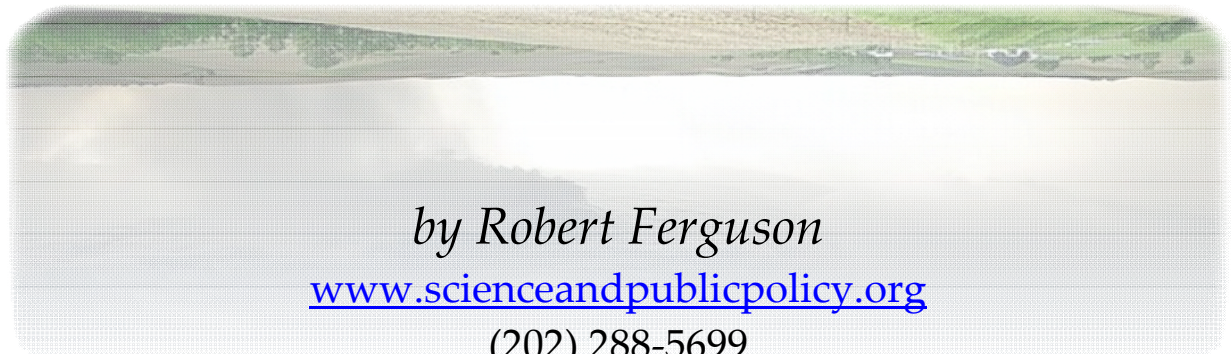


CLIMATE ACTION PLANS FAIL TO DELIVER



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www.scienceandpublicpolicy.org

(202) 288-5699



SPPI ORIGINAL PAPER ♦ October 2008

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by Robert Ferguson ~ October 2008

AROUND the country, localities, states and multi-state regions are convening Climate Change Task Forces aimed at developing plans to reduce greenhouse gas emissions.

As the name suggests, these groups have been created to develop Climate Action Plans that are intended to lessen the projected impacts of anthropogenic climate change around the world in general, but more particularly, in each state.

In every case, the Action Plans include a lengthy list of cookie-cut, prescribed actions spread across all segments of society, and that are aimed towards reducing future emissions of greenhouse gases to a level below some arbitrarily set target. In no case do *any* of the Plans lay out what quantified *effects* their recommended emissions cuts will have on local, regional or global climate. The reason why not? *None of the Climate Action Plans will have any meaningful effect on the climate* – or any change in future temperatures or sea levels.



In no case do any of the Plans lay out what quantified effects their recommended emissions cuts will have on local, regional or global climate.

Here's why.

In 2007, global emissions of carbon dioxide (CO₂) – the primary greenhouse gas emitted by human industrial activities – totaled 27,600 million metric tons (mmtCO₂). The United States, as a whole, contributed 5,900 mmtCO₂ to that total, or about 21.4%. Individual localities, states, etc., contributed much less (see columns 2 and 3 in the Table below for a state by state breakdown of total and percentage of global emissions).

Even more importantly, the percentage of global, manmade CO₂ emissions from the U.S. (and each individual state) will decrease over the 21st century as the growing demand

for power in developing countries such as China and India – and beginning in 2012, the Middle East – rapidly outpaces the growth of our CO₂ emissions (EIA, 2007).

During the past 5 years, global emissions of CO₂ from human activity have increased at an average rate of 3.5%/yr, with China alone contributing nearly 2/3rds of the new emissions (Netherlands Environmental Assessment Agency, 2008). This means that the annual *increase* of global CO₂ emissions is several *times* greater than the *total* emissions from most of the individual 50 states.

Therefore, even a cessation of *all* CO₂ emissions from any particular state will be completely subsumed by global emissions growth in only a matter of months! In fact,

Even a cessation of all CO₂ emissions from any particular state will be completely subsumed by global emissions growth in only a matter of months!

emissions increases produced by China alone rapidly overwhelm any emissions reductions made in the U.S. (see columns 4 and 5 of the Table below for a breakdown of how quickly statewide emissions cessations are subsumed by emissions growth globally and by China alone). Given the magnitude of global emissions and the rate of global emission growth, even regulations prescribing a complete cessation, rather than a partial

reduction, of local, state, or even national CO₂ emissions will have absolutely *no* meaningful effect on global climate.

