	Consumption								tCO2e								
FY	Natural Gas (mmbtus)	Fuel Oil (gal)	Distillate Fuel Oil 1 (gal)	RFO (mmbtus)	Electricity (kWh)	Fleet Vehicles (gal)	Solar Production (kWh)	Distillate Fuel Oil Number 1	Natural Gas	Fuel Oil/RFO	RFO	Electricity	Fleet Vehicles	Gross Total	Including RECs	Scope 03 (Commuter)	Scope 03 (business)	Scope 03 (Daily Abroad)	Scope 03 Included
2001	40,893	590,167	0	0	13,351,245	14,532	0	0	2,170	6,648	0	5,153	128	13,495	13,495	0	0	0	13,495
2002	54,035	606,603	0	0	14,012,625	20,162	0	0	1,808	6,215	0	5,325	179	13,526	13,526	0	0	0	13,526
2003	47,770	686,554	0	0	13,951,256	26,879	0	0	2,537	7,033	0	5,291	236	15,100	15,100	0	0	0	17,102
2004	3,231	908,174	0	0	15,376,705	29,317	0	0	221	9,303	0	5,121	256	14,901	14,901	0	0	0	16,905
2005	36,378	639,410	0	0	13,771,877	29,317	0	0	1,912	6,550	0	5,255	256	13,973	13,973	0	0	0	15,975
2006	21,271	579,786	0	0	13,811,681	31,207	0	0	1,140	5,961	0	5,268	274	12,654	7,156	0	0	0	9,156
2007	100,566	593,062	0	0	13,900,000	28,509	0	0	5,363	1,363	0	4,902	254	11,882	6,980	0	0	0	8,980
2008	108,216	540,383	0	0	13,952,256	13,895	0	0	6,811	1,386	0	4,963	122	13,379	8,439	0	0	0	10,439
2009	107,690	570,988	0	0	13,968,316	14,806	0	0	5,720	1,998	0	5,303	130	13,758	7,448	0	0	0	9,448
2010	85,171	519,528	0	0	14,012,625	14,806	0	0	4,514	1,132	0	5,317	127	11,093	5,794	0	0	0	7,796
2011	111,896	501,987	0	0	14,151,702	14,485	0	0	5,942	1,585	0	5,455	127	12,768	7,114	0	0	0	9,116
2012	98,896	94,365	0	0	14,181,214	14,485	0	0	5,242	967	0	5,561	127	11,877	6,336	0	0	0	8,336
2013	101,516	105,883	0	0	13,768,726	14,485	0	0	5,400	1,085	0	5,272	127	11,889	6,816	0	0	0	8,816
2014	99,560	190,675	0	0	13,311,939	14,485	0	0	5,288	2,005	0	4,457	127	11,826	7,420	0	0	0	9,420
2015	99,088	122,837	0	0	13,266,688	10,985	0	0	5,260	1,258	0	3,827	91	10,486	6,639	0	0	0	8,639
2016	83,165	96,000	0	0	13,753,507	10,011	0	0	4,417	981	0	3,686	88	9,175	5,489	0	0	0	7,489
2017	54,732	75,000	0	14,592	13,349,335	9,877	0	0	2,906	768	516	3,619	87	7,899	4,080	0	0	0	6,080
2018	66,197	74,158	0	66,167	12,870,695	9,877	0	0	3,514	760	607	3,754	87	8,871	4,958	0	0	0	6,958
2019	22,876	73,808	0	73,050	12,724,970	9,877	0	0	1,215	755	642	3,689	87	6,362	2,673	0	0	0	4,675
2020	22,593	72,923	0	66,650	12,119,970	9,877	0	0	1,199	694	624	3,521	87	6,058	2,243	0	0	0	4,243
2021	27,639	72,089	0	68,650	12,479,970	9,877	0	0	1,468	626	631	3,677	87	6,482	2,805	0	0	0	4,805
2022	42,116	62,561	151,821	0	13,668,907	15,196	0	1,555	1,185	558	0	4,518	788	11,985	7,267	21.77	163.93	124.18	9,952

1. Stationary Combustion

EMISSIONS FACTORS

FUEL TYPE	CO_2e (t/gal)	CO_2e (t/MMBTU)	CO_2e (ton/ccf)	CO_2 (kg/scf)	CH_4 (kg/scf)	N_2O (kg/scf)	CO_2 (t/MMBTU)	CH_4 (t/MMBTU)	N_2O (t/MMBTU)
Heating Oil #2		**0.074214**					0.07396	0.000003	0.0000006
Propane	**0.00574165**	**0.063124**	**0.1578095**	0.157175	0.0000075	0.0000015	0.06287	0.000003	0.0000006
Kerosene		**0.075454**					0.0752	0.000003	0.0000006
Natural Gas		**0.053115**	**0.05449555**	0.05444	0.00000103	0.0000001	0.05306	0.000001	0.0000001
Biodiesel B100	**0.0026546**	**0.022205**							
Biodiesel B20	**0.00869892**	**0.068658**							
RFO	**0.0092025112**								
Vegetable Oil (Distillate Fuel Oil 1 in Atrius)	**0.00945623**	0.081610					0.08155	0.0000011	0.00000011
Distillate Fuel Oil No. 2	**0.01024409**	0.074214					0.07396	0.000003	0.0000006

