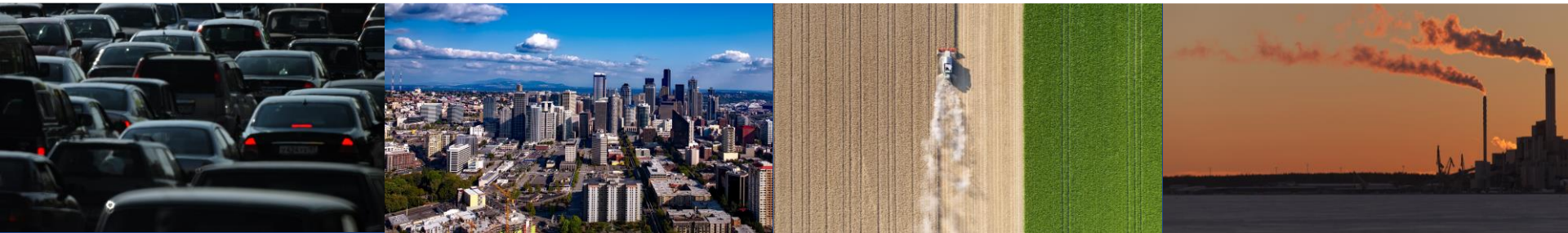
2022 Regulatory Emissions Modeling Platform Projections Webinar