In other words, state mitigation plans are “all pain and no gain” – a folly bordering on official malfeasance.

As a demonstration of this, we employ the methodology used by Wigley (1998). Wigley undertook an examination of the climate impact of participating nations’ adherence to the CO₂ emissions controls agreed under the UN’s Kyoto Protocol. He found that *if* all developed countries meet their commitments in 2010 and maintain them through 2100, with a *mid-range* sensitivity of surface temperature to changes in CO₂, the amount of warming “saved” by the Kyoto Protocol would be 0.07°C by 2050 and 0.15°C by 2100. The global sea level rise “saved” would be 2.6 cm, or about one inch.

By comparison, a *complete* cessation of CO₂ emissions by individual states [allowing not so much as a camp fire] amounts to only a tiny fraction of the worldwide reductions assumed in Wigley’s global analysis. Thus, state and regional mitigation impacts on future trends in global temperature and sea level will be only a minuscule fraction of the calculated, negligible global effects claimed for Kyoto.

State and regional mitigation impacts on future trends in global temperature and sea level will be only a minuscule fraction of the calculated, negligible global effects claimed for Kyoto.

To demonstrate the futility of state-by-state emissions regulations, we apply Wigley’s (1998) methodology to each individual state, under the following assumptions: 1) the ratio of U.S. CO₂ emissions to those of the developed countries which have agreed to limits under the Kyoto Protocol remains constant at 39% throughout the 21st century; 2) that developing countries such as China and India continue to emit at an increasing rate—consequently, the annual proportion of global CO₂ emissions from human activity that is contributed by human activity in the United States will decline; and 3) that the *proportion* of total U.S. CO₂ emissions from each state remains constant throughout the 21st century.

With these assumptions and using Wigley’s (1998) mid-range future emission scenario, we can calculate the climate effects (on global temperatures and sea level rise) that each state might achieve by actually *exceeding* their Climate Task Force recommendations to the point of *zero* emissions now and forever.

Columns 6 through 9 of the table below demonstrate the futility of such actions by presenting the temperature “savings” and sea level rise “savings” that a complete emissions cessation by each individual state would achieve by the year 2050 and 2100. Not a single state acting alone slows the projected rate of global temperature increase such that it reduces the total temperature rise by the end of the century by even *two one-hundredths* of a degree Celsius or slows sea level rise by more than one-half a centimeter (two-tenths of an inch).

