ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

National Technical University of Athens
Primes Ver. 2 Energy Model

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Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (ktn of CO2 avoided in target year)																	
Industrial Sectors - **Metals**																	
Total CO2 emissions reduction	0	-8	-21	-41	-100	-178	-390	-650	-925	-1169	-1420	-2050	-2573	-3082	-3466	-3993	-4430
Structural change and behavioural effects	0	-6	-12	-30	-61	-122	-242	-413	-597	-749	-893	-1074	-1210	-1477	-1692	-1964	-2270
Technological improvement	0	0	-1	-4	-10	-21	-42	-69	-98	-116	-132	-428	-656	-835	-936	-1032	-1046
Energy saving in heat uses	0	2	3	6	12	23	43	70	95	98	86	80	50	36	29	11	7
Specific Industrial processes	0	-1	-3	-10	-21	-44	-85	-139	-192	-213	-215	-505	-702	-867	-958	-1036	-1044
Electrical Equipment	0	0	0	0	0	0	0	0	-1	-1	-3	-3	-3	-4	-6	-8	-9
Change of fuel mix	0	0	-1	-2	-5	-12	-24	-39	-51	-67	-83	-103	-201	-211	-231	-249	-267
Change of emission factor of electricity and steam (supply effect)	0	-2	-7	-5	-24	-23	-83	-130	-179	-237	-312	-445	-507	-558	-607	-747	-847
Industrial Sectors - **Chemicals**																	
Total CO2 emissions reduction	0	21	11	-6	-56	-65	-115	-181	-328	-385	-496	-591	-637	-705	-757	-859	-915
Structural change and behavioural effects	0	-1	-1	-2	-2	-2	-2	-2	-4	-8	-6	-3	3	5	5	5	1
Technological improvement	0	1	0	-4	-10	-23	-44	-70	-86	-96	-117	-158	-197	-235	-252	-276	-300
Energy saving in heat uses	0	0	0	0	0	0	-1	-1	-2	-3	-4	-5	-5	-5	-9	-9	-11
Specific Industrial processes	0	1	0	-3	-10	-22	-43	-68	-82	-91	-111	-150	-188	-226	-238	-262	-285
Electrical Equipment	0	0	0	0	0	0	0	-1	-2	-2	-2	-4	-4	-4	-5	-5	-5
Change of fuel mix	0	-1	0	0	0	0	0	0	-5	-5	-5	-4	0	1	-4	-4	-4
Change of emission factor of electricity and steam (supply effect)	0	21	13	-1	-43	-40	-68	-109	-232	-277	-368	-427	-443	-477	-506	-584	-611
Industrial Sectors - **Materials**																	
Total CO2 emissions reduction	0	150	96	-17	-316	-315	-486	-786	-1699	-2051	-2721	-3020	-3200	-3498	-3777	-4281	-4575
Structural change and behavioural effects	0	-7	-9	-10	-14	-20	-30	-48	-80	-121	-145	-130	-132	-150	-173	-197	-250
Technological improvement	0	2	0	-6	-13	-26	-55	-97	-148	-193	-271	-357	-506	-582	-661	-716	-850
Energy saving in heat uses	0	2	2	-3	-8	-17	-37	-67	-103	-136	-186	-240	-366	-420	-450	-456	-505
Specific Industrial processes	0	-1	-1	-2	-3	-7	-12	-19	-29	-41	-62	-84	-104	-122	-168	-220	-305
Electrical Equipment	0	0	0	-1	-2	-3	-6	-10	-15	-16	-24	-32	-36	-41	-43	-40	-39
Change of fuel mix	0	0	-1	-2	-4	-8	-15	-23	-31	-38	-45	-50	-55	-58	-61	-100	-102
Change of emission factor of electricity and steam (supply effect)	0	156	105	1	-284	-261	-386	-618	-1440	-1700	-2260	-2483	-2507	-2707	-2882	-3268	-3374
Industrial Sectors - **Others**																	
Total CO2 emissions reduction	0	19	-5	-23	-123	-143	-368	-587	-899	-1137	-1501	-1957	-2226	-2465	-2691	-3077	-3332
Structural change and behavioural effects	0	-3	-3	-4	-5	-5	-6	-10	-18	-26	-35	-39	-40	-46	-51	-56	-69
Technological improvement	0	6	4	-6	-18	-44	-95	-165	-242	-298	-406	-529	-673	-797	-915	-976	-1045
Energy saving in heat uses	0	7	6	-2	-12	-33	-77	-135	-191	-233	-299	-394	-503	-598	-707	-781	-847
Specific Industrial processes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical Equipment	0	-1	-2	-4	-7	-11	-18	-31	-51	-65	-107	-135	-170	-199	-208	-195	-198
Change of fuel mix	0	0	0	0	0	-1	-1	-2	-3	-4	-6	-7	-17	-17	-8	-8	-9
Change of emission factor of electricity and steam (supply effect)	0	16	-6	-13	-100	-94	-265	-410	-636	-808	-1054	-1382	-1495	-1605	-1717	-2036	-2209
Industrial Sectors - **Total**																	
Total CO2 emissions reduction	0	181	81	-87	-594	-701	-1359	-2205	-3851	-4742	-6138	-7618	-8637	-9750	-10692	-12208	-13252
Structural change and behavioural effects	0	-17	-25	-45	-82	-149	-281	-473	-700	-903	-1079	-1246	-1380	-1668	-1912	-2212	-2589
Technological improvement	0	9	3	-20	-51	-114	-236	-402	-574	-703	-928	-1472	-2032	-2450	-2764	-3001	-3241
Energy saving in heat uses	0	11	10	1	-7	-27	-72	-133	-201	-274	-404	-559	-825	-987	-1137	-1235	-1356
Specific Industrial processes	0	-1	-5	-15	-34	-72	-140	-226	-303	-345	-388	-739	-995	-1214	-1364	-1518	-1635
Electrical Equipment	0	-1	-2	-6	-9	-14	-24	-43	-70	-84	-136	-174	-213	-248	-263	-248	-250
Change of fuel mix	0	-1	-2	-5	-10	-21	-40	-63	-91	-114	-138	-164	-272	-286	-304	-361	-381
Change of emission factor of electricity and steam (supply effect)	0	191	105	-17	-451	-418	-802	-1267	-2487	-3022	-3993	-4736	-4952	-5346	-5712	-6635	-7041

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (ktn of CO2 avoided in target year)																	
Services																	
Total CO2 emissions reduction	0	21	9	-67	-488	-583	-1088	-1688	-2588	-3122	-3870	-4551	-4973	-5397	-5794	-6437	-6814
Structural change and behavioural effects	0	49	-3	-18	-25	-20	-25	-42	-110	-150	-209	-233	-232	-265	-292	-307	-369
Technological improvement	0	-120	-36	-40	-237	-355	-653	-996	-1232	-1457	-1576	-1818	-2122	-2307	-2506	-2697	-2858
Space heating and cooling	0	-150	-40	-39	-136	-263	-518	-871	-1092	-1303	-1407	-1637	-1910	-2071	-2244	-2454	-2597
Other heat uses (water heating, cooking, etc.)	0	15	-1	-3	-13	-16	-23	-25	-41	-52	-60	-62	-62	-64	-68	-64	-64
Electric uses	0	15	5	3	-88	-77	-112	-99	-100	-103	-109	-119	-150	-172	-194	-179	-196
Change of fuel mix	0	-1	0	1	1	2	3	3	5	5	-86	-115	-117	-139	-139	-139	-134
Change of emission factor of electricity and steam (supply effect)	0	93	48	-10	-226	-210	-413	-653	-1250	-1519	-1998	-2385	-2503	-2687	-2858	-3294	-3453
Agriculture																	
Total CO2 emissions reduction	0	1	-1	-2	-5	-6	-14	-21	-30	-40	-52	-67	-77	-87	-96	-112	-126
Structural change and behavioural effects	0	1	0	-1	-1	-1	-1	-2	-4	-6	-8	-10	-11	-12	-14	-15	-18
Technological improvement	0	0	0	0	-2	-2	-3	-4	-4	-2	-2	-2	-3	-3	-4	-3	-4
Space heating and cooling	0	0	0	0	-1	-1	-1	-3	-2	-1	-1	-1	-1	-1	-1	-1	-2
Other heat uses (water heating, cooking, etc.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electric uses	0	0	0	0	-1	-1	-2	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2
Change of fuel mix	0	0	0	-1	-1	-2	-4	-6	-10	-15	-19	-24	-29	-34	-39	-45	-52
Change of emission factor of electricity and steam (supply effect)	0	0	-1	0	-2	-2	-6	-10	-13	-17	-22	-31	-35	-37	-40	-48	-52
Households																	
Total CO2 emissions reduction	0	115	51	-42	-359	-385	-771	-1275	-2275	-2920	-3877	-4761	-5324	-5986	-6596	-7643	-8250
Structural change and behavioural effects	0	-6	-9	-18	-33	-60	-112	-199	-313	-450	-614	-778	-945	-1151	-1367	-1613	-1893
Technological improvement	0	1	-1	-7	-14	-30	-65	-139	-190	-299	-398	-548	-750	-943	-1099	-1463	-1522
Space heating	0	1	0	-2	-6	-14	-30	-63	-88	-132	-189	-293	-416	-550	-658	-764	-804
Other heat uses (water heating, cooking, air conditioning)	0	0	0	-3	-7	-14	-33	-69	-92	-151	-184	-223	-290	-333	-352	-352	-373
Electric appliances	0	-1	-1	-1	-2	-1	-2	-7	-10	-17	-24	-32	-44	-60	-89	-347	-345
Change of fuel mix	0	-1	-1	-4	-7	-14	-28	-47	-70	-95	-122	-151	-182	-208	-231	-261	-285
Change of emission factor of electricity and steam (supply effect)	0	121	62	-14	-304	-282	-566	-890	-1702	-2076	-2744	-3283	-3446	-3683	-3899	-4306	-4550
Passenger Transports																	
Total CO2 emissions reduction	0	-7	-15	-33	-70	-133	-271	-462	-818	-1318	-1726	-2200	-2732	-3350	-4137	-5722	-7431
Structural change and behavioural effects	0	-2	-4	-9	-19	-38	-77	-137	-228	-385	-536	-692	-865	-1024	-1158	-811	-930
Technological improvement	0	-5	-9	-23	-45	-89	-173	-291	-546	-874	-1112	-1399	-1746	-2194	-2836	-4386	-6336
Train transports	0	-1	-1	-2	-2	-4	-6	-11	-19	-32	-42	-54	-61	-65	-68	-52	-48
Aviation / Navigation	0	-4	-7	-18	-35	-69	-133	-217	-420	-661	-802	-931	-1041	-1134	-1209	-872	-1195
Road transports	0	0	-1	-3	-7	-16	-34	-63	-107	-181	-267	-415	-644	-996	-1559	-3462	-5093
Change of fuel mix	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-2	-2	-375	-2
Change of emission factor of electricity and steam (supply effect)	0	-1	-2	-1	-6	-6	-21	-33	-44	-59	-78	-107	-120	-130	-141	-150	-162
Goods Transports																	
Total CO2 emissions reduction	0	-4	-9	-19	-40	-75	-154	-268	-398	-554	-716	-905	-919	-1033	-1544	-1865	-2143
Structural change and behavioural effects	0	-3	-6	-14	-29	-58	-114	-189	-275	-355	-420	-460	-76	-43	-95	-166	-242
Technological improvement	0	-1	-2	-4	-7	-13	-27	-61	-98	-166	-254	-388	-782	-925	-1381	-1618	-1814
Train transports	0	-1	-1	-2	-3	-4	-6	-19	-22	-25	-26	-26	-26	-26	-27	-26	-27
Aviation / Navigation	0	0	0	0	0	0	0	-1	-2	-3	-4	-6	-8	-11	-14	-32	-34
Road transports	0	0	-1	-2	-4	-9	-21	-40	-74	-138	-223	-356	-748	-887	-1340	-1560	-1753
Change of fuel mix	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
Change of emission factor of electricity and steam (supply effect)	0	0	-1	-1	-4	-4	-13	-19	-25	-32	-41	-57	-61	-64	-68	-80	-86
Final Energy Demand Sectors - Total																	
Total CO2 emissions reduction	0	307	117	-251	-1556	-1884	-3657	-5918	-9961	-12696	-16379	-20103	-22662	-25602	-28860	-33987	-38016
Structural change and behavioural effects	0	22	-47	-105	-189	-325	-610	-1042	-1630	-2249	-2867	-3419	-3508	-4163	-4836	-5125	-6042
Technological improvement	0	-117	-44	-93	-356	-603	-1157	-1892	-2644	-3501	-4269	-5628	-7435	-8822	-10590	-13168	-15774
Change of fuel mix	0	-3	-3	-8	-18	-36	-69	-114	-167	-220	-367	-456	-602	-669	-716	-1182	-856
Change of emission factor of electricity and steam (supply effect)	0	404	211	-45	-994	-921	-1821	-2871	-5520	-6725	-8876	-10599	-11117	-11947	-12718	-14512	-15345

