

Inventory Record

Calculator

SSWRF Flaring

Emissions from Flaring of Digester Gas

JIWRF On-site Energy Use
SSWRF On-site Energy Use

Emissions from Wastewater Treatment Energy U
Emissions from Wastewater Treatment Energy U

JIWRF Landfill Gas
SSWWRF DG Combustion
Combined SSWRF & JIWRF

Emissions from Wastewater Treatment Energy U
Emissions from the Combustion of Digester Gas
Process N₂O Emissions from Wastewater Treatr

Combined SSWRF & JIWRF N-load to river Process N₂O from Effluent Discharge to Rivers a

Gpc Scope	GPC Ref Number	Factor Profiles
Scope 1	III.4.3	
Scope 2	I.3.2	2018 WE Energies
Scope 3	VI.1	2018 WE Energies
Scope 1	I.3.1	
Scope 1	I.3.1	
Scope 1	III.4.3	
Scope 1	III.4.3	

Notes

CO2 (MT)

Based on average heat content of 580 Btu/scf determined that the 114,991 MMBtu was 543,179 scf/day

Left as Information Only as it is assumed that WE Energies Data would include Jones Island as it is in the Milwaukee Boundary.

109,970.84
20,099.82

Left this record as information only based on response below. It is not clear whether the "LFG" came from another Metro or Orchard or another landfill.

17,808.94

At the time of data request, N load was unavailable. However, Kevin indicated it could be estimated.

CH4 (MT)	N2O (MT)	CO2e (MT)	Tags
	24.16		676.47
	10.26	0.51	110,393.80
	1.85	0.16	20,192.98
	1.68	0.03	17,864.87
	0.50	0.10	40.47
		5.18	1,372.70
		-	-

Annual Gas Production (scf / Energy Equivalent (MMBtu Biogenic CO2 (MT)

132568.2939

272008249.5

157764.7847

8214.81234

Biogenic CO2 Emissions Factor (kg) CH4 Emissions Factor (kg) N2O Emissions Factor (kg)

52.07

0.0032

0.00063

Calculation Type Do you have data on Gas Composition or Heat Content Gas Production Gas Composition

Site Specific Heat Content

744718

Heat Content Population Served Is Energy Recovered from Combustion'

580 592025 Yes-used on site
592000

Wastewater Generation and Treatment Notation Keys Data Quality: Activity Data Quality: Emission

Imported

Medium

Medium

High

High

Imported
Imported

Medium

Medium

Imported

CO2 lbs/MWh CO2 kg/MWh CH4 lbs/GWh CH4 kg/GWh N2O lbs/GWh N2O kg/GWh

1298
1298

117
117

17
17

1,166.096
1,166.096
1,166.096

1,166.096

117
117
117

117

17
17
17

17

Wastewater Electric Energy Equivalent Gallons per Cap CO2e per Person (MT)

1718893.225 NaN	Infinity
241602.7918 NaN	Infinity
335891 NaN	Infinity

Electricity Energy (MMB Natural Gas Energy(MI Electric CO2 Emissions Facto Natural Gas CO2 Emiss

157632.2253	1561261	0.172507734	0.05302
61010.79181	180592	0.172507734	0.05302
0	335891	0.000132903	0.05302

Electric CH4 Emissions Fact Natural Gas CH4 Emiss Electric N2O Emissions Faci

1.55496E-05	0.000005	2.25935E-06
1.55496E-05	0.000005	2.25935E-06
1.55496E-05	0.000005	2.25935E-06

Natural Gas N2O Emiss Is this a Direct Entry Re CO2 CH4 N2O Electricity Use Natural Gas U

0.0000001 No
0.0000001 No

46186242 1561261
17876162 180592

0.0000001 No

335891

Treatment Location	Annual Digester Gas Flared (scf)	CH4 Emissions (lb)	FCH4 Emissions (lb)	Factor
	198396129.8	1.21775E-07		0

In Boundary
Out of Boundary

In Boundary

Site Specific or Population Based Approach Digester Gas Production Fraction of CH₄ in Digester

Site Specific

543179

0.65

Destruction Efficiency Process N2O Population Served CO2e per Capita (MT N2O Emissions Factor (g/capita)
0.99

592000

0.00231875

7

Is this a Direct Entry Recycled Nitrification/Denitrification as a step in the treatment of Industrial Commercial Discharges?

