The National Emission Inventory (NEI) and the Emission Inventory System (EIS)
The National Emissions Inventory

- EPA’s National Emission Inventory
  - Inventory of criteria pollutants (and precursors) and hazardous air pollutants (HAPs)
  - Published tri-annually by EPA’s Office of Air Quality Planning and Standards
  - Developed in partnership with State, Local, and Tribal air agencies
Uses of the NEI

- Assess the impact of proposed legislation and regulations on national, regional, and local air quality, including:
  - The Clear Skies Act
  - CAIR
  - Tier 2 Engine Standards
  - Heavy-Duty Engine Standards
  - Locomotive/Marine Standards
  - PM & Ozone NAAQS

- Public reporting
- International reporting
What’s in the NEI?

- **Geographic Coverage**
  - Entire U.S.
  - Individual process level inventory for point sources
  - County level inventory for non-point and mobile sources
What’s in the NEI?

- **Pollutant Coverage**
  - Ozone precursors
    - VOC, NO\textsubscript{x}, CO
  - Direct PM emissions
    - PM\textsubscript{10} and PM\textsubscript{2.5}
  - PM precursors
    - SO\textsubscript{2}, NH\textsubscript{3}
  - Lead
  - Air toxics
    - 188 HAPs
NEI Data Sources

- State, Local and Tribal air agencies
- EPA data systems
  - Emissions trading programs
  - Toxic Release Inventory (TRI)
- EPA data collection programs
  - MACT compliance data
  - ICRs for standards development
- Data developed by EPA
  - Mobile source models
  - Emission Inventory & Analysis Group data augmentation
- Industry
New Challenges for the NEI

- Fully integrated multi-pollutant inventory
- Better characterization of smaller source categories
  - Recent rules (e.g., EGU and mobile source rules) were based on the strongest parts of the NEI
- New program requirements will require better resolution: spatially and temporally
  - Sector approach
  - Voluntary/innovative programs
- Shrinking resource base requires more agreement on emission estimates among stakeholders
  - EPA, Regional Planning Organizations, States, Locals, Tribes, Industry
Why Reinvent the NEI?

- Critiques of emission inventories
  - External: CAAAC, NARSTO, NAS
  - Internal: OAQPS management
- Need for better emissions data to meet increasing demands
- Current process is cumbersome
- Quality issues
- Lack of transparency
What is Reengineering?

Business Process Reengineering

- Review current business processes and data systems
- Identify areas of change
- Implement fundamental improvements for all stakeholders involved in the NEI process
  - Make the process more efficient
  - Leverage technology
Goals of Reengineering the NEI Process

- Better quality emission measurements and estimates
- More stakeholder collaboration
  - Not changing S/L/T data
  - Air quality community acceptance of NEI
- Improved tools
  - Emission Inventory System (EIS)
  - Faster development
    - High quality with less burden
  - Better access and more transparency
The Emissions Inventory System

- Will generate the National Emissions Inventory (NEI)

- Comprised of four components
  - EIS Gateway
  - Submission access through EPA’s Central Data Exchange (CDX) Node
  - Public access to data
  - Tools and resources
Benefits of the Emissions Inventory System

- Reduces the time it takes to develop the NEI
- Makes the NEI development process more transparent
- Builds quality assurance steps into the NEI process
- Provides State, Local, and Tribal access to the database
- Creates public and industry access to the historic and current emission inventory data
Collaboration with Stakeholders on EIS Development

- **NEI Task Force**
  - State/Local/Tribal/RPO representatives
  - Calls monthly (2007) to assist with NEI/EIS design
  - Provide feedback (2008 & beyond) on major deliverables
  - Select members test system before implementation

- **NACAA Emissions and Modeling Committee**
  - Larger group of State/Local agency staff
  - Provide feedback on major deliverables
  - August 2006 letter provided important input for planning 2008 NEI cycle
    - 2008 NEI cycle will be first to use EIS
Short Term EIS Milestones

- Complete building EIS at EPA’s National Computer Center (NCC)
- Security plan approval
- System certification and accreditation
- Launch the EIS Gateway in October
Long Term EIS Milestones

- Provide historic emission inventory data through EIS in January 2009
- Provide submission access through the CDX Node in July 2009
- Provide public access to data in December 2009
- Complete 2008 NEI cycle by December 2010
New NEI/EIS Process Highlights
Access to the Database

Old Process
- There is no direct access to the database.

