EVs, 670 ChargePoint™ Home charging stations and 60 ChargePoint™ networked charging stations will be deployed.

Data for the commercial charging infrastructure for the participating members in all six grants has been collected since 2014, while data from the residential charging infrastructure has been collected since 2018. This data is processed and analyzed on a monthly basis. The results are compared to that of conventional-fuel vehicles (CVs), diesel vehicles (DVs), and ethanol (E85) fuel vehicles to develop the economic and environmental savings. Table A shows the total calculated savings.

Table A: Total Economic and Environmental Benefits for Participating Members in all Six Grants.

	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO ₂	CO	SO ₂	NO _x	CH ₄	VOC
Savings Excluding Residential Rebate Program	\$155,119	568,828	10,259	(753.72)	(683.74)	(5.85)	492.37
OPPD_ Residential Rebate Program Savings	\$1,050,198	3,109,306	54,318	(8,076.08)	(3,512.61)	(189.48)	3,344.32
NPPD_ Residential Rebate Program Savings	\$109,447	299,911	5,172	(194.84)	(599.95)	(5.65)	310.44
Fremont_ Residential Rebate Program Savings	\$11,135	36,895	592	(70.63)	(25.66)	(4.63)	37.26
Total Saving	\$1,325,900	4,014,941	70,343	(9,095.27)	(4,821.96)	(205.61)	4,184

In addition to the data from the participating members, data from other existing stations in Nebraska is collected and analyzed since 2013. Tables B-H provide a summary of analysis on all collected data. There are some discrepancies between each month's data. This is due to data availability for newly installed and/or activated charging stations and timing when new installed stations start to report and or commercial/residential stations not being connected to the network for a period of time.

Table B: Cumulative Charging Infrastructure Usage and Benefits for all Participating Commercial Charging Stations.

Charging Station Location	Number of Charging stations/(Ports)	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO ₂	CO	SO ₂	NO _x	CH ₄	VOC
Allen Schools	1 / (2)	1,250	13,313	\$4,957	25,433	503.59	(30.38)	(6.06)	1.27	18.03
Auburn Board of Public Works	3 / (5)	784	5,499	\$2,309	9,979	115.38	(6.33)	2.29	(0.32)	7.03
Aurora	2 / (3)	286	1,693	\$754	2,253	35.69	(4.32)	(5.58)	(0.11)	2.16
Ashland	2 / (3)	1,208	12,441	\$4,470	15,961	275.65	(39.03)	(14.61)	(0.14)	15.43
Bellevue	1 / (2)	1,295	12,080	\$3,959	25,594	571.21	(33.69)	18.47	1.87	16.91
B & R Stores	6 / (9)	869	9,579	\$4,446	4,308	197.36	(25.64)	(15.45)	(2.15)	12.26
Central City	1 / (2)	33	522	\$163	1,264	31.44	(1.18)	1.59	0.13	0.78
Central Community College	4 / (8)	511	3,251	\$1,475	4,086	67.74	(8.53)	(11.43)	(0.22)	4.09
Dakota County	1 / (2)	462	6,293	\$2,489	9,960	168.43	(15.66)	(13.77)	0.07	8.14
Ferguson House, Lincoln office of NCEA	1 / (2)	685	6,362	\$2,521	9,624	209.96	(7.37)	(13.85)	0.53	8.43
Fremont	2 / (4)	1,738	27,400	\$10,360	33,355	542.14	(65.67)	(24.82)	(4.30)	34.15
Gothenburg	-		0	\$720	6,020	155.11	(5.30)	8.68	0.64	3.56
Gretna	3 / (5)	2,990	29,966	\$11,732	35,900	703.82	(85.41)	(30.25)	(1.57)	33.60
Hastings	1 / (2)	164	1,497	\$596	1,222	35.12	(3.89)	(0.70)	(0.05)	1.89
Holdrege	1 / (2)	150	1,519	\$617	2,423	42.58	(3.68)	(2.84)	0.03	1.98
Kearney	5 / (8)	3,135	29,579	\$11,869	45,077	736.90	(72.13)	(68.52)	0.37	37.72
LES	14 / (16)	2,664	45,249	\$18,125	54,356	1,152.69	(32.48)	(189.64)	2.21	57.77
Lexington	2 / (4)	1,068	12,567	\$4,438	20,635	373.27	(30.54)	(20.92)	0.56	16.35
Lincoln	15 / (30)	8,971	98,582	\$40,203	112,481	2,264.62	(73.40)	(422.44)	4.77	123.07
Lincoln Public Schools	7 / (7)	953	7,408	\$3,380	10,149	155.29	(6.45)	(7.39)	(0.27)	9.35
MCC	8 / (15)	2,936	32,976	\$13,448	39,363	672.44	(100.95)	(44.00)	(2.19)	41.44
Nebraska City	4 / (6)	2,629	27,911	\$11,963	62,291	865.78	(43.31)	30.77	1.20	37.10
Norfolk	1 / (2)	65	872	\$316	1,429	19.01	(1.69)	(12.63)	(0.02)	1.12
Nebraska Safety Center at UNK	1 / (2)	50	249	\$95	322	5.06	(0.65)	(0.87)	(0.01)	0.31
NP Dodge	2 / (3)	156	3,213	\$1,121	3,655	64.21	(9.62)	(4.69)	(0.22)	3.95
NPPD	13 / (23)	1,974	26,514	\$11,443	35,689	558.14	(23.19)	(31.55)	(0.97)	33.61
Minden	1 / (2)	85	693	\$323	1,099	15.19	(1.60)	(1.76)	(0.04)	0.92
OPPD	3 / (6)	5,024	28,830	\$9,706	55,100	1,204.20	(85.18)	27.92	3.45	39.51
City of Omaha	20 / (38)	1,897	24,042	\$10,763	35,485	515.12	(58.13)	(69.40)	(1.20)	31.10
Omaha Zoological Society	2 / (4)	776	6,667	\$2,771	7,022	135.97	(18.58)	(9.02)	(0.62)	8.35
Papio-Missouri NRD	1 / (2)	2,676	26,319	\$10,285	31,959	527.04	(82.61)	(37.91)	(1.50)	32.47
Seward	4 / (7)	1,041	14,823	\$5,142	25,711	483.88	(35.39)	(16.49)	1.04	19.56
South Sioux City	6 / (11)	4,006	50,679	\$18,075	87,911	1,649.85	(121.62)	(49.83)	3.53	66.73
UNMC	2 / (4)	628	6,155	\$2,562	6,559	126.08	(17.23)	(8.16)	(0.58)	7.75
UNO	4 / (8)	3,368	30,369	\$11,657	36,618	613.28	(94.91)	(41.57)	(1.61)	26.40
Valley	1 / (2)	255	2,013	\$708	3,155	63.23	(6.11)	(0.29)	0.10	2.63
Wayne	1 / (2)	164	2,262	\$1,889	8,787	64.17	(5.13)	(39.86)	0.25	2.85
Total	146 / (253)	56,946	609,387	\$241,850	872,235	15,920.64	(1,256.99)	(1,126.58)	3.94	768.49

Table C: Analysis for DC Fast Chargers and all Level 2 Charging Stations.

Commercial Charging Station Type	Number of Charging Ports	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
Level 2 Charger	239	53,750	555,279	\$218,557	812,414	14,784.64	(1,124.75)	(1,041.93)	8.79	709.87
DC Fast Charger	14	3196	54,109	\$23,294	59,821	1,136.00	(132.25)	(84.65)	(4.8566)	58.6225
Total	253	56,946	609,387	\$241,850	872,235	15,920.64	(1,256.99)	(1,126.58)	3.94	768.49

Table D: Detail Usage and Benefits for the DC Charging Stations.

Participating Members	Number of Charging stations/(Ports)	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
Ashland (DC)	1 / (1)	646	8,150	\$2,973	10,610	185.01	(25.53)	(9.02)	-0.05	10.16
Gretna (DC)	1 / (1)	962	19,447	\$8,030	20,539	398.99	(54.03)	(25.63)	(1.87)	24.53
Aurora (DC)	1 / (1)	65	1,497	\$672	2,011	31.61	(3.80)	(4.88)	(0.09)	1.91
South Sioux City (DC)	1 / (1)	234	3,777	\$1,647	4,948	79.35	(9.72)	(12.68)	(0.24)	4.79
B & R Stores (DC)	3 / (3)	553	8,897	\$4,118	4,014	183.03	(23.77)	(14.31)	(2.00)	1.66
Kearney (DC)	2 / (2)	100	2,543	\$1,216	3,779	54.91	(6.12)	(7.22)	(0.14)	3.31
Auburn (DC)	1 / (1)	178	3,214	\$1,408	5,877	67.74	(3.60)	1.38	(0.22)	4.12
City of Omaha (DC)	1 / (1)	27	500	\$274	493	4.94	(0.26)	0.08	(0.00)	0.30
NPPD (DC)	3 / (3)	431	6,084	\$2,956	7,552	130.44	(5.43)	(12.39)	(0.23)	7.85
Total	14 / (14)	3196	54,109	\$23,294	59,821.04	1,136.00	(132.25)	(84.65)	(4.86)	58.62

Table E: Cumulative Charging Infrastructure Usage and Benefits for the OPPD Rebate Program from Apr`2018 to February 2022.

Commercial Charging Station Type	Number of Charging Ports	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
<u>2018</u>	<u>123</u>	<u>10,483</u>	<u>118,977</u>	<u>\$49,141</u>	<u>179,364</u>	<u>2,567</u>	<u>(457)</u>	<u>(204)</u>	<u>(3)</u>	<u>159</u>
<u>2019</u>	<u>108</u>	<u>45,509</u>	<u>540,911</u>	<u>214,065</u>	<u>809,407</u>	<u>11,583</u>	<u>(2,063)</u>	<u>(919.2)</u>	<u>(11.7)</u>	<u>715.5</u>
<u>2020</u>	<u>129</u>	<u>47,899</u>	<u>610,663</u>	<u>196,752</u>	<u>762,276</u>	<u>12,464</u>	<u>(1,984)</u>	<u>(939)</u>	<u>(33)</u>	<u>768</u>
<u>2021</u>	<u>125</u>	<u>82,898</u>	<u>1,137,205</u>	<u>479,489</u>	<u>1,097,510</u>	<u>22,862</u>	<u>(2,988)</u>	<u>(1,585)</u>	<u>(116)</u>	<u>1,401</u>
Jan`2022	1	7,904	112,373	\$49,681	120,893	2,249.14	(270.13)	(38.50)	(13.58)	140.31
Feb`2022		7,513	108,286	\$60,562	137,597	2,559.91	(307.45)	(43.82)	(15.46)	159.70
<u>Total</u>	<u>486</u>	<u>202,206</u>	<u>2,628,416</u>	<u>1,050,198</u>	<u>3,109,306.32</u>	<u>54,318.36</u>	<u>(8,076.08)</u>	<u>(3,512.61)</u>	<u>(189.48)</u>	<u>3,344.32</u>

Note that the data and analysis results differ from month to month in the report because some stations become inactive and not connected to the network for a period of time before they reconnect.

Table F: Cumulative Charging Infrastructure Usage and Benefits for the NPPD Rebate Program from Mar`2018 to February 2022.

Commercial Charging Station Type	Number of Charging Ports	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
<u>2018</u>	<u>4</u>	<u>869</u>	<u>3,875</u>	<u>1,504</u>	<u>3,512</u>	<u>79.96</u>	<u>(2.82)</u>	<u>(24.80)</u>	<u>0.37</u>	<u>4.67</u>
<u>2019</u>	<u>6</u>	<u>1,664</u>	<u>8,906</u>	<u>3,449</u>	<u>7,704</u>	<u>182.64</u>	<u>(0.23)</u>	<u>(73.37)</u>	<u>0.78</u>	<u>10.66</u>
<u>2020</u>	<u>20</u>	<u>2,406</u>	<u>31,561</u>	<u>10,762</u>	<u>37,006</u>	<u>649.71</u>	<u>(14.55)</u>	<u>(129.31)</u>	<u>0.75</u>	<u>38.56</u>
<u>2021</u>	<u>28</u>	<u>9,535</u>	<u>170,096</u>	<u>\$72,549</u>	<u>235,391.35</u>	<u>3,349.49</u>	<u>(138.87)</u>	<u>(54.52)</u>	<u>(5.64)</u>	<u>201.70</u>
Jan`2022	1	1,057	20,601	\$9,629	7,626.66	426.19	(17.9566)	(148.8063)	(0.8910)	25.6675
Feb`2022		956	19,826	\$11,554	8,669.11	484.44	(20.4110)	(169.1461)	(1.0128)	29.1759
<u>Total</u>	<u>59</u>	<u>16,620</u>	<u>255,835</u>	<u>109,447</u>	<u>299,910.60</u>	<u>5,172.43</u>	<u>(194.84)</u>	<u>(599.95)</u>	<u>(5.65)</u>	<u>310.44</u>

Table G: Cumulative Charging Infrastructure Usage and Benefits for the Fremont Rebate Program from Aug`2019 to February 2022.

Commercial Charging Station Type	Number of Charging Ports	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
<u>2019</u>	<u>4</u>	<u>242</u>	<u>4,635</u>	<u>\$1,582</u>	<u>5,177.09</u>	<u>86.94</u>	<u>(11.7985)</u>	<u>(6.1574)</u>	<u>(0.7336)</u>	<u>5.60</u>
<u>2020</u>	<u>1</u>	<u>458</u>	<u>9,795</u>	<u>\$2,914</u>	<u>11,195.62</u>	<u>188.15</u>	<u>(24.3160)</u>	<u>(10.9402)</u>	<u>(1.5558)</u>	<u>11.97</u>
<u>2021</u>	<u>0</u>	<u>573</u>	<u>12,945</u>	<u>\$5,367</u>	<u>15,474.60</u>	<u>260.41</u>	<u>(30.3022)</u>	<u>(8.5672)</u>	<u>(2.0659)</u>	<u>16.15</u>
Jan`2022	<u>0</u>	50	1,318	\$569	2,350.07	26.53	(1.9630)	0.0002	(0.1301)	1.6409
Feb`2022		47	1,281	\$704	2,697.90	30.46	(2.2536)	0.0002	(0.1494)	1.8837
<u>Total</u>	<u>5</u>	<u>1,370</u>	<u>29,975</u>	<u>11,135</u>	<u>36,895.28</u>	<u>592.49</u>	<u>(70.63)</u>	<u>(25.66)</u>	<u>(4.63)</u>	<u>37.26</u>

Table H: Summary of Monthly and Cumulative Commercial and Utility/Residential Usage for all Participating Stations.

	Month of February, 2021		Cumulative		Combined Savings		
	Commercial	Residential	Commercial	Residential	Month of February, 2021	Cumulative	
Number of Charging Sessions	1,856	5,698	56,946	220,196	7,554	277,142	
Energy Usage (in kWh)	22,893	82,960	609,387	2,914,225	105,853	3,523,613	
Environmental Benefits: Emissions Reductions (in lbs.)	CO ₂	30,156	80,661	872,235	3,446,112	110,818	4,318,347
	CO	554.24	1,611	15,921	60,083	2,166	76,004
	VOC	33.81	98.60	768.49	3,692	132	4,461
Economic Savings	\$13,021	\$26,776	\$241,850	\$1,170,780	39,797	1,412,630	

Considering that the combined national average for conventional vehicles is 25.7 miles per gallon based on the combined fuel economy average (city and highway) of all the vehicle types (make and model) published in the Fuel Economy Guide for the year 2020, and the combined fuel economy for all electric vehicles is 4.03 miles per kilowatt hour (mi/ kWh) based on the combined fuel economy average (city and highway) of all the electric vehicle types (make and model) in the same report, a general comparison is made using the equation below to generate Table I.

$$\text{Miles driven based on } \$50 = \frac{50}{0.0884} * 4.03 = \frac{50}{0.5638} * 25.7 = 2,279 \text{ miles}$$

Table I: Summary of Yearly Gas and Electricity Prices and the Corresponding Miles Driven.

Year	Gas Price (Gallon)	Electricity Price (kWh)	Conventional Vehicle (CV) (Miles Per Gallon)	Battery Electric Vehicle (Miles Per kWh)	Miles driven based on \$50	
					Gas	Electricity
2017	\$2.36	0.091333	23.246	3.323	492	2025
2018	\$2.62	0.092176	23.312	3.323	444	1802
2019	\$2.49	0.092176	23.272	3.323	468	1802
2020	\$2.09	0.089038	25.1	3.412	601	1916
2021	\$2.885	0.0884	25.7	4.03	445.4	2,279
Parity	\$0.5638	0.0884	25.7	4.03	2,279	2,279

Table of Contents

1. Project Description and Summary Savings	13
1.1. Introduction	13
1.2. Existing Stations Summary	16
2. Data Analysis	17
2.1. Summary of Unique User Data (Commercial)	17
2.2. Summary of Unique User Data (Utility/Residential)	21
2.3. Summary of Economic and Environmental Analysis (Commercial and Utility/ Residential)	27
3. Appendix A: Detailed Economic Analysis - Commercial	34
3.1. Introduction	35
3.2. Economic Benefits due to Fuel Type Price Differences	35
3.3. Economic Benefits due to Other Factors Affecting Each Fuel Type	42
3.4. Total Economic Benefits	42
3.5. References	45
4. Appendix B: Detailed Economic Analysis – Utility/Residential	47
4.1. Introduction	48
4.2. Economic Benefits due to Fuel Type Price Differences	48
4.3. Economic Benefits Due to Other Factors Effecting Each Fuel Type	49
4.4. Total Economic Benefits	49
4.5. References	50
5. Appendix C: Detailed Environmental Emissions Data Analysis – Commercial and Utility/Residential	51
5.1. Introduction	52
5.2. Greenhouse Gas Definitions	53
5.3. Greenhouse Gas Emissions Summary - Commercial and Utility/Residential	55
5.4. References	64
6. Appendix D. Detailed Greenhouse Gas Calculations	65
6.1. Conventional Vehicle (CV)	65
6.2. Diesel Vehicle (DV)	67
6.3. Compressed Natural Gas Vehicle (CNG)	69
6.4. Flexible Fuel Vehicles (FFVs) – E85	71
6.5. Battery Electric Vehicle (EV)	75
6.5.1. Vehicle Efficiency Calculation	75
	10

6.5.2. Electricity Generation Mix and Emissions Calculations	75
6.6. References	100
7. Appendix E. Detailed Analysis for Charging Stations - Monthly Detailed Data – February 2022	101

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1. Project Description and Summary Savings

1.1. Introduction

The Nebraska Community Energy Alliance (NCEA) was founded in Jan 2014 as an interlocal cooperative agency. Today, it has 37 participating members that span the entire state of Nebraska, as shown in Figure 1 and Table 1.

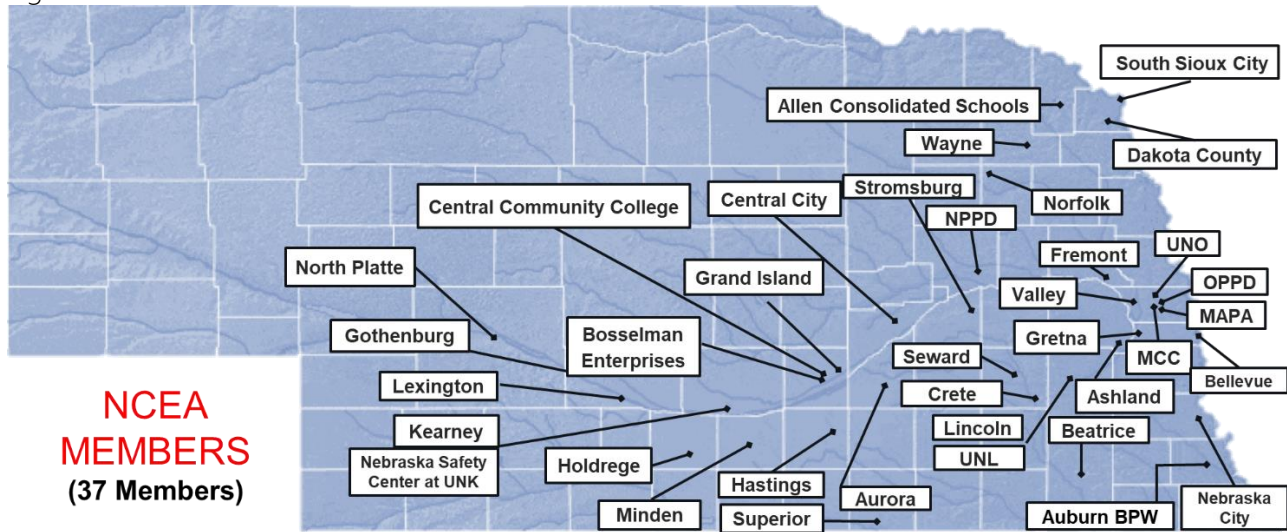


Figure 1: Nebraska Map Showing the 37 NCEA Participating Members.

The mission of the Nebraska Community Energy Alliance (NCEA) is to build and promote advanced technologies for housing and transportation that save energy, reduce CO₂ pollution and cut costs, (<http://www.necommunity.energy/mission/>). This mission is clearly articulated by Lance Hedquist, city administrator for South Sioux City, founder of NCEA and current member, *"Communities have a choice to simply exist or to lead. Our projects demonstrate leadership and help motivate and excite our citizens."*

NCEA believes demonstrating the economic and air quality benefits of advanced fuel vehicles at the local level is the best way to accelerate the market in Nebraska. This mission is being achieved in part using grant funding from the Nebraska Environmental Trust (NET) and in compliance with the requirements of the Air Quality funding category as well as NET's mission "to conserve, enhance and restore the natural environments of Nebraska." (<http://www.environmentaltrust.org/about/index.html>).

Table 1: NCEA Members

NCEA Members (37)	
➤ Allen Consolidated Schools	➤ Metropolitan Community College
➤ Ashland	➤ Minden
➤ Auburn BPW	➤ Nebraska City
➤ Aurora	➤ Nebraska Safety Center at UNK
➤ Beatrice	➤ Nebraska Public Power District
➤ Bellevue	➤ Norfolk
➤ Bosselman Enterprises	➤ North Platte
➤ Central City	➤ Omaha Public Power District (OPPD)
➤ Central Community College(CCC)	➤ Seward
➤ Crete	➤ South Sioux City
➤ Dakota County	➤ Stromsburg
➤ Fremont	➤ Superior
➤ Gothenburg	➤ University of Nebraska at Omaha
➤ Grand Island	➤ University of Nebraska-Lincoln
➤ Gretna	➤ Valley
➤ Hastings	➤ Wayne
➤ Holdrege	
➤ Kearney	
➤ Lexington	
➤ Lincoln	
➤ Metropolitan Area Planning Agency (MAPA) (includes cities and counties in Washington, Douglas, and Sarpy counties, including the City of Omaha)	

NCEA is in the sixth phase of building a statewide charging infrastructure for electrified transportation through the award of its sixth grant from NET. When completed, an estimated total of 55 electric vehicles (EVs), nine compressed natural gas vehicles (CNG), one refueling CNG station, 92 Level-2 ChargePoint™ networked charging stations, and 7 DC fast charging stations will be deployed across Nebraska. In addition, in partnering with Omaha Public Power District (OPPD), Nebraska Public Power District (NPPD), and Fremont Municipal Utility, as part of a rebate program, an additional 293 EVs, 670 ChargePoint™ Home charging stations and 60 ChargePoint™ networked charging stations will be deployed. Table 2 shows the participating members and their involvement.

Table 2: Summary of Involvement of Participating Members over All Grant Cycles.

Participating Members	Electric Vehicle	CNG Vehicles	Charging Stations	DC Fast Charger
Allen Consolidated Schools	1	-	1	
Ashland	-	-	1	1
Auburn Department of Public Works	-	-	2	1
Aurora	-	-	4	
Beatrice	1		1	
Bellevue	2	-	4	
Central City	1	-	1	
Central Community College	4		4	
Dakota County	1	-	1	
Ferguson House (Lincoln)	-	-	1	
Fremont	5	-	2	
Fremont Municipal Utility Rebate Program	11	-	10 - ChargePoint Home™	
Gothenburg	1	-	-	
Gretna	1	-	2	1
Hastings	3	-	1	
Holdrege	-	-	1	
Kearney	3	-	5	
Lexington	2	-	2	
Lincoln	1	-	22	
Metro Community College	1	-	2	
Minden	1		1	
Nebraska City	1	3 CNGs and one refueling station	2	
Norfolk	2		2	
NPPD	8	-	15	4
NPPD Rebate Program	57	-	110 - ChargePoint Home™	
OPPD	3	-	8	
OPPD Rebate Program	225	-	550 - ChargePoint Home™ (60) Workplace Charging stations	
Seward	2	-	2	
South Sioux City	4 + 4 battery replacement 1-Zero Motorcycle	2	3	
UNK	1	-	1	
Valley	1	-	1	
Wayne	1	4	-	
TOTAL	348 (293 Via Utility Rebate programs & counting 4 battery replacements)	9	152 Commercial (60 via rebate to businesses) & 670 Residential	7

1.2. Existing Stations Summary

Figure 2 shows the locations of the commercial ChargePoint Stations in Nebraska. Table 3 provides detailed information on the location of each existing ChargePoint™ charging station installed as part of all grant phases along with the rate structure. Furthermore, the Table shows additional stations that NCEA and the research team access for data analysis. Finally, the Table provides the net revenue from charging (current month and [all time](#)) based on the rate structure.

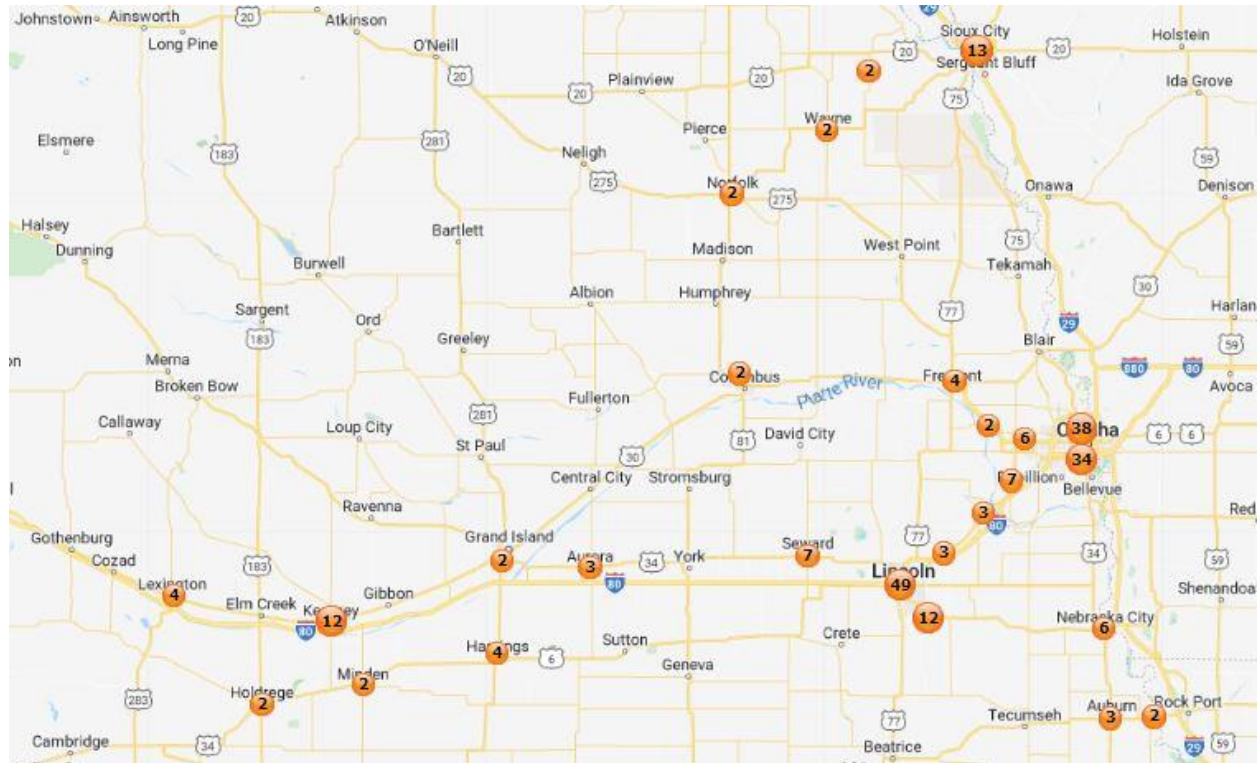


Figure 2: ChargePoint Charging Station Locations Across Nebraska, Numbers Shown Indicate Number of Charging Station

2. Data Analysis

In collaboration with the Durham School of Architectural Engineering and Construction (DSAEC) at the University of Nebraska-Lincoln, data is collected, processed, and analyzed to document the economic and environmental benefits of utilizing existing charging stations infrastructure throughout Nebraska. More information is available at the project's main website (<http://necommunity.energy>). The following sections provide findings and trends pertaining to the EV charging infrastructure usage and savings/benefits.

Regardless of the period, the economic and environmental benefits for each community and the overall benefits for the state of Nebraska highlight the impact these projects are having on improving our own environment and economic well-being.

2.1. Summary of Unique User Data (Commercial)

This section provides a summary of the number of unique users for each public ChargePoint charging station, the research team has access to, and for each NCEA participating member for the month of February 2022 and since installation (see Table 3). If a user uses a single station or multiple stations multiple times in a given month, he/she will only be counted once during that entire month. Once a new month starts, unique user counting will reset.

Table 3 summarizes the cumulative yearly unique user data in terms of the number of unique drivers and charging sessions, as well as the energy usage, since the start of the data collection from Apr`2013 to 2019 and then monthly for current year.

Table 3: Summary of Unique User Data, Charging Sessions and Energy Usage.

Year	Number of Unique Users	No of Charging Sessions	Energy Usage (kWh)
2013	19	618	3,410
2014	45	1,003	4,940
2015	97	1,962	14,114
2016	211	2,825	23,871
2017	427	4,361	34,715
2018	756	7,148	61,136
2019	1,137	9,471	108,238
2020	1,250	7,228	88,426
2021	3,530	17,086	210,054
Jan 2022	<u>615</u>	<u>1,483</u>	<u>21,212</u>
Feb 2022	<u>768</u>	<u>1,856</u>	<u>22,893</u>

Table 4 shows the monthly summary of the same categories for the month of February 2022. The summary includes the breakdown of the obtained data according to each participating station.

Table 4: Unique User and Energy Information for February 2022.

Charging Station Location	Number of Unique Users in February 2022	Number of Charging Sessions	Energy Usage (kWh)
Allen Consolidated Schools	1	18	279
Auburn Board of Public Works	10	32	193.575
Aurora	5	9	98.35
Ashland	15	21	210
Bellevue	0	0	0
B & R Stores	43	73	876
Central City*			0.00
Central Community College	9	23	138.59
Dakota County	1	13	245
Ferguson House, Lincoln office of NCEA	7	16	261
Fremont	23	54	891
Gothenburg			0.00
Gretna	42	71	1,175
Hastings	2	2	29
Holdrege	5	7	132.452
Kearney	35	67	990
LES	83	96	2,297
Lexington	12	22	258
Lincoln	101	330	3,097
Lincoln Public Schools	26	53	326
MCC	54	177	2,247
Nebraska City	20	86	543
Norfolk	6	10	135
Nebraska Safety Center at UNK	0	0	0
NP Dodge	3	7	19.11
NPPD	42	80	1,263.18
Minden	2	18	180.22
OPPD	4	23	351
City of Omaha	96	226	2,952
Omaha Zoological Society	32	39	306.302
Papio-Missouri NRD	16	46	595
Seward	7	14	460
South Sioux City	11	41	547
UNMC	18	33	330.276
UNO	34	145	1,445
Valley	3	4	23
Wayne	0	0	0
Total	768	1,856	22,893
Total number of available charging ports: 253.			

Figures 3, 4, and 5 show charging infrastructure installation and usage trends over the period of data collection (since Jan 2013).

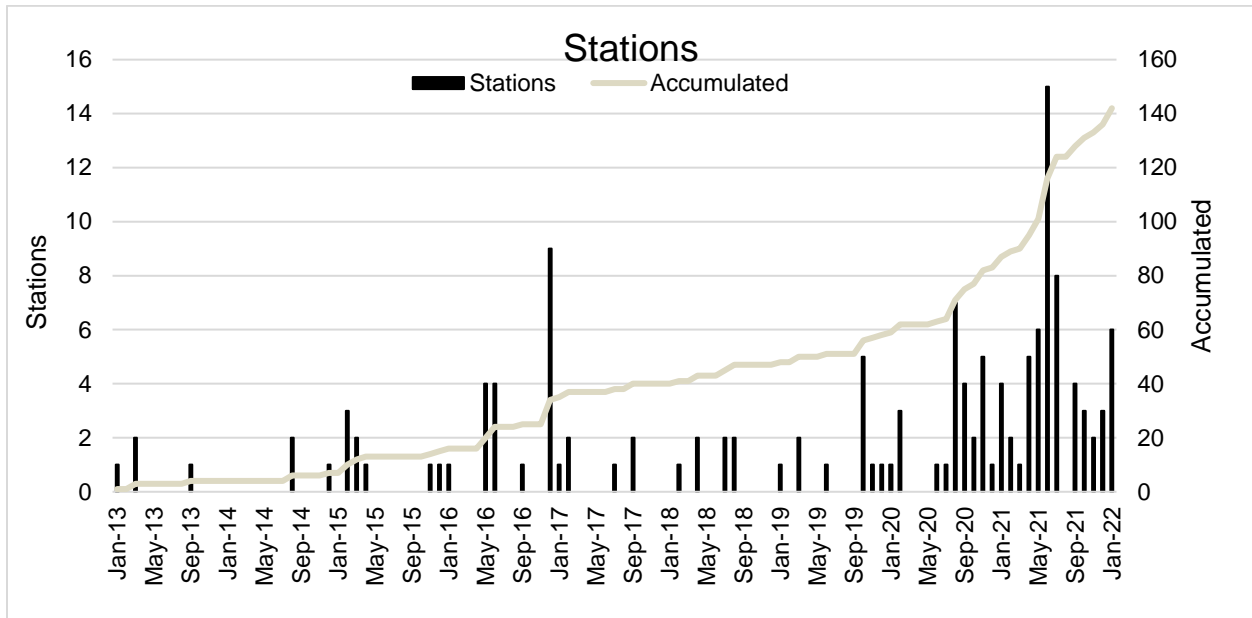


Figure 3: Number of Charging Stations Installed per Month Since Jan` 2013.

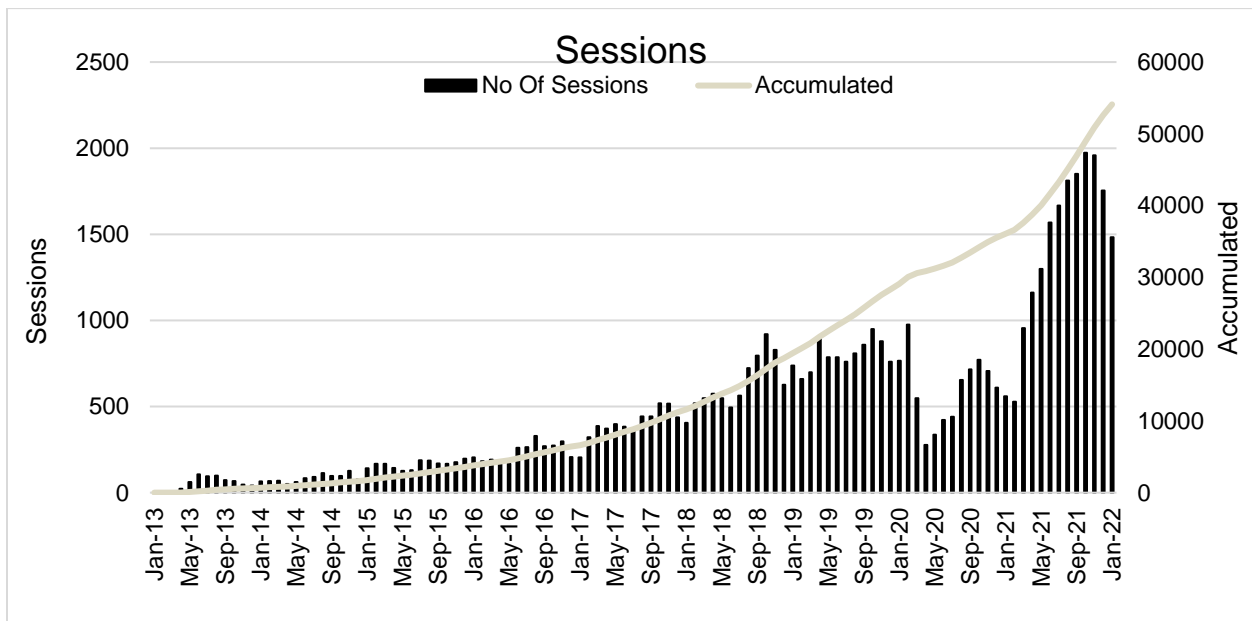


Figure 4: Number of Charging Sessions per Month Since Jan` 2013.

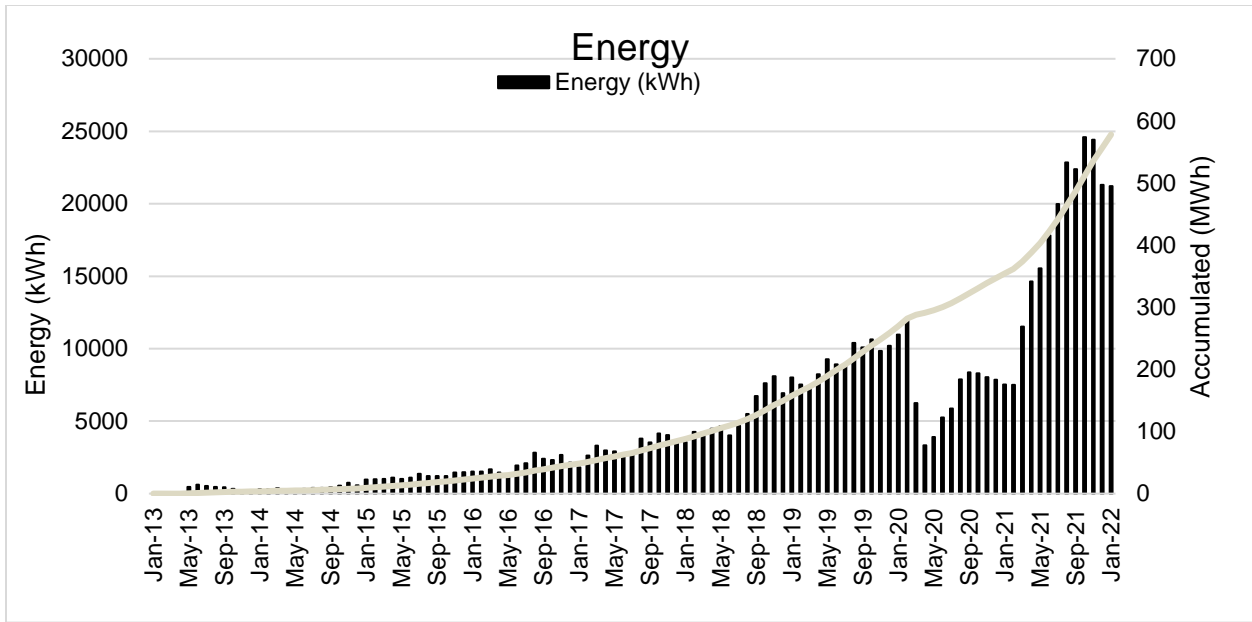


Figure 5: Energy Usage per Month Since Jan` 2013.

2.2. Summary of Unique User Data (Utility/Residential)

This section focuses on the utility rebate programs.

➤ OPPD Rebate Program

Table 5a shows the charging infrastructure usage summary for the data obtained since the inception of the rebate program for OPPD in Apr 2018. Cumulative Number of Installed Stations might vary from month to month because of the number of stations that lose connection to the network.

Table 5a: Summary of Installed OPPD Residential Charging Stations and Energy Usage per Month Since Apr` 2018.

	Number of Installed Stations Each Month	Cumulative Number of Installed Stations	Number of Charging Sessions	Energy Usage (kWh)
<u>2018 Total</u>	123	<u>123</u>	<u>10,487</u>	<u>119,049</u>
<u>2019 Total</u>	108	<u>231</u>	<u>45,921</u>	<u>547,841</u>
<u>2020 Total</u>	129	<u>360</u>	<u>48,022</u>	<u>611,576</u>
<u>2021 Total</u>	125	<u>485</u>	<u>82,898</u>	<u>1,137,205</u>
Jan`2022	1		7,904	112,373
Feb`2022			7,513	108,286
<u>Total</u>		<u>486</u>	<u>202,206</u>	<u>2,628,416</u>

The data shown in Table 5a is presented in Figures 6a, 7a, and 8a. Note that the data and analysis results differ from month to month in the report because some stations become inactive and not connected to the network for a period of time before they reconnect. Figure 6a shows the number of charging infrastructure installed since the inception of the rebate program as well as the cumulative number of charging stations; Figure 7a and Figure 8a show the trends of charging sessions and energy usage respectively, over the same time period.

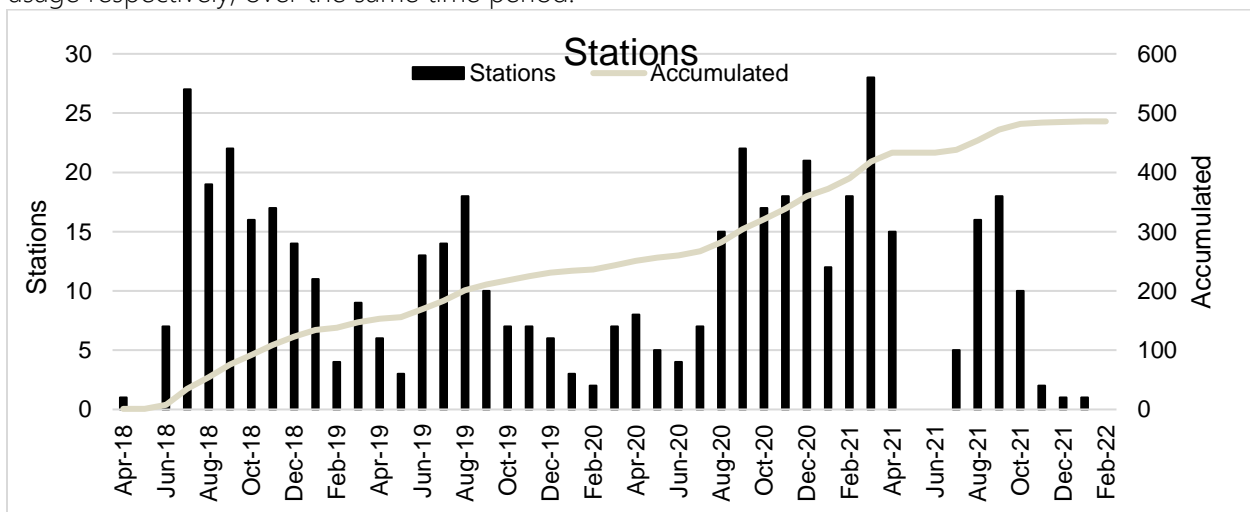


Figure 6a: Number of Charging Stations Installed per Month Since Apr 2018.