No

Yes

1.25

arge Multiplier

Inventory Record	Calculator	Gpc Scope
Waste Collection and Transportation	Collection and Transportation Emissions	Scope 3
Orchard - Boundary	Emissions from Flaring of Landfill Gas	Scope 3
Orchard - Parkview	Emissions from Flaring of Landfill Gas	Scope 3
Orchard-Orchard	Emissions from Flaring of Landfill Gas	Scope 3
Metro Flare #1	Emissions from Flaring of Landfill Gas	Scope 3
Orchard Turbine #4	Emissions from the Combustion of Landfill Gas	Scope 3
Orchard Turbine #3	Emissions from the Combustion of Landfill Gas	Scope 3
Orchard Turbine #2	Emissions from the Combustion of Landfill Gas	Scope 3
Orchard Turbine #1	Emissions from the Combustion of Landfill Gas	Scope 3
Metro Landfill Turbine Plant	Emissions from the Combustion of Landfill Gas	Scope 3
Metro Landfill Engine Plant	Emissions from the Combustion of Landfill Gas	Scope 3
Non-residential Waste	Waste Generation (2019)	Scope 3
Residential Waste	Waste Generation (2019)	Scope 3

GPC Ref Number Factor Profiles

VI.1 2009 WI State-wide waste Chara
III.1.2
III.1.2
III.1.2

III.1.2
I.4.4
I.3.1
I.4.4
I.4.4

I.4.4

I.4.4

III.1.2 2009 WI State-wide waste Chara
III.1.2 2009 WI State-wide waste Chara

Notes

CO2 (MT) CH4 (MT)

Did not have access to specific fuel usage from the collection and transportation of waste. Assumed that this is included in community VMT.

2.03
44.23
20.17

Used destruction efficiency of %99. Clearpath can only use 2 decimal places for destruction efficiency

41.78
1.34
1.37
0.96
1.25

The percentage of "Milwaukee" waste that makes up Metro's combustion activity is unknown. This record indicates the full amount of emissions associated with the combustion activity and due to the de minimis value has been indicated as "For Information Only"

1.33

The percentage of "Milwaukee" waste that makes up Metro's combustion activity is unknown. This record indicates the full amount of emissions associated with the combustion activity and due to the de minimis value has been indicated as "For Information Only"

0.66

<https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials> Both of the landfills that are primary receivers of the City's waste capture landfill gas, of which methane is one component. Both use landfill gas to generate electricity through turbines/engines. Both also combust landfill gas in flares. This manages gas that exceeds the energy recovery capacity, and during downtime. The flared fraction can be highly variable depending on the time period considered. LYNN MORGAN Public Affairs Manager WI/MN/Dakotas Area
lmorgan@wm.com C: 414.429.2019 O: 262.250.8711

3,574.51
2,085.05

N2O (MT)

CO2e (MT)

Tags Annual Landfill Gas Flared (:

		-	
		56.79	21600550
		1,238.41	471033790
		564.64	214762450
		1,169.92	444981100
0.26		107.46	
0.27		110.20	
0.19		76.58	
0.25		99.96	
	0.26	106.49	
	0.13	53.00	
		100,086.34	
		58,381.34	

Energy Equivalent (MMBtu CH4 Emissions Factor

Landfill Gas Fla Fraction of CH4 in Landf

11129.32914	9.38978E-08	21600550	0.5012
242692.4353	9.38978E-08	471033790	0.5012
110652.8303	9.38978E-08	214762450	0.5012