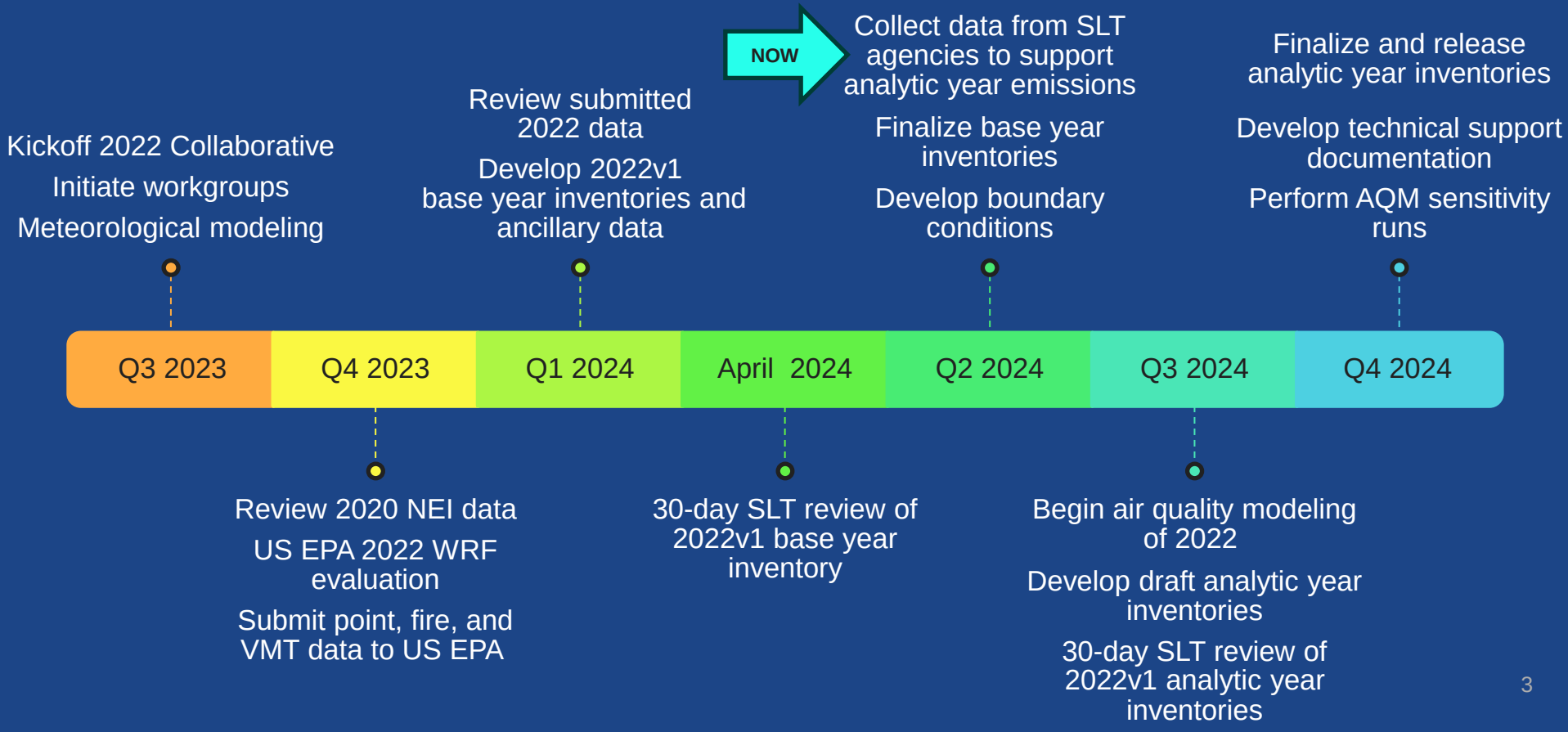
June 18, 2024



Agenda:

- Review overall platform timeline
- Overview of Projections
- Goals of Projection Taskforces
- Growth vs Controls
- Submitting Control information for 2022v1
- Timeline for analytic year work

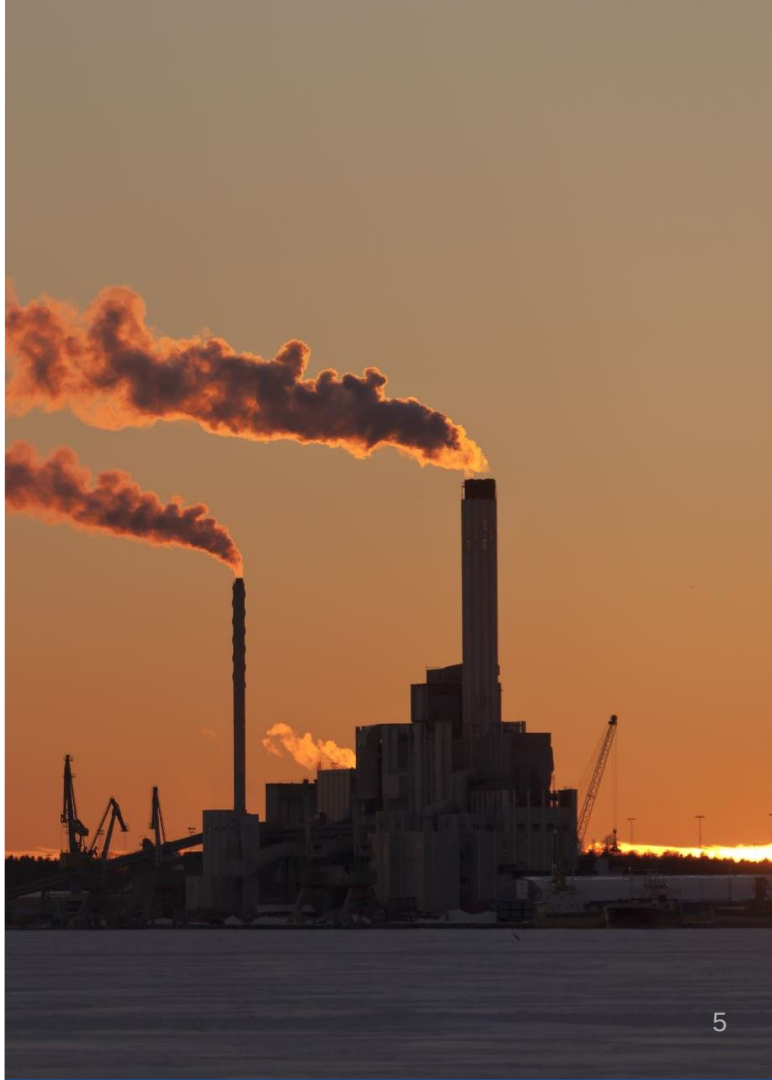
Timeline for 2022v1 Platform Development



What are Projections?

