# The Economics of America's Climate Security Act of 2007: (S.2191, Lieberman-Warner Climate Bill) WHITE PAPER

**Senator James M. Inhofe**
**Ranking Member**
**United States Senate Committee on Environment and Public Works**

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## Introduction

The issue of climate change is now at the forefront of American environmental policy. While the science behind the causes of recent warming trends has been argued vigorously in the past, the debate over the economic costs of addressing this issue has been relatively quiet until now. However, on this issue there is little to debate at all. Leaders from both sides of the aisle agree that curbing greenhouse gas emissions will be an expensive endeavor. [1] What some proponents are masking and others fail to comprehend, is that the economic costs of action are likely to be unbearable if the approach in S. 2191, America's Climate Security Act (Lieberman-Warner), is enacted into law. Such policy will require a complete economic overhaul with wide-reaching ramifications. It is time that the debate over the cost of attempting to achieve reductions is brought to the attention of the American public so they may gain a full and complete understanding of the direct financial impact that they will bear under this proposal. With the current state of the economy, it is even more imperative to have a frank discussion on the cost of potential actions set for debate in Congress and about who will shoulder the burden. This White Paper will seek to frame that debate by setting out why the Kyoto Protocol established a bad precedent for cap-and-trade, surveying current cost estimates of the Lieberman-Warner approach and its impacts on families, and finally establishing why this approach undermines economic stability. This is key to the development of the new technology needed that will lead our country to reduce air pollution, expand our energy supply, increase trade, and reduce greenhouse gas emissions.

# Background

### What is a Cap-and-Trade System?

Most climate change legislative proposals in Congress attempt to place a price on greenhouse gas emissions (mostly carbon dioxide) in an effort to reduce the amount of these gasses released into the atmosphere. The most common of these efforts is a mandatory "cap-and-trade" system. This system works by placing a cap on the amount of greenhouse gasses emitted from various sources. Covered businesses or entities are allocated allowances to permit them to emit a certain amount of greenhouse gases. If the company reduces emissions to below their cap level, they are allowed to sell those allowances to businesses that have gone over their limit.[2]

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[1] Senator Lieberman conceded that S. 2191, the Lieberman-Warner cap-and-trade legislation, would cost "hundreds of billions of dollars" to the electrical and industrial sectors of the economy. "It's hard to imagine that [Lieberman-Warner] will not cost - over time - these two sectors [electric power and industrial], hundreds of billions of dollars to comply with the demands of this bill." Senator Joseph Lieberman, Statement for the Senate Committee on Environment and Public Works, November 1, 2007

[2] CRS Definition of Cap-and-Trade: A cap-and-trade program is based on two premises. First, a set amount of pollutant emitted by human activities can be assimilated by the ecological system without undue harm. Thus, the goal of the cap-and-trade program is to impose a ceiling (i.e., an emissions cap) on the total emissions of that pollutant at a level below the assimilative capacity. Second, a market in pollution licenses

The mechanism that drives the reductions is the price of carbon. This price is a market-driven price that fluctuates with supply of allocations and demand for emitting greenhouse gases. In order to gain reductions, the amount of allowances is reduced yearly. While the caps are aimed specifically at major polluters in an effort to incite reduction of emissions, the costs born of such policy will reach down to the poorest Americans and affect the whole of American economic growth. Economists Arthur Laffer and Wayne Winegarden have stated that "the costs of reducing GHGs through cap-and-trade regulations are not trivial. If implemented, cap-and-trade policies would add significant costs to production and would likely have a severe negative impact on the long-term U.S. growth."[3]

The most recent attempt to regulate greenhouse gases in America through a cap-and-trade proposal is a Senate bill introduced by Senators Joseph Lieberman and John Warner. S. 2191, America's Climate Security Act (Lieberman-Warner) was introduced October 18, 2007, and passed out of the Senate Committee on Environment and Public Works. The bill caps (or sets) an annual limit of greenhouse gasses emitted from three sectors: electric generation; industrial; and transportation. Unlike the EU Emissions Trading Scheme (EU ETS), where small emitters of GHGs such as a local hospital are covered, Lieberman-Warner focuses on more upstream sources of emissions. Specifically, the cap is set at 5775 million metric tons of $CO_2$ in 2012. The cap is then lowered yearly until 2050, which is estimated to reduce emissions 18-25% below 2005 levels in 2020 and is proposed to end at 62-66% below 2005 levels in 2050.

EPA would be tasked with distributing allowances to the regulated community to emit specific quantities of GHGs. Some of the allowances would be allocated to the Climate Change Credit Corporation, where they would be auctioned and the proceeds used to fund various initiatives. Other allowances would be allocated for free. These allocations are then traded in order for businesses to comply with the law. Businesses are able to bank, as well as sell these emissions permits if they are able to significantly reduce their own emissions. Up to 15% of a company's allowances may be purchased from international allowances and another 15% may be purchased from the use of carbon offsets.