229269.2141	9.38978E-08	444981100	0.5012
418876.5709			
429554.26			
298506.2859			
389632.4046			

415099.7686

206600.8317

Destruction Efficiency Landfill Location Notation Keys Data Quality: Activity Data Quality: Emission

	IE	Data Quality:	Activity Data Quality:	Emission
0.99 Out-of-Boundary		Medium		Medium
0.99		High		High
0.99 Out-of-Boundary		High		High
0.99 Out-of-Boundary				
Out-of-Boundary		Medium		Medium
Out-of-Boundary		High		High
Out-of-Boundary		High		High
Out-of-Boundary				
Out-of-Boundary		High		High
		Low		Medium
		High		Medium

Annual Gas Combusted (scf / \Biogenic CO2 (MT)

835316690	21810.90304
856609960	22366.89032
595276270	15543.22231
776998460	20288.15931

805653530	21614.24495
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400984780	10757.70531
-----------	-------------

Do you have data on Gas Composition or Heat Conter Landfill Gas Combu Gas Compositio

Gas Composition	835316690	48.78
Gas Composition	856609960	48.78
Gas Composition	595276270	48.78
Gas Composition	776998460	48.78

Gas Composition	805653530	50.12
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Gas Composition	400984780	50.12
-----------------	-----------	-------

Heat Content Is Energy Recovered from Combustion' Percentage Newspaper Percentage Office Pa

1.4

7.2

500 Yes-sent to grid
500 Yes-used on site
500 Yes-sent to grid
500 Yes-sent to grid

500 Yes-sent to grid

500 Yes-sent to grid

1.4

7.2

1.4

7.2

Percentage Corrugated Cardt Percentage Magazines / Third C Percentage Food Scr Percentage Gi

4.6

1.6

15.8

1.7

4.6

1.6

15.8

1.7

4.6

1.6

15.8

1.7

Percentage Leaf Percentage Branch Percentage Dimensional Lumber

1.7

0.6

1.2

1.7

0.6

1.2

1.7

0.6

1.2

Inventory Record	Calculator	Gpc Scope	GPC Ref Number
County-wide Non-Road NEI 2017 Data	Emissions from Off Road Vehicles	Scope 1	
Public Transit Notation Key	Emissions from Public Transit		
Aviation Emissions	Notation Keys for Transportation	Scope 1	II.4.1
Marine Transportation	Notation Keys for Transportation	Scope 1	II.3.1
EVs On-road Estimate	Notation Keys for Transportation	Scope 2	II.1.2
In-Boundary Onroad VMT-Gasoline	On Road Transportation	Scope 1	II.1.1
Orig-Dest Onroad VMT Diesel	On Road Transportation	Scope 1	II.1.1
Orig-Dest Onroad VMT Gasoline	On Road Transportation	Scope 1	II.1.1
In-Boundary Onroad VMT-Diesel	On Road Transportation	Scope 1	II.1.1

Factor Profiles

RFC West (RFCW) eGRID 2018 and 2018 US National Defaults (update)

RFC West (RFCW) eGRID 2018 and 2018 US National Defaults (update)
RFC West (RFCW) eGRID 2018 and 2018 US National Defaults (update)
RFC West (RFCW) eGRID 2018 and 2018 US National Defaults (update)
RFC West (RFCW) eGRID 2018 and 2018 US National Defaults (update)

Notes

CO2 (MT)

Data from US EPA NEI 2017 for Milwaukee County. Should be downscaled. Leave as Information Only until appropriate proxy is found. Per SEWRPC, Christopher Hiebert, VMT data includes all onroad activity include transit buses. Electrified rail is included within the Commercial Sector electricity data and was not able to pull data out.

331,644.00

Unable to get data from County Airport at this time, but future inventories can work to obtain estimates of activity from Landing, Take-off, & Operations from Airport Authority.