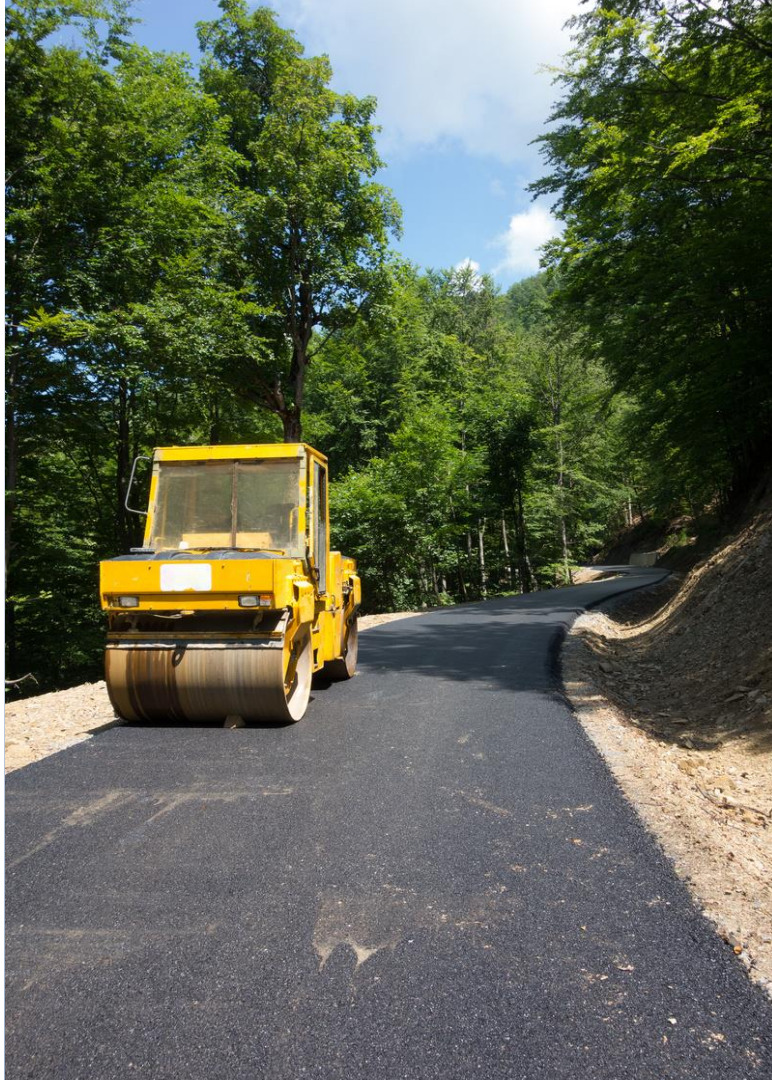
Overview of Projections

- Emissions are projected to analytic years to support modeling of those years to:
  - Evaluate policy options
  - Develop Regulatory Impact Assessments
  - Assess pollutant transport to other areas
- Model to estimate the change in air quality due to changes in anthropogenic emissions
  - Ozone, regional haze, particulate matter
- The meteorological data in the base and analytic year modeling are held constant



Typical Ways to Perform Projections to Analytic Years

- Apply factors that represent changes in activity between years
    - Factors can be derived from Annual Energy Outlook (AEO), population projections, other economic data, etc.
- Apply factors to reflect controls or technology changes between years
- Apply any closures to facilities or units
- Run a model with updated inputs for the analytic year (e.g., IPM or ERTAC EGU, MOVES for onroad and nonroad)



Information Needed to Perform Projections

- Changes in emissions activity data between base and analytic years (e.g., VMT, energy consumption, livestock counts)
- Impact of regulations that change emissions between the years (state or federal)
- Incremental impact of emission controls and/or technology changes between base and analytic years
- Closures of facilities and units

Projection Methods by Sector

- Hold Constant: biogenics; wildland, prescribed, and agricultural fires
  - Keep constant because meteorology is held constant between base and future
- Non-EGU point, nonpoint, locomotives, commercial marine vessels
  - Apply factors reflecting emissions activity change and regulatory programs
  - Remove permanently closed point sources
  - Often done in the Control Strategy Tool (CoST)
- Run MOVES: onroad and nonroad sectors
- Run EGU forecast model (IPM or ERTAC)