Table 1: State-by-State Analysis of Carbon Dioxide Emissions

State	2005 Emissions (million metric tons CO2)	Percentage of Global Total	Time until Total Emissions Cessation Subsumed by Foreign Growth (days)		Temperature "Savings" (°C)		Sea Level "Savings" (cm)	
			Global Growth	China Growth	2050	2100	2050	2100
AK	48.1	0.18	18	29	0.0009	0.0013	0.0110	0.0222
AL	142.2	0.52	54	85	0.0025	0.0038	0.0326	0.0656
AR	61.2	0.23	23	37	0.0011	0.0016	0.0140	0.0282
AZ	97.7	0.36	37	59	0.0017	0.0026	0.0224	0.0451
CA	395.5	1.45	150	237	0.0070	0.0105	0.0906	0.1825
CO	96.0	0.35	37	57	0.0017	0.0026	0.0220	0.0443
CT	44.4	0.16	17	27	0.0008	0.0012	0.0102	0.0205
DC	3.9	0.01	1	2	0.0001	0.0001	0.0009	0.0018
DE	17.7	0.07	7	11	0.0003	0.0005	0.0041	0.0082
FL	262.6	0.97	100	157	0.0047	0.0070	0.0601	0.1211
GA	185.7	0.68	71	111	0.0033	0.0049	0.0425	0.0857
HI	23.4	0.09	9	14	0.0004	0.0006	0.0054	0.0108
IA	81.3	0.30	31	49	0.0014	0.0022	0.0186	0.0375
ID	15.7	0.06	6	9	0.0003	0.0004	0.0036	0.0072
IL	250.4	0.92	95	150	0.0045	0.0067	0.0573	0.1155
IN	237.9	0.88	91	142	0.0042	0.0063	0.0545	0.1098
KS	72.8	0.27	28	44	0.0013	0.0019	0.0167	0.0336
KY	153.8	0.57	59	92	0.0027	0.0041	0.0352	0.0709
LA	183.1	0.67	70	110	0.0033	0.0049	0.0419	0.0845
MA	85.1	0.31	32	51	0.0015	0.0023	0.0195	0.0393
MD	83.4	0.31	32	50	0.0015	0.0022	0.0191	0.0385
ME	22.9	0.08	9	14	0.0004	0.0006	0.0052	0.0106
MI	192.3	0.71	73	115	0.0034	0.0051	0.0440	0.0887
MN	103.0	0.38	39	62	0.0018	0.0027	0.0236	0.0475
MO	142.8	0.53	54	86	0.0025	0.0038	0.0327	0.0659
MS	63.1	0.23	24	38	0.0011	0.0017	0.0145	0.0291
MT	36.2	0.13	14	22	0.0006	0.0010	0.0083	0.0167
NC	155.6	0.57	59	93	0.0028	0.0041	0.0356	0.0718
ND	52.8	0.19	20	32	0.0009	0.0014	0.0121	0.0244
NE	43.6	0.16	17	26	0.0008	0.0012	0.0100	0.0201
NH	21.3	0.08	8	13	0.0004	0.0006	0.0049	0.0098
NJ	133.4	0.49	51	80	0.0024	0.0036	0.0306	0.0616
NM	59.5	0.22	23	36	0.0011	0.0016	0.0136	0.0274
NV	50.1	0.18	19	30	0.0009	0.0013	0.0115	0.0231
NY	212.2	0.78	81	127	0.0038	0.0056	0.0486	0.0979
OH	274.0	1.01	104	164	0.0049	0.0073	0.0628	0.1264
OK	107.7	0.40	41	64	0.0019	0.0029	0.0247	0.0497
OR	42.5	0.16	16	25	0.0008	0.0011	0.0097	0.0196
PA	284.0	1.04	108	170	0.0051	0.0076	0.0650	0.1310
RI	11.1	0.04	4	7	0.0002	0.0003	0.0025	0.0051
SC	86.0	0.32	33	51	0.0015	0.0023	0.0197	0.0397
SD	13.3	0.05	5	8	0.0002	0.0004	0.0031	0.0062
TN	125.9	0.46	48	75	0.0022	0.0034	0.0288	0.0581
TX	625.2	2.30	238	374	0.0111	0.0166	0.1432	0.2884
UT	67.2	0.25	26	40	0.0012	0.0018	0.0154	0.0310
VA	130.6	0.48	50	78	0.0023	0.0035	0.0299	0.0603
VT	6.8	0.03	3	4	0.0001	0.0002	0.0016	0.0031
WA	83.8	0.31	32	50	0.0015	0.0022	0.0192	0.0387
WI	112.1	0.41	43	67	0.0020	0.0030	0.0257	0.0517
WV	114.3	0.42	43	68	0.0020	0.0030	0.0262	0.0527
WY	62.9	0.23	24	38	0.0011	0.0017	0.0144	0.0290
U.S. Total	5,978.0	21.99	2274	3579				

Putting an even finer point on it, were the *entire* U.S. to close down its economy completely and revert to the Stone Age, without even the ability to light fires, the *growth* in emissions from *China alone* would replace its *entire* emissions in a little less than a *decade*. In this context, mere emissions restrictions enacted by any locality, state, or multi-state region would be extravagantly pointless.

Pres-Elect Obama's Cap and Trade Proposal

President-elect Obama has promised to “bankrupt” the coal industry with the most draconian cap and trade scheme in the world.

Under his announced greenhouse gas emissions reduction plan, he proposes to reduce the U.S.'s annual greenhouse house gas emissions total such that the U.S. total emissions in the year 2020 are the same as what the U.S. total emissions were in the year 1990. Even further, he vows to reduce total greenhouse gas emissions from the U.S. to 80% *below* what they were in 1990 by the year 2050.

