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This is the methodology I have concocted over the years to help me figure out how much carbon I have personally contributed to the atmosphere. It's a continual work in progress, and gets more precise each year.

How much carbon was emitted because of me?

Total estimated tons of carbon emitted annually ①

2023	-2.7
2022	1.4
2021	5.8
2020	10.6
2019	12.3
2018	11.9

Electricity

Estimated tons of carbon emitted in 2023 ①

				2.0		
Kilowatt hours per year		On · Mid · Off		kWh	Carbon (tons)	
2023	(New insulation installed)	8%	4%	88%	4,769	3.4
2022	(Smart-meter installed)	12%	6%	82%	5,987	4.2
2021	(Fixed wiring issue + new A/C installed)	—	—	—	5,727	4.1
2020		—	—	—	5,890	4.2
2019		—	—	—	7,443	5.3
2018		—	—	—	7,451	5.3
Energy provider ①		Fossil fuels	Carbon free	Carbon (tons)		
2023	(Xcel Energy)	58%	42%	-1.4		
2022	(Xcel Energy)	63%	37%	-1.6		
2021	(Xcel Energy)	65%	35%	-1.4		
2020	(Xcel Energy)	69%	32%	-1.3		
2019	(Xcel Energy)	70%	30%	-1.6		
2018	(Xcel Energy)	72%	28%	-1.5		

Natural gas

Estimated tons of carbon emitted in 2023 ①

				1.5	
Therms per year		Therms	Carbon (tons)		
2023	(New insulation installed)	288	1.5		
2022		492	2.6		
2021		482	2.6		
2020		474	2.5		
2019		537	2.8		
2018		482	2.6		

Offsets

Estimated tons of carbon absorbed in 2023 ①

				-10.2	
Trees planted		This year	Cumulative	Carbon (tons)	
2023		226	917	-10.1	
2022		350	691	-7.6	
2021		321	341	-3.8	
2020		20	20	-0.2	
Direct air capture (DAC)					Carbon (tons)
2023	(ClimeWorks / CarbFix)				-0.159
2022	(ClimeWorks / CarbFix)				-0.119
2021	(ClimeWorks / CarbFix)				-0.010
Ocean capture					Carbon (tons)
2023					0.0
Seaweed / algae farming					Carbon (tons)
2023					0.0

Transportation

Estimated tons of carbon emitted in 2023 ①

				3.8	
Miles per year		Unleaded (gallons)	Drive (miles)	Fly (miles)	Carbon (tons)
2023	(Average vehicle MPG: 23.8 MPG)	332	7,967	6,794	3.8
2022	(Average vehicle MPG: 23.2 MPG)	310	7,191	6,644	3.6
2021	(Average vehicle MPG: 22.8 MPG)	265	6,307	2,048	2.6
2020		196	4,507	3,402	2.1
2019		398	9,154	6,964	4.3
2018		376	8,650	4,229	3.8
2017		415	9,550	5,000	4.3
2016		471	10,833	5,000	4.8
2015		433	9,967	5,000	4.4
2014		1,522	35,000	10,000	14.7
2013		1,957	45,000	40,000	22.2
2012		1,957	45,000	40,000	22.2

Waste

Pounds of material	2020	2021	2022	2023
Aluminum	*	*	5.4	2.7
Batteries (Lithium, alkaline, car batteries, tool batteries, etc.)	0	0	0	45.0
Corrugated cardboard	*	*	25.0	16.7
Electronics	0	65.0	0	24.5
Generic recyclables *	123.0	172.0	—	—
Glass	*	*	64.2	39.5
Junk mail	—	—	—	—
Landfill	37.0	93.0	57.9	48.8
Lightbulbs (Compact fluorescent)	0	0	0	0
Mixed paper	*	*	44.9	32.7
Organic (Municipal collection only. Managed at home doesn't count.)	289.0	234.0	207.8	46.3
Plastics (#1 PET and #2 HDPE)	*	*	17.4	14.0
Plastics (#4 LDPE flexible plastic bags)	*	*	4.3	4.5
Plastics (#5 PP)	*	*	5.7	4.4
Scrap metal	*	100.0	34.5	14.3
Shoes	—	—	—	0
Tetra Paks	*	*	0.5	0
Tires	0	96.0	0	0
Total	449	760	468	293
Pounds diverted from places it shouldn't have been				
Inorganic material from community gardens (via —)	—	—	—	0
Inorganic material from oceans & rivers (via The Ocean Cleanup)	—	30	120	120

Water

Gallons per year	Precipitation (in)	Municipal	Collected
2023	18.94	13,537	736
2022 (New raised-bed gardens)	11.92	21,217	627
2021	12.53	13,852	300
2020 (New water meter + rain barrel installed)	8.74	21,760	45
2019	15.51	29,920	—
2018	8.53	42,500	—
My Charity: water donations provide clean water continuously for ①			People
2023			6
2022			2