New Approach for Building the 2017 Nonpoint NEI

2017 International Emissions Inventory Conference

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Nonpoint LEAN Event

- 4 days between EPA/NEI team staff and SLT submitters
- Outlined current process
  - Identify all steps from planning, to EPA nonpoint tool generation, QA and results, to SLT submissions, comments, EPA QA, to final NEI release
  - Identified areas where biggest inefficiencies and resource vs value-added imbalances exist
- Crafted more streamlined process
  - Balance timeliness with robustness of a single nonpoint NEI
  - More buy-in/ownership from SLTs on methodology early in the process
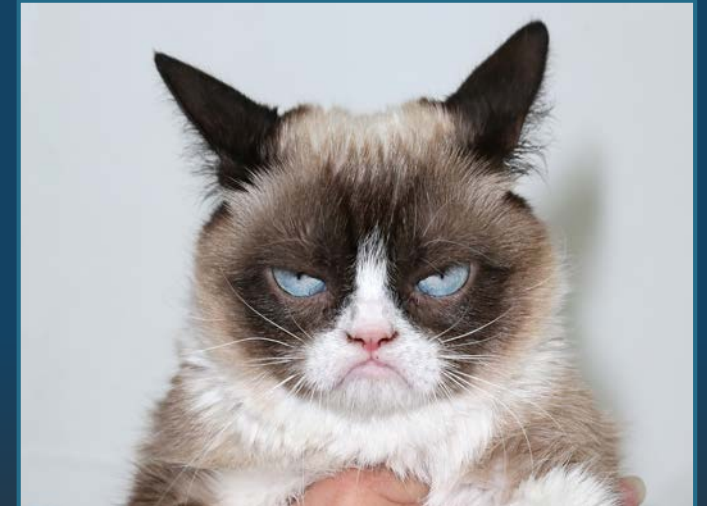
NEI Nonpoint LEAN Team

The Nonpoint NEI

- Formal definition: Not a major industry (Point) source or a mobile source or event (wildfire or prescribed burn)

- A disparate "catch-all" of sources

  - Biogenic and soil emissions
  - Small-scale fuel combustion (industrial, commercial/institutional, residential)
  - Solvent utilization
  - Agricultural from livestock & fertilizer application
  - Most oil and gas exploration and production
  - Miscellaneous sources like agricultural field burning, various types of dust, non-combustion Hg, to literally cats and dogs

- A mix of EPA Tools, stand-alone EPA datasets and SLT data

Current Nonpoint Process:
Multiple Versions of EPA Nonpoint Tools

- Results in extra costs and uncertainty in budget resource management

- Lack of known benchmarks for several source categories

- Inconsistent and incomplete methodology documentation

- Process unavoidably leads to missed NEI Plan deadlines -too flexible to late comments/submittals

- Lack of timely QA to prevent need for additional versions

- Resulted in multiple 2014 nonpoint NEI "Final" versions

Current Nonpoint Process: Other Issues and Outcome

- Budget uncertainty vs desire for timely inventories

  - Limited time for State/Local/Tribe (SLT) review of new EPA estimates for some key sectors

  - Lack of confidence in end results

- Nonpoint survey for first time in 2014, generally successful but overly-complicated

- NEI Technical Support Document lagged public release of NEI by 2 months

Proposed Solutions for 2017 NEI

- Early coordination and buy-in on methods and implementation
  - 2017 NEI Plan w/ clear and realistic milestones
  - Robust Nonpoint Emissions Methodology and Operator instructions (NEMO) for each EPA nonpoint tool
  - Slightly delayed 2017 NEI Version 1, but no nonpoint method development for Version 2
- Streamlining communications
  - SharePoint organized & simplified Nonpoint Survey
  - Emissions Inventory Conference training highlighting 2017 NEI Plan and nonpoint tools
- Utilize activity and other tool inputs from SLTs
  - Providing formats, schedule and QA procedures prior to inventory development beginning
  - EPA staff runs tools rather than EPA contractors –helps with cost and tracking
- Web-based pilot for a sector