Projections Workgroup Goals

- Develop or evaluate analytic year emissions data for each inventory sector in the 2022 emissions modeling platform (EMP)
- Catalog potential (growth and control) approaches for each inventory sector
- Facilitate task forces to propose alternative methods to consider for projection for groups of sectors
- Develop recommendations on how to apply projections for each sector
- Gather stationary source controls information from the states
- Work with US EPA to incorporate any changes to the projection methods into the data documentation

See Projections workgroup wiki page for full charter, meeting notes, and more...

Projection Task Forces

- Electricity Generating Units (EGU) Co-leads: Alison Eyth and Susan McCusker
- Industrial Point, Co-leads: Zac Adelman and Rhonda Payne
- Nonpoint, Co-leads: Lindsay Dayton and Andy Bollman
- Onroad/Nonroad, Co-leads: Janice Godfrey and Farren Thorpe
- Marine/Airports/Rail (MAR), Co-leads: Janice Godfrey and Mark Janssen
- Oil & Gas, Co-leads: Jeff Vukovich and Tom Richardson

EGU Task Force

- Working to synchronize data used by EPA IPM and ERTAC EGU models
  - Latitude-Longitude locations – LADCO led a review of NEI vs CAPD locations
  - How to use Continuous Emissions Monitoring System (CEMS) data
  - Determine file structure / grouping of sources to support both models
- Discuss reflecting federal regulations
- Communicate about timing of outputs

EGU Task Force

- ERTAC EGU projections
  - Inputs: hourly unit-level base year, AEO growth rates, state-supplied information
  - Outputs: conservative analytic year EGU activity and emissions projections
  - Special considerations: Good Neighbor Plan, EV demand projections

Industrial Point (NonEGU) Task Force

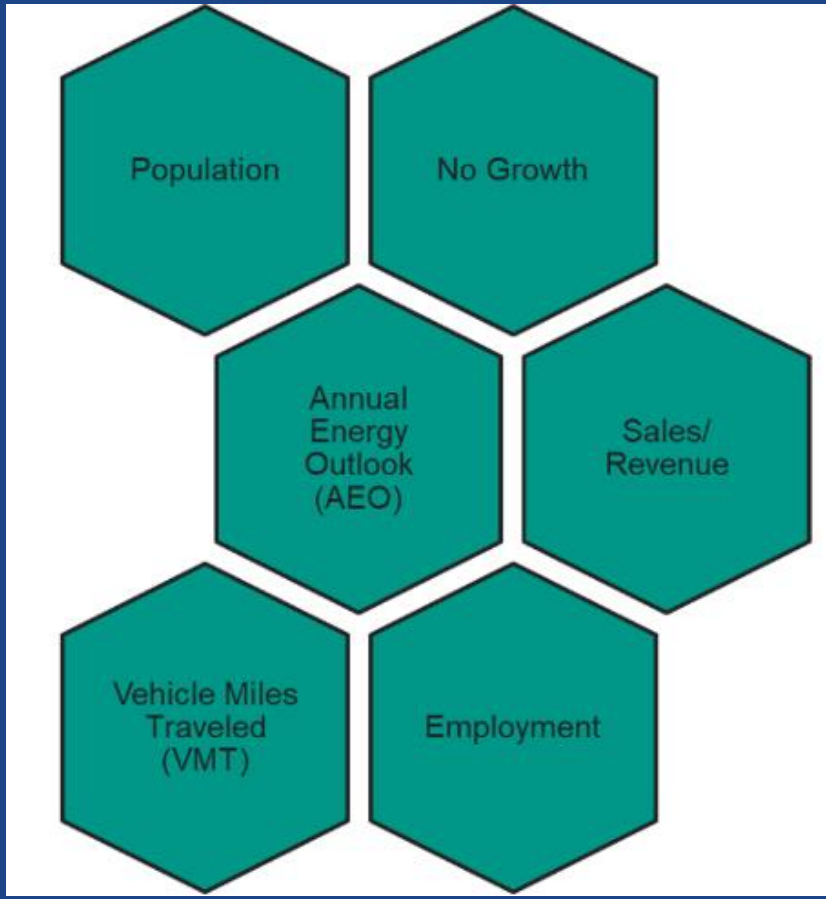
- Typically, projections in this sector incorporate growth factors derived from the Annual Energy Outlook (AEO) [published by the US Energy Information Administration (EIA)], however state employment data has also been used
- Basic EPA projection methodology
  - Apply closures to base year data
  - Incorporate recent year emissions data
  - Reflect activity changes with projection factors
  - Reflect federal control programs
  - Reflect state/local control programs