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Unable to get data from Port Authority at this time, but future inventories can work to obtain estimates of activity from Cargo, Ferry, and Private vessels.

EV Hub estimates about 451 EVs on the road in Milwaukee County. The current relative de minimis value of these emissions is assumed included in residential and commercial electricity.

Christopher T. Hiebert, P.E. | Chief Transportation Engineer
chiebert@sewrpc.org | 262.953.3227

443,205.74
281,652.23
710,374.09
175,724.15

CH4 (MT)	N2O (MT)	CO2e (MT)	Tags	GPC Reference Number
123.66	-	335,106.48		
-	-	-		
				II.4.1
				II.3.1
				II.1.2
20.63	12.82	447,179.66		
0.85	0.82	281,892.76		
33.06	20.54	716,743.54		
0.53	0.51	175,874.22		

Notation Keys Off Road Fuel Use Energy Equivalent (MMBtu Bio CO2 (MT)

0

0

IE

NE

NE

IE

CO2 Emissions Factor	Biogenic CO2 Emissions F	CH4 Emissions F	N2O Emissions F
0	0	0	0
0	0	0	0
0.07024	0.068413598	1.7211E-08	1.06936E-08
0.073934483	0.073773234	4.429E-10	4.257E-10
0.07024	0.068413598	1.7211E-08	1.06936E-08
0.073934483	0.073773234	4.429E-10	4.257E-10

Is this a Direct Entry Recd Equipment Type	Sector	Fuel Type	Fuel Used
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Yes			
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		Gasoline	
		Diesel	
		Gasoline	
		Diesel	

Percent Biofuel Blend	Data Source	Previously Calculated C	Previously Calculated C
	EPA NONROAD	331644	123.66

0	0
0	0
0	0
0	0

Previously Calculated N: Previously Calculated Biogenic C Data Quality: Activity Data Quality: Emission

Medium

Medium

0
0
0
0

0
0
0
0

Transit VMT Transit Energy Equivalent (MM Biogenic CO2 (MT)

0

0

Emissions per Passenger (MT CO2e / Pass Emissions per Service Population (MT CO2e / Per

NaN

NaN

Energy Per Passenger (MMBtu / Passen Energy per Service Population (MMBtu / Persor

NaN

NaN

Fossil Energy (MMBtu) Biofuel Energy (MMBtu) Calculation Type Activity Location Vehicle Type

0

0

Within Jurisdiction

0
0
0
0

Annual Fuel Use Annual Revenue Miles Traveled Passenger Mil Passenger Mile CO2 F

Passenger Mile CH4 F Passenger Mile N2O F Passenger Boardings (op

Service Population (Residents and Workfor Data Quality: Emissic CO2 lbs/MWh CO2 kg/MWh

1,166.096

1,166.096

1,166.096

1,166.096

1,166.096

CH4 lbs/GWh CH4 kg/GWh N2O lbs/GWh N2O kg/GWh

117

17

117

17

117

17

117

17

117

17

Gas Passenger Vehicle Fuel Economy Gas Passenger Vehicle g CH4/ Gas PassengerVehicle g N2C

24.21489

0.0186

0.0093

24.21489

0.0186

0.0093

24.21489

0.0186

0.0093

24.21489

0.0186

0.0093

24.21489

0.0186

0.0093

Gas Light Truck Fuel Economy (Gas Light Truck g CH4/l Gas Light Truck g N2O/l

17.52427	0.0201	0.0167
----------	--------	--------

17.52427	0.0201	0.0167
17.52427	0.0201	0.0167
17.52427	0.0201	0.0167
17.52427	0.0201	0.0167

