

# MARAMA

Mid-Atlantic  
Regional Air  
Management  
Association



Delaware Dept. of Natural Resources and Environmental Control, Air Quality Mgt. Section.  
North Carolina Dept. of Environment and Natural Resources, Division of Air Quality  
Virginia Dept. of Environmental Quality, Division of Air Program Coordination  
New Jersey Dept. of Environmental Protection, Division of Air Quality Mgt.  
West Virginia Dept. of Environmental Protection, Division of Air Quality  
Pennsylvania Dept. of Environmental Protection, Bureau of Air Quality  
Maryland Dept. of the Environment, Air & Radiation Mgt. Admin.  
Allegheny Co. Pennsylvania Health Dept., Air Quality Program  
Philadelphia Dept. of Public Health, Air Management Services  
District of Columbia Dept. of Health, Air Quality Division

711 West 40<sup>th</sup> Street, Suite 312 ~ Baltimore, MD 21211-2109

Phone 410.467.0170 ~ Fax 410.467.1737 ~ [www.marama.org](http://www.marama.org)

## MARAMA Residential Wood Combustion Project

July 11, 2006

### PURPOSE:

In October 2005, MARAMA signed a contract with OMNI Environmental Services to 1) recalculate the emissions from residential wood combustion using up-to-date data and methods and 2) analyze potential control measures. The pollutants considered in this project are all criteria and hazardous air pollutants. Initial work on this project is funded by an agreement with the Maryland Department of the Environment, with additional support from the Regional Haze grant for the remainder of the project.

### TECHNICAL OVERSITE COMMITTEE:

David Fees of Delaware  
Jack Sipple of Delaware  
Karen Gee of Pennsylvania  
Nancy Herb of Pennsylvania  
Ray Papalski of New Jersey  
Roger Thunell of Maryland

Lisa Rechter, NESCAUM  
Doug Austin of Ozone Transportation  
Commission  
Susan Wierman of MARAMA  
Angie Crenshaw of MARAMA

### STATUS:

OMNI has completed the Work Plan, Quality Assurance Project Plan, and Activity Data Documentation and Database. Members of the technical committee reviewed drafts and submitted comments, which were reflected in the final documents. Some of the data submitted to date is presented below. OMNI submitted the Draft of the Emissions Inventory Technical Support Document (Technical Memorandum #2) on June 16<sup>th</sup> and it is currently out for review and comment by the MANE-VU Technical Support Committee Emissions Inventory Work Group.

### RESULTS:

The graphs below are a comparison of the emissions found in the MANE-VU Emissions Inventory and the OMNI Residential Wood Emissions Inventory. The graphs highlight and summarize the emissions on a state by state basis for the major pollutants.

(Reference: OMNI Task 4, Technical Memorandum #2.)

With some exceptions, the emissions calculated by OMNI are generally much lower than the current MANE-VU inventory. MARAMA staff is working to determine whether our members agree with the OMNI calculations.

Figure 1. Preliminary Comparison of Carbon Monoxide Residential Wood Emissions by State (Tons)