Industrial Point (NonEGU) Task Force

- The task force is reviewing how factors (AEO-based, employment data) have been applied to sources within this sector.
  - Compare 2023 AEO-based factors to previous years' factors. What has changed?
  - Examine historic emissions by NAICS at various geographic levels (state, region, nationally). Do these AEO-based factors seem reasonable?
  - Have these factors over/under projected emissions?
- Next meeting June 24, 2024, 1-2 Eastern
- Contact Zac Adelman or Rhonda Payne for more information

Nonpoint Taskforce – Projections

- The nonpoint data category is made up of a wide variety of emissions sources and projection methods can vary greatly between these different sources.
- Start with grouping like sectors and looking at what data sources go into estimating emissions, and deciding whether or not they should be grown into the future.
- Things to remember:
  - Entire nation must be considered
  - Availability of data used to develop projection factors
  - Potential for overlap with point sources and projection methods used



Nonpoint Task Force - What are we considering?

Population

- Solvents, Waste Disposal

No Growth

- Residential Wood Combustion (RWC)

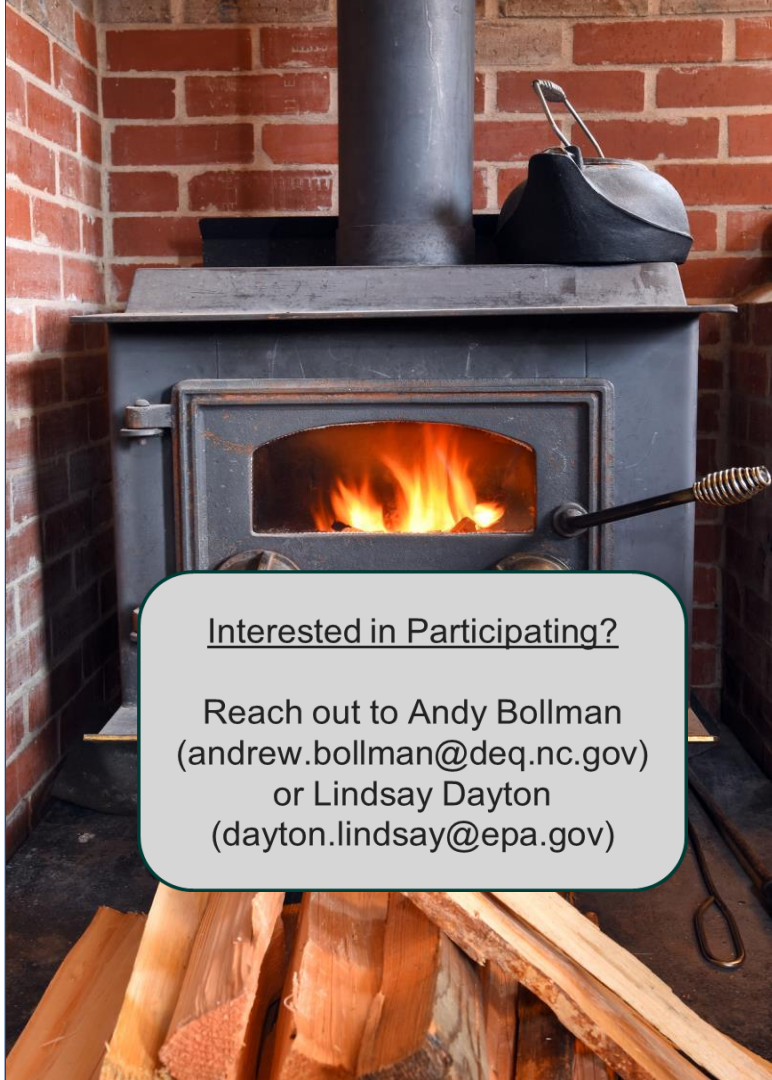
Annual Energy Outlook (AEO)

