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The Economic Impact of Waxman–Markey

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Representatives Henry Waxman (D–CA) and Ed Markey (D–MA) proposed yet another global warming bill following the tradition of McCain–Lieberman, Lieberman–Warner, Dingell–Boucher, and others. Though the proposed legislation would have little impact on world temperatures, it is a massive energy tax in disguise that promises job losses, income cuts, and a sharp left turn toward big government.

The result is government-set caps on energy use that damage the economy and hobble growth—the very growth that supports investment and innovation. Analysis of the economic impact of Waxman–Markey projects that by 2035 the bill will:

- Reduce aggregate gross domestic product (GDP) by $7.4 trillion,
- Destroy 844,000 jobs on average, with peak years seeing unemployment rise by over 1,900,000 jobs,
- Raise electricity rates 90 percent after adjusting for inflation,
- Raise inflation-adjusted gasoline prices by 74 percent,
- Raise residential natural gas prices by 55 percent,
- Raise an average family's annual energy bill by $1,500, and
- Increase inflation-adjusted federal debt by 29 percent, or $33,400 additional federal debt per person, again after adjusting for inflation.

Waxman–Markey Basics. The original draft bill discloses a basic two-pronged approach to cutting greenhouse gas emissions. The first is a set of mandates forcing efficiencies independent of any cost-benefit calculations on the part of industry or consumers. These mandates include a requirement for low-carbon motor fuels and a tenfold increase in the production of electricity from renewable sources.

The second prong is cap and trade. With cap and trade, absolute limits on total emissions of greenhouse gases are established. Before those in a covered sector can emit a greenhouse gas, they need to have the ration coupons (also known as pollution permits or allowances) for each ton emitted. Because the ration coupons will have a value, and therefore a cost, cap and trade becomes a tax on fossil fuels and the energy they generate.

The intent of cap and trade is to impose a cost on CO_2 and allow businesses and consumers to adapt as well as they can to this new cost. The mandates of the first parts of Waxman–Markey are counterproductive because they force choices on the economy that might not be the most efficient and inexpensive ways to cut CO_2. That said, this paper's analysis looks at only the cost of a simple cap-and-trade approach. Consequently, the economic impact estimates reported here will likely be lower than the economic cost of cap and trade hobbled further by mandates.

This paper, in its entirety, can be found at:
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Baseline Assumptions. To establish a benchmark against which to measure the impact of Waxman–Markey, this paper assumes an economic recovery from the current recession and the subsequent smooth type of economic growth that all major economic forecasts must make. A more rapid economic recovery would make the costs of meeting the CO_2 restrictions even greater.

What Is in the Baseline. The baseline energy projections come from IHS Global Insight's latest *U.S. Energy Outlook*.[1] The highly respected and widely used Global Insight U.S. Macroeconomic model was used to prepare the estimates used in this paper as well as data from Global Insight's November, 2008 long-term model, which makes economic forecasts through 2038. Use of the November 2008 macroeconomic model aligned this paper's economic forecasting with Global Insight's October 2008 energy baseline.[2] The baseline assumptions include:

- A near doubling of light-vehicle fuel efficiency by 2030,
- Non-hydro renewable electricity reaching 17 percent by 2030—a more than five-fold increase, and
- 36 billion gallons per year of ethanol production, with 20 billion gallons of cellulosic ethanol.

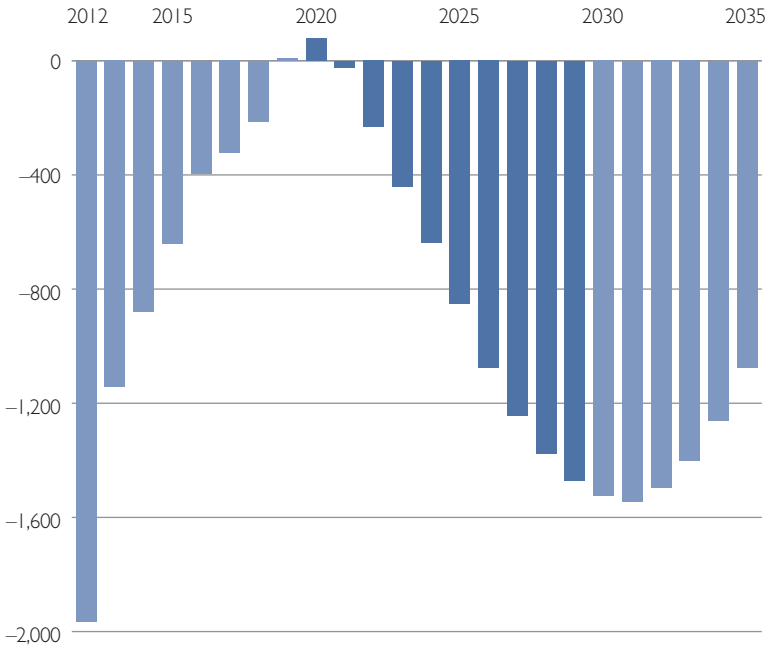
Though these goals and mandates will be costly to meet (if even they can be met), the costs will occur with or without Waxman–Markey. Therefore, these costs are not counted in this paper's economic impacts of the Waxman–Markey bill.