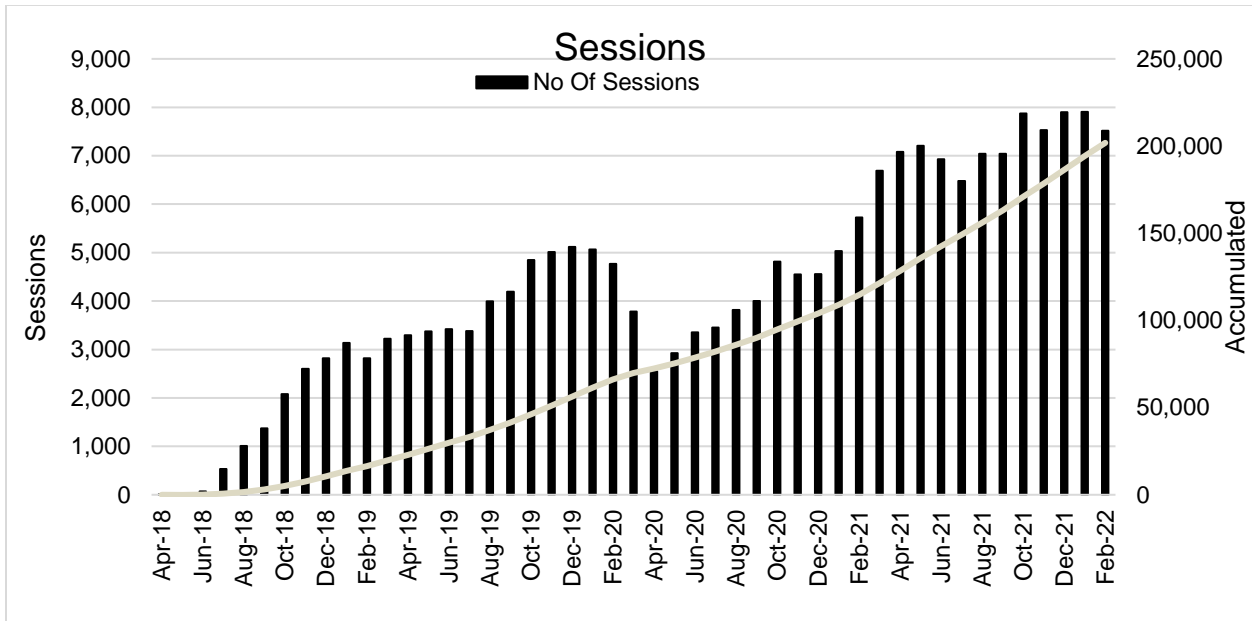


Figure 7a: Number of Charging Sessions per Month Since Apr 2018.

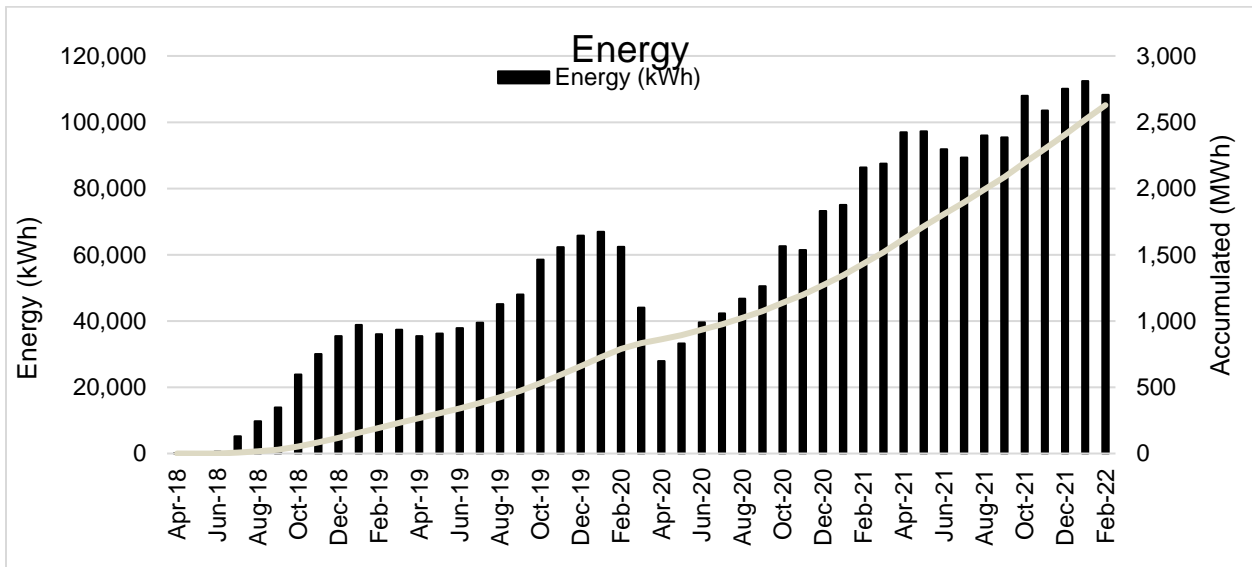


Figure 8a: Energy Usage per Month Since Apr 2018.

➤ NPPD Rebate Program

Table 5b shows the charging infrastructure usage summary for the data obtained since the inception of the rebate program for NPPD in Mar 2018. Cumulative Number of Installed Stations might vary from month to month because of the number of stations that lose connection to the network.

Table 5b: Summary of Installed NPPD Residential Charging Stations and Energy Usage per Month Since Mar` 2018.

	Number of Installed Stations Each Month	Cumulative Number of Installed Stations	Number of Charging Sessions	Energy Usage (kWh)
<u>2018 Total</u>	4	4	869	3875.868
<u>2019 Total</u>	6	10	1,664	8,906
<u>2020 Total</u>	20	30	2,406	31,561
<u>2021 Total</u>	28	58	9,535	170,096
Jan`2022	1		1,057	20,601
Feb`2022			956	19,826
<u>Total</u>		<u>59</u>	<u>16,620</u>	<u>255,835</u>

The data shown in Table 5b is presented in Figures 6b ,7b, and 8b. Figure 6b shows the number of charging infrastructure installed since the inception of the rebate program as well as the cumulative number of charging stations; Figure 7b and Figure 8b show the trends of charging sessions and energy usage respectively, over the same time period.

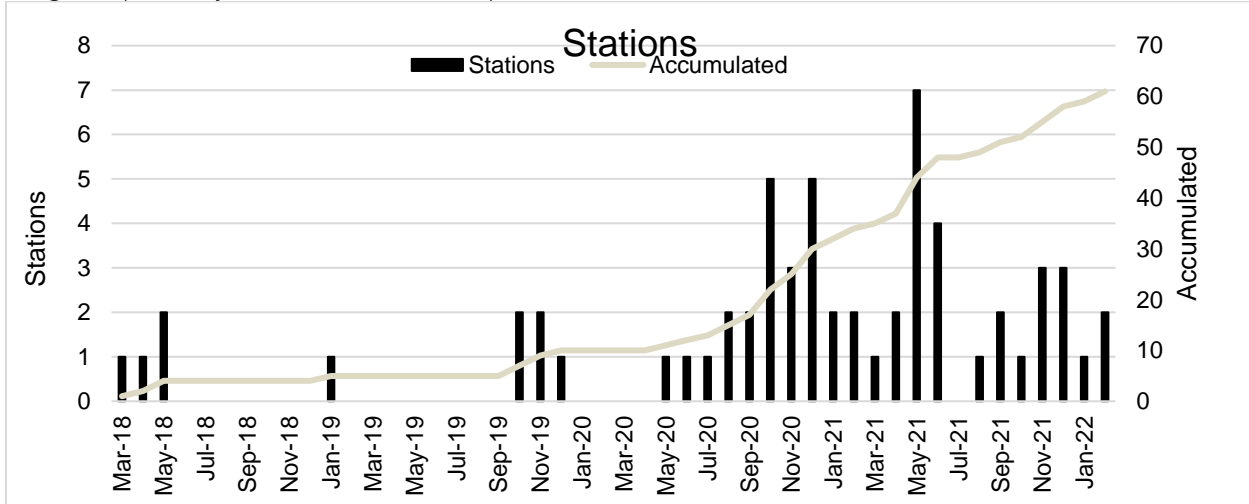


Figure 6b: Number of Charging Stations Installed per Month Since Mar 2018.

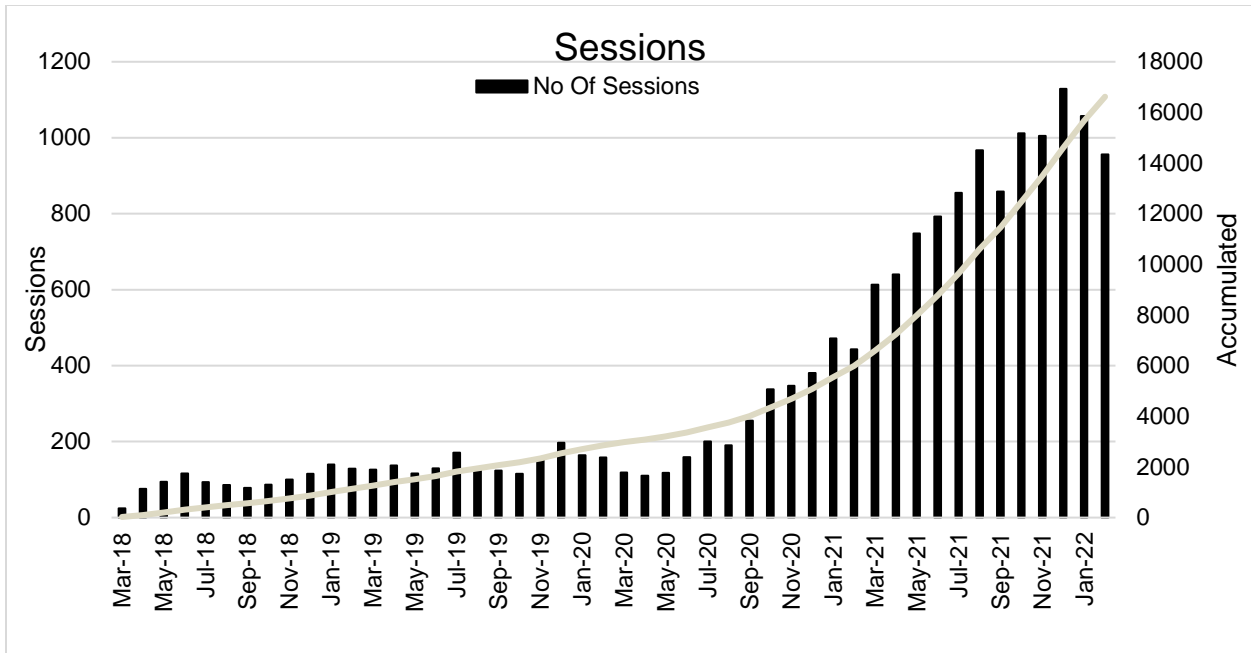


Figure 7b: Number of Charging Sessions per Month Since Mar 2018.

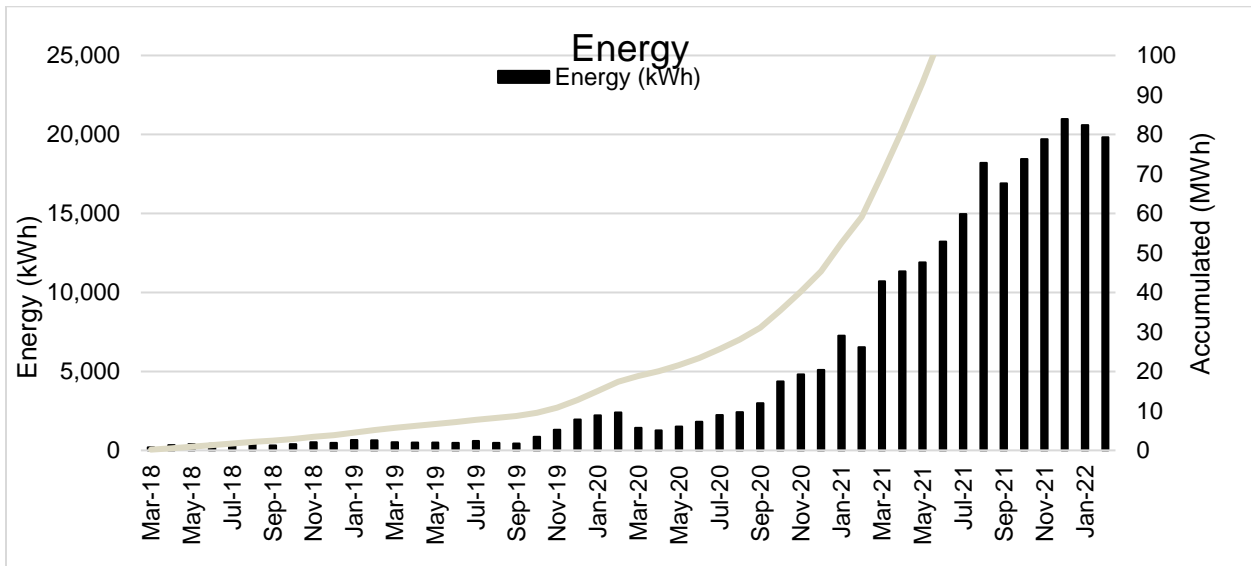


Figure 8b: Energy Usage per Month Since Mar 2018.

➤ Fremont Rebate Program

Table 5c shows the charging infrastructure usage summary for the data obtained since the inception of the rebate program for NPPD in Aug 2019. Cumulative Number of Installed Stations might vary from month to month because of the number of stations that lose connection to the network.

Table 5c: Summary of Installed Residential Charging Stations and Energy Usage per Month Since Aug` 2019.

	Number of Installed Stations Each Month	Cumulative Number of Installed Stations	Number of Charging Sessions	Energy Usage (kWh)
<u>2019 Total</u>	<u>4</u>	<u>4</u>	<u>242</u>	<u>4,635</u>
<u>2020 Total</u>	<u>1</u>	<u>5</u>	<u>458</u>	<u>9,795</u>
<u>2021 Total</u>	<u>0</u>	<u>5</u>	<u>573</u>	<u>12,945</u>
Jan`2022			50	1,318
Feb`2022			47	1,281
<u>Total</u>		<u>5</u>	<u>1,370</u>	<u>29,975</u>

The data shown in Table 5c is presented in Figures 6c ,7c, and 8c. Figure 6c shows the number of charging infrastructure installed since the inception of the rebate program as well as the cumulative number of charging stations; Figure 7c and Figure 8c show the trends of charging sessions and energy usage respectively, over the same time period.

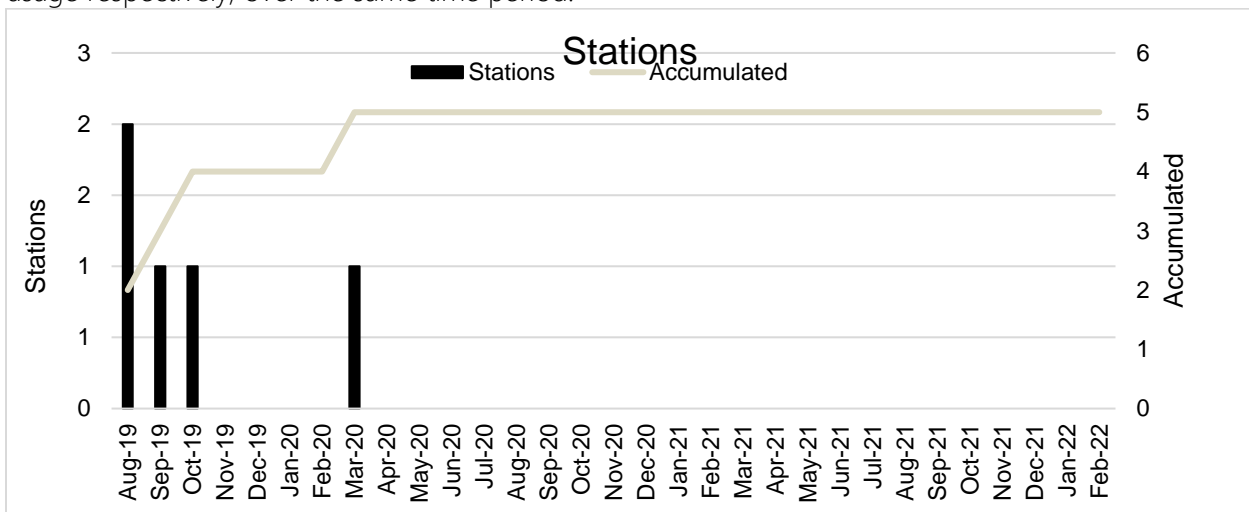


Figure 6c: Number of Charging Stations Installed per Month Since Aug 2019.

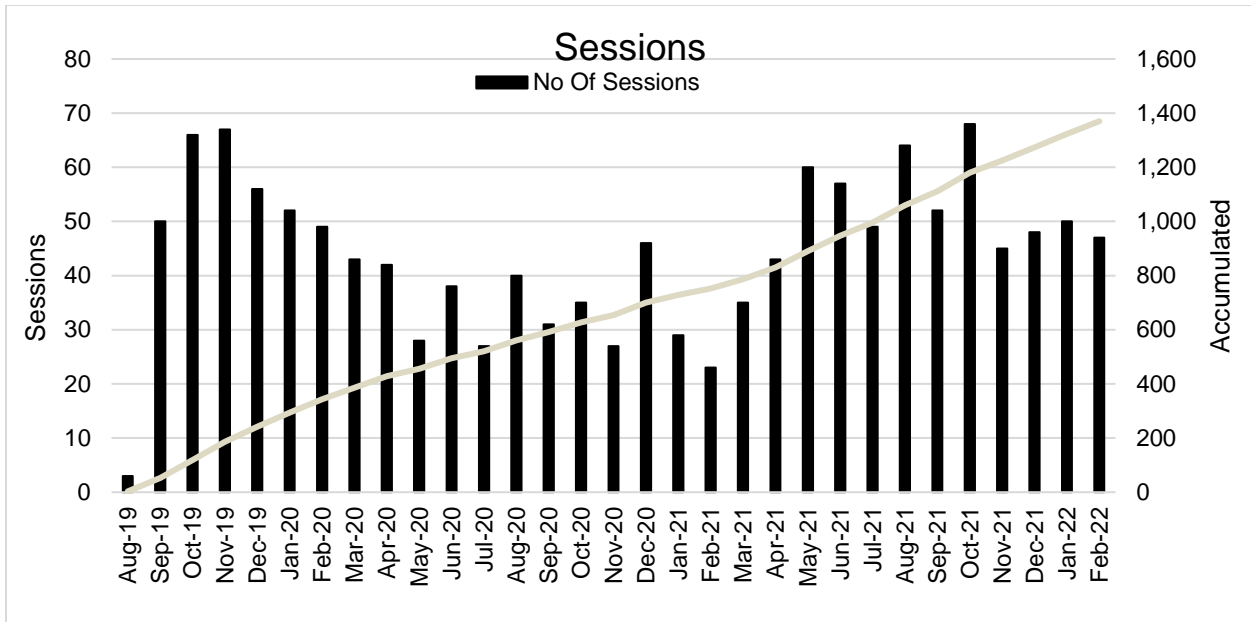


Figure 7c: Number of Charging Sessions per Month Since Aug 2019.

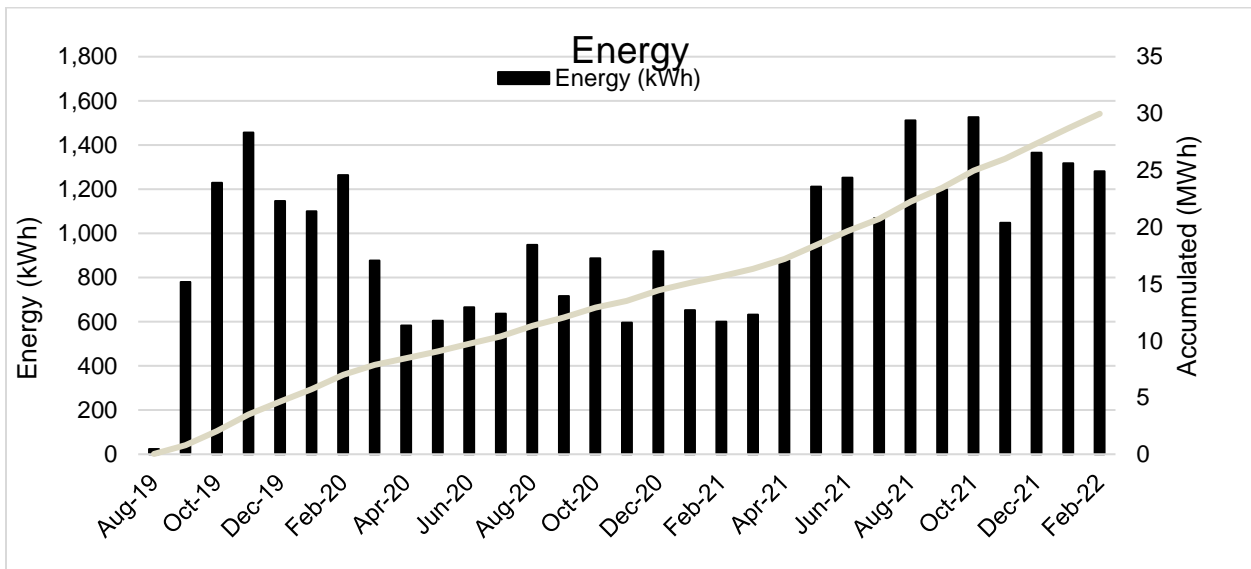


Figure 8c: Energy Usage per Month Since Aug 2019.

2.3. Summary of Economic and Environmental Analysis (Commercial and Utility/ Residential)

Commercial

A summary of the commercial economic and environmental benefits for the month of February 2022 is shown in Table 6. Table 7 provides the total savings for each participating station since the start of data collection in Jan 2013. The difference in the amount saved for each participating member and/or charging station location is due to the number of EVs, CNGs, charging stations and activation dates. Data with "()" savings indicate no savings. Only CO₂ data from CNG are used in the report. Furthermore, CNG data collection is stopped in 2018 due to the scarcity of the data usage.

Table 8, Table 9, Table 10, Table 11, and Table 12 show the grant cycle phase I, II, III, IV, and V benefits for the participating members respectively. Table 14 shows the benefits for the remaining existing charging stations.

Overall Savings

Table 13 shows the combined commercial and residential savings for Phases I-V. Table 15 shows the benefits for both DC and the commercial level-2 charging stations.

Table 6: Economic and Environmental Benefits for all Participating Stations for the Month of February 2022.

Charging Station Location	Number of Charging stations/(Ports)	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO ₂	CO	SO ₂	NO _x	CH ₄	VOC
Allen Schools	1 / (2)	18	279	\$162	685	6.92	(0.41)	0.00	(0.00)	0.41
Auburn Board od Public Works	3 / (5)	32	193.575	\$108	187	4.54	0.00	(0.03)	(0.04)	0.29
Aurora	2 / (3)	9	98.35	\$58	241	2.44	(0.15)	0.00	(0.00)	0.15
Ashland	2 / (3)	21	210	\$116	266	4.95	(0.60)	(0.08)	(0.03)	0.31
Bellevue	1 / (2)	0	0	\$0	0	0.00	0.00	0.00	0.00	0.00
B & R Stores	6 / (9)	73	876	\$498	283	20.73	(2.79)	(1.85)	(0.18)	1.28
Central City	1 / (2)	0	0.00	\$0	0	0.00	0.00	0.00	0.00	0.00
Central Community College	4 / (8)	23	138.59	\$82	340	3.44	(0.20)	0.00	(0.00)	0.21
Dakota County	1 / (2)	13	245	\$137	602	6.08	(0.36)	0.00	(0.00)	0.36
Ferguson House, Lincoln office of NCEA	1 / (2)	16	261	\$152	114	6.39	(0.27)	(2.23)	(0.01)	0.38
Fremont	2 / (4)	54	891	\$490	1,876	21.18	(1.57)	0.00	(0.10)	1.31
Gothenburg	-	0	0.00	\$0	0	0.00	0.00	0.00	0.00	0.00
Gretna	3 / (5)	71	1,175	\$659	1,493	27.78	(3.34)	(0.48)	(0.17)	1.73
Hastings	1 / (2)	2	29	\$16	9	0.68	(0.09)	(0.06)	(0.01)	0.04
Holdrege	1 / (2)	7	132.452	\$76	325	3.28	(0.20)	0.00	(0.00)	0.20
Kearney	5 / (8)	67	990	\$581	2,430	24.54	(1.46)	0.01	(0.01)	1.47
LES	14 / (16)	96	2,297	\$1,336	1,004	56.12	(2.36)	(19.59)	(0.12)	3.38
Lexington	2 / (4)	22	258	\$141	634	6.40	(0.38)	0.00	(0.00)	0.38
Lincoln	15 / (30)	330	3,097	\$1,812	1,354	75.67	(3.19)	(26.42)	(0.16)	4.56
Lincoln Public Schools	7 / (7)	53	326	\$191	143	7.97	(0.34)	(2.78)	(0.02)	0.48
MCC	8 / (15)	177	2,247	\$1,260	2,855	53.12	(6.38)	(0.91)	(0.32)	3.31
Nebraska City	4 / (6)	86	543	\$298	524	12.74	0.01	(0.10)	(0.11)	0.81
Norfolk	1 / (2)	10	135	\$70	178	3.21	(0.43)	(0.08)	(0.02)	0.20
Nebraska Safety Center at UNK	1 / (2)	0	0	\$0	0	0.00	0.00	0.00	0.00	0.00
NP Dodge	2 / (3)	7	19.11	\$11	24	0.45	(0.05)	(0.01)	(0.00)	0.03
NPPD	13 / (23)	80	1,263.18	\$739	552	30.86	(1.30)	(10.78)	(0.06)	1.86
Minden	1 / (2)	18	180.22	\$102	442	4.47	(0.27)	0.00	(0.00)	0.27
OPPD	3 / (6)	23	351	\$196	445	8.29	(1.00)	(0.14)	(0.05)	0.52
City of Omaha	20 / (38)	226	2,952	\$1,657	7,248	73.21	(4.36)	0.04	(0.03)	4.39
Omaha Zoological Society	2 / (4)	39	306.302	\$172	389	7.24	(0.87)	(0.12)	(0.04)	0.45
Papio-Missouri NRD	1 / (2)	46	595	\$334	756	14.06	(1.69)	(0.24)	(0.08)	0.88
Seward	4 / (7)	14	460	\$253	1,130	11.41	(0.68)	0.01	(0.00)	0.68
South Sioux City	6 / (11)	41	547	\$307	1,342	13.56	(0.81)	0.01	(0.01)	0.81
UNMC	2 / (4)	33	330.276	\$185	420	7.81	(0.94)	(0.13)	(0.05)	0.49
UNO	4 / (8)	145	1,445	\$809	1,836	34.16	(4.10)	(0.58)	(0.21)	2.13
Valley	1 / (2)	4	23	\$13	29	0.54	(0.06)	(0.01)	(0.00)	0.03
Wayne	1 / (2)	0	0	\$0	0	0.00	0.00	0.00	0.00	0.00
Total	146 / (253)	1,856	22,893	\$13,021	30,156	554.24	(40.63)	(66.55)	(1.84)	33.81

Table 7: Cumulative Charging Infrastructure Usage and Benefits for all Participating Charging stations since Jan` 2013.

Charging Station Location	Number of Charging stations/(Ports)	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO ₂	CO	SO ₂	NO _x	CH ₄	VOC
Allen Schools	1 / (2)	1,250	13,313	\$4,957	25,433	503.59	(30.38)	(6.06)	1.27	18.03
Auburn Board of Public Works	3 / (5)	784	5,499	\$2,309	9,979	115.38	(6.33)	2.29	(0.32)	7.03
Aurora	2 / (3)	286	1,693	\$754	2,253	35.69	(4.32)	(5.58)	(0.11)	2.16
Ashland	2 / (3)	1,208	12,441	\$4,470	15,961	275.65	(39.03)	(14.61)	(0.14)	15.43
Bellevue	1 / (2)	1,295	12,080	\$3,959	25,594	571.21	(33.69)	18.47	1.87	16.91
B & R Stores	6 / (9)	869	9,579	\$4,446	4,308	197.36	(25.64)	(15.45)	(2.15)	12.26
Central City	1 / (2)	33	522	\$163	1,264	31.44	(1.18)	1.59	0.13	0.78
Central Community College	4 / (8)	511	3,251	\$1,475	4,086	67.74	(8.53)	(11.43)	(0.22)	4.09
Dakota County	1 / (2)	462	6,293	\$2,489	9,960	168.43	(15.66)	(13.77)	0.07	8.14
Ferguson House, Lincoln office of NCEA	1 / (2)	685	6,362	\$2,521	9,624	209.96	(7.37)	(13.85)	0.53	8.43
Fremont	2 / (4)	1,738	27,400	\$10,360	33,355	542.14	(65.67)	(24.82)	(4.30)	34.15
Gothenburg	-		0	\$720	6,020	155.11	(5.30)	8.68	0.64	3.56
Gretna	3 / (5)	2,990	29,966	\$11,732	35,900	703.82	(85.41)	(30.25)	(1.57)	33.60
Hastings	1 / (2)	164	1,497	\$596	1,222	35.12	(3.89)	(0.70)	(0.05)	1.89
Holdrege	1 / (2)	150	1,519	\$617	2,423	42.58	(3.68)	(2.84)	0.03	1.98
Kearney	5 / (8)	3,135	29,579	\$11,869	45,077	736.90	(72.13)	(68.52)	0.37	37.72
LES	14 / (16)	2,664	45,249	\$18,125	54,356	1,152.69	(32.48)	(189.64)	2.21	57.77
Lexington	2 / (4)	1,068	12,567	\$4,438	20,635	373.27	(30.54)	(20.92)	0.56	16.35
Lincoln	15 / (30)	8,971	98,582	\$40,203	112,481	2,264.62	(73.40)	(422.44)	4.77	123.07
Lincoln Public Schools	7 / (7)	953	7,408	\$3,380	10,149	155.29	(6.45)	(7.39)	(0.27)	9.35
MCC	8 / (15)	2,936	32,976	\$13,448	39,363	672.44	(100.95)	(44.00)	(2.19)	41.44
Nebraska City	4 / (6)	2,629	27,911	\$11,963	62,291	865.78	(43.31)	30.77	1.20	37.10
Norfolk	1 / (2)	65	872	\$316	1,429	19.01	(1.69)	(12.63)	(0.02)	1.12
Nebraska Safety Center at UNK	1 / (2)	50	249	\$95	322	5.06	(0.65)	(0.87)	(0.01)	0.31
NP Dodge	2 / (3)	156	3,213	\$1,121	3,655	64.21	(9.62)	(4.69)	(0.22)	3.95
NPPD	13 / (23)	1,974	26,514	\$11,443	35,689	558.14	(23.19)	(31.55)	(0.97)	33.61
Minden	1 / (2)	85	693	\$323	1,099	15.19	(1.60)	(1.76)	(0.04)	0.92
OPPD	3 / (6)	5,024	28,830	\$9,706	55,100	1,204.20	(85.18)	27.92	3.45	39.51
City of Omaha	20 / (38)	1,897	24,042	\$10,763	35,485	515.12	(58.13)	(69.40)	(1.20)	31.10
Omaha Zoological Society	2 / (4)	776	6,667	\$2,771	7,022	135.97	(18.58)	(9.02)	(0.62)	8.35
Papio-Missouri NRD	1 / (2)	2,676	26,319	\$10,285	31,959	527.04	(82.61)	(37.91)	(1.50)	32.47
Seward	4 / (7)	1,041	14,823	\$5,142	25,711	483.88	(35.39)	(16.49)	1.04	19.56
South Sioux City	6 / (11)	4,006	50,679	\$18,075	87,911	1,649.85	(121.62)	(49.83)	3.53	66.73
UNMC	2 / (4)	628	6,155	\$2,562	6,559	126.08	(17.23)	(8.16)	(0.58)	7.75
UNO	4 / (8)	3,368	30,369	\$11,657	36,618	613.28	(94.91)	(41.57)	(1.61)	26.40
Valley	1 / (2)	255	2,013	\$708	3,155	63.23	(6.11)	(0.29)	0.10	2.63
Wayne	1 / (2)	164	2,262	\$1,889	8,787	64.17	(5.13)	(39.86)	0.25	2.85
Total	146 / (253)	56,946	609,387	\$241,850	872,235	15,920.64	(1,256.99)	(1,126.58)	3.94	768.49

Table 8: Cumulative Economic and Environmental Benefits for Phase I Participants.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	NOx	CH4	VOC
Bellevue	\$3,959	25,594	571.21	(33.69)	18.47	1.87	16.91
Central City	\$163	1,264	31.44	(1.18)	1.59	0.13	0.78
Ferguson House, Lincoln office of NCEA	\$2,521	9,624	209.96	(7.37)	(13.85)	0.53	8.43
Gothenburg	\$720	6,020	155.11	(5.30)	8.68	0.64	3.56
Holdrege	\$617	2,423	42.58	(3.68)	(2.84)	0.03	1.98
Lexington	\$4,438	20,635	373.27	(30.54)	(20.92)	0.56	16.35
Nebraska City	\$9,766	49,784	741.20	(39.02)	23.84	0.69	34.25
Seward	\$853	3,620	43.22	(4.31)	(4.19)	0.02	2.62
South Sioux City	\$1,138	4,409	64.07	(7.94)	(10.21)	(0.05)	3.89
Wayne*	\$1,149	5,100	-	-	-	-	-
Total	\$25,325	128,472	2,232.06	(133.04)	0.57	4.41	88.77

Table 9: Total Economic and Environmental Benefits for Phase II Participants.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	Nox	CH4	VOC
Allen Consolidated Schools	\$4,957	25,433	503.59	(30.38)	(6.06)	1.27	18.03
Ashland	\$4,470	15,961	275.65	(39.03)	(14.61)	(0.14)	15.43
Dakota County	\$2,489	9,960	168.43	(15.66)	(13.77)	0.07	8.14
Gretna	\$3,702	15,361	304.84	(31.38)	(4.62)	0.30	9.08
Hastings	\$596	1,222	35.12	(3.89)	(0.70)	(0.05)	1.89
Kearney	\$9,206	36,672	610.76	(57.61)	(50.73)	0.71	30.11
Lincoln	\$39,799	111,574	2,247.03	(72.67)	(420.05)	4.80	122.01
Nebraska City*	\$1,678	7,565	-	-	-	-	-
OPPD	\$9,706	55,100	1,204.20	(85.18)	27.92	3.45	39.51
UNO	\$2,781	7,912	135.53	(20.27)	(8.87)	(0.47)	4.88
Valley	\$708	3,155	63.23	(6.11)	(0.29)	0.10	2.63
Total	\$80,091	289,914	5,548.38	(362.19)	(491.80)	10.05	251.70

*Data shown is for one CNG in Phase I, and two CNGs in Phase II.

Table 10: Total Economic and Environmental Benefits for Phase III Participants.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	Nox	CH4	VOC
Fremont	\$10,360	33,355	542.14	(65.67)	(24.82)	(4.30)	34.15
MCC	\$1,911	5,051	93.92	(13.35)	(6.53)	(0.38)	5.77
Total	\$12,271	38,406	636.06	(79.02)	(31.35)	(4.68)	39.92

Table 11: Total Economic and Environmental Benefits for Phase IV Participants.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	Nox	CH4	VOC
Auburn Board of Public Works	\$743	3,451.67	40.26	(2.33)	0.75	(0.08)	2.46
Aurora (DC)	\$672	2,010.74	31.61	(3.80)	(4.88)	(0.09)	1.91
City of Omaha	\$4,188	13,495.23	216.69	(27.39)	(36.51)	(0.54)	13.12
Nebraska Safety Center at UNK	\$95	321.90	5.06	(0.65)	(0.65)	(0.01)	0.31
NP Dodge	\$99	250.38	5.22	(0.68)	(0.36)	(0.03)	0.32
Omaha Zoological Society	\$2,771	7,022.23	135.97	(18.58)	(9.02)	(0.62)	8.35
University of Nebraska Medical Center	\$2,562	6,559.32	126.08	(17.23)	(8.16)	(0.58)	7.75
Gretna (DC)	\$8,030	20,539.12	398.99	(54.03)	(25.63)	(1.87)	24.53
Kearney	\$2,663	8,405.07	126.13	(14.52)	(17.79)	(0.34)	7.61
Total	\$21,824	62,055.68	1,086.00	(139.20)	(102.24)	(4.15)	66.35

Table 12: Total Economic and Environmental Benefits for Phase V Participants.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	Nox	CH4	VOC
Auburn Board of Public Works	\$1,566	6,527.52	75.12	(4.00)	1.54	(0.25)	4.57
Aurora	\$82	242.65	4.08	(0.52)	(0.71)	(0.01)	0.25
Central Community College	\$1,475	4,085.92	67.74	(8.53)	(11.43)	(0.22)	4.09
Minden	\$323	1,098.79	15.19	(1.60)	(1.76)	(0.04)	0.92
NPPD	\$11,443	35,689.27	558.14	(23.19)	(31.55)	(0.97)	33.61
Norfolk	316.06	1,429.39	19.01	(1.69)	(12.63)	(0.02)	1.12
Lincoln	403.70	906.74	17.59	(0.73)	(2.38)	(0.03)	1.06
Total	\$15,609	49,980	757	(40)	(59)	(2)	46

Table 13: Total Economic and Environmental Benefits for Participating Members in all six grants.

	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	NOx	CH4	VOC
Savings Excluding Residential Rebate Program	\$155,119	568,828	10,259	(753.72)	(683.74)	(5.85)	492.37
OPPD_ Residential Rebate Program Savings	\$1,050,198	3,109,306	54,318	(8,076.08)	(3,512.61)	(189.48)	3,344.32
NPPD_ Residential Rebate Program Savings	\$109,447	299,911	5,172	(194.84)	(599.95)	(5.65)	310.44
Fremont_ Residential Rebate Program Savings	\$11,135	36,895	592	(70.63)	(25.66)	(4.63)	37.26
Total Saving	\$1,325,900	4,014,941	70,343	(9,095.27)	(4,821.96)	(205.61)	4,184

Table 14: Total Economic and Environmental Benefits for Remaining Existing Charging Stations.

Participating Members	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
		CO2	CO	SO2	NOx	CH4	VOC
B & R Stores	\$4,446	4,308	197.36	(25.64)	(15.45)	(2.15)	12.26
City of Omaha	\$6,575	21,990	298.43	(30.75)	(32.89)	(0.66)	17.98
LES	\$18,125	54,356	1,152.69	(32.48)	(189.64)	2.21	57.77
Lincoln Public Schools	\$3,380	10,149	155.29	(6.45)	(7.39)	(0.27)	9.35
MCC	\$11,536	34,312	578.53	(87.60)	(37.47)	(1.80)	35.67
Nebraska City	\$519	4,942	124.58	(4.28)	6.93	0.51	2.85
NP Dodge	\$1,023	3,404	59.00	(8.94)	(4.33)	(0.19)	3.63
Papio-Missouri NRD	\$10,285	31,959	527.04	(82.61)	(37.91)	(1.50)	32.47
Seward	\$4,288	22,092	440.65	(31.08)	(12.30)	1.01	16.95
South Sioux City	\$16,937	83,502	1,585.78	(113.68)	(39.62)	3.58	62.84
UNO	\$8,877	28,706	477.75	(74.64)	(32.70)	(1.14)	21.52
Wayne	\$740	3,687	64.17	(5.13)	(39.86)	0.25	2.85
Total	\$86,731	303,406	5661.26	(503.28)	(442.62)	(0.16)	276.13

Table 15: Analysis for DC Fast Chargers and all Level 2 Charging Stations.

Commercial Charging Station Type	Number of Charging Ports	Number of Charging Sessions	Energy Usage (kWh)	Economic Benefits	Environmental Benefits (Emission Reductions) (lbs.)					
					CO2	CO	SO2	NOx	CH4	VOC
Level 2 Charger	239	53,750	555,279	\$218,557	812,414	14,784.64	(1,124.75)	(1,041.93)	8.79	709.87
DC Fast Charger	14	3196	54,109	\$23,294	59,821	1,136.00	(132.25)	(84.65)	(4.8566)	58.6225
Total	253	56,946	609,387	\$241,850	872,235	15,920.64	(1,256.99)	(1,126.58)	3.94	768.49

3. Appendix A: Detailed Economic Analysis - Commercial

3.1. Introduction

The following five types of vehicles are investigated in this report:

- **CV** – Conventional vehicles running on gasoline fuel.
- **DV** – Conventional vehicles running on diesel fuel.
- **CNG** – Trucks running on compressed natural gas (CNG) fuel.
- **Ethanol (E85)** - Conventional vehicles running on Ethanol (E85) fuel.
- **EV** – Electric Vehicles (all electric) running on electricity.

3.2. Economic Benefits due to Fuel Type Price Differences

Data calculations are based on the following average prices and assumptions:

- Gas price of \$2.885 per gallon (Regular unleaded, based on 2021 monthly Nebraska state average [1]).
- Diesel price of \$3.079 per gallon (based on YTD Nebraska state average [2]).
- CNG price of \$2.330 per gallon based on the current average filling station CNG rate for Nebraska. [3]
- Ethanol (E85) price of \$2.40 per gallon based on 2020 monthly Nebraska state average [4].
- Electricity prices depend on the current rate charged by the electric utility provider serving the participating charging stations in this study. There are seven electric utility providers:
 - Fremont Utilities
 - City of Hastings Utilities
 - Lincoln Electric System (LES)
 - Nebraska City Utilities
 - Nebraska Public Power District (NPPD)
 - Omaha Public Power District (OPPD)
 - City of Wayne Electric Distribution System

OPPD serves Ashland, Bellevue, Gretna, and Valley [5]. NPPD serves Allen, Dakota County, Gothenburg, Holdrege, Lexington, Seward, South Sioux City, Wayne, and Auburn as a wholesale power supply; and Kearney as a retail provider [6]. LES serves Lincoln [7]. Fremont, Hastings and Nebraska City are unique as they provide their own power for their cities [8][9][10]. The city of Wayne receives 56% of its power from oil resource, and 44% from the renewable resource, mainly from wind [11][12].

Table A1 provides the name of the electric utility provider and the (commercial or retail) rate per kilowatt-hour for the participating members. Allen, Gothenburg, Holdrege, Lexington, Seward, and Wayne have their own utility rates, while Central City, Dakota County, Kearney, South Sioux City, and Auburn follow the rate schedule as specified by NPPD. To distinguish between the different rates, additional letters ('a' to 'h') have been added to NPPD listing.

Table A1: Electricity Providers and Rate Structure for the Participating Charging Stations.