**Kyoto: A Bad Precedent for Carbon Cap-and-Trade**

The Kyoto Protocol, an international cap-and-trade system to control and reduce greenhouse gas emissions, has become a worldwide failure. Aside from constraining growth in all developed countries and allowing unrestricted development in countries such as China and India, Kyoto would not help to stop global warming. Dr. Tom Wigley, a senior scientist at the National Center for Atmospheric Research (NCAR), found that if

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(i.e., allowances) between polluters is the most cost-effective means of reducing emissions to the level of the cap. This market in allowances is designed so that owners of allowances can trade those allowances with other emitters who need them or retain (bank) them for future use or sale.

[3] Laffer and Winegarden, 2007. The Adverse Economic Impacts of Cap-and-Trade Regulations. *Arduin, Laffer & Moore Econometrics.*

the Kyoto Protocol were fully implemented by all signatories, it would reduce temperatures by a mere 0.07 degrees Celsius by 2050. An American-only cap-and-trade system would be largely the same as Kyoto, with environmental symbolism bringing no benefits at an enormous cost.

The European Union Emissions Trading Scheme has also been a devastating failure, as jobs have moved outside of Europe and families are feeling the effects. Dr. Gabriel Calzada, Associate Professor of Economics at King Juan Carlos University in Madrid, submitted testimony to a Senate EPW Committee hearing last September. Dr. Calzada stated that paper mills, ceramic tile manufacturers, and a glass maker had been closed by the Valencia province government for not possessing GHG permits. Dr. Calzada lamented on the dreary state of his country because of the EU ETS, stating "Kyoto's 'cap-and-trade' model is costing Spaniards a fortune even while their chances of complying with the Protocol are [nonexistent], as is typical throughout Europe and most of Kyoto's few covered countries."[4] Europe's cap-and-trade system has cut growth and moved production offshore.

If losing jobs was not a big enough deterrent for cap-and-trade, Europe has shown that the EU ETS has only reduced emissions in two of the EU 15 (major industrial countries). The European Environmental Agency has predicted that those countries' collective emissions will be 7.4 percent above 1990 levels in 2010. The Kyoto Protocol called for an 8 percent cut below 1990 levels. Europe has had a rough time with cap-and-trade as its emissions have continually risen since 1998. In the first year of operation of the EU ETS (2005-2006), the EU saw its covered emissions rise 3.6 percent. Europe's job losses and higher emissions are a direct product of a failed policy. Meanwhile, since the Kyoto Protocol was negotiated in 1997, U.S. emissions have increased more slowly in percentage terms than have emissions in the European Union, Canada, and Japan. In 2006, U.S. carbon dioxide emissions declined. [5]

**$SO_2$ Caps Differ Greatly from $CO_2$**

Many have tried to link a greenhouse gas cap and trade program with the generally accepted success of a cap-and-trade program in reducing emissions that cause acid rain. However, this linkage between sulfur dioxide and greenhouse gas regulation cannot be made. When the acid rain program went into effect, the technology was already available to limit the amount of $SO_2$ emissions. The same cannot be said for $CO_2$ as technology is lacking, and imposing a cap now will strain businesses for years before the technology is available. United Nations Secretary General Ban Ki-Moon recently warned that clean energy sources for climate change could require investments of $15 trillion to $20 trillion over two decades. Additionally, whereas $SO_2$ is a singular gas and regulation was limited only to utility plants, greenhouse gas regulation will cover thousands of emitters across all industrial sectors. This added complexity would make the regulation process incredibly difficult and more costly.

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[4] Calzada, Dr. Gabriel. Statement for the Record. United States Senate Committee on Environment and Public Works, Hearing on "Green Jobs Created by Global Warming Initiatives." September 25th, 2007
[5] U.S. EPA National Greenhouse Gas Inventory, April 15, 2008

# The Lieberman-Warner Bill

**Economic Stability Necessary for New Technology**

The inability to compare the current acid rain program to the proposed greenhouse gas cap-and-trade program in Lieberman-Warner rightly focuses the debate on where it should be: technology. Technology required for lowering greenhouse gas emissions is still many years away. Contrarily, supporters of cap-and-trade legislation argue that while the technology is not currently in place, the necessity to reduce greenhouse gases will spur invention creating the necessary tools. However, this assumption makes the faulty conclusion that technology can quickly be adopted, produced, and installed, and that a cap-and-trade regime will bring about business certainty.