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (ktn of CO2 avoided in target year)																	
Electricity production																	
Total CO2 emissions reduction	0	5	-143	-117	-536	-503	-1537	-2260	-3087	-4048	-5296	-7322	-8168	-8835	-9502	-11297	-12334
Change of demand	0	39	-15	-27	-140	-125	-181	-186	-294	-379	-521	-621	-693	-811	-923	-1192	-1294
Production from non fossil fuels	0	245	135	-31	-454	-437	-1049	-1333	-2368	-3392	-4145	-6216	-7044	-7550	-8166	-9354	-10768
Large hydro	0	123	68	-16	-227	-218	-521	-658	-1161	-1645	-2010	-2992	-3362	-3587	-3854	-4383	-4941
Small renewables	0	4	2	-1	-7	-7	-18	-31	-77	-142	-187	-260	-332	-374	-408	-459	-594
Biomass and waste	0	10	5	-1	-19	-18	-43	-52	-89	-133	-172	-200	-227	-252	-283	-324	-406
Nuclear energy	0	108	60	-14	-201	-193	-466	-592	-1041	-1472	-1776	-2763	-3123	-3337	-3620	-4188	-4827
Change of fossil fuel mix	0	-202	-158	-21	62	66	-312	-739	-668	-567	-696	-579	-670	-636	-550	22	-1052
Technological improvement of fossil fuel plants	0	-77	-105	-37	-4	-8	5	-3	243	290	66	94	240	161	137	-773	780
Steam production																	
Total CO2 emissions reduction	0	468	327	32	-618	-553	-466	-804	-2774	-3177	-4287	-4083	-3833	-4207	-4504	-4892	-4888
Change of demand	0	32	-11	-9	-18	-7	-2	-17	-64	-144	-204	-211	-228	-324	-410	-486	-629
Production from non fossil fuels	0	255	156	32	-360	-355	-362	-756	-1425	-1613	-1738	-2147	-2248	-2630	-2887	-3230	-3615
Technological improvement of fossil fuel plants and change of fuel mix	0	181	182	8	-240	-191	-103	-31	-1285	-1420	-2345	-1725	-1357	-1253	-1207	-1175	-644
Other Supply Sectors production																	
Total CO2 emissions reduction	0	-6	-4	-6	-2	-6	-26	-51	-128	-162	-188	-224	-262	-305	-365	-418	-470
Statistical Difference	0	-561	-266	7	70	-473	-1111	-1145	-1723	-1942	-2216	-1150	-1336	-1555	-2218	-2022	-1709
Avoided CO2 Emissions - As in Final Report																	
Total CO2 emissions reduction	0	-260	-153	-250	-1488	-2363	-4795	-7114	-11812	-14800	-18782	-21476	-24260	-27462	-31443	-36427	-40196
In Final Energy Demand	0	-167	-70	-173	-417	-860	-1717	-2959	-4248	-5651	-6993	-8970	-11006	-12956	-15271	-18254	-21276
In Electricity and Steam Generation	0	-87	-79	-71	-1068	-1497	-3052	-4104	-7436	-8987	-11602	-12282	-12992	-14201	-15808	-17754	-18450
In Other Energy Conversion Sectors	0	-6	-4	-6	-2	-6	-26	-51	-128	-162	-188	-224	-262	-305	-365	-418	-470

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Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (% contribution to avoid CO2 emissions in target year)																	
Industrial Sectors - **Metals**																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	78.4	57.3	72.1	60.8	68.6	61.9	63.5	64.6	64.1	62.9	52.4	47.0	47.9	48.8	49.2	51.2
Technological improvement	0	-2.2	4.2	10.1	9.6	11.8	10.7	10.6	10.6	9.9	9.3	20.9	25.5	27.1	27.0	25.9	23.6
Energy saving in heat uses	0	*-18.7*	*-12.8*	*-15.2*	*-12.0*	*-12.8*	*-11.0*	*-10.8*	*-10.3*	*-8.4*	*-6.0*	*-3.9*	*-1.9*	*-1.2*	*-0.8*	*-0.3*	*-0.2*
Specific Industrial processes	0	*15.0*	*16.4*	*24.8*	*21.4*	*24.5*	*21.7*	*21.4*	*20.7*	*18.2*	*15.2*	*24.6*	*27.3*	*28.1*	*27.6*	*25.9*	*23.6*
Electrical Equipment	0	*1.5*	*0.6*	*0.5*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*
Change of fuel mix	0	4.3	4.1	5.5	5.5	6.6	6.0	5.9	5.6	5.7	5.8	5.0	7.8	6.9	6.7	6.2	6.0
Change of emission factor of electricity and steam (supply effect)	0	19.5	34.4	12.2	24.1	13.0	21.4	19.9	19.3	20.3	21.9	21.7	19.7	18.1	17.5	18.7	19.1
Industrial Sectors - **Chemicals**																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	-4.0	-9.6	27.4	3.7	3.5	2.0	1.1	1.3	2.0	1.3	0.5	-0.5	-0.7	-0.7	-0.6	-0.1
Technological improvement	0	5.7	-2.9	60.0	18.2	34.8	38.7	38.9	26.3	24.8	23.7	26.7	30.9	33.3	33.3	32.1	32.8
Energy saving in heat uses	0	*-0.5*	*-1.1*	*3.5*	*0.5*	*0.6*	*0.6*	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*1.2*	*1.1*	*1.2*
Specific Industrial processes	0	*6.2*	*-1.7*	*53.3*	*17.2*	*33.7*	*37.7*	*37.6*	*25.0*	*23.5*	*22.3*	*25.3*	*29.5*	*32.0*	*31.4*	*30.5*	*31.2*
Electrical Equipment	0	*0.0*	*-0.1*	*3.1*	*0.5*	*0.4*	*0.4*	*0.6*	*0.6*	*0.5*	*0.5*	*0.6*	*0.6*	*0.6*	*0.7*	*0.6*	*0.5*
Change of fuel mix	0	-2.5	-0.4	1.4	0.2	0.2	0.0	-0.2	1.6	1.3	0.9	0.7	0.0	-0.2	0.5	0.5	0.4
Change of emission factor of electricity and steam (supply effect)	0	100.8	112.8	11.3	77.8	61.6	59.4	60.2	70.8	71.9	74.2	72.1	69.5	67.6	66.9	68.0	66.8
Industrial Sectors - **Materials**																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	-5.0	-8.9	61.0	4.5	6.3	6.3	6.1	4.7	5.9	5.3	4.3	4.1	4.3	4.6	4.6	5.5
Technological improvement	0	1.1	0.4	34.4	4.0	8.4	11.3	12.3	8.7	9.4	10.0	11.8	15.8	16.6	17.5	16.7	18.6
Energy saving in heat uses	0	*1.6*	*1.6*	*18.4*	*2.4*	*5.2*	*7.6*	*8.6*	*6.1*	*6.6*	*6.8*	*8.0*	*11.4*	*12.0*	*11.9*	*10.6*	*11.0*
Specific Industrial processes	0	*-0.6*	*-1.2*	*8.9*	*1.0*	*2.2*	*2.5*	*2.4*	*1.7*	*2.0*	*2.3*	*2.8*	*3.3*	*3.5*	*4.5*	*5.1*	*6.7*
Electrical Equipment	0	*0.1*	*0.0*	*7.1*	*0.6*	*1.0*	*1.2*	*1.3*	*0.9*	*0.8*	*0.9*	*1.1*	*1.1*	*1.2*	*1.1*	*0.9*	*0.9*
Change of fuel mix	0	-0.3	-1.0	13.3	1.4	2.6	3.1	2.9	1.8	1.9	1.6	1.7	1.7	1.7	1.6	2.3	2.2
Change of emission factor of electricity and steam (supply effect)	0	104.1	109.5	-8.7	90.1	82.7	79.3	78.6	84.8	82.8	83.1	82.2	78.3	77.4	76.3	76.3	73.7
Industrial Sectors - **Others**																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	-13.7	56.9	16.0	3.7	3.3	1.7	1.7	2.0	2.3	2.3	2.0	1.8	1.9	1.9	1.8	2.1
Technological improvement	0	31.3	-80.3	25.7	14.9	30.5	25.8	28.1	26.9	26.2	27.1	27.0	30.2	32.3	34.0	31.7	31.4
Energy saving in heat uses	0	*37.3*	*-113.7*	*7.0*	*9.5*	*23.2*	*21.0*	*22.9*	*21.2*	*20.5*	*19.9*	*20.1*	*22.6*	*24.3*	*26.3*	*25.4*	*25.4*
Specific Industrial processes	0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Electrical Equipment	0	*-6.0*	*33.4*	*18.6*	*5.4*	*7.4*	*4.8*	*5.2*	*5.7*	*5.7*	*7.1*	*6.9*	*7.6*	*8.1*	*7.7*	*6.3*	*5.9*
Change of fuel mix	0	-0.2	1.8	0.9	0.3	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.8	0.7	0.3	0.3	0.3
Change of emission factor of electricity and steam (supply effect)	0	82.7	121.6	57.4	81.1	65.6	72.1	69.8	70.7	71.1	70.2	70.6	67.2	65.1	63.8	66.2	66.3
Industrial Sectors - **Total**																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	-9.5	-30.5	52.0	13.7	21.2	20.7	21.5	18.2	19.0	17.6	16.4	16.0	17.1	17.9	18.1	19.5
Technological improvement	0	4.9	3.9	22.5	8.5	16.2	17.4	18.2	14.9	14.8	15.1	19.3	23.5	25.1	25.9	24.6	24.5
Energy saving in heat uses	0	*6.0*	*12.2*	*-1.5*	*1.3*	*3.9*	*5.3*	*6.0*	*5.2*	*5.8*	*6.6*	*7.3*	*9.5*	*10.1*	*10.6*	*10.1*	*10.2*
Specific Industrial processes	0	*-0.4*	*-6.0*	*17.3*	*5.8*	*10.3*	*10.3*	*10.3*	*7.9*	*7.3*	*6.3*	*9.7*	*11.5*	*12.5*	*12.8*	*12.4*	*12.3*
Electrical Equipment	0	*-0.6*	*-2.3*	*6.7*	*1.5*	*2.0*	*1.8*	*1.9*	*1.8*	*1.8*	*2.2*	*2.3*	*2.5*	*2.5*	*2.5*	*2.0*	*1.9*
Change of fuel mix	0	-0.8	-2.4	5.5	1.7	3.0	2.9	2.9	2.4	2.4	2.3	2.2	3.2	2.9	2.8	3.0	2.9
Change of emission factor of electricity and steam (supply effect)	0	105.3	129.0	19.9	76.0	59.6	59.0	57.4	64.6	63.7	65.1	62.2	57.3	54.8	53.4	54.3	53.1