Charging Station Location	Provider	Price per kWh (\$)#
Allen Consolidated Schools [10]	NPPD - a	0.0690
Auburn Board of Public Works	NPPD-h	0.0941
Aurora	NPPD - b	0.0853
Ashland[11]	OPPD	0.0884
Bellevue[11]	OPPD	0.0884
B & R Stores	LES	0.0743
Central City[12]	NPPD - b	0.0853
Central Community College	NPPD - b	0.0853
Dakota County[12]	NPPD - b	0.0853
Ferguson House (Lincoln)[13]	LES	0.0743
Fremont	Provides own service	0.0985
Gothenburg [14]	NPPD - c	0.0801
Gretna[11]	OPPD	0.0884
Hastings[15]	Provides own service	0.0893
Holdrege [16]	NPPD - d	0.0940
Kearney[12]	NPPD - b	0.0853
LES	LES	0.0743
Lexington [17]	NPPD - e	0.1139
Lincoln[13]	LES	0.0743
MCC	OPPD	0.0884
Nebraska City [18]	Provides own service	0.1064
Nebraska Safety Center at UNK	NPPD - b	0.0853
OPPD[11]	OPPD	0.0884
City of Omaha	OPPD	0.0884
Omaha Zoological Society	OPPD	0.0884
Papio-Missouri NRD	OPPD	0.0884
Seward [19]	NPPD - f	0.0980
South Sioux City[12]	NPPD - b	0.0884

UNMC	OPPD	0.0884
UNO	OPPD	0.0884
Valley[11]	OPPD	0.0884
Wayne [20]	NPPD - g	0.1169
Average		<u>0.0884</u>
#All rates are the average of the base summer and winter rates.		

Table A2 shows the fuel economy of the different vehicle types and the cost for driving one mile. The cost of fuel for the EV vehicle is based on the price per kWh, for each participating member, calculated by averaging the summer and winter rates.

The following fuel economy values are used:

- CV and DV vehicles: 25.70 mpg and 29.32 mpg respectively, Average fuel economy for the model year 2020 = 25.70 mpg [26][27]
- CNG vehicle: 25.70 mpg, based on the same fuel economy of a CV because it is roughly equal to that of a CV when converted to gasoline gallons equivalent (GGE) [28].
- EV vehicle: 4.03 miles per kWh, based on the combined fuel economy average (city and highway) of all the vehicle types (make and model) published in the Fuel Economy Guide for the year 2020 [29].
- Ethanol (E85): 18.33 mpg based on [30].
- The national driving average is 11,556 miles based on [31].

Table A2: Cost of Driving one Mile for the Five Vehicle Types (Arranged in Descending Order).

Vehicle Type		Cost of Fuel	Combined Fuel Economy	Cost per mile
Gasoline Vehicles (CV)		\$2.885	25.7	\$0.112
Diesel Vehicles (DV)		\$3.079	29.32	\$0.105
Compressed Natural Gas Vehicles (CNG)		\$2.330	25.7	\$0.091
Ethanol Vehicles (E-85)		\$2.403	18.33	\$0.131
EV	Lexington (NPPD – e)	\$0.114	4.03 miles per kWh	\$0.028
	Wayne (NPPD – g)	\$0.117		\$0.029
	Nebraska City	\$0.106		\$0.026
	Fremont	\$0.099		\$0.024
	Seward (NPPD – f)	\$0.098		\$0.024
	Holdrege (NPPD – d)	\$0.094		\$0.023
	Auburn Board of Public Works (NPPD – h)	\$0.069		\$0.017
	Ashland, Bellevue, Gretna, MCC, OPPD, UNO, Valley (OPPD)	\$0.088		\$0.022

Central City, Dakota County, Kearney, South Sioux City (NPPD – b)	\$0.080		\$0.020
Allen (NPPD – a)	\$0.085		\$0.021
Gothenburg (NPPD – c)	\$0.089		\$0.022
Hastings	\$0.094		\$0.023
Ferguson House, LES, Lincoln (LES)	\$0.074		\$0.018

Table A3 and Table A4 show the cost savings when comparing between the five types of vehicles. The calculations shown are for driving one mile (Table A3) and then for driving an average of 11,556 miles [31] annually (Table A4). The red shading represents no savings (negative savings) and the green shading represents positive savings. Figure A1 provides a visual representation of Table A4.

Table A3: Cost Savings per Mile in Terms of Fuel Consumption (Arranged in Ascending Order).

Vehicle Type		Savings per mile			
		Compared to CV	Compared to DV	Compared to CNG	Compared to E85
Gasoline Vehicles (CV)		-	-\$0.007	-\$0.022	\$0.053
Diesel Vehicles (DV)		\$0.007	-	-\$0.014	\$0.061
Compressed Natural Gas Vehicles (CNG)		\$0.022	\$0.014	-	\$0.075
Ethanol Vehicles (E-85)		-\$0.019	-\$0.026	-\$0.041	-
EV	\$0.084	\$0.077	\$0.062	\$0.137	\$82.09
	\$0.083	\$0.076	\$0.062	\$0.137	\$160.32
	\$0.086	\$0.079	\$0.064	\$0.139	\$189.10
	\$0.088	\$0.081	\$0.066	\$0.141	\$222.63
	\$0.088	\$0.081	\$0.066	\$0.141	\$224.32
	\$0.089	\$0.082	\$0.067	\$0.142	\$226.01
	\$0.095	\$0.088	\$0.074	\$0.149	\$237.53
	\$0.090	\$0.083	\$0.069	\$0.144	\$267.33
	\$0.092	\$0.085	\$0.071	\$0.146	\$268.34
	\$0.091	\$0.084	\$0.069	\$0.145	\$279.52
	\$0.090	\$0.083	\$0.069	\$0.144	\$284.94
	\$0.089	\$0.082	\$0.067	\$0.142	\$291.03
\$0.094	\$0.087	\$0.072	\$0.147	\$299.84	

Table A4: Estimated Annual Cost Savings in Terms of Fuel Consumption (Arranged in Ascending Order).

Vehicle Type		Estimated Annual Savings			
		Compared to CV	Compared to DV	Compared to CNG	Compared to E85
Gasoline Vehicles (CV)		-	-\$83.64	-\$249.56	\$220.41
Diesel Vehicles (DV)		\$83.64	-	-\$165.92	\$304.04
Compressed Natural Gas Vehicles (CNG)		\$249.56	\$165.92	-	\$469.96
Ethanol Vehicles (E-85)		-\$220.41	-\$304.04	-\$469.96	-
EV	NPPD - e	\$970.78	\$887.14	\$721.22	\$1,191.18
	NPPD - g	\$962.03	\$878.39	\$712.47	\$1,182.44
	Nebraska City	\$992.14	\$908.50	\$742.58	\$1,212.54
	Fremont	\$1,014.79	\$931.16	\$765.24	\$1,235.20
	NPPD - f	\$1,016.23	\$932.59	\$766.67	\$1,236.63
	NPPD - d	\$1,027.70	\$944.06	\$778.14	\$1,248.10
	NPPD - a	\$1,099.35	\$1,015.72	\$849.80	\$1,319.76
	OPPD	\$1,043.90	\$960.26	\$794.34	\$1,264.30
	NPPD - c	\$1,067.55	\$983.92	\$818.00	\$1,287.96
	NPPD - b	\$1,052.64	\$969.01	\$803.09	\$1,273.05
	Hastings	\$1,041.17	\$957.54	\$791.62	\$1,261.58
	NPPD-h	\$1,027.41	\$943.77	\$777.85	\$1,247.81
	LES	\$1,084.18	\$1,000.55	\$834.63	\$1,304.59

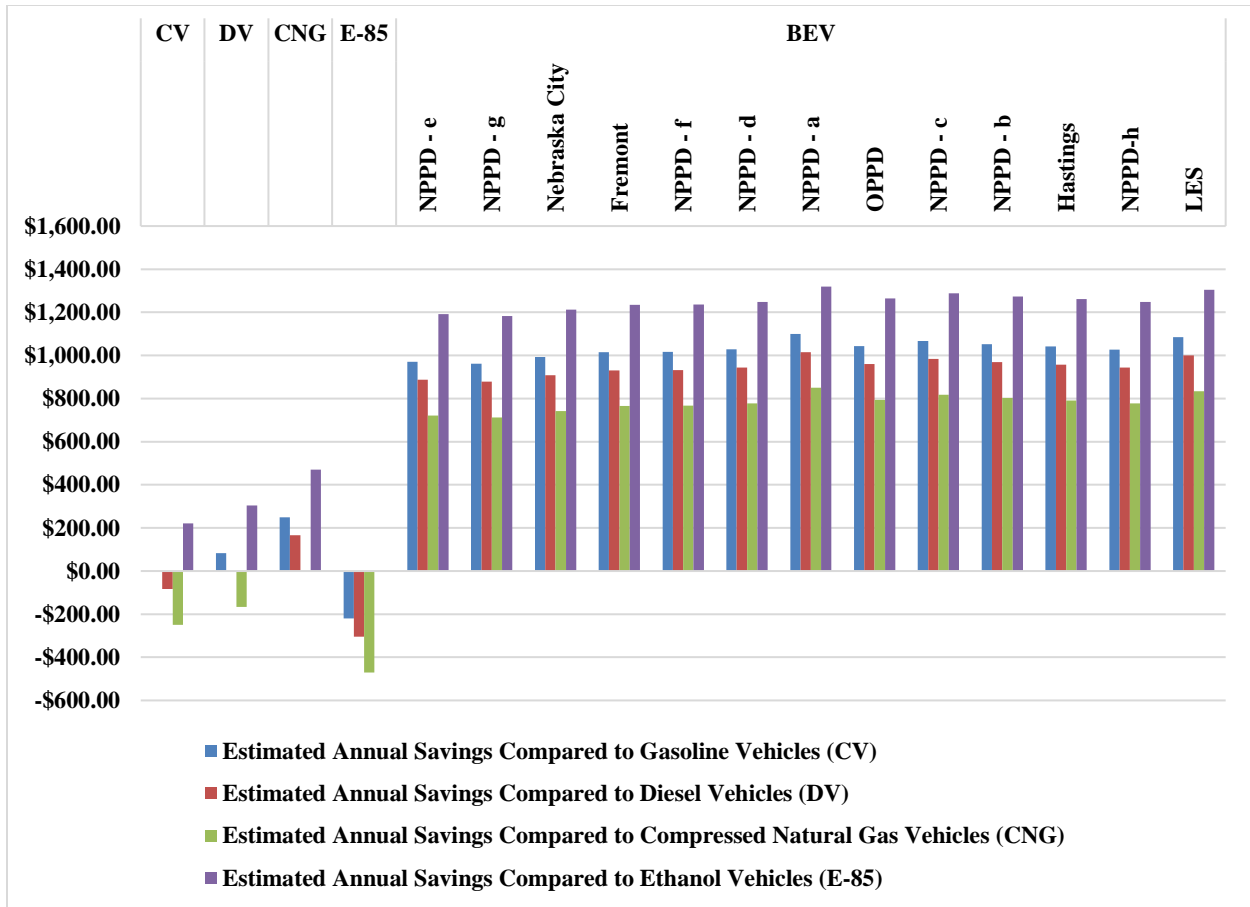


Figure A1. Estimated Annual Cost Savings in Terms of Fuel Consumption Arranged in Ascending Order.

Table A5 shows the cost savings in terms of varying fuel (gasoline, diesel, CNG, and Ethanol) prices. This analysis is performed on a price range of \$1.50 to \$4.00 in 50 cent increments. The cost per kWh considered is the average of the kWh prices shown in Table A1 (\$0.08904 per kWh). The results for CNG and Gasoline fuel will be the same as their fuel economy is equal in terms of GGE [29]. Figure A2 provides a visual representation of Table A5.

Table A5: Estimated Annual Cost Savings When Using an EV Against Varying Fuel Prices.

Cost of Fuel	Estimated Annual Savings in Fuel Cost when using a EV		
	Compared to CV & CNG	Compared to DV	Compared to E85
\$1.50	\$418.93	\$335.65	\$691.66
\$2.00	\$643.75	\$532.72	\$1,007.40
\$2.50	\$868.58	\$729.79	\$1,323.14
\$3.00	\$1,093.40	\$926.85	\$1,638.88
\$3.50	\$1,318.23	\$1,123.92	\$1,954.61
\$4.00	\$1,543.05	\$1,320.99	\$2,270.35

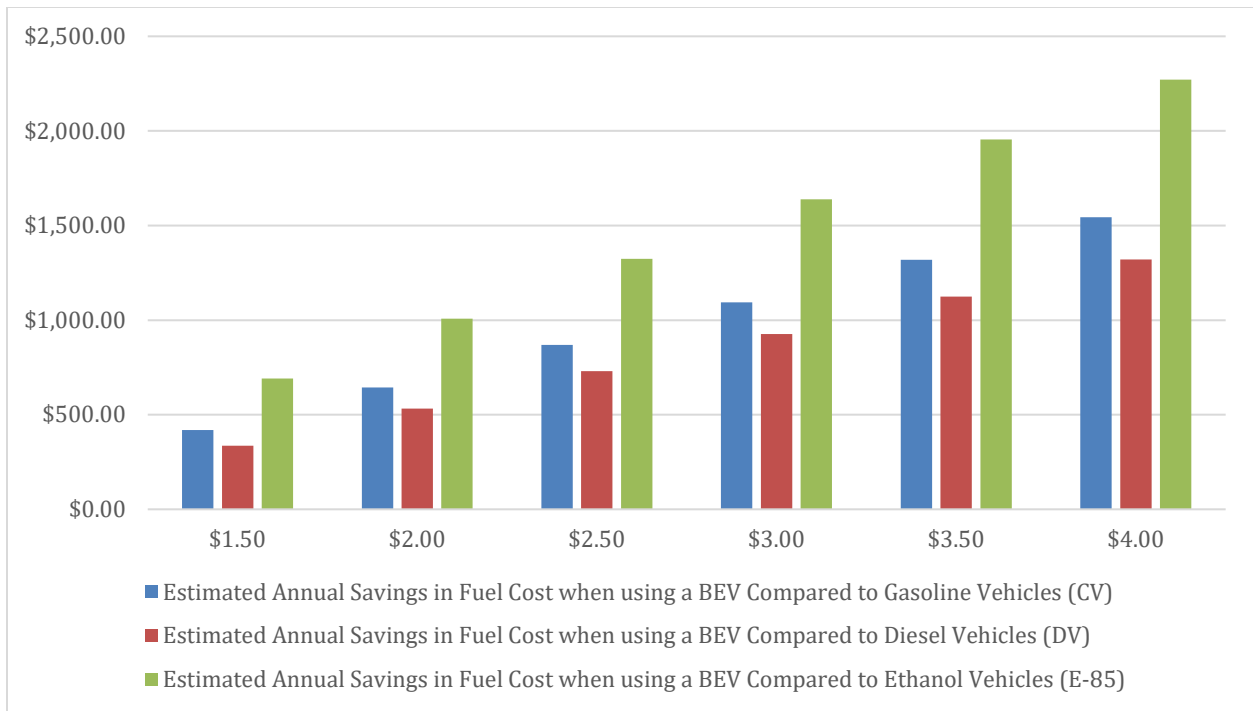


Figure A2: Estimated Annual Cost Savings When Using an EV Against Varying Fuel Prices.

3.3. Economic Benefits due to Other Factors Affecting Each Fuel Type

In addition to the fuel savings, additional cost savings for EVs are attributed to vehicle maintenance requirements. Table A6 shows the average maintenance cost for each type of vehicle and calculates the yearly savings for the DV and EV over the CV.

Table A6: Estimated Maintenance Costs and Savings for a Given Year.

	Gasoline Vehicles (CV)	Diesel Vehicles (DV)	Ethanol Vehicles (E-85)	Electric Vehicles (EV)
Maintenance Cost per mile	\$0.0610	\$0.0610	\$0.0610	\$0.0260
Estimated Annual Maintenance Cost	\$705.77	\$705.77	\$705.77	\$300.82
Savings over CV per year	-	\$0.00	\$0.00	\$404.95

3.4. Total Economic Benefits

Table A7 and Figure A3 show the total combined fuel and maintenance cost savings for the three types of vehicles (CV, DV, and EV) arranged in ascending order. The red shading represents no savings (negative savings) and the green shading represents positive savings. Conventional vehicle maintenance cost is \$0.061 per mile; maintenance cost for EV is \$0.026 per mile based on 2018 data found in [32].

Table A7: Estimated Total Annual Cost Savings Arranged in Ascending Order

	Total Cost Per Mile	Total Savings per Mile			Estimated Total Annual Cost Savings			
		Over CV	Over DV	E85	Over CV	Over DV	E85	
Gasoline Vehicles (CV)	\$0.1733	-	-\$0.0072	-\$0.0216	-	-\$83.64	-\$249.56	
Diesel Vehicles (DV)	\$0.1660	\$0.007	-	-\$0.0144	\$83.64	-	-\$165.92	
Ethanol Vehicles (E-85)	\$0.1517	\$0.022	\$0.0144		\$249.56	\$165.92	-	
EV	Lexington (NPPD – e)	\$0.0543	\$0.119	\$0.1118	\$0.0974	\$1,375.24	\$1,291.60	\$1,125.68
	Wayne (NPPD – g)	\$0.0550	\$0.118	\$0.1110	\$0.0967	\$1,366.49	\$1,282.85	\$1,116.93
	Nebraska City	\$0.0524	\$0.121	\$0.1136	\$0.0993	\$1,396.60	\$1,312.96	\$1,147.04
	Fremont	\$0.0504	\$0.123	\$0.1156	\$0.1012	\$1,419.25	\$1,335.62	\$1,169.70
	Seward (NPPD – f)	\$0.0503	\$0.123	\$0.1157	\$0.1013	\$1,420.69	\$1,337.05	\$1,171.13
	Holdrege (NPPD – d)	\$0.0493	\$0.124	\$0.1167	\$0.1023	\$1,432.16	\$1,348.52	\$1,182.60
	Auburn Board of Public Works (NPPD – h)	\$0.0431	\$0.130	\$0.1229	\$0.1085	\$1,503.81	\$1,420.18	\$1,254.26
	Central City, Dakota County, Kearney, South Sioux City (NPPD – b)	\$0.0479	\$0.125	\$0.1181	\$0.1037	\$1,448.36	\$1,364.72	\$1,198.80
	Ashland, Bellevue, Gretna, MCC, OPPD, UNO, Valley (OPPD)	\$0.0459	\$0.127	\$0.1201	\$0.1058	\$1,472.01	\$1,388.38	\$1,222.46
	Allen (NPPD – a)	\$0.0472	\$0.126	\$0.1189	\$0.1045	\$1,457.10	\$1,373.47	\$1,207.55
	Gothenburg (NPPD – c)	\$0.0482	\$0.125	\$0.1179	\$0.1035	\$1,445.63	\$1,362.00	\$1,196.08
	Hastings	\$0.0493	\$0.124	\$0.1167	\$0.1023	\$1,431.87	\$1,348.23	\$1,182.31
Ferguson House, LES, Lincoln (LES)	\$0.0444	\$0.129	\$0.1216	\$0.1072	\$1,488.64	\$1,405.01	\$1,239.09	

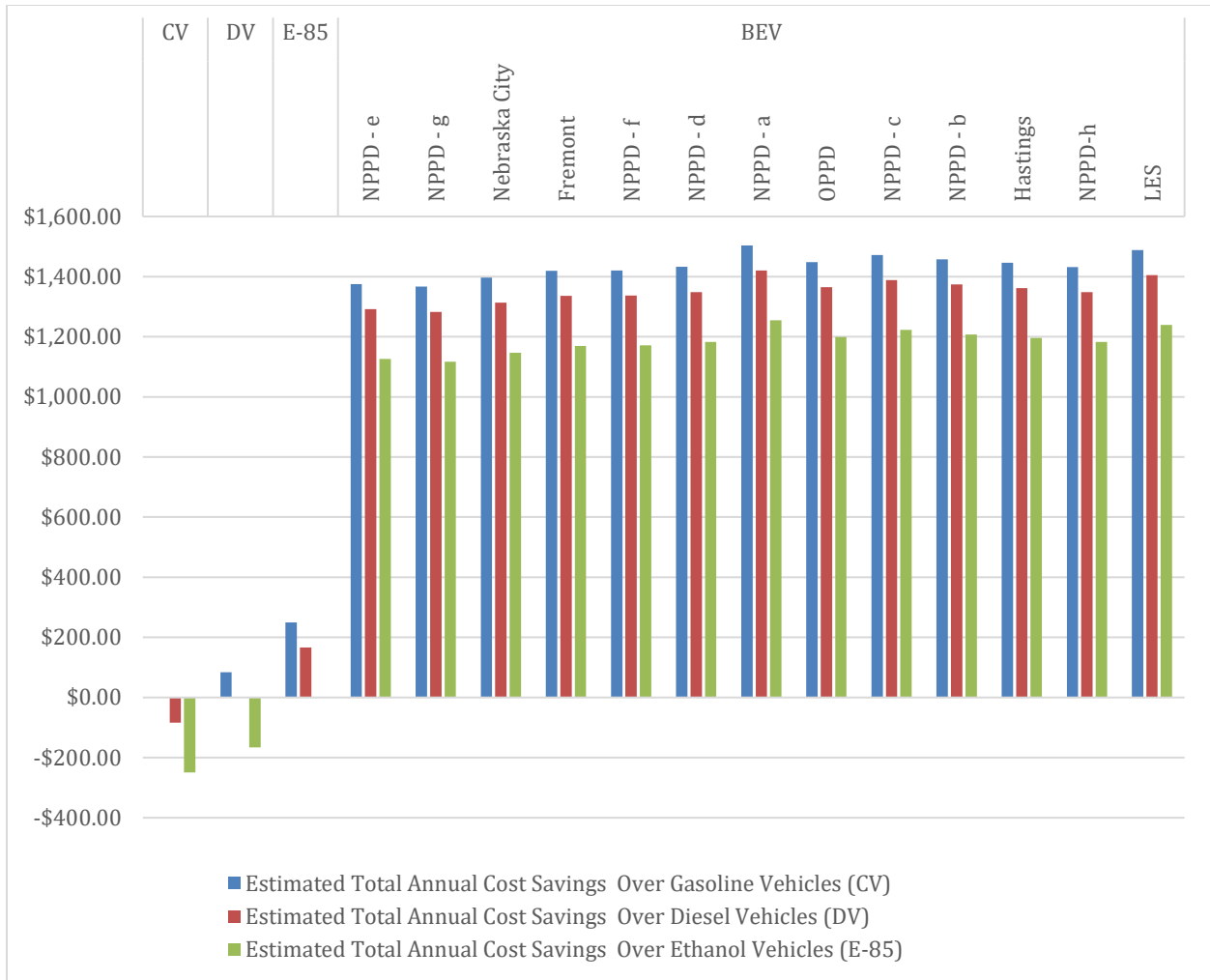


Figure A3: Estimated Total Annual Cost Savings When Using an EV Over a CV, DV, and E-85.

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4. Appendix B: Detailed Economic Analysis – Utility/Residential

4.1. Introduction

The following two types of vehicles are investigated in this report:

- CV – Conventional vehicles running on gasoline fuel.
- EV – Electric Vehicles (all electric) running on electricity.

4.2. Economic Benefits due to Fuel Type Price Differences

Data calculations are based on the following average prices and assumptions:

- Gas price of \$2.89 per gallon (Regular unleaded, based on 2021 monthly Nebraska state average [1]).
- Electricity prices depend on the current rate charged by the electric utility provider serving the participating members in this study. The electric utility provider is
 - Omaha Public Power District (OPPD)

Table B1 shows the fuel economy of the different vehicle types and the cost for driving one mile. The cost of fuel for the EV vehicle is based on the price per kWh calculated by averaging the summer and winter rates.

The following fuel economy values are used:

- CV vehicles: 25.70 mpg, Average fuel economy for the model year 2020 = 25.7 mpg [2].
- EV vehicle: 4.03 miles per kWh, based on the combined fuel economy average (city and highway) of all the vehicle types (make and model) published in the Fuel Economy Guide for the year 2020 [3].

Table B1: Cost of Driving One Mile for Both Vehicle Types.

Vehicle Type		Cost of Fuel	Combined Fuel Economy	Cost per mile
Gasoline Vehicles (CV)		\$2.89	25.7 mpg	\$0.1124
Electric Vehicles (EV)	(OPPD)	\$0.0884	4.03 miles per kWh	\$0.0219

Table B2 shows the cost savings in terms of varying fuel prices. This analysis is performed on a price range of \$1.50 to \$4.00 in 50 cent increments. The cost per kWh considered is the average of the kWh prices for NCEA participating members (\$0.08911 per kWh).

Table B 2: Estimated Annual Cost Savings When Using an EV Against Varying Fuel Prices.

Cost of Fuel	Estimated Annual Savings in Fuel Cost when using a EV Compared to a CV
\$1.50	\$418.93
\$2.00	\$643.75
\$2.50	\$868.58
\$3.00	\$1,093.40
\$3.50	\$1,318.23
\$4.00	\$1,543.05

4.3. Economic Benefits Due to Other Factors Effecting Each Fuel Type

In addition to the fuel savings, additional cost savings for EVs are attributed to vehicle maintenance requirements. Table B3 shows the average maintenance cost for each type of vehicle and calculates the yearly savings for EV over the CV. Conventional vehicle maintenance cost is \$0.061 per mile; maintenance cost for EV is \$0.026 per mile based on 2020 data found in [4].

Table B3: Estimated Maintenance Costs and Savings for a Given Year.

	Gasoline Vehicles (CV)	Electric Vehicles (EV)
Maintenance Cost per mile	\$0.0610	\$0.0260
Estimated Annual Maintenance Cost	\$705.77	\$300.82
Savings over CV per year	-	\$404.95

4.4. Total Economic Benefits

Table B4 shows the total combined fuel and maintenance cost savings for the two types of vehicles.

Table B4: Estimated Total Annual Cost Savings.

	Total Cost Per Mile	Total Savings per mile		Estimated Total Annual Cost Savings
		Over CV	Over DV	Over CV
Gasoline Vehicles (CV)	\$0.1733	-	-\$0.0072	-
Electric Vehicles (EV)	(OPPD) \$0.0479	\$0.125	\$0.1181	\$1,448.36

4.5. References

- [1] Nebraska Government, "Average Monthly Retail Motor Gasoline Prices in Nebraska," *Nebraska's Monthly Motor Gasoline Prices*. [Online]. Available: http://www.neo.ne.gov/statshtml/97.htm#regular_unleaded. [Accessed: 21-Feb-2022].
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5. Appendix C: Detailed Environmental Emissions Data Analysis – Commercial and Utility/Residential

5.1. Introduction

The following five types of vehicles are investigated in this report:

- **CV** – Conventional vehicles running on gasoline fuel.
- **DV** – Conventional vehicles running on diesel fuel.
- **CNG** – Trucks running on compressed natural gas (CNG) fuel.
- **Ethanol (E85)**- Conventional vehicles running on Ethanol (E85) fuel.
- **EV** – Electric Vehicles (all electric) running on electricity.

With respect to Electric Vehicles (EVs), the calculations are based on how the electricity is generated (what primary energy sources are used in this production and their percentages). There are seven electric utility providers serving the participating members:

- Fremont Utilities
- City of Hastings Utilities
- Lincoln Electric System (LES)
- Nebraska City Utilities
- Nebraska Public Power District (NPPD)
- Omaha Public Power District (OPPD)
- City of Wayne Electric Distribution system

With respect to the utility/residential report the following two types of vehicles are investigated:

- **CV** – Conventional vehicles running on gasoline fuel.
- **EV** – Electric Vehicles (all electric) running on electricity.

With respect to Electric Vehicles (EVs), the calculations are based on how the electricity is generated (what primary energy sources are used in this production and their percentages). This resource mix is determined for each utilities using available information from the utilities and their respective Integrated Resource Plan (IRP).

The report looks into current primary energy sources in use for the generation of electricity by each electric utility provider. Emission from each utility is shown based on the resource mix, and the emissions data as per the eGRID 2020 tool published by the U.S. Environmental Protection Agency (EPA) [1]. eGRID provides a detailed information on the following:

- Emissions Profile: This covers nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and mercury (Hg). (Hg emissions are available prior to year 2007).
- Generating plant identification and location information.

The current version of this tool, uploaded in Jan-2022, provides real-time emissions and generation data for 2020. Emission calculations considers all the generating resources for each resource category for each individual utility.

5.2. Greenhouse Gas Definitions

A greenhouse gas (GHG) is a gas that contributes to the greenhouse effect by infrared radiation produced by solar warming of the earth's surface. The following information provides a definition of each type of GHG emission and detailed analysis of how these GHG emissions are calculated along with supporting references.

5.2.1. Carbon Dioxide Equivalent (CO₂e)

The CO₂ equivalent gives a total emissions factor for the three most dominant greenhouse gasses, CO₂, CH₄, and N₂O. Each of the three gasses is multiplied by its global warming potential (GWP) shown below which accounts for the overall effect of each gas on global warming [2]. For example, CH₄ has a GWP of 25 which means that one gram of CH₄ has the same effect on global warming as 25 grams of CO₂ over a period of a hundred years. Certain gasses are more harmful in the short term or in the long term, so the 100-year value is usually used as a good average. The equation below shows the formula for calculating CO₂ equivalent emissions.

	100-year GWP value
Carbon Dioxide (CO ₂)	1
Methane (CH ₄)	25
Nitrous Oxide (N ₂ O)	298

$$\text{CO}_2\text{e} = 1 \cdot \text{CO}_2 \text{ emissions} + 25 \cdot \text{CH}_4 \text{ emissions} + 298 \cdot \text{N}_2\text{O emissions}$$

Carbon Dioxide (CO₂)

Carbon dioxide is the most common greenhouse gas and makes up 81% of all GHG emissions [3]. The majority of CO₂ emissions come directly from electricity generation, transportation, and industry while a smaller fraction comes indirectly from deforestation, increased agriculture, and other activities that reduce the amount of natural land.

Methane (CH₄)

Methane is the second most common greenhouse gas at 10% of all emissions [3], and is also the main component of natural gas. When released into the atmosphere it reacts to form CH₃ and water vapor which is the most potent of greenhouse gasses. Methane is far worse in the short term with a 20-year GWP of 84. The long term GWP of methane is 28.

Nitrous Oxide (N₂O)

Nitrous oxide is the third most common greenhouse gas at 6% of all GHG emissions [3]. N₂O reacts with the air to produce nitric oxide (NO) which then reacts with the ozone layer. N₂O is extremely potent and has a GWP factor 265 times that of CO₂.

5.2.2. Other Harmful Gases Emitted as a By-product of Electricity Generation

Carbon Monoxide (CO)

Carbon monoxide is a very weak direct greenhouse gas, but has important indirect effects on global warming. CO reacts with hydroxyl (OH) radicals in the atmosphere, reducing their abundance.

Sulfur Dioxide (SO₂)

Exposure to sulfur dioxide can have significant impacts to the human respiratory system. Short term exposure to SO₂ can make breathing difficult and the effect is worse for children, the elderly, and those with asthma. SO₂ also contributes to formation of acid rain.

Nitrogen Oxides (NO_x)

Nitrogen oxides can also cause breathing problems for healthy people and especially for those with asthma. The EPA measured that NO_x concentrations inside vehicles can be 2-3 times higher than at locations away from roadways. Nitrogen oxides also react in the air to produce smog and acid rain.

Volatile Organic Compounds (VOC)

Volatile organic compounds cause many problems as indoor and outdoor air pollutants. Outdoor VOC emissions can create photochemical smog. VOCs are any compound of carbon, not including carbon dioxide, carbon monoxide, carbonic acid, metallic carbides, and ammonium carbonate.

5.3. Greenhouse Gas Emissions Summary - Commercial and Utility/Residential

The following sections, starting on the next page, provide general information on each electric utility provider and a summary of the associated greenhouse gas emissions for each of the vehicle types.

a. Omaha Public Power District (OPPD) - Commercial

Omaha Public Power District is a publicly owned electric utility that serves a population of 849,000 people, and is the 12th largest public power utility in the U.S. While its headquarters is located in Omaha, Nebraska, OPPD has several other locations in its 13-county, 5,000-square-mile service area in southeast Nebraska. Current fuel sources for generation include low-sulfur coal, wind, landfill gas, natural gas and fuel oil, and hydroelectric [4]. The North Omaha Station and Nebraska City Station burn low-sulfur coal, and units for each station were retrofitted with emission control systems in 2016. Three peaking plants are fueled by natural gas and fuel oil, including Cass County Station, Jones Street Station, and Sarpy County Station. The Elk City Station uses methane and other gases from decomposing trash in the Douglas County Landfill. With the stations, OPPD also has purchase power agreements with eight wind facilities in Nebraska. OPPD retired the nuclear-powered Fort Calhoun Station, and ceased generation on Oct 24th, 2016 with completed defueling outage in Oct- 2016.

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Table C1 and C2 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C1: Greenhouse Gas Emissions (Grams per Mile) for OPPD Utility Company.

	CV	E85	DV	CNG	EV
					OPPD (30% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	212.590
CO2	354.06	343.44	357.57	280.08	211.041
CO	2.8611	2.7	2.7362	2.7	0.200
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.023
N2O	0.0016	0.0085	0.0203	0.0085	0.003
NOx	0.12	0.12	0.2324	0.12	0.166
SO2	0.0042	0.0006	0.002	0.0012	0.324
VOC	0.1684	0.22	0.0722	0.17	0.002

Table C2: Greenhouse Gas Emissions in lbs. for One Year

	CV	E85	DV	CNG	EV
					OPPD (30% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	5,399.776
CO2	9020.259	8749.697	9109.682	7135.497	5,360.436
CO	72.891	68.787	69.709	68.787	5.088
CH4 (Methane)	0.171	0.255	0.754	2.611	0.578
N2O	0.041	0.217	0.517	0.217	0.083
NOx	3.057	3.057	5.921	3.057	4.205
SO2	0.107	0.015	0.051	0.031	8.224
VOC	4.290	5.605	1.839	4.331	0.061

b. Omaha Public Power District (OPPD) – Utility/Residential

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Table C3 and C4 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C3: Greenhouse Gas Emissions (Grams Per Mile) for OPPD Utility Company.

	CV	EV
		OPPD (30% Renewable)
CO2 Equiv.	354.69	212.590
CO2	354.06	211.041
CO	2.8611	0.200
CH4 (Methane)	0.0067	0.023
N2O	0.0016	0.003
NOx	0.12	0.166
SO2	0.0042	0.324
VOC	0.1684	0.002

Table C4: Greenhouse Gas Emissions in lbs. for One Year.

	CV	EV
		OPPD (30% Renewable)
CO2 Equiv.	9036.309	5,399.776
CO2	9020.259	5,360.436
CO	72.891	5.088
CH4 (Methane)	0.171	0.578
N2O	0.041	0.083
NOx	3.057	4.205
SO2	0.107	8.224
VOC	4.290	0.061

c. Nebraska Public Power District (NPPD)

NPPD's revenue is mainly derived from wholesale power supply agreements with 46 municipalities and 24 rural public power districts and rural cooperatives who rely totally or partially on NPPD's electrical system. NPPD also serves about The NPPD electrical grid system delivers power to about 600,000 Nebraskans [6]. NPPD owns or has operating control of 24 generating facilities, and their current fuel sources include coal, nuclear, natural gas and oil, hydropower, wind and solar. They have two low-sulfur coal stations including Gerald Gentleman Station and Sheldon Station. Their natural gas facilities include the Beatrice Power Station and Canaday Station. There are three oil peaking units located in Hallam, Hebron, and McCook. Wind is supplied from eight facilities located in Nebraska. NPPD operates three hydroelectric generators located in North Platte, Kearney, and Spencer [7].

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C5 and C6 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C5: Greenhouse Gas Emissions Factors (Grams Per Mile) for NPPD Utility Company.

	CV	E85	DV	CNG	EV
					NPPD (22% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	78.266
CO2	354.06	343.44	357.57	280.08	77.730
CO	2.8611	2.7	2.7362	2.7	0.070
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.008
N2O	0.0016	0.0085	0.0203	0.0085	0.001
NOx	0.12	0.12	0.2324	0.12	0.119
SO2	0.0042	0.0006	0.002	0.0012	0.171
VOC	0.1684	0.22	0.0722	0.17	0.001

Table C6: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					NPPD (22% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	1,987.949
CO2	9020.259	8749.697	9109.682	7135.497	1,974.353
CO	72.891	68.787	69.709	68.787	1.772
CH4 (Methane)	0.171	0.255	0.754	2.611	0.199
N2O	0.041	0.217	0.517	0.217	0.029
NOx	3.057	3.057	5.921	3.057	3.011
SO2	0.107	0.015	0.051	0.031	4.334
VOC	4.290	5.605	1.839	4.331	0.027

d. Lincoln Electric System (LES)

LES services approximately 200 square miles within Lancaster County in Nebraska, comprising the cities of Lincoln, Prairie Home, Waverly, Walton, Cheney, and Emerald. Approximately 136,000 retail customers. Their fuel sources include coal, natural gas, landfill gas, hydropower, wind, and solar. LES owns the coal-powered Laramie River Station, and is a part owner of the Walter Scott, Jr. Energy Center Unit 4. They are currently under a purchase agreement with NPPD for part of the output from Gerald Gentleman Stations. LES has three natural gas stations including 8th & J, Rokeby, and Terry Bundy Stations. Their 5-MW landfill gas facility was completed in 2014 from the Bluff Road Landfill. They also purchase hydropower through Western Area Power Administration, and they are in a power purchase agreement to receive wind power from seven facilities located in Nebraska, Oklahoma, and Kansas. LES has their own wind generators capable of generating 1 MW. They also launched their SunShares program in Jul-2014 to allow customers to voluntarily support a local community solar project, and the 5-MW project was finished in Jun-2016 [8].

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C7 and C8 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are in Appendix D.

Table C7: Greenhouse Gas Emissions Factors (Grams Per Mile) for LES Utility Company.

	CV	E85	DV	CNG	EV
					LES (34% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	305.675
CO2	354.06	343.44	357.57	280.08	304.845
CO	2.8611	2.7	2.7362	2.7	0.111
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.012
N2O	0.0016	0.0085	0.0203	0.0085	0.002
NOx	0.12	0.12	0.2324	0.12	1.080
SO2	0.0042	0.0006	0.002	0.0012	0.120
VOC	0.1684	0.22	0.0722	0.17	0.003

Table C8: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					LES (34% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	7,764.140
CO2	9020.259	8749.697	9109.682	7135.497	7,743.074
CO	72.891	68.787	69.709	68.787	2.817
CH4 (Methane)	0.171	0.255	0.754	2.611	0.316
N2O	0.041	0.217	0.517	0.217	0.044
NOx	3.057	3.057	5.921	3.057	27.438
SO2	0.107	0.015	0.051	0.031	3.050
VOC	4.290	5.605	1.839	4.331	0.070

e. Fremont Utilities

The Fremont Electric Service Area covers 60 square miles including the City of Fremont and the surrounding Area. The electric division provides power to 14,210 homes and businesses. The Lon D. Wright Power Plant at First and Luther Road is the utility's power production facility, and it is staffed by three shifts 24-hours a day to provide our customers economical, safe, and reliable electric service.

The coal fired plant located on the east side of Fremont has three units producing 16.5, 22, and 91.5 megawatts respectively. Each year the plant uses approximately 370,000 ton of coal to produce about 620,128 megawatt hours of electricity [9].

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C9 and C10 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C9: Greenhouse Gas Emissions Factors (Grams Per Mile) for Fremont Utility Company.

	CV	E85	DV	CNG	EV
					Fremont (22% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	118.401
CO2	354.06	343.44	357.57	280.08	117.040
CO	2.8611	2.7	2.7362	2.7	0.185
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.020
N2O	0.0016	0.0085	0.0203	0.0085	0.003
NOx	0.12	0.12	0.2324	0.12	0.120
SO2	0.0042	0.0006	0.002	0.0012	0.202
VOC	0.1684	0.22	0.0722	0.17	0.003

Table C10: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					Fremont (22% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	3,007.394
CO2	9020.259	8749.697	9109.682	7135.497	2,972.809
CO	72.891	68.787	69.709	68.787	4.708
CH4 (Methane)	0.171	0.255	0.754	2.611	0.504
N2O	0.041	0.217	0.517	0.217	0.074
NOx	3.057	3.057	5.921	3.057	3.048
SO2	0.107	0.015	0.051	0.031	5.135
VOC	4.290	5.605	1.839	4.331	0.074

f. City of Hastings Utilities

Hastings Utilities serves 56 square miles, including the city of Hastings and the village of Juniata. Most electricity is generated by the coal-fired Gerald T. Whelan Energy Center. The rest of the generation is provided by the Don Henry Power Center and the North Denver Station. The Don Henry Power Center operates primarily on natural gas, and at times fuel oil. The North Denver Station has two natural gas fired generators. The largest peak demand for Hastings Utilities was 100.7 MW in Jul-2005, but they are capable of producing approximately 135 MW. Any electricity generation that goes beyond local needs can be sold on the wholesale market, and the sales revenues help to keep local electric rates down. [10]

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C11 and C12 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C11: Greenhouse Gas Emissions Factors (Grams Per Mile) for Hastings Utility Company.

	CV	E85	DV	CNG	EV
					Hastings (7% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	319.767
CO2	354.06	343.44	357.57	280.08	317.731
CO	2.8611	2.7	2.7362	2.7	0.197
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.030
N2O	0.0016	0.0085	0.0203	0.0085	0.004
NOx	0.12	0.12	0.2324	0.12	0.357
SO2	0.0042	0.0006	0.002	0.0012	0.363
VOC	0.1684	0.22	0.0722	0.17	0.004

Table C12: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					Hastings (7% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	8,122.071
CO2	9020.259	8749.697	9109.682	7135.497	8,070.380
CO	72.891	68.787	69.709	68.787	5.002
CH4 (Methane)	0.171	0.255	0.754	2.611	0.761
N2O	0.041	0.217	0.517	0.217	0.110
NOx	3.057	3.057	5.921	3.057	9.075
SO2	0.107	0.015	0.051	0.031	9.225
VOC	4.290	5.605	1.839	4.331	0.092

g. Nebraska City Utilities

Nebraska City Utilities provides electric, natural gas, water and waste water service to Nebraska City and electric and natural gas service to several communities in the area. It maintains three natural gas fired power plants to serve its peaking needs as necessary and in time of grid outages. Nebraska City Utilities also has a 1.67% participation or approximately 10 MW in the OPPD Unit2 just directly south of Nebraska City. This coal fired unit is capable of producing 670 MW and went on-line in 2009. Nebraska City Utilities also has a 4.55% participation in the Public Power Generation Agency's Hastings NE WEC-2 Unit scheduled to be commercial in Feb-2011. For Projects outside the jurisdiction of the Nebraska City Utilities, Omaha Public Power District is the electric provider. Nebraska City Utilities and Omaha Public Power District are collaborative partners for projects requiring large sources or redundant power. [11]

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C13 and C14 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C13: Greenhouse Gas Emissions Factors (Grams Per Mile) for Nebraska City Utilities.