Detailed Solutions:
3-Track Staggered-Schedule Plan

- Category 1: Tools with minimal or no methodology changes
  - No point reconciliation
  - Not waiting on new activity data to release draft version of tools
  - Sectors are regarded in "good shape" already or, are not considered high-priority based on stakeholder feedback
  - Sectors: ag tilling, ag pesticides, ag burning, aviation gasoline stage 1 & 2, composting, mining & quarrying, construction dust, open burning, non-wood residential heating, backyard BBQs, asphalt paving
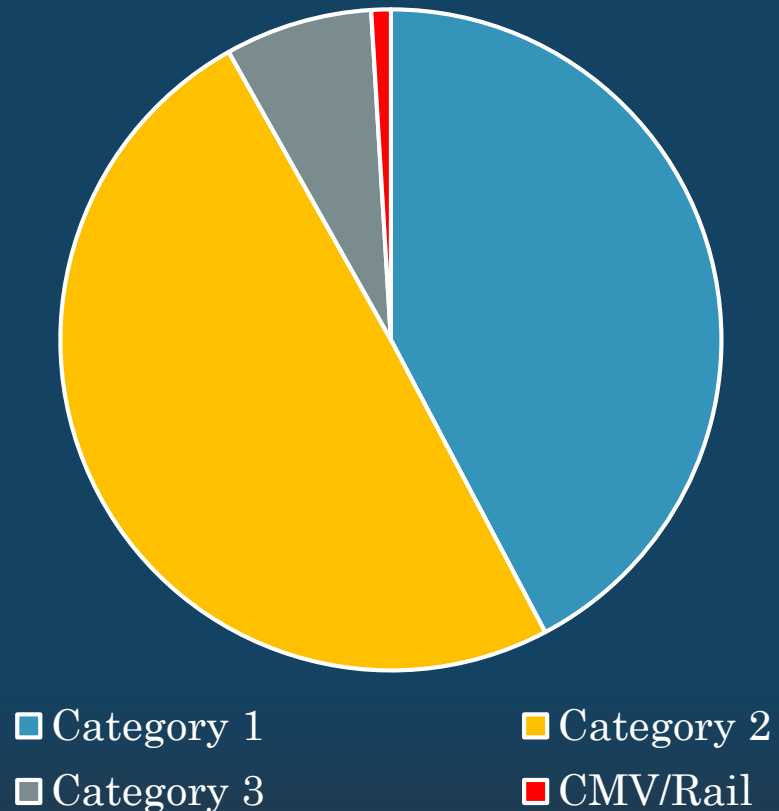
Detailed Solutions:
3-Track Staggered-Schedule Plan (cont.)