Gas Heavy Truck Fuel Economy (l Gas Heavy Truck g CH4/m Gas Heavy Truck g N2O/m

5.361348

0.086

0.0664

5.361348

0.086

0.0664

5.361348

0.086

0.0664

5.361348

0.086

0.0664

5.361348

0.086

0.0664

Gas Transit Bus Fuel Economy (Gas Transit Bus g CH4/ Gas Transit Bus g N2O/

17.52427	0.0201	0.0167
----------	--------	--------

17.52427	0.0201	0.0167
17.52427	0.0201	0.0167
17.52427	0.0201	0.0167
17.52427	0.0201	0.0167

Gas Para Transit Bus Fuel Econorr Gas Para Transit Bus g C† Gas Para Transit Bus g N2

17.52427

0.0201

0.0167

17.52427

0.0201

0.0167

17.52427

0.0201

0.0167

17.52427

0.0201

0.0167

17.52427

0.0201

0.0167

Gas Motorcycle Fuel Economy (l Gas Motorcycle g CH4/r Gas Motorcycle g N2O/r

24.21489	0.0186	0.0093
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24.21489	0.0186	0.0093
24.21489	0.0186	0.0093
24.21489	0.0186	0.0093
24.21489	0.0186	0.0093

Electric Vehicle Fuel Economy (M Diesel Passenger Vehicle Fuel Economy (

24.21489

24.21489
24.21489
24.21489
24.21489

Diesel Passenger Vehicle g CH4/ Diesel PassengerVehicle g N2O, Diesel Light Truck Fuel Economy (l

0.0005

0.001

17.52427

0.0005

0.001

17.52427

0.0005

0.001

17.52427

0.0005

0.001

17.52427

0.0005

0.001

17.52427

Diesel Light Truck g CH4/n Diesel Light Truck g N2O/r Diesel Heavy Truck Fuel Economy (M

0.001

0.0015

6.224736

0.001

0.0015

6.224736

0.001

0.0015

6.224736

0.001

0.0015

6.224736

0.001

0.0015

6.224736

Diesel Heavy Truck g CH4/mi Diesel Heavy Truck g N2O/mi Diesel Transit Bus Fuel Economy (l

0.0051

0.0048

17.52427

0.0051

0.0048

17.52427

0.0051

0.0048

17.52427

0.0051

0.0048

17.52427

0.0051

0.0048

17.52427

Diesel Transit Bus g CH4/r Diesel Transit Bus g N2O/r Diesel Para Transit Bus Fuel Economy

0.001	0.0015	17.52427
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0.001	0.0015	17.52427
0.001	0.0015	17.52427
0.001	0.0015	17.52427
0.001	0.0015	17.52427

Diesel Para Transit Bus g CH Diesel Para Transit Bus g N2(Diesel Motorcycle Fuel Economy (l

0.001

0.0015

24.21489

0.001

0.0015

24.21489

0.001

0.0015

24.21489

0.001

0.0015

24.21489

0.001

0.0015

24.21489

Diesel Motorcycle g CH4/r Diesel Motorcycle g N2O/r On Road VMT

0.0005

0.001

0.0005

0.001

1198514200

0.0005

0.001

1920989200

0.0005

0.001

1920989200

0.0005

0.001

1198514200

Fossil Fuel Energy Equivalent (M³ Biogenic-CO₂ (MT) Biofuel CH₄ (MT) Biofuel N₂O (MT)

6309876.656	0	0	0
3809483.955	0	0	0
10113526.32	0	0	0
2376754.963	0	0	0

Emissions per Capita (MT CO2 per P€ Emissions per Mile (g CO2e per mi Calculation Method

Infinity
Infinity
Infinity
Infinity

373.1116946 VMT & MPG
146.7435403 VMT & MPG
373.1116946 VMT & MPG
146.7435403 VMT & MPG

VMT Location Travel Type Type of VMT or Emissions Data Type of Freight VMT or Emissions I

In-Boundary Passenger	In Boundary	In-boundary from Travel Model
In-Boundary Passenger	Origin-Destination	Origin-Destination
In-Boundary Passenger	Origin-Destination	Origin-Destination
In-Boundary Passenger	In Boundary	In-boundary from Travel Model