The numbers look something like this (all numbers are in million metric tons CO₂):

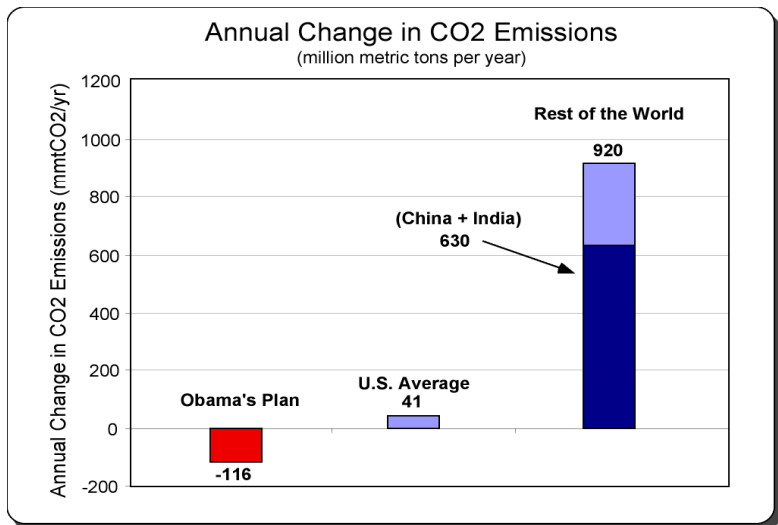
<u>Year</u>	<u>U.S. CO₂ Emissions</u>
1990	5013
2007	5984

Obama's Proposed Target:

<u>Year</u>	<u>CO₂ Emissions</u>	<u>Savings from 2007 level</u>	<u>Savings/year</u>
2020	5013	971	75
2050	1003	4981	116

Now, let's compare the total emissions savings (under the Obama plan) to annual growth in CO₂ emissions from countries besides the United States.

Averaged over the last 5 years, the growth rate in global CO₂ emissions (not including the U.S.) has been about 920 mmtCO₂ per year. That means, *if* Obama's entire goal

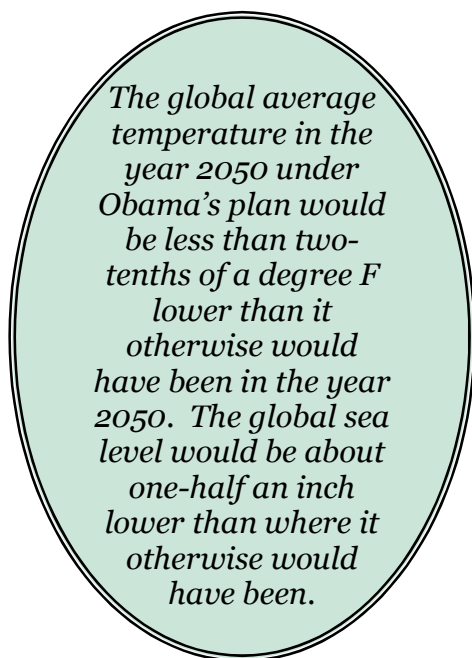


of limiting U.S. CO₂ emissions to a level that is 80% below 1990 levels, or to a value of 1003 mmtCO₂/year, could be met *tomorrow*—the entire emissions savings under his plan (4981 mmtCO₂/yr) *would be completely replaced by new emissions in the rest of the world in less than 5 and a half years.*

If, instead of reaching the desired goal tomorrow, it was met by reducing our annual CO₂ emissions by 116 mmtCO₂/year for the next 43 years (quite a feat considering that for the past 10 years we have averaged a year-over-year *increase* of about 41 mmtCO₂/yr), each year's annual savings would be replaced by global emissions growth within about the first 6 weeks of each year. That's a lot of continuing struggle every year for us to be simply swept away in six weeks by emissions growth in the rest of the world (primarily China and India who make up about 2/3rds of the current annual emissions growth).

The result of all of this would be *negligible* supposed climate gain in the face of irreparable social, political and economic outcomes.