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (% contribution to avoid CO2 emissions in target year)																	
Services																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	230.1	-36.8	26.5	5.1	3.4	2.3	2.5	4.3	4.8	5.4	5.1	4.7	4.9	5.0	4.8	5.4
Technological improvement	0	-562.4	-388.7	58.7	48.6	60.9	60.0	59.0	47.6	46.7	40.7	39.9	42.7	42.7	43.2	41.9	41.9
Space heating and cooling	0	*-702.5*	*-433.0*	*58.4*	*27.9*	*45.0*	*47.6*	*51.6*	*42.2*	*41.7*	*36.4*	*36.0*	*38.4*	*38.4*	*38.7*	*38.1*	*38.1*
Other heat uses (water heating, cooking, etc.)	0	*68.6*	*-6.1*	*4.9*	*2.7*	*2.7*	*2.1*	*1.5*	*1.6*	*1.7*	*1.6*	*1.4*	*1.2*	*1.2*	*1.2*	*1.0*	*0.9*
Electric uses	0	*71.5*	*50.4*	*-4.6*	*18.0*	*13.1*	*10.3*	*5.9*	*3.9*	*3.3*	*2.8*	*2.6*	*3.0*	*3.2*	*3.3*	*2.8*	*2.9*
Change of fuel mix	0	-3.6	1.1	-0.8	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	2.2	2.5	2.3	2.6	2.4	2.2	2.0
Change of emission factor of electricity and steam (supply effect)	0	435.9	524.3	15.5	46.4	36.0	38.0	38.7	48.3	48.7	51.6	52.4	50.3	49.8	49.3	51.2	50.7
Agriculture																	
Total CO2 emissions reduction	0	100.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	157.6	17.0	34.6	13.2	9.9	9.8	8.7	13.4	14.4	15.6	14.3	13.6	14.2	14.5	13.9	14.5
Technological improvement	0	-16.2	5.2	3.9	32.9	29.0	21.6	17.4	11.6	5.8	4.7	3.7	3.5	3.7	3.6	3.0	2.8
Space heating and cooling	0	*-54.8*	*8.1*	*3.6*	*12.8*	*11.5*	*10.4*	*12.0*	*7.7*	*2.6*	*2.0*	*1.6*	*1.6*	*1.5*	*1.4*	*1.3*	*1.2*
Other heat uses (water heating, cooking, etc.)	0	*-5.3*	*1.6*	*1.1*	*2.4*	*2.1*	*0.7*	*0.6*	*0.4*	*0.3*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*
Electric uses	0	*43.9*	*-4.5*	*-0.8*	*17.7*	*15.3*	*10.5*	*4.8*	*3.6*	*2.9*	*2.4*	*1.8*	*1.7*	*2.0*	*2.0*	*1.5*	*1.3*
Change of fuel mix	0	-17.0	20.2	34.9	19.4	33.0	24.5	28.5	31.9	36.7	36.9	35.6	37.7	39.2	40.5	40.4	41.4
Change of emission factor of electricity and steam (supply effect)	0	-24.3	57.6	26.6	34.5	28.2	44.1	45.3	43.0	43.1	42.8	46.4	45.1	42.8	41.3	42.7	41.3
Households																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	-5.0	-18.3	42.0	9.3	15.5	14.5	15.6	13.8	15.4	15.8	16.3	17.8	19.2	20.7	21.1	22.9
Technological improvement	0	0.5	-1.5	15.9	4.0	7.7	8.5	10.9	8.4	10.2	10.3	11.5	14.1	15.8	16.7	19.1	18.4
Space heating	0	*1.1*	*1.0*	*5.3*	*1.6*	*3.6*	*3.8*	*4.9*	*3.9*	*4.5*	*4.9*	*6.2*	*7.8*	*9.2*	*10.0*	*10.0*	*9.8*
Other heat uses (water heating, cooking, air conditioning)	0	*0.3*	*-0.3*	*7.2*	*2.0*	*3.7*	*4.3*	*5.4*	*4.0*	*5.2*	*4.8*	*4.7*	*5.4*	*5.6*	*5.3*	*4.6*	*4.5*
Electric appliances	0	*-0.9*	*-2.1*	*3.4*	*0.4*	*0.4*	*0.3*	*0.6*	*0.4*	*0.6*	*0.6*	*0.7*	*0.8*	*1.0*	*1.3*	*4.5*	*4.2*
Change of fuel mix	0	-0.5	-2.2	8.3	2.0	3.7	3.6	3.7	3.1	3.2	3.1	3.2	3.4	3.5	3.5	3.4	3.5
Change of emission factor of electricity and steam (supply effect)	0	105.0	121.9	33.8	84.7	73.2	73.4	69.8	74.8	71.1	70.8	69.0	64.7	61.5	59.1	56.3	55.2
Passenger Transports																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	30.1	25.6	27.6	27.0	28.5	28.2	29.8	27.8	29.2	31.0	31.5	31.6	30.6	28.0	14.2	12.5
Technological improvement	0	62.8	60.9	68.3	64.1	67.0	63.8	63.0	66.7	66.3	64.4	63.6	63.9	65.5	68.6	76.6	85.3
Train transports	0	*13.5*	*7.5*	*4.9*	*3.5*	*2.6*	*2.2*	*2.4*	*2.3*	*2.5*	*2.4*	*2.4*	*2.2*	*1.9*	*1.6*	*0.9*	*0.6*
Aviation / Navigation	0	*49.6*	*48.3*	*54.0*	*50.5*	*52.3*	*49.0*	*47.0*	*51.3*	*50.1*	*46.5*	*42.3*	*38.1*	*33.8*	*29.2*	*15.2*	*16.1*
Road transports	0	*-0.3*	*5.1*	*9.4*	*10.2*	*12.0*	*12.6*	*13.7*	*13.1*	*13.7*	*15.5*	*18.9*	*23.6*	*29.7*	*37.7*	*60.5*	*68.5*
Change of fuel mix	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	6.6	0.0
Change of emission factor of electricity and steam (supply effect)	0	7.0	13.4	4.0	8.8	4.4	7.9	7.1	5.4	4.5	4.5	4.9	4.4	3.9	3.4	2.6	2.2
Goods Transports																	
Total CO2 emissions reduction	0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Structural change and behavioural effects	0	62.3	63.6	75.3	73.0	77.5	74.2	70.4	69.0	64.2	58.7	50.8	8.2	4.2	6.1	8.9	11.3
Technological improvement	0	30.6	22.3	20.4	17.6	17.8	17.5	22.7	24.6	29.9	35.4	42.9	85.1	89.5	89.4	86.8	84.6
Train transports	0	*27.7*	*15.8*	*10.2*	*6.8*	*5.2*	*3.9*	*7.3*	*5.6*	*4.5*	*3.7*	*2.9*	*2.8*	*2.5*	*1.8*	*1.4*	*1.2*
Aviation / Navigation	0	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*1.1*	*0.9*	*1.7*	*1.6*
Road transports	0	*2.9*	*6.4*	*10.0*	*10.5*	*12.4*	*13.3*	*15.1*	*18.6*	*25.0*	*31.2*	*39.3*	*81.5*	*85.9*	*86.7*	*83.6*	*81.8*
Change of fuel mix	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Change of emission factor of electricity and steam (supply effect)	0	7.1	14.0	4.3	9.4	4.7	8.3	6.9	6.2	5.7	5.7	6.3	6.6	6.2	4.4	4.3	4.0
Final Energy Demand Sectors - Total																	
Total CO2 emissions reduction	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Structural change and behavioural effects	0	7.3	-40.2	41.9	12.1	17.2	16.7	17.6	16.4	17.7	17.5	17.0	15.5	16.3	16.8	15.1	15.9
Technological improvement	0	-38.1	-37.8	36.9	22.9	32.0	31.6	32.0	26.5	27.6	26.1	28.0	32.8	34.5	36.7	38.7	41.5
Change of fuel mix	0	-0.9	-2.7	3.3	1.1	1.9	1.9	1.9	1.7	1.7	2.2	2.3	2.7	2.6	2.5	3.5	2.3
Change of emission factor of electricity and steam (supply effect)	0	131.7	180.8	17.8	63.9	48.9	49.8	48.5	55.4	53.0	54.2	52.7	49.1	46.7	44.1	42.7	40.4