The investment in and enhancement of new technology is crucial to future energy security and must be developed fully to create market certainty before regulations and restrictions are placed on the emissions of greenhouse gases. Ted Nordhaus and Michael Shellenberger suggest that economic growth and development will come from new technologies spurred by marketplace incentives. They state that the very thing to reduce greenhouse gas emissions is "the very thing environmentalists have long imagined to be the driver of pollution in the first place: economic development."[6] Given time, stability, and incentives to invest in the correct technologies, the American marketplace will create the right tools to lower emissions; however, the Lieberman-Warner bill assumes technology will answer the calls for reductions earlier than possible. What the bill will create is an incentive for utility generators to switch from coal to natural gas generation, and bypass the necessary research and development of clean technologies. Economist Margo Thorning describes this consequence:

> Caps on emissions are not likely to promote new technology development because caps will force industry to divert resources to near-term, "end of pipe" solutions rather than promote spending for long-term technology innovations that will enable us to reduce GHGs and increase energy efficiency. An emission trading system will send exactly the wrong signals to investors because it will create uncertainty about the return on new investment.[7]

While economic theory provides a grim look at what can be expected, modeling of the provisions of Lieberman-Warner has affirmed the notion that the bill hinders the growth and well-being of the nation. Many new economic models have been produced since the legislation has passed out of committee. Studies conducted by the United States Environmental Protection Agency (EPA), CRA International, and Science Applications International Corporation (SAIC) have overwhelmingly shown the ill effects this bill would have on many facets of the American economy.

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[6] Ted Nordhaus and Michael Shellenberger, *Break Through: From the Death of Environmentalism to the Politics of Possibility*. 2007

[7] Thorning, Margo. Written Testimony to the Senate Committee on Environment and Public Works. November 8, 2007.

**Certainty Problem**

At the root of these economic problems is that cost increases for companies will be inevitable under a cap-and-trade system. Companies will have to invest in questionable technology that helps them to reduce emissions and meet the cap. Businesses that are unable to reduce emissions within their cap will have to purchase more allowances. Models of carbon allowance prices have ranged from $20 per metric ton of $CO_2$ in 2020[8] to up to $83 per metric ton of $CO_2$ in 2030.[9]

As the EU ETS has shown, market dynamics shift the price of carbon substantially and hinder economic certainty. If the price of purchasing greenhouse gas allowances was static, then businesses would be able to plan future investments based on predicted future prices. Laffer and Winegarden highlight this problem: "Significant price volatility emerges in the market because the supply-and-demand curves are not known to policymakers when initial cap-and-trade policies are established. Furthermore, the supply-and-demand curves will shift over time, and oftentimes in unpredictable ways."[10]

Therefore, while Lieberman-Warner establishes a price for $CO_2$, it removes all certainty from business forecasting, which will limit investments. Neil O'Brien, director of London-based think tank Open Europe, acknowledged the problem businesses will have making plans for future investments because of price volatility:

> "That's bad because it means that business can't have any kind of ability to plan or have any kind of certainty about what the price of making emission reductions is worth. So either you don't do anything and you don't get emissions reductions, which is what's happened in Europe, or even if you are making investments, it's going to cost you more because there will be firms that are investing when they shouldn't be and there will be firms that won't be investing when they should."[11]

O'Brien made this statement after witnessing the workings of the EU ETS in person. Many in this country refuse to acknowledge that cap-and-trade mandates will not bring certainty, as the EU has demonstrated. Uncertainty in Europe has been a hindrance to economic progress as the price of carbon has fluctuated from €33 to only a few cents per ton. Subsequently, industrial plants across Europe have closed, and some have even expanded into America. The Spanish company Acerinox S.A., the world's second largest stainless steel producer, recently decided to expand investments into Kentucky because of the harm EU ETS has caused Europe. According to Dr. Calzada's testimony, Acerinox plans to invest €270 million in Kentucky compared to just €41 million in Spain. While holding back at home, Acerinox helped add 175 jobs in Carroll County, Kentucky.

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[8] CRA International report "Economic Modeling of the Lieberman Warner Bill." January 31, 2008.
[9] EPA Analysis of the Lieberman Warner Climate Security Act of 2008. March 14, 2008
[10] Laffer and Winegarden, 2007. The Adverse Economic Impacts of Cap-and-Trade Regulations. *Arduin, Laffer & Moore Econometrics*.p.4
[11] Neil O'Brien. "Open Europe's O'Brien calls E.U.'s CO2 program 'failure,' suggests different steps for U.S." Transcript from interview on E&E TV. http://www.eenews.net December 5, 2007.

**Lieberman-Warner Hurts Families, Jobs, and Economy**

National Economy

Lieberman-Warner, if enacted, would likely devastate national and local economies in addition to putting a severe strain on the American family. The bill would reduce the nation's Gross Domestic Product by 2.3% by only 2015 as modeled by CRA International.[12] EPA finds that in 2030, GDP would be reduced by $983 billion and lowered even further by as much as $2.8 trillion in 2050.[13]

While these initial numbers on the loss of GDP are massive, they are not unexpected, as they have been predicted by one of the most notable American economists, Alan Greenspan. He has stated, "There is no effective way to meaningfully reduce emissions without negatively impacting a large part of an economy." Greenspan continues, "Net, it is a tax. If the cap is low enough to make a meaningful inroad into $CO_2$ emissions, permits will become expensive and large numbers of companies will experience cost increases that make them less competitive. Jobs will be lost and real incomes of workers constrained."[14] The economics of cap-and-trade are not a mystery, and they are validated in the numbers projected for Lieberman-Warner.