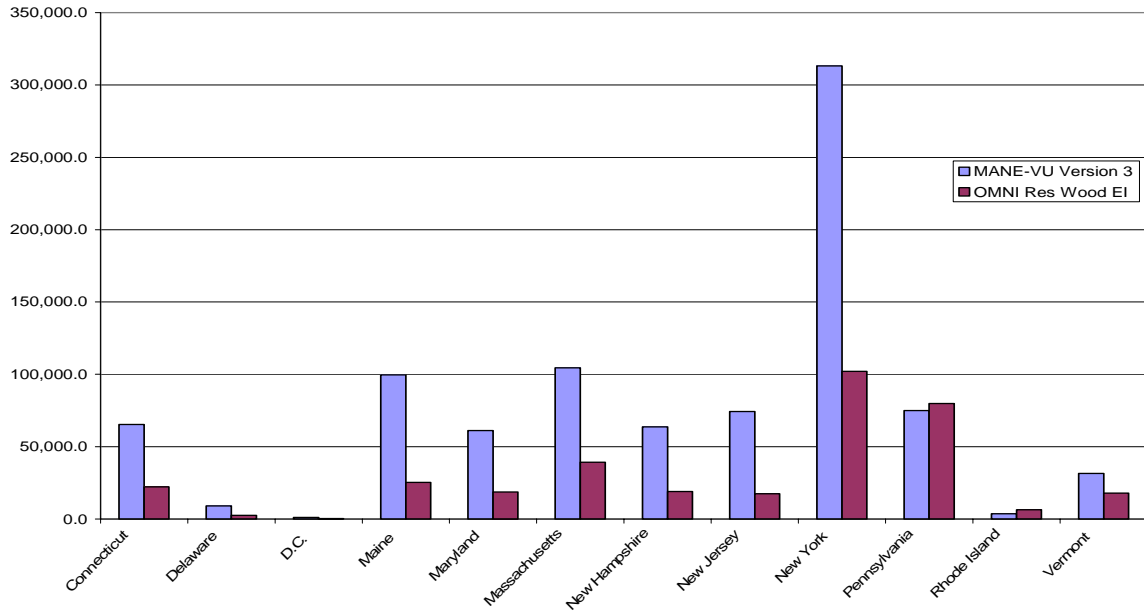


Figure 2. Preliminary Comparison of Volatile Organic Compounds Residential Wood Emissions by State (Tons)

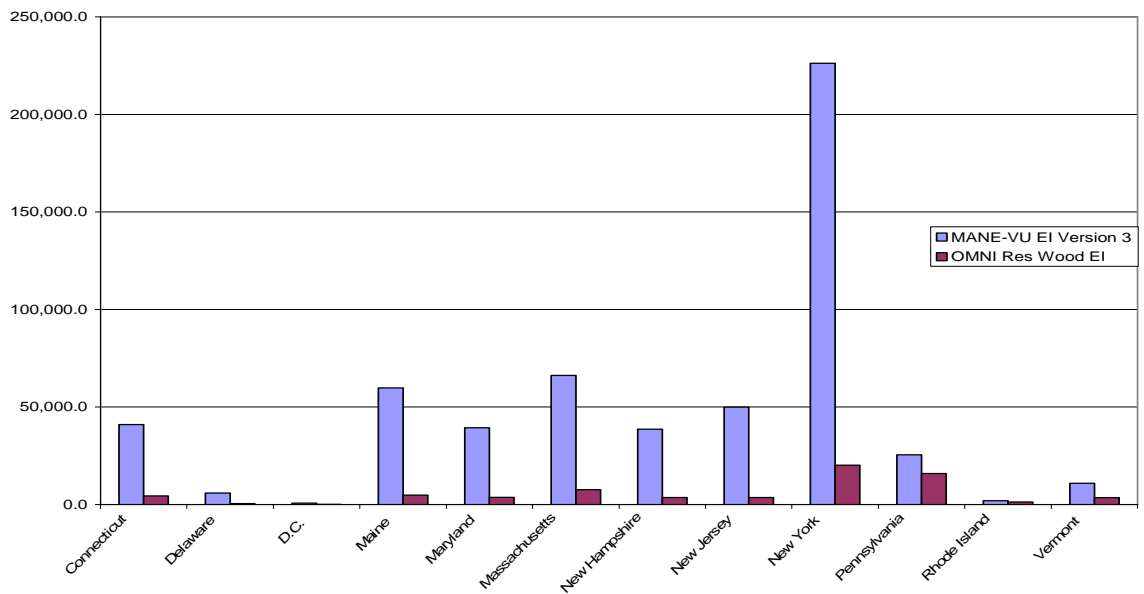


Figure 3. Preliminary Comparison of Particulate Matter 2.5 Residential Wood Emissions by State (Tons)