- Category 2: Significant method changes and no point subtraction
  - No point reconciliation
  - More time/collaboration needed to discuss each of these tools
  - Sectors: residential wood combustion (RWC), ag livestock and fertilizer, commercial cooking, mercury, road dust, portable fuel containers
- Category 3: point source subtraction needed
  - Waiting on point throughput data
  - Will pre-populate throughputs with older data
  - Sectors: industrial and commercial/institutional (ICI) fuel combustion, solvents, oil & gas, publicly-owned treatment works (POTW), stage 1 gasoline distribution
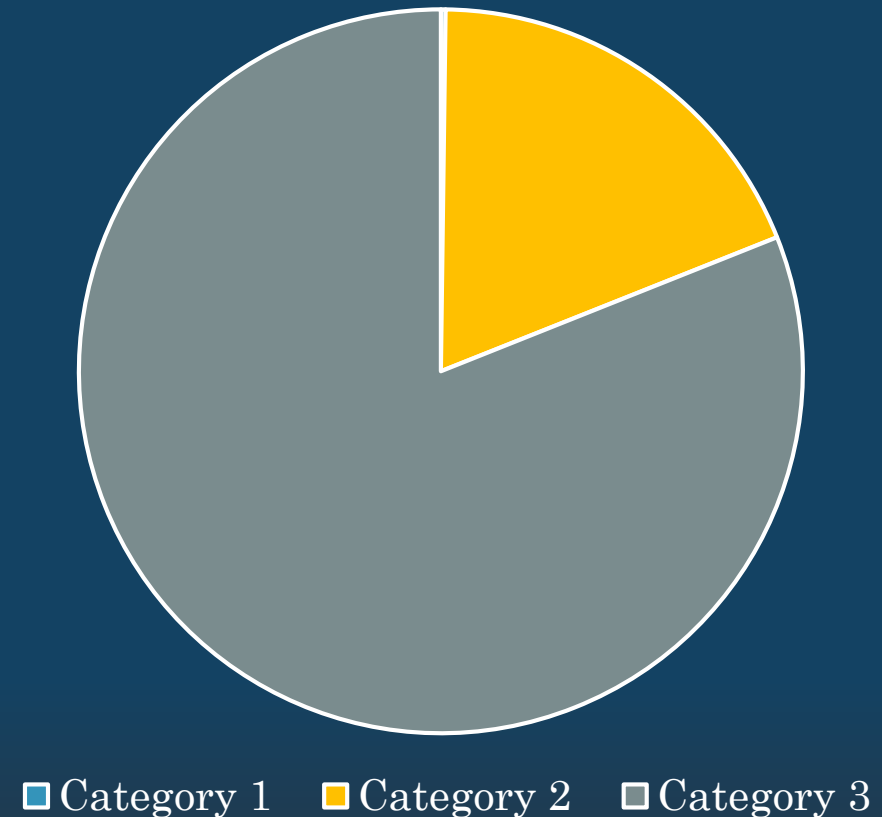
2014 v1 NEI Nonpoint PM2.5 and VOC – Contributions by Category
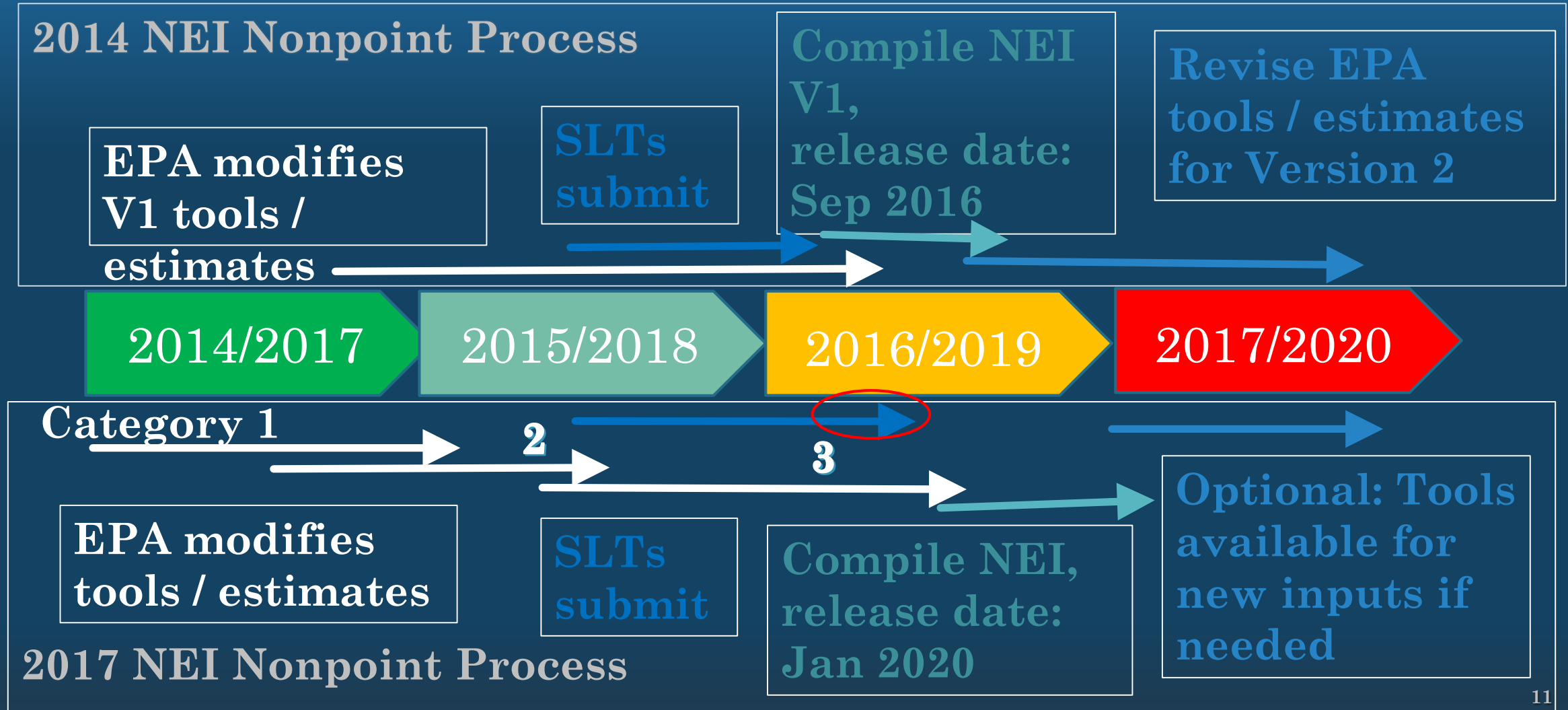
PM2.5 Sector by Category