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	**0**	**1**	**2**	**5**	**10**	**20**	**40**	**70**	**110**	**160**	**220**	**290**	**370**	**460**	**560**	**700**	**900**
DECOMPOSITION OF CO2 EMISSIONS REDUCTION (% contribution to avoid CO2 emissions in target year)																	
Electricity production																	
Total CO2 emissions reduction	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Change of demand	0	826.5	10.5	22.8	26.0	24.8	11.8	8.2	9.5	9.4	9.8	8.5	8.5	9.2	9.7	10.6	10.5
Production from non fossil fuels	0	5225.1	-94.5	27.0	84.7	86.8	68.2	59.0	76.7	83.8	78.3	84.9	86.2	85.5	85.9	82.8	87.3
Large hydro	0	*2625.0*	*-47.6*	*13.5*	*42.4*	*43.4*	*33.9*	*29.1*	*37.6*	*40.6*	*38.0*	*40.9*	*41.2*	*40.6*	*40.6*	*38.8*	*40.1*
Small renewables	0	*84.3*	*-1.5*	*0.4*	*1.4*	*1.4*	*1.2*	*1.4*	*2.5*	*3.5*	*3.5*	*3.6*	*4.1*	*4.2*	*4.3*	*4.1*	*4.8*
Biomass and waste	0	*213.6*	*-3.8*	*1.1*	*3.5*	*3.6*	*2.8*	*2.3*	*2.9*	*3.3*	*3.2*	*2.7*	*2.8*	*2.9*	*3.0*	*2.9*	*3.3*
Nuclear energy	0	*2302.2*	*-41.6*	*12.0*	*37.5*	*38.4*	*30.3*	*26.2*	*33.7*	*36.4*	*33.5*	*37.7*	*38.2*	*37.8*	*38.1*	*37.1*	*39.1*
Change of fossil fuel mix	0	-4305.5	110.5	18.4	-11.5	-13.2	20.3	32.7	21.6	14.0	13.1	7.9	8.2	7.2	5.8	-0.2	8.5
Technological improvement of fossil fuel plants	0	-1646.1	73.4	31.8	0.7	1.6	-0.3	0.1	-7.9	-7.2	-1.2	-1.3	-2.9	-1.8	-1.4	6.8	-6.3
Steam production																	
Total CO2 emissions reduction	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Change of demand	0	6.8	-3.4	-26.9	2.9	1.3	0.4	2.1	2.3	4.5	4.7	5.2	6.0	7.7	9.1	9.9	12.9
Production from non fossil fuels	0	54.6	47.6	102.0	58.3	64.2	77.5	94.0	51.4	50.8	40.5	52.6	58.6	62.5	64.1	66.0	74.0
Technological improvement of fossil fuel plants and change of fuel mix	0	38.6	55.8	24.9	38.8	34.5	22.0	3.9	46.3	44.7	54.7	42.2	35.4	29.8	26.8	24.0	13.2
Other Supply Sectors production																	
Total CO2 emissions reduction	0	2.3	2.8	2.2	0.1	0.2	0.5	0.7	1.1	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.2
Statistical Difference	0	215.9	173.4	-2.6	-4.7	20.0	23.2	16.1	14.6	13.1	11.8	5.4	5.5	5.7	7.1	5.6	4.3
Avoided CO2 Emissions - As in Final Report																	
Total CO2 emissions reduction	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
In Final Energy Demand	0	64.4	45.4	69.3	28.0	36.4	35.8	41.6	36.0	38.2	37.2	41.8	45.4	47.2	48.6	50.1	52.9
In Electricity and Steam Generation	0	33.3	51.8	28.5	71.8	63.4	63.7	57.7	63.0	60.7	61.8	57.2	53.6	51.7	50.3	48.7	45.9
In Other Energy Conversion Sectors	0	2.3	2.8	2.2	0.1	0.2	0.5	0.7	1.1	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.2

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
Heavy Industry																	
Specific energy Consumption of Process Technology (toe per tn of output)																	
Iron and Steel	0.347	0.347	0.347	0.347	0.346	0.345	0.342	0.338	0.334	0.332	0.332	0.310	0.289	0.270	0.258	0.245	0.236
Basic aluminium	1.524	1.522	1.522	1.522	1.522	1.522	1.522	1.520	1.519	1.519	1.516	1.509	1.495	1.473	1.451	1.407	1.363
Other processing of non ferrous	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.049	0.049	0.049	0.050	0.050	0.051	0.051	0.052	0.052	0.053
Chemicals	0.299	0.299	0.299	0.299	0.298	0.297	0.295	0.294	0.292	0.287	0.282	0.283	0.279	0.268	0.261	0.254	0.242
Cement Production	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.099	0.099	0.098	0.096	0.095	0.095	0.095	0.092	0.084
Glass basic processing	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.031	0.031	0.030	0.028	0.027	0.026
Pulp and Paper	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.044	0.044	0.044	0.044	0.043	0.042	0.041	0.039
Structural Change in basic processing (%)																	
Electric steelworks	27.9	27.9	28.0	28.3	28.8	29.8	31.7	34.5	37.2	39.3	41.2	44.9	48.7	55.4	60.9	68.1	75.9
Aluminium recycling	45.8	45.9	46.0	46.1	46.1	46.0	45.9	45.8	46.6	47.4	47.2	45.7	41.8	37.1	33.1	26.4	22.1
Glass recycling	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.7	68.8	68.7	68.6	68.4	68.3	68.3	68.2	68.3
Paper recycling	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.2	57.1	57.1	57.1	57.1
Fuel Mix																	
electrotechnologies																	
% of mechanical processing in chemistry	76.5	76.5	76.6	76.8	77.3	78.3	80.1	82.2	83.6	84.0	85.3	88.8	91.7	93.2	93.7	95.4	96.4
% of electric furnaces non ferrous	88.3	88.3	88.3	88.4	88.4	88.4	88.5	88.5	88.7	88.9	89.0	88.8	88.4	87.9	87.3	86.7	86.3
% of mechanical processing glass production	74.8	74.8	74.9	74.9	75.0	75.2	75.6	76.1	76.6	77.0	77.4	78.1	79.5	80.6	81.6	82.9	84.1
% of mechanical processing in paper and pulp	67.2	67.5	67.5	67.0	67.0	67.1	66.7	65.9	65.1	66.4	65.8	62.5	62.2	62.0	62.0	63.8	65.5
% of heat pumps in specific heat uses	2.8	2.8	2.8	3.0	3.2	3.5	4.2	5.3	7.3	9.3	16.2	24.1	37.3	48.0	53.2	57.0	61.7
natural gas directly substituting other fossil fuels (% in specific uses)	13.0	13.0	13.0	13.0	12.9	12.8	12.6	12.4	12.2	12.1	11.9	11.6	11.3	11.1	10.9	10.8	10.8
market share of steam (% in industrial demand)	30.4	30.4	30.4	30.5	30.5	30.6	30.8	31.1	31.3	31.2	31.4	32.3	32.9	33.5	33.7	33.6	33.5
Contribution of CHP for industrial Steam Production (%)	16.0	16.6	16.8	16.9	19.8	18.8	19.2	17.1	16.6	14.4	9.4	8.9	8.7	4.9	5.3	3.3	3.4
Equipment efficiency of electrical and cross-cutting technologies (index)																	
Industrial Furnaces																	
Process Furnaces	100	100.0	100.0	100.1	100.2	100.3	100.5	100.8	101.2	101.5	102.3	103.0	103.5	104.0	104.5	105.0	105.8
Electric Furnaces	100	100.0	100.0	100.1	100.2	100.4	100.8	101.5	102.6	103.9	104.8	106.0	113.7	116.3	118.2	120.4	123.2
Industrial Motors, Air Compressors, Lighting, etc.																	
Motor Drives	100	100.0	100.0	100.1	100.1	100.1	100.2	100.4	100.6	100.7	101.1	101.6	102.2	103.1	104.1	105.5	106.9
Air Compressors	100	100.1	100.1	100.2	100.3	100.5	100.9	101.6	102.4	102.9	104.0	104.7	105.2	106.5	107.6	108.5	109.3
Lighting	100	100.1	100.2	100.4	100.6	101.1	101.9	103.3	105.0	106.1	109.4	113.8	119.8	130.3	137.5	142.2	146.1
Electric Equipment in Households																	
Refrigerators	100	100.3	100.3	100.3	100.4	100.2	100.2	100.8	101.2	101.8	102.4	103.0	103.5	104.0	104.7	119.2	119.5
Washing machines	100	100.4	100.4	100.4	100.5	100.4	100.5	101.4	102.1	103.3	104.3	105.2	105.9	106.6	107.2	107.9	111.3
Lighting	100	100.0	100.0	100.0	100.0	100.0	100.1	100.4	100.6	101.2	102.1	103.8	106.4	110.3	118.5	448.7	463.9
TV and similar	100	100.0	100.0	100.0	100.0	100.0	100.1	100.2	100.3	100.5	100.8	101.1	101.3	101.6	101.8	102.1	104.9
Water heating	100	100.1	100.1	100.2	100.4	100.5	101.3	103.1	104.2	106.5	108.5	111.0	116.1	121.3	124.2	125.9	127.6
Air Conditioning	100	100.0	100.0	100.0	100.0	100.0	100.1	100.4	100.6	101.1	101.8	102.8	104.2	106.2	109.2	112.0	148.8
Electric Equipment in Tertiary																	
Offices	100	100.1	101.6	102.6	147.2	140.0	150.4	153.2	153.5	154.8	157.7	165.8	184.8	201.9	225.0	232.1	265.4
Agriculture	100	99.7	100.1	100.2	105.4	105.6	107.2	106.7	107.0	107.9	109.1	110.8	113.1	117.6	120.4	121.6	124.2

