

Appendix IV-c. Impact of the NARSTO Emission Inventory Assessment

By

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NARSTO's Emission Inventory Assessment ¹ was published in August 2005. In planning the Assessment, a task that began in 2003, we envisioned that the Assessment would trigger a major change in priority and funding of measurement, data storage, and application programs. We also envisioned a commensurate leap in the quality, timeliness, and effectiveness of these programs.

Now, two years after its publication, we have attempted to examine the Assessment's impact in quantitative and qualitative terms. Based on the activities reported at the U.S. Environmental Protection Agency's (EPA's) Emission Inventory Conference in May 2007 at Raleigh, NC and the Air & Waste Management Association's (A&WMA's) Annual Conference and Exhibition in June 2007 in Pittsburgh, PA, the NARSTO Emission Inventory Assessment has definitely had an impact. Although the impact may not have been as great as desired or anticipated, tangible changes are observable and we can surmise that the NARSTO Emission Inventory Assessment contributed to the outcome. Here we examine the Assessment's impact in terms of the recommendations in the NARSTO Emission Inventory Assessment.

1. Reduce Uncertainties Associated with Emissions from Key Undercharacterized Sources – Activities are underway to improve the emission characterization of many key sources by industrial, academic, and governmental entities. Regarding emission factors, EPA has developed the Electronic Reporting Tool on the CHIEF web site (http://www.epa.gov/ttn/chief/ert/ert_tool.html), which provides streamlined linkage between emission testing and emission factor development. Further, emission factors and associated information are uploaded to the WebFIRE data base, which can calculate new emission factors and allow users to find emission factors for pollutant emissions from similar sources or processes. These and other revamps to the EPA Emission Factor Program are designed to update emission factors in a more timely and affordable manner. One encouraging announcement is the New York State Energy Research and Development Authority's (NYSERDA's) inclusion of "better characterization of currently poorly characterized sources" and other emission inventory enhancement activities in their Program Opportunity Notice 1179 (still open as of this writing), which is funded for \$2.5 million (www.nysesda.org).
2. Improve Speciation Estimates – EPA and Environment Canada have worked to update the data base of speciation profiles by source category. EPA has released, "SPECIATE

¹ "Improving Emission Inventories for Effective Air Quality Management Across North America -- A NARSTO Assessment" (NARSTO 05-001, August 2005). Available from NARSTO, _____.
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4.0 – Speciation Database Development Documentation, (EPA/600/R-06/161, November 2006).” This data base contains a significant enhancement and update to the previous version. Further, SPECIATE 4.1 has been drafted with profiles from Environment Canada which are based on data from their National Pollutant Registry. In addition, work is currently underway to enhance further the profiles for mobile sources which should appear in SPECIATE 4.2 sometime in 2008. .

3. Improve Existing and Develop New Emission Inventory Tools – One notable effort underway is EPA’s Office of Air Quality Planning and Standards (OAQPS) business process re-engineering effort to address the process and systems used for building the U.S. National Emission Inventory (NEI). There are four goals for this project:
 - A. Provide State, local and tribal governments with the tools necessary to submit quality assured data and provide access to EPA's database as the inventory is being developed.
 - B. Improve NEI development through the implementation of efficient and automated processes.
 - C. Shorten the NEI development cycle to 12 months.
 - D. Create a central web site for access to emissions inventory data.

Further, EPA continues to use the Emission Modeling Clearinghouse, which has been designed to support and promote emission modeling activities both internal and external to EPA. Through this site, the EPA intends to distribute emission model input formatted inventories based on the latest versions of its NEI databases. In addition to the emission data, this site is being used to document and distribute the EPA's latest versions of the ancillary files used to support the temporal, spatial, speciation, and projection of these emissions.

4. Quantify and Report Uncertainty – One activity undertaken to address this issue is preparation of the EPA’s “Emission Factor Uncertainty Assessment (February 2007, Review Draft, <http://www.epa.gov/ttn/chief/efpac/uncertainty.html>).” Other advancements include work by Dr. Chris Frey, a co-chair and coauthor of NARSTO Emission Inventory Assessment, whose sabbatical at focused on uncertainty quantification programs.
5. Increase Inventory Compatibility and Comparability –The Emission Modeling Clearinghouse, mentioned above, is one effort to help standardize inventories across North America. Activities are underway to merge Canadian, Mexican, and U.S. emission modeling datasets such that applications to utilize the data can do so without experiencing incompatibilities in the data across political boundaries.

6. Improve User Accessibility – An objective of EPA’s business process re-engineering effort as well as of the Emission Modeling Clearinghouse is to improve user accessibility to the data. However, the large size and complexity of the data sets and the frequent revisions and updates make this an ongoing challenge. Environment Canada, Mexico National Institute of Ecology, and the EPA have web sites to facilitate access to their data.
7. Improve Timeliness –EPA has committed to the NARSTO objective of preparing emission inventories on an annual basis in a 12 month period. Environment Canada has a similar objective. This signals a significant potential for the future. However, the current cycles remain very long. The EPA modeling platform is still based on 2002 data
8. Assess and Improve Emission Projections – The development of cost-effective control strategies is dependent on emission projections. Thus, this area needs attention commensurate with the other components of the emission inventory. EPA has updated this information for use in its regulatory activities including the Clean Air Interstate Rule and the Clean Air Mercury Rule. Further, the Section 812 Cost and Benefits Study includes prospective emission estimates, and this effort has invested considerable effort to determine the best forecast of emissions by source category.

This review of the impact of the Assessment does not capture the major development in emission inventories – Greenhouse Gases and Climate Change. At the EPA Emission Inventory Conference and at the A&WMA Annual Convention and Exhibition, emission characterization programs for greenhouse gases and global climate issues were prominent. For example, the Climate Registry (<http://www.theclimateregistry.org/>) is a collaboration between states, provinces and tribes aimed at developing and managing a common greenhouse gas emission data system with high integrity that supports greenhouse gas emission reporting and reduction policies for its member states and tribes and reporting entities. Although greenhouse gas emission inventories do not always use terms or approaches for estimating emissions in common with criteria and toxic air pollutant emission inventories, we should watch for areas to synergize the activities of these programs as there are many common objectives.

Following presentation on the NARSTO Emission Inventory Assessment at the NARSTO Executive Assembly, it was proposed that “regional” emission inventory meetings be sponsored to prioritize their needs for improving emission inventories. Such a meeting was held in Ontario, Canada in May 2007 and another is being planned for the Mid-Atlantic and Northeastern U.S. in Fall 2008. This workshop is being sponsored by the Mid-Atlantic Regional Air Management Association (MARAMA), the Northeast States for Coordinated Air Use Management (NESCAUM), NARSTO, and the New York State Energy Research and Development Authority (NYSERDA). Contact Ellen Burkhard of NYSERDA (egb@nyserda.org) for additional information.

In summary, it appears that the recommendations of the NARSTO Emission Inventory Assessment are being addressed to some extent, and that seeds sown by the Assessment are bearing fruit now. We hope these seeds will continue to be productive into the future.

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