The Congressional Budget Office (CBO) has recently released a report detailing the effect the Lieberman-Warner bill would have on federal revenue and taxes. The CBO score stated that $1.2 trillion will be raised in federal revenue between 2009 and 2018, generating $1.2 trillion in new entitlement spending. CBO also said that the bill will cost $90 billion a year in unfunded private sector mandates. Underscoring the report from CBO is that their estimates show that most of the cost of the bill would ultimately be passed on to consumers.

Jobs

Under this legislation, America stands to lose millions of jobs. Greenspan forecasts such a problem, announcing that "cap-and-trade systems or carbon taxes are likely to be popular only until real people lose real jobs as their consequence."[15] Within only seven years of enactment, up to 1.2 million net jobs will be lost.[16] Many of these will be going offshore, where restrictions on emissions are nonexistent, to countries such as China. Worse, by 2020 up to 3.4 million net jobs may be lost.[17] Thousands more workers in Northeast Ohio, Pennsylvania, and Michigan could become jobless in an area already

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[12] CRA International report "Economic Modeling of the Lieberman Warner Bill." January 31, 2008. This number relative to baseline projections of GDP.
[13] EPA Analysis of the Lieberman Warner Climate Security Act of 2008. March 14, 2008.
[14] Greenspan, Alan. *The Age of Turbulence*: Adventures in a New World. Penguin Press, New York. 2007. 454
[15] ibid
[16] CRA International. "Economic Modeling of the Lieberman Warner Bill." January 31, 2008.
[17] ibid

subjected to heavy layoffs. The Energy Information Administration (EIA) found that manufacturing output would drop by as much as 9.5% by 2030 under Lieberman-Warner.[18]

The problem Europe currently faces in losing jobs overseas is one that will become even more real in America, which has already lost 2.5 million manufacturing jobs since 2001.[19] The U.S. Chamber of Commerce has stated that "the chemical industry has already moved significant operations overseas because it cannot compete in the world market while complying with domestic energy constraints and emissions controls."[20] The problem will be compounded if the United States adds more costs to manufacturing within its borders because of emission caps. This is a fact that even a lead author from the United Nations Intergovernmental Panel on Climate Change has noted. William Pizer, an economist at Resources for the Future and a lead author on the most recent report from the UN IPCC, recently stated at a symposium in Washington, "As an economist, I am skeptical that [dealing with climate change] is going to make money. You'll have new industries, but they'll be doing what old industries did but at a higher net cost.... You'll be depleting other industries."

This truth has already been realized in planning for many businesses across the country. Alcoa, the world's leading producer of aluminum, has shown no interest of opening up more plants or new jobs within America, even though their businesses keep expanding. Alcoa's projected global growth map shows plans for opening over two dozen refineries, smelters and mines around the world. It plans to open in China, Brazil, Saudi Arabia, and Vietnam, among others, but none in America.[21]

Many of the 3.4 million jobs predicted to be lost will be exported as new jobs in China, India, and Brazil. All three of these nations are classified as developing countries and have been allowed to emit greenhouse gasses without international criticism. Currently, these countries are a breeding ground for carbon-intensive manufacturing and will thrive if Lieberman-Warner is adopted. According to estimates, China is currently opening a new coal-fired power plant each week, and has no imminent plans to curb greenhouse gas emissions.

Families

Added on top of nationwide job losses, families will be hurt further at home with heating and electricity bills. EPA modeling of Lieberman-Warner shows that electric prices will rise 44% by 2030 over baseline predictions for that time period.[22] These price increase models concur with what Anne Smith of CRA International stated during her testimony

[18] Energy Information Administration. Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007. April 2008.
[19] AFL-CIO, http://www.aflcio.org/issues/jobseconomy/exportingamerica/outsourcing_problems.cfm
[20] Chamber of Commerce of the United States of America. Letter to Senators Lieberman and Warner. October 31, 2007.
[21] Alcoa growth map, Public Record Senate Committee on Environment and Public Works Hearing. October, 24 2007.
[22] EPA Analysis of Lieberman Warner Climate Security Act. March 2008.

to the Senate Committee on Environment and Public Works in November of 2007; "Changes in emissions from generation will not be cheap, and they will drive up the wholesale price of electricity." Smith also refutes the claim that efficiency improvements will neutralize upward pressure on prices. She notes that home electricity prices will continue to increase by 58% by 2050 "despite extensive technological advancements and efficiency enhancements."[23] Every family in America is dependent on the needs of electricity, and many homes across the country have felt the effects of rising utility rates in the past few years. In addition, there have been recent increase announcements reflecting the rising cost of natural gas, coal, and other fuels used to produce electricity.[24] Large shocks of 44% to electricity prices under Lieberman-Warner would only add to this pain.

