Economic Impact of Climate Change Policy

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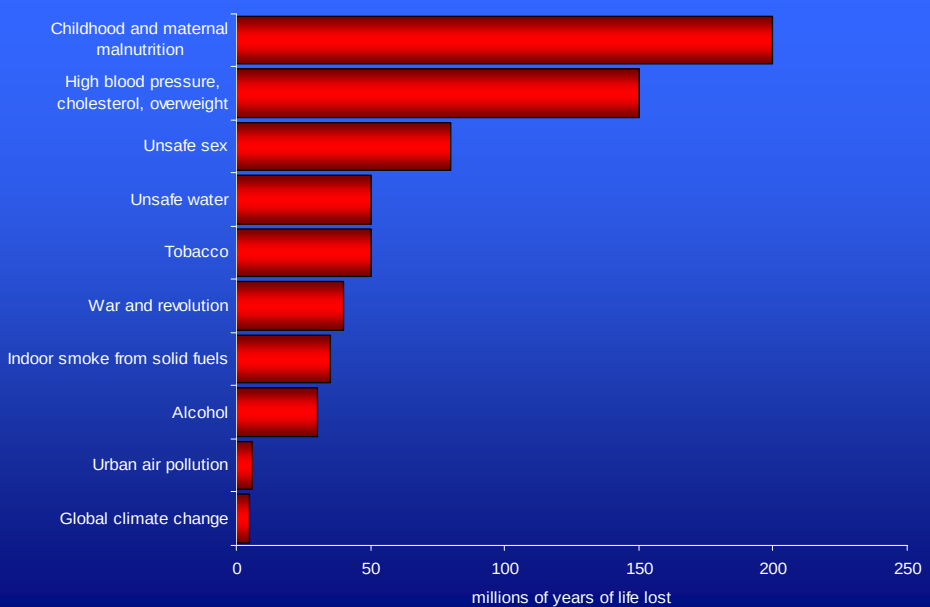
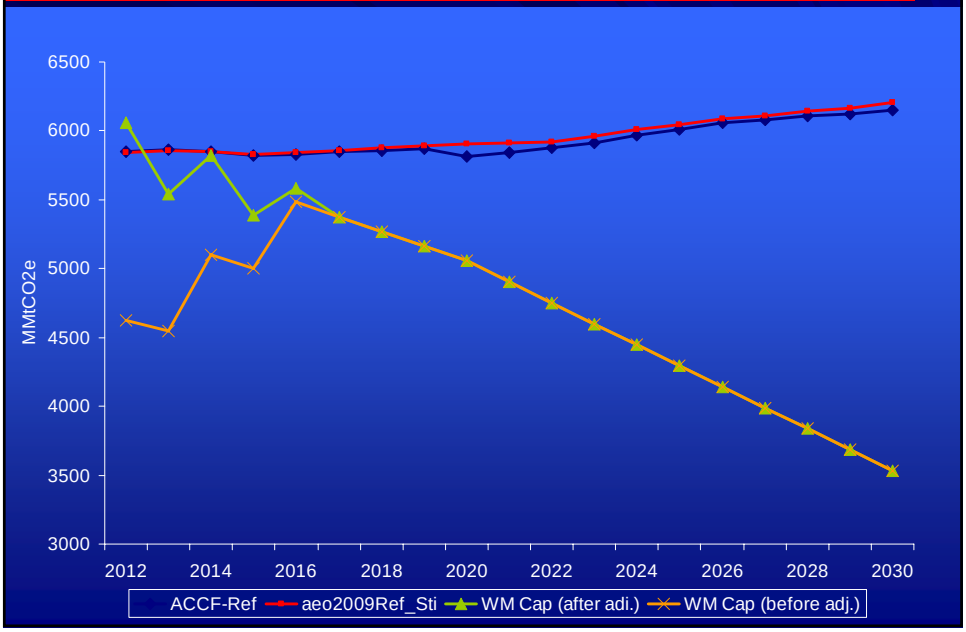
Contributors to Global Mortality in 2000