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	**0**	**1**	**2**	**5**	**10**	**20**	**40**	**70**	**110**	**160**	**220**	**290**	**370**	**460**	**560**	**700**	**900**
Low enthalpy heat uses (index)																	
Industrial heat uses	100	99.9	99.9	100.0	100.1	100.4	101.1	102.0	103.2	104.8	106.5	108.1	114.9	117.7	119.4	120.6	122.3
Buildings (thermal integrity, efficiency of heat generation)																	
Houses																	
efficiency of heat generation	100	100.0	100.0	100.1	100.1	100.2	100.4	100.9	101.4	102.2	103.4	105.2	107.5	111.8	116.4	122.8	127.9
thermal integrity	100	100.0	100.1	100.0	100.1	100.1	100.1	100.2	100.4	100.8	101.2	101.5	101.6	102.0	102.3	102.7	103.5
Offices																	
efficiency of heat generation	100	100.6	100.3	100.3	100.7	102.0	104.7	107.8	110.5	113.4	116.4	119.0	121.0	122.5	123.9	125.3	126.6
thermal integrity	100	99.7	100.0	100.1	100.2	100.1	100.2	100.3	100.8	101.1	101.7	102.0	102.1	102.5	102.9	103.2	104.1
Agriculture																	
efficiency of heat generation	100	100.0	100.0	100.0	99.9	99.9	100.4	100.8	100.7	100.2	100.2	100.0	99.7	99.3	98.9	98.5	97.8
thermal integrity	100	99.8	100.0	100.1	100.2	100.1	100.3	100.4	101.0	101.4	102.0	102.5	102.8	103.4	103.9	104.5	105.7
Transports																	
Passenger Cars (efficiency index)	100	100.0	100.0	100.0	100.0	100.1	100.2	100.3	100.6	101.0	101.4	102.3	103.6	105.7	109.5	125.8	142.7
Trucks (efficiency index)	100	100.0	100.0	100.0	100.1	100.2	100.4	100.8	101.5	102.9	104.7	107.8	117.0	120.7	135.2	144.1	153.1
Transport modes for passengers (% of transport activity)																	
Passenger Cars	72.9	72.9	72.9	72.9	72.9	72.9	72.8	72.8	72.7	72.3	72.0	71.8	71.4	71.2	71.2	77.6	80.5
Train transport	5.9	5.9	5.9	5.9	5.9	5.9	6.0	6.1	6.3	6.8	7.2	7.5	7.9	8.2	8.3	6.4	5.9
Transport modes for goods (% of transport activity)																	
Train transport	42.6	42.6	42.6	42.7	42.7	42.9	43.2	43.5	43.9	44.1	44.3	44.2	41.0	40.2	40.2	39.6	39.6
Renewables in Final Energy (%)																	
Biomass	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.9	2.9	2.9	3.0	2.8
Solar energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Generation																	
Fuel Mix in Thermal (electricity from gas over thermal production)	65.7	66.3	66.2	66.2	55.1	55.1	59.5	63.4	58.5	54.4	57.0	47.4	47.3	40.9	61.1	100.0	94.9
Contribution of Nuclear (% over total production)	37.6	37.6	37.6	37.6	37.9	37.9	38.5	38.6	40.0	40.7	41.3	41.6	41.6	42.9	44.5	47.0	49.5
Renewables (as % over total production)	47.7	47.5	47.6	47.6	47.8	47.8	48.0	48.3	48.7	49.8	50.4	51.3	52.1	51.6	51.4	51.3	49.6
hydro of utilities (as % over total production)	42.6	42.7	42.7	42.7	42.9	42.9	43.0	42.9	42.9	43.2	43.9	44.3	44.6	44.7	43.7	44.1	44.4
hydro of other generators (as % over total production)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.5	0.2	0.4	0.4	0.4	0.4	0.4	0.2
biomass (as % over total production)	3.5	3.5	3.5	3.5	3.6	3.6	3.5	3.4	3.2	3.3	3.0	3.1	2.9	2.3	2.9	3.2	3.4
wind energy and other renewables (as % over total production)	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.6	2.4	2.7	3.4	3.5	4.2	4.3	4.4	3.5	1.7
CHP indicators																	
Steam/electricity ratio from CHP	0.88	0.88	0.88	0.89	1.07	1.05	1.12	1.10	1.27	1.35	1.36	1.53	1.49	1.46	1.71	1.59	1.90
% of electricity from CHP	11.2	11.4	11.3	11.3	10.0	9.8	9.4	9.0	7.6	6.6	5.5	4.2	4.1	3.9	3.8	3.8	3.2
% of steam from chp	16.2	16.5	16.5	16.6	17.4	17.0	17.2	16.3	15.8	14.8	12.3	10.3	9.7	9.1	10.4	9.5	9.5
Implications for other policies																	
Import dependency (percent)	48.6	48.7	48.7	48.6	48.0	47.8	47.0	46.1	43.9	42.5	42.0	41.0	40.1	38.6	36.4	34.0	32.2
Market Liberalisation (% of utilities production)	79.2	79.0	78.9	79.0	80.2	80.4	81.5	81.3	82.5	83.9	85.5	86.9	86.4	86.9	86.2	86.5	89.3

ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	**0**	**1**	**2**	**5**	**10**	**20**	**40**	**70**	**110**	**160**	**220**	**290**	**370**	**460**	**560**	**700**	**900**
ADDITIONAL SYSTEM COSTS INCLUDING CARBON VALUE (mio Eur'90)																	
Total area in the marginal cost abatement curve	0	0	0	0	7	15	64	134	322	471	710	898	1121	1409	1807	2505	3259
as % of GDP	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	0.05%	0.13%	0.19%	0.28%	0.35%	0.44%	0.56%	0.71%	0.99%	1.28%
COST ANALYSIS BY SECTOR																	
Industrial Sectors - **Metals**																	
Average cost of Sectoral Production excluding Carbon Value																	
Eur'90 per tn of output	474	474	474	475	475	476	478	481	485	489	492	495	495	500	504	512	524
% change from Baseline	*0.0*	*0.0*	*0.1*	*0.1*	*0.3*	*0.5*	*0.9*	*1.5*	*2.4*	*3.1*	*3.8*	*4.5*	*4.5*	*5.4*	*6.4*	*8.1*	*10.6*
Average cost of Sectoral Production including Carbon Value																	
Eur'90 per tn of output	474	474	475	476	478	481	488	497	510	523	537	547	553	562	570	579	592
% change from Baseline	*0.0*	*0.1*	*0.2*	*0.4*	*0.8*	*1.5*	*3.0*	*4.9*	*7.6*	*10.4*	*13.4*	*15.5*	*16.8*	*18.6*	*20.4*	*22.1*	*24.9*
Structure of costs (%)																	
Non energy costs	75.7	75.7	75.6	75.5	75.3	74.9	74.2	73.2	71.9	70.5	68.9	68.1	67.8	67.3	66.8	66.4	65.5
Technology and fuel costs	24.3	24.3	24.3	24.2	24.2	24.0	23.8	23.5	23.3	22.9	22.6	22.3	21.7	21.6	21.6	22.1	23.1
Carbon value cost	0.0	0.1	0.1	0.3	0.5	1.0	2.0	3.3	4.8	6.6	8.4	9.5	10.5	11.1	11.6	11.5	11.4
Industrial Sectors - **Chemicals**																	
Average cost of Sectoral Production excluding Carbon Value																	
Eur'90 per tn of output	388	388	388	388	388	388	388	388	389	390	392	391	390	390	391	393	395
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*0.0*	*0.2*	*0.5*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*1.1*	*1.7*
Average cost of Sectoral Production including Carbon Value																	
Eur'90 per tn of output	388	388	388	389	389	389	389	390	391	393	395	394	394	395	395	397	399
% change from Baseline	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.2*	*0.3*	*0.4*	*0.7*	*1.2*	*1.7*	*1.6*	*1.5*	*1.7*	*1.8*	*2.2*	*2.8*
Structure of costs (%)																	
Non energy costs	84.6	84.6	84.6	84.6	84.5	84.5	84.4	84.3	84.0	83.6	83.2	83.3	83.4	83.3	83.2	82.9	82.4
Technology and fuel costs	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.3	15.5	15.8	16.0	15.8	15.6	15.6	15.6	16.1	16.5
Carbon value cost	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.7	0.8	0.9	1.0	1.1	1.2	1.1	1.1
Industrial Sectors - **Materials**																	
Average cost of Sectoral Production excluding Carbon Value																	
Eur'90 per tn of output	1280	1280	1280	1281	1281	1281	1282	1282	1284	1288	1291	1290	1288	1290	1291	1295	1297
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.3*	*0.6*	*0.9*	*0.8*	*0.6*	*0.7*	*0.8*	*1.1*	*1.3*
Average cost of Sectoral Production including Carbon Value																	
Eur'90 per tn of output	1280	1280	1281	1281	1281	1283	1284	1287	1291	1297	1302	1303	1305	1309	1313	1319	1327
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.2*	*0.3*	*0.5*	*0.8*	*1.3*	*1.7*	*1.8*	*1.9*	*2.3*	*2.6*	*3.0*	*3.6*
Structure of costs (%)																	
Non energy costs	94.5	94.4	94.4	94.4	94.4	94.4	94.3	94.2	94.0	93.6	93.3	93.4	93.4	93.2	93.0	92.6	92.1
Technology and fuel costs	5.5	5.6	5.6	5.5	5.5	5.5	5.5	5.4	5.5	5.7	5.8	5.6	5.3	5.3	5.3	5.5	5.7
Carbon value cost	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.7	0.8	1.0	1.3	1.5	1.7	1.9	2.2
Industrial Sectors - **Others**																	
Average cost of Sectoral Production excluding Carbon Value																	
Eur'90 per tn of output	2686	2686	2686	2686	2686	2686	2686	2686	2687	2688	2689	2689	2687	2687	2687	2688	2691
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.1*	*0.1*	*0.2*
Average cost of Sectoral Production including Carbon Value																	
Eur'90 per tn of output	2686	2686	2686	2686	2686	2687	2688	2689	2691	2694	2696	2697	2696	2698	2699	2702	2706
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.2*	*0.3*	*0.4*	*0.4*	*0.4*	*0.4*	*0.5*	*0.6*	*0.8*
Structure of costs (%)																	
Non energy costs	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.1	98.0	97.9	97.9	97.8	97.8	97.8	97.7	97.6	97.5
Technology and fuel costs	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.8	1.9	2.0
Carbon value cost	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6