Is this a T&D Loss Record? VMT

Percent Motorcyc Percent Passenger Vehi

1198514200	0	58.6
1920989200		0.3
1920989200		58.6
1198514200		0.3

Percent Light Truck Fuel Use T&D Loss Factor Percent Biofuel

31.4			0	0
1.3	8.4		0	0
31.4			0	0
1.3	8.4		0	0

CO2 On Road Average Emissions CH4 On Road Average Emissions I

N2O On Road Average Emissions Biofuel CO2 Fact Biofuel CH4 Fact Biofuel N2O Fact

Population (optional) Data Quality: Activity Data Quality: Emissions Factor

Inventory Record	Calculator	Gpc Scope	GPC Ref Number
Residential Electricity	Emissions from Grid Electricity	Scope 2	I.1.2
Estimate Residential Fuel Oil/Kerosene Emissions from Stationary Fuel Combustion		Scope 1	I.1.1
Estimate Residential Propane Heating Emissions from Stationary Fuel Combustion		Scope 1	I.1.1
Residential Natural Gas	Emissions from Stationary Fuel Combustion	Scope 1	I.1.1

Factor Profiles

Notes

2018 WE Energies

Single family homes/garages for home Apartment units Common meter for residential apartment 4 or less

Utilized average MMBtu per household of Natural Gas and applied MMBtu per household by the number of homes on Kerosene/Fuel Oil (from US Census Data). Activity and Emissions factor noted as medium due to the use of average consumption and multiple fuel sources, respectively.

Utilized average MMBtu per household of Natural Gas and applied MMBtu per household by the number of homes on LP/Propane (from US Census Data).

Single family homes/garages for home Apartment units Common meter for residential apartment 4 or less Jennifer Zierer Manager Local Affairs

CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
1,119,292.34	100.89	14.66	1,126,002.06
15,643.58	2.30	0.15	15,748.57
17,497.54	3.13	0.31	17,668.05
1,208,814.12	114.00	2.28	1,212,610.19

Tags	Energy Equivalent (MMBtu)	Energy Cost	Biogenic CO2 (MT)	MMBtu per Household
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	211514	0	0	121.7697179
	284698	0	0	121.7698888
	22799210.2	0	0	121.7691871

CO2e per Household (MT)	MMBtu per Person	CO2e per Person (MT)
4.335997023	10.95960535	1.901950186
9.066532001	Infinity	Infinity
7.556905485	Infinity	Infinity
6.476476867	Infinity	Infinity

CO2 Emissions Factor	Biogenic CO2 Emissions	CH4 Emissions Factor
0.172507734		1.55496E-05
73.96	0	0.010869565
61.46	0	0.010989011
53.02	0	0.005

N2O Emissions Factor	Is this a Direct Entry	Recc Fuel Type	Fuel Use
2.25935E-06	No		
0.000724638	No	Distillate Fuel Oil Nc	211514
0.001098901	No	Propane	284698
0.0001	No	Natural Gas	227992102

Data Source	CO2	CH4	N2O	Number of Households (option: Population (option:
				259687 592025
Estimation using EIA us:				1737
Estimation using EIA us:				2338
Measured usage				187233

Notation Keys Data Quality: Activity Data Quality: Emission Electricity Energy Equivalent (M

High

High

6488360.358

Medium

Medium

Medium

Medium

High

High

Energy Cost (\$)	Electricity Used	Building Area (option:	CO2 lbs/MWh	CO2 kg/MWh
0	1901089585			1298