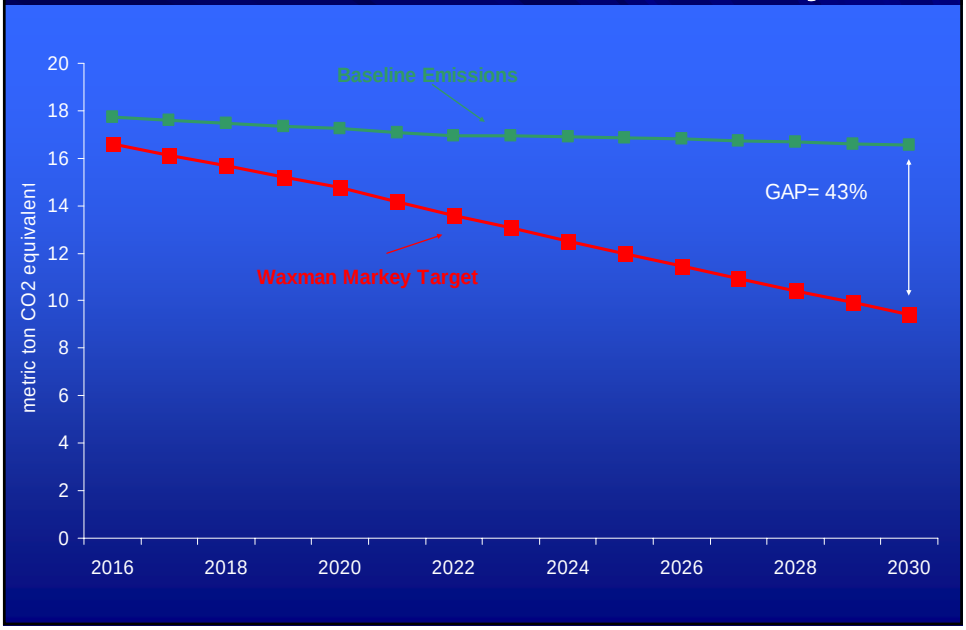


Source: John P. Holdren, "Science and Technology for Sustainable Well-Being, " Science, May 2009.

Total Energy Sector CO2 Emissions under Baseline forecast and Waxman Markey Bill



Per Capita Energy Sector CO2 Emissions under the baseline and Waxman Markey bill



Summary of Key Macroeconomic Modeling Results for the Waxman Markey bill: 2020

	Allowance Prices (2007$ per metric ton)	GDP Impact (% Change from BAU)	Impact on Jobs (Change from BAU)
ACCF/NAM Low Cost	$48	-0.2%	10,000
ACCF/NAM High Cost	$61	-0.4%	-80,000
CRA/NBCC	$30	-0.8%	-1,800,000
EIA-NEMS Basic	$32	-0.3%	-81,480
EIA-NEMS Limited	$93	-0.7%	-355,210
CBO	$23	-0.2 to -0.7%	N/A

Summary of Key Macroeconomic Modeling Results for the Waxman Markey bill : 2030

	Allowance Prices (2007$ per metric ton)	GDP Impact (% Change from BAU)	Impact on Jobs (Change from BAU)
ACCF/NAM Low Cost	$123	-1.8%	-1,790,000
ACCF/NAM High Cost	$159	-2.4%	-2,440,000
CRA/NBCC	$49	-1.0%	-2,200,000
EIA-NEMS Basic	$65	-0.8%	-597,000
EIA-NEMS Limited	$191	-2.3%	-2,317,000
CBO	N/A	-0.4 to -1.1%	N/A

Macroeconomic Impact of Waxman Markey Bill: Changes in Iowa Economy Compared to Baseline Forecast

	Low Cost Case		High Cost Case	
	2020	2030	2020	2030
Loss in GSP (million 2007$)	-$347	-$3,657	-$596	-$4,990
Loss in Jobs	150	-24,020	-1,010	-32,720
Loss in Household Income (2007$)	-$125	-$823	-$252	-$1,351

Macroeconomic Impact of Waxman Markey Bill: Changes in Nebraska Economy Compared to Baseline Forecast

	Low Cost Case		High Cost Case	
	2020	2030	2020	2030
Loss in GSP (million 2007$)	-$71	-$750	-$122	-$1,023
Loss in Jobs	90	-14,420	-610	-19,630
Loss in Household Income (2007$)	-$131	-$858	-$263	-$1,410

Macroeconomic Impact of Waxman Markey Bill: Changes in South Dakota Economy Compared to Baseline Forecast

	Low Cost Case		High Cost Case	
	2020	2030	2020	2030
Loss in GSP (million 2007$)	-$92	-$969	-$158	-$1,322
Loss in Jobs	40	-6,420	-270	-8,740
Loss in Household Income (2007$)	-$128	-$841	-$258	-$1,380

Macroeconomic Impact of Waxman Markey Bill: Change in Energy Prices in Iowa, Nebraska and S. Dakota Compared to Baseline Forecast

	Low Cost Case		High Cost Case	
	2025	2030	2025	2030
Rise in Gasoline Prices	12%	19%	16%	24%
Rise in Residential Electricity Prices	-0.1%	29%	21%	64%
Rise in Residential Natural Gas Prices	5%	59%	11%	77%

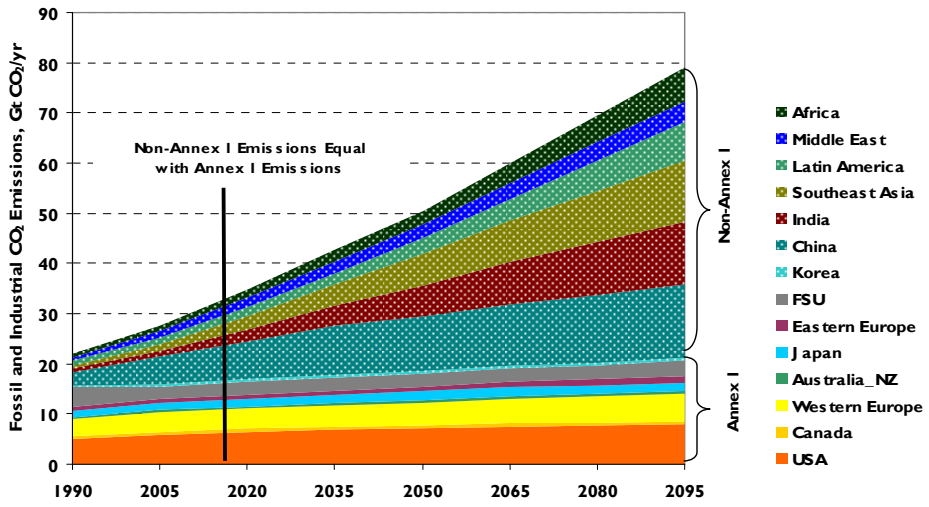
Regulation of GHGs under the Clean Air Act