	CV	E85	DV	CNG	EV
					Nebraska City (24% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	247.564
CO2	354.06	343.44	357.57	280.08	245.615
CO	2.8611	2.7	2.7362	2.7	0.223
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.029
N2O	0.0016	0.0085	0.0203	0.0085	0.004
NOx	0.12	0.12	0.2324	0.12	0.140
SO2	0.0042	0.0006	0.002	0.0012	0.003
VOC	0.1684	0.22	0.0722	0.17	0.001

Table C14: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					Nebraska City (24% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	6,288.128
CO2	9020.259	8749.697	9109.682	7135.497	6,238.630
CO	72.891	68.787	69.709	68.787	5.673
CH4 (Methane)	0.171	0.255	0.754	2.611	0.725
N2O	0.041	0.217	0.517	0.217	0.105
NOx	3.057	3.057	5.921	3.057	3.552
SO2	0.107	0.015	0.051	0.031	0.065
VOC	4.290	5.605	1.839	4.331	0.028

h. City of Wayne Electric Distribution system

20% of Wayne's power requirements are supplied from the Western Area Power Administration (WAPA) from hydro power, 15% from a power purchase agreement with Nextera Energy from wind resource, 10% from Nebraska Public Power District (NPPD) from coal resource and the remaining power comes from Big Rivers Electric Corp. based out of Henderson, Kentucky from coal resource [12].

The resource mix is estimated, and emissions are calculated from eGRID 2020 power plant data tool [1]. Tables C15 and C16 provide a summary of GHG emissions for each vehicle type based on the primary energy source used for driving one mile and for driving 11,556 miles annually [5]. Detailed calculations are provided in Appendix D.

Table C15: Greenhouse Gas Emissions Factors (Grams per Mile) for Wayne Electric Distribution system.

	CV	E85	DV	CNG	EV
					Wayne (35% Renewable)
CO2 Equiv.	354.69	346.22	364.36	285.18	208.002
CO2	354.06	343.44	357.57	280.08	206.370
CO	2.8611	2.7	2.7362	2.7	0.191
CH4 (Methane)	0.0067	0.01	0.0296	0.1025	0.024
N2O	0.0016	0.0085	0.0203	0.0085	0.003
NOx	0.12	0.12	0.2324	0.12	0.185
SO2	0.0042	0.0006	0.002	0.0012	0.358
VOC	0.1684	0.22	0.0722	0.17	0.002

Table C16: Greenhouse Gas Emissions in lbs. for One Year.

	CV	E85	DV	CNG	EV
					Wayne (35% Renewable)
CO2 Equiv.	9036.309	8820.522	9282.668	7265.428	5,283.260
CO2	9020.259	8749.697	9109.682	7135.497	5,241.797
CO	72.891	68.787	69.709	68.787	4.840
CH4 (Methane)	0.171	0.255	0.754	2.611	0.607
N2O	0.041	0.217	0.517	0.217	0.088
NOx	3.057	3.057	5.921	3.057	4.703
SO2	0.107	0.015	0.051	0.031	9.084
VOC	4.290	5.605	1.839	4.331	0.055

5.4. References

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6. Appendix D. Detailed Greenhouse Gas Calculations

6.1. Conventional Vehicle (CV)

Carbon Dioxide (CO₂) Emissions

The EPA has stated that burning 1 gallon of gasoline emits 8,887 grams of CO₂ emissions. [1]

CO₂ emissions from burning 1 gallon of gasoline = 8,887 grams

Average fuel economy for the model year 2020 = 25.7 mpg [3]

CO₂ emissions per mile = $8,887 / 25.7 = 345.798$ grams CO₂ per mile

Methane (CH₄) Emissions

Methane emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion CH₄ emission factors for on-road gasoline vehicles for model year 2020 is 0.0052 g of CH₄ per mile [4].

Nitrous Oxide (N₂O) Emissions

Nitrous Oxide emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion N₂O emission factors for on-road gasoline vehicles for model year 2018 is 0.0016 g of N₂O per mile [4].

Carbon Monoxide (CO) Emissions

A 2013 report by Argonne National Laboratory uses a lifetime mileage-weighted average air pollutant emission factors for gasoline passenger cars for model years 1990–2020 to estimate the CO emission factors for 2018 to be 2.8611 g of CO per mile [5].

Sulfur Dioxide (SO₂) Emissions

Using the same 2013 report by Argonne National Laboratory, the SO₂ emission factor for model year 2018 is estimated to be 0.0042 g of SO₂ per mile [5].

Nitrogen Oxides (NO_x) Emissions

Using the same 2013 report by Argonne National Laboratory, the NO_x emission factor for model year 2018 is estimated to be **0.12 g of NO_x per mile** [5].

Volatile Organic Compound (VOC) Emissions

The VOC emission factors were estimated in the 2013 report by Argonne National Laboratory, including the exhaust and evaporation separately.

Model Year	VOC, exhaust (g/mile)	VOC, evaporation	Total
2018	0.1078	0.0604	0.1684

The total emission factor is **0.1684 g of VOC per mile** [5].

Carbon Dioxide Equivalent Emissions

Using the individual emissions values calculated above, CVs have a CO₂ equivalent emissions rate of: CO₂ Equivalent = 1*CO₂ emissions + 25*CH₄ emissions + 298*N₂O emissions

$$\begin{aligned}
 &= (1*345.798 \text{ g}) + (25*0.0052 \text{ g}) + (298*0.0016 \text{ g}) \\
 &= 346.40 \text{ g}
 \end{aligned}$$

6.2. Diesel Vehicle (DV)

Carbon Dioxide (CO₂) Emissions

For CO₂ emissions from burning a gallon of diesel = 10,180 CO₂/gallon [1]

For the model year 2018, the average mileage for a diesel vehicle is 29.32 mpg. [2]

CO₂ emissions per mile = 10,180 / 29.32 = **347.20 g of CO₂ per mile**

Methane (CH₄) Emissions

Methane emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion CH₄ emission factors for on-road diesel vehicles for model year 2007-2018 is **0.0302 g of CH₄ per mile** [4].

Nitrous Oxide (N₂O) Emissions

Nitrous Oxide emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion N₂O emission factors for on-road diesel vehicles for model year 2007-2018 is **0.0192 g of N₂O per mile** [4].

Carbon Monoxide (CO) Emissions

A 2013 report by Argonne National Laboratory uses a lifetime mileage-weighted average air pollutant emission factors for diesel passenger cars for model years 2001-2020 to estimate the CO emission factors for 2016 to be **2.7362 g of CO per mile** [5].

Nitrogen Oxides (NO_x) Emissions

Using the same 2013 report by Argonne National Laboratory, the NO_x emission factor for 2016 is estimated to be **0.2324 g of NO_x per mile** [5].

Sulfur Dioxide (SO₂) Emissions

Using the same 2013 report by Argonne National Laboratory, the SO₂ emission factor for 2016 is estimated to be **0.0020 g of SO₂ per mile** [5].

Volatile Organic Compound (VOC) Emissions

The VOC emission factors were estimated in the 2013 report by Argonne National Laboratory, including the exhaust and evaporation separately.

Model Year	VOC, exhaust (g/mile)	VOC, evaporation	Total
2018	0.0722	-----	0.0722

The total emission factor for is **0.0722 g of VOC per mile** [5].

Carbon Dioxide Equivalent (CO₂) Emissions

Using the individual emission rates calculated above, the CO₂ equivalent rate is:

$$\begin{aligned}
 \text{CO}_2 \text{ Equivalent} &= 1 \cdot \text{CO}_2 \text{ emissions} + 25 \cdot \text{CH}_4 \text{ emissions} + 298 \cdot \text{N}_2\text{O emissions} \\
 &= 1 \cdot 347.20 + 25 \cdot 0.0302 + 298 \cdot 0.0192 \\
 &= \mathbf{353.676 \text{ grams CO}_2 \text{ per mile.}}
 \end{aligned}$$

6.3. Compressed Natural Gas Vehicle (CNG)

Carbon Dioxide (CO₂) Emissions

Vehicles converted to CNG generally achieve a mpg equivalent similar to its mpg rating when running on gasoline; hence, the fuel economy used is similar to that of CV, 25.7 mpg. EPA's TRENDS for light-duty automotive technology, carbon dioxide emissions, and fuel economy trends: 1975 through 2016 reports the emission factor per gallon of gas equivalent as:

$$7030 \text{ g/gallon} / 25.7 = 273.54 \text{ g of CO}_2 \text{ per mile [6]}$$

Methane (CH₄) Emissions

Methane emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion CH₄ emission factors for CNG light-duty vehicles for model year 1996-present is **0.0820 g of CH₄ per mile** [4].

Nitrous Oxide (N₂O) Emissions

Nitrous Oxide emissions are based on emission factors for GHG Inventories, last modified on Mar 26th, 2020. Mobile Combustion N₂O emission factors for CNG light-duty vehicles for model year 1996-present is **0.0060 g of N₂O per mile** [4].

Carbon Monoxide (CO) Emissions

According to a 2015 pump-to-wheel simulation, a regular CNG vehicle emits **2.700 grams of CO per mile** [7].

Nitrogen Oxides (NO_x) Emissions

The same simulation found that CNG passenger vehicles emit **0.12 grams NO_x per mile**. [7]

Sulfur Dioxide (SO₂) Emissions

The same simulation found that CNG passenger vehicles emit **0.0012 grams SO₂ per mile**. [7]

Volatile Organic Compound (VOC) Emissions

The same simulation found that CNG passenger vehicles emit **0.17 grams VOC per mile**. [7]

Carbon Dioxide Equivalent (CO₂e) Emissions

Using the individual emissions values calculated above, CNG passenger vehicles have a CO₂ equivalent emissions rate of:

$$\begin{aligned}\text{CO}_2 \text{ Equivalent} &= 1 \cdot \text{CO}_2 \text{ emissions} + 25 \cdot \text{CH}_4 \text{ emissions} + 298 \cdot \text{N}_2\text{O emissions} \\ &= 1 \cdot 273.54 + 25 \cdot 0.0820 + 298 \cdot 0.0060 \\ &= \mathbf{277.378 \text{ grams CO}_2\text{e per mile.}\end{aligned}$$

6.4. Flexible Fuel Vehicles (FFVs) – E85

Carbon Dioxide (CO₂) Emissions

Flexible fuel vehicles (FFVs) can run on gasoline or gasoline-ethanol blends of up to 85% ethanol (E85). There are few engine and fuel system modifications, but mostly they are identical to gasoline-only models. The fuel economy used is 73% of the conventional vehicle (CV) fuel economy based on 25.7 mpg data. The fuel economy used in the calculations is 18.3 mpg. [9] EPA's TRENDS for light-duty automotive technology, carbon dioxide emissions, and fuel economy trends: 2019 reports the emission factor per gallon of gas equivalent as:

$$0.97 * 354.06 = 343.44 \text{ g of CO}_2 \text{ per mile [8]}$$

Alternate method to verify Carbon Dioxide (CO₂) Emissions

Office of Energy efficiency and Renewable energy, US DOE, publishes fuel economy and tail-pipe emissions for all cars in a model year [9]. To verify the calculations for miles per gallon and carbon emissions for a CV and E85 vehicle, the following table will help visualize the difference for the model year 2018.

Model Name	mpg of CV	mpg of E85	%mpg of E85 to CV	g/mi of E85	g/mi of CV	%emission of E85 less than CV
2018 Mercedes-Benz CLA250 4matic	27	20	74.07	328	328	0.000
2018 Mercedes-Benz GLA250 4matic	26	19	73.08	337	337	0.000
2018 Jeep Renegade 2WD	25	19	76.00	331	357	7.283
2018 Jeep Cherokee FWD	25	18	72.00	351	361	2.770
2018 Ford Escape FWD FFV	24	18	75.00	353	369	4.336
2018 Jeep Cherokee 4WD	23	17	73.91	372	378	1.587
2018 Ford Transit Connect Van FFV	23	17	73.91	375	392	4.337
2018 Chrysler 300	23	17	73.91	376	389	3.342
2018 Dodge Charger	23	17	73.91	376	389	3.342
2018 Ford F150 Pickup 2WD FFV	22	16	72.73	393	407	3.440
2018 Ford Transit Connect Wagon FFV	22	16	72.73	388	404	3.960

Model name	mpg of CV	mpg of E85	%mpg of E85 to CV	g/mi of E85	g/mi of CV	%emission of E85 less than CV
2018 Ford Transit Connect Wagon LWB FFV	22	16	72.73	388	404	3.960
2018 Chevrolet Impala	22	16	72.73	394	409	3.667
2018 Ford F150 2WD FFV BASE PAYLOAD LT TIR	21	16	76.19	393	423	7.092
2018 Chrysler 300 AWD	21	16	76.19	399	415	3.855
2018 Dodge Charger AWD	21	16	76.19	399	415	3.855
2018 Ford Taurus FWD FFV	21	16	76.19	401	423	5.201
2018 Chevrolet Silverado C15 2WD	20	14	70.00	457	448	-2.009
2018 GMC Sierra C15 2WD	20	14	70.00	457	448	-2.009
2018 Ford F150 Pickup 4WD FFV	20	15	75.00	421	437	3.661
2018 Dodge Grand Caravan	20	14	70.00	440	445	1.124
2018 Ram 1500 2WD	20	14	70.00	455	450	-1.111
2018 Ford Explorer 2WD FFV	20	15	75.00	433	455	4.835
2018 Mercedes-Benz GLE350 4matic	19	14	73.68	429	457	6.127
2018 Dodge Journey	19	14	73.68	440	456	3.509
2018 Ford Taurus AWD FFV	19	14	73.68	437	467	6.424
2018 Ford F150 Pickup 2WD FFV	19	14	73.68	455	457	0.438
2018 Chevrolet Silverado K15 4WD	19	13	68.42	476	473	-0.634
2018 Ford F150 4WD FFV BASE PAYLOAD LT TIRE	19	15	78.95	420	467	10.064
2018 GMC Sierra K15 4WD	19	13	68.42	477	474	-0.633
2018 Chevrolet Silverado C15 2WD	19	14	73.68	455	475	4.211
2018 Chevrolet Suburban C1500 2WD	19	14	73.68	443	468	5.342
2018 Chevrolet Tahoe C1500 2WD	19	14	73.68	443	468	5.342
2018 GMC Sierra C15 2WD	19	14	73.68	456	475	4.000
2018 GMC Yukon C1500 2WD	19	14	73.68	443	468	5.342
2018 GMC Yukon C1500 XL 2WD	19	14	73.68	443	468	5.342

Model name	mpg of CV	mpg of E85	%mpg of E85 to CV	g/mi of E85	g/mi of CV	%emission of E85 less than CV
2018 Ram 1500 4WD	19	13	68.42	482	475	-1.474
2018 Chevrolet Silverado K15 4WD	18	13	72.22	489	489	0.000
2018 Chevrolet Tahoe K1500 4WD	18	13	72.22	482	497	3.018
2018 Ford Explorer AWD FFV	18	14	77.78	464	483	3.934
2018 Ford F150 Pickup 4WD FFV	18	13	72.22	478	498	4.016
2018 GMC Sierra K15 4WD	18	13	72.22	489	489	0.000
2018 GMC Yukon K1500 4WD	18	13	72.22	482	497	3.018
2018 Nissan Frontier 2WD FFV	18	13	72.22	471	494	4.656
2018 Ford F150 2WD FFV BASE PAYLOAD	18	14	77.78	456	491	7.128
2018 Chevrolet Suburban K1500 4WD	18	12	66.67	515	504	-2.183
2018 GMC Yukon K1500 XL 4WD	18	12	66.67	515	504	-2.183
2018 Ford F150 4WD FFV BASE PAYLOAD	17	13	76.47	481	522	7.854
2018 Ford F150 5.0L 2WD FFV GVWR>7599 LBS	17	14	82.35	455	520	12.500
2018 Nissan Frontier 4WD FFV	17	12	70.59	503	520	3.269
2018 Ford F150 5.0L 4WD FFV GVWR>7599 LBS	17	13	76.47	498	523	4.780
2018 Ford Transit T150 Wagon FFV	16	11	68.75	548	570	3.860
2018 Toyota Tundra 4WD FFV	15	10	66.67	622	604	-2.980
2018 Toyota Sequoia 4WD FFV	14	10	71.43	594	614	3.257
Average			73.10	441.81	456.48	3.220

The average fuel economy of E85 vehicle is 73.10% to that of CV.

% emission of E85 vehicle is 3.22% less than % emission of CV.

Methane (CH₄) Emissions

Methane emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion CH₄ emission factors for Ethanol light-duty vehicles for model year 1996-present is **0.0820 g of CH₄ per mile** [4].

Nitrous Oxide (N₂O) Emissions

Nitrous Oxide emissions are based on emission factors for GHG Inventories, last modified on April 1st, 2021. Mobile Combustion N₂O emission factors for Ethanol light-duty vehicles for model year 1996-present is **0.0060 g of N₂O per mile** [4].

Carbon Monoxide (CO) Emissions

According to a 2015 pump-to-wheel simulation, a regular Ethanol vehicle emits **2.700 grams of CO per mile** [7].

Nitrogen Oxides (NO_x) Emissions

The same simulation found that CNG passenger vehicles emit **0.12 grams NO_x per mile**. [7]

Sulfur Dioxide (SO₂) Emissions

The same simulation found that CNG passenger vehicles emit **0.0006 grams SO₂ per mile**. [7]

Volatile Organic Compound (VOC) Emissions

The same simulation found that CNG passenger vehicles emit **0.22 grams VOC per mile**. [7]

Carbon Dioxide Equivalent (CO₂e) Emissions

Using the individual emissions values calculated above, CNG passenger vehicles have a CO₂ equivalent emissions rate of:

$$\begin{aligned} \text{CO}_2 \text{ Equivalent} &= 1 \cdot \text{CO}_2 \text{ emissions} + 25 \cdot \text{CH}_4 \text{ emissions} + 298 \cdot \text{N}_2\text{O emissions} \\ &= 1 \cdot 343.44 + 25 \cdot 0.0820 + 298 \cdot 0.0060 \\ &= \mathbf{347.278 \text{ grams CO}_2\text{e per mile.} \end{aligned}$$

6.5. Battery Electric Vehicle (EV)

6.5.1. Vehicle Efficiency Calculation

EV vehicle: 136 MPGe, based on the combined fuel economy average (city and highway) of all the vehicle types (make and model) published in the Fuel Economy Guide for the year 2020 [15].

The process to convert from MPGe to miles per kWh is as follows:

1 gallon equivalent = 33.7 kWh (it takes 33.7 kWh to create the same amount of heat as burning 1 gallon of gasoline) [16].

$$136 \text{ MPGe} / 33.7 \text{ kWh/gallon} = 4.03 \text{ miles per kWh}$$

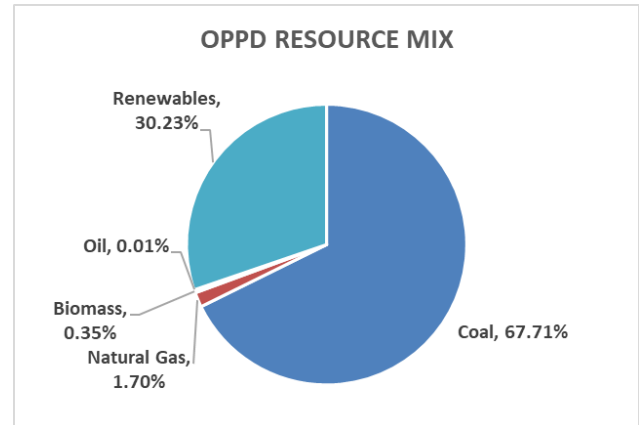
6.5.2. Electricity Generation Mix and Emissions Calculations

The electricity generation mix is calculated using the available information from utilities and associated emissions for all the electric utility providers serving the participating members is calculated using the eGRID 2020 power plant data tool published by EPA [10]. The CO and VOC emission data are not provided in the tool, and hence, baseline emission rates are used as per a report published by the California Environmental Protection Agency (CEPA) in 2009 [11].

a. Omaha Public Power District (OPPD) Data Analysis - Commercial

Electricity Generation Resource Mix

The resource mix has been estimated from OPPD’s Integrated Resource plan (IRP) published in 2021 [17]. To determine the resource mix, MWh generation of individual generating facilities are used, published in the IRP. The emissions from the generating facilities are then calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [17]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	67.71%	x 1045.65	= 707.9865
Natural Gas	1.70%	x 698.53	= 11.8800
Biomass	0.35%	x 0.00	= 0.0000
Oil	0.01%	x 3744.68	= 0.4157
Renewables	30.23%	x 0.00	= 0.0000
Total			grams/kWh 720.282
Total			grams/mile 211.041

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [17]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	67.71%	x 1.0006	= 0.6775
Natural Gas	1.70%	x 0.1953	= 0.0033
Biomass	0.35%	x 0.8160	= 0.0028
Oil	0.01%	x 0.1546	= 0.0000
Renewables	30.23%	x 0.0000	= 0.0000
Total			grams/kWh 0.684
Total			grams/mile 0.200

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [17]	Grams of CH ₄ Emission per kWh [10]	Contribution to Total Grams of CH ₄ Emission per kWh
Coal	67.71%	x 0.1142	= 0.0774
Natural Gas	1.70%	x 0.0211	= 0.0004
Biomass	0.35%	x 0.0000	= 0.0000
Oil	0.01%	x 0.0707	= 0.0000
Renewables	30.23%	x 0.0000	= 0.0000
		Total	grams/kWh 0.078
			grams/mile 0.023

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [17]	Grams of N ₂ O Emission per kWh [10]	Contribution to Total Grams of N ₂ O Emission per kWh
Coal	67.71%	x 0.0165	= 0.0112
Natural Gas	1.70%	x 0.0028	= 0.0000
Biomass	0.35%	x 0.0000	= 0.0000
Oil	0.01%	x 0.0140	= 0.0000
Renewables	30.23%	x 0.0000	= 0.0000
		Total	grams/kWh 0.011
			grams/mile 0.003

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [17]	Grams of SO ₂ Emission per kWh [10]	Contribution to Total Grams of SO ₂ Emission per kWh
Coal	67.71%	x 1.6252	= 1.1004
Natural Gas	1.70%	x 0.2256	= 0.0038
Biomass	0.35%	x 0.1828	= 0.0006
Oil	0.01%	x 1.1844	= 0.0001
Renewables	30.23%	x 0.0000	= 0.0000
		Total	grams/kWh 1.105
			grams/mile 0.324

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	67.71%	x	0.8152	=	0.5520
Natural Gas	1.70%	x	0.5871	=	0.0100
Biomass	0.35%	x	0.0000	=	0.0000
Oil	0.01%	x	27.5689	=	0.0031
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.565
				grams/mile	0.166

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of VOC Emission per kWh [11]		Contribution to Total Grams of VOC Emission per kWh
Coal	67.71%	x	0.0114	=	0.0077
Natural Gas	1.70%	x	0.0169	=	0.0003
Biomass	0.35%	x	0.0570	=	0.0002
Oil	0.01%	x	0.0198	=	0.0000
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.008
				grams/mile	0.002

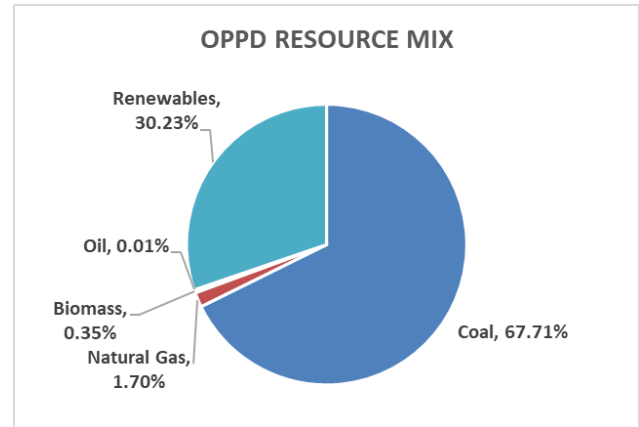
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	211.04	x	1	=	211.0408
CH ₄	0.023	x	25	=	0.5693
N ₂ O	0.0033	x	298	=	0.9796
			Total	grams/mile	212.590

b. Omaha Public Power District (OPPD) Data Analysis – Utility/Residential

Electricity Generation Resource Mix

The resource mix has been estimated from OPPD’s Integrated Resource plan (IRP) published in 2021 [17]. To determine the resource mix, MWh generation of individual generating facilities are used, published in the IRP. The emissions from the generating facilities are then calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of CO ₂ Emission per kWh [10]		Contribution to Total Grams of CO ₂ Emission per kWh
Coal	67.71%	x	1045.65	=	707.9865
Natural Gas	1.70%	x	698.53	=	11.8800
Biomass	0.35%	x	0.00	=	0.0000
Oil	0.01%	x	3744.68	=	0.4157
Renewables	30.23%	x	0.00	=	0.0000
			Total		
				grams/kWh	720.282
				grams/mile	211.041

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of CO Emission per kWh [11]		Contribution to Total Grams of CO Emission per kWh
Coal	67.71%	x	1.0006	=	0.6775
Natural Gas	1.70%	x	0.1953	=	0.0033
Biomass	0.35%	x	0.8160	=	0.0028
Oil	0.01%	x	0.1546	=	0.0000
Renewables	30.23%	x	0.0000	=	0.0000
			Total		
				grams/kWh	0.684
				grams/mile	0.200

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	67.71%	x	0.1142	=	0.0774
Natural Gas	1.70%	x	0.0211	=	0.0004
Biomass	0.35%	x	0.0000	=	0.0000
Oil	0.01%	x	0.0707	=	0.0000
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.078
				grams/mile	0.023

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	67.71%	x	0.0165	=	0.0112
Natural Gas	1.70%	x	0.0028	=	0.0000
Biomass	0.35%	x	0.0000	=	0.0000
Oil	0.01%	x	0.0140	=	0.0000
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.011
				grams/mile	0.003

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	67.71%	x	1.6252	=	1.1004
Natural Gas	1.70%	x	0.2256	=	0.0038
Biomass	0.35%	x	0.1828	=	0.0006
Oil	0.01%	x	1.1844	=	0.0001
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	1.105
				grams/mile	0.324

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	67.71%	x	0.8152	=	0.5520
Natural Gas	1.70%	x	0.5871	=	0.0100
Biomass	0.35%	x	0.0000	=	0.0000
Oil	0.01%	x	27.5689	=	0.0031
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.565
				grams/mile	0.166

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [17]		Grams of VOC Emission per kWh [11]		Contribution to Total Grams of VOC Emission per kWh
Coal	67.71%	x	0.0114	=	0.0077
Natural Gas	1.70%	x	0.0169	=	0.0003
Biomass	0.35%	x	0.0570	=	0.0002
Oil	0.01%	x	0.0198	=	0.0000
Renewables	30.23%	x	0.0000	=	0.0000
			Total	grams/kWh	0.008
				grams/mile	0.002

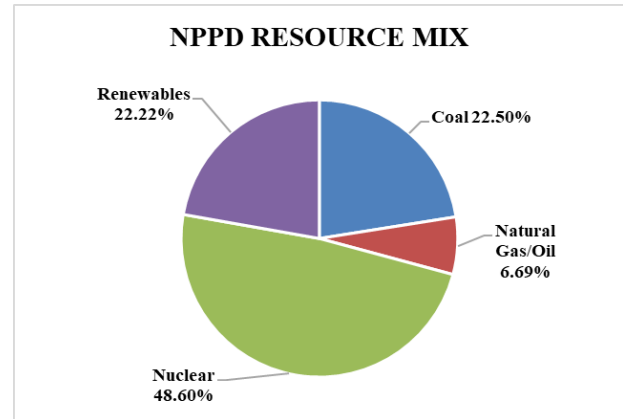
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	211.04	x	1	=	211.0408
CH ₄	0.023	x	25	=	0.5693
N ₂ O	0.0033	x	298	=	0.9796
			Total	grams/mile	212.59

c. Nebraska Public Power District (NPPD) Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from the published resource mix percentages given in NPPD’s website [18]. This also contains the plant information where NPPD either owns or have a power purchase agreement with their capacity (MW). Natural gas and oil are reported together, and emissions are calculated likewise. The emission information is calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [18]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	22.50%	x 979.10	= 220.2503
Natural Gas/Oil	6.69%	x 673.32	= 45.0437
Nuclear	48.60%	x 0.00	= 0.0000
Renewables	22.22%	x 0.00	= 0.0000
Total			
			grams/kWh 265.294
			grams/mile 77.730

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [18]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	22.50%	x 1.0006	= 0.2251
Natural Gas/Oil	6.69%	x 0.1953	= 0.0131
Nuclear	48.60%	x 0.0000	= 0.0000
Renewables	22.22%	x 0.0000	= 0.0000
Total			
			grams/kWh 0.238
			grams/mile 0.070

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [18]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	22.50%	x	0.1130	=	0.0254
Natural Gas/Oil	6.69%	x	0.0193	=	0.0013
Nuclear	48.60%	x	0.0000	=	0.0000
Renewables	22.22%	x	0.0000	=	0.0000
			Total	grams/kWh	0.027
				grams/mile	0.008

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [18]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	22.50%	x	0.0163	=	0.0037
Natural Gas/Oil	6.69%	x	0.0032	=	0.0002
Nuclear	48.60%	x	0.0000	=	0.0000
Renewables	22.22%	x	0.0000	=	0.0000
			Total	grams/kWh	0.004
				grams/mile	0.001

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [18]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	22.50%	x	2.3110	=	0.5199
Natural Gas/Oil	6.69%	x	0.9331	=	0.0624
Nuclear	48.60%	x	0.0000	=	0.0000
Renewables	22.22%	x	0.0000	=	0.0000
			Total	grams/kWh	0.582
				grams/mile	0.171

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [18]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	22.50%	x	1.0076	=	0.2267
Natural Gas/Oil	6.69%	x	2.6600	=	0.1779
Nuclear	48.60%	x	0.0000	=	0.0000
Renewables	22.22%	x	0.0000	=	0.0000
			Total	grams/kWh	0.405
				grams/mile	0.119

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [18]		Grams of VOC Emission per kWh [11]		Contribution to Total Grams of VOC Emission per kWh
Coal	22.50%	x	0.0114	=	0.0026
Natural Gas/Oil	6.69%	x	0.0169	=	0.0011
Nuclear	48.60%	x	0.0000	=	0.0000
Renewables	22.22%	x	0.0000	=	0.0000
			Total	grams/kWh	0.004
				grams/mile	0.001

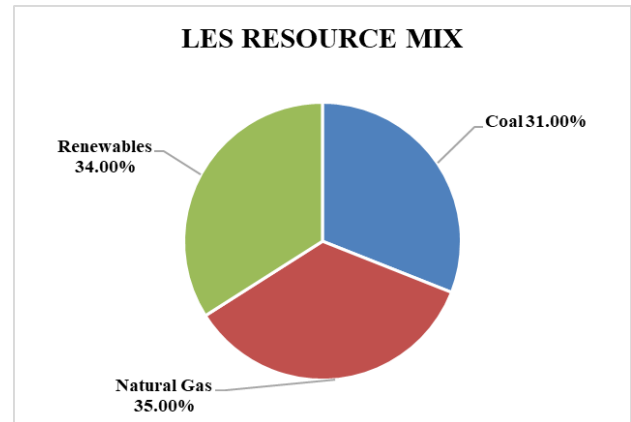
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	77.73	x	1	=	77.7304
CH ₄	0.008	x	25	=	0.1957
N ₂ O	0.0011	x	298	=	0.3396
			Total	grams/mile	78.266

d. Lincoln Electric System (LES) Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from the published information in LES’s website [19]. Individual plant information is determined from LES IRP [20] published in the year 2017. Plant capacity (MW) of individual facilities is given in the IRP. The emissions are then calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [19]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	31.00%	x 1044.96	= 323.9386
Natural Gas	35.00%	x 2047.14	= 716.4989
Renewables	34.00%	x 0.00	= 0.0000
Total			
			grams/kWh 1040.437
			grams/mile 304.845

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [19]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	31.00%	x 1.0006	= 0.3102
Natural Gas	35.00%	x 0.1953	= 0.0684
Renewables	34.00%	x 0.0000	= 0.0000
Total			
			grams/kWh 0.379
			grams/mile 0.111

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [19]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	31.00%	x	0.1111	=	0.0344
Natural Gas	35.00%	x	0.0230	=	0.0081
Renewables	34.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.042
				grams/mile	0.012

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [19]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	31.00%	x	0.0161	=	0.0050
Natural Gas	35.00%	x	0.0027	=	0.0009
Renewables	34.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.006
				grams/mile	0.002

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [19]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	31.00%	x	1.2040	=	0.3732
Natural Gas	35.00%	x	0.1045	=	0.0366
Renewables	34.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.410
				grams/mile	0.120

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [19]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	31.00%	x	0.7019	=	0.2176
Natural Gas	35.00%	x	9.9122	=	3.4693
Renewables	34.00%	x	0.0000	=	0.0000
			Total	grams/kWh	3.687
				grams/mile	1.080

Volatile Organic Compound (VOC) Emissions

Coal	Percentage of Total Energy Production [19]	Grams of VOC Emission per kWh [11]	Contribution to Total Grams of VOC Emission per kWh
Coal	31.00%	x 0.0114	= 0.0035
Natural Gas	35.00%	x 0.0169	= 0.0059
Renewables	34.00%	x 0.0000	= 0.0000
		Total	grams/kWh 0.009
			grams/mile 0.003

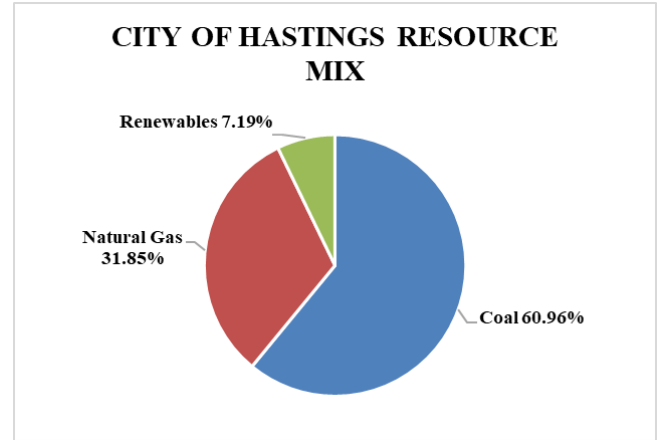
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile	GWP	Contribution to Total CO ₂ e Emission
CO ₂	304.85	x 1	= 304.8454
CH ₄	0.012	x 25	= 0.3112
N ₂ O	0.0017	x 298	= 0.5181
		Total	grams/mile 305.675

e. City of Hastings Utilities Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from City of Hasting’s Integrated Resource plan (IRP) published in 2017 [21]. To determine the resource mix, plant capacity (MW) of individual generating facilities is used, as published in the IRP. Assumption has been made that Hasting’s share for WEC-2 unit is still at 35 MW and WAPA purchase is hydropower. The emissions from the generating facilities are then calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	60.96%	x 1227.54	= 748.2535
Natural Gas	31.85%	x 1055.44	= 336.1641
Renewables	7.19%	x 0.00	= 0.0000
Total			
			grams/kWh 1084.418
			grams/mile 317.731

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	60.96%	x 1.0006	= 0.6099
Natural Gas	31.85%	x 0.1953	= 0.0622
Renewables	7.19%	x 0.0000	= 0.0000
Total			
			grams/kWh 0.672
			grams/mile 0.197

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	60.96%	x	0.1574	=	0.0959
Natural Gas	31.85%	x	0.0198	=	0.0063
Renewables	7.19%	x	0.0000	=	0.0000
			Total	grams/kWh	0.102
				grams/mile	0.030

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	60.96%	x	0.0231	=	0.0141
Natural Gas	31.85%	x	0.0020	=	0.0006
Renewables	7.19%	x	0.0000	=	0.0000
			Total	grams/kWh	0.015
				grams/mile	0.004

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	60.96%	x	2.0185	=	1.2304
Natural Gas	31.85%	x	0.0289	=	0.0092
Renewables	7.19%	x	0.0000	=	0.0000
			Total	grams/kWh	1.240
				grams/mile	0.363

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	60.96%	x	0.6205	=	0.3782
Natural Gas	31.85%	x	2.6411	=	0.8412
Renewables	7.19%	x	0.0000	=	0.0000
			Total	grams/kWh	1.219
				grams/mile	0.357

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of VOC Emission per kWh [11]		Contribution to Total Grams of VOC Emission per kWh
Coal	60.96%	x	0.0114	=	0.0069
Natural Gas	31.85%	x	0.0169	=	0.0054
Renewables	7.19%	x	0.0000	=	0.0000
			Total	grams/kWh	0.012
				grams/mile	0.004

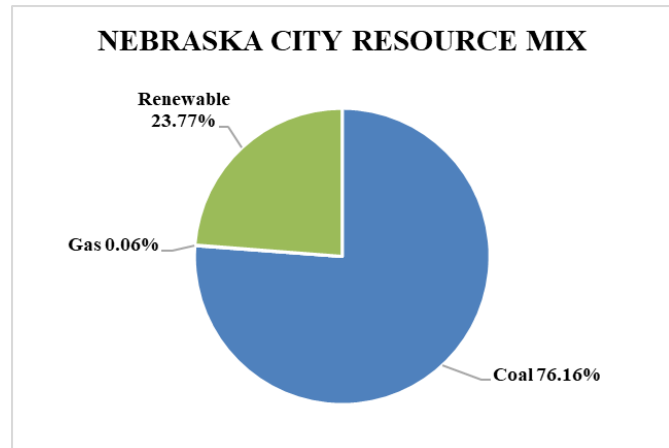
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	317.73	x	1	=	317.7315
CH ₄	0.030	x	25	=	0.7491
N ₂ O	0.0043	x	298	=	1.2860
			Total	grams/mile	319.767

f. Nebraska City Utilities Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from Nebraska City’s Integrated Resource plan (IRP) published in 2017 identifying the generating sources for 10-year period [21]. To determine the resource mix, plant net generation (MWh) of individual generating facilities is used, as published in the IRP. The market purchase of sales with a capacity of 0 MW and generation of 5,216 MWh has not been included in the calculation. The emissions from the generating facilities are then calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	76.16%	x 1100.62 =	838.2852
Natural Gas	0.06%	x 0.00 =	0.0000
Renewable	23.77%	x 0.00 =	0.0000
Total			
			grams/kWh 838.285
			grams/mile 245.615

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x 1.0006 =	0.7621
Natural Gas	0.06%	x 0.1953 =	0.0001
Renewable	23.77%	x 0.0000 =	0.0000
Total			
			grams/kWh 0.762
			grams/mile 0.223

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CO Emission per kWh [10]		Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x	0.1279	=	0.0974
Natural Gas	0.06%	x	0.0000	=	0.0000
Renewable	23.77%	x	0.0000	=	0.0000
			Total	grams/kWh	0.097
				grams/mile	0.029

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CO Emission per kWh [10]		Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x	0.0186	=	0.0141
Natural Gas	0.06%	x	0.0000	=	0.0000
Renewable	23.77%	x	0.0000	=	0.0000
			Total	grams/kWh	0.014
				grams/mile	0.004

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CO Emission per kWh [10]		Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x	1.5764	=	1.2007
Natural Gas	0.06%	x	0.0000	=	0.0000
Renewable	23.77%	x	0.0000	=	0.0000
			Total	grams/kWh	1.201
				grams/mile	0.352

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CO Emission per kWh [10]		Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x	0.6266	=	0.4772
Natural Gas	0.06%	x	0.0000	=	0.0000
Renewable	23.77%	x	0.0000	=	0.0000
			Total	grams/kWh	0.477
				grams/mile	0.140

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CO Emission per kWh [11]		Contribution to Total Grams of CO Emission per kWh
Coal	76.16%	x	0.0114	=	0.0087
Natural Gas	0.06%	x	0.0169	=	0.0000
Renewable	23.77%	x	0.0000	=	0.0000
			Total	grams/kWh	0.009
				grams/mile	0.003

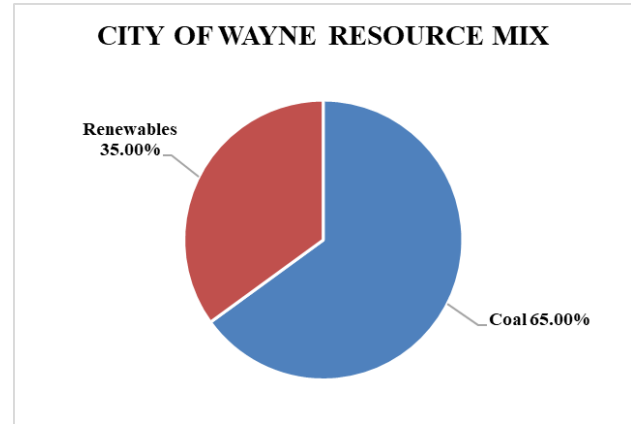
Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	245.62	x	1	=	245.6154
CH ₄	0.029	x	25	=	0.7136
N ₂ O	0.0041	x	298	=	1.2351
			Total	grams/mile	247.564

g. City of Wayne Electric Distribution System Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from the published resource mix percentages given in City of Wayne’s website [22]. Individual plant information is retrieved from City of Wayne’s IRP published in 2018 [21]. The IRP entails a 5-year plan. Assumption has been made for emission calculation for 10% of NPPD’s share of coal resources, where an average has been used. The emission information is calculated as per the eGRID 2020 power plant data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of CO ₂ Emission per kWh [10]		Contribution to Total Grams of CO ₂ Emission per kWh
Coal	65.00%	x	1083.60	=	704.3407
Renewables	35.00%	x	0.00	=	0.0000
			Total		
				grams/kWh	704.341
				grams/mile	206.370

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of CO Emission per kWh [11]		Contribution to Total Grams of CO Emission per kWh
Coal	65.00%	x	1.0006	=	0.6504
Renewables	35.00%	x	0.0000	=	0.0000
			Total		
				grams/kWh	0.650
				grams/mile	0.191

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	65.00%	x	0.1255	=	0.0816
Renewables	35.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.082
				grams/mile	0.024

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	65.00%	x	0.0182	=	0.0119
Renewables	35.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.012
				grams/mile	0.003

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	65.00%	x	1.8778	=	1.2206
Renewables	35.00%	x	0.0000	=	0.0000
			Total	grams/kWh	1.221
				grams/mile	0.358

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	65.00%	x	0.9723	=	0.6320
Renewables	35.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.632
				grams/mile	0.185

Volatile Organic Compound (VOC) Emissions

Energy Source	Percentage of Total Energy Production [22]		Grams of NO _x Emission per kWh [11]		Contribution to Total Grams of NO _x Emission per kWh
Coal	65.00%	x	0.0114	=	0.0074
Renewables	35.00%	x	0.0000	=	0.0000
			Total	grams/kWh	0.007
				grams/mile	0.002

Carbon Dioxide Equivalent (CO₂e) Emissions

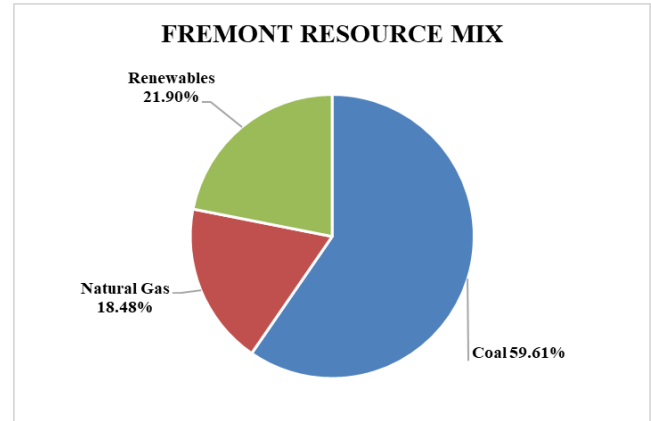
Contributing Gas	grams/mile		GWP		Contribution to Total CO ₂ e Emission
CO ₂	206.37	x	1	=	206.3700
CH ₄	0.024	x	25	=	0.5977
N ₂ O	0.0035	x	298	=	1.0347
			Total	grams/mile	208.002

h. Fremont Utilities Data Analysis

Electricity Generation Resource Mix

The resource mix has been estimated from Fremont’s Integrated Resource plan (IRP) published in 2018 [21]. The IRP is generated for 2018-2022. To determine the resource mix, plant capacity (MW) of individual generating facilities is used, as published in the IRP. Since Derril G. Marshall Generating station is part of Lon D. Wright Power plant, assumption has been made that both of them have the same emission data. The emissions from the generating facilities are then calculated as per the eGRID 2020 power plant

data tool [10]. The tables below show the emission calculations.



