Statement of Southern Company to the
Clean Air Scientific Advisory Committee
NOx & SOx Secondary NAAQS Review Panel

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Good morning, my name is John Jansen, Principal Scientist for Southern Company, one of America's largest electric generators. Southern Company has serious concerns with the Environmental Protection Agency (EPA) staff's recommendations for revising the secondary national ambient air quality standards (NAAQS) for oxides of nitrogen (NOx) and oxides of sulfur (SOx).

The second external review draft of the Policy Assessment Document for this review confirms that the Agency has utilized an unnecessarily rushed process that is leading to an untenable result. In short, the recommended NAAQS is problematic for basic legal and scientific reasons, and it reflects fundamental, practical incompatibilities between the NAAQS program and the welfare effects EPA is seeking to address.

The Staff's effort to link ambient concentrations of NOx and SOx to the ecological indicator acid neutralizing capacity, or ANC, through the use of an Atmospheric Acidification Potential Index, or AAPI, is fraught with uncertainties that EPA staff grossly under-represent, and unsupported and grossly over simplified assumptions. Further, important parameters (e.g., base cation deposition) are ignored.

For instance, EPA staff acknowledges the need for a nationally uniform standard but has designed a standard that is anything but nationally uniform.

- It is not a uniform level of ambient NOx and SOx.
- A uniform level of AAPI (or, in reality, ANC) is not a pollutant in ambient air.
- A uniform level of ANC can be overly protective in some areas of the country (e.g., Florida lakes have thriving fisheries despite low pH and ANC due to low aluminum levels).

Moreover, many of the Agency staff's assumptions are invalid and further undermine the rationale for adopting a standard to address N and S deposition-related acidification. Deposition to NOx and SOx concentration ratios are, for instance, not constant. As the Agency continues to brush aside complications in pursuit of this standard (e.g., by using extensive spatial and temporal averaging to minimize the inherent variability of the ratio), it necessarily becomes increasingly divorced from reality and incompatible with other critical aspects of the standard.

For example, the definition of "area" over which the percentage of lakes meeting an acceptable ANC can easily conflict with this averaging defense.

While we understand the reason that EPA has decided to essentially exclude reduced nitrogen from the AAPI, doing so places the entire burden of "attaining" the NAAQS on SOx and NOx. This is another reason why the NAAQS program is ill suited for the task.

EPA staff is evaluating different bases for determining the "area" over which the percentage of water bodies meeting the ANC limit is assessed ranging from one population of the entire US to using sensitivity classes to eco-regions to "clusters." It remains unclear precisely how these various areas will be defined and how relevant ecosystem characteristics within them will be identified. It is also unclear how these various areas will relate to the designation of attainment and nonattainment areas. Further, how will these areas relate to the deposition to concentration ratios; one for the entire nation in the first approach? The size of the "area" has serious implications for how large and how serious the various uncertainties are as well as for implementation. What will be the role of the states in all of this complexity?

There are also considerable shortcomings in the data bases EPA is relying on. There are, for instance, few measurement data in the areas of interest to the Agency that provide NOx and SOx concentrations coupled with N and S deposition. While EPA has relied on CMAQ to produce this data, the performance of CMAQ and the reliability of its deposition calculations, as coupled in this NAAQS approach, cannot be evaluated without adequate data. There are similar uncertainties in the existence and representativeness of other data bases such as:

- the deposition of reduced nitrogen
- the various geological, soil, and vegetative cover factors relevant to N and S deposition and resulting ANC effects
- the water quality, quantity, and biotic resources for all water bodies in the US. What is the rationale for using 5,280 water bodies to represent the hundreds of thousands of lakes, streams, and rivers in the US?

None of these matters has been adequately evaluated.

The considerable gaps in the nation's air monitoring networks for NO_Y, NHx, SO_2, and SO_4, renders the existing network inadequate for assessing compliance with a secondary NOx/SOx acidification-based NAAQS. Indeed, a substantial amount of work will be required before adequate Federal Reference Methods (FRM) and Equivalence Methods (FEM) can be established. Because this draft of the Policy Assessment has not adequately defined the areas and acid sensitive ecosystems of concern, however, the conditions under which performance evaluation of the monitors should be conducted remains similarly undefined. Further, a standard taking an AAPI form will also likely require that the calculations necessary to determine compliance be included in whatever FRM EPA does eventually develop.

These examples illustrate that the NAAQS program is not an appropriate mechanism for regulating ecosystem acidification. The AAPI strains the parameters of the NAAQS program and more reasonable, alternative approaches should be investigated.