The cost per household will rise variedly across the country, largely because of the rising cost of home heating and electricity. CRA International suggests that the average cost per household will be $1,740 per year by 2020 and will continue to increase to $3,456 per year by 2050 in 2007 dollars. This number varies by region as well, with Oklahoma and Texas families spending $3,298 more and the Midwest spending $2,021 more by 2020. The costs of Lieberman-Warner cover the nation as a whole, and spares no family.[25] Additionally, CRA International projects that the overall standard of living would be reduced by 1.7% nationally during the 2010-2050 timeframe. With such a drop in standard of living, US average economic welfare drops by the same margin and disposable income falls by more than $1,000 within three years of the bill's implementation.

EPA also suggests this legislation would have a significant impact on the American family. They state that household annual consumption is $1,375 lower in 2030. EPA suggests that gasoline prices will rise $.53 per gallon on top of the baseline rise in gasoline prices. Additionally, EIA found that gasoline prices could rise anywhere from 41 cents to over a dollar by 2030.

**Poorest Bear the Biggest Costs of Lieberman-Warner**

Kevin Book, an energy research analyst for FBR Capital Market Corporation testified to the Environment and Public Works Committee that not only will consumers be hurt, but the poorest of those will be hurt the worst. Book stated in reference to S.2191 that "any effort to trigger conservation or environmental stewardship, even if price hikes are mediated through larger enterprises before they reach consumers, will affect the poorest Americans first."[26] Those who are struggling now to pay their heating bills will suffer under this legislation. The Congressional Budget Office (CBO) released a report last

[23] Smith, Anne. Written Testimony to the Senate Committee on Environment and Public Works. November 8, 2007.
[24] BGE announced that its bills are to jump 8% this summer, reflecting the rising cost of natural gas, coal, and other fuels used to produce electricity. Dominion Virginia Power announced May 6th that it is seeking the approval of the State Corporation Commission to increase customer rates, effective July 1.
[25] CRA International report "Economic Modeling of the Lieberman Warner Bill." January 31, 2008. This number relative to baseline projections of GDP
[26] Kevin Book. Testimony to Senate Committee on Environment and Public Works, November 15, 2007.

year stating that American households would bear the biggest costs of a cap-and-trade bill.

> "Regardless of how the allowances were distributed, most of the cost of meeting a cap on $CO_2$ emissions would be borne by consumers, who would face persistently higher prices such as electricity and gasoline. Those price increases would be regressive in that poorer households would bear a larger burden relative to their income than wealthier households would."[27]

The poor already face much higher energy costs as a percentage of their income than wealthier Americans. While most Americans spend about four percent of their monthly budget on heating their homes or other energy needs, the poorest fifth of Americans spend 19 percent of their budget on energy.[28] Lieberman-Warner fails to sufficiently protect the poor who depend on cheap energy, and does little to ensure their economic safety. As seen above, EPA models show that electricity prices will be 44% higher in 2030, numbers that are hard to accept by any family, much less the economically disadvantaged. While the bill has provisions to distribute allowances to load serving entities (LSE) to defray costs to the poor, the very design ensures that many lower income families will get little, if any, relief.

**Dramatic Expansion in Size and Scope of Government**

Another aspect of this debate is the fact that the Lieberman-Warner bill is more than just a cap-and-trade system. It creates a larger federal bureaucracy to tax the American people and spend trillions of dollars on other government programs. The legislation bypasses the appropriations process and commits revenues from the auctioning of allowances to various different programs potentially predetermining winners and losers in the marketplace. In fact, some in the energy industry support the bill because the costs, according to the CBO, are passed on almost entirely to energy consumers, while the benefits, in the form of free allowances, accrue largely to energy companies and their shareholders, as well as a wide variety of politically-favored special interests.

American citizens, who would bear the brunt of the costs under this bill through higher energy rates, should see some of the billions of dollars in new federal revenue returned. Instead, that money is spent through a process that enlarges the federal government bureaucracy that is already too bloated. A Federal Reserve-like board to oversee the price of carbon emissions is also created through Lieberman-Warner. Named the Carbon Marked Efficiency Board, it would be part of the now larger federal bureaucracy that is much less certain to contain the rising costs of carbon than a true safety valve that prevents the cost of carbon from reaching a particular value.

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[27] CBO Economic and Budget Issue Brief. "Trade-Offs in Allocating Allowances for CO2 Emissions." April 25, 2007.