Carbon Dioxide (CO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO ₂ Emission per kWh [10]	Contribution to Total Grams of CO ₂ Emission per kWh
Coal	59.61%	x 511.49	= 304.9106
Natural Gas	18.48%	x 511.49	= 94.5459
Renewables	21.90%	x 0.00	= 0.0000
Total			
			grams/kWh 399.457
			grams/mile 117.040

Carbon Monoxide (CO) Emissions

Energy Source	Percentage of Total Energy Production [21]	Grams of CO Emission per kWh [11]	Contribution to Total Grams of CO Emission per kWh
Coal	59.61%	x 1.0006	= 0.5965
Natural Gas	18.48%	x 0.1953	= 0.0361
Renewables	21.90%	x 0.0000	= 0.0000
Total			
			grams/kWh 0.633
			grams/mile 0.185

Methane (CH₄) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of CH ₄ Emission per kWh [10]		Contribution to Total Grams of CH ₄ Emission per kWh
Coal	59.61%	x	0.0866	=	0.0516
Natural Gas	18.48%	x	0.0866	=	0.0160
Renewables	21.90%	x	0.0000	=	0.0000
			Total	grams/kWh	0.068
				grams/mile	0.020

Nitrous Oxide (N₂O) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of N ₂ O Emission per kWh [10]		Contribution to Total Grams of N ₂ O Emission per kWh
Coal	59.61%	x	0.0127	=	0.0076
Natural Gas	18.48%	x	0.0127	=	0.0023
Renewables	21.90%	x	0.0000	=	0.0000
			Total	grams/kWh	0.010
				grams/mile	0.003

Sulfur Dioxide (SO₂) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of SO ₂ Emission per kWh [10]		Contribution to Total Grams of SO ₂ Emission per kWh
Coal	59.61%	x	0.8836	=	0.5267
Natural Gas	18.48%	x	0.8836	=	0.1633
Renewables	21.90%	x	0.0000	=	0.0000
			Total	grams/kWh	0.690
				grams/mile	0.202

Nitrogen Oxides (NO_x) Emissions

Energy Source	Percentage of Total Energy Production [21]		Grams of NO _x Emission per kWh [10]		Contribution to Total Grams of NO _x Emission per kWh
Coal	59.61%	x	0.5244	=	0.3126
Natural Gas	18.48%	x	0.5244	=	0.0969
Renewables	21.90%	x	0.0000	=	0.0000
			Total	grams/kWh	0.409
				grams/mile	0.120

Volatile Organic Compound (VOC) Emissions

Coal	Percentage of Total Energy Production [21]	Grams of VOC Emission per kWh [11]	Contribution to Total Grams of VOC Emission per kWh
Coal	59.61%	x 0.0114	= 0.0068
Natural Gas	18.48%	x 0.0169	= 0.0031
Renewables	21.90%	x 0.0000	= 0.0000
		Total	grams/kWh 0.010
			grams/mile 0.003

Carbon Dioxide Equivalent (CO₂e) Emissions

Contributing Gas	grams/mile	GWP	Contribution to Total CO ₂ e Emission
CO ₂	117.04	x 1	= 117.0397
CH ₄	0.020	x 25	= 0.4956
N ₂ O	0.0029	x 298	= 0.8660
		Total	grams/mile 118.401

6.6. References

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7. Appendix E. Detailed Analysis for Charging Stations - Monthly Detailed Data – February 2022

Introduction

In the tables and graphs that follow, the cost of miles driven using a comparable gasoline-powered vehicle (CV) is provided. Then, the cost of miles driven using the EVs are provided. The economic savings comparison is then provided. In addition to miles driven, maintenance costs and savings that include oil and filter changes for the CV and maintenance costs for the EVs are provided in the Other Cost Savings information for each station location. Similar calculations and analysis are provided for the GHG emissions and reductions.

Blue bars on graphs show daily energy usage while the green line shows cumulative usage. For this report, we are using the kWh data from ChargePoint™ to calculate the economic and environmental savings, accounting for the energy feedstock mix of each of the power generation districts in Nebraska.

Allen Consolidated Schools



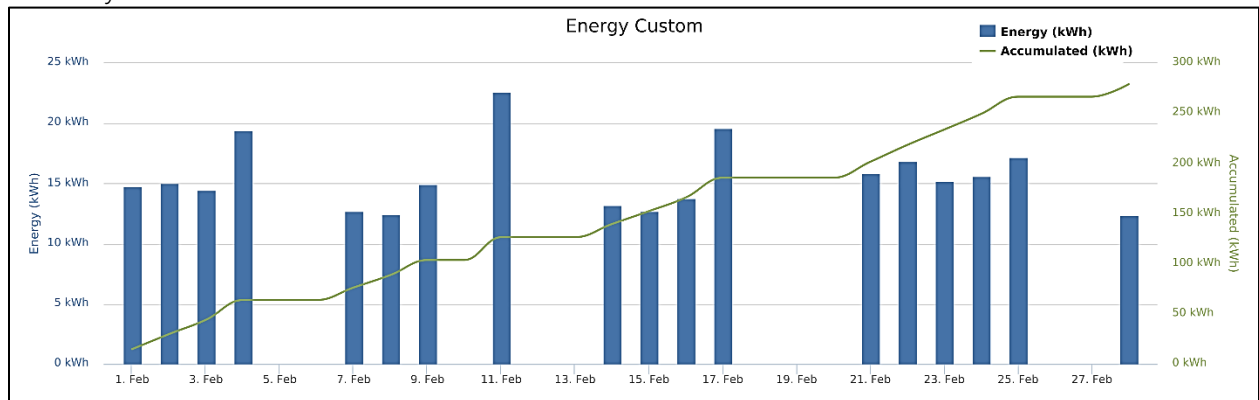
Total Economic Saving Data (Fuel & Maintenance Cost Savings)

		This Month (February)	All Time
Miles Driven		1,123.77	45,401.17
Energy Consumed(kWh)		278.85	13,312.54
Fuel Cost Saving	Usage Cost Using CV(Gas)	141.43	4,827.38
	Usage Cost Using EV(Electricity)	19.24	1,049.29
	Total Fuel Saving	122.18	3,778.09
Other Cost Saving	CV Costs	68.55	2,357.75
	EV Costs	29.22	1,178.99
	Total Other Cost Saving	39.33	1,178.76
Overall Economic Savings		161.52	4,956.85

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,123.77	45,401.17
Energy Consumed (kWh)		278.85	13,312.54
Co2 Emissions (lbs.)	CV (Gas)	877.18	37,930.27
	EV (Electricity)	192.58	12,497.09
	Total Fuel Saving	684.60	25,433.19
Co Emissions (lbs.)	CV (Gas)	7.0884	513.7167
	EV (Electricity)	0.1729	10.1297
	Total Fuel Saving	6.9155	503.5870
So2 Emissions (lbs.)	CV (Gas)	0.0104	1.0535
	EV (Electricity)	0.4227	31.4367
	Total Fuel Saving	(0.4123)	(30.3833)
Nox Emissions (lbs.)	CV (Gas)	0.2973	31.9323
	EV (Electricity)	0.2937	37.9952
	Total Fuel Saving	0.0036	(6.0628)
CH4 Emissions (lbs.)	CV (Gas)	0.0166	2.1648
	EV (Electricity)	0.0194	0.8936
	Total Fuel Saving	(0.0028)	1.2712
VOC Emissions (lbs.)	CV (Gas)	0.4172	18.2854
	EV (Electricity)	0.0027	0.2529
	Total Fuel Saving	0.4145	18.0325

Energy Consumption Data February 2022



Auburn Board of Public Works



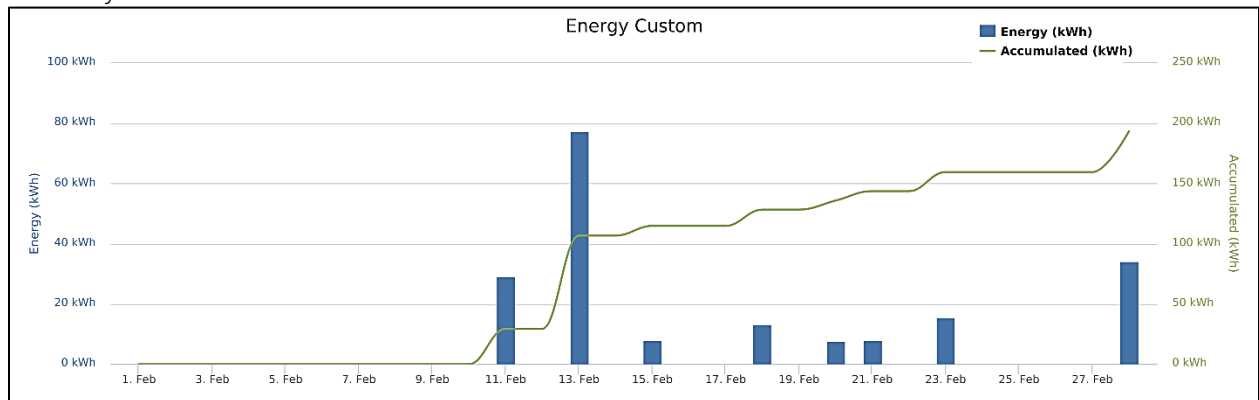
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		780.11	19,054.64
Energy Consumed(kWh)		193.58	5,499.16
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$99.06	\$2,169.89
	Usage Cost Using EV(Electricity)	\$18.22	\$524.52
	Total Fuel Saving	\$80.84	\$1,645.37
Other Cost Saving	CV Costs	\$47.59	\$1,132.17
	EV Costs	\$20.28	\$468.54
	Total Other Cost Saving	\$27.30	\$663.63
Overall Economic Savings		\$108.15	\$2,309.00

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		780.11	19,054.64
Energy Consumed (kWh)		193.58	5,499.16
Co2 Emissions (lbs.)	CV (Gas)	608.93	14,977.61
	EV (Electricity)	422.42	4,998.42
	Total Fuel Saving	186.51	9,979.20
Co Emissions (lbs.)	CV (Gas)	4.9206	120.1898
	EV (Electricity)	0.3841	4.8120
	Total Fuel Saving	4.5365	115.3777
So2 Emissions (lbs.)	CV (Gas)	0.0072	0.1764
	EV (Electricity)	0.0044	6.5074
	Total Fuel Saving	0.0028	(6.3309)
Nox Emissions (lbs.)	CV (Gas)	0.2064	5.0410
	EV (Electricity)	0.2405	2.7468
	Total Fuel Saving	(0.0341)	2.2942
CH4 Emissions (lbs.)	CV (Gas)	0.0115	0.3198
	EV (Electricity)	0.0491	0.6438
	Total Fuel Saving	(0.0376)	(0.3241)
VOC Emissions (lbs.)	CV (Gas)	0.2896	7.0742
	EV (Electricity)	0.0019	0.0479
	Total Fuel Saving	0.2878	7.0263

Energy Consumption Data February 2022



Aurora



SUMMARY OF ALL STATIONS

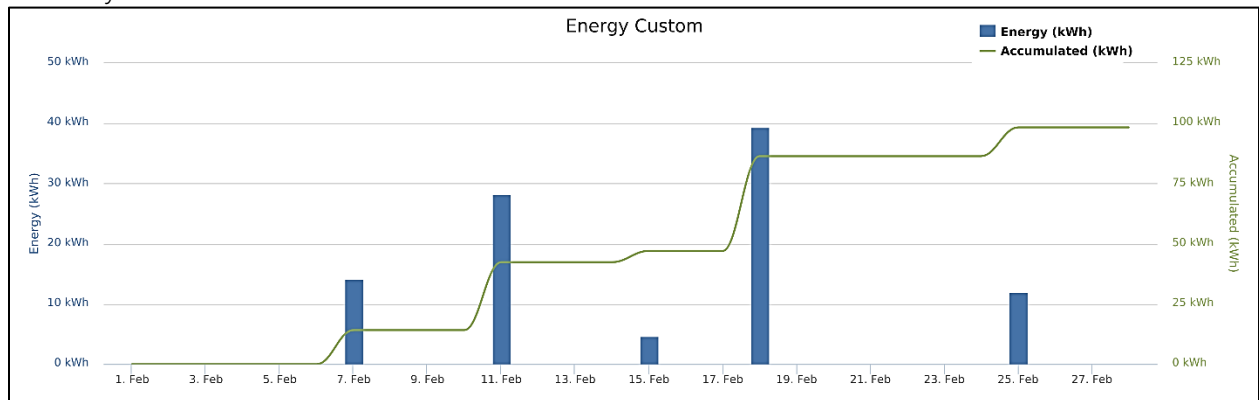
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		396.33	5,916.03
Energy Consumed(kWh)		98.35	1,693.32
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$50.85	\$684.96
	Usage Cost Using EV(Electricity)	\$6.79	\$137.55
	Total Fuel Saving	\$44.06	\$547.41
Other Cost Saving	CV Costs	\$24.18	\$360.88
	EV Costs	\$10.30	\$153.82
	Total Other Cost Saving	\$13.87	\$207.06
Overall Economic Savings		\$57.93	\$754.47

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		396.33	5,916.03
Energy Consumed (kWh)		98.35	1,693.32
Co2 Emissions (lbs.)	CV (Gas)	309.36	4,617.86
	EV (Electricity)	67.92	2,364.47
	Total Fuel Saving	241.45	2,253.39
Co Emissions (lbs.)	CV (Gas)	2.4999	37.3162
	EV (Electricity)	0.0610	1.6230
	Total Fuel Saving	2.4389	35.6932
So2 Emissions (lbs.)	CV (Gas)	0.0037	0.0548
	EV (Electricity)	0.1491	4.3785
	Total Fuel Saving	(0.1454)	(4.3237)
Nox Emissions (lbs.)	CV (Gas)	0.1049	1.5651
	EV (Electricity)	0.1036	7.1462
	Total Fuel Saving	0.0013	(5.5811)
CH4 Emissions (lbs.)	CV (Gas)	0.0059	0.0874
	EV (Electricity)	0.0068	0.1939
	Total Fuel Saving	(0.0010)	(0.1066)
VOC Emissions (lbs.)	CV (Gas)	0.1471	2.1964
	EV (Electricity)	0.0009	0.0408
	Total Fuel Saving	0.1462	2.1556

Energy Consumption Data February 2022



Aurora (AURORANE / DC FAST 1):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		351.21	5,237.69
Energy Consumed(kWh)		87.15	1,496.54
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$45.10	\$610.45
	Usage Cost Using EV(Electricity)	\$6.01	\$121.61
	Total Fuel Saving	\$39.08	\$488.84
Other Cost Saving	CV Costs	\$21.42	\$319.50
	EV Costs	\$9.13	\$136.18
	Total Other Cost Saving	\$12.29	\$183.32
Overall Economic Savings		\$51.37	\$672.16

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		351.21	5,237.69
Energy Consumed (kWh)		87.15	1,496.54
Co2 Emissions (lbs.)	CV (Gas)	274.14	4,088.37
	EV (Electricity)	60.19	2,077.63
	Total Fuel Saving	213.96	2,010.74
Co Emissions (lbs.)	CV (Gas)	2.2153	33.0375
	EV (Electricity)	0.0540	1.4286
	Total Fuel Saving	2.1613	31.6089
So2 Emissions (lbs.)	CV (Gas)	0.0033	0.0485
	EV (Electricity)	0.1321	3.8514
	Total Fuel Saving	(0.1288)	(3.8029)
Nox Emissions (lbs.)	CV (Gas)	0.0929	1.3857
	EV (Electricity)	0.0918	6.2616
	Total Fuel Saving	0.0011	(4.8760)
CH4 Emissions (lbs.)	CV (Gas)	0.0052	0.0774
	EV (Electricity)	0.0061	0.1706
	Total Fuel Saving	(0.0009)	(0.0933)
VOC Emissions (lbs.)	CV (Gas)	0.1304	1.9445
	EV (Electricity)	0.0008	0.0358
	Total Fuel Saving	0.1296	1.9087

Aurora (One Level-2 station):

Economic Saving Data (Fuel & Maintenance Cost Savings):

<u>Level 2 GW1</u>		This Month (February)	All Time
Miles Driven		45.12	678.34
Energy Consumed(kWh)		11.20	196.78
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$5.75	\$74.51
	Usage Cost Using EV(Electricity)	\$0.77	\$15.93
	Total Fuel Saving	\$4.98	\$58.57
Other Cost Saving	CV Costs	\$2.75	\$41.38
	EV Costs	\$1.17	\$17.64
	Total Other Cost Saving	\$1.58	\$23.74
Overall Economic Savings		\$6.56	\$82.32

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		45.12	678.34
Energy Consumed (kWh)		11.20	196.78
Co2 Emissions (lbs.)	CV (Gas)	35.22	529.49
	EV (Electricity)	7.73	286.84
	Total Fuel Saving	27.49	242.65
Co Emissions (lbs.)	CV (Gas)	0.2846	4.2787
	EV (Electricity)	0.0069	0.1944
	Total Fuel Saving	0.2777	4.0843
So2 Emissions (lbs.)	CV (Gas)	0.0004	0.0063
	EV (Electricity)	0.0170	0.5271
	Total Fuel Saving	(0.0166)	(0.5208)
Nox Emissions (lbs.)	CV (Gas)	0.0119	0.1795
	EV (Electricity)	0.0118	0.8846
	Total Fuel Saving	0.0001	(0.7051)
CH4 Emissions (lbs.)	CV (Gas)	0.0007	0.0100
	EV (Electricity)	0.0008	0.0233
	Total Fuel Saving	(0.0001)	(0.0133)
VOC Emissions (lbs.)	CV (Gas)	0.0168	0.2518
	EV (Electricity)	0.0001	0.0050
	Total Fuel Saving	0.0166	0.2469

Ashland



SUMMARY OF ALL STATIONS

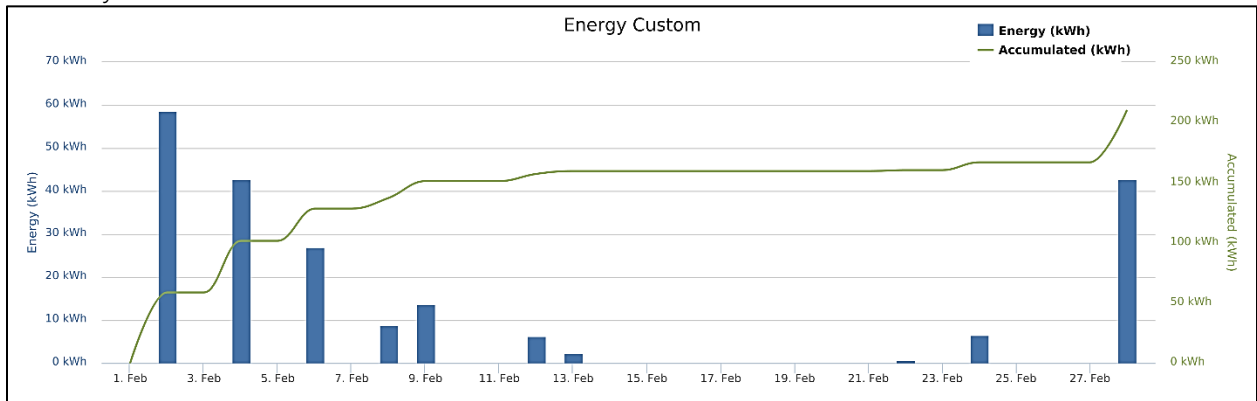
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		844.56	41,952.28
Energy Consumed(kWh)		209.57	12,440.88
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$105.00	\$4,297.06
	Usage Cost Using EV(Electricity)	\$18.52	\$1,124.43
	Total Fuel Saving	\$86.49	\$3,172.63
Other Cost Saving	CV Costs	\$51.52	\$2,069.48
	EV Costs	\$21.96	\$771.79
	Total Other Cost Saving	\$29.56	\$1,297.69
Overall Economic Savings		\$116.05	\$4,470.32

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		844.56	41,952.28
Energy Consumed (kWh)		209.57	12,440.88
Co2 Emissions (lbs.)	CV (Gas)	659.24	33,895.55
	EV (Electricity)	392.94	17,935.03
	Total Fuel Saving	266.29	15,960.52
Co Emissions (lbs.)	CV (Gas)	5.3272	290.7623
	EV (Electricity)	0.3730	15.1084
	Total Fuel Saving	4.9542	275.6539
So2 Emissions (lbs.)	CV (Gas)	0.0078	0.4595
	EV (Electricity)	0.6028	39.4936
	Total Fuel Saving	(0.5950)	(39.0341)
Nox Emissions (lbs.)	CV (Gas)	0.2234	13.3882
	EV (Electricity)	0.3082	28.0027
	Total Fuel Saving	(0.0848)	(14.6145)
CH4 Emissions (lbs.)	CV (Gas)	0.0125	1.4436
	EV (Electricity)	0.0424	1.5786
	Total Fuel Saving	(0.0299)	(0.1350)
VOC Emissions (lbs.)	CV (Gas)	0.3135	15.7336
	EV (Electricity)	0.0045	0.3017
	Total Fuel Saving	0.3091	15.4319

Energy Consumption Data February 2022



Ashland (Fast DC charging):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		776.46	27,534.61
Energy Consumed(kWh)		192.67	8,150.02
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$96.45	\$2,868.10
	Usage Cost Using EV(Electricity)	\$17.02	\$738.19
	Total Fuel Saving	\$79.43	\$2,129.91
Other Cost Saving	CV Costs	\$47.36	\$1,357.66
	EV Costs	\$20.19	\$514.09
	Total Other Cost Saving	\$27.18	\$843.57
Overall Economic Savings		\$106.60	\$2,973.48

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		776.46	27,534.61
Energy Consumed(kWh)		192.67	8,150.02
Co2 Emissions (lbs.)	CV (Gas)	606.08	22,252.94
	EV (Electricity)	361.26	11,642.95
	Total Fuel Saving	244.82	10,609.99
Co Emissions (lbs.)	CV (Gas)	4.8976	194.8318
	EV (Electricity)	0.3429	9.8261
	Total Fuel Saving	4.5547	185.0056
So2 Emissions (lbs.)	CV (Gas)	0.0072	0.3125
	EV (Electricity)	0.5542	25.8386
	Total Fuel Saving	(0.5470)	(25.5262)
Nox Emissions (lbs.)	CV (Gas)	0.2054	9.1371
	EV (Electricity)	0.2834	18.1575
	Total Fuel Saving	(0.0780)	(9.0204)
CH4 Emissions (lbs.)	CV (Gas)	0.0115	0.9673
	EV (Electricity)	0.0390	1.0206
	Total Fuel Saving	(0.0275)	(0.0533)
VOC Emissions (lbs.)	CV (Gas)	0.2883	10.3515
	EV (Electricity)	0.0041	0.1963
	Total Fuel Saving	0.2842	10.1552

Ashland (One Level-2 station):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		68.10	14,331.95
Energy Consumed(kWh)		16.90	4,265.77
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$8.55	\$1,422.00
	Usage Cost Using EV(Electricity)	\$1.49	\$384.11
	Total Fuel Saving	\$7.06	\$1,037.89
Other Cost Saving	CV Costs	\$4.15	\$706.59
	EV Costs	\$1.77	\$255.47
	Total Other Cost Saving	\$2.38	\$451.12
Overall Economic Savings		\$9.44	\$1,489.01

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		68.10	14,331.95
Energy Consumed (kWh)		16.90	4,265.77
Co2 Emissions (lbs.)	CV (Gas)	53.16	11,575.71
	EV (Electricity)	31.68	6,249.55
	Total Fuel Saving	21.47	5,326.17
Co Emissions (lbs.)	CV (Gas)	0.4295	95.0363
	EV (Electricity)	0.0301	5.2509
	Total Fuel Saving	0.3995	89.7854
So2 Emissions (lbs.)	CV (Gas)	0.0006	0.1462
	EV (Electricity)	0.0486	13.5877
	Total Fuel Saving	(0.0480)	(13.4415)
Nox Emissions (lbs.)	CV (Gas)	0.0180	4.2285
	EV (Electricity)	0.0249	9.7812
	Total Fuel Saving	(0.0068)	(5.5527)
CH4 Emissions (lbs.)	CV (Gas)	0.0010	0.4735
	EV (Electricity)	0.0034	0.5541
	Total Fuel Saving	(0.0024)	(0.0806)
VOC Emissions (lbs.)	CV (Gas)	0.0253	5.3424
	EV (Electricity)	0.0004	0.1047
	Total Fuel Saving	0.0249	5.2377

Bellevue



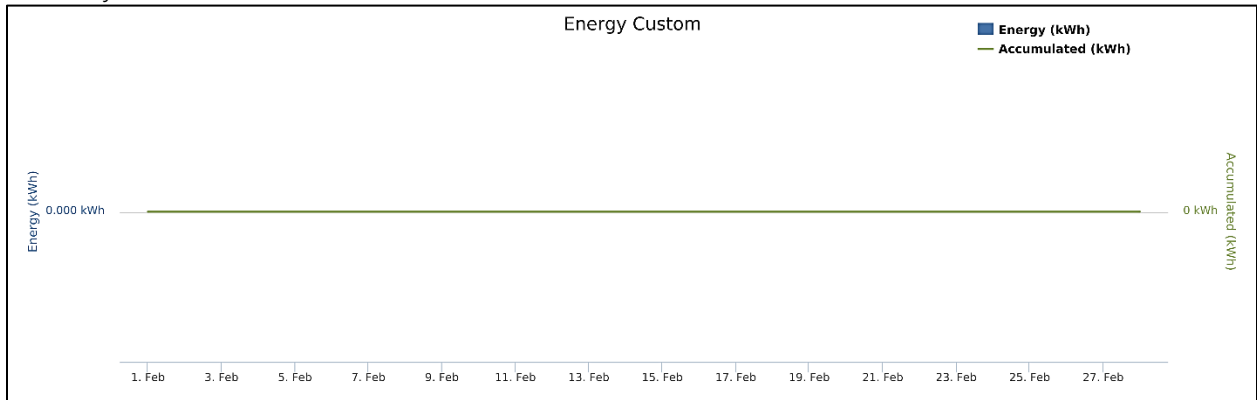
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		0.00	40,714.44
Energy Consumed(kWh)		0.00	12,079.62
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$0.00	\$4,224.53
	Usage Cost Using EV(Electricity)	\$0.00	\$1,120.68
	Total Fuel Saving	\$0.00	\$3,103.85
Other Cost Saving	CV Costs	\$0.00	\$1,933.43
	EV Costs	\$0.00	\$1,078.36
	Total Other Cost Saving	\$0.00	\$855.07
Overall Economic Savings		\$0.00	\$3,958.93

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		0	40714.44179
Energy Consumed (kWh)		0	12079.624
Co2 Emissions (lbs.)	CV (Gas)	0.00	35,305.75
	EV (Electricity)	0.00	9,711.81
	Total Fuel Saving	0.00	25,593.94
Co Emissions (lbs.)	CV (Gas)	0.00	581.10
	EV (Electricity)	0.00	9.89
	Total Fuel Saving	0.00	571.21
So2 Emissions (lbs.)	CV (Gas)	0.00	1.26
	EV (Electricity)	0.00	34.95
	Total Fuel Saving	0.00	(33.69)
Nox Emissions (lbs.)	CV (Gas)	0.00	39.19
	EV (Electricity)	0.00	20.72
	Total Fuel Saving	0.00	18.47
CH4 Emissions (lbs.)	CV (Gas)	0.00	2.67
	EV (Electricity)	0.00	0.81
	Total Fuel Saving	0.00	1.87
VOC Emissions (lbs.)	CV (Gas)	0.00	17.16
	EV (Electricity)	0.00	0.25
	Total Fuel Saving	0.00	16.91

Energy Consumption Data February 2022



B & R Stores



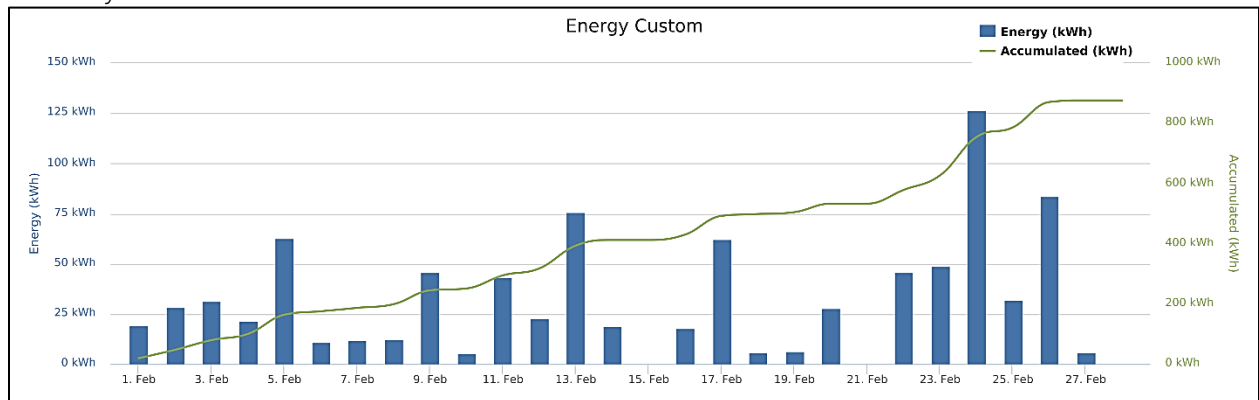
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		3,529.71	33,490.02
Energy Consumed(kWh)		875.86	9,578.81
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$453.12	\$4,031.70
	Usage Cost Using EV(Electricity)	\$78.21	\$758.04
	Total Fuel Saving	\$374.90	\$3,273.66
Other Cost Saving	CV Costs	\$215.31	\$2,042.89
	EV Costs	\$91.77	\$870.74
	Total Other Cost Saving	\$123.54	\$1,172.15
Overall Economic Savings		\$498.44	\$4,445.81

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		3,529.71	33,490.02
Energy Consumed (kWh)		875.86	9,578.81
Co2 Emissions (lbs.)	CV (Gas)	2,755.18	26,141.23
	EV (Electricity)	2,472.48	21,833.15
	Total Fuel Saving	282.70	4,308.08
Co Emissions (lbs.)	CV (Gas)	22.2641	211.2429
	EV (Electricity)	1.5325	13.8817
	Total Fuel Saving	20.7317	197.3612
So2 Emissions (lbs.)	CV (Gas)	0.0327	0.3101
	EV (Electricity)	2.8262	25.9512
	Total Fuel Saving	(2.7935)	(25.6411)
Nox Emissions (lbs.)	CV (Gas)	0.9338	8.8599
	EV (Electricity)	2.7804	24.3132
	Total Fuel Saving	(1.8466)	(15.4533)
CH4 Emissions (lbs.)	CV (Gas)	0.0521	0.4947
	EV (Electricity)	0.2332	2.6484
	Total Fuel Saving	(0.1810)	(2.1537)
VOC Emissions (lbs.)	CV (Gas)	1.3104	12.4334
	EV (Electricity)	0.0281	0.1740
	Total Fuel Saving	1.2823	12.2594

Energy Consumption Data February 2022



B & R Stores (two DC stations)

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		3,012.97	31,056.12
Energy Consumed(kWh)		747.63	8,897.18
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$385.72	\$3,734.17
	Usage Cost Using EV(Electricity)	\$66.76	\$703.45
	Total Fuel Saving	\$318.96	\$3,030.73
Other Cost Saving	CV Costs	\$183.79	\$1,894.42
	EV Costs	\$78.34	\$807.46
	Total Other Cost Saving	\$105.45	\$1,086.96
Overall Economic Savings		\$424.41	\$4,117.69

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		3,012.97	31,056.12
Energy Consumed (kWh)		747.63	8,897.18
Co2 Emissions (lbs.)	CV (Gas)	2,351.82	24,241.41
	EV (Electricity)	2,110.51	20,227.83
	Total Fuel Saving	241.31	4,013.58
Co Emissions (lbs.)	CV (Gas)	19.0047	195.8908
	EV (Electricity)	1.3081	12.8653
	Total Fuel Saving	17.6966	183.0255
So2 Emissions (lbs.)	CV (Gas)	0.0279	0.2876
	EV (Electricity)	2.4125	24.0553
	Total Fuel Saving	(2.3846)	(23.7678)
Nox Emissions (lbs.)	CV (Gas)	0.7971	8.2160
	EV (Electricity)	2.3733	22.5226
	Total Fuel Saving	(1.5762)	(14.3066)
CH4 Emissions (lbs.)	CV (Gas)	0.0445	0.4587
	EV (Electricity)	0.1990	2.4609
	Total Fuel Saving	(0.1545)	(2.0021)
VOC Emissions (lbs.)	CV (Gas)	1.1186	1.6921
	EV (Electricity)	0.0240	0.0363
	Total Fuel Saving	1.0946	1.6558

B & R Stores (two level 2 stations)

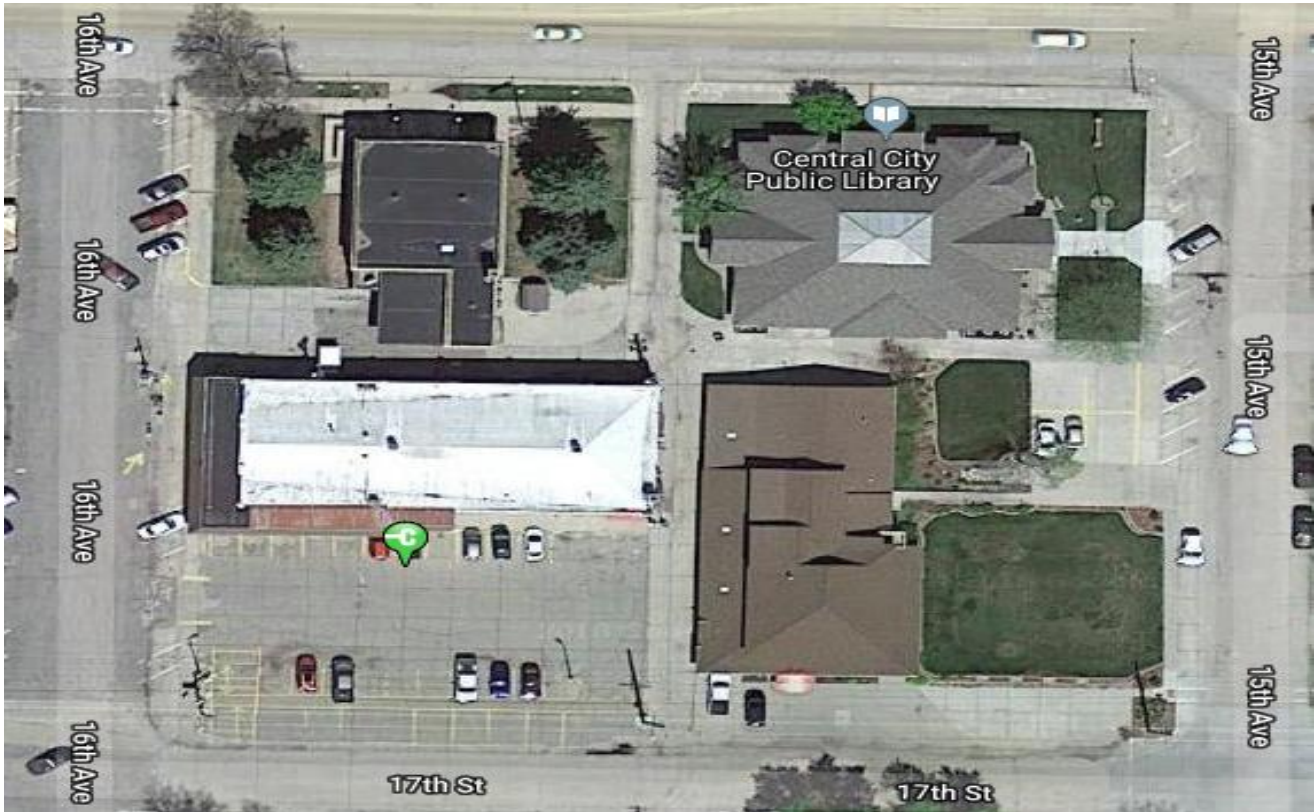
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		516.74	2,433.89
Energy Consumed(kWh)		128.22	681.63
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$67.40	\$297.53
	Usage Cost Using EV(Electricity)	\$11.45	\$54.59
	Total Fuel Saving	\$55.95	\$242.93
Other Cost Saving	CV Costs	\$31.52	\$148.47
	EV Costs	\$13.44	\$63.28
	Total Other Cost Saving	\$18.09	\$85.19
Overall Economic Savings		\$74.03	\$328.12

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		516.74	2,433.89
Energy Consumed (kWh)		128.22	681.63
Co2 Emissions (lbs.)	CV (Gas)	403.35	1,899.82
	EV (Electricity)	361.97	1,605.33
	Total Fuel Saving	41.39	294.49
Co Emissions (lbs.)	CV (Gas)	3.26	15.35
	EV (Electricity)	0.22	1.02
	Total Fuel Saving	3.0351	14.3357
So2 Emissions (lbs.)	CV (Gas)	0.00	0.02
	EV (Electricity)	0.41	1.90
	Total Fuel Saving	(0.4090)	(1.8734)
Nox Emissions (lbs.)	CV (Gas)	0.14	0.64
	EV (Electricity)	0.41	1.79
	Total Fuel Saving	(0.2703)	(1.1467)
CH4 Emissions (lbs.)	CV (Gas)	0.01	0.04
	EV (Electricity)	0.03	0.19
	Total Fuel Saving	(0.0265)	(0.1515)
VOC Emissions (lbs.)	CV (Gas)	0.19	10.74
	EV (Electricity)	0.00	0.14
	Total Fuel Saving	0.1877	10.6036

Central City



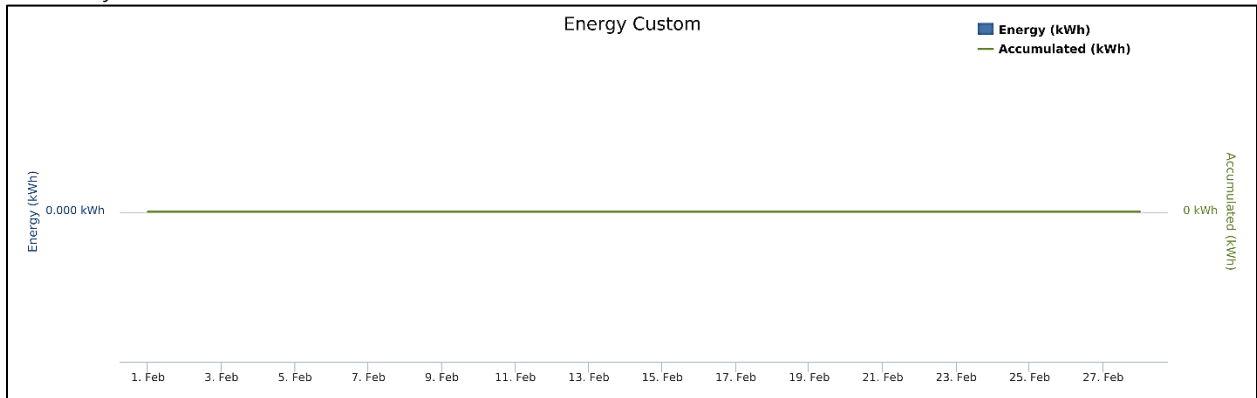
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		0.00	1,773.37
Energy Consumed(kWh)		0.00	522.08
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$0.00	\$188.58
	Usage Cost Using EV(Electricity)	\$0.00	\$51.92
	Total Fuel Saving	\$0.00	\$136.66
Other Cost Saving	CV Costs	\$0.00	\$89.44
	EV Costs	\$0.00	\$63.39
	Total Other Cost Saving	\$0.00	\$26.05
Overall Economic Savings		\$0.00	\$162.71

*Data was provided from the electrical car mileage
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		0.00	1,773.37
Energy Consumed (kWh)		0.00	522.08
Co2 Emissions (lbs.)	CV (Gas)	0.00	1,536.18
	EV (Electricity)	0.00	272.13
	Total Fuel Saving	0.00	1,264.05
Co Emissions (lbs.)	CV (Gas)	0.0000	31.6729
	EV (Electricity)	0.0000	0.2370
	Total Fuel Saving	0.0000	31.4360
So2 Emissions (lbs.)	CV (Gas)	0.0000	0.0032
	EV (Electricity)	0.0000	1.1869
	Total Fuel Saving	0.0000	(1.1836)
Nox Emissions (lbs.)	CV (Gas)	0.0000	2.2643
	EV (Electricity)	0.0000	0.6715
	Total Fuel Saving	0.0000	1.5928
CH4 Emissions (lbs.)	CV (Gas)	0.0000	0.1387
	EV (Electricity)	0.0000	0.0093
	Total Fuel Saving	0.0000	0.1294
VOC Emissions (lbs.)	CV (Gas)	0.0000	0.7871
	EV (Electricity)	0.0000	0.0087
	Total Fuel Saving	0.0000	0.7784

Energy Consumption Data February 2022



(Data was provided from the electrical car mileage)