Addressing Offsets. Waxman–Markey provides emitters with an option to substitute some allowances with certified CO_2 reductions by other emitters that are not covered by emissions caps. These offsets can be purchased from domestic or international sources. On the surface, Waxman–Markey's treatment of offsets is generous to the point of eliminating constraints on fossil-fuel CO_2 for decades. However, closer examination reveals multiple catches, costs, and impossibilities.

For instance, the Environmental Protection Agency (EPA) determined that domestic offsets simply do not exist anywhere near the magnitude nominally allowed by Waxman–Markey.[3] Driven, perhaps, by the concern that existing offset programs suffer from fraud, Waxman–Markey includes significant hurdles for those wishing to use offsets.[4] The EPA administrator "may at any time, by rule,

Total Job Losses Due to Waxman–Markey Climate Change Bill

Annual Change in Employment, in Thousands of Jobs



Source: Heritage Foundation calculations based on the Global Insight U.S. Macroeconomic model.

Chart 1 • WM 2438 heritage.org

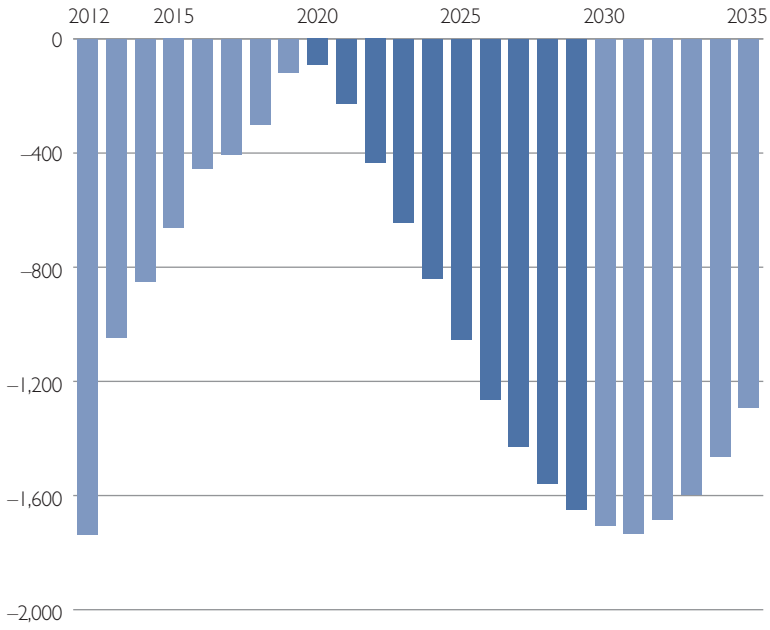
1. IHS Global Insight, *U.S. Energy Outlook 2008*.
2. Though this paper employs the model and data developed by Global Insight, the analysis is the authors and should not be interpreted as representing that of IHS Global Insight.

remove a project type from the list." Further, the administrator shall establish "policies to assign liability and responsibility for mitigating and fully compensating for reversals." That is, using an offset may leave a firm with an open-ended liability. Finally, offsets require 1.25 tons of CO_2 reduction for each ton of offset credit.

This analysis assumes that allowances will increase the effective CO_2 caps by 15 percent. Recent prices of offsets for the Kyoto program have been between 10 and 15 euros per ton. Given the exchange rate, discount (the 1.25 ton reduction per ton of credit), and likely increase in demand, the initial price of $20 per ton is conservative. After the first five years, this price increases by the expected rate of inflation.

Private Employment Job Losses Due to Waxman–Markey Climate Change Bill

Annual Change in Employment, in Thousands of Jobs



Source: Heritage Foundation calculations based on the Global Insight U.S. Macroeconomic model.

Chart 2 • WM 2438 heritage.org

Carbon Capture and Storage. One hope for those who want to see continued access to U.S. coal reserves is carbon capture and storage (CCS) technology. The intent is to remove CO_2 from the effluent before emission. This captured CO_2 would be compressed into liquid form or injected into deep saline aquifers and deep ocean waters or used for enhanced oil recovery.

Serious obstacles to large-scale commercial deployment of CCS have yet to be overcome. CCS requires roughly one-third more energy to generate electricity than processes without CCS. Viable commercial CCS does not yet exist, though the bill does provide funding for three commercial-scale pilot projects. Along with the technological challenges, a massive pipeline system must be created virtually from scratch. But it is the political and environmental obstacles that may prove most daunting. CCS must be proven effective in preventing moderate leaks over long periods of time. In addition, community concern with the possibility of catastrophic local release of large quantities of CO_2 could provide the ubiquitous not-in-my-backyard opposition that bedevils many waste disposal problems.