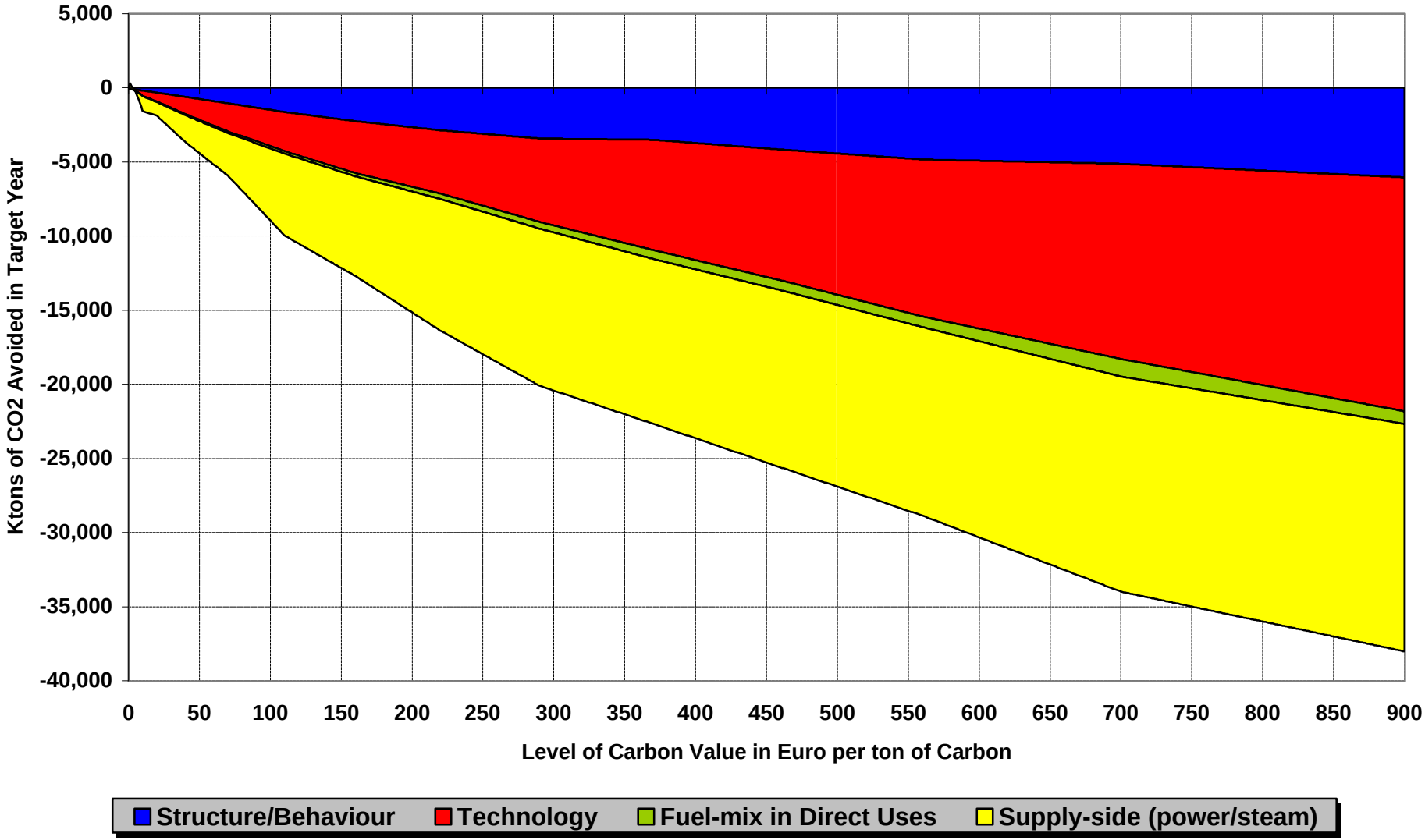
ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	0	1	2	5	10	20	40	70	110	160	220	290	370	460	560	700	900
Services																	
Average cost of Energy Service excluding Carbon Value																	
Eur'90 per unit of energy service	3905	3880	3901	3905	3887	3882	3868	3860	3875	3870	3880	3873	3855	3858	3853	3855	3890
% change from Baseline	*0.0*	*-0.7*	*-0.1*	*0.0*	*-0.5*	*-0.6*	*-1.0*	*-1.2*	*-0.8*	*-0.9*	*-0.6*	*-0.8*	*-1.3*	*-1.2*	*-1.3*	*-1.3*	*-0.4*
Average cost of Energy Service including Carbon Value																	
Eur'90 per unit of energy service	3905	3880	3902	3907	3891	3889	3881	3881	3904	3909	3926	3924	3912	3921	3918	3915	3951
% change from Baseline	*0.0*	*-0.6*	*-0.1*	*0.0*	*-0.4*	*-0.4*	*-0.6*	*-0.6*	*0.0*	*0.1*	*0.5*	*0.5*	*0.2*	*0.4*	*0.3*	*0.3*	*1.2*
Structure of costs (%)																	
Non energy costs	72.3	72.7	72.3	72.2	72.6	72.6	72.8	72.8	72.4	72.3	71.9	72.0	72.2	72.0	72.0	72.0	71.3
Technology and fuel costs	27.7	27.2	27.6	27.7	27.3	27.2	26.9	26.7	26.9	26.8	26.9	26.7	26.3	26.4	26.4	26.5	27.2
Carbon value cost	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.7	1.0	1.2	1.3	1.5	1.6	1.7	1.5	1.6
Agriculture																	
Average cost of Energy Service excluding Carbon Value																	
Eur'90 per unit of energy service	6223	6202	6220	6223	6205	6202	6201	6192	6210	6216	6230	6233	6227	6236	6246	6270	6321
% change from Baseline	*0.0*	*-0.3*	*0.0*	*0.0*	*-0.3*	*-0.3*	*-0.4*	*-0.5*	*-0.2*	*-0.1*	*0.1*	*0.2*	*0.1*	*0.2*	*0.4*	*0.7*	*1.6*
Average cost of Energy Service including Carbon Value																	
Eur'90 per unit of energy service	6223	6202	6221	6226	6211	6214	6224	6230	6268	6296	6334	6360	6380	6417	6454	6502	6589
% change from Baseline	*0.0*	*-0.3*	*0.0*	*0.0*	*-0.2*	*-0.2*	*0.0*	*0.1*	*0.7*	*1.2*	*1.8*	*2.2*	*2.5*	*3.1*	*3.7*	*4.5*	*5.9*
Structure of costs (%)																	
Non energy costs	82.6	82.9	82.6	82.5	82.6	82.6	82.6	82.4	82.0	81.7	81.2	81.0	80.8	80.4	80.1	79.7	78.8
Technology and fuel costs	17.4	17.1	17.4	17.4	17.3	17.2	17.1	16.9	17.1	17.1	17.1	17.0	16.8	16.7	16.7	16.8	17.1
Carbon value cost	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	0.9	1.3	1.7	2.0	2.4	2.8	3.2	3.6	4.1
Households																	
Average cost of Energy Service excluding Carbon Value																	
Eur'90 per unit of energy service	356	356	356	356	355	355	353	351	351	351	352	351	346	344	343	340	346
% change from Baseline	*0.0*	*0.0*	*0.1*	*-0.1*	*-0.1*	*-0.3*	*-0.7*	*-1.3*	*-1.2*	*-1.2*	*-1.1*	*-1.4*	*-2.8*	*-3.3*	*-3.6*	*-4.3*	*-2.7*
Average cost of Energy Service including Carbon Value																	
Eur'90 per unit of energy service	356	356	356	356	356	356	357	357	359	362	364	365	362	362	362	358	365
% change from Baseline	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.9*	*1.7*	*2.4*	*2.6*	*1.8*	*1.7*	*1.8*	*0.7*	*2.5*
Structure of costs (%)																	
Non energy costs	34.7	34.7	34.6	34.7	34.7	34.7	34.7	34.7	34.5	34.2	33.9	33.8	34.3	34.5	34.8	35.4	34.9
Technology and fuel costs	65.3	65.3	65.3	65.2	65.1	64.9	64.4	63.7	63.4	63.0	62.7	62.3	61.2	60.6	60.0	59.6	60.0
Carbon value cost	0.0	0.0	0.0	0.1	0.2	0.5	0.9	1.5	2.1	2.8	3.4	3.9	4.5	5.0	5.3	5.0	5.1
Passenger Transports																	
Average cost of Energy Service excluding Carbon Value																	
Eur'90 per 1000 passenger-km	182	182	182	182	182	182	182	182	181	181	181	180	180	180	181	194	203
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.4*	*-0.6*	*-0.7*	*-0.9*	*-1.0*	*-0.6*	*7.0*	*11.6*
Average cost of Energy Service including Carbon Value																	
Eur'90 per 1000 passenger-km	182	182	182	182	182	182	183	184	185	186	188	190	192	194	197	213	225
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.4*	*0.8*	*1.3*	*2.0*	*2.6*	*3.5*	*4.5*	*5.6*	*6.9*	*8.6*	*17.5*	*23.6*
Structure of costs (%)																	
Non energy costs	12.3	12.2	12.2	12.2	12.2	12.2	12.2	12.1	12.0	12.0	11.9	11.8	11.8	11.6	11.4	9.7	8.8
Technology and fuel costs	87.7	87.7	87.7	87.7	87.6	87.4	87.1	86.6	85.9	85.1	84.2	83.2	82.1	81.0	80.2	81.4	81.5
Carbon value cost	0.0	0.0	0.0	0.1	0.2	0.4	0.8	1.3	2.1	2.9	3.9	5.0	6.2	7.3	8.5	8.9	9.7
Goods Transports																	
Average cost of Energy Service excluding Carbon Value																	
Eur'90 per 1000 tonne-km	76	76	76	76	76	76	76	75	75	75	74	74	75	74	73	72	71
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.2*	*-0.5*	*-0.9*	*-1.2*	*-1.6*	*-2.1*	*-2.6*	*-1.8*	*-2.1*	*-3.7*	*-4.7*	*-6.1*
Average cost of Energy Service including Carbon Value																	
Eur'90 per 1000 tonne-km	76	76	76	76	76	76	76	77	77	78	78	79	81	82	82	83	84
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.3*	*0.6*	*0.9*	*1.5*	*2.3*	*3.2*	*4.1*	*6.9*	*8.5*	*7.9*	*8.9*	*10.4*
Structure of costs (%)																	
Non energy costs	59.2	59.2	59.2	59.2	59.2	59.1	59.0	58.9	58.7	58.3	57.9	57.3	54.9	53.9	54.2	53.9	53.1
Technology and fuel costs	40.8	40.8	40.7	40.7	40.6	40.4	40.0	39.3	38.6	37.9	37.1	36.2	37.0	36.3	35.1	33.7	32.0
Carbon value cost	0.0	0.0	0.1	0.1	0.3	0.5	1.0	1.8	2.7	3.8	5.1	6.4	8.1	9.8	10.8	12.5	14.9

