

## **SPECIAL REPORT ON EXTERNALITIES**

### **MAY 1992**

#### **PURPOSE**

The term "externalities" generally refers to those incidental costs or benefits resulting from an economic activity that are not directly reflected in the market price for the goods or services produced by the activity. This report examines the approaches to the application of externalities by state regulatory agencies.

This report reviews the economic theory of externalities and the action of various states in applying externalities to the regulatory processes involving electricity production. The report assesses the impact on coal markets of various state approaches to the application of externalities. Also, it is noted that both positive and negative externalities exist simultaneously in any economic activity, and one should consider both sides of the equation if externalities are to be utilized at all. Finally, the economic and social impacts of putting coal miners out of work are assessed.

#### **FINDINGS**

A survey of state activities was conducted in May and April of 1992. At that time, four states had monetized externality values, 18 states were using a variety of qualitative methods for evaluating externalities, and four states had considered externalities and rejected their implementation. States are considering penalties for negative environmental externalities applied to electric production facilities during the permitting process for new facilities and when prolonging the life of existing facilities, reviewing power sales agreements for electric power imported into the state, and establishing rules for electric power dispatch. These regulatory processes are conducted at the state, regional, and municipal levels. The imposition of externalities often is based on a specific set of objectives, i.e., emission reductions without careful and complete consideration of the impact on the economic, business, and social well-being derived from the electric or other service which has been impacted.

Externalities could affect the coal market in any one of or all of the following three ways:

- Eliminating coal as an option when new electric power plants are being planned;
- Drastically reducing the use of coal in existing coal plants by adopting externality penalties for electric power dispatching and plant life extensions; or
- Placing restrictions on importing coal-derived electric power from other states.

If externalities are applied to new coal-fired electric power plants, projections for construction of such facilities would be reduced by 58 gigawatts with a corresponding decrease in coal production of about 171 million tons per year in the year 2010. If dispatch based upon externalities is widely adopted, then coal production would eventually start to decline as older coal units are retired, and a reduction of more than 380 million tons per year would be expected from projections for the year 2010.

The effect of externality programs on coal-related employment under a worst case scenario could be devastating. In 1990, the coal industry employed 131,000 miners to produce 1.029 billion tons of coal, or about 128 direct mining jobs for every 1 million tons of coal produced. Based upon recently developed multiplier estimates, there are approximately 6.8 jobs related to each direct coal mining job in the United States. A loss of 400 million tons per year, therefore, translates to about 350,000 jobs lost.

The economic and social effect of this job loss is compared to the effects of the 1973-1974 recession when the annualized unemployment was 948,000 and the incurred social cost was estimated at \$43 billion (1980).

Reducing the role of coal in meeting the energy needs of the nation will directly affect coal producers and transporters and consuming sectors of the economy. More important, the use of more expensive energy options to replace coal will increase the cost of all goods and services produced in the United States and will increase imports of oil and natural gas.

## **RECOMMENDATIONS**

- The Secretary of Energy should continue to emphasize to the states the need for extreme caution and thorough study of all facets of externality issues, including economic impact, before implementing specific externality programs.
- The Secretary of Energy is urged to continue actions which promote public understanding of the potential cost and adverse impacts of externalities if they are improperly used.

The Department of Energy has a coal outreach program which supports the above recommendations and which should be continued.