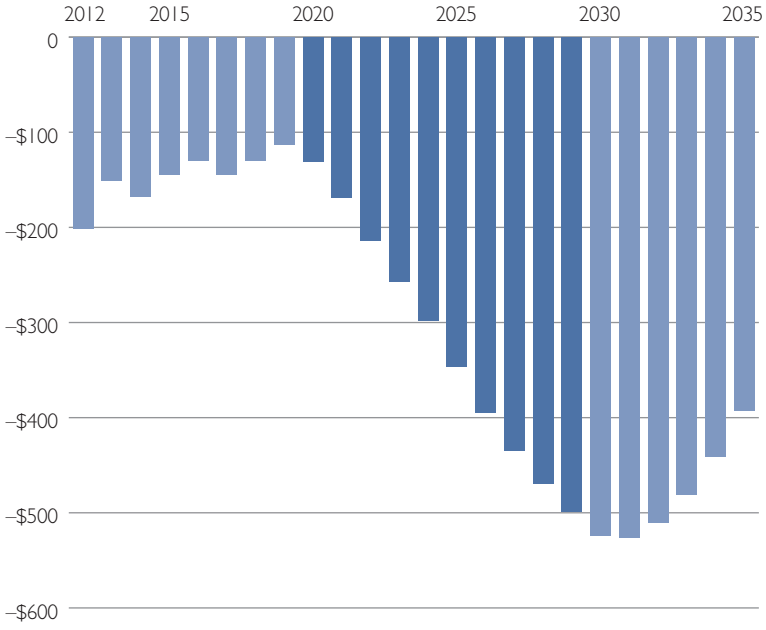
3. U.S. Environmental Protection Agency, Office of Atmospheric Programs, "EPA Preliminary Analysis of the Waxman–Markey Discussion Draft," April 20, 2009, pp. 3, 14, at *http://www.epa.gov/climatechange/economics/pdfs/WM-Analysis.pdf* (May 8, 2009).
4. For discussions about the concerns with the effectiveness of offsets, see Joseph Romm, "A Good Reason We Shouldn't Love Trees, at Least Not in This Case," Grist.org, July 2, 2007, at *http://www.grist.org/article/the-first-rule-of-carbon-offsets-no-trees* (May 8, 2009); Patrick McCully, "Kyoto's Great Carbon Offset Swindle," RenewableEnergyWorld.com, June 9, 2008, at *http://www.renewableenergyworld.com/rea/news/article/2008/06/kyotos-great-carbon-offset-swindle-52713* (May 8, 2009); Michael Wara, "Is the Global Carbon Market Working?" *Nature* 445, February 8, 2007, pp. 595–596.

This paper's analysis of this legislation assumes that CCS will not be available in significant quantities for the years analyzed.

Renewable Energy Goals. The renewable energy targets already established by current laws will be challenging to meet. This paper assumes no additional renewable energy beyond these significant baseline increases of 36 billion gallons of renewable motor fuels and the existing state-level renewable electricity requirements. The current baseline projects 18.3 gigawatts of increased nuclear power capacity. The history of nuclear construction in the 1960s through the 1980s shows that a much more aggressive nuclear build-out is technologically possible, but political and other factors make a "nuclear renaissance" highly uncertain. Therefore, the study assumes no additional nuclear capacity beyond the baseline increase.

Change in GDP Due to Waxman–Markey Climate Change Bill

In Billions of Dollars, Adjusted for Inflation (2009)



Source: Heritage Foundation calculations based on the Global Insight U.S. Macroeconomic model.

Chart 3 • WM 2438 heritage.org

Results of The Heritage Foundation's Analysis. It is no surprise that the economy responds to cap and trade as it would to an energy crisis. The price on carbon emissions forces energy cuts across the economy, since non-carbon energy sources cannot replace fossil fuels quickly enough. Energy prices rise; income and employment drop.

The current recession diminishes near-term projections for aggregate economic activity. As this activity drops, so does energy use. Though a recession is bad news, it has the effect of moving the economy closer to the energy cuts needed to meet the emissions targets. Nevertheless, the income (GDP) losses are over $150 billion out of the gate and average nearly $300 billion per year. As the economy recovers and the caps tighten, the detrimental effect of cap and trade gets more and more severe. In the worst years, GDP losses exceed $500 billion per year.

Waxman–Markey will cause higher energy costs to spread throughout the economy as producers everywhere try to cover their higher production costs by raising their product prices. Consumers will be most directly affected by rising energy bills. Even after adjusting for inflation, gasoline prices will rise 74 percent over the 2035 baseline price. Compared to the baseline, residential natural gas consumers will see their inflation-adjusted price rise by 55 percent. Because of its reliance on coal, the cost of electricity will rise by 90 percent—again after adjusting for inflation and in addition to what the price would have been anyway in 2035.

