

## Report Summary

### *Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region*

#### **Overview:**

On behalf of 11 northeast and mid-Atlantic states, the Northeast States for Coordinated Air Use Management (NESCAUM) conducted an analysis of the economic impacts of a Clean Fuels Standard (CFS) designed to reduce the carbon intensity of fuels used for transportation in the region by 5% to 15% over the next 10 to 15 years.

The report suggests that transitioning to lower carbon fuels such as electricity, advanced biofuels and natural gas could help reduce greenhouse gas (GHG) emissions, enhance energy independence, reduce vulnerability to price swings in imported oil, and strengthen the region's economy.

#### **Key Findings:**

A Clean Fuels Standard could:

- reduce transportation-related GHG emissions by 5–9% by replacing gasoline and diesel with lower carbon fuels;
- reduce gasoline and diesel use by 12–29% (4–9 billion gallons annually) in year 10 when the program is fully implemented;
- enhance energy security by replacing transportation fuels made from imported oil with domestic alternatives such as advanced biofuels, electricity and natural gas (gasoline and diesel would still remain dominant fuels in the region);
- achieve net savings on transportation costs when oil prices are high, with near parity at low oil price levels; and
- create a small but positive impact on jobs, gross regional product, and disposable person income within the region under a wide range of possible compliance scenarios.

#### **Analytical Design:**

Economic impact estimates for the regional CFS were generated by comparing a number of policy scenarios to reference cases that depict “business-as-usual” (BAU) under low and high oil price projections. The reference cases relied on price forecasts from the U.S. Energy Information Administration’s Annual Energy Outlook 2010 that predict low and high retail gasoline prices in 2022 at \$3.79 and \$5.50 per gallon, respectively (*note that on August 1, 2011, the average U.S. retail price for regular grade gasoline was \$3.71*). This analysis utilized a variety of established and new analytic tools and models.

#### **Results:**

##### **1: More Domestic Fuels, Less Imported Oil**

A CFS could result in a more diverse and lower carbon fuel mix that includes advanced biofuels, electricity and natural gas in addition to traditional fuel sources. Since nearly all of the alternatives to gasoline and diesel are assumed to be domestically produced, a CFS could provide important energy security benefits in the northeast and mid-Atlantic region. When a 10% target is achieved, cleaner fuels could provide 13–27% of the energy needed to power the region’s cars and trucks. Over the 10 year period analyzed, a CFS could achieve a cumulative reduction in gasoline and diesel use in the region of 14 to 40 billion gallons. The analysis suggests that higher oil prices will result in a greater diversification of transportation fuels.

## **2: Reductions in Greenhouse Gas Emissions**

The transportation sector accounts for one-third of total regional GHG emissions in the region. The predicted reduction in transportation-related GHG emissions of 5–9% from the CFS could help states achieve their statutory obligations and other commitments to reduce GHG emissions.

## **3: Program Costs and Benefits**

Published estimates suggest that the cost of many low carbon fuels would be less than that of the gasoline and diesel they replace. Modeling conducted as part of this analysis found that the cumulative net benefit to the region could be \$22 to \$41 billion over 10 years, not including the potential health benefits associated with improved air quality. Assuming low oil prices, a clean fuels program could have a small net benefit or small net cost, depending on the scenario analyzed.

Other costs and benefits:

- consumers could save money by purchasing lower carbon fuels, some of which are expected to be less expensive than gasoline and diesel (especially if oil prices are high);
- producers of low carbon fuels could increase revenues and profits through sales;
- regulated fuel providers would incur compliance and administration costs; and
- participating states would incur program implementation costs.

## **4: Macroeconomic Impacts**

The analysis suggests that a clean fuels standard could have a positive benefit on job growth, gross regional product, and disposable personal income. However, the percentage changes for any of the macroeconomic metrics are very small relative to the BAU forecast of a \$4.9 trillion regional economy in 2022. This analysis suggests that achieving a 10% CI reduction target could provide the following regional economic benefits:

	<b>High Oil Prices</b>	<b>Low Oil Prices</b>
<b>Increased number of jobs (year 10)</b>	20,000 – 50,000	9,000 – 40,000
<b>Change in Gross Regional Product (10 yr. total)</b>	\$17 – \$29 billion	\$7 – \$20 billion
<b>Change in Disposable Personal Income (10 yr. total)</b>	\$7 – \$15 billion	\$2 – \$10 billion

## **5: Impact on Industry Sectors**

The analysis suggests that a CFS could have direct and indirect impacts on a range of industries. Utilities, construction, manufacturing, forestry, agriculture, and other sectors that supply the goods and services needed to produce and deliver alternative fuels benefit under all scenarios. Modeling suggests that the petroleum subsector could lose value and some jobs, but these losses represent under one-tenth to one-half of one percent relative to current employment levels in that sub-sector. The health care and finance/insurance sectors accrue indirect benefits from a CFS as households retain more income from reduced spending on transportation fuels and invested it elsewhere in the economy.

### **Conclusion:**

This analysis suggests that a CFS could reduce GHG emissions from the transportation sector, promote a more diverse fuel mix that would diminish the region's reliance on imported oil, and help protect consumers from price volatility in the global oil market. The results of this study indicate that the higher the price of gasoline and diesel, the greater the savings would be for consumers. The CFS can result in economic growth and job creation under a wide range of possible market responses to the program's carbon intensity reduction requirements.