Global Climate Coalition

A voice for business in the global warming debate

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DOE's forecasting unit says

Higher energy prices, cuts in fuel use may be needed to comply with the Kyoto Protocol

"Higher energy prices and the impact of the higher prices on the broader U.S. economy will encourage consumers to reduce energy consumption by between 4 and 18 percent in 2010"
--EIA Report

Economic Hardship

Nearly every study projects economic harm to the strong U.S. economy if the Kyoto Protocol enters into force. These are some examples.

DOE Argonne National Lab concluded policy restrictions on six energy intensive industries – chemicals, petroleum refining, paper, iron and steel, aluminum and cement -- in developed countries, but not in their less developed trading partners, would result in significant adverse impact. The main effect would be

Following is the text of an EIA news release:
WASHINGTON, Oct. 9 - Significant increases in energy prices may be required for the United States to meet the reductions in greenhouse gas emissions agreed to in December 1997, according to a report released today by the Energy Information Administration (EIA).

This study, *Impacts of the Kyoto Protocol on U.S. Energy Markets and Economic Activity*, was undertaken at the request of the United States House of Representatives Committee on Science to analyze the impacts of the Kyoto Protocol on U.S. energy markets and the economy.

EIA examined six cases with different reductions in energy-related carbon emissions. In the case with the highest target, carbon emissions are reduced by an average of 122 million metric tons a year relative to the projected baseline emissions between 2008 and 2012, which allows an increase of about 24 percent above 1990 levels. For the lowest target, emissions are reduced on average by 542 million metric tons relative to the baseline, or 7 percent below 1990 levels. Each case implicitly assumes different levels of international actions, offsets, or sinks, but these are not quantified. To reduce energy-related carbon emissions, EIA added a carbon price to the price of delivered energy fuels based on their carbon content. EIA concludes:

- The costs of the Kyoto Protocol will depend on the amount of permits that can be purchased internationally, on projects to reduce emissions or develop sinks in other countries, and on domestic actions to reduce other gases and develop sinks. These actions may reduce compliance costs by offsetting reductions in energy-related carbon emissions.
- The carbon price required to reduce U.S. energy-related carbon emissions ranges from $67 to $348 per metric ton in 2010 (1996 dollars). In the more stringent reduction cases, the carbon price will decline by 2020 as more efficient and lower-carbon technologies become economically available and penetrate later in the forecast horizon. Due to the carbon price, the average price of gasoline could be between $0.14 and $0.66 per gallon higher in 2010 than it would be otherwise, and electricity prices could increase by 20 to 86 percent.

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to redistribute output, employment and emissions from developed countries to developing countries that are not required to participate.

WEFA, Inc. estimated the Kyoto Protocol will result in ...Total annual output reduction of $300 billion or $2,700 per family ...Loss of more than 2.4 million jobs ...A competitive advantage for advanced developing countries that are not required to participate ...Sharply higher prices for gasoline (65 cents per gallon) and gas and electricity (double).

Charles River Associates estimated the Protocol will cause price increases for natural gas (46%), electricity (23%) and heating oil (45%). Energy consumption will need to be reduced by about 30%.

CONSAD Research estimated that by the year 2010, more than 3.5 million jobs will be lost, mostly in the aluminum, chemicals, mining, paper, petroleum and steel industries. CONSAD estimated a loss of $359 billion in Gross Domestic Product (GDP). Energy prices would rise by 59% causing an $87 billion reduction in disposable income, or $875 per household.

Two Administration studies predict lesser impacts, but they assume circumstances that do not exist, will be very difficult to implement, or inevitably may never occur.

» The DOE five national labs study concluded a national investment in energy efficiency and clean technologies can reduce U.S. emissions and produce energy savings that roughly will equal costs. The study concluded emissions reductions can be achieved through technology

- Higher energy prices and the impact of the higher prices on the broader U.S. economy will encourage consumers to reduce energy consumption by between 4 and 18 percent in 2010, relative to the baseline, by reducing the demand for energy services and purchasing more efficient equipment. However, energy consumption will increase between 2010 and 2020 as the economy grows and carbon prices decline. Shifts from more to less carbon-intensive fuels will also occur.
- Because coal is the most carbon-intensive of the fossil fuels, the price of coal will rise dramatically -- between 153 and 800 percent in 2010 relative to baseline projections, and coal use will be reduced by between 18 and 77 percent, particularly for electricity generation. Electricity generation from coal may be reduced to between 2 percent and 74 percent of today's level by 2020.
- Electricity generation by coal will be replaced by natural gas and renewables and also by the continued operation of many existing nuclear plants. Increases in natural gas consumption for electricity generation will more than offset reductions in consumption by other consumers. Natural gas consumption may increase between 2 and 12 percent in 2010 over the baseline.
- Electricity generation by renewable sources will increase as more technologies become economic with higher fossil fuel prices. Renewables could capture between 11 and 22 percent of the generation market by 2020, relative to 9 percent in the baseline, with more than half supplied by renewables other than hydropower. Major increases are expected in wind and biomass gasification and also in geothermal generation.
- Nuclear generation's decline will slow as it becomes economic under higher carbon prices to extend the operating life of existing plants rather than retire them, raising nuclear generation between 8 and 20 percent in 2010, compared to the baseline.
- Petroleum consumption will be lower than it would be without carbon reductions but will likely remain above current levels because most petroleum is used for transportation where there are limited economic options to shift to less carbon-intensive fuels. Gasoline consumption could be between 3 and 18 percent lower in 2010 compared to the baseline, and jet fuel consumption lower by between 1 and 16 percent.
- When energy costs rise, other factors of production including labor and capital become relatively less expensive. Energy price increases encourage adjustments in which labor and capital are substituted for more expensive energy. In the process, some economic potential

improvements without increasing the nation's energy bill.

» The President's Council of Economic Advisors Chair, Janet Yellen, said the Kyoto Protocol will have a "modest" impact on the economy. Using such assumptions as efficient international trading schemes and complete developing country participation, the analysis included increases of only 2-4 cents in gasoline prices, and a cost of only about $100 per family per year.

is lost which could reduce the "potential" GDP from a growth rate of 2.0 percent per year between 2005 and 2010 in the baseline to 1.9 percent a year.

- Recycling carbon revenues back to consumers will offset some of the negative impacts on the economy. In the baseline, the actual gross domestic product (GDP) grows at an average rate of 2.0 percent a year between 2005 and 2010. As a carbon price is introduced, the average growth could be reduced to 1.6 percent a year, assuming a social security tax rebate, or to 1.2 percent a year, assuming a personal income tax rebate. As carbon prices decline and the economy adjusts, GDP rebounds and the average growth rate from 2005 and 2020 is only slightly less than in the baseline.
- The loss in GDP, plus the funds used to purchase permits internationally, represents the total cost to the economy. Over the period 2008 to 2012, the annual average total cost ranges from $77 billion (1992 dollars) to $338 billion, depending on the level of carbon reductions and the recycling assumptions. This cost is relative to a total economy of $7 trillion in 1996, growing to about $9.5 trillion in 2010, and about $11 trillion in 2020 (1992 dollars).

EIA also analyzed cases with alternative assumptions about higher and lower economic growth, faster and slower technology change, and the construction of new nuclear generation plants.