As President Obama pointed out, cap and trade can work only when energy prices "skyrocket." To force consumer-energy cutbacks, the prices need to rise to painful levels. The analysis shows the results of this strategy. By 2035:

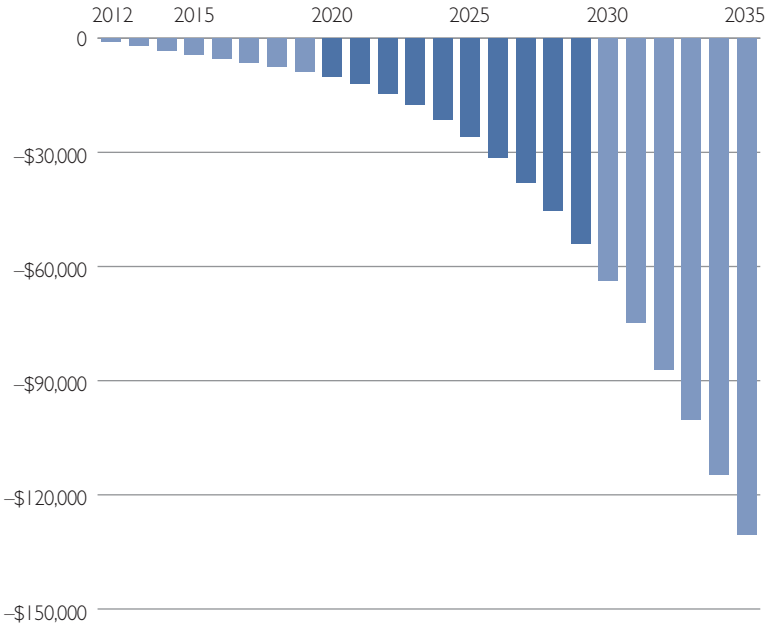
- The typical family of four will see its direct energy costs rise by over $1,500 per year.
- Pain at the electric meter causes consumers to reduce electricity consumption by 36 percent.

Even with this cutback, the electric bill for a family of four will be $754 more that year and $12,933 more in total from 2012 to 2035.

- The higher gasoline prices will have forced households to cut consumption by 15 percent, but a family of four will still pay $596 more that year and $8,000 more between 2012 and 2035.
- In total, for the years 2012–2035, a family of four will see its direct energy costs rise by over $24,000. These inflation-adjusted numbers do not include the indirect energy costs consumers will pay as producers are forced to raise the price of their products to reflect the higher costs of production. Nor does the $24,000 include the higher expenditure for such things as more energy-efficient cars and appliances or the disutility of driving smaller, less safe vehicles or the discomfort of using less heating and cooling.
- As the economy adjusts to shrinking GDP and rising energy prices, employment takes a big hit. On average, employment is lower by 844,000 jobs. In some years cap and trade reduces employment by more than 1.9 million jobs.
- The negative economic impacts accumulate, and the national debt is no exception. Waxman–Markey drives up the national debt 29 percent by 2035. This is 29 percent above what it would be without the legislation and represents an additional $33,400 per person, or more than $133,000 for a family of four. To reiterate, these burdens come after adjusting for inflation and are in addition to the $450,000 per family of federal debt that will accrue over this period even without cap and trade.

Household Debt Due to Waxman–Markey Climate Change Bill

Cumulative Additional Federal Debt Burden for a Family of Four, Adjusted for Inflation (2009)



Source: Heritage Foundation calculations based on the Global Insight U.S. Macroeconomic model.

Chart 4 • WM 2438 heritage.org

Is It Worth It? Is all of this economic pain justified by gains against global warming? Waxman–Markey raises energy prices by 55–90 percent. The higher energy prices push unemployment up by 844,000 jobs on average with peaks over 1,900,000. In aggregate, GDP drops by over $7 trillion. The next generation will inherit a federal debt pumped up by $33,000 per person. All of these costs accrue in the first 25 years of a 90-year program that's temperature impact climatologists have calculated to be only hundredths of a degree in 2050 and no more than two-tenths of a degree at the end of the century.[5]

5. For instance, see Chip Knappenberger, "Climate Impacts of Waxman-Markey (the IPCC-based arithmetic of no gain)," MasterResource, May 6, 2009, at *http://masterresource.org/?p=2355* (May 12, 2009).

The impact of Waxman–Markey on the next generation of families is thousands of dollars per year in higher energy costs, over $100,000 of additional federal debt (above and beyond the unconscionable increases already scheduled), a weaker economy, and more unemployment. And all for a change in world temperature that might not be noticeable.

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