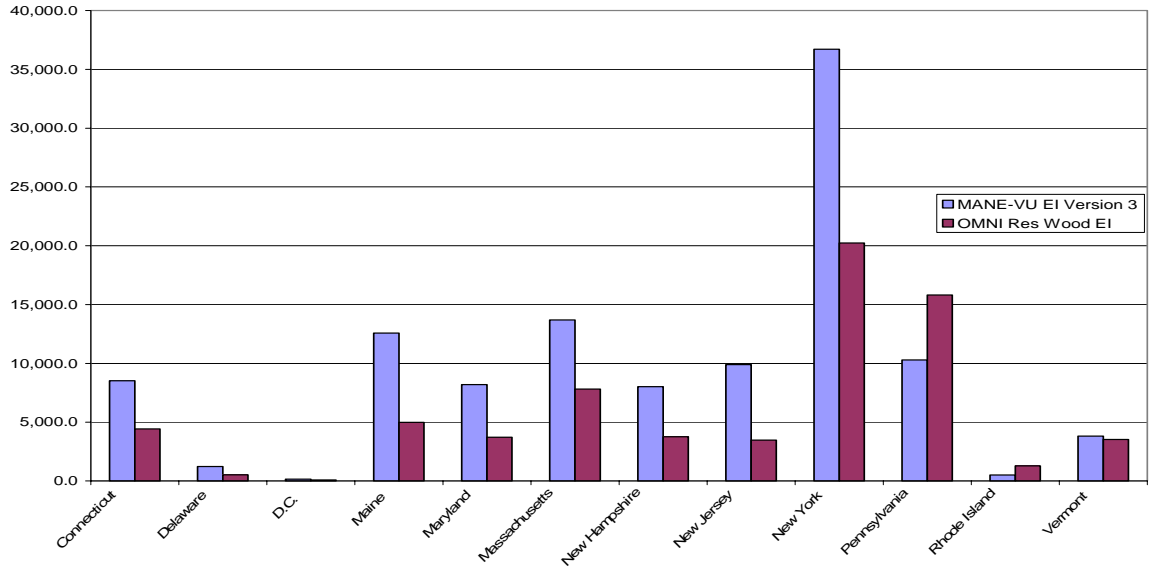


Figure 4. Preliminary Comparison of Particulate Matter 10 Residential Wood Emissions by State (Tons)

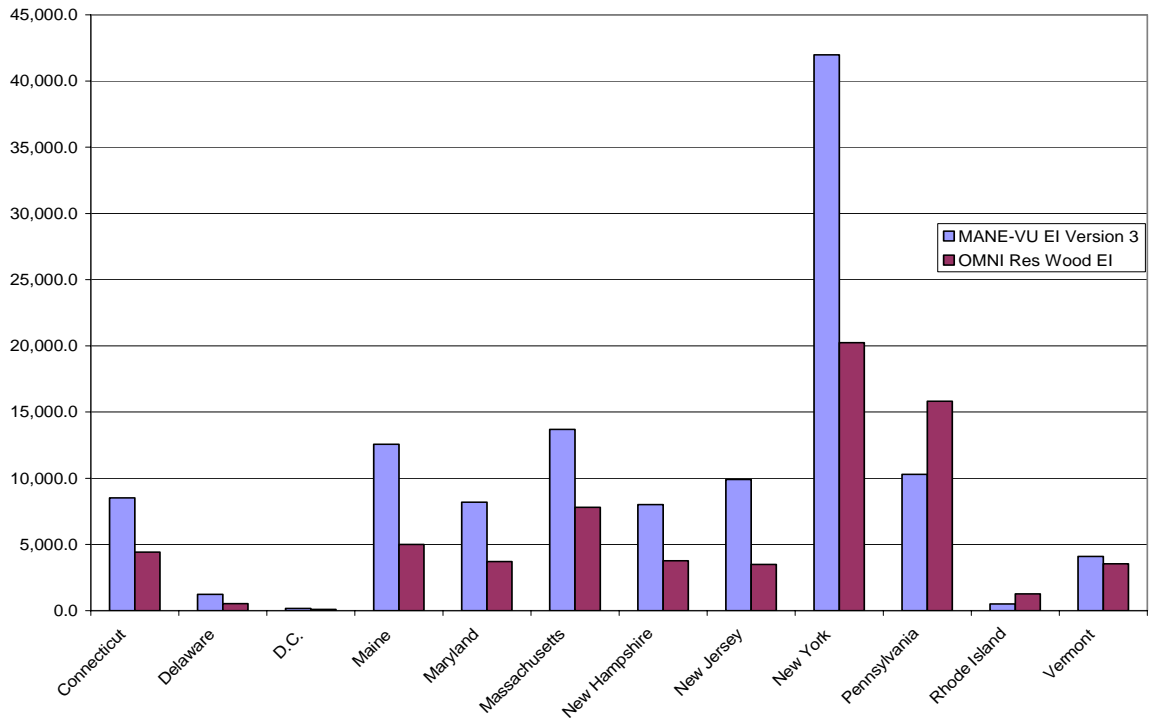


Figure 5. Preliminary Comparison of Nitrogen Oxides Residential Wood Emissions by State (Tons)