- Category 1
- Category 2
- Category 3
- CMV/Rail

VOC Sector by Category

- Category 1
- Category 2
- Category 3

Current vs Proposed Timeline

2014 NEI Nonpoint Process

EPA modifies V1 tools / estimates

SLTs submit

Compile NEI V1, release date: Sep 2016

Revise EPA tools / estimates for Version 2

| 2014/2017 | 2015/2018 | 2016/2019 | 2017/2020 |

Category 1

2

3

EPA modifies tools / estimates

SLTs submit

Compile NEI, release date: Jan 2020

Optional: Tools available for new inputs if needed

2017 NEI Nonpoint Process

Nonpoint EPA Estimates: Current Condition

- EPA assigns priority to update EPA nonpoint tools

- Development is essentially all at once as resources allow

- SLTs wait for tools and limited method documents to be completed

- Glut of "final" tools at once, compromises QA

- SLTs –expecting tool revisions- have numerous issues with estimates and comment at very end of review period

- Send back to tool developers for revision

- Repeat as many times as schedule allows

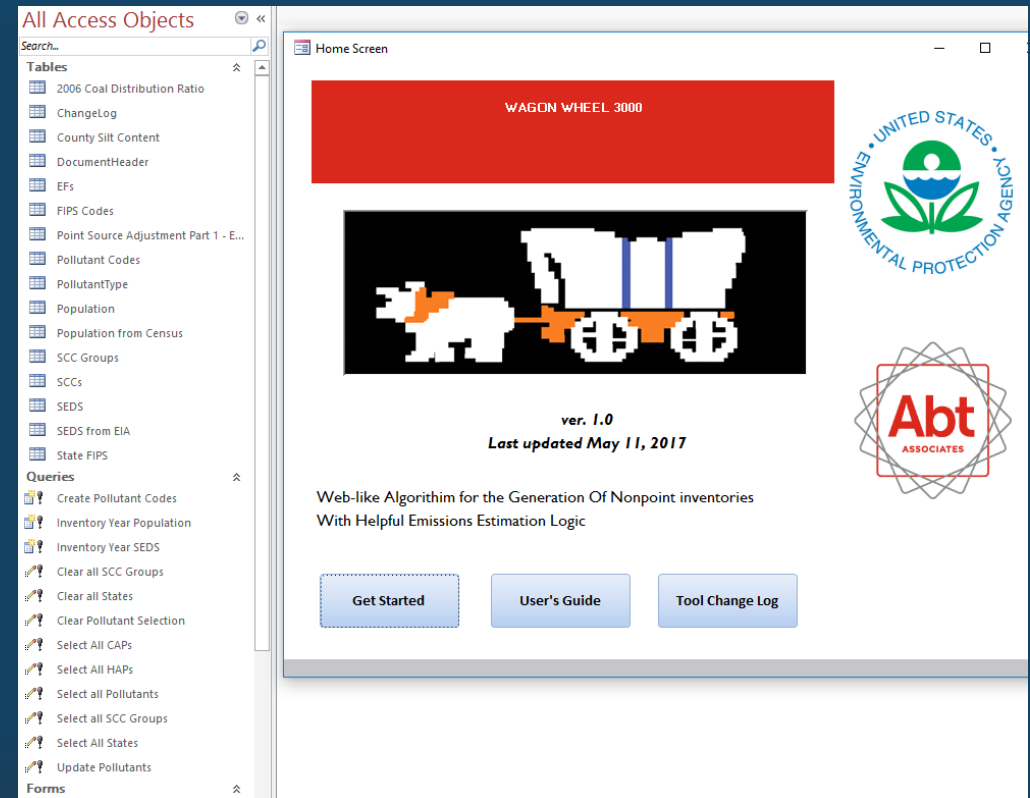- Tools "finalized", documentation begins

