APPENDIX E– Industrial Processes

Data from State Inventory Tool

INPUT:

Table E-1 Emission Factors in Units of GHG Emitted per Unit of Production or Consumption

Process	Emission Factor	Units
Lime Manufacture		
High-Calcium Lime	0.75	Metric Tons CO_2 Emitted / Metric Ton High-Calcium Lime Produced
Dolomitic Lime	0.86	Metric Tons CO_2 Emitted / Metric Ton Dolomitic Lime Produced
Limestone and Dolomite Use		
Limestone	0.440	Metric Tons CO_2 Emitted / Metric Ton Limestone (Calcite)
Dolomite	0.484	Metric Tons CO_2 Emitted / Metric Ton Limestone (Dolomite)
Electric Power Transmission and Distribution	1.0	Metric Tons SF_6 Emitted / Metric Ton SF6 Consumed (Sold)

Table E-2 Global Warming Potentials

Methane (CH_4)	21
Nitrous Oxide (N_2O)	310
HFC-23	11,700
Sulfur Hexafluoride (SF_6)	23,900

Table E-3 Lime Production (metric tons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
High-Calcium Lime	506,346	506,346	506,346	506,346	506,343	477,144	489,971	450,948	471,242	413,361	416,089
Dolomitic Lime	112,654	112,654	112,654	112,654	111,657	104,856	107,029	100,052	96,758	93,639	94,911

Table E-4 Limestone and Dolomite Use (metric tons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Limestone	250,205	250,205	250,205	250,205	250,205	312,661	341,431	368,417	382,614	446,744	446,744
Dolomite	6,529	6,529	6,529	6,529	6,529	6,529	6,529	39,025	43,156	96,276	96,276

Table E-5 Consumption of ODS Substitutes

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
National Emissions (Metric Tons CO_2 Eq.)	943,333	838,333	1,519,023	5,239,330	8,448,086	21,817,808	30,615,980	37,993,494	44,870,515	51,280,545	57,782,808
State Population	4,902,265	4,952,675	5,004,636	5,055,318	5,095,504	5,137,004	5,173,828	5,200,235	5,222,124	5,250,446	5,363,675
National Population	249,464,396	252,153,092	255,029,699	257,782,608	260,327,021	262,803,276	265,228,572	267,783,607	270,248,003	272,690,813	281,421,906
Apportioned National Emissions (Metric Tons CO_2 Eq.)	18,538	16,466	29,809	102,747	165,358	426,472	597,228	737,816	867,053	987,366	1,101,294

Table E-6 Semiconductor Manufacture

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
National Emissions (Metric Tons CO_2 Eq.)	2,933,333	2,933,333	,933,333	3,666,667	4,033,333	,050,000	5,573,333	6,710,000	7,443,333	7,920,000	7,553,333
Value of State Semiconductor Shipment- 1997 ($1000's)	75,475	75,475	75,475	75,475	75,475	75,475	75,475	75,475	75,475	75,475	75,475
Value of National Semiconductor Shipments- 1997 ($1000's)	78,539,56	78,539,56	78,539,562	78,539,562	78,539,562	78,539,562	78,539,562	78,539,562	78,539,562	78,539,562	78,539,562
Apportioned National Emissions (Metric Tons CO_2 Eq.)	2,819	2,819	2,819	3,524	3,876	5,814	5,356	6,448	7,153	7,611	7,259

Table E-7 Electric Power Transmission and Distribution

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SF_6 Consumption (Metric Tons)	24	25	23	26	25	21	21	20	16	12	11

OUTPUT:

Table E-8 Emissions ($MMTCO_2E$)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Carbon Dioxide Emissions from Industrial Processes	**0.493**	**0.493**	**0.493**	**0.493**	**0.493**	**0.499**	**0.521**	**0.519**	**0.543**	**0.553**	**0.555**
Lime Manufacture	0.380	0.380	0.380	0.380	0.380	0.358	0.367	0.338	0.353	0.310	0.312
Limestone and Dolomite Use	0.113	0.113	0.113	0.113	0.113	0.141	0.153	0.181	0.189	0.243	0.243
HFC, PFC, and SF6 Emissions from Industrial Processes	**0.600**	**0.621**	**0.591**	**0.738**	**0.763**	**0.940**	**1.110**	**1.216**	**1.265**	**1.293**	**1.382**
ODS Substitutes	0.019	0.016	0.030	0.103	0.165	0.426	0.597	0.738	0.867	0.987	1.101
Semiconductor Manufacturing	0.003	0.003	0.003	0.004	0.004	0.006	0.005	0.006	0.007	0.008	0.007
Electric Power Transmission and Distribution Systems	0.578	0.601	0.558	0.631	0.594	0.507	0.507	0.471	0.391	0.298	0.274
Total Emissions from Industrial Processes	**1.093**	**1.114**	**1.084**	**1.231**	**1.256**	**1.438**	**1.631**	**1.735**	**1.808**	**1.846**	**1.938**

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