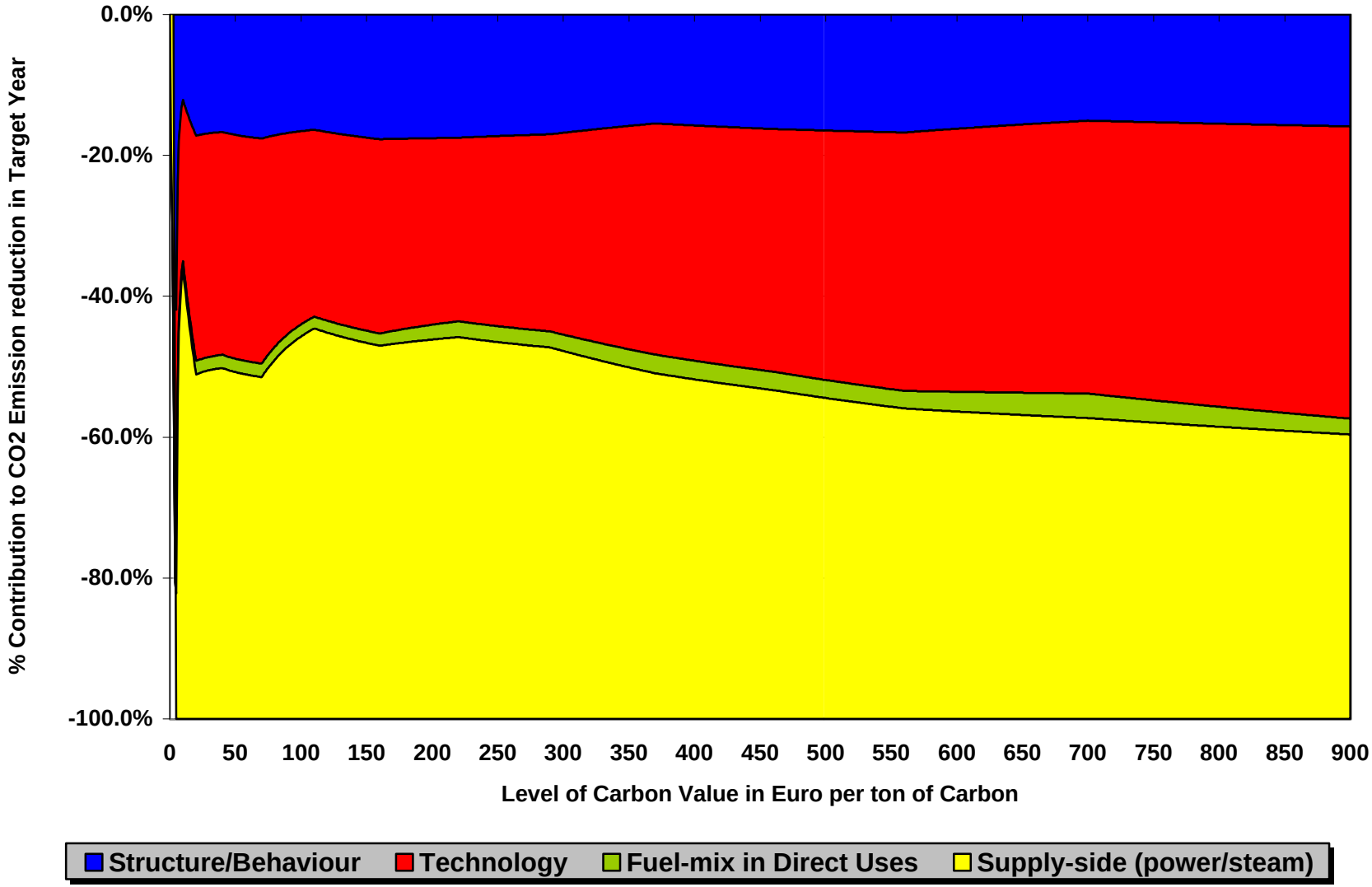
ANALYSIS OF ENERGY SYSTEM CHANGES TO REDUCE CO2 EMISSIONS IN 2010 FOR SWEDEN

Level of Carbon Value (in Eur'90/ton of Carbon)	**0**	**1**	**2**	**5**	**10**	**20**	**40**	**70**	**110**	**160**	**220**	**290**	**370**	**460**	**560**	**700**	**900**
Electricity and Steam production																	
Average cost of production excluding Carbon Value																	
mEur'90 per kWhe+kWhth	39	39	39	39	39	39	39	39	39	39	40	41	41	41	42	43	43
% change from Baseline	*0.0*	*0.0*	*0.0*	*-0.3*	*-0.5*	*-0.5*	*-0.5*	*-0.3*	*0.0*	*0.5*	*1.5*	*3.6*	*4.8*	*5.6*	*6.6*	*8.4*	*10.7*
Average cost of production including Carbon Value																	
mEur'90 per kWhe+kWhth	39	39	39	39	39	39	40	40	41	42	43	44	45	45	46	46	47
% change from Baseline	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*	*1.5*	*3.1*	*4.3*	*6.4*	*8.4*	*11.2*	*14.0*	*15.8*	*17.6*	*18.1*	*20.7*
Structure of costs (%)																	
Annual Capital cost	38.8	38.5	38.5	38.5	38.5	38.3	37.9	37.6	37.9	37.9	37.6	38.8	38.7	38.8	39.0	40.8	41.6
O & M costs	17.6	17.6	17.6	17.6	17.6	17.5	17.3	17.1	16.9	16.8	16.5	16.7	16.6	16.5	16.5	17.3	17.5
Transm. $ Distr. Costs	27.0	27.0	27.0	27.0	27.0	26.9	26.4	26.0	25.7	25.2	24.9	24.3	23.7	23.1	22.8	21.4	20.9
Fuel Costs	16.6	16.8	16.8	16.6	16.3	16.5	16.3	16.1	15.2	14.6	14.8	13.5	13.0	12.8	12.6	12.3	11.8
Carbon value costs	0.0	0.0	0.0	0.3	0.5	1.0	2.0	3.2	4.2	5.5	6.4	6.9	8.1	8.8	9.3	8.2	8.2
Investment expenditure for Electricity and Steam production																	
000mio Eur'90 spent in 1995 to 2010	9557	9278	9272	9251	8851	8802	8719	8936	9420	10062	10417	10938	11121	11134	12897	13530	12822
% change from Baseline	*0.0*	*-2.9*	*-3.0*	*-3.2*	*-7.4*	*-7.9*	*-8.8*	*-6.5*	*-1.4*	*5.3*	*9.0*	*14.5*	*16.4*	*16.5*	*35.0*	*41.6*	*34.2*
Investment expenditure for Electricity and Steam production per KWh produced in 2010																	
mEur'90 per kWhe+kWhth	36.4	35.4	35.4	35.5	34.4	34.6	35.1	37.1	40.9	46.1	50.7	56.9	62.3	67.8	84.9	101.5	111.0
% change from Baseline	*0.0*	*-2.7*	*-2.6*	*-2.5*	*-5.6*	*-4.9*	*-3.6*	*1.8*	*12.4*	*26.7*	*39.4*	*56.3*	*71.2*	*86.3*	*133.4*	*178.9*	*204.9*
Electricity tarifs (mEur'90 per kWh - includes effect of carbon value for electricity production)																	
Sectoral Average	57	57	57	57	59	59	59	59	62	64	64	66	64	66	66	67	68
Industry	48	48	48	49	49	49	50	51	53	55	56	58	57	59	59	60	59
Tertiary	58	58	58	59	63	63	63	63	66	68	69	69	68	69	69	71	72
Households	70	70	70	70	70	70	69	69	71	73	73	75	73	75	75	77	81
Transports	52	52	52	52	53	53	54	55	58	60	60	62	61	62	63	63	62
Others	50	50	50	50	50	51	51	52	54	56	56	57	56	58	59	59	59
Electricity tarifs (% change from Baseline)																	
Sectoral Average	*0.0*	*-0.2*	*0.0*	*0.1*	*2.2*	*2.2*	*2.7*	*3.2*	*7.5*	*10.7*	*12.1*	*14.3*	*12.3*	*15.3*	*15.3*	*16.8*	*18.0*
Industry	*0.0*	*-0.2*	*0.0*	*0.2*	*1.2*	*1.7*	*2.9*	*4.8*	*10.1*	*14.0*	*15.9*	*19.2*	*17.1*	*21.3*	*21.5*	*23.1*	*21.3*
Tertiary	*0.0*	*-0.2*	*0.0*	*0.3*	*7.4*	*7.0*	*7.4*	*7.7*	*13.2*	*16.4*	*17.8*	*18.0*	*16.3*	*18.8*	*17.8*	*21.4*	*23.8*
Households	*0.0*	*-0.1*	*-0.1*	*-0.3*	*-0.1*	*-0.3*	*-0.4*	*-1.1*	*1.3*	*4.0*	*4.9*	*7.0*	*5.0*	*7.5*	*8.0*	*10.5*	*15.5*
Transports	*0.0*	*-0.2*	*0.0*	*0.2*	*1.5*	*2.3*	*3.9*	*5.8*	*11.6*	*15.3*	*16.4*	*19.1*	*17.0*	*20.7*	*21.3*	*22.2*	*19.5*
Others	*0.0*	*0.0*	*0.0*	*0.2*	*1.0*	*1.6*	*2.6*	*3.4*	*7.8*	*11.2*	*11.8*	*14.6*	*12.8*	*16.4*	*17.2*	*18.4*	*17.8*

