

## **MEMORANDUM**

TO: Docket

FROM: EPA, Clean Air Markets Division

SUBJECT: Regulatory Flexibility Act Analysis for Utility MACT Proposed Rulemaking

DATE: December 15, 2003

### **Background:**

For purposes of assessing the impacts of the rule on small entities, small entity is defined as:

- (1) A small business according to Small Business Administration size standards by the North American Industry Classification System (NAICS) category of the owning entity. The range of small business size standards for electric utilities is 4 billion kilowatt-hours of production or less.
- (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and
- (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

### **Notes on Analysis:**

This analysis used the 4 billion kilowatt-hours cut-off for defining small governmental jurisdictions and not-for-profit enterprises. The 4 billion kWh cut-off for municipal utilities should represent a conservative estimate, since a population of less than 50,000 would not likely have a power generation facility generating over 4 billion kWh. The 4 billion kWh cut-off was also used to approximate dominate in its field for a non-profit enterprise.

### **Summary of Analysis:**

Results projected for coal-fired plants at least partially owned by small entities in 2010:

- Annualized Cost of Incremental Hg Controls to Small Entities: \$19 million
- Annual Generation Revenues for All Small Entities: \$1,471 million (Assumes average wholesale price of \$35/MWh)
- Share of Inc. Hg Control Cost in Generation Revenues: 1.3%
- Annualized Cost of Incremental Hg Controls to All Firms: \$1.6 billion
- Share of Incremental Control Cost to Small Entities as Share of All Firms: 1.2%

### **Methodology Used to Identify Small Entities**

The list of small entities was compiled based on the plant-level data from EGRID in the EGRDPLNT table for the year 2000. The plant level data was summarized to the utility-only electric generating company (EGC) level based on shares of ownership and yielded:

1. Total net generation by EGC (MWh) from all units
2. Total net generation by EGC (MWh) from units coal-fired units
3. Total net generation by type of unit (MWh) - Coal/Oil/Gas/Nuclear/Renewable
4. Total emissions by type of emission - SO<sub>2</sub>, NO<sub>x</sub>, Hg, CO<sub>2</sub>
5. Other Fields: Parent, Power Coordination Region, NERC Region

EGRID based generation and emissions by EGC on the utility listed as the primary owner. The assumption was made here that if a utility owns a share of a plant, then the utility owns a share of the generation. The data was therefore transformed to reflect the share of ownership by each entity in evaluating its status as a small entity and in allocating generation and emissions to EGCs by plant.

The resulting data set was reduced to small entities only by eliminating units as follows:

1. If total net generation from all units exceeded 4 billion kWh
2. If total net generation by the parent of the utility exceeded 4 billion kWh  
 [Note: This cut was made based on both a summary of parent-level data (before any cuts are made) and based on the EGRDPRO table for the year 2000.]
3. If total net generation came entirely from nuclear or renewable plants

A small entity is defined as 4 billion kWh for parent firms primarily engaged in the generation of electricity. Note that many of these entities likely have other utility functions such as gas, water, and wastewater that would imply a larger entity with greater financial resources. However, we have followed the SBA guidelines given the need for much greater data collection required for further evaluation of total business size and the focus on the electric generation component of these entities.

The small entities companies can be categorized as follows:

Cooperative	9	
Investor Owned Utility		3
Municipal	40	
Other	0	
State	1	
Subdivision	3	
Total	56	

These companies represent about 38 coal-fired plants.

The parsed results from IPM reflecting the incremental annualized cost of pollution abatement by plant and boiler were then compared to the list of small entities as follows:

1. If one of the owners of a plant (in the EGRDPLNT table) occurred in the list of small entities, then a plant was categorized as being associated with a small entity in its entirety (further analysis will refine this such that only the share of the incremental cost based on actual

ownership shares by small entities is reflected; the impact on the total cost is indefinite as plants experiencing positive and negative incremental costs may be affected).

2. If a plant is associated with a small entity and the plant encounters incremental annualized control costs (positive or negative) based on a plant code match between EGRDPLNT and IPM, then the incremental costs were added to the total annual cost to small entities. The result of this step over all plants is the total incremental cost to small entities reported.

3. The sum of total net generation for all small entities is summed and multiplied by an average wholesale electric price of \$35/MWh to determine wholesale generation revenues.

### *Methodology to Estimate the Annualized Cost to Small Entities*

#### *Annual Costs of Using ACI:*

The coal boilers that would install mercury controls under the MACT rule from IPM parsed results. From the list of boilers that put on the mercury control, we have isolated variables such as unique identifying number, state name, capacity (MW), EMF control, mercury retrofit percentage and annual fuel input (TBtu). By using capacity (MW) and the annual fuel input (TBtu), we have estimated the boilers' capacity factor. We have also assumed, for simplicity, that ACI provides 80% Hg removal efficiency and that the affected plants have a heat rate of 10 MMBtu/MWh; these assumptions will not materially affect the results, though they might in many cases result in costs that are slightly overstated.

We have then used these variables and the assumptions as inputs to "Hg Control Cost Screening Tool" to estimate the annual costs of installing and operating ACI. The Hg Control Cost Screening Tool is an Excel-based spreadsheet model that has been used in ICF's Technology Retrofit and Updating Model (TRUM) to estimate the annualized costs of ACI. The model calculates the Total Control Capital Cost (in \$/MW), the Fixed O&M cost (in \$/MW-year), the Variable O&M cost in (\$/MWh), and the total annual cost (in \$million) for the five coal grades. ICF then took the average of the costs for all five coal grades and multiplied them by mercury retrofit percentage to come up with the annualized costs of using ACI for each individual coal-fired boiler.