

SOCIAL COST OF CARBON DIOXIDE CALCULATOR

Base Year	2023	(The Base Year is often the current year and can be no later than the first year of emissions.)
Year 1	2023	(First year of emissions)

Year of emissions	CO ₂ emissions (metric tons) ¹	Per ton SC-CO ₂ Value (2020\$/metric ton CO ₂) ^{2,3}				Present Value (in Base Year) of Estimated SC-CO ₂ by emissions year (2020\$) ⁴			
		Average, 5%		95th Percentile, 3%		Average, 5%		95th Percentile, 3%	
		Average, 3%	Average 2.5%	Average, 3%	Average 2.5%	Average, 3%	Average 2.5%	Average, 3%	Average 2.5%
2023	1216367.14	\$16	\$54	\$80	\$162	\$19,391,325	\$66,032,923	\$97,721,720	\$197,220,552
2024	1216367.14	\$16	\$55	\$82	\$166	\$19,034,408	\$65,370,877	\$96,888,093	\$195,622,541
2025	1216367.14	\$17	\$56	\$83	\$169	\$18,666,409	\$64,691,378	\$96,036,998	\$193,949,162
2026	1216367.14	\$17	\$57	\$84	\$173	\$18,291,346	\$63,996,006	\$95,169,782	\$192,207,308
2027	1216367.14	\$18	\$59	\$86	\$176	\$17,909,676	\$63,287,341	\$94,287,739	\$190,403,467
2028	1216367.14	\$18	\$60	\$87	\$180	\$17,522,878	\$62,564,618	\$93,392,107	\$188,540,599
2029	1216367.14	\$19	\$61	\$88	\$183	\$17,131,399	\$61,830,307	\$92,484,075	\$186,624,721

	Average, 5%	Average, 3%	Average 2.5%	95th Percentile, 3%
Present Value (in Base Year) of Estimated SC-CO ₂ for all CO ₂ emissions, 2020\$)	\$127,947,441	\$447,773,450	\$665,980,514	\$1,344,568,350

¹Annual GHG Estimates from from Air Resource Specialist

²Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under E.O. 13990. Interagency Working Group on Social Cost of Carbon, United States Government. February 2021.

³Social Cost estimates for emissions years beyond 2050 are estimated using an annual growth rate equal to the average annual growth in social cost estimates for the last five years of available estimates from the TSD (2046-2050)

⁴The SCC estimates from the IWG represent the present value of damages from that year's emissions discounted back to the year of emissions.

These columns take that value and discount to the base year in order to facilitate the total NPV calculation.

This calculator was developed by Rebecca Moore, Senior Economist, BLM 970-226-9246 rmoore@blm.gov
Last updated 11/18/21

SOCIAL COST OF METHANE CALCULATOR

Base Year	2023	(The Base Year is often the current year and can be no later than the first year of emissions.)
Year 1	2023	(First year of emissions)

Year of emissions	CH4 emissions (metric tons) ¹	Per ton SC-CH ₄ Value (2020\$/metric ton CH ₄) ^{2,3}				Present Value (in Base Year) of Estimated SC-CH ₄ by emissions year (2020\$) ⁴			
		Average, 5%	Average, 3%	Average 2.5%	95th Percentile,	Average, 5%	Average, 3%	Average 2.5%	95th Percentile,
					3%				3%
2023	136.67	\$747	\$1,626	\$2,120	\$4,292	\$102,143	\$222,208	\$289,673	\$586,526
2024	136.67	\$775	\$1,673	\$2,175	\$4,420	\$100,823	\$221,964	\$290,000	\$586,481
2025	136.67	\$802	\$1,720	\$2,230	\$4,548	\$99,397	\$221,545	\$290,139	\$585,941
2026	136.67	\$829	\$1,767	\$2,286	\$4,677	\$97,879	\$220,963	\$290,098	\$584,935
2027	136.67	\$856	\$1,814	\$2,341	\$4,805	\$96,279	\$220,227	\$289,887	\$583,490
2028	136.67	\$884	\$1,861	\$2,397	\$4,934	\$94,610	\$219,346	\$289,513	\$581,633
2029	136.67	\$911	\$1,908	\$2,452	\$5,062	\$92,882	\$218,330	\$288,986	\$579,390

	Average, 5%	Average, 3%	Average 2.5%	95th Percentile, 3%
Present Value (in Base Year) of Estimated SC-CH₄ for all CH₄ emissions, 2020\$)	\$684,014	\$1,544,583	\$2,028,295	\$4,088,395

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SOCIAL COST OF NITROUS OXIDE CALCULATOR

Base Year	2023	(The Base Year is often the current year and can be no later than the first year of emissions.)
Year 1	2023	(First year of emissions)