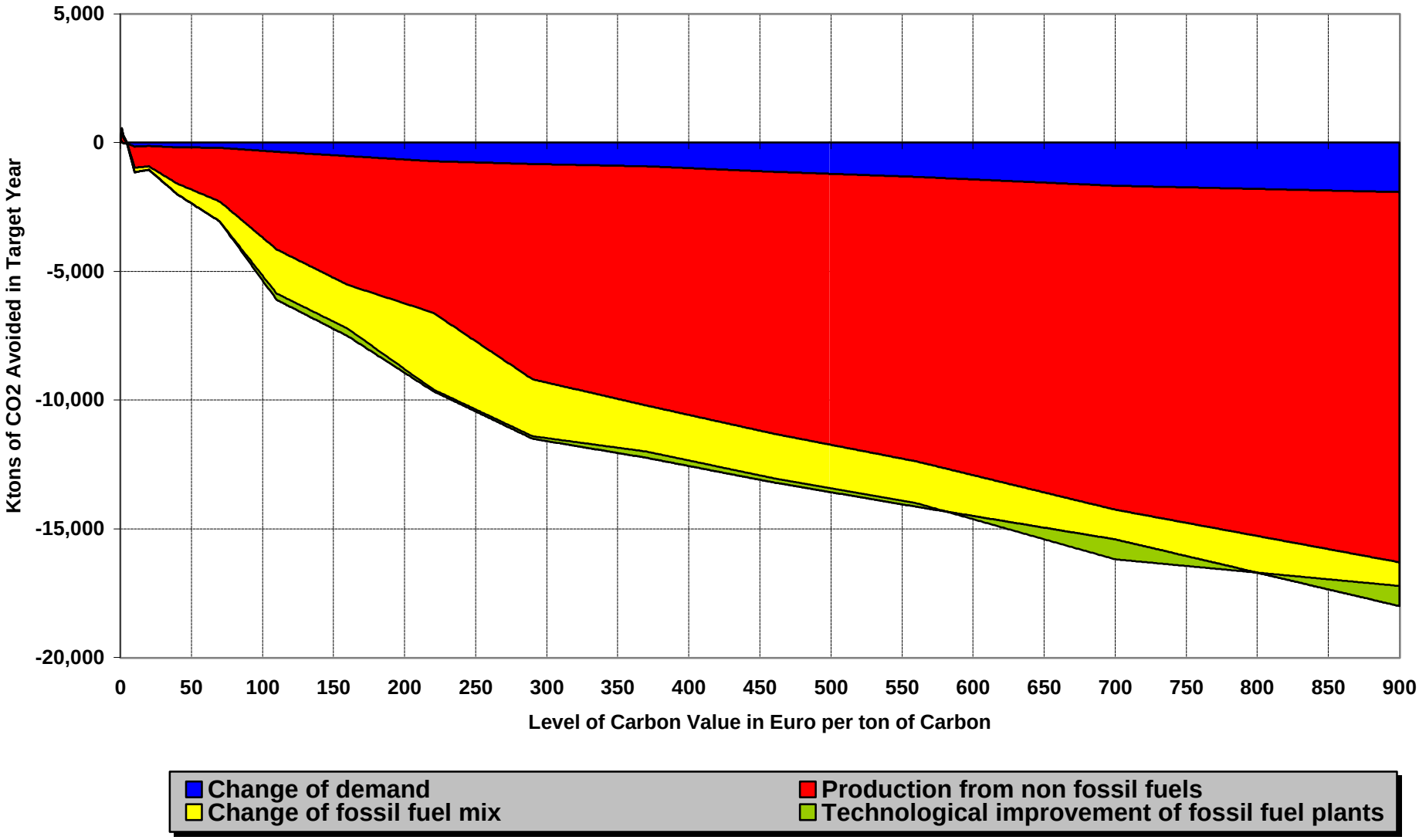
SWEDEN: CO2 Emission Reduction - Decomposition



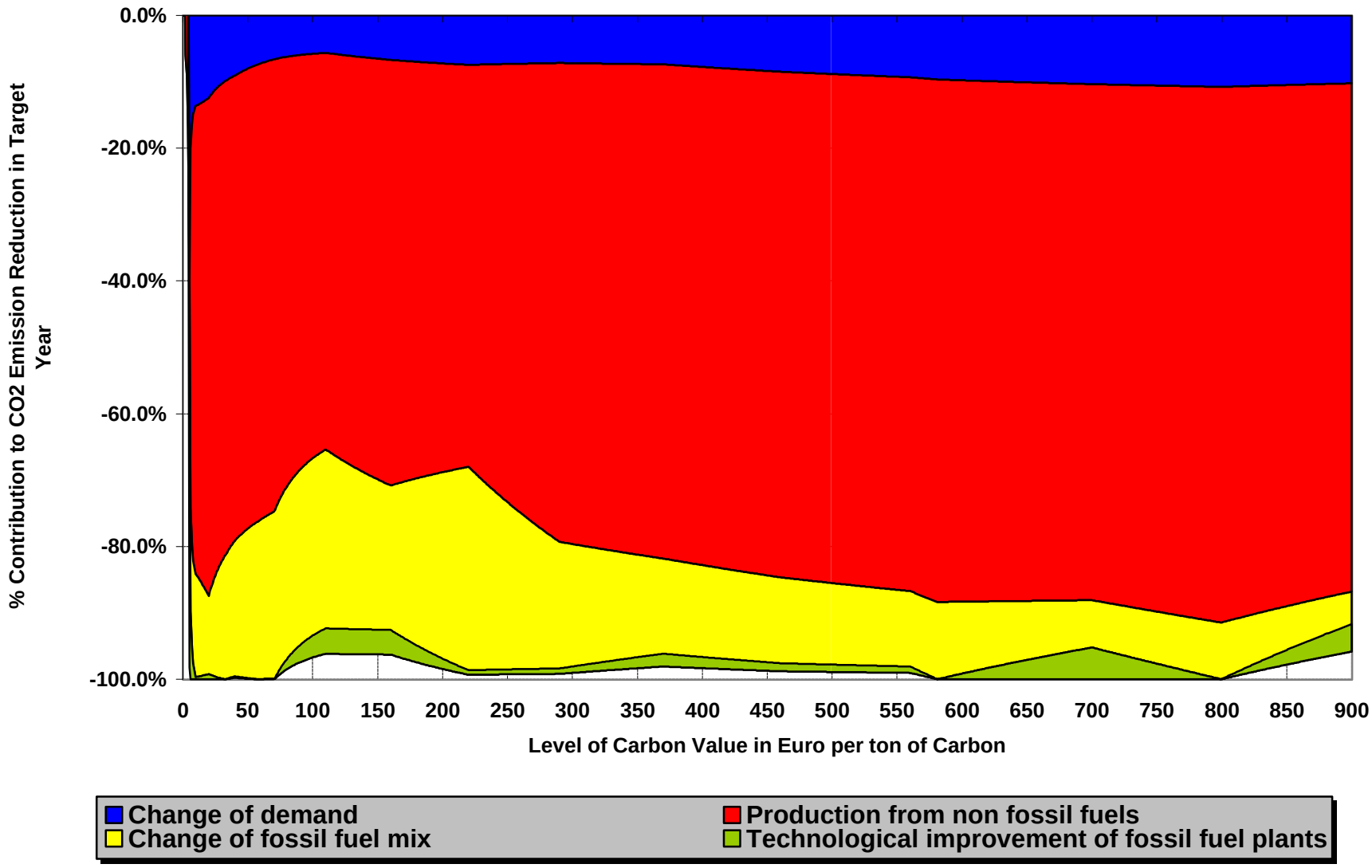
SWEDEN: CO2 Emission Reduction - Decomposition in Percentage



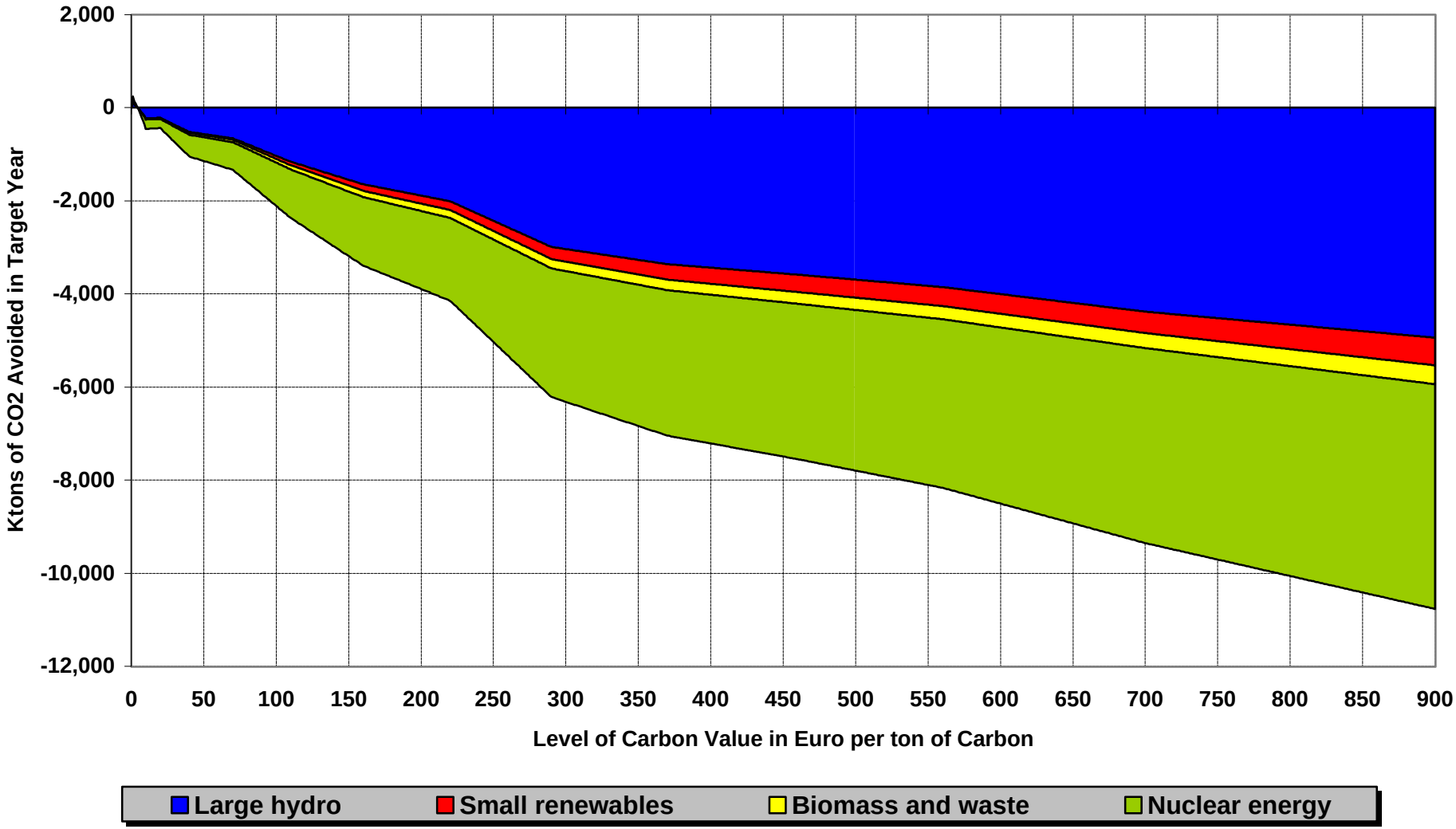
SWEDEN: CO2 Emission Reduction in Power and Steam Generation - Decomposition



SWEDEN: CO2 Emission Reduction in Power and Steam Generation - Decomposition in %



SWEDEN: CO2 Emission Reduction - Contribution of Non-Fossil Fuel in Power and Steam



SWEDEN: CO2 Emission Reduction - Contribution of Non-Fossil Fuel in Power and Steam - in %