Central Community College



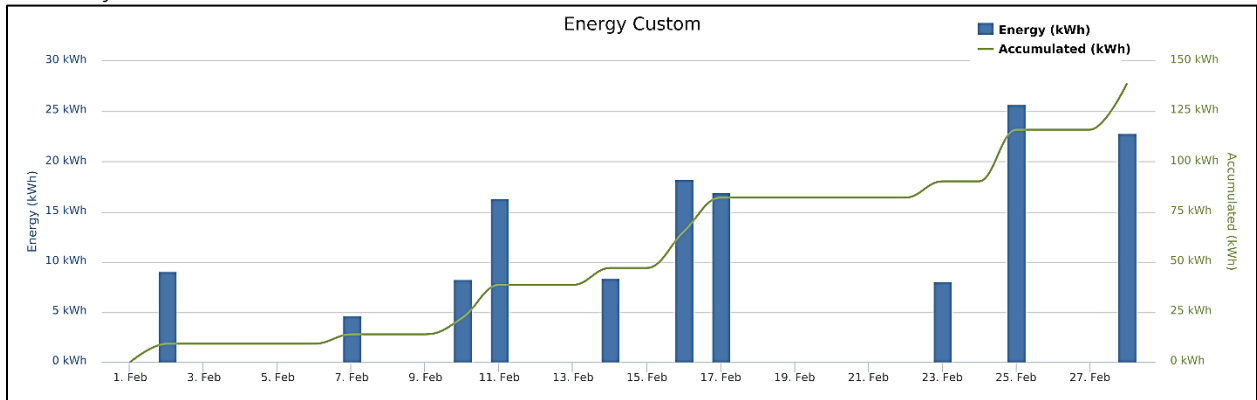
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		558.52	11,244.64
Energy Consumed(kWh)		138.59	3,251.39
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$72.20	\$1,345.84
	Usage Cost Using EV(Electricity)	\$9.56	\$264.26
	Total Fuel Saving	\$62.63	\$1,081.58
Other Cost Saving	CV Costs	\$34.07	\$685.92
	EV Costs	\$14.52	\$292.36
	Total Other Cost Saving	\$19.55	\$393.56
Overall Economic Savings		\$82.18	\$1,475.14

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		558.52	11,244.64
Energy Consumed (kWh)		138.59	3,251.39
Co2 Emissions (lbs.)	CV (Gas)	435.96	8,777.20
	EV (Electricity)	95.71	4,691.28
	Total Fuel Saving	340.25	4,085.92
Co Emissions (lbs.)	CV (Gas)	3.5229	70.9271
	EV (Electricity)	0.0859	3.1888
	Total Fuel Saving	3.4370	67.7383
So2 Emissions (lbs.)	CV (Gas)	0.0052	0.1041
	EV (Electricity)	0.2101	8.6365
	Total Fuel Saving	(0.2049)	(8.5323)
Nox Emissions (lbs.)	CV (Gas)	0.1478	2.9748
	EV (Electricity)	0.1460	14.4001
	Total Fuel Saving	0.0018	(11.4253)
CH4 Emissions (lbs.)	CV (Gas)	0.0082	0.1661
	EV (Electricity)	0.0096	0.3820
	Total Fuel Saving	(0.0014)	(0.2159)
VOC Emissions (lbs.)	CV (Gas)	0.2074	4.1747
	EV (Electricity)	0.0013	0.0814
	Total Fuel Saving	0.2060	4.0933

Energy Consumption Data February 2022



Dakota County



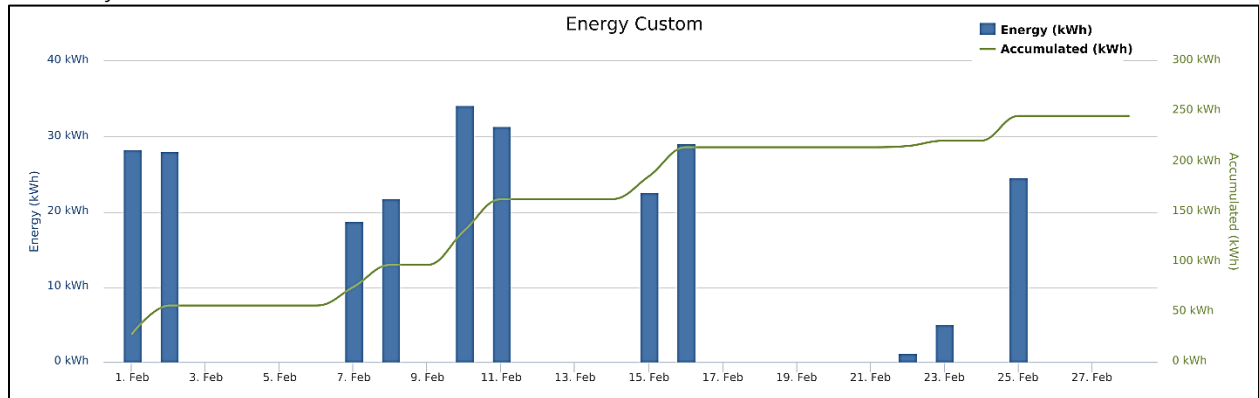
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		987.85	21,643.08
Energy Consumed(kWh)		245.12	6,292.62
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$123.16	\$2,329.93
	Usage Cost Using EV(Electricity)	\$20.91	\$522.02
	Total Fuel Saving	\$102.25	\$1,807.91
Other Cost Saving	CV Costs	\$60.26	\$1,188.44
	EV Costs	\$25.68	\$506.91
	Total Other Cost Saving	\$34.57	\$681.54
Overall Economic Savings		\$136.83	\$2,489.45

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		987.85	21,643.08
Energy Consumed (kWh)		245.12	6,292.62
Co2 Emissions (lbs.)	CV (Gas)	771.08	17,514.10
	EV (Electricity)	169.28	7,554.40
	Total Fuel Saving	601.80	9,959.70
Co Emissions (lbs.)	CV (Gas)	6.2310	174.0430
	EV (Electricity)	0.1520	5.6135
	Total Fuel Saving	6.0790	168.4295
So2 Emissions (lbs.)	CV (Gas)	0.0091	0.3024
	EV (Electricity)	0.3716	15.9635
	Total Fuel Saving	(0.3624)	(15.6611)
Nox Emissions (lbs.)	CV (Gas)	0.2613	9.0140
	EV (Electricity)	0.2582	22.7852
	Total Fuel Saving	0.0032	(13.7712)
CH4 Emissions (lbs.)	CV (Gas)	0.0146	0.6488
	EV (Electricity)	0.0170	0.5837
	Total Fuel Saving	(0.0025)	0.0651
VOC Emissions (lbs.)	CV (Gas)	0.3667	8.2710
	EV (Electricity)	0.0024	0.1313
	Total Fuel Saving	0.3644	8.1398

Energy Consumption Data February 2022



Ferguson House Station



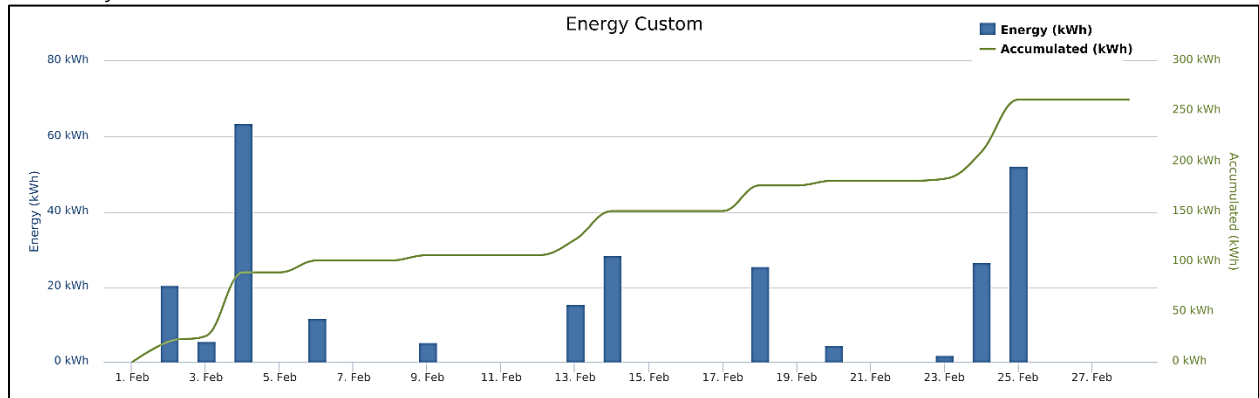
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,053.53	21,856.41
Energy Consumed(kWh)		261.42	6,362.15
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$134.62	\$2,372.42
	Usage Cost Using EV(Electricity)	\$19.42	\$472.73
	Total Fuel Saving	\$115.20	\$1,899.69
Other Cost Saving	CV Costs	\$64.27	\$1,160.29
	EV Costs	\$27.39	\$539.13
	Total Other Cost Saving	\$36.87	\$621.16
Overall Economic Savings		\$152.07	\$2,520.85

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,053.53	21,856.41
Energy Consumed (kWh)		261.42	6,362.15
Co2 Emissions (lbs.)	CV (Gas)	822.35	17,993.63
	EV (Electricity)	708.04	8,369.76
	Total Fuel Saving	114.31	9,623.88
Co Emissions (lbs.)	CV (Gas)	6.6453	214.0339
	EV (Electricity)	0.2576	4.0761
	Total Fuel Saving	6.3877	209.9578
So2 Emissions (lbs.)	CV (Gas)	0.0098	0.4098
	EV (Electricity)	0.2789	7.7793
	Total Fuel Saving	(0.2691)	(7.3694)
Nox Emissions (lbs.)	CV (Gas)	0.2787	12.4568
	EV (Electricity)	2.5090	26.3040
	Total Fuel Saving	(2.2303)	(13.8472)
CH4 Emissions (lbs.)	CV (Gas)	0.0156	0.8710
	EV (Electricity)	0.0289	0.3443
	Total Fuel Saving	(0.0134)	0.5267
VOC Emissions (lbs.)	CV (Gas)	0.3911	8.5934
	EV (Electricity)	0.0064	0.1623
	Total Fuel Saving	0.3847	8.4311

Energy Consumption Data February 2022



Fremont



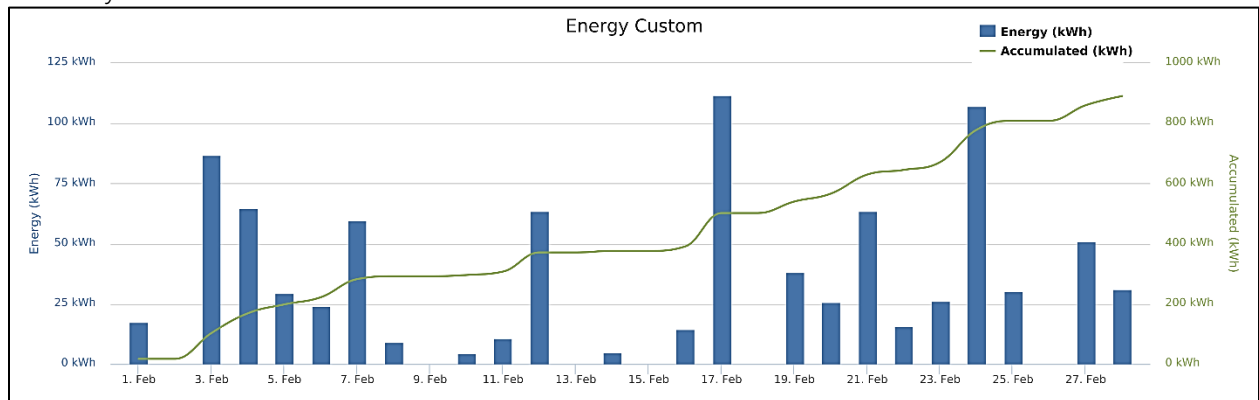
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		3,589.62	93,456.07
Energy Consumed(kWh)		890.72	27,400.44
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$452.36	\$9,977.60
	Usage Cost Using EV(Electricity)	\$87.74	\$2,811.90
	Total Fuel Saving	\$364.63	\$7,165.70
Other Cost Saving	CV Costs	\$218.97	\$4,992.34
	EV Costs	\$93.33	\$1,798.39
	Total Other Cost Saving	\$125.64	\$3,193.95
Overall Economic Savings		\$490.26	\$10,359.65

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		3,589.62	93,456.07
Energy Consumed (kWh)		890.72	27,400.44
Co2 Emissions (lbs.)	CV (Gas)	2,801.9399	75,396.0900
	EV (Electricity)	926.2222	42,041.0930
	Total Fuel Saving	1,875.7176	33,354.9971
Co Emissions (lbs.)	CV (Gas)	22.6420	589.4871
	EV (Electricity)	1.4668	47.3437
	Total Fuel Saving	21.1753	542.1433
So2 Emissions (lbs.)	CV (Gas)	0.0332	0.8653
	EV (Electricity)	1.6000	66.5372
	Total Fuel Saving	(1.5668)	(65.6718)
Nox Emissions (lbs.)	CV (Gas)	0.9496	24.7242
	EV (Electricity)	0.9495	49.5455
	Total Fuel Saving	0.0001	(24.8213)
CH4 Emissions (lbs.)	CV (Gas)	0.0530	2.2802
	EV (Electricity)	0.1569	6.5753
	Total Fuel Saving	(0.1039)	(4.2950)
VOC Emissions (lbs.)	CV (Gas)	1.3327	34.6963
	EV (Electricity)	0.0230	0.5481
	Total Fuel Saving	1.3097	34.1482

Energy Consumption Data February 2022



Gothenburg

AFV: One Nissan Leaf Car

Charging stations: 0

The price of electricity per kWh: \$0.082

NOTE:

Data is calculated based on Mileage provided (7,882 Miles as of February 3, 2018.)

Total CO₂ emission reductions is 6,020.03 lbs.

Total CO reduction is 155.11 lbs.

Total SO₂ reduction is (5.30 lbs.)

Total NO_x reduction is 8.68 lbs.

Total CH₄ reduction is 0.6359 lbs.

Total VOC reduction is 3.556 lbs.

Total Cost benefits savings \$719.928

Gretna



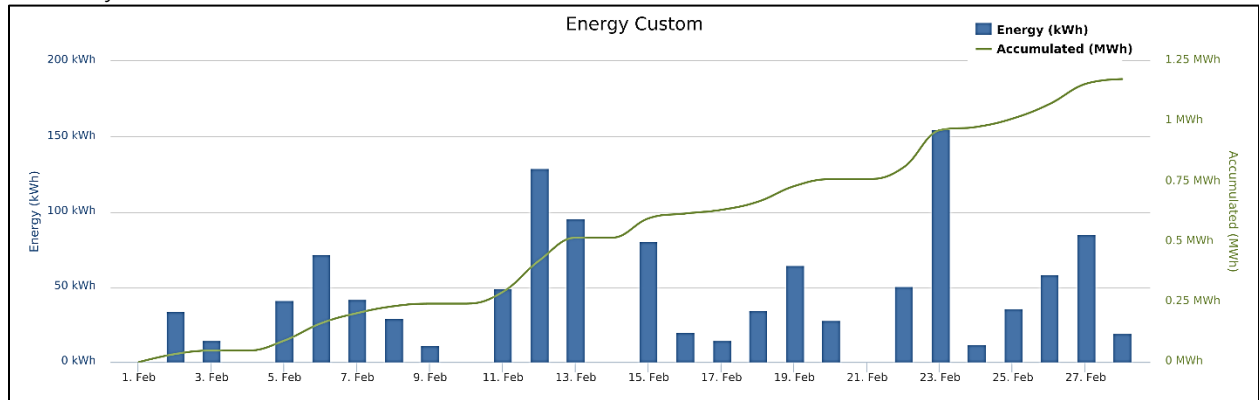
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		4,735.88	102,882.89
Energy Consumed(kWh)		1175.156	29,965.74
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$596.64	\$11,009.26
	Usage Cost Using EV(Electricity)	\$103.83	\$2,626.14
	Total Fuel Saving	\$492.81	\$8,383.12
Other Cost Saving	CV Costs	\$288.89	\$5,731.15
	EV Costs	\$123.13	\$2,382.41
	Total Other Cost Saving	\$165.76	\$3,348.75
Overall Economic Savings		\$658.57	\$11,731.87

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		4,735.88	102,882.89
Energy Consumed (Kwh)		1,175.16	29,965.74
Co2 Emissions (lbs.)	CV (Gas)	3,696.67	82,234.23
	EV (Electricity)	2,203.44	46,334.12
	Total Fuel Saving	1,493.24	35,900.11
Co Emissions (lbs.)	CV (Gas)	29.8722	741.4855
	EV (Electricity)	2.0914	37.6607
	Total Fuel Saving	27.7808	703.8248
So2 Emissions (lbs.)	CV (Gas)	0.0439	1.2044
	EV (Electricity)	3.3804	86.6132
	Total Fuel Saving	(3.3366)	(85.4088)
Nox Emissions (lbs.)	CV (Gas)	1.2529	35.3261
	EV (Electricity)	1.7284	65.5745
	Total Fuel Saving	(0.4755)	(30.2484)
CH4 Emissions (lbs.)	CV (Gas)	0.0700	2.6598
	EV (Electricity)	0.2377	4.2267
	Total Fuel Saving	(0.1678)	(1.5669)
VOC Emissions (lbs.)	CV (Gas)	1.7582	34.3454
	EV (Electricity)	0.0251	0.7418
	Total Fuel Saving	1.7331	33.6036

Energy Consumption Data February 2022



Gretna (Fast DC charging):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		4,533.18	67,399.23
Energy Consumed(kWh)		1,124.86	19,447.33
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$571.26	\$7,360.25
	Usage Cost Using EV(Electricity)	\$99.38	\$1,672.32
	Total Fuel Saving	\$471.88	\$5,687.93
Other Cost Saving	CV Costs	\$276.52	\$3,953.47
	EV Costs	\$117.86	\$1,611.65
	Total Other Cost Saving	\$158.66	\$2,341.81
Overall Economic Savings		\$630.54	\$8,029.74

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		4,533.18	67,399.23
Energy Consumed (kWh)		1,124.86	19,447.33
Co2 Emissions (lbs.)	CV (Gas)	3,538.45	53,155.05
	EV (Electricity)	2,109.13	32,615.93
	Total Fuel Saving	1,429.32	20,539.12
Co Emissions (lbs.)	CV (Gas)	28.5936	425.1299
	EV (Electricity)	2.0019	26.1420
	Total Fuel Saving	26.5917	398.9880
So2 Emissions (lbs.)	CV (Gas)	0.0420	0.6241
	EV (Electricity)	3.2357	54.6497
	Total Fuel Saving	(3.1938)	(54.0257)
Nox Emissions (lbs.)	CV (Gas)	1.1993	17.8308
	EV (Electricity)	1.6545	43.4575
	Total Fuel Saving	(0.4552)	(25.6267)
CH4 Emissions (lbs.)	CV (Gas)	0.0670	1.1961
	EV (Electricity)	0.2276	3.0632
	Total Fuel Saving	(0.1606)	(1.8672)
VOC Emissions (lbs.)	CV (Gas)	1.6830	25.0225
	EV (Electricity)	0.0240	0.4962
	Total Fuel Saving	1.6589	24.5263

Gretna (Two Level-2 stations):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		202.70	35,483.66
Energy Consumed(kWh)		50.30	10,518.41
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$25.38	\$3,649.01
	Usage Cost Using EV(Electricity)	\$4.44	\$953.82
	Total Fuel Saving	\$20.93	\$2,695.19
Other Cost Saving	CV Costs	\$12.36	\$1,777.69
	EV Costs	\$5.27	\$770.75
	Total Other Cost Saving	\$7.09	\$1,006.93
Overall Economic Savings		\$28.03	\$3,702.12

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		202.70	35,483.66
Energy Consumed (kWh)		50.30	10,518.41
Co2 Emissions (lbs.)	CV (Gas)	158.22	29,079.17
	EV (Electricity)	94.31	13,718.19
	Total Fuel Saving	63.91	15,360.98
Co Emissions (lbs.)	CV (Gas)	1.2786	316.3556
	EV (Electricity)	0.0895	11.5187
	Total Fuel Saving	1.1890	304.8368
So2 Emissions (lbs.)	CV (Gas)	0.0019	0.5803
	EV (Electricity)	0.1447	31.9635
	Total Fuel Saving	(0.1428)	(31.3832)
Nox Emissions (lbs.)	CV (Gas)	0.0536	17.4953
	EV (Electricity)	0.0740	22.1170
	Total Fuel Saving	(0.0204)	(4.6217)
CH4 Emissions (lbs.)	CV (Gas)	0.0030	1.4637
	EV (Electricity)	0.0102	1.1635
	Total Fuel Saving	(0.0072)	0.3002
VOC Emissions (lbs.)	CV (Gas)	0.0753	9.3229
	EV (Electricity)	0.0011	0.2456
	Total Fuel Saving	0.0742	9.0774

Hastings



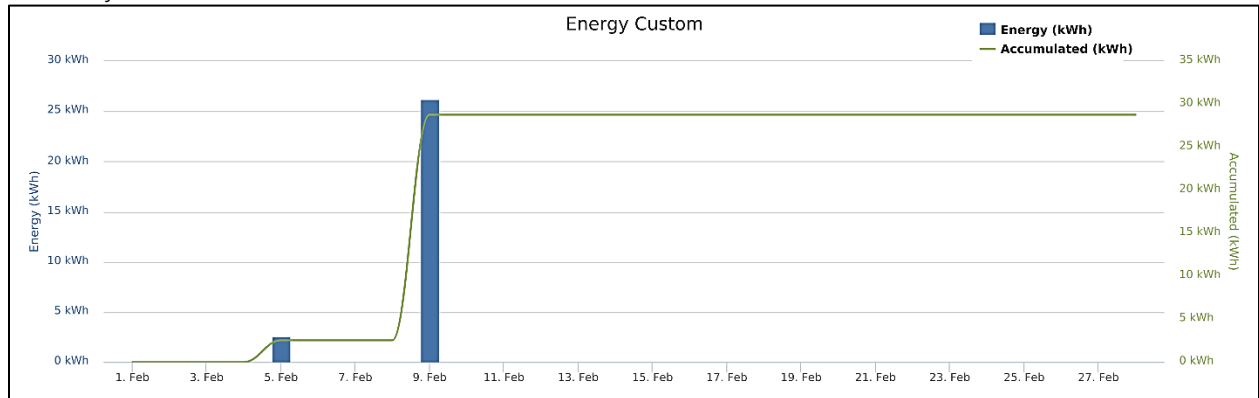
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		115.84	5067.09
Energy Consumed(kWh)		28.75	1496.62
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$14.58	\$552.03
	Usage Cost Using EV(Electricity)	\$2.57	\$116.24
	Total Fuel Saving	\$12.02	\$435.78
Other Cost Saving	CV Costs	\$7.07	\$265.63
	EV Costs	\$3.01	\$105.89
	Total Other Cost Saving	\$4.05	\$159.74
Overall Economic Savings		\$16.07	\$595.52

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		115.84	5,067.09
Energy Consumed (kWh)		28.75	1,496.62
Co2 Emissions (lbs.)	CV (Gas)	90.42	4,092.44
	EV (Electricity)	81.14	2,870.67
	Total Fuel Saving	9.28	1,221.77
Co Emissions (lbs.)	CV (Gas)	0.7307	37.2981
	EV (Electricity)	0.0503	2.1809
	Total Fuel Saving	0.6804	35.1173
So2 Emissions (lbs.)	CV (Gas)	0.0011	0.0614
	EV (Electricity)	0.0928	3.9511
	Total Fuel Saving	(0.0917)	(3.8897)
Nox Emissions (lbs.)	CV (Gas)	0.0306	1.8081
	EV (Electricity)	0.0912	2.5119
	Total Fuel Saving	(0.0606)	(0.7038)
CH4 Emissions (lbs.)	CV (Gas)	0.0017	0.1580
	EV (Electricity)	0.0077	0.2069
	Total Fuel Saving	(0.0059)	(0.0489)
VOC Emissions (lbs.)	CV (Gas)	0.0430	1.9144
	EV (Electricity)	0.0009	0.0293
	Total Fuel Saving	0.0421	1.8851

Energy Consumption Data February 2022



City of Holdrege



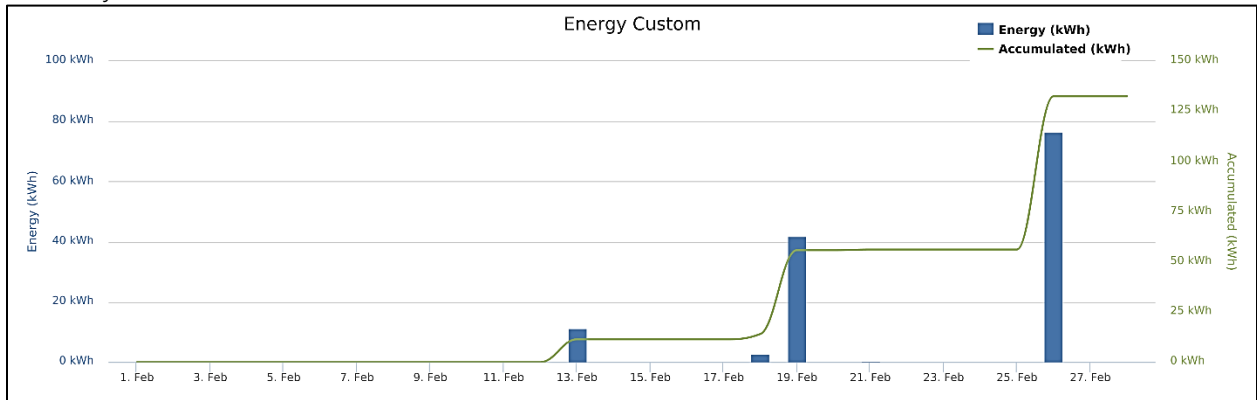
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		533.78	5,240.31
Energy Consumed(kWh)		132.45	1,519.41
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$69.60	\$601.71
	Usage Cost Using EV(Electricity)	\$12.45	\$143.73
	Total Fuel Saving	\$57.15	\$457.98
Other Cost Saving	CV Costs	\$32.56	\$291.19
	EV Costs	\$13.88	\$131.82
	Total Other Cost Saving	\$18.68	\$159.38
Overall Economic Savings		\$75.84	\$617.36

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		533.78	5,240.31
Energy Consumed (kWh)		132.45	1,519.41
Co2 Emissions (lbs.)	CV (Gas)	416.65	4,208.17
	EV (Electricity)	91.47	1,785.40
	Total Fuel Saving	325.18	2,422.77
Co Emissions (lbs.)	CV (Gas)	3.3669	43.8620
	EV (Electricity)	0.0821	1.2829
	Total Fuel Saving	3.2848	42.5791
So2 Emissions (lbs.)	CV (Gas)	0.0049	0.0779
	EV (Electricity)	0.2008	3.7564
	Total Fuel Saving	(0.1958)	(3.6784)
Nox Emissions (lbs.)	CV (Gas)	0.1412	2.3334
	EV (Electricity)	0.1395	5.1775
	Total Fuel Saving	0.0017	(2.8441)
CH4 Emissions (lbs.)	CV (Gas)	0.0079	0.1640
	EV (Electricity)	0.0092	0.1320
	Total Fuel Saving	(0.0013)	0.0319
VOC Emissions (lbs.)	CV (Gas)	0.1982	2.0132
	EV (Electricity)	0.0013	0.0312
	Total Fuel Saving	0.1969	1.9819

Energy Consumption Data February 2022



Kearney



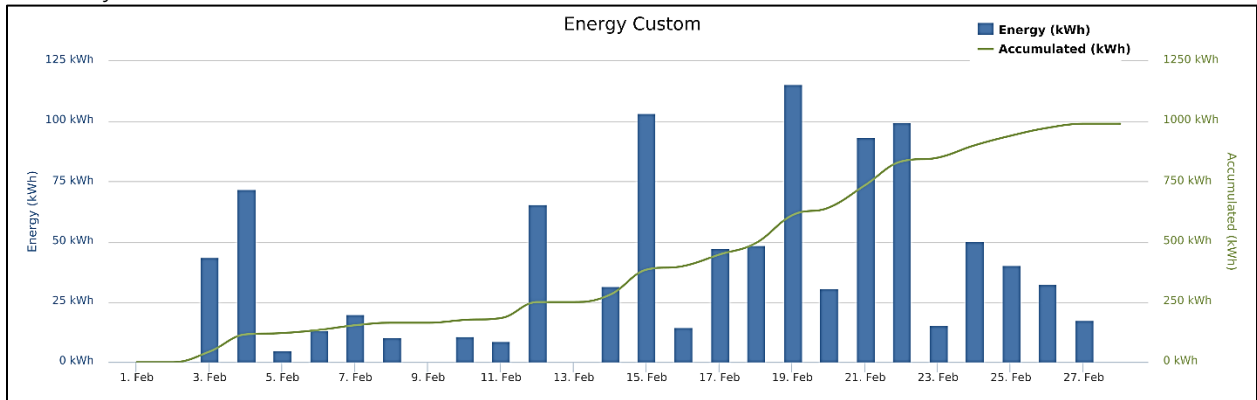
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		3,988.34	101,116.00
Energy Consumed(kWh)		989.66	29,579.47
Fuel Cost Caving	Usage Cost Using CV(Gas)	\$525.41	\$11,240.87
	Usage Cost Using EV(Electricity)	\$84.42	\$2,543.08
	Total Fuel Saving	\$440.99	\$8,697.79
Other Cost Saving	CV Costs	\$243.29	\$5,460.54
	EV Costs	\$103.70	\$2,289.06
	Total Other Cost Saving	\$139.59	\$3,171.48
Overall Economic Savings		\$580.58	\$11,869.26

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		3,988.34	101,116.00
Energy Consumed (kWh)		989.66	29,579.47
Co2 Emissions (lbs.)	CV (Gas)	3,113.17	81,173.70
	EV (Electricity)	683.47	36,096.48
	Total Fuel Saving	2,429.70	45,077.22
Co Emissions (lbs.)	CV (Gas)	25.1570	763.0950
	EV (Electricity)	0.6135	26.1983
	Total Fuel Saving	24.5435	736.8967
So2 Emissions (lbs.)	CV (Gas)	0.0369	1.2771
	EV (Electricity)	1.5001	73.4049
	Total Fuel Saving	(1.4632)	(72.1278)
Nox Emissions (lbs.)	CV (Gas)	1.0551	37.7280
	EV (Electricity)	1.0424	106.2461
	Total Fuel Saving	0.0128	(68.5180)
CH4 Emissions (lbs.)	CV (Gas)	0.0589	3.0343
	EV (Electricity)	0.0688	2.6681
	Total Fuel Saving	(0.0099)	0.3662
VOC Emissions (lbs.)	CV (Gas)	1.4807	38.3211
	EV (Electricity)	0.0095	0.6031
	Total Fuel Saving	1.4712	37.7180

Energy Consumption Data February 2022



Kearney (Fast DC charging):

Economic Saving Data (Fuel & Maintenance Cost Savings):

<u>LEC & YOUNES SOUTH</u>		This Month (October)	All Time
Miles Driven		2,054.95	11,793.11
Energy Consumed(kWh)		509.91	3,353.05
Fuel Cost Caving	Usage Cost Using CV(Gas)	269.77	1,321.08
	Usage Cost Using EV(Electricity)	43.50	286.02
	Total Fuel Saving	226.28	1,035.07
Other Cost Saving	CV Costs	125.35	719.38
	EV Costs	53.43	306.62
	Total Other Cost Saving	71.92	412.76
Overall Economic Savings		298.20	1,447.83

Environmental Saving Data (Reduction in Emissions):

<u>LEC</u>		This Month (October)	All Time
Miles Driven		2,054.95	11,793.11
Energy Consumed (kWh)		509.91	3,353.05
Co2 Emissions (lbs.)	CV (Gas)	1,604.030	9,205.324
	EV (Electricity)	352.149	4,578.818
	Total Fuel Saving	1,251.881	4,626.506
Co Emissions (lbs.)	CV (Gas)	12.962	74.387
	EV (Electricity)	0.316	3.164
	Total Fuel Saving	12.646	71.222
So2 Emissions (lbs.)	CV (Gas)	0.019	0.109
	EV (Electricity)	0.773	8.514
	Total Fuel Saving	-0.754	-8.404
Nox Emissions (lbs.)	CV (Gas)	0.544	3.120
	EV (Electricity)	0.537	13.688
	Total Fuel Saving	0.007	-10.568
CH4 Emissions (lbs.)	CV (Gas)	0.030	0.174
	EV (Electricity)	0.035	0.377
	Total Fuel Saving	-0.005	-0.203
VOC Emissions (lbs.)	CV (Gas)	0.763	4.378
	EV (Electricity)	0.005	0.079
	Total Fuel Saving	0.758	4.300

Kearney (Level-2 stations):

Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (October)	All Time
-			
Miles Driven		2,473.74	92,043.12
Energy Consumed(kWh)		613.83	27,036.41
Fuel Cost Caving	Usage Cost Using CV(Gas)	324.85	10,125.85
	Usage Cost Using EV(Electricity)	52.36	2,326.16
	Total Fuel Saving	272.49	7,799.68
Other Cost Saving	CV Costs	150.90	4,907.09
	EV Costs	64.32	2,053.17
	Total Other Cost Saving	86.58	2,853.93
Overall Economic Savings		359.07	10,653.61

Environmental Saving Data (Reduction in Emissions):

		This Month (October)	All Time
-			
Miles Driven		2,473.74	92,043.12
Energy Consumed (kWh)		613.83	27,036.41
Co2 Emissions (lbs.)	CV (Gas)	1,930.92	74,091.71
	EV (Electricity)	423.92	32,793.05
	Total Fuel Saving	1,507.01	41,298.65
Co Emissions (lbs.)	CV (Gas)	15.60	705.87
	EV (Electricity)	0.38	23.88
	Total Fuel Saving	15.22	681.99
So2 Emissions (lbs.)	CV (Gas)	0.02	1.19
	EV (Electricity)	0.93	67.20
	Total Fuel Saving	(0.91)	(66.01)
Nox Emissions (lbs.)	CV (Gas)	0.65	35.33
	EV (Electricity)	0.65	96.62
	Total Fuel Saving	0.01	(61.30)
CH4 Emissions (lbs.)	CV (Gas)	0.04	2.90
	EV (Electricity)	0.04	2.39
	Total Fuel Saving	(0.01)	0.51
VOC Emissions (lbs.)	CV (Gas)	0.92	34.95
	EV (Electricity)	0.01	0.55
	Total Fuel Saving	0.91	34.41

LES



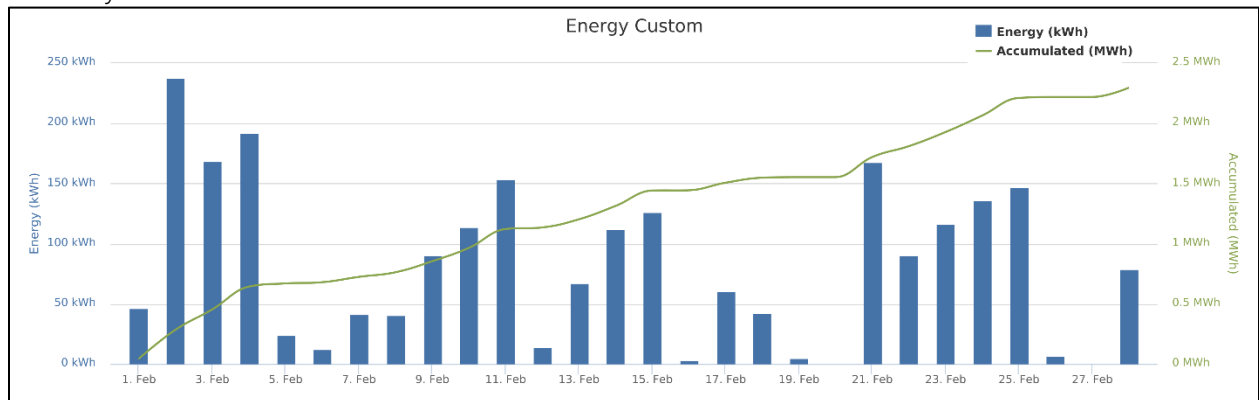
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		9,255.91	155,670.19
Energy Consumed(kWh)		2296.752	45,248.54
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$1,182.83	\$17,589.58
	Usage Cost Using EV(Electricity)	\$170.65	\$4,405.99
	Total Fuel Saving	\$1,012.19	\$13,183.59
Other Cost Saving	CV Costs	\$564.61	\$8,144.94
	EV Costs	\$240.65	\$3,203.16
	Total Other Cost Saving	\$323.96	\$4,941.78
Overall Economic Savings		\$1,336.14	\$18,125.36

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		9,255.91	155,670.19
Energy Consumed (kWh)		2,296.75	45,248.54
Co2 Emissions (lbs.)	CV (Gas)	7,224.87	126,788.22
	EV (Electricity)	6,220.60	72,432.19
	Total Fuel Saving	1,004.26	54,356.02
Co Emissions (lbs.)	CV (Gas)	58.3829	1,182.3125
	EV (Electricity)	2.2632	29.6185
	Total Fuel Saving	56.1197	1,152.6940
So2 Emissions (lbs.)	CV (Gas)	0.0857	1.9868
	EV (Electricity)	2.4502	34.4636
	Total Fuel Saving	(2.3645)	(32.4768)
Nox Emissions (lbs.)	CV (Gas)	2.4487	58.7419
	EV (Electricity)	22.0432	248.3812
	Total Fuel Saving	(19.5945)	(189.6393)
CH4 Emissions (lbs.)	CV (Gas)	0.1367	4.9164
	EV (Electricity)	0.2540	2.7086
	Total Fuel Saving	(0.1173)	2.2079
VOC Emissions (lbs.)	CV (Gas)	3.4363	59.0511
	EV (Electricity)	0.0565	1.2847
	Total Fuel Saving	3.3798	57.7665

Energy Consumption Data February 2022



Lexington



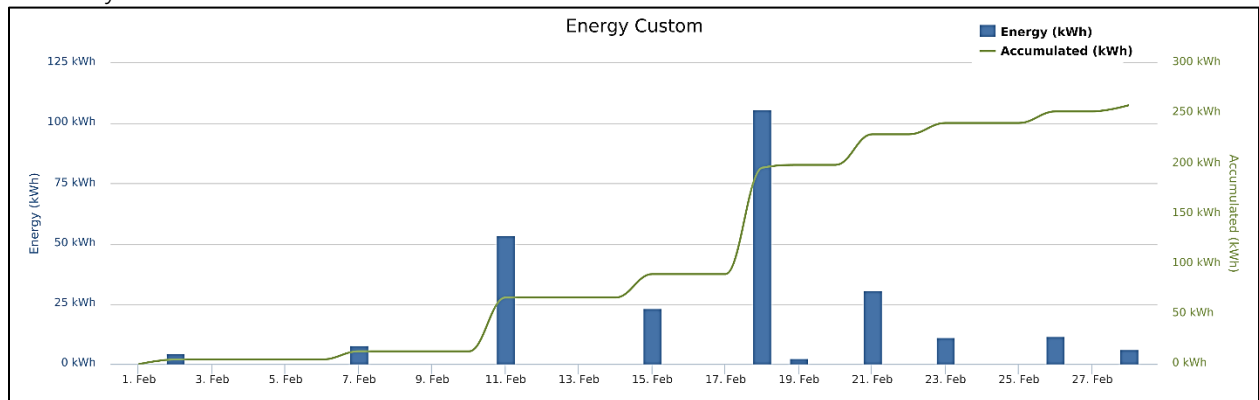
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,040.20	42,797.55
Energy Consumed(kWh)		258.115	12,567.34
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$134.28	\$4,481.63
	Usage Cost Using EV(Electricity)	\$29.40	\$1,300.52
	Total Fuel Saving	\$104.88	\$3,181.12
Other Cost Saving	CV Costs	\$63.45	\$2,260.79
	EV Costs	\$27.05	\$1,004.00
	Total Other Cost Saving	\$36.41	\$1,256.80
Overall Economic Savings		\$141.28	\$4,437.91

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,040.20	42,797.55
Energy Consumed (kWh)		258.12	12,567.34
Co2 Emissions (lbs.)	CV (Gas)	811.95	34,976.25
	EV (Electricity)	178.26	14,341.39
	Total Fuel Saving	633.69	20,634.86
Co Emissions (lbs.)	CV (Gas)	6.5612	383.9270
	EV (Electricity)	0.1600	10.6552
	Total Fuel Saving	6.4012	373.2719
So2 Emissions (lbs.)	CV (Gas)	0.0096	0.7065
	EV (Electricity)	0.3913	31.2466
	Total Fuel Saving	(0.3816)	(30.5401)
Nox Emissions (lbs.)	CV (Gas)	0.2752	21.3091
	EV (Electricity)	0.2719	42.2329
	Total Fuel Saving	0.0033	(20.9238)
CH4 Emissions (lbs.)	CV (Gas)	0.0154	1.5873
	EV (Electricity)	0.0179	1.0317
	Total Fuel Saving	(0.0026)	0.5556
VOC Emissions (lbs.)	CV (Gas)	0.3862	16.6043
	EV (Electricity)	0.0025	0.2505
	Total Fuel Saving	0.3837	16.3538

Energy Consumption Data February 2022



Lincoln



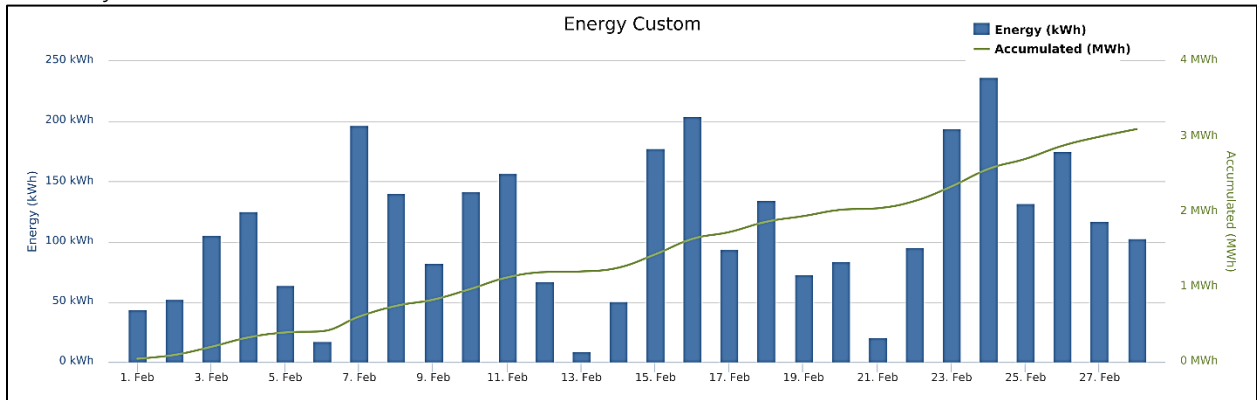
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		12,479.97	335,791.44
Energy Consumed(kWh)		3,096.77	98,582.44
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$1,605.27	\$36,967.92
	Usage Cost Using EV(Electricity)	\$230.09	\$7,424.04
	Total Fuel Saving	\$1,375.18	\$29,543.89
Other Cost Saving	CV Costs	\$761.28	\$17,403.27
	EV Costs	\$324.48	\$6,744.42
	Total Other Cost Saving	\$436.80	\$10,658.85
Overall Economic Savings		\$1,811.98	\$40,202.74