- EPA is preparing to regulate GHGs under the Clean Air Act
- The "Endangerment Finding" in December 2009 provides justification for regulation of new light-duty motor vehicles
- EPA proposed GHG emission standards for light-duty vehicles will most probably be finalized by March 31, 2010
- Regulating GHGs for vehicles would also trigger permitting requirements GHGs from stationary sources
- Stationary source regulation would likely be accomplished through command-and-control mandates such as "best available control technology" rather than cap and trade or carbon taxes
- Cost is unknown but likely very substantial

Who would be affected by EPA regulations?

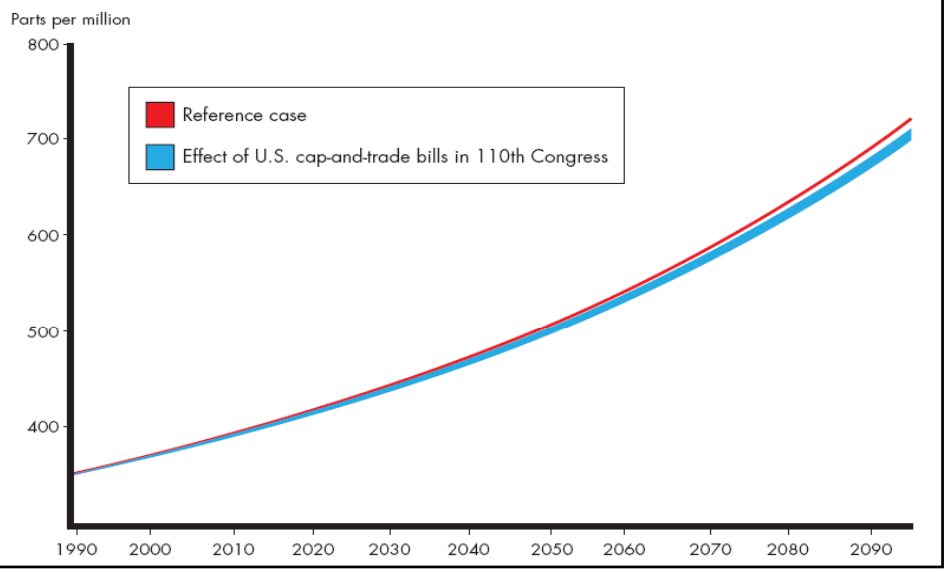
- EPA estimates that over 6 million large and small facilities would need to apply for preconstruction and operating permits if GHG threshold levels remain at 100 to 250 tons per year
- The Tailoring Rule, proposed in October, 2009 would temporarily raise the GHG permitting level to 25,000 TPY
- Initially permits would be required only for new construction or improvements
- SBA Office of Advocacy found that some 1200 small entities like brick manufacturers, foundries, municipal utilities, refineries would have to obtain Title V permits even with Tailoring Rule
- EPA estimates cost of permits for Title V is $45,350 and $84,530 for PSD permits
- States including California, South Carolina, Kansas, Pennsylvania and Florida have called on EPA to delay emission rules

World Carbon Dioxide Emissions



Source: Data derived from *Global Energy Technology Strategy, Addressing Climate Change: Phase 2 Findings from an International Public-Private Sponsored Research Program*, Battelle Memorial Institute, 2007.

Global CO2 Concentrations: Carbon emissions are projected to rise over the next several decades



The Copenhagen Accord: What Does it Mean for the U.S and the World?

- The UN process, with 192 countries participating, failed to produce a legally binding agreement with targets and timetables
- Established a non-binding mechanism for combating deforestation and forest degradation
- Suggested funding for climate mitigation for developing countries of $100 billion dollars annually by 2020
- Accord does not provide a guide for business regarding climate policy after the Kyoto Protocol expires in 2012
- Accord does not increase pressure on Congress to enact mandatory GHG reductions

Practical Strategies for Reducing Global Greenhouse Gas Growth

- Use cost / benefit analysis before adopting policies
- If U.S. puts a price on carbon emissions, a carbon tax is preferable to cap and trade
- Reduce cost of U.S. energy investment through tax code improvement and incentives for non profits
- Remove barriers to developing world's access to more energy and cleaner technology by promoting and market reforms
- Increase R&D for new technologies to reduce energy intensity, capture and store carbon, and develop new energy sources
- Promote nuclear power for electricity
- Promote truly global solutions and consider expanding the Asia Pacific Partnership on Development with its focus on economic growth and technology transfer to other major emitters