Year of emissions	N2O emissions (metric tons) ¹	Per ton SC-N ₂ O Value (2020\$/metric ton N ₂ O) ^{2,3}				Development and Operations Present Value (in Base Year) of Estimated SC-N ₂ O by emissions year (2020\$) ⁴			
		Average, 5%	Average, 3%	Average 2.5%	95th Percentile,	Average, 5%	Average, 3%	Average 2.5%	95th Percentile,
					3%				3%
2023	20.08	\$6,385	\$19,717	\$28,801	\$51,879	\$128,240	\$395,976	\$578,423	\$1,041,912
2024	20.08	\$6,587	\$20,154	\$29,358	\$53,087	\$125,996	\$392,965	\$575,224	\$1,035,114
2025	20.08	\$6,789	\$20,591	\$29,914	\$54,295	\$123,676	\$389,794	\$571,836	\$1,027,828
2026	20.08	\$6,991	\$21,028	\$30,471	\$55,502	\$121,290	\$386,474	\$568,271	\$1,020,088
2027	20.08	\$7,193	\$21,465	\$31,028	\$56,710	\$118,852	\$383,017	\$564,541	\$1,011,927
2028	20.08	\$7,395	\$21,902	\$31,585	\$57,918	\$116,370	\$379,433	\$560,654	\$1,003,376
2029	20.08	\$7,597	\$22,339	\$32,141	\$59,125	\$113,856	\$375,733	\$556,621	\$994,465

	Average, 5%	Average, 3%	Average 2.5%	95th Percentile, 3%
Present Value (in Base Year) of Estimated SC-N₂O for all N₂O emissions, 2020\$)	\$848,280	\$2,703,392	\$3,975,569	\$7,134,708

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year	5.0%_CO2	3.0%_CO2	2.5%_CO2	3% 95th Pct. _CO2
2020	14.476	51.082	76.421	151.608
2021	14.964	52.15	77.727	155.119
2022	15.453	53.219	79.033	158.629
2023	15.942	54.287	80.339	162.139
2024	16.431	55.355	81.645	165.65
2025	16.919	56.423	82.951	169.16
2026	17.408	57.491	84.257	172.67
2027	17.897	58.56	85.563	176.181
2028	18.386	59.628	86.869	179.691
2029	18.874	60.696	88.175	183.201
2030	19.363	61.764	89.481	186.712
2031	19.947	62.908	90.844	190.535
2032	20.53	64.052	92.207	194.359
2033	21.114	65.196	93.57	198.183
2034	21.697	66.34	94.934	202.006
2035	22.281	67.484	96.297	205.83
2036	22.864	68.628	97.66	209.654
2037	23.448	69.772	99.023	213.477
2038	24.031	70.916	100.387	217.301
2039	24.615	72.06	101.75	221.124
2040	25.199	73.204	103.113	224.948
2041	25.845	74.35	104.449	228.448
2042	26.491	75.496	105.785	231.947
2043	27.137	76.642	107.12	235.447
2044	27.783	77.788	108.456	238.947
2045	28.429	78.933	109.792	242.447
2046	29.076	80.079	111.128	245.946
2047	29.722	81.225	112.464	249.446
2048	30.368	82.371	113.799	252.946
2049	31.014	83.516	115.135	256.445
2050	31.66	84.662	116.471	259.945
2051	32.349	85.857	117.855	263.593
2052	33.053	87.068	119.255	267.293
2053	33.772	88.297	120.672	271.044
2054	34.507	89.543	122.106	274.848
2055	35.258	90.807	123.556	278.706
2056	36.026	92.088	125.024	282.618
2057	36.810	93.388	126.510	286.584
2058	37.611	94.706	128.013	290.606
2059	38.429	96.042	129.534	294.685
2060	39.265	97.398	131.073	298.821
2061	40.120	98.772	132.630	303.015
2062	40.993	100.166	134.206	307.268
2063	41.885	101.580	135.800	311.580
2064	42.797	103.013	137.414	315.953
2065	43.728	104.467	139.046	320.388
2066	44.680	105.941	140.698	324.884
2067	45.652	107.436	142.370	329.444
2068	46.646	108.952	144.061	334.068
2069	47.661	110.490	145.773	338.756
2070	48.698	112.049	147.505	343.511