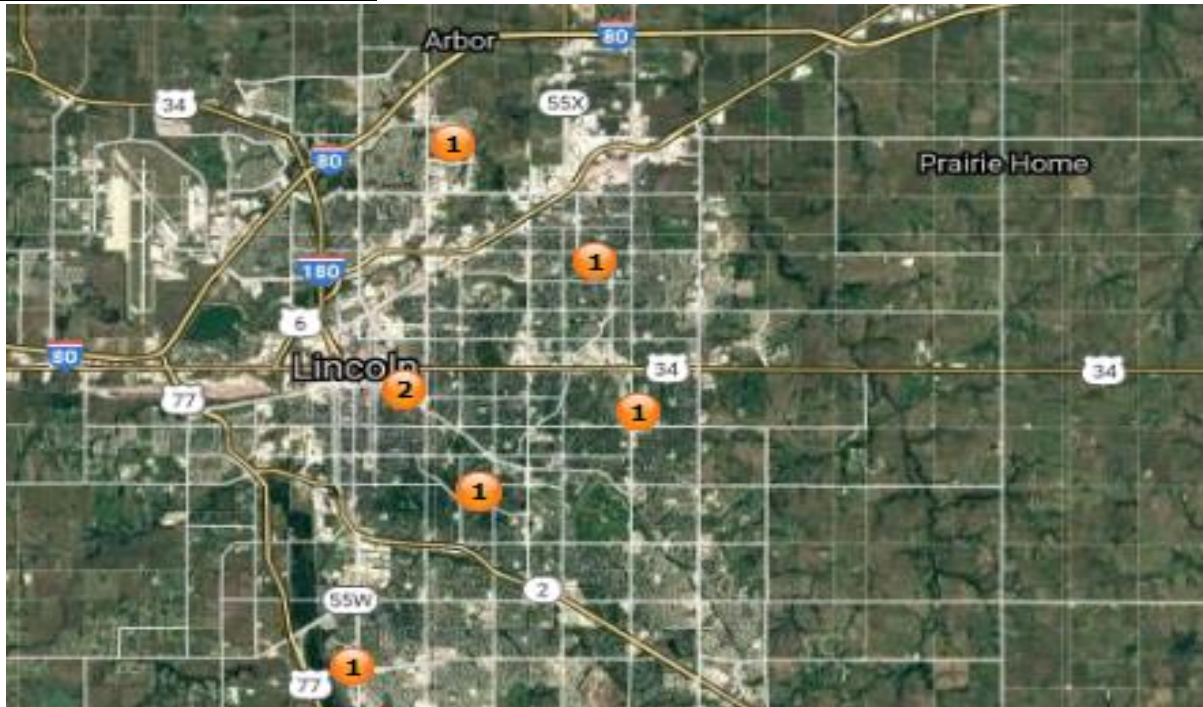
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		12,479.97	335,791.44
Energy Consumed (kWh)		3,096.77	98,582.44
Co2 Emissions (lbs.)	CV (Gas)	9,741.46	269,984.91
	EV (Electricity)	8,387.39	157,504.04
	Total Fuel Saving	1,354.07	112,480.87
Co Emissions (lbs.)	CV (Gas)	78.7191	2,326.4099
	EV (Electricity)	3.0516	61.7849
	Total Fuel Saving	75.6676	2,264.6249
So2 Emissions (lbs.)	CV (Gas)	0.1156	3.6758
	EV (Electricity)	3.3036	77.0788
	Total Fuel Saving	(3.1881)	(73.4030)
Nox Emissions (lbs.)	CV (Gas)	3.3016	107.0848
	EV (Electricity)	29.7213	529.5212
	Total Fuel Saving	(26.4197)	(422.4365)
CH4 Emissions (lbs.)	CV (Gas)	0.1843	10.2699
	EV (Electricity)	0.3425	5.4977
	Total Fuel Saving	(0.1582)	4.7722
VOC Emissions (lbs.)	CV (Gas)	4.6333	125.9422
	EV (Electricity)	0.0762	2.8730
	Total Fuel Saving	4.5571	123.0692

Energy Consumption Data February 2022



Lincoln Public Schools



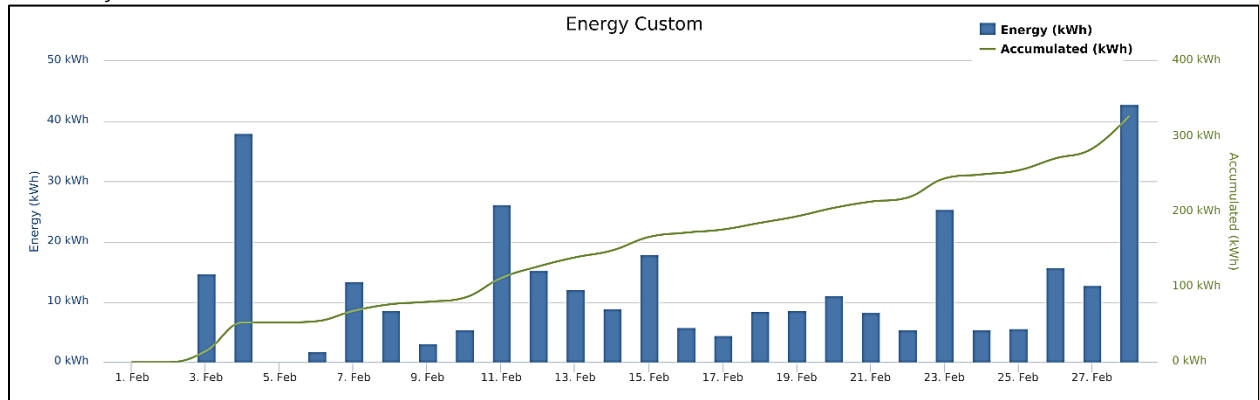
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,314.34	25,645.51
Energy Consumed(kWh)		326.14	7,408.08
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$168.86	\$3,042.10
	Usage Cost Using EV(Electricity)	\$24.23	\$559.96
	Total Fuel Saving	\$144.63	\$2,482.15
Other Cost Saving	CV Costs	\$80.17	\$1,564.38
	EV Costs	\$34.17	\$666.78
	Total Other Cost Saving	\$46.00	\$897.59
Overall Economic Savings		\$190.63	\$3,379.74

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,314.34	25,645.51
Energy Consumed (kWh)		326.14	7,408.08
Co2 Emissions (lbs.)	CV (Gas)	1,025.93	20,018.06
	EV (Electricity)	883.33	9,869.42
	Total Fuel Saving	142.61	10,148.64
Co Emissions (lbs.)	CV (Gas)	8.2904	161.7626
	EV (Electricity)	0.3214	6.4745
	Total Fuel Saving	7.9690	155.2881
So2 Emissions (lbs.)	CV (Gas)	0.0122	0.2375
	EV (Electricity)	0.3479	6.6856
	Total Fuel Saving	(0.3358)	(6.4481)
Nox Emissions (lbs.)	CV (Gas)	0.3477	6.7846
	EV (Electricity)	3.1301	14.1704
	Total Fuel Saving	(2.7824)	(7.3857)
CH4 Emissions (lbs.)	CV (Gas)	0.0194	0.3788
	EV (Electricity)	0.0361	0.6463
	Total Fuel Saving	(0.0167)	(0.2674)
VOC Emissions (lbs.)	CV (Gas)	0.4880	9.5211
	EV (Electricity)	0.0080	0.1699
	Total Fuel Saving	0.4799	9.3512

Energy Consumption Data February 2022



Metropolitan Community College



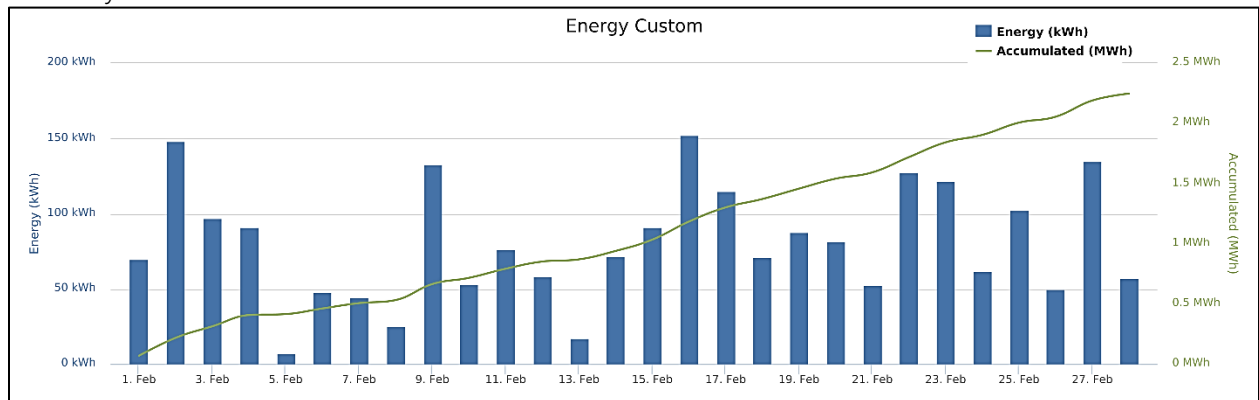
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		9,055.71	113,837.00
Energy Consumed(kWh)		2,247.08	32,976.23
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$1,141.76	\$12,489.31
	Usage Cost Using EV(Electricity)	\$198.53	\$2,898.97
	Total Fuel Saving	\$943.23	\$9,590.34
Other Cost Saving	CV Costs	\$552.40	\$6,003.55
	EV Costs	\$235.45	\$2,146.32
	Total Other Cost Saving	\$316.95	\$3,857.23
Overall Economic Savings		\$1,260.18	\$13,447.57

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		9,055.71	113,837.00
Energy Consumed (kWh)		2,247.08	32,976.23
Co2 Emissions (lbs.)	CV (Gas)	7,068.597	91,887.351
	EV (Electricity)	4,213.303	52,524.289
	Total Fuel Saving	2,855.294	39,363.062
Co Emissions (lbs.)	CV (Gas)	57.1202	718.0561
	EV (Electricity)	3.9991	45.6127
	Total Fuel Saving	53.1210	672.4433
So2 Emissions (lbs.)	CV (Gas)	0.0839	1.0540
	EV (Electricity)	6.4639	102.0046
	Total Fuel Saving	(6.3800)	(100.9506)
Nox Emissions (lbs.)	CV (Gas)	2.3957	30.1167
	EV (Electricity)	3.3051	74.1143
	Total Fuel Saving	(0.9093)	(43.9976)
CH4 Emissions (lbs.)	CV (Gas)	0.1338	2.9058
	EV (Electricity)	0.4546	5.0945
	Total Fuel Saving	(0.3209)	(2.1887)
VOC Emissions (lbs.)	CV (Gas)	3.3620	42.2610
	EV (Electricity)	0.0480	0.8206
	Total Fuel Saving	3.3140	41.4404

Energy Consumption Data February 2022



Nebraska City



Data from Two existing charging station with three ports

		This Month (February)	All Time
Miles Driven		2,190.09	89,722.76
Energy Consumed(kWh)		543.447	26,187.20
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$279.40	\$9,828.11
	Usage Cost Using EV(Electricity)	\$57.82	\$2,807.82
	Total Fuel Saving	\$221.58	\$7,020.29
Other Cost Saving	CV Costs	\$133.60	\$4,822.66
	EV Costs	\$56.94	\$2,076.65
	Total Other Cost Saving	\$76.65	\$2,746.02
Overall Economic Savings		\$298.23	\$9,766.31

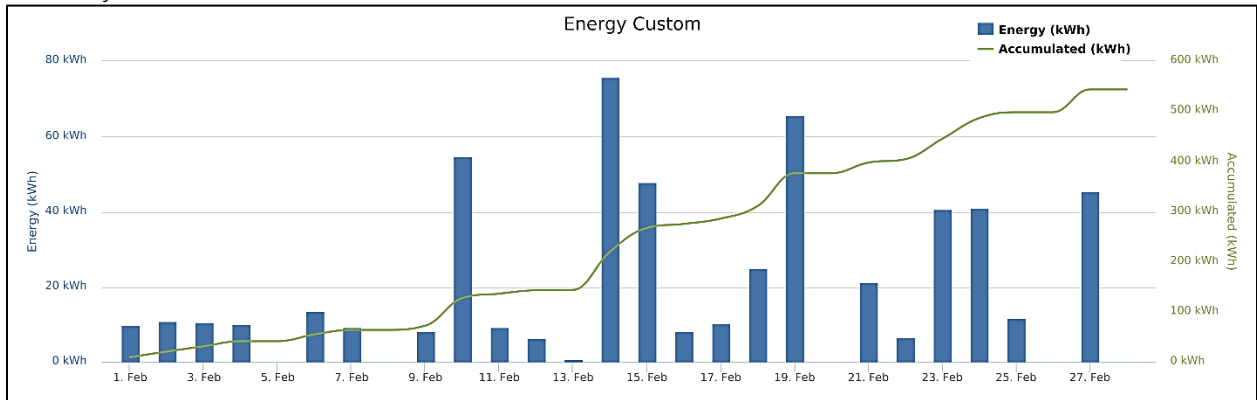
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		2,190.09	89,722.76
Energy Consumed (kWh)		543.45	26,187.20
Co2 Emissions (lbs.)	CV (Gas)	1,709.51	73,166.00
	EV (Electricity)	1,185.91	23,382.11
	Total Fuel Saving	523.61	49,783.90
Co Emissions (lbs.)	CV (Gas)	13.8143	763.9050
	EV (Electricity)	1.0783	22.7023
	Total Fuel Saving	12.7360	741.2027
So2 Emissions (lbs.)	CV (Gas)	0.0203	1.3697
	EV (Electricity)	0.0123	40.3946
	Total Fuel Saving	0.0080	(39.0249)
Nox Emissions (lbs.)	CV (Gas)	0.5794	41.0831
	EV (Electricity)	0.6752	17.2442
	Total Fuel Saving	(0.0958)	23.8389
CH4 Emissions (lbs.)	CV (Gas)	0.0323	3.0035
	EV (Electricity)	0.1378	2.3153
	Total Fuel Saving	(0.1055)	0.6882
VOC Emissions (lbs.)	CV (Gas)	0.8131	34.5549
	EV (Electricity)	0.0052	0.3028
	Total Fuel Saving	0.8078	34.2521

CNG Data – No new data for February 2022, this is from previous calculations.

		Total
Miles driven		36,520.0
Fuel cost Savings:	Usage Cost Using CV (Gas)	\$4,512.16
	Usage Cost Using CNG (Natural gas)	\$2,834.56
	Total Fuel Savings	\$1,677.60
CO2 Emissions (lbs.)	CV (Gas)	37,613.59
	CNG (Natural Gas)	30,048.11
	Overall Emission Reductions	7,565.48
CO Emissions (lbs.)	CV (Gas)	799.68
	CNG (Natural Gas)	1,439.27
	Overall Emission Reductions	(639.59)
SO2 Emissions (lbs.)	CV (Gas)	1.029
	CNG (Natural Gas)	0.1527
	Overall Emission Reductions	0.8763
NOx Emissions (lbs.)	CV (Gas)	22.09
	CNG (Natural Gas)	27.69
	Overall Emission Reductions	(5.6)
CH4 Emissions (lbs.)	CV (Gas)	1.31
	CNG (Natural Gas)	49.68
	Overall Emission Reductions	(48.37)
VOC Emissions (lbs.)	CV (Gas)	19.39
	CNG (Natural Gas)	22.52
	Overall Emission Reductions	(3.13)

Energy Consumption Data February 2022



Nebraska City

- Data from one existing charging station with two ports

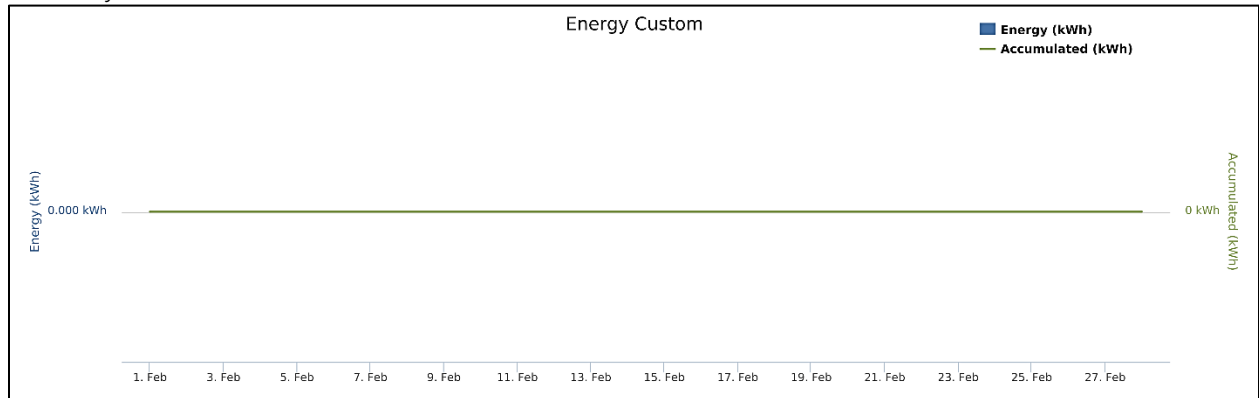
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles driven		0	5,861.28
Energy consumed (kWh)		0	1,723.9
Fuel cost Savings:	Usage Cost Using CV (Gas)	\$0	\$618.62
	Usage Cost Using EV (Electricity)	\$0	\$176.3
	Total Fuel Savings	\$0	\$442.32
Other Cost Savings:	CV Costs	\$0	\$293.75
	EV Costs	\$0	\$216.76
	Total Other Cost Savings	\$0	\$76.99
Overall Economic Savings		\$0	\$519.31

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles driven		0	5,861.28
Energy consumed (kWh)		0	1,723.9
CO2 Emissions (lbs.)	CV (Gas)	0	5,623.17
	EV (Electricity)	0	681.15
	Overall Emission Reductions	0	4,942.02
CO Emissions (lbs.)	CV (Gas)	0	125.4104
	EV (Electricity)	0	0.8314
	Overall Emission Reductions	0	124.579
SO2 Emissions (lbs.)	CV (Gas)	0	0.2916
	EV (Electricity)	0	4.5738
	Overall Emission Reductions	(0)	(4.2822)
NOx Emissions (lbs.)	CV (Gas)	0	9.1734
	EV (Electricity)	0	2.2423
	Overall Emission Reductions	(0)	6.9311
CH4 Emissions (lbs.)	CV (Gas)	0	0.5377
	EV (Electricity)	0	0.0286
	Overall Emission Reductions	0	0.5091
VOC Emissions (lbs.)	CV (Gas)	0	2.8789
	EV (Electricity)	0	0.0335
	Overall Emission Reductions	0	2.8454

Energy Consumption Data February 2022



Nebraska City Savings Summary

Overall Economic Savings		\$11,963.22
Overall Emission Reductions (lbs.)	CO2	62,291.3954
	CO	865.7817
	SO2	(43.3071)
	NOX	30.7700
	CH4	1.1973
	VOC	37.0975

Norfolk



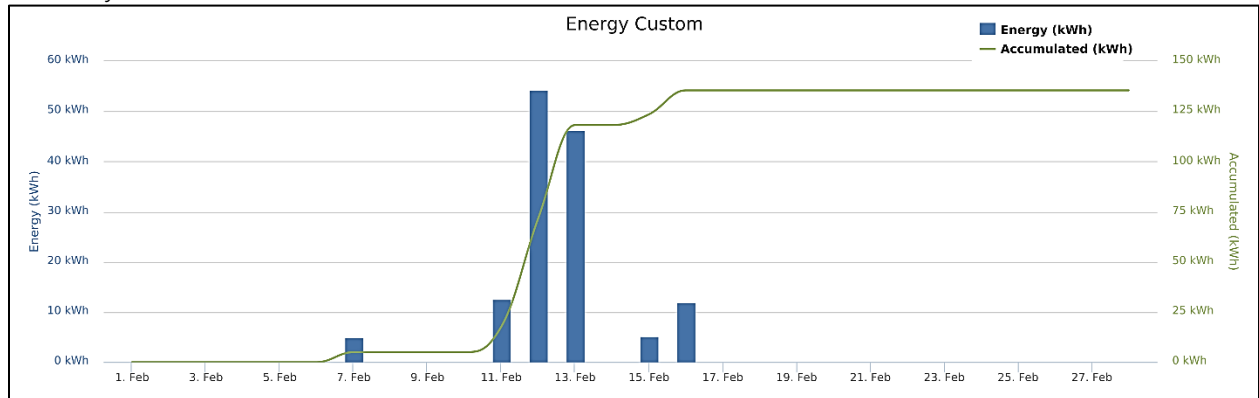
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		545.47259	3,079.48
Energy Consumed(kWh)		135.353	872.43
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$66.46	\$310.26
	Usage Cost Using EV(Electricity)	\$15.82	\$101.99
	Total Fuel Saving	\$50.64	\$208.28
Other Cost Saving	CV Costs	\$33.27	\$187.85
	EV Costs	\$14.18	\$80.07
	Total other cost Saving	\$19.09	\$107.78
Overall Economic Savings		\$69.73	\$316.06

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		545.4726	3,079.48
Energy Consumed (kWh)		135.3530	872.43
Co2 Emissions (lbs.)	CV (Gas)	425.778	2403.739
	EV (Electricity)	248.172	974.351
	Total Fuel Saving	177.606	1429.388
Co Emissions (lbs.)	CV (Gas)	3.441	19.424
	EV (Electricity)	0.229	0.411
	Total Fuel Saving	3.211	19.014
So2 Emissions (lbs.)	CV (Gas)	0.005	0.029
	EV (Electricity)	0.430	1.716
	Total Fuel Saving	(0.4250)	(1.6879)
Nox Emissions (lbs.)	CV (Gas)	0.144	0.815
	EV (Electricity)	0.223	13.448
	Total Fuel Saving	(0.0784)	(12.6333)
CH4 Emissions (lbs.)	CV (Gas)	0.008	0.045
	EV (Electricity)	0.029	0.063
	Total Fuel Saving	(0.0207)	(0.0171)
VOC Emissions (lbs.)	CV (Gas)	0.203	1.143
	EV (Electricity)	0.003	0.020
	Total Fuel Saving	0.1999	1.1235

Energy Consumption Data February 2022



Nebraska Safety Center at UNK



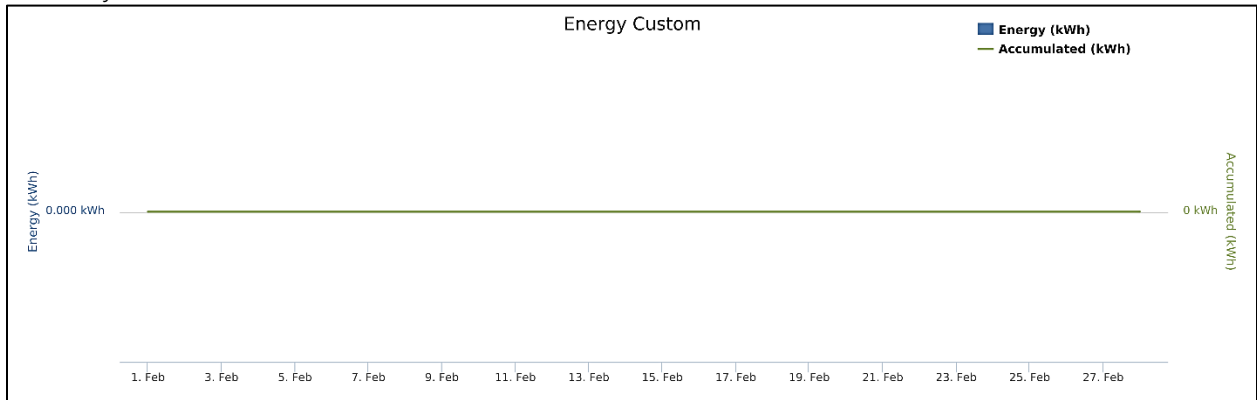
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		0.00	842.27
Energy Consumed(kWh)		0.00	248.86
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$0.00	\$87.51
	Usage Cost Using EV(Electricity)	\$0.00	\$21.23
	Total Fuel Saving	\$0.00	\$66.29
Other Cost Saving	CV Costs	\$0.00	\$46.65
	EV Costs	\$0.00	\$17.69
	Total Other Cost Saving	\$0.00	\$28.97
Overall Economic Savings		\$0.00	\$95.25

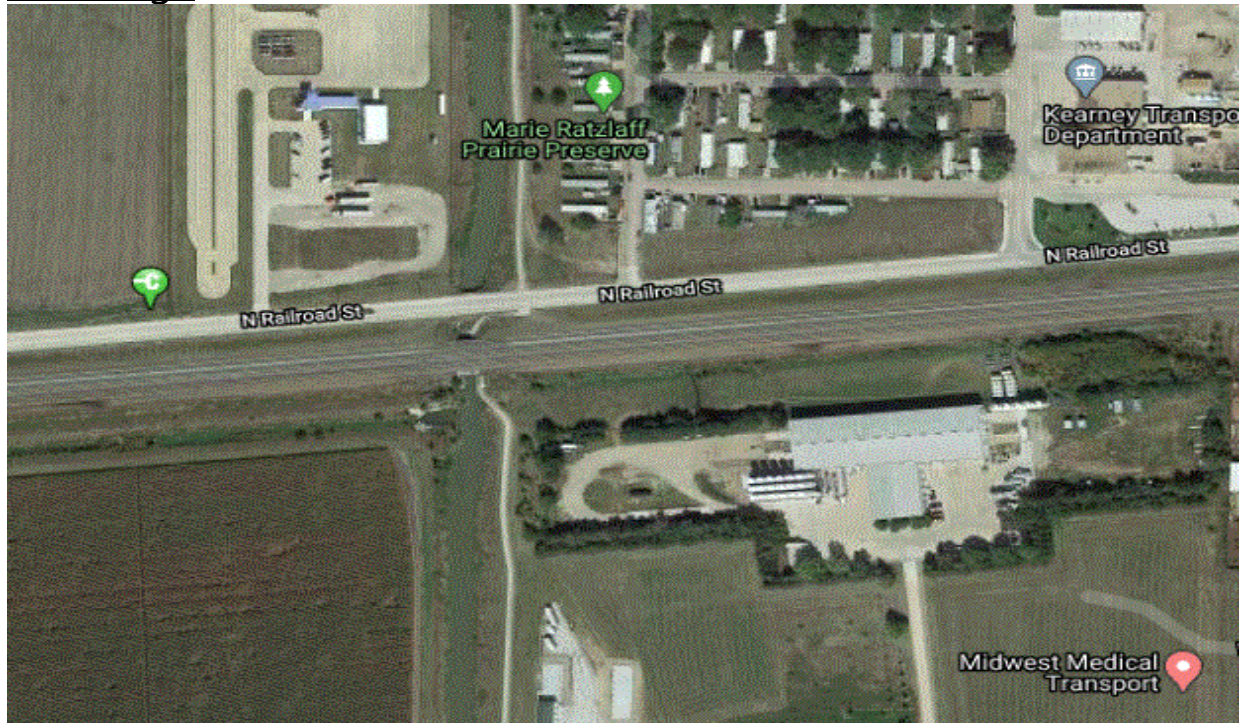
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		0.00	842.27
Energy Consumed (kWh)		0.00	248.86
Co2 Emissions (lbs.)	CV (Gas)	0.00	673.77
	EV (Electricity)	0.00	351.87
	Total Fuel Saving	0.00	321.90
Co Emissions (lbs.)	CV (Gas)	0.0000	5.3127
	EV (Electricity)	0.0000	0.2508
	Total Fuel Saving	0.0000	5.0619
So2 Emissions (lbs.)	CV (Gas)	0.0000	0.0078
	EV (Electricity)	0.0000	0.6561
	Total Fuel Saving	0.0000	(0.6483)
Nox Emissions (lbs.)	CV (Gas)	0.0000	0.2228
	EV (Electricity)	0.0000	1.0908
	Total Fuel Saving	0.0000	(0.8680)
CH4 Emissions (lbs.)	CV (Gas)	0.0000	0.0184
	EV (Electricity)	0.0000	0.0276
	Total Fuel Saving	0.0000	(0.0091)
VOC Emissions (lbs.)	CV (Gas)	0.0000	0.3127
	EV (Electricity)	0.0000	0.0058
	Total Fuel Saving	0.0000	0.3069

Energy Consumption Data February 2022



NP Dodge



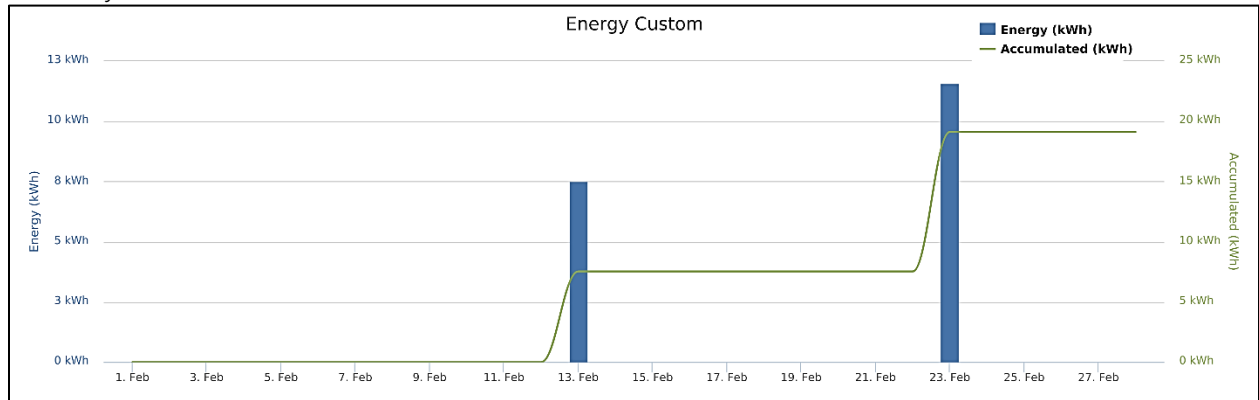
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		76.99	10,856.13
Energy Consumed(KWh)		19.11	3,212.67
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$9.75	\$1,029.49
	Usage Cost Using EV(Electricity)	\$1.69	\$279.53
	Total Fuel Saving	\$8.06	\$749.96
Other Cost Saving	CV Costs	\$4.70	\$580.91
	EV Costs	\$2.00	\$209.78
	Total Other Cost Saving	\$2.69	\$371.13
Overall Economic Savings		\$10.76	\$1,121.09

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		76.99	10,856.13
Energy Consumed (kWh)		19.11	3,212.67
Co2 Emissions (lbs.)	CV (Gas)	60.10	8,754.84
	EV (Electricity)	35.82	5,100.18
	Total Fuel Saving	24.28	3,654.66
Co Emissions (lbs.)	CV (Gas)	0.4856	68.4765
	EV (Electricity)	0.0340	4.2624
	Total Fuel Saving	0.4516	64.2141
So2 Emissions (lbs.)	CV (Gas)	0.0007	0.1005
	EV (Electricity)	0.0550	9.7224
	Total Fuel Saving	(0.0542)	(9.6218)
Nox Emissions (lbs.)	CV (Gas)	0.0204	2.8720
	EV (Electricity)	0.0281	7.5609
	Total Fuel Saving	(0.0077)	(4.6889)
CH4 Emissions (lbs.)	CV (Gas)	0.0011	0.2636
	EV (Electricity)	0.0039	0.4843
	Total Fuel Saving	(0.0027)	(0.2207)
VOC Emissions (lbs.)	CV (Gas)	0.0286	4.0304
	EV (Electricity)	0.0004	0.0824
	Total Fuel Saving	0.0282	3.9481

Energy Consumption Data February 2022



NPPD



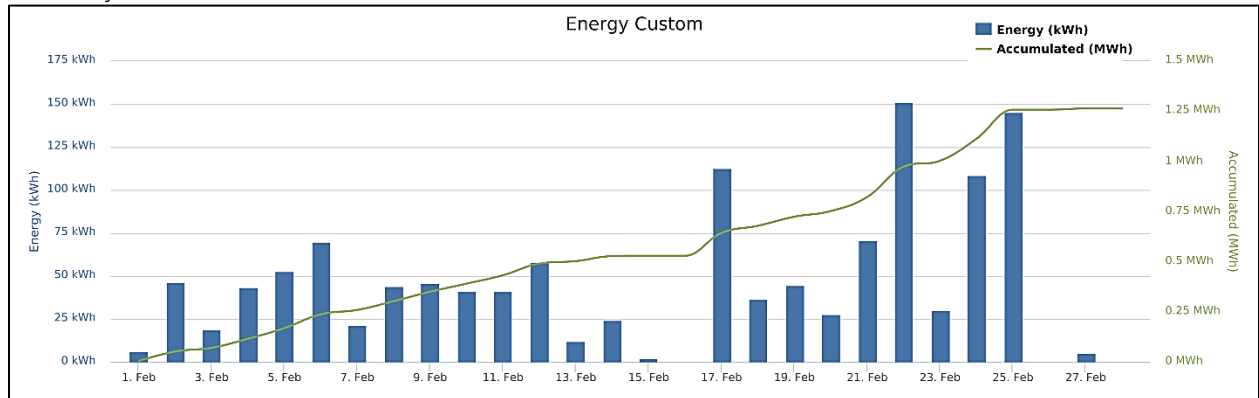
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		5,090.60	92,171.56
Energy Consumed(kWh)		1,263.18	26,513.72
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$654.64	\$10,220.27
	Usage Cost Using EV(Electricity)	\$93.85	\$2,003.22
	Total Fuel Saving	\$560.78	\$8,217.05
Other Cost Saving	CV Costs	\$310.53	\$5,622.47
	EV Costs	\$132.36	\$2,396.46
	Total Other Cost Saving	\$178.17	\$3,226.00
Overall Economic Savings		\$738.95	\$11,443.05

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		5,090.60	92,171.56
Energy Consumed (kWh)		1,263.18	26,513.72
Co2 Emissions (lbs.)	CV (Gas)	3,973.56	71,946.15
	EV (Electricity)	3,421.23	36,256.88
	Total Fuel Saving	552.33	35,689.27
Co Emissions (lbs.)	CV (Gas)	32.1097	581.3849
	EV (Electricity)	1.2447	23.2481
	Total Fuel Saving	30.8649	558.1368
So2 Emissions (lbs.)	CV (Gas)	0.0471	0.8535
	EV (Electricity)	1.3476	24.0394
	Total Fuel Saving	(1.3004)	(23.1860)
Nox Emissions (lbs.)	CV (Gas)	1.3467	24.3844
	EV (Electricity)	12.1234	55.9314
	Total Fuel Saving	(10.7767)	(31.5470)
CH4 Emissions (lbs.)	CV (Gas)	0.0752	1.3615
	EV (Electricity)	0.1397	2.3288
	Total Fuel Saving	(0.0645)	(0.9674)
VOC Emissions (lbs.)	CV (Gas)	1.8899	34.2194
	EV (Electricity)	0.0311	0.6092
	Total Fuel Saving	1.8589	33.6102

Energy Consumption Data February 2022



Minden



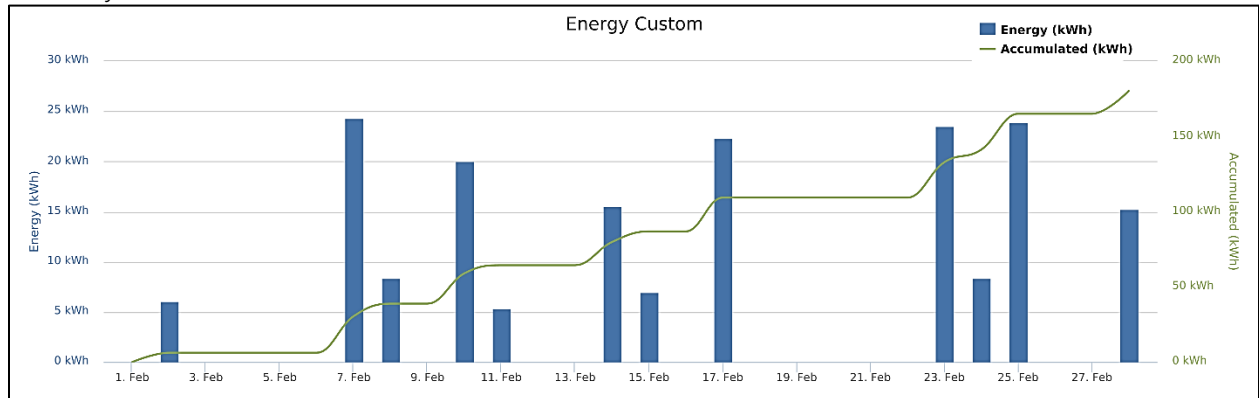
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		726.29	2,505.46
Energy Consumed(kWh)		180.22	693.03
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$93.71	\$301.71
	Usage Cost Using EV(Electricity)	\$16.94	\$66.77
	Total Fuel Saving	\$76.77	\$234.94
Other Cost Saving	CV Costs	\$44.30	\$152.83
	EV Costs	\$18.88	\$65.14
	Total Other Cost Saving	\$25.42	\$87.69
Overall Economic Savings		\$102.19	\$322.63

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		726.29	2,505.46
Energy Consumed (kWh)		180.22	693.03
Co2 Emissions (lbs.)	CV (Gas)	566.92	1,955.69
	EV (Electricity)	124.46	856.89
	Total Fuel Saving	442.46	1,098.79
Co Emissions (lbs.)	CV (Gas)	4.5812	15.8036
	EV (Electricity)	0.1117	0.6111
	Total Fuel Saving	4.4695	15.1925
So2 Emissions (lbs.)	CV (Gas)	0.0067	0.0232
	EV (Electricity)	0.2732	1.6240
	Total Fuel Saving	(0.2665)	(1.6008)
Nox Emissions (lbs.)	CV (Gas)	0.1921	0.6628
	EV (Electricity)	0.1898	2.4275
	Total Fuel Saving	0.0023	(1.7646)
CH4 Emissions (lbs.)	CV (Gas)	0.0107	0.0370
	EV (Electricity)	0.0125	0.0723
	Total Fuel Saving	(0.0018)	(0.0353)
VOC Emissions (lbs.)	CV (Gas)	0.2696	0.9302
	EV (Electricity)	0.0017	0.0144
	Total Fuel Saving	0.2679	0.9158

Energy Consumption Data February 2022



OPPD



Data from two existing charging stations Purchased via NET/NCEA Grant.

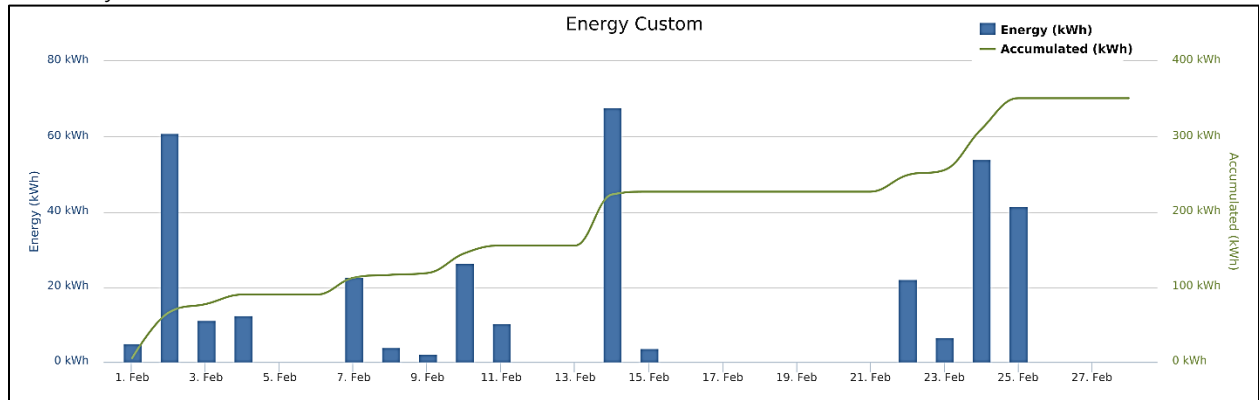
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,412.54	82,444.05
Energy Consumed(kWh)		350.51	24,344.99
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$177.79	\$8,434.46
	Usage Cost Using EV(Electricity)	\$30.97	\$2,169.07
	Total Fuel Saving	\$146.83	\$6,265.39
Other Cost Saving	CV Costs	\$86.17	\$4,018.80
	EV Costs	\$36.73	\$1,981.07
	Total Other Cost Saving	\$49.44	\$2,037.73
Overall Economic Savings		\$196.27	\$8,303.12

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,412.543	82,444.051
Energy Consumed (kWh)		350.507	24,344.993
Co2 Emissions (lbs.)	CV (Gas)	1,102.59	68,764.35
	EV (Electricity)	657.21	26,186.07
	Total Fuel Saving	445.38	42,578.28
Co Emissions (lbs.)	CV (Gas)	8.9098	913.5215
	EV (Electricity)	0.6238	23.3479
	Total Fuel Saving	8.2860	890.1736
So2 Emissions (lbs.)	CV (Gas)	0.0131	1.8343
	EV (Electricity)	1.0083	75.3162
	Total Fuel Saving	(0.9952)	(73.4819)
Nox Emissions (lbs.)	CV (Gas)	0.3737	56.2896
	EV (Electricity)	0.5155	46.3271
	Total Fuel Saving	(0.1418)	9.9625
CH4 Emissions (lbs.)	CV (Gas)	0.0209	4.3082
	EV (Electricity)	0.0709	2.1352
	Total Fuel Saving	(0.0500)	2.1730
VOC Emissions (lbs.)	CV (Gas)	0.5244	33.0745
	EV (Electricity)	0.0075	0.5307
	Total Fuel Saving	0.5169	32.5438

Energy Consumption Data February 2022



OPPD

- Data from one existing charging stations with two ports.