New EIS Process
- Stakeholders will have direct online access to the EIS database throughout the entire process, including access to their submitted data one business day after it is submitted.
Loading Emissions Inventory Data

**Old Process**
- Submitted data are sent to and loaded in several EPA contractor databases.
- The data aren’t loaded onto EPA servers until the creation of the final inventory several months later.

**New EIS Process**
- Data will be automatically loaded into the EIS database at the time of successful submission.
Linking to Other EPA Data Systems

Old Process

- The database is not linked to any other EPA data system.

- Other sources of data must be converted and loaded manually into the database. This is expensive and increases the storage size.

New EIS Process

- Since EIS will be located at the NCC, it will be linked to other EPA data systems, i.e., TRI, CAMD, and FRS.

- This will allow for an automated sharing of data and reduce the amount of data stored in EIS.
## Tracking Changes to the Data

<table>
<thead>
<tr>
<th>Old Process</th>
<th>New EIS Process</th>
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<tbody>
<tr>
<td>- Changes made to the data are inconsistent and are not generally documented.</td>
<td>- Changes made to the data will require the user to provide a reason for the change, which will be stored in the database.</td>
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<td>- The database will store information about the providers of the data.</td>
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Correcting Emissions Inventory Data

Old Process
- Air agencies make corrections by submitting a completely new emission inventory, phoning in the correction or sending corrections via e-mail.
- Actual changes to the database are made by an EPA contractor.

New EIS Process
- Stakeholders will have Web access to the EIS database and can make corrections to the data online.
Quality Assurance

Old Process
- The process relies on several EPA-supplied tools.
- Not all of the data are quality assured before being loaded into the database.
- Much of the quality assurance was performed manually

New EIS Process
- EIS will rely on centralized quality assurance that applies to all data.
- EIS will also contain a QA environment where all data can be quality assured prior to submission.
- All quality assurance will be performed by the system
Facility Inventory Process

Old Process
- Point source facility descriptive information is submitted with every inventory, regardless of whether the data has changed or not.
- EPA spends considerable resources quality assuring the data.

New EIS Process
- Point source facility descriptive information will not be submitted with every inventory.
- Automated QA Environment and online access to the data will be used to efficiently quality assure facility information.
Creating the NEI

Old Process
- State, Local and Tribal agencies have 17 months from the end of the inventory year to submit their data.
- It then takes EPA 19 months to create the NEI, a total process time of 36 months.

New EIS Process
- EPA has proposed a change to the regulation that shortens the submissions period to 12 months.
- EPA will then create the NEI in 6 months, a total process time of 18 months.
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- **EPA Publishes Draft 2008 NEI-EIS Implementation Plan** *Jun 1, 2008*
- **EIS Website Opens for Registration** *Oct 6, 2008*
- **EPA Publishes Final 2008 NEI-EIS Implementation Plan** *Nov 1, 2008*
- **EPA Loads Datasets** Load EIAG and other EIS datasets, incl. onroad/nonroad NCD inputs, into EIS *Apr 1 – Jul 1, 2009*
- **EPA Models Onroad/Nonroad Emissions Data** *Jul 1, 2009 – Jun 30, 2010*
- **Users Submit All Emissions** May also submit batch Facility Inventory files and access all submitted data *Jul 1, 2009 – Jun 1, 2010*
- **Early Submission Date for EPA Recognition** *Dec 31, 2009*
- **EPA Notify S/L/Ts of Submission Status** *Apr 15, 2010*
- **Inventory Analysis** Analyze all information in the EIS database *Jun 1 – Jul 13, 2010*
- **Inventory Selection** Select values for the draft NEI *Jun 4 – Jul 13, 2010*
- **EPA Completes Draft 2008 NEI** *Jul 13, 2010*
- **Stakeholders Review and Comment on Draft 2008 NEI** *Jul 13 – Nov 6, 2010*
- **EPA Models Onroad/Nonroad Emissions** *Nov 1 – Dec 31, 2010*
- **Inventory Analysis** *Nov 1 – Dec 31, 2010*
- **Inventory Selection** *Nov 1 – Dec 31, 2010*
- **EPA Publishes 2008 General Purpose Release on Public Website** *Dec 31, 2010*

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*EPA Notify S/L/Ts of Submission Status*

EPA will notify S/L/Ts of submission status with reminder that six weeks remain until the submission deadline. See Section 3.1.2, “State/Local/Tribal Submission Period.”