[28] http://www.hud.gov/offices/cpd/library/energy/homelessness.cfm

**International Action NOT Addressed**

Engaging the developing world is one of the most critical components of the climate debate, however Lieberman-Warner punts on this issue, and largely leaves the United States alone to reduce its emissions, while those countries responsible for close to half of the worlds greenhouse gas emissions are not held to the same standards. Currently, the bill gives China and other developing countries an eight year exemption from reducing emissions while our domestic manufacturing would be at a competitive disadvantage. Up until this time, China will be able to export more items to America at a cheaper cost with no environmental benefit. Millions of American jobs would already be lost by 2015, while the bill does nothing about international action until at least 2019.

In addition, even if the compliance dates are moved up, the current proposal to "force" international action to reduce emissions contained in Lieberman-Warner has raised serious trade concerns. U.S. Trade Representative Susan Schwab recently stated that the international proposals contained in Lieberman-Warner could be viewed as "a blunt and imprecise instrument of fear – rather than one of persuasion – that will take us down a dangerous path and adversely affect U.S. manufacturers, farmers and consumers." She further added, "It is no accident that trade ministers in Bali unanimously agreed that trade restrictions run the risk for tit-for-tat retaliation and even an all-out trade war where no one wins and everyone loses."

Without international participation, global concentrations of greenhouse gases will continue to increase, even if America were to nearly eliminate its emissions. According to the International Energy Agency, global energy demand will grow by more than half over the next quarter of a century, with coal use rising most in absolute terms. China and India will contribute more than 40% of the increase in global energy demand to 2030 based on current trends and around 60% of the global emissions. For instance, in 2015 car sales in China will overtake the U.S. as car ownership jumps to 140 per 1000 people from 20 today. China oil imports will reach 13mb/d in 2030. From an emissions standpoint, capacity additions (largely from coal fired power stations) in the next decade will lock in technology and largely determine emissions through 2050 and beyond.

Laffer and Winegarden speak to this issue, stating that "the failure to achieve universality in a global warming policy will greatly reduce its effectiveness and yet will not significantly reduce its costs."[29] Passing Lieberman-Warner, without international accompaniment or restrictions set by the United States, will only be an act of symbolism. Recent studies have revealed that unilateral American action on climate change will do nothing to reduce global $CO_2$ concentrations. A chart issued by the EPA on three previous cap-and-trade bills of the 110th Congress have showed that without international action to curb greenhouse gas emissions, the Senate bills would do little to nothing in changing world concentrations (see figure 1).

[29] Laffer and Winegarden, p. 16

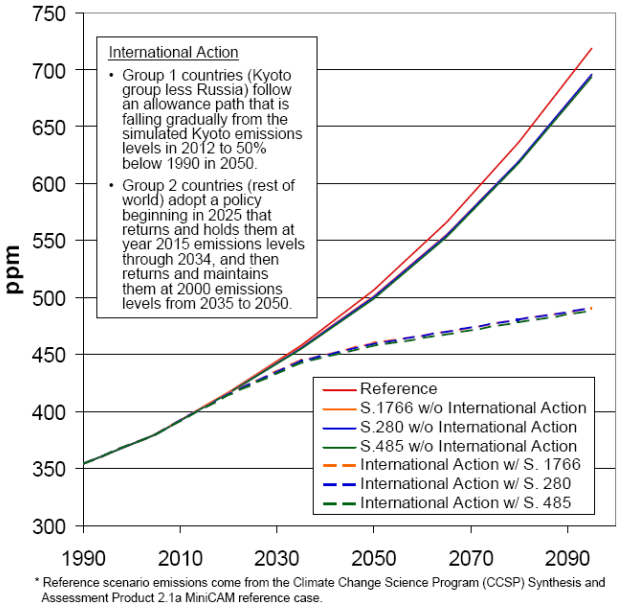



Figure 1: EPA graph of global $CO_2$ concentrations with and without international action[30]

## Energy Security Threatened

With rising costs of coal, natural gas, and other fuels, American energy security has been seriously threatened. Wall Street has made adjustments to its investments in utilities because of the threat of emissions caps. Three of the biggest investments banks, Citigroup Inc., J.P. Morgan Chase & Co., and Morgan Stanley have decided to require that utilities, seeking financing for its plants, return the investment under strict government regulated emissions caps. An article from The Wall Street Journal cited that both Environmental Defense and the Natural Resources Defense Council worked with the banks to develop the standards.[31]

With the reduction of domestic coal use, utilities' initial reactions will be to turn to less carbon intensive natural gas as the preferred fuel. The shift to natural gas will increase demand over current use and drive up prices, as well as necessitate the need for more domestic production which the bill does not address. CRA International estimates that natural gas prices will rise 15%-20% by 2015 alone. Since the natural gas crisis started in late 2000, America has lost 18.5% of all manufacturing jobs, or 3.2 million jobs. High natural gas costs played a significant role in those job losses. Higher energy prices mean job losses will continue because natural gas prices are cheaper in other countries.

