

## UJAE Summary

### Energy Information Agency (EIA) study:

#### **Analysis of the Impacts of an Early Start for Compliance With the Kyoto Protocol (July 1999)**

The EIA is an independent statistical and analytical agency within the Department of Energy. The analysis was undertaken at the request of the U.S. House of Representatives Committee on Science.

Major provisions of the Kyoto Protocol, which affect the burden of the treaty on the U.S., have not yet been agreed upon. These include international emissions trading among the developed countries; rules for accounting of activities which can absorb carbon dioxide (sinks) related to agriculture, land use, and forestry activities; and the rules for acquiring emission credits from projects undertaken in developing countries.

In response to these uncertainties in the final impact of the treaty, the EIA created six carbon reduction cases ranging from seven percent below 1990 levels to 24 percent above. The first study published in October 1998 assumed that the lower emission levels would be phased in over a three year period beginning in 2005. This study uses a longer phase in period beginning in 2000 which results in lower carbon permit prices and employment impacts.

**1. Seven percent below 1990 levels:** The U.S. must meet the full requirements of the Kyoto Protocol and reduce carbon dioxide emissions 7% below the 1990 level. This is an annual reduction of 542 million tons of carbon or a 30 percent reduction below the levels that will occur in 2010 without the Protocol.

**2. Three percent below 1990 levels**

**3. Stabilization at 1990 levels**

**4. Nine percent above 1990:** In this case emissions can rise to 9% above the 1990 level. Since population and incomes will grow, this is a reduction of 325 million tons or 18% below the level that will occur in 2010 without the Protocol. This case is very close to the DRI Case 2. In this EIA case, the U.S. must meet 60% of its carbon reduction requirement by shifting the energy mix or by curtailing fossil fuel use. DRI's Case 2 was based on meeting 58% of the requirement by shifting the mix or reducing fossil fuel use.

**5. Fourteen percent above 1990**

**6. Twenty-four percent above 1990**

In each of the carbon reduction cases, the target is achieved on average for the first commitment period, 2008 through 2012. The target is assumed to be phased in over an eight year period beginning in 2000.

This summary table below is limited to two cases, meeting the full requirements of Kyoto at 7% below 1990 and the 9% above 1990, which is similar to the DRI Case 2.

## Impacts of an Early Start (2000) for Compliance with the Kyoto Protocol

| Early Start                          | (Most likely case)* |                 |                   |                   |
|--------------------------------------|---------------------|-----------------|-------------------|-------------------|
|                                      | 1990 +9%            |                 | 1990 -7%          |                   |
|                                      | 2005                | 2010            | 2005              | 2010              |
| Carbon Price per ton                 | \$125               | \$149           | \$270             | \$316             |
| Drop in carbon emissions (%)         | -12.3%              | -18.1%          | -23.0%            | -30.2%            |
| <b>GDP (billions of dollars)</b>     | <b>-\$136</b>       | <b>-\$66</b>    | <b>-\$253</b>     | <b>-\$117</b>     |
| GDP %                                | -1.6%               | -0.6%           | -3.0%             | -1.2%             |
| Consumer buying                      | -\$62               | -\$17           | -\$114            | -\$9              |
| Consumer buying %                    | -1.1%               | -0.3%           | -2.0%             | -0.1%             |
| Price of gasoline                    | 21%                 | 22%             | 43%               | 45%               |
| Price of electricity to residences   | 34%                 | 41%             | 68%               | 73%               |
| Price of natural gas to residences   | 35%                 | 52%             | 78%               | 103%              |
| Energy consumption                   | -8%                 | -12%            | -13%              | -16%              |
| Sales of light duty vehicles (units) | -710,000            | -250,000        | -1,360,000        | -320,000          |
| Trade balance (billions of dollars)  | -\$28               | -\$77           | -\$51             | -\$182            |
| <b>Employment</b>                    | <b>-1,595,000</b>   | <b>-675,000</b> | <b>-3,018,000</b> | <b>-1,004,000</b> |

\*This is close to the DRI Case 2 considered the most likely case in the DRI study.

The complete EIA study can be found at <http://www.eia.doe.gov/>