Nonpoint EPA Estimates: Proposed Condition

- Engage with stakeholders to assign nonpoint tools/estimates to one of three categories

- Release draft tools/estimates with complete NEMOs in 3 separate established review periods with ample time allocated for SLT outreach

- Utilize global "Wagon Wheel" inputs data structure, allows for rapid refresh of estimates

- Utilize SLT inputs and prepopulate tools with draft inputs

New "Wagon wheel" Approach to EPA NonPoint Tools

- Centralized database houses many shared inputs = easy to update activity and emission factors
  - State Energy Data System (SEDs) and Census data
  - Cross-references (e.g., SCCs, pollutant codes and State-County FIPS codes)
  - Emission Factors
  - Specific parameters such as: silt content, boiler/engine splits, coal distribution ratios
- Specific Nonpoint sectors as separate databases that call on this central database

Category 1 Timeline

- Spring 2017 (DONE): NEMO development for up to 15 tools
  - Draft version of tools and NEMOs
  - Includes comprehensive methods documentation for all options and assumptions
  - Operator Instructions to be provided with Version 1 of tools
- Mar - May 2017 (DONE): SLTs and NEI staff review and submit comments
- Jun - Aug 2017: EPA reviews comments, makes necessary edits and posts version 1 of EPA tools and NEMOs
- Jun - Nov 2017: SLTs submit inputs for tools
- Sep 2017 - Jan 2018: EPA runs Cat 1 tools w/ SLT (& default) inputs
  - SLT collaboration to settle on final results
  - Any potential issues and revisions complete, tools finalized, results loaded in EIS

Category 2 Timeline

- Aug - Oct 2017: NEMO development for 8+ tools
  - Draft version of tools and NEMO
  - Includes comprehensive methods documentation for all options and assumptions
- Nov 2017 – Jan 2018: SLTs and EPA modelers and NEI staff review and submit comments
- Jan – Mar 2018: EPA reviews comments, makes necessary edits and posts version 1 of EPA tools and NEMOs
- Jan – June 2018: SLTs submit inputs for tools
- Apr – Sep 2018: EPA runs Category 2 w/ SLT (& default) inputs
  - SLT collaboration to settle on final results
  - Any potential issues and revisions complete, tools finalized, results loaded in EIS

Category 3 Timeline

- May – Aug 2018: NEMO development for 4 tools
  - Draft version of tools and NEMO
  - Includes comprehensive methods documentation and operator instructions for all options and assumptions
  - Will be prepopulated with 2014v2 NEI throughputs and/or 2015/2016 point emissions where applicable
- Sep - Nov 2018: SLTs and EPA modelers and NEI staff review and submit comments
- Nov 2018 – Feb 2019: EPA reviews comments, makes necessary edits and posts version 1 of EPA tools and NEMOs
- Dec 2018 – May 2019: SLTs submit inputs for tools (varies by SLT, e.g., Jul 2019 for NC)
- Mar - Aug 2019: EPA runs Cat 3 tools w/ SLT (& default) inputs or emissions
  - SLT collaboration to settle on final results
  - Any potential issues and revisions complete, tools finalized, results loaded in EIS

Compiling the 2017 Nonpoint NEI

- Begins September 2019, after all Category 1, 2 and 3 tool results are loaded in EIS

- For internal EPA modeling/testing, we could create partial 2017 data and use older data for category 3 sectors

- SLTs can and will submit their own emissions (e.g., oil and gas, California in general) but at extended AERR deadlines:
  - January 15, 2019 for non-Cat 3 sources
  - March 31, 2019 for Cat 3 sources

Compiling the 2017 Nonpoint NEI (cont.)