[30] EPA Analysis of Bingaman-Specter Request on Global CO2 Concentrations, October 1, 2007. *U.S. Environmental Protection Agency, Office of Atmospheric Programs.*
[31] Ball, Jeffrey. "Wall Street Shows Skepticism Over Coal" *The Wall Street Journal*. February 4, 2008.

Unfortunately, natural gas is not the only low emission energy source that is burdened with restrictions rather than harnessed to help lower the costs of climate change legislation to consumers.

Nuclear power is the world's largest source of non-emitting energy by far. Nuclear energy provides 74% of our nation's non-emitting electricity and prevents the emission of 700 million metric tons of carbon each year. And that's only here in the U.S. Worldwide, nuclear energy prevents the emissions of more than 2 billion metric tons of carbon dioxide each year. Even the Progressive Policy Institute acknowledged this fact: "Lawmakers should acknowledge nuclear power's potential not only to reduce undue reliance on natural gas, but also help combat climate change and clean up the air."[32] Clearly, any serious effort to address climate change must encourage the expanded use of nuclear energy, yet this bill fails to do so.

Of the several analyses that have been conducted on S. 2191, one result is increasingly certain: reductions in carbon are contingent on the construction of extensive numbers of new nuclear plants. Each of these analyses may vary in their assumptions, but the results of each analysis show that significant new nuclear development is necessary to achieve the emissions reductions mandated by S. 2191. The table below shows this common result as the number of nuclear plants (1000 megawatts each) required by 2030 to meet the carbon reduction mandates in the bill:

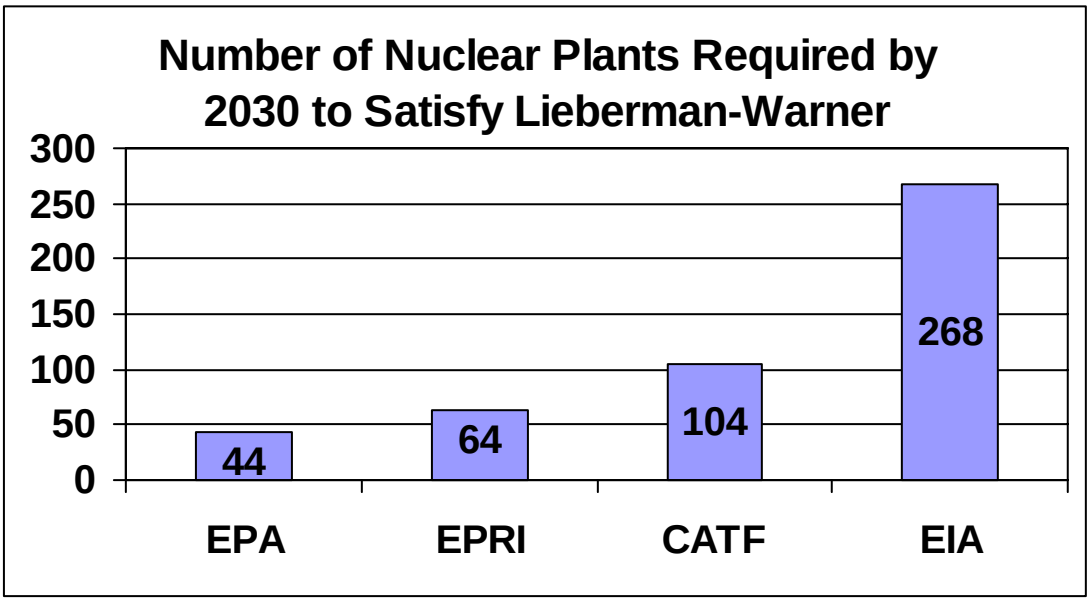
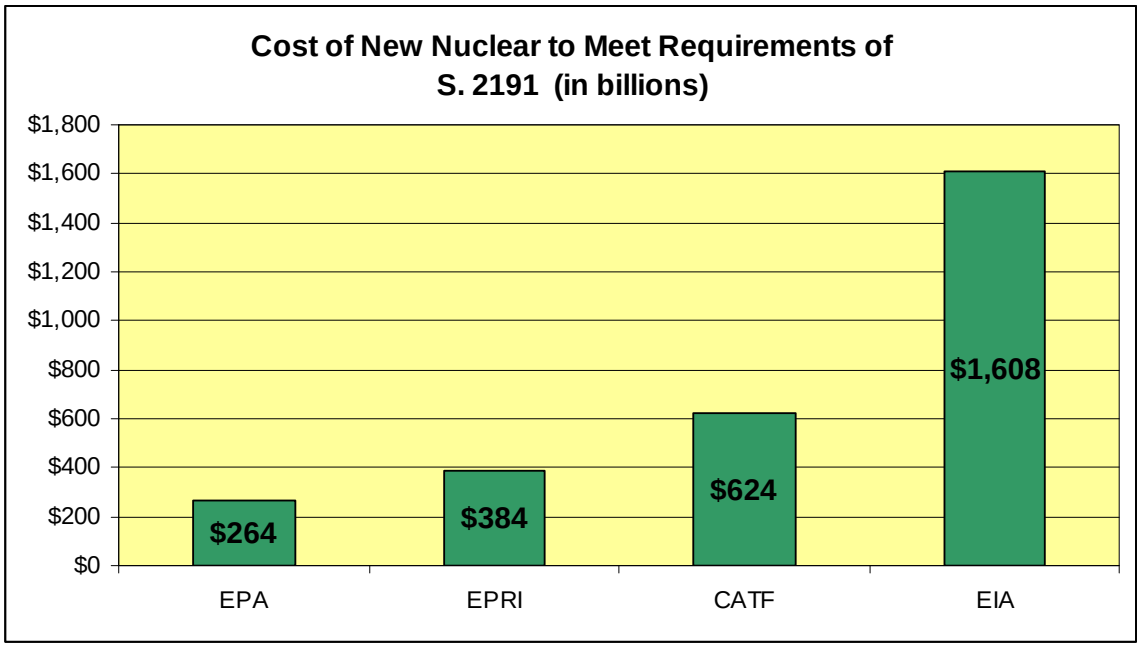