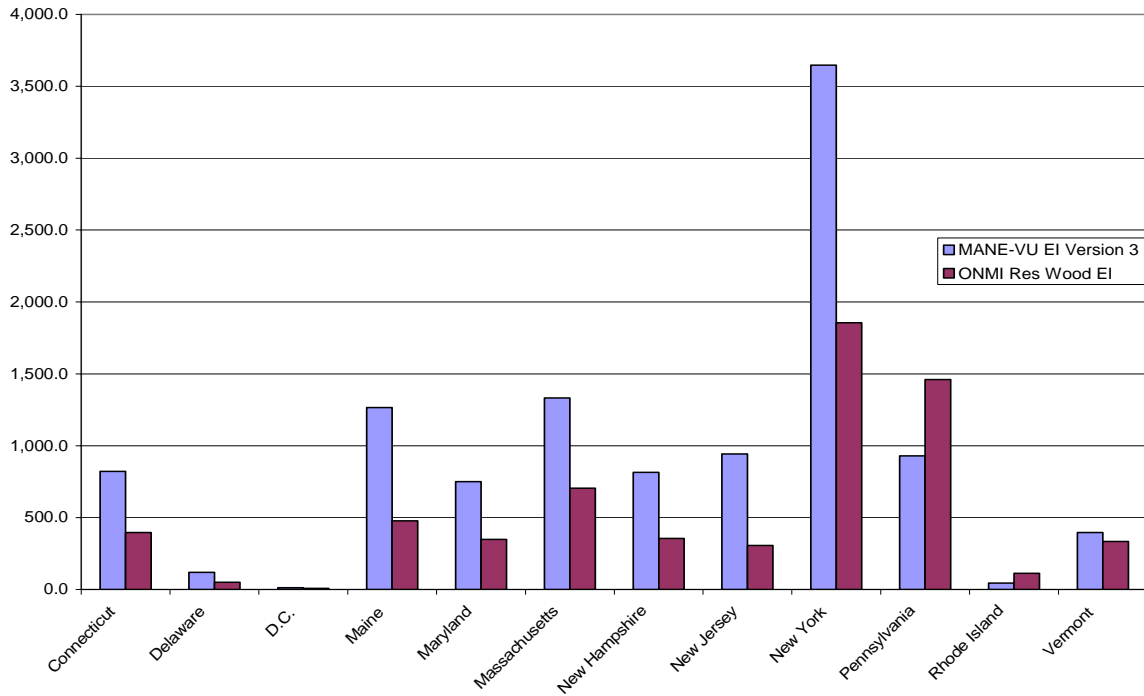


Figure 6. Preliminary Comparison of Ammonia Residential Wood Emissions by State (Tons)

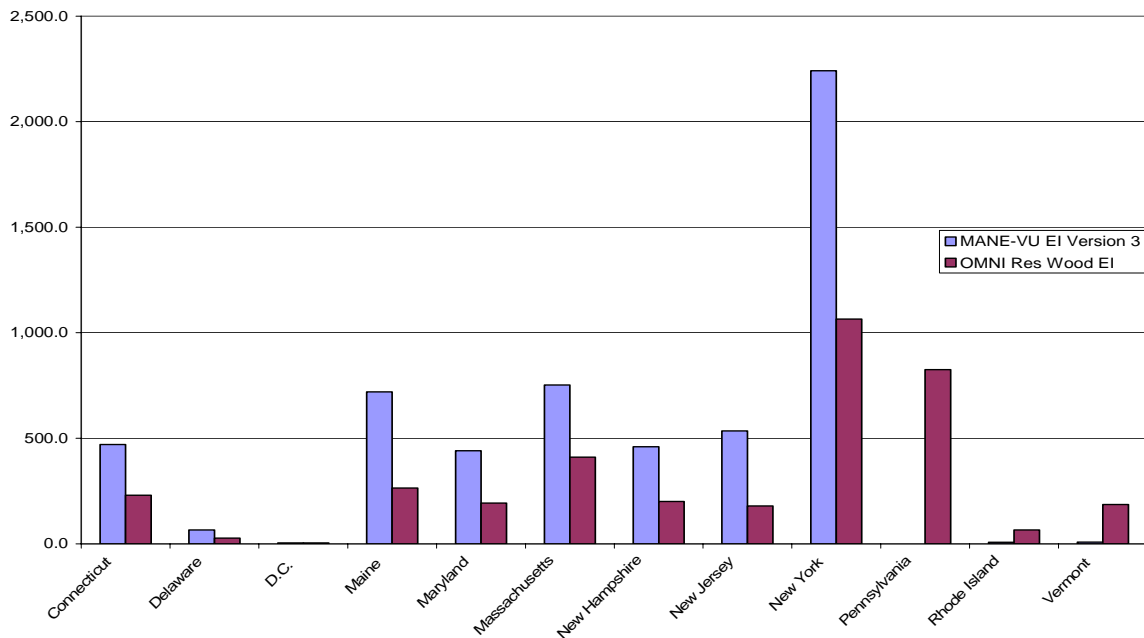
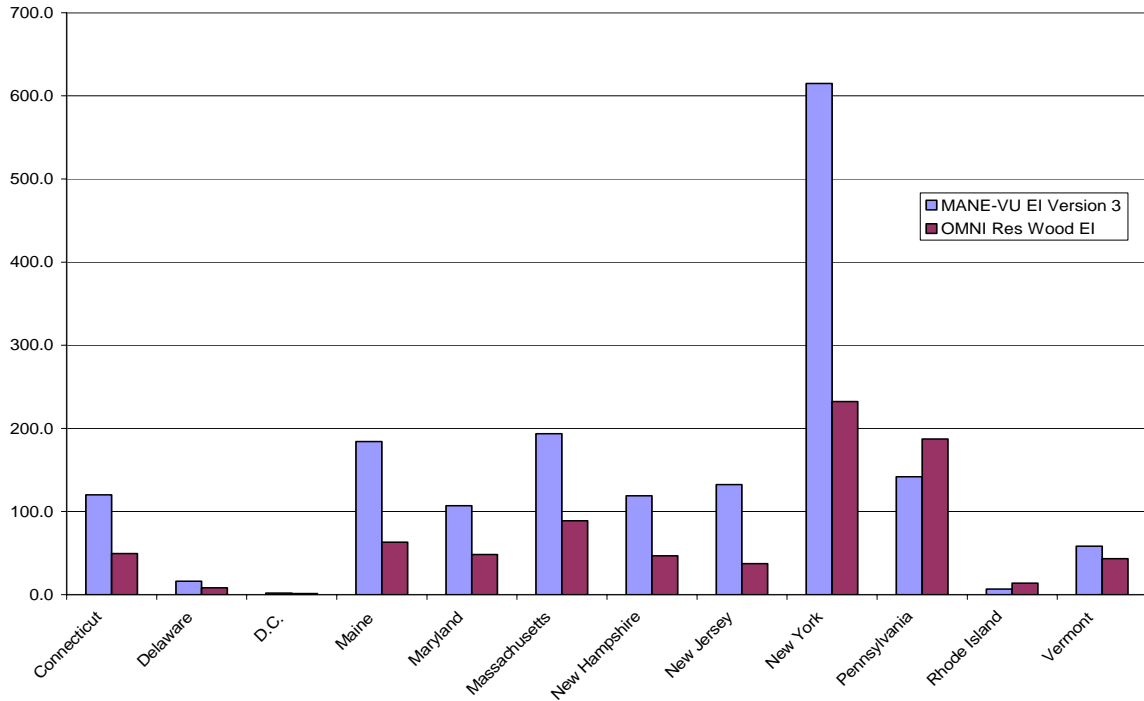