FUEL TYPE	CO_2 (t/gal)	CH_4 (t/gal)	N_2O (t/gal)	CO_2 (t/thm)	CH_4 (t/thm)	N_2O (t/thm)	CO_2e (t/thm)
Heating Oil #2							
Propane	0.00572	0.00000027	0.00000005	0.006287	0.0000003	0.00000006	0.00631238
Kerosene							
Natural Gas							
Biodiesel B100							
Biodiesel B20							
RFO							
Vegetable Oil (Distillate Fuel Oil 1 in Atrius)	0.00945	0.00000013	0.00000001				
Distillate Fuel Oil No. 2	0.01021	0.00000041	0.00000008				

RELEVANT INFORMATION:
1 cubic foot propane = 2,500 BTU — 1 MMBtu = 10 thm
1 gal biodiesel B100 = 119,550 Btu
1 gal biodiesel B20 = 126,700 Btu

STATIONARY COMBUSTION SOURCES:
Source for all cells

2. Mobile Combustion

EMISSIONS FACTORS

FUEL TYPE		CO_2e (t/gal)	CO_2 (kg/gal)
Motor Gasoline		**0.00878**	8.78
Diesel Fuel		**0.01021**	10.21

MOBILE COMBUSTION SOURCES:
Source for all cells

3. Business Travel

EMISSIONS FACTORS

Vehicle Type	CO_2 (kg/pass-mile)	CO_2e (ton/pass-mile)	CO_2e (ton)	CH_4 (g/pass-mile)	CH_4 (kg/pass-mile)	N_2O (g/pass-mile)	N20 (kg/pass-mile)
Intercity Rail - Nat avg.	0.11300	**0.00011323**		0.00920	0.0000092	0.0026	0.0000026
Commuter Rail	0.13900	**0.00013928**		0.01120	0.0000112	0.00028	0.00000028
Transit Rail	0.09900	**0.00009921**		0.00840	0.0000084	0.0012	0.0000012
Bus	0.05600	**0.000056525**		0.02100	0.000021	0.0009	0.0000009
Air Travel (Short Haul <300 miles)	0.20700	**0.00020716**		0.00640	0.0000064	0.0066	0.0000066
Air Travel (Med Haul >= 300 miles, < 2300 Miles)	0.12900	**0.000129015**		0.00060	0.0000006	0.0041	0.0000041
Air Travel (Long Haul >= 2300 Miles)	0.16300	**0.000163015**		0.00060	0.0000006	0.0052	0.0000052
Car	0.332	**0.000332175**		0.007	0.000007	0.007	0.000007
1kg in metric tons	0.0001						
CH4 GWP	25						
CO2 GWP	298						

4. Electricity Data

EMISSIONS FACTORS

ELECTRICITY	CO_2e (ton/KWh)	CO_2 (lbs/MWh)	CO_2 (kg/KWh)	N_2O (lb/MWh)	N_2O (kg/KWh)	CH_4 (lb/MWh)	CH_4 (kg/KWh)	kg/KwH conversion factor
NEWE eGRID Subregion	0.0003300810014	see previous spreadsheet iteration by Biruk and KP)	0.32753	0.013	0.000005896696	0.07	0.00003175144	0.000453592

COMPILED SOURCES

https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf
https://www.enspireenergy.com/energy-conversion-calculator/#:~:text=All%20of%20the%20following%20are%20equivalent%20to%201%20MMBtu%3A&text=Propane%3A%2010.917%20gal%20%40%2091%2C000%20Btu%2Fgal
https://www.eia.gov/environment/emissions/co2_vol_mass.php
https://catalog.data.gov/dataset/emission-generation-resource-integrated-database-egrid
https://www.epa.gov/egrid/power-profiler#/NEWE
https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

LINK TO PREVIOUS SPREADSHEET ITERATION (ALSO HAS SOURCE DATA): SEE SHEET "Emissions Factors"
https://docs.google.com/spreadsheets/d/1-TH1rAcsrVh6ud2a8RR4puKsw61AW985/edit#gid=2033208720

More source info in commented cells