- Gasoline, Residential Heating, ICI- Commercial Institutional, ICI – Industrial Boilers ICEs

To be discussed

- Commercial Cooking, Dust, Fertilizer, Livestock Waste, Other *(Industrial Processes – Chemical Manufacturing, NCE, Non-ferrous Metals, Miscellaneous Non-Industrial NEC)*
- May possibly use: No Growth, Population, Total VMT, Employment, Revenue/Sales, Animal Inventory Counts

Meeting notes and information can be found on the Nonpoint Wiki Page: https://views.cira.colostate.edu/wiki/wiki/12213



Interested in Participating?

Reach out to Andy Bollman (andrew.bollman@deq.nc.gov) or Lindsay Dayton (dayton.lindsay@epa.gov)

Onroad and Nonroad Mobile Task Force

- Onroad
  - Plan to use 2023 AEO to project 2022 activity data to the analytic years (there is not an AEO for 2024)
  - If any states want to provide 2026, 2032, or 2038 VMT, please send to emissionsmodeling@epa.gov by July 12
  - EPA is developing adjustment factors to account for recent onroad mobile source rules that are not reflected in MOVES4
- Nonroad
  - EPA is running MOVES4-nonroad for 2026, 2032, and 2038 using 2022 meteorology

Marine, Airport, & Rail Task Force

- Marine
  - EPA is working on projection factors that can be used to develop analytic year emissions
- Airports
  - Terminal Area Forecast (TAF) will be used to derive projection factors for each analytic year
- Rail
  - Freight Analysis Framework (FAF) may be used to derive factors to compute analytic year emissions
  - Mark Janssen and Matt Harrell looking into how to project locomotive emissions

Oil and Gas Task Force

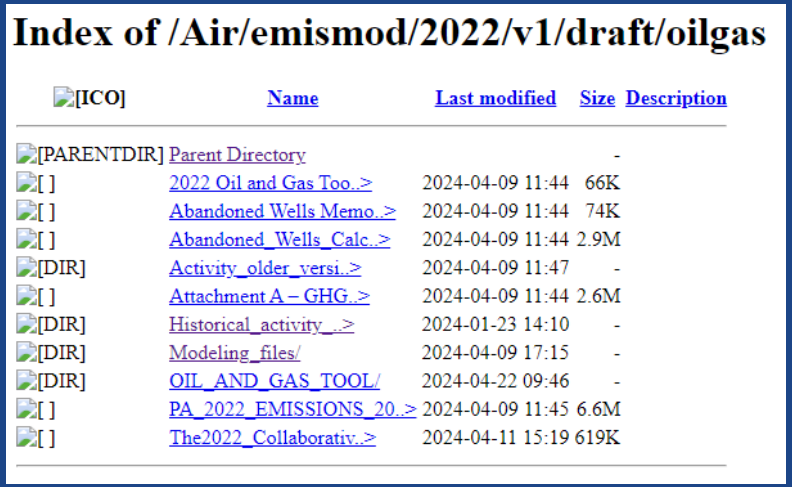
- Three components of the Oil and Gas Sector:
  1. Point Sources – individual facilities whose emissions are reported to the NEI (Point SCCs)
  2. Nonpoint Exploration – drilling and related operations (well completions) aggregated by county (Nonpoint SCCs)
  3. Nonpoint Production – crude oil, natural gas, and coal-bed methane well facilities, central tank batteries and some gathering compressor stations whose emissions are aggregated by county (Nonpoint SCCs)
- Meeting monthly to finalize default approaches
- States with alternative approaches are encouraged to reach out to Jeff Vukovich

Oil and Gas Projections (2016 v3 EMP default)