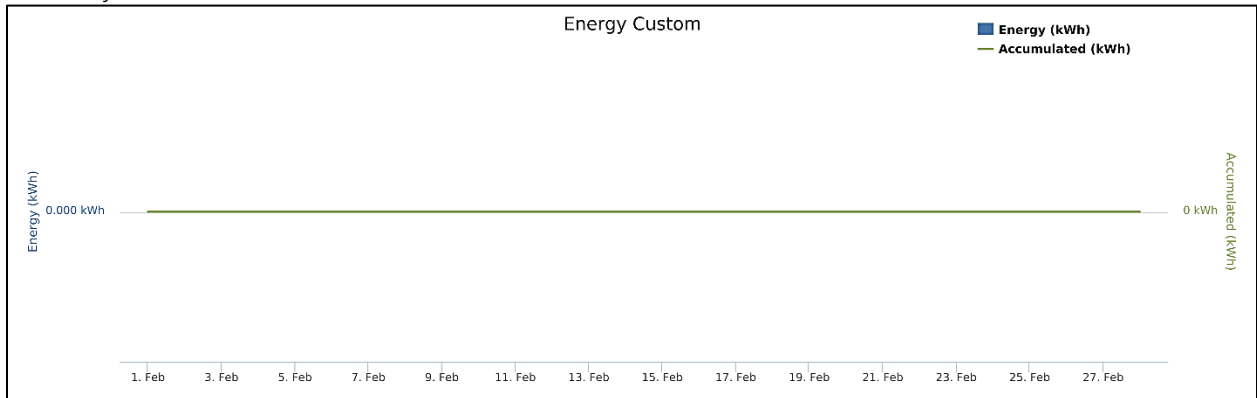
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles driven		0	15,250.60
Energy consumed (kWh)		0	4,485.47
Fuel cost Savings:	Usage Cost Using CV (Gas)	\$0	\$1,587.95
	Usage Cost Using EV (Electricity)	\$0	\$376.78
	Total Fuel Savings	\$0	\$1,211.17
Other Cost Savings:	CV Costs	\$0	\$755.95
	EV Costs	\$0	\$564.27
	Total Other Cost Savings	\$0	\$191.68
Overall Economic Savings		\$0	\$1,402.85

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles driven		0	15,250.60
Energy consumed (kWh)		0	4,485.47
CO2 Emissions (lbs.)	CV (Gas)	0	13,817.04
	EV (Electricity)	0	1,295.40
	Overall Emission Reductions	0	12,521.64
CO Emissions (lbs.)	CV (Gas)	0	316.0458
	EV (Electricity)	0	2.0173
	Overall Emission Reductions	0	314.0285
SO2 Emissions (lbs.)	CV (Gas)	0	0.7397
	EV (Electricity)	0	12.4400
	Overall Emission Reductions	0	(11.7003)
NOx Emissions (lbs.)	CV (Gas)	0	23.2999
	EV (Electricity)	0	5.3459
	Overall Emission Reductions	0	17.954
CH4 Emissions (lbs.)	CV (Gas)	0	1.3449
	EV (Electricity)	0	0.0672
	Overall Emission Reductions	0	1.2777
VOC Emissions (lbs.)	CV (Gas)	0	7.0471
	EV (Electricity)	0	0.0773
	Overall Emission Reductions	0	6.9698

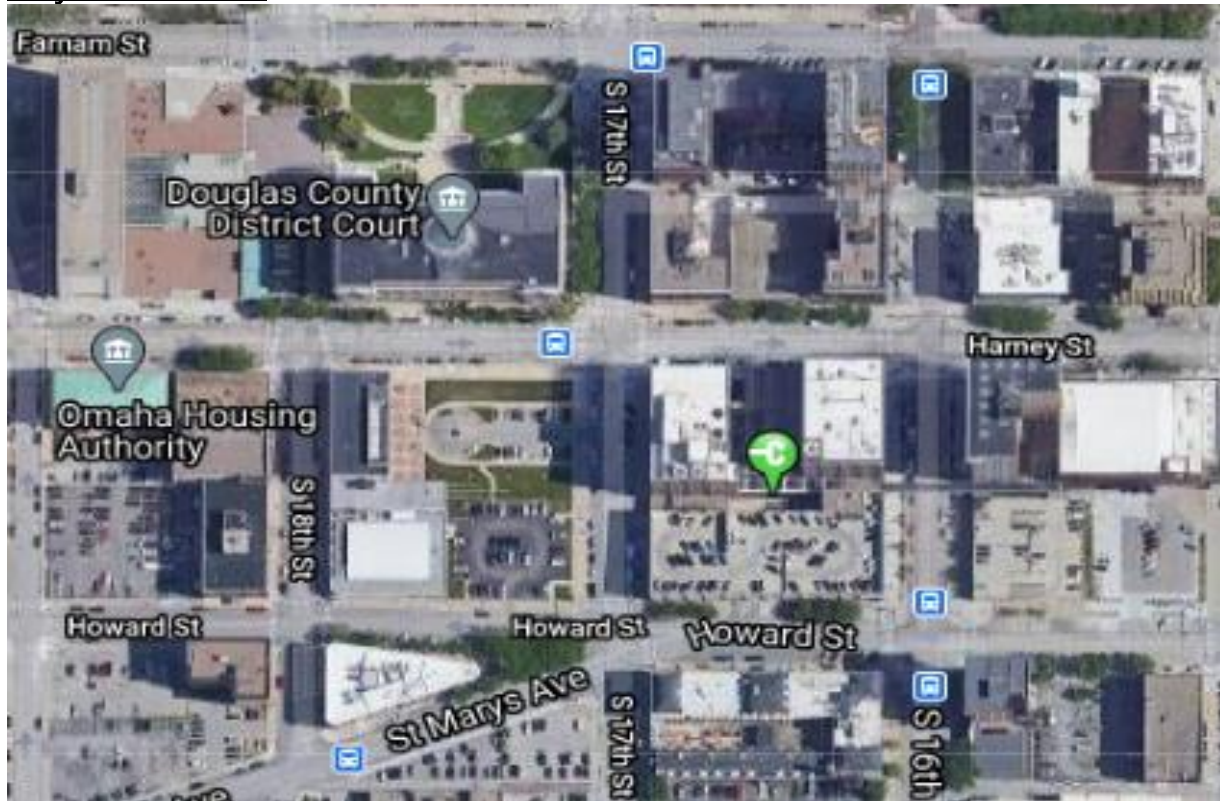
Energy Consumption Data February 2022



OPPD summary savings

Overall Economic Savings		\$9,705.97
Overall Emission Reductions (lbs.)	CO2	55,099.92
	CO	1,204.20
	SO2	(85.1822)
	NOX	27.9165
	CH4	3.4507
	VOC	39.5136

City of Omaha



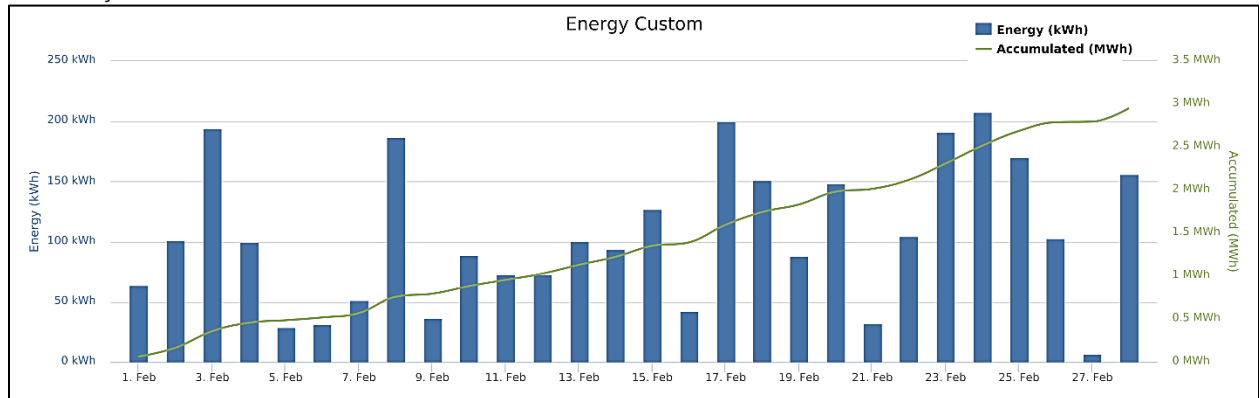
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		11,896.84	85,183.59
Energy Consumed(kWh)		2,952.07	24,041.82
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$1,500.95	\$9,854.38
	Usage Cost Using EV(Electricity)	\$260.82	\$2,061.91
	Total Fuel Saving	\$1,240.13	\$7,792.47
Other Cost Saving	CV Costs	\$725.71	\$5,097.05
	EV Costs	\$309.32	\$2,126.40
	Total Other Cost Saving	\$416.39	\$2,970.65
Overall Economic Savings		\$1,656.52	\$10,763.12

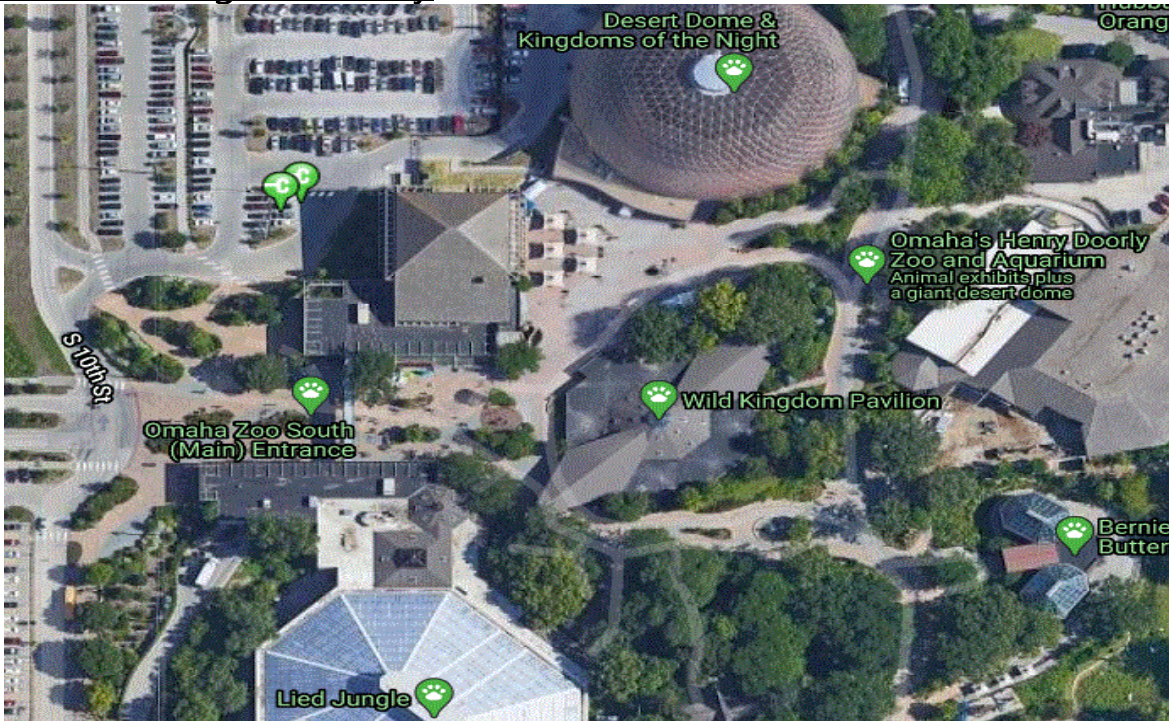
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		11896.8421	85183.5854
Energy Consumed (kWh)		2952.0700	24041.8210
Co2 Emissions (lbs.)	CV (Gas)	9,286.29	66,834.04
	EV (Electricity)	2,038.72	31,348.86
	Total Fuel Saving	7,247.58	35,485.18
Co Emissions (lbs.)	CV (Gas)	75.0410	537.3072
	EV (Electricity)	1.8301	22.1913
	Total Fuel Saving	73.2108	515.1160
So2 Emissions (lbs.)	CV (Gas)	0.1102	0.7887
	EV (Electricity)	4.4748	58.9221
	Total Fuel Saving	(4.3646)	(58.1333)
Nox Emissions (lbs.)	CV (Gas)	3.1474	22.5357
	EV (Electricity)	3.1093	91.9315
	Total Fuel Saving	0.0381	(69.3958)
CH4 Emissions (lbs.)	CV (Gas)	0.1757	1.3842
	EV (Electricity)	0.2053	2.5864
	Total Fuel Saving	(0.0296)	(1.2023)
VOC Emissions (lbs.)	CV (Gas)	4.4168	31.6251
	EV (Electricity)	0.0284	0.5266
	Total Fuel Saving	4.3884	31.0985

Energy Consumption Data February 2022



Omaha Zoological Society



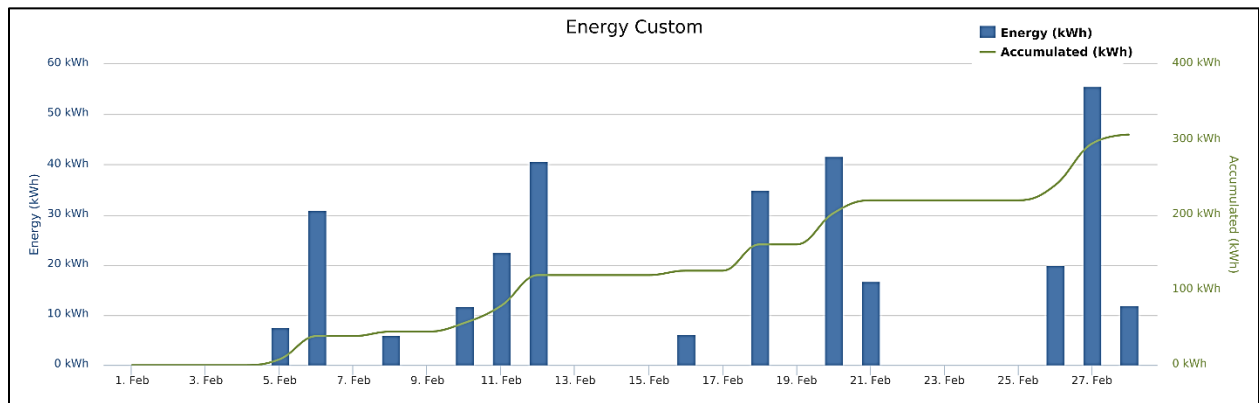
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1234.40	22962.28
Energy Consumed(kWh)		306.30	6666.95
Fuel Cost Saving	Usage Cost Using Cv(Gas)	\$155.76	\$2,547.48
	Usage Cost Using EV(Electricity)	\$27.06	\$573.13
	Total Fuel Saving	\$128.70	\$1,974.34
Other Cost Saving	Cv Costs	\$75.30	\$1,339.54
	EV Costs	\$32.09	\$542.51
	Total Other Cost Saving	\$43.20	\$797.03
Overall Economic Savings		\$171.90	\$2,771.38

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,234.40	22,962.28
Energy Consumed (kWh)		306.30	6,666.95
Co2 Emissions (lbs.)	CV (Gas)	963.53	18,134.86
	EV (Electricity)	574.32	11,112.63
	Total Fuel Saving	389.21	7,022.23
Co Emissions (lbs.)	CV (Gas)	7.7861	144.8377
	EV (Electricity)	0.5451	8.8666
	Total Fuel Saving	7.2410	135.9712
So2 Emissions (lbs.)	CV (Gas)	0.0114	0.2126
	EV (Electricity)	0.8811	18.7886
	Total Fuel Saving	(0.8697)	(18.5760)
Nox Emissions (lbs.)	CV (Gas)	0.3266	6.0748
	EV (Electricity)	0.4505	15.0930
	Total Fuel Saving	(0.1240)	(9.0182)
CH4 Emissions (lbs.)	CV (Gas)	0.0182	0.4168
	EV (Electricity)	0.0620	1.0388
	Total Fuel Saving	(0.0437)	(0.6219)
VOC Emissions (lbs.)	CV (Gas)	0.4583	8.5249
	EV (Electricity)	0.0065	0.1710
	Total Fuel Saving	0.4517	8.3539

Energy Consumption Data February 2022



Papio-Missouri NRD



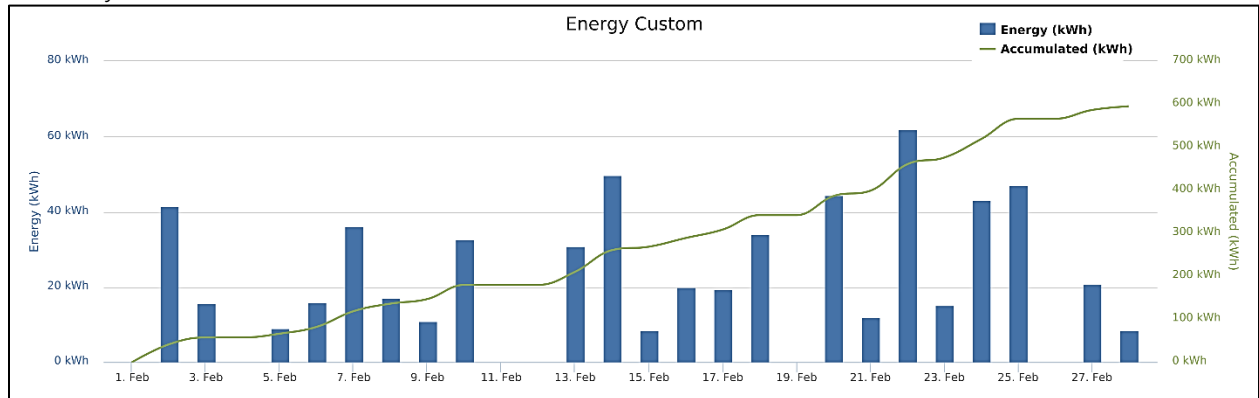
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		2,397.68	89,260.31
Energy Consumed(kWh)		594.959	26,318.89
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$302.86	\$9,576.04
	Usage Cost Using EV(Electricity)	\$52.56	\$2,314.12
	Total Fuel Saving	\$250.29	\$7,261.92
Other Cost Saving	CV Costs	\$146.26	\$4,519.05
	EV Costs	\$62.34	\$1,495.57
	Total Other Cost Saving	\$83.92	\$3,023.48
Overall Economic Savings		\$334.21	\$10,285.40

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		2,397.68	89,260.31
Energy Consumed (kWh)		594.96	26,318.89
Co2 Emissions (lbs.)	CV (Gas)	1,871.56	72,871.81
	EV (Electricity)	1,115.56	40,913.17
	Total Fuel Saving	756.00	31,958.63
Co Emissions (lbs.)	CV (Gas)	15.1237	563.0217
	EV (Electricity)	1.0588	35.9867
	Total Fuel Saving	14.0649	527.0351
So2 Emissions (lbs.)	CV (Gas)	0.0222	0.8265
	EV (Electricity)	1.7114	83.4370
	Total Fuel Saving	(1.6892)	(82.6105)
Nox Emissions (lbs.)	CV (Gas)	0.6343	23.6142
	EV (Electricity)	0.8751	61.5290
	Total Fuel Saving	(0.2408)	(37.9148)
CH4 Emissions (lbs.)	CV (Gas)	0.0354	2.4943
	EV (Electricity)	0.1204	3.9948
	Total Fuel Saving	(0.0850)	(1.5005)
VOC Emissions (lbs.)	CV (Gas)	0.8902	33.1386
	EV (Electricity)	0.0127	0.6638
	Total Fuel Saving	0.8774	32.4748

Energy Consumption Data February 2022



Seward



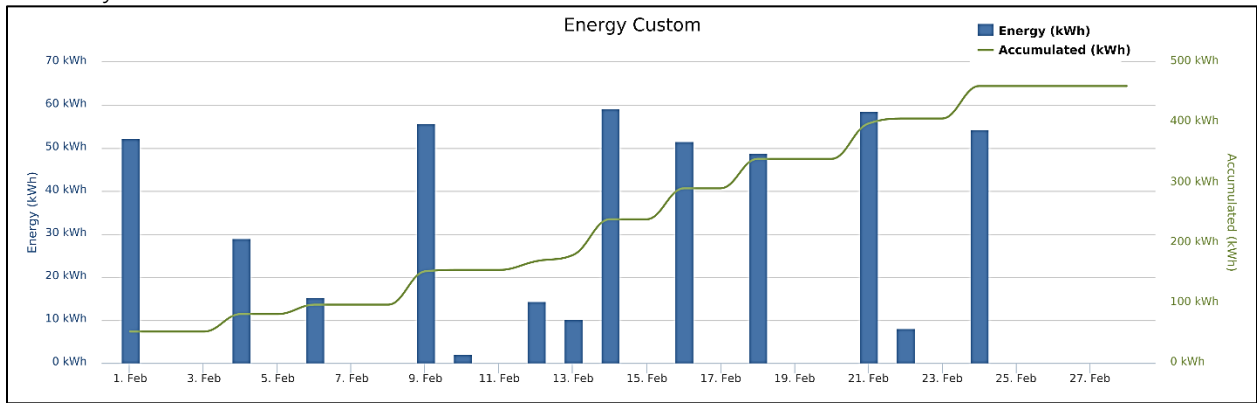
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,854.84	50,461.15
Energy Consumed(kWh)		460.26	14,823.20
Fuel Cost Saving	Usage Cost Using Cv(Gas)	\$233.65	\$5,194.79
	Usage Cost Using EV(Electricity)	\$45.11	\$1,448.82
	Total Fuel Saving	\$188.54	\$3,745.97
Other Cost Saving	Cv Costs	\$113.14	\$2,626.54
	EV Costs	\$48.23	\$1,231.00
	Total Other Cost Saving	\$64.92	\$1,395.54
Overall Economic Savings		\$253.46	\$5,141.52

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,854.84	50,461.15
Energy Consumed (kWh)		460.26	14,823.20
Co2 Emissions (lbs.)	CV (Gas)	1,447.82	41,462.49
	EV (Electricity)	317.86	15,751.21
	Total Fuel Saving	1,129.97	25,711.28
Co Emissions (lbs.)	CV (Gas)	11.6996	495.6905
	EV (Electricity)	0.2853	11.8125
	Total Fuel Saving	11.4143	483.8780
So2 Emissions (lbs.)	CV (Gas)	0.0172	0.9501
	EV (Electricity)	0.6977	36.3371
	Total Fuel Saving	(0.6805)	(35.3870)
Nox Emissions (lbs.)	CV (Gas)	0.4907	28.8932
	EV (Electricity)	0.4848	45.3825
	Total Fuel Saving	0.0059	(16.4894)
CH4 Emissions (lbs.)	CV (Gas)	0.0274	2.1203
	EV (Electricity)	0.0320	1.0819
	Total Fuel Saving	(0.0046)	1.0384
VOC Emissions (lbs.)	CV (Gas)	0.6886	19.8469
	EV (Electricity)	0.0044	0.2830
	Total Fuel Saving	0.6842	19.5639

Energy Consumption Data February 2022



South Sioux City



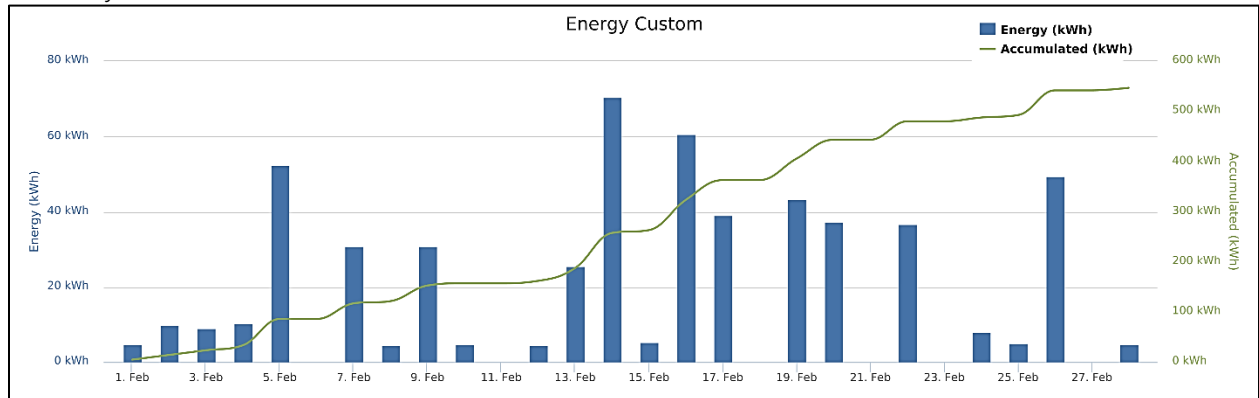
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		2,203.18	172,103.61
Energy Consumed(KWh)		546.695	50,679.31
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$277.79	\$17,628.55
	Usage Cost Using EV(Electricity)	\$48.30	\$4,346.56
	Total Fuel Saving	\$229.48	\$13,281.98
Other Cost Saving	CV Costs	\$134.39	\$8,864.29
	EV Costs	\$57.28	\$4,071.38
	Total Other Cost Saving	\$77.11	\$4,792.91
Overall Economic Savings		\$306.60	\$18,074.89

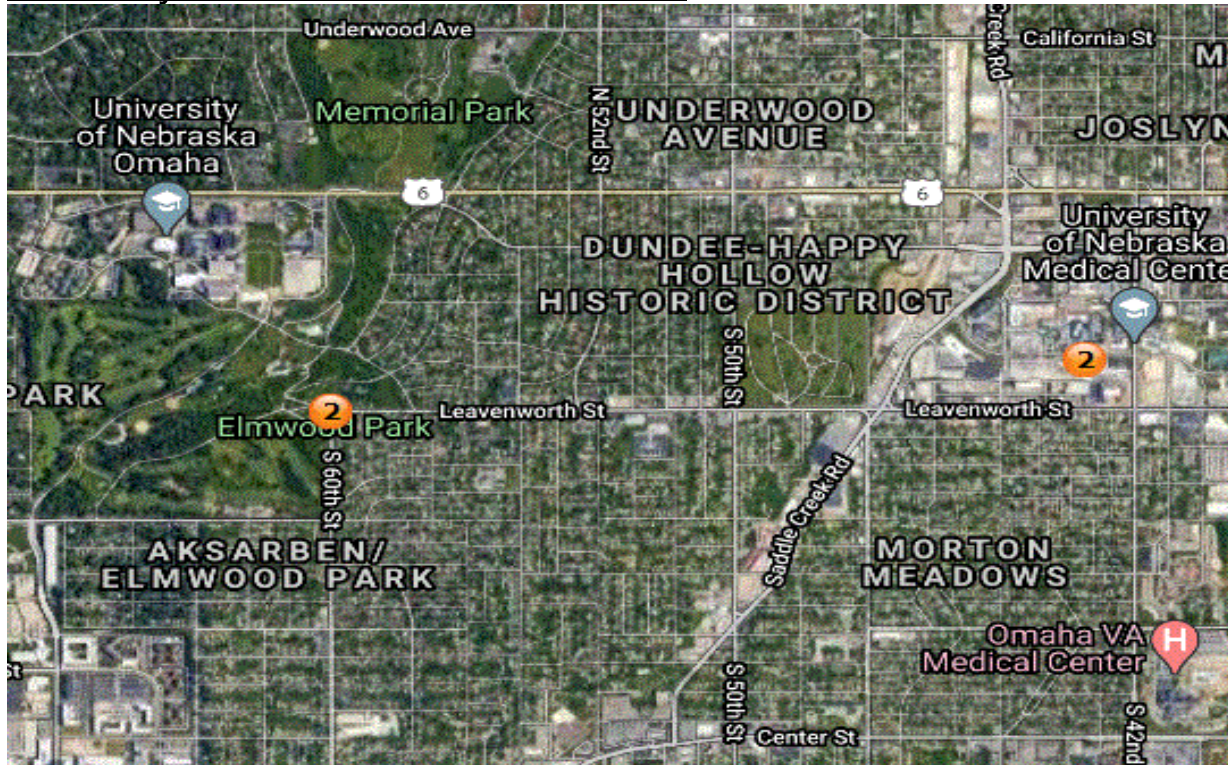
Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		2203.1809	172103.6051
Energy Consumed (Kwh)		546.6950	50,679.31
Co2 Emissions (lbs.)	CV (Gas)	1,719.73	142,133.67
	EV (Electricity)	377.55	54,222.29
	Total Fuel Saving	1,342.18	87,911.38
Co Emissions (lbs.)	CV (Gas)	13.8969	1,691.0456
	EV (Electricity)	0.3389	41.1924
	Total Fuel Saving	13.5579	1,649.8531
So2 Emissions (lbs.)	CV (Gas)	0.0204	3.2415
	EV (Electricity)	0.8287	124.8623
	Total Fuel Saving	(0.8083)	(121.6208)
Nox Emissions (lbs.)	CV (Gas)	0.5829	98.5849
	EV (Electricity)	0.5758	148.4112
	Total Fuel Saving	0.0071	(49.8264)
CH4 Emissions (lbs.)	CV (Gas)	0.0325	7.2982
	EV (Electricity)	0.0380	3.7665
	Total Fuel Saving	(0.0055)	3.5317
VOC Emissions (lbs.)	CV (Gas)	0.8179	67.6961
	EV (Electricity)	0.0053	0.9689
	Total Fuel Saving	0.8127	66.7272

Energy Consumption Data February 2022



University of Nebraska Medical Center



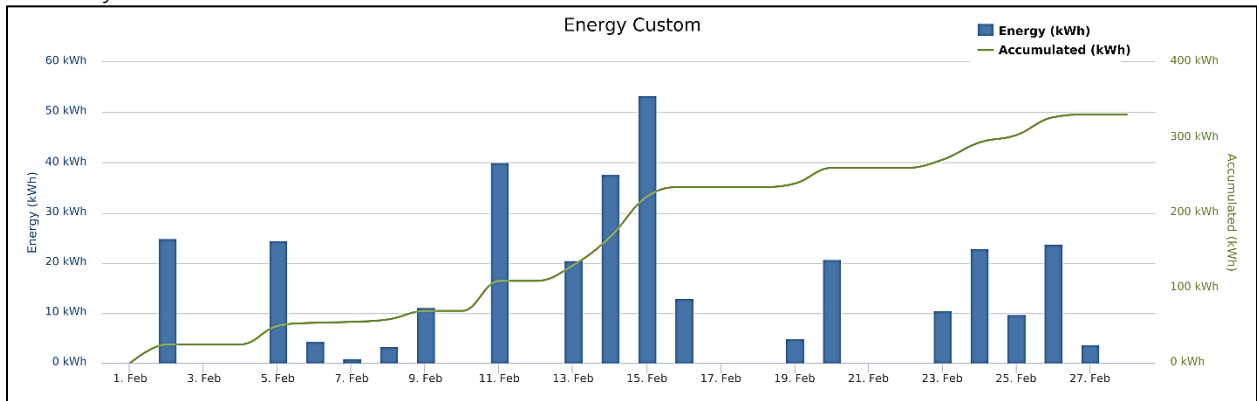
Total Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		1,331.01	21,300.74
Energy Consumed(kWh)		330.276	6,154.60
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$167.60	\$2,353.11
	Usage Cost Using EV(Electricity)	\$29.18	\$529.97
Total Fuel Saving		\$138.42	\$1,823.14
Other Cost Saving	CV Costs	\$81.19	\$1,239.14
	EV Costs	\$34.61	\$500.16
Total Other Cost Saving		\$46.59	\$738.98
Overall Economic Savings		\$185.00	\$2,562.12

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		1,331.01	21,300.74
Energy Consumed (kWh)		330.276	6,154.60
Co2 Emissions (lbs.)	CV (Gas)	1038.95	16834.65
	EV (Electricity)	619.27	10275.33
	Total Fuel Saving	419.67	6559.32
Co Emissions (lbs.)	CV (Gas)	8.3955	134.3574
	EV (Electricity)	0.5878	8.2809
	Total Fuel Saving	7.8078	126.0765
So2 Emissions (lbs.)	CV (Gas)	0.0123	0.1972
	EV (Electricity)	0.9501	17.4311
	Total Fuel Saving	(0.9377)	(17.2339)
Nox Emissions (lbs.)	CV (Gas)	0.3521	5.6352
	EV (Electricity)	0.4858	13.7941
	Total Fuel Saving	(0.1337)	(8.1589)
CH4 Emissions (lbs.)	CV (Gas)	0.0197	0.3911
	EV (Electricity)	0.0668	0.9672
	Total Fuel Saving	(0.0472)	(0.5761)
VOC Emissions (lbs.)	CV (Gas)	0.4941	7.9081
	EV (Electricity)	0.0071	0.1569
	Total Fuel Saving	0.4871	7.7511

Energy Consumption Data February 2022



University of Nebraska at Omaha (UNO)



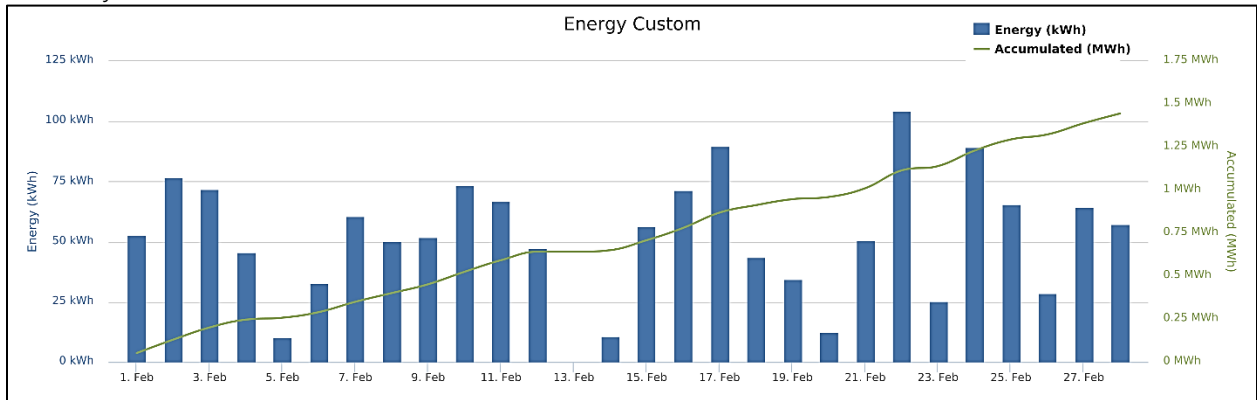
Economic Saving Data (Fuel & Maintenance Cost Savings)

		This Month (February)	All Time
Miles Driven		5,823.44	103,483.44
Energy Consumed(kWh)		1445.022	30,368.64
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$733.23	\$10,999.14
	Usage Cost Using EV(Electricity)	\$127.67	\$2,713.31
	Total Fuel Saving	\$605.56	\$8,285.83
Other Cost Saving	CV Costs	\$355.23	\$5,258.69
	EV Costs	\$151.41	\$1,887.27
	Total Other Cost Saving	\$203.82	\$3,371.42
Overall Economic Savings		\$809.38	\$11,657.25

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		5,823.44	103,483.44
Energy Consumed (kWh)		1,445.02	30,368.64
Co2 Emissions (lbs.)	CV (Gas)	4,545.59	83,217.50
	EV (Electricity)	2,709.44	46,599.92
	Total Fuel Saving	1,836.15	36,617.58
Co Emissions (lbs.)	CV (Gas)	36.7321	652.8100
	EV (Electricity)	2.5717	39.5292
	Total Fuel Saving	34.1604	613.2808
So2 Emissions (lbs.)	CV (Gas)	0.0539	0.9582
	EV (Electricity)	4.1567	95.8670
	Total Fuel Saving	(4.1028)	(94.9088)
Nox Emissions (lbs.)	CV (Gas)	1.5406	27.3809
	EV (Electricity)	2.1254	68.9477
	Total Fuel Saving	(0.5848)	(41.5668)
CH4 Emissions (lbs.)	CV (Gas)	0.0860	3.0296
	EV (Electricity)	0.2923	4.6401
	Total Fuel Saving	(0.2063)	(1.6105)
VOC Emissions (lbs.)	CV (Gas)	2.1620	27.1470
	EV (Electricity)	0.0309	0.7486
	Total Fuel Saving	2.1311	26.3983

Energy Consumption Data February 2022



Valley



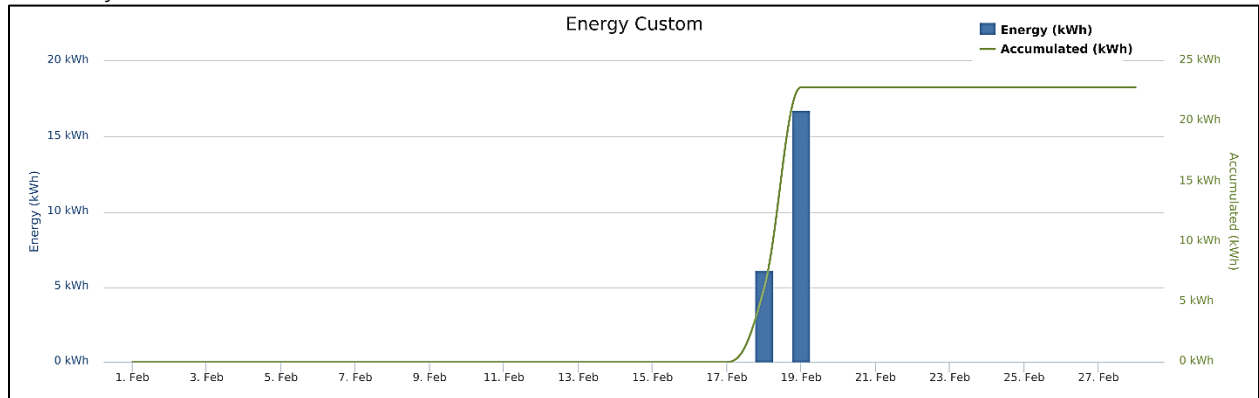
Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		92.03	6,824.06
Energy Consumed(kWh)		22.84	2,012.58
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$11.71	\$707.84
	Usage Cost Using EV(Electricity)	\$2.02	\$184.37
	Total Fuel Saving	\$9.69	\$523.47
Other Cost Saving	CV Costs	\$5.61	\$338.92
	EV Costs	\$2.39	\$154.88
	Total Other Cost Saving	\$3.22	\$184.04
Overall Economic Savings		\$12.91	\$707.52

Environmental Saving Data (Reduction in Emissions):

		This Month (February)	All Time
Miles Driven		92.03	6,824.06
Energy Consumed (kWh)		22.84	2,012.58
Co2 Emissions (lbs.)	CV (Gas)	71.83	5,605.52
	EV (Electricity)	42.82	2,450.63
	Total Fuel Saving	29.02	3,154.89
Co Emissions (lbs.)	CV (Gas)	0.5805	65.3332
	EV (Electricity)	0.0406	2.1073
	Total Fuel Saving	0.5398	63.2259
So2 Emissions (lbs.)	CV (Gas)	0.0009	0.1239
	EV (Electricity)	0.0657	6.2336
	Total Fuel Saving	(0.0648)	(6.1097)
Nox Emissions (lbs.)	CV (Gas)	0.0243	3.7583
	EV (Electricity)	0.0336	4.0513
	Total Fuel Saving	(0.0092)	(0.2930)
CH4 Emissions (lbs.)	CV (Gas)	0.0014	0.3069
	EV (Electricity)	0.0046	0.2049
	Total Fuel Saving	(0.0033)	0.1020
VOC Emissions (lbs.)	CV (Gas)	0.0342	2.6728
	EV (Electricity)	0.0005	0.0456
	Total Fuel Saving	0.0337	2.6273

Energy Consumption Data February 2022



Wayne



Economic Saving Data (Fuel & Maintenance Cost Savings):

		This Month (February)	All Time
Miles Driven		0	7,571.38
Energy Consumed(kWh)		0	2,262.30
Fuel Cost Saving	Usage Cost Using CV(Gas)	\$0.00	\$773.14
	Usage Cost Using EV(Electricity)	\$0.00	\$243.58
	Total Fuel Saving	\$0.00	\$529.57
Other Cost Saving	CV Costs	\$0.00	\$347.07
	EV Costs	\$0.00	\$136.56
	Total other cost Saving	\$0.00	\$210.51
Overall Economic Savings		\$0.00	\$740.08

Environmental Saving Data (Reduction in Emissions):

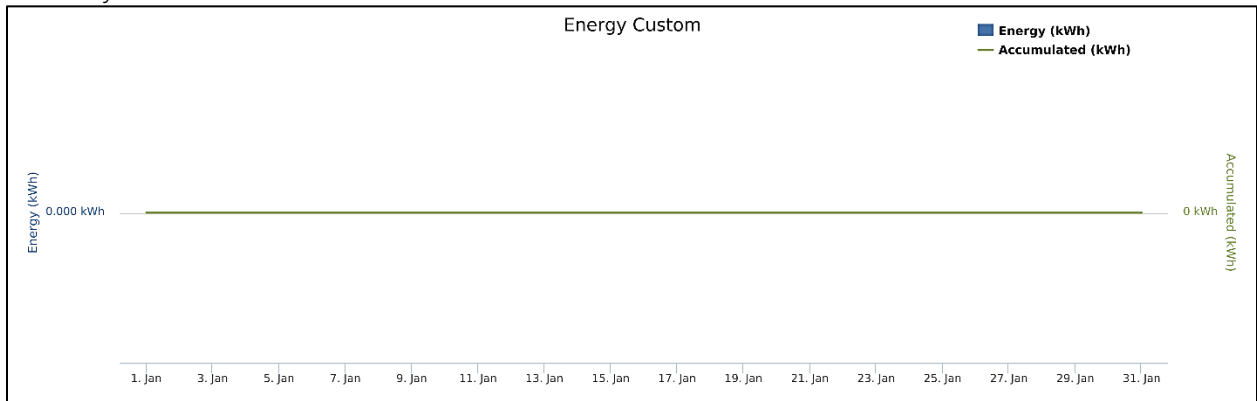
		This Month (February)	All Time
Miles Driven		0.0000	7,571.38
Energy Consumed (kWh)		0.0000	2,262.30
Co2 Emissions (lbs.)	CV (Gas)	0.000	6258.399
	EV (Electricity)	0.000	2571.657
	Total Fuel Saving	0.000	3686.741
Co Emissions (lbs.)	CV (Gas)	0.000	64.837
	EV (Electricity)	0.000	0.671
	Total Fuel Saving	0.000	64.166
So2 Emissions (lbs.)	CV (Gas)	0.000	0.117
	EV (Electricity)	0.000	5.248
	Total Fuel Saving	0.000	-5.131
Nox Emissions (lbs.)	CV (Gas)	0.000	3.499
	EV (Electricity)	0.000	43.364
	Total Fuel Saving	0.000	-39.865
CH4 Emissions (lbs.)	CV (Gas)	0.000	0.348
	EV (Electricity)	0.000	0.096
	Total Fuel Saving	0.000	0.252
VOC Emissions (lbs.)	CV (Gas)	0.000	2.917
	EV (Electricity)	0.000	0.065
	Total Fuel Saving	0.000	2.852

CNG data – No new data for February 2022, this is from previous calculations.

		Total
Miles driven		24,879.83
Fuel cost Savings:	Usage Cost Using CV (Gas)	\$2,687.75
	Usage Cost Using CNG (Natural gas)	\$1,538.65
	Total Fuel Savings	\$1,149.10
CO2 Emissions (lbs.)	CV (Gas)	22,227.51
	CNG (Natural Gas)	17,127.65
	Overall Emission Reductions	5,099.86
CO Emissions (lbs.)	CV (Gas)	496
	CNG (Natural Gas)	924.54
	Overall Emission Reductions	(428.54)
SO2 Emissions (lbs.)	CV (Gas)	0.631
	CNG (Natural Gas)	0.084
	Overall Emission Reductions	0.547
NOx Emissions (lbs.)	CV (Gas)	13.44
	CNG (Natural Gas)	15.91
	Overall Emission Reductions	(2.47)
CH4 Emissions (lbs.)	CV (Gas)	0.73
	CNG (Natural Gas)	27.07
	Overall Emission Reductions	(26.34)
VOC Emissions (lbs.)	CV (Gas)	11.38
	CNG (Natural Gas)	12.98
	Overall Emission Reductions	(1.6)

Energy Consumption Data

February 2022



Wayne summary savings

Overall Economic Savings		\$1,889.18
Overall Emission Reductions (lbs.)	CO2	8,786.60
	CO	64.17
	SO2	(5.1314)
	NOX	(39.8648)
	CH4	0.2522
	VOC	2.8521