- Nonpoint survey will again be critical to determine how to blend SLT-submitted emissions and inputs for EPA nonpoint tools

- HAP and PM augmentation still needed, but limited to SLT-submitted emissions

- EPA and SLT "tags" will still be needed to ensure completeness and no double-counting of EPA and SLT data

Key Benefits to Making Version 1 Nonpoint not a "Draft" NEI

- Modelers (EPA, SLT and other) like having a reliable, unchanging NEI and not waiting for version 2 (or 3)

- Resources saved not needing to review and resubmit for v2, focus can instead shift to:
  - Infrastructure efficiencies
  - Quick-to-produce annual nonpoint inventories as input activity data are regularly-updated

- NATA modeling have no unexpected nonpoint changes after Version 1

Nonpoint Process (EPA Work) Time Comparison (months)

Item	2014 NEI	2017 NEI
NEI Planning Stage	1.5	3
Tool Development	3	5
Tool Finalization	3	2.5
Construct NEI	5	4
Technical Support Documentation	4	3.5
Version 1 Subtotal	**16.5**	**18**
Version 2	**12**	**0**
Total	**28.5**	**18**

Risks/Downsides to Proposed Nonpoint Plan

- Staggered and earlier submittal requests are not required in current Air Emissions Reporting Requirements (AERR)
  - AERR requires emissions, throughputs and emission factors for nonpoint; however, EIS does not currently enforce these requirements
  - Proposed plan requests SLT inputs up to 12 months prior to current submittal period
    - AERR SLT submittals currently limited to 6 month period that starts July 2018 and ends December 31, 2018
    - Category 1 SLT submittal period is June – November 2017
    - Category 2 SLT submittal period is January – June 2018
- Full public release of NEI not possible until nonpoint inventory is complete

Risks/Downsides to Proposed Nonpoint Plan (cont.)

- Decision on how to treat updated inputs from SLTs after categories close
    - Presume that once global tool database is set up, that we can treat these similar to emissions submittals
    - Many SLT throughput data (varies by SLT) are not available until 6+ months after AERR deadline
    - Need to define/Utilize a submittal template and QA procedures for SLT activity data
- Strongly suggest removing point emissions subtraction from several EPA nonpoint tools
    - Emissions subtraction has little relation to throughput/controls for some sectors (e.g., ICI, oil & gas)
    - Either use default EPA activity data, or SLTs submit emissions directly and insist on their use

Actions Critical for Success

- Communicate detailed and timely 2017 NEI plan
  - Reasonable EPA business rules and firm deadlines
  - SLTs understand EPA inventory development procedures if deadlines are missed
- Management buy-in
  - Resources earlier in the NEI development process
  - Delayed nonpoint/complete NEI public release, by 3-4 months vs 2014v1 NEI, or,
  - Accept prior (2014 NEI) inputs, rather than year-2017 inputs
  - Possible v2: Minimal/no tool revisions, but allow update to activity data to only most-important/yearly-variable sectors (e.g., oil & gas)
- Challenge: Ongoing 2014 NEI Version 2 development

EPA Nonpoint Tool-generated Estimates: 2014 NEI

- Agricultural Pesticides
- Agricultural Tilling (4 tools)
- Asphalt Paving
- Aviation Gasoline Stage 1
- Aviation Gasoline Stage 2
- Backyard BBQs
- Commercial Cooking
- Construction Dust (3 tools)
- Gasoline Distribution (7 tools)
- Mining & Quarrying

- Nonpoint Mercury (8 tools)
- Oil and Gas Production and Exploration (3 tools)
- Open Burning (4 tools)
- Residential Wood Combustion
- Residential Heating non-RWC (5 tools)
- Unpaved Road Dust
- Paved Road Dust
- Industrial and Commercial/Institutional Fuel Combustion
- Solvents

EPA Nonpoint "Non-tool" Estimates in 2014 NEI

- Agricultural/Rangeland Fires
- Agricultural Livestock
- Fertilizer Application
- Publicly-Owned Treatment Works (POTWs)
- Portable Fuel Containers (PFCs)
- Rail
- Commercial Marine Vessels
- * PM and HAP Augmentation, PM2.5 Speciation, Chromium Speciation
- * Estimates Carried forward from 2011 NEI

Questions?

It looks daunting now, but if you have the right people and embrace the process, and… have the GOAT QB, ….wait, what?