CH4 lbs/GWh CH4 kg/GWh N2O lbs/GWh N2O kg/GWh

117

17

Inventory Record	Calculator	Gpc Scope
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Industrial Electricity	Emissions from Grid Electricity	Scope 2
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Milwaukee Regional Medical C	Emissions from Stationary Fuel Combustion	Scope 1
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UW-Milwaukee	Emissions from Stationary Fuel Combustion	Scope 1
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Industrial Nat Gas	Emissions from Stationary Fuel Combustion	Scope 1
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Valley WEPCO CS2	Emissions from Stationary Fuel Combustion at Ener	Scope 1
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Valley WEPCO CS1	Emissions from Stationary Fuel Combustion at Ener	Scope 1
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GPC Ref Number Factor Profiles

I.3.2 2018 WE Energies

I.3.1

I.3.1

I.3.1

I.4.4

I.4.4

Notes	CO2 (MT)
<p>Electric Demand (CG2 and CG3) Electric Primary Gas Transportation Data Activity Rated Medium as only non-demand meters were counted as Commercial with all demand meters counted in Industrial. Commonly, large office buildings and other business that might have a high peak demand (e.g. businesses that "open" all at one time). Recommend working with utility to better determine buckets of commercial and Industrial.</p>	1,749,588.08
<p>Accessed EPA Flight Data and assumed Natural Gas was already recorded in Industrial Sector. Include Distillate Fuel Oil 2 Consumption per FLIGHT Data</p>	225.91
<p>Accessed EPA FLIGHT data and input reported fuel quantity to account for IPCC 5th GWP.</p>	206.65
<p>Electric Demand (CG2 and CG3) Electric Primary Gas Transportation Assumes that 100% is sold as there was no available data from WE</p>	965,333.24
<p>Energies on the amount used on site.</p>	154,419.53
	192,026.88

CH4 (MT)	N2O (MT)	CO2e (MT)	Tags
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157.71	22.91	1,760,076.18	
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0.01	0.00	226.74	
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0.01	0.00	207.41	
18.21	1.82	966,325.52	

2.91	0.29	154,578.26	
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3.62	0.36	192,224.27	
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Electricity Energy Equivalent (MWh) CO2 Emissions Factor CH4 Emissions Factor

10142084.9	0.172507734	1.55496E-05
	0.07396	2.89855E-06
	0.07396	2.89855E-06
	0.05302	0.000001
	0.05302	0.000001
	0.05302	0.000001

N2O Emissions Factor Is this a Direct Entry Recc Electricity Used CO2 CH4 N2O

2.25935E-06 No

2971630877

7.24638E-07 No

7.24638E-07 No

0.0000001 No

0.0000001 No

0.0000001 No

Notation Keys Data Quality: Activity Data Quality: Emissior CO2 lbs/MWh CO2 kg/MWh

High	High	1298
------	------	------

High	High	
------	------	--

High	High	
------	------	--

CH4 lbs/GWh CH4 kg/GWh N2O lbs/GWh N2O kg/GWh Energy Equivalent (MMBtu

117

17

3054.492

2794.086

18206964.1

Fuel Type	Fuel Use	Input Energy (MMBtu)	Biogenic CO2 (MT)
Distillate Fuel Oil No	22134		
Distillate Fuel Oil No	20247		
Natural Gas	182069641		
Natural Gas	2912477	2912477	0
Natural Gas	3621782	3621782	0

Total Useful Output (MME System Efficiency * Emissions per Unit Output (MT CO2e / MMBtu))

0	0 Infinity
0	0 Infinity

Biogenic CO2 Emissions Do you wish to use Custom or Default Emissions Energy Density

0 Use Default

0 Use Default

CO2 Factr CH4 Factr N2O Factr Energy End Use Type Data Source

Electricity Generation EPA Mandatory Reporting
Electricity Generation EPA Mandatory Reporting