Figure 7. Preliminary Comparison of Sulfur Dioxide Residential Wood Emissions by State  
(Tons)



**NEXT STEPS:**

*Calculation of Emission Inventory from RWC Survey Data*

A final copy of Emissions Inventory TSD (Technical Memorandum #2) will be prepared by OMNI. This document will describe the complete analysis of RWC emissions for MANE-VU states, including a description of the derivation of the emission factors used and a reference list. Emission inventory data will be compiled by equipment type and at the state, county, and HDD zone levels. Example calculations and input data will be provided. Appropriate comments from MANE-VU members will be incorporated into the final memorandum and data will be provided.

The RFP specifically identified concerns with VOC emissions, so Technical Memorandum #2 contains a brief discussion with references on the character of VOC emitted from RWC, the effect of measurement methodology on reported VOC levels, the confusion between regulatory and scientific definitions of “VOC,” atmospheric transformation/vaporization of organic compounds emitted in particulate form, and formation of secondary organic aerosols from VOC.

### *Control Measure Analysis*

OMNI will contact the key state individuals identified by MARAMA for the purpose of summarizing control activity to date for each MANE-VU member and determining if there are any state-specific control measures to be emphasized in the analysis.

Technical Memorandum # 3 will summarize potential emissions reductions for each county, state and Washington D.C. for each control option, in addition the total cost and a cost benefit analysis will be provided. The draft memorandum is expected to be available by July 14<sup>th</sup>, MANE-VU members will review the document, and appropriate comments will be incorporated into the final memorandum. Example calculations of emission reductions, costs and cost benefits will be provided.

### *Final Report*

OMNI will prepare a final report integrating into a unified, concise report the results of the project and documenting methods used to calculate the activity data, emissions, and emissions control analyses. The report will include all calculations and all data used to calculate emissions will be referenced in the report and provided on a CD along with hard copies of the report. The due date of the Residential Wood Combustion Final Report is September 22, 2006. The period of performance for this contract ends December 2006.

### **CONTACT INFORMATION:**

Susan Wierman, MARAMA (swierman@marama.org) or (410) 467-0170  
James Houck, OMNI (houck@omni-test.com) or (503) 643-3788