5.0%_CH4	3.0%_CH4	2.5%_CH4	3% 95th Pct._CH4	5.0%_N2O
665.688	1485.078	1953.209	3906.371	5779.426
692.917	1532.015	2008.649	4034.779	5981.4
720.147	1578.952	2064.09	4163.187	6183.373
747.376	1625.89	2119.53	4291.595	6385.347
774.605	1672.827	2174.97	4420.003	6587.321
801.834	1719.764	2230.41	4548.41	6789.294
829.063	1766.701	2285.851	4676.818	6991.268
856.292	1813.639	2341.291	4805.226	7193.242
883.521	1860.576	2396.731	4933.634	7395.215
910.75	1907.513	2452.171	5062.042	7597.189
937.979	1954.45	2507.612	5190.45	7799.163
972.355	2009.824	2571.507	5344.225	8046.879
1006.731	2065.198	2635.403	5498.001	8294.595
1041.107	2120.572	2699.299	5651.776	8542.311
1075.483	2175.946	2763.195	5805.552	8790.027
1109.859	2231.32	2827.091	5959.327	9037.743
1144.235	2286.694	2890.986	6113.103	9285.459
1178.611	2342.068	2954.882	6266.878	9533.175
1212.987	2397.441	3018.778	6420.653	9780.891
1247.363	2452.815	3082.674	6574.429	10028.607
1281.739	2508.189	3146.569	6728.204	10276.323
1319.241	2564.102	3209.556	6872.909	10566.545
1356.743	2620.014	3272.542	7017.614	10856.768
1394.244	2675.927	3335.528	7162.319	11146.991
1431.746	2731.839	3398.515	7307.023	11437.213
1469.247	2787.751	3461.501	7451.728	11727.436
1506.749	2843.664	3524.487	7596.433	12017.659
1544.25	2899.576	3587.474	7741.138	12307.881
1581.752	2955.489	3650.46	7885.842	12598.104
1619.253	3011.401	3713.446	8030.547	12888.327
1656.755	3067.314	3776.432	8175.252	13178.549
1697.036	3126.505	3842.777	8328.179	13489.648
1738.297	3186.839	3910.287	8483.966	13808.092
1780.561	3248.336	3978.983	8642.667	14134.052
1823.852	3311.021	4048.886	8804.337	14467.708
1868.196	3374.915	4120.018	8969.032	14809.240
1913.618	3440.042	4192.399	9136.807	15158.834
1960.145	3506.425	4266.051	9307.720	15516.681
2007.803	3574.090	4340.997	9481.831	15882.975
2056.619	3643.061	4417.260	9659.198	16257.917
2106.622	3713.362	4494.863	9839.884	16641.709
2157.841	3785.021	4573.829	10023.949	17034.562
2210.306	3858.062	4654.183	10211.458	17436.688
2264.046	3932.512	4735.948	10402.473	17848.307
2319.092	4008.399	4819.150	10597.063	18269.643
2375.477	4085.751	4903.813	10795.292	18700.925
2433.233	4164.595	4989.964	10997.229	19142.389
2492.393	4244.961	5077.628	11202.943	19594.274
2552.992	4326.878	5166.832	11412.506	20056.826
2615.064	4410.375	5257.603	11625.989	20530.297
2678.645	4495.484	5349.969	11843.465	21014.945

3.0%_N2O	2.5%_N2O	3% 95th Pct._N2O
18405.298	27130.806	48255.974
18842.379	27687.532	49463.691
19279.46	28244.259	50671.409
19716.542	28800.985	51879.127
20153.623	29357.712	53086.844
20590.704	29914.439	54294.562
21027.785	30471.165	55502.279
21464.867	31027.892	56709.997
21901.948	31584.618	57917.715
22339.029	32141.345	59125.432
22776.11	32698.071	60333.15
23268.02	33309.463	61692.265
23759.929	33920.854	63051.381
24251.838	34532.245	64410.496
24743.748	35143.636	65769.611
25235.657	35755.028	67128.727
25727.567	36366.419	68487.842
26219.476	36977.81	69846.958
26711.385	37589.202	71206.073
27203.295	38200.593	72565.188
27695.204	38811.984	73924.304
28224.594	39456.17	75348.507
28753.983	40100.356	76772.71
29283.373	40744.542	78196.914
29812.763	41388.727	79621.117
30342.152	42032.913	81045.32
30871.542	42677.099	82469.524
31400.932	43321.285	83893.727
31930.321	43965.471	85317.93
32459.711	44609.656	86742.134
32989.101	45253.842	88166.337
33545.582	45927.063	89663.937
34111.451	46610.299	91186.975
34686.864	47303.699	92735.884
35271.985	48007.414	94311.103
35866.975	48721.598	95913.078
36472.002	49446.407	97542.265
37087.235	50181.999	99199.125
37712.847	50928.533	100884.129
38349.011	51686.174	102597.754
38995.907	52455.085	104340.487
39653.715	53235.436	106112.822
40322.619	54027.395	107915.263
41002.807	54831.135	109748.319
41694.468	55646.833	111612.513
42397.797	56474.666	113508.371
43112.990	57314.813	115436.433
43840.248	58167.460	117397.245
44579.773	59032.790	119391.363
45331.774	59910.994	121419.354
46096.459	60802.262	123481.792

1.02276	1.01452	1.01217	1.01443	1.02552	1.02006	1.01820	1.01942	1.02475	1.01745	1.01533	1.01757
1.02222	1.01431	1.01202	1.01423	1.02489	1.01966	1.01787	1.01905	1.02415	1.01715	1.01509	1.01727
1.02173	1.01411	1.01187	1.01403	1.02428	1.01928	1.01756	1.01869	1.02358	1.01686	1.01487	1.01698
1.02127	1.01390	1.01174	1.01383	1.02371	1.01892	1.01725	1.01835	1.02304	1.01658	1.01465	1.01669
1.02083	1.01372	1.01160	1.01365	1.02316	1.01857	1.01696	1.01802	1.02252	1.01631	1.01444	1.01642
1.02176	1.01411	1.01188	1.01404	1.02431	1.01930	1.01757	1.01871	1.02361	1.01687	1.01488	1.01699

Average Annual Growth 2046-2050

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Interagency Working Group on Social Cost of Carbon, United States Government. February 2021

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