Energy Use Attribution Cooling Output Electrical Output Heat Output

100
100

Inventory Record

Calculator

Gpc Scope

GPC Ref Number

Commercial Electricity

Emissions from Grid Electricity

Scope 2

1.2.2

Commercial Nat Gas

Emissions from Stationary Fuel Co

Scope 1

1.2.1

Factor Profiles	Notes	CO2 (MT)
2018 WE Energies	<p>Common meter for residential service > 4 units Electric non demand electric meters commercial (CG1 or CG6) All Commercial gas (except Transportation) Data Activity Rated Medium as only non-demand meters were counted as Commercial with all demand meters counted in Industrial. Commonly, large office buildings and other business that might have a high peak demand (e.g. businesses that "open" all at one time). Recommend working with utility to better determine buckets of commercial and Industrial.</p>	279,376.70
	<p>Common meter for residential service > 4 units Electric non demand electric meters commercial (CG1 or CG6) All Commercial gas (except Transportation)</p>	486,174.99

CH4 (MT)

N2O (MT)

CO2e (MT)

Tags

25.18

3.66

281,051.46

45.85

0.92

487,701.73

Electricity Energy Equivalent (M³ MMBtu per 1,000 SQFT Floor Area

1619502.474 Infinity

CO2e per 1,000 SQFT Floor Area (MT) MMBTU per Employee CO2e per Employee (MT)

Infinity

Infinity

Infinity

Infinity

MMBtu per Establishm CO2e per Establishme CO2 Emissions Factor CH4 Emissions Factor

Infinity

Infinity

0.172507734

1.55496E-05

N2O Emissions Factor	Is this a Direct Entry	Rec Electricity Used	CO2	CH4	N2O
----------------------	------------------------	----------------------	-----	-----	-----

2.25935E-06	No				
-------------	----	--	--	--	--

		474514225			
--	--	-----------	--	--	--

	No				
--	----	--	--	--	--

Commercial Floor Area (c Commercial Workforce Size Number of Commercial Establishment

Notation Keys Data Quality: Activity Data Quality: Emissio CO2 lbs/MWh CO2 kg/MWh

High

High

1298

High

CH4 lbs/GWh CH4 kg/GWh N2O lbs/GWh N2O kg/GWh Energy Equivalent (MMBtu

117

17

9169652.7

MMBtu per 1000 SQFT Floor Area: MMBtu per Business: CO2e per 1000 SQFT Floor Area (MT

Infinity

Infinity

Infinity

CO2e per Establishment (↑ MMBtu per Employee CO2 Emissions Factor (kg/

Infinity

Infinity

53.02

CH4 Emissions Factor (kg/	N2O Emissions Factor (kg/	Fuel Type	Fuel Use	Data Source
---------------------------	---------------------------	-----------	----------	-------------

0.005				
-------	--	--	--	--

	0.0001	Natural Gas		
--	--------	-------------	--	--

			91696527	Measured usage
--	--	--	----------	----------------

Commercial Workforce Size Data Quality: Emissions Factor

High

Inventory Record

Calculator

Gpc Scope

Fugitive Emissions from Nat Gas Consumed in
Milwaukee (City)

Fugitive Emissions from Natural
Gas Distribution

Scope 1

GPC Ref Number Factor Pro Notes

I.8.1

Compared 0.3% assumed leakage to reported fugitive emissions in EPA FLIGHT for Wisconsin Electric Power and Wisconsin Gas Company. EPA FLIGHT estimated leakage for entire system, beyond City of Milwaukee. Utilized 0.3% assumed leakage calculation based on total consumed Natural Gas for City of Milwaukee.

CO2 (MT)

CH4 (MT)

N2O (MT) CO2e (MT)

Tags

33.27

3,107.83

87,052.59

Natural Gas Released (I Natural Gas Used (M CH4 Emissions Factor

3327.444014

50175827

6.19388E-05

CO2 Emissions Factor

Is this a Direct Entry Recc Quantity of Natural Gas

6.63157E-07

501758270

Nature Gas Energy Densi Leakage R Natural Gas De Natural Gas % C Natrual Gas % C

1028 0.3 0.8 93.4 1

Natural Gas Release Notation Keys Data Quality: Activity Data Quality: Emissions Factor