That is to say, assuming the UN's mid-range sensitivity for a doubling of CO₂, the modeled result of an 80% below 1990 level reduction of U.S. emissions by the year 2050



The global average temperature in the year 2050 under Obama's plan would be less than two-tenths of a degree F lower than it otherwise would have been in the year 2050. The global sea level would be about one-half an inch lower than where it otherwise would have been.

would have the effective impact of simply delaying the total rise in global temperature and global sea levels by about 6-7 years. Differently put, the global average temperature in the year 2050 under Obama's plan would be less than two-tenths of a degree F lower than it otherwise would have been in the year 2050. The global sea level would be about one-half an inch lower than where it otherwise would have been.

These impacts on the climate [even if scientifically believable] are, for all intents and purposes scientifically and physically meaningless.

Impact of the European Union Actions – and Other Nations

Oftentimes, the actions of the European Union aimed towards reducing carbon dioxide emissions are held up as an example of how to combat climate change through decisive government action. But as with the U.S., the EU is actually quite ineffective when it comes to actually making a difference on global climate by regulating CO₂.

It is no secret that the EU talks the talk about climate change, but it doesn't walk the walk. Most EU countries will fail to meet their Kyoto emissions-reduction targets. While the much-reviled US administration succeeded in quietly cutting total US carbon emissions in recent years, the EU's carbon emissions have increased. Also, the EU's first attempt at carbon trading ended in characteristic farce when all member-states except the UK awarded themselves emissions rights that comfortably exceeded previous emissions. Result: the "price" of carbon emissions per ton of CO₂ fell below 50 cents, rendering the entire scheme useless. No climatic benefit ensued, and none will ensue from the EU's current scheme, which is nothing more than a purposeless extra cost to already hard-pressed businesses, many of which are finding it simpler to move out of the EU altogether.

In fact, even if the entirety of the EU-27 nations were to completely and forever cease all CO₂ emissions from this day forward, it would have an insignificant impact on the course of the world's future climate (Table 2). In 50 years, the global temperature "savings" produced by an immediate cessation of all EU-27 CO₂ emissions is estimated to be less than one-tenth of a degree Celsius, and increasing to just a bit more than a tenth of a degree by centuries end. The impacts of future sea level would be equally miniscule.

Even if the entirety of the EU-27 nations were to completely and forever cease all CO₂ emissions from this day forward, it would have an insignificant impact on the course of the world's future climate.

Needless to say, the efforts to simply reduce CO₂ emissions from individual countries within the EU-27 produce even less of an impact – effectively no climate moderation ... no lessening of the global temperature rise, no slowing of global sea level rise, nothing.

Worse, all of their efforts will be quickly subsumed by new CO₂ emissions resulting from the rapid development and accompanying growth in emissions from the rest of the world, primarily China and India. In fact, a complete cessation of all EU-27 CO₂ emissions would be subsumed by new emissions from the rest of the world in under 4 ½ years. For individual EU countries, the timing is even more disheartening. For example, growth in emissions from China would replace the entirety of Austria’s annual emissions in just 47 days, those from Denmark in 31, Spain’s in less than 8 months, and those from the U.K. in just under a year. Monumental efforts gone within a relative blink of an eye. Ditto for Australia, New Zealand and Japan.

This is a scenario that — just as in the U.S. — is best described as one which produces no climate gain for incredible economic pain.

Table 2: European Union Country-by-country Analysis of the Impacts of a Complete Cessation of Carbon Dioxide Emissions