Figure 2: EPA: Environmental Protection Agency
EPRI: Electric Power Research Institute
CATF: Clean Air Task Force
EIA: Energy Information Administration

[32] Mazurek, Jan "A New Clean Air Strategy" *Progressive Policy Institute*, Policy Report, December 2005.

EIA's analysis further showed that merely limiting the construction of new nuclear plants dramatically increased allowance costs and electricity costs, while decreasing reductions in carbon emissions. This clearly indicates that nuclear energy is the key to reducing carbon emissions and mitigating the costs of any such effort. However, the investment necessary to fund such dramatic construction is staggering. According to the Nuclear Energy Institute, building the 268 plants indicated by EIA's analysis would likely cost $1.6 trillion (including financing costs). The Electric Power Research Institute's projection of 64 new plants by 2030, which is considered an extremely optimistic goal by industry experts, would require the industry to finance approximately $384 billion. Companies looking to build just one or two plants may need financing equal to half of their total market capitalization. CEO's will not gamble the health of their companies if the financial risks are too high or if political support is shaky. Loan guarantees will be critical to providing a stable financing platform to support this level of investment.




Furthermore, the timeframe necessary to accomplish such a massive construction effort is highly unrealistic. For example, the analysis done by the Clean Air Task Force (CATF) – a study often cited by proponents of Lieberman-Warner – assumes that 104 gigawatts of new nuclear generation must be in operation by 2030 just to make the bill's objectives feasible.[33] CATF characterizes this expansion as "entirely plausible" even though the industry hasn't licensed or begun construction of a new plant since the 1970s. The CATF assumption means the industry would have to build 6.9 gigawatts per year when construction rates in the 1980s and early 1990s averaged 3.3 gigawatts per year. Even the EPA's more modest modeling indicates a need for 44 gigawatts of new nuclear by

[33] Clean Air Task Force, The Lieberman-Warner Climate Security Act—S. 2191 A Summary of Modeling Results from the National Energy Modeling System. February 2008.

2025, suggesting a construction rate of 4.4 gigawatts per year, 33% higher than relevant history.

Since September of last year, nine applications have been filed with the NRC for 15 new reactors, the first of which may begin operating in 2016 at the earliest. Up to nine more applications are expected to be filed within a year. If all of these projects were licensed and built, the total generating capacity would be approximately 33 gigawatts: far short of even EPA's modest projection.

**Conclusion**

The Lieberman-Warner bill is set to be one of the most costly pieces of legislation ever. Senator Joseph Lieberman has even acknowledged that his bill will put a strain on the nation's economy. The Senator conceded that the Lieberman-Warner global warming cap-and-trade bill would cost "hundreds of billions of dollars" to the electrical and industrial sectors of the economy.[34] The environmental community has acknowledged this fact as well. Speaking at a hearing on Lieberman-Warner, Dr. Jonathan C. Pershing of the World Resources Institute conceded that "The cap-and-trade system will create uneven costs across the economy."[35]

This legislation will cripple the national economy while destroying jobs and raising electricity, heating, and gas costs to every single family in the country. Lieberman-Warner will leave the country more dependent than ever on importing energy and will place the nation at a competitive disadvantage to developing countries. There is a path to cleaner air, energy security, and American prosperity. That path involves investment incentives to energy efficiency, well-funded research and development, and an open mind about all sources of electric generation including nuclear and the further exploration of natural gas. Unfortunately, this bill provides none of these provisions and takes America down the wrong path.

[34] Senator Joseph Lieberman, Statement for the Senate Committee on Environment and Public Works, November 1, 2007.
[35] Dr. Jonathan C. Pershing, testimony before the Senate Committee on Environment and Public Works, November 8, 2007.

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