Country	2005 Emissions (mmt CO ₂)	% Global Total	Time until Total Emissions Cessation Subsumed by Growth (days)		Temperature “Savings” (°C)		Sea Level “Savings” (cm)	
			Global Growth	China Growth	Year 2050	Year 2100	Year 2050	Year 2100
Austria	78	0.28	30	47	0.0013	0.0020	0.0173	0.0349
Belgium	136	0.48	52	81	0.0023	0.0035	0.0301	0.0606
Bulgaria	51	0.18	19	30	0.0009	0.0013	0.0112	0.0225
Cyprus	9	0.03	3	5	0.0002	0.0002	0.0020	0.0039
Czech Republic	113	0.40	43	68	0.0019	0.0029	0.0250	0.0503
Denmark	51	0.18	19	31	0.0009	0.0013	0.0113	0.0227
Estonia	19	0.07	7	11	0.0003	0.0005	0.0042	0.0084
Finland	52	0.19	20	31	0.0009	0.0013	0.0116	0.0233
France	415	1.47	158	249	0.0072	0.0107	0.0920	0.1853
Germany	844	2.99	321	505	0.0145	0.0217	0.1870	0.3767
Greece	103	0.37	39	62	0.0018	0.0027	0.0229	0.0460
Hungary	60	0.21	23	36	0.0010	0.0015	0.0133	0.0267
Ireland	44	0.16	17	26	0.0008	0.0011	0.0098	0.0197
Italy	467	1.66	178	279	0.0080	0.0120	0.1034	0.2082
Latvia	8	0.03	3	5	0.0001	0.0002	0.0019	0.0037
Lithuania	14	0.05	5	8	0.0002	0.0004	0.0031	0.0062
Luxembourg	13	0.04	5	8	0.0002	0.0003	0.0028	0.0056
Malta	3	0.01	1	2	0.0001	0.0001	0.0007	0.0013
Netherlands	270	0.96	103	161	0.0046	0.0069	0.0597	0.1203
Poland	285	1.01	108	170	0.0049	0.0073	0.0631	0.1270
Portugal	65	0.23	25	39	0.0011	0.0017	0.0144	0.0290
Romania	99	0.35	38	59	0.0017	0.0026	0.0220	0.0443
Slovakia	38	0.13	14	23	0.0007	0.0010	0.0084	0.0169
Slovenia	17	0.06	6	10	0.0003	0.0004	0.0037	0.0075
Spain	387	1.37	147	232	0.0067	0.0100	0.0858	0.1727
Sweden	59	0.21	22	35	0.0010	0.0015	0.0130	0.0262
United Kingdom	577	2.05	220	346	0.0099	0.0149	0.1279	0.2575
Total	4,276	15.17	1,627	2,560	0.0737	0.1101	0.9471	1.9077

Table 3: Japan, Australia, New Zealand, Canada – Analysis of the Impacts of a Complete Cessation of Carbon Dioxide Emissions

Country	2006 Emissions (mmt CO ₂)	% Global Total	Time until Total Emissions Cessation Subsumed by Growth (days)		Temperature "Savings" (°C)		Sea Level "Savings" (cm)	
			Global Growth	China Growth	Year 2050	Year 2100	Year 2050	Year 2100
Australia	417	1.43	159	250	0.0072	0.0108	0.0929	0.1872
Japan	1247	4.27	474	747	0.0216	0.0323	0.2778	0.5595
New Zealand	38	0.13	15	23	0.0007	0.0010	0.0085	0.0172
Canada	614	2.10	234	368	0.0101	0.0159	0.1369	0.2757

References

Energy Information Administration, 2007. International Energy Annual, 2005 (and updates) U.S. Department of Energy, Washington, D.C., <http://www.eia.doe.gov/iea/contents.html>.

Energy Information Administration, 2008. State-by-state carbon dioxide emissions available on-line at http://www.eia.doe.gov/oiaf/1605/ggrpt/excel/tbl_statetotal.xls.


Netherlands Environmental Assessment Agency, 2008. Global CO₂ emissions: increase continued in 2007. Global data on global and country-by-country emissions available on-line at http://www.mnp.nl/images/cijfers-nl0533001g03_tcm61-38969.xls.

Wigley, T.M.L., 1998. The Kyoto Protocol: CO₂, CH₄ and climate implications. *Geophysical Research Letters*, **25**, 2285-2288.

Energy Information Agency (EIA), International Emissions Data, <http://www.eia.doe.gov/pub/international/iealf/tableh1co2.xls>.

Netherlands Environmental Assessment Agency, 2008. Global CO₂ emissions: increase continued in 2007. Global data on global and country-by-country emissions available on-line at http://www.mnp.nl/images/cijfers-nl0533001g03_tcm61-38969.xls.

Wigley, T.M.L., 1998. The Kyoto Protocol: CO₂, CH₄ and climate implications. *Geophysical Research Letters*, **25**, 2285-2288.



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