Industry Segment	SCC Clusters	NAICS for Point Sources	Area SCCs	2016v3 approach
Exploration	1-5	2111XX	National Emissions Tool SCCs or State E&P Approach	Average Activity from Representative Years
Production				State historical + AEO Reference Case
Gathering				State historical + AEO Reference Case
Processing				State historical + AEO Reference Case
Transmission (e.g. pipelines)	6	486XXX	Not applicable	US historical +AEO National factor
Storage	7	424710	Not applicable	No growth
Distribution	8	221210	Not applicable	No growth
Support Activities for Oil and Gas Operations	9	213112	Not applicable	No growth

Oil and Gas Projections (other approaches)

- No growth – keep activity and/or emissions constant and incorporate future controls
- Basin-focused approach
- Hubbert curve approach



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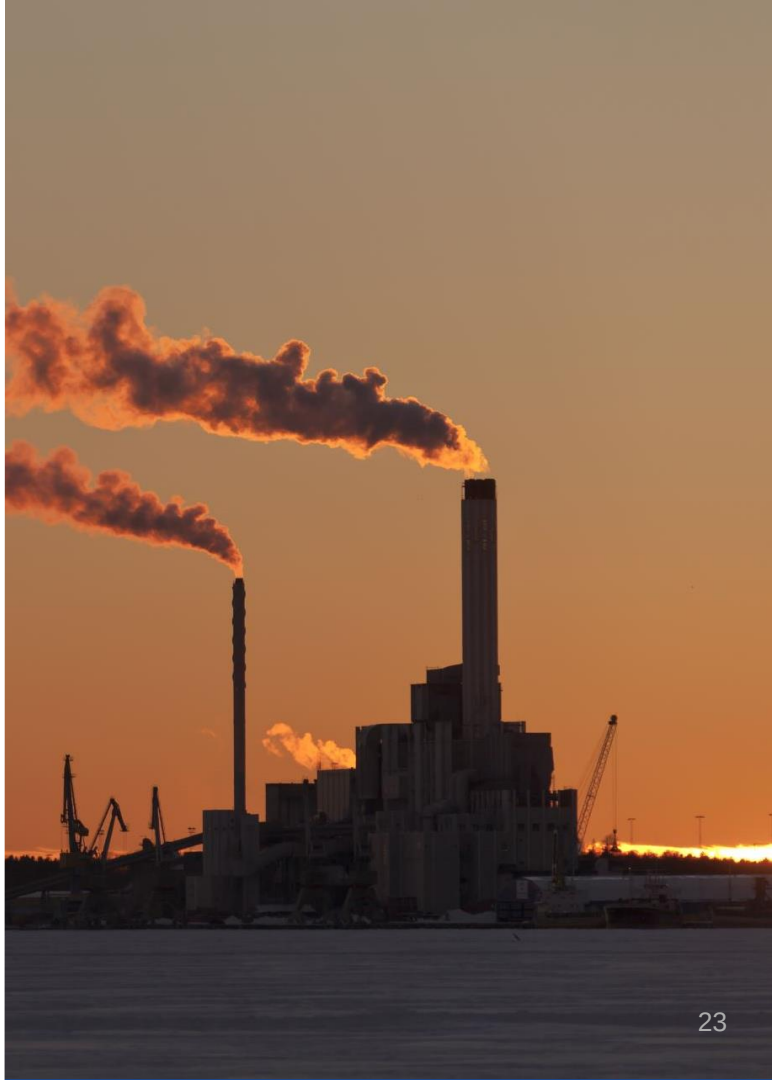
Link to EPA ftp site:
https://gaftp.epa.gov/Air/emismod/2022/v1/draft/oilgas/Historical_activity_time_series/

Please provide feedback on Exploration Activity by the end of June.

Reflecting Emission Controls in Analytic Year Inventory Development

Controls Overview

- What types of controls would ideally be reflected in analytic year inventories?
  - Federal on-the-books (OTB) regulations
  - State regulations
  - Facility, unit, and/or process closures
  - Fuel switching
  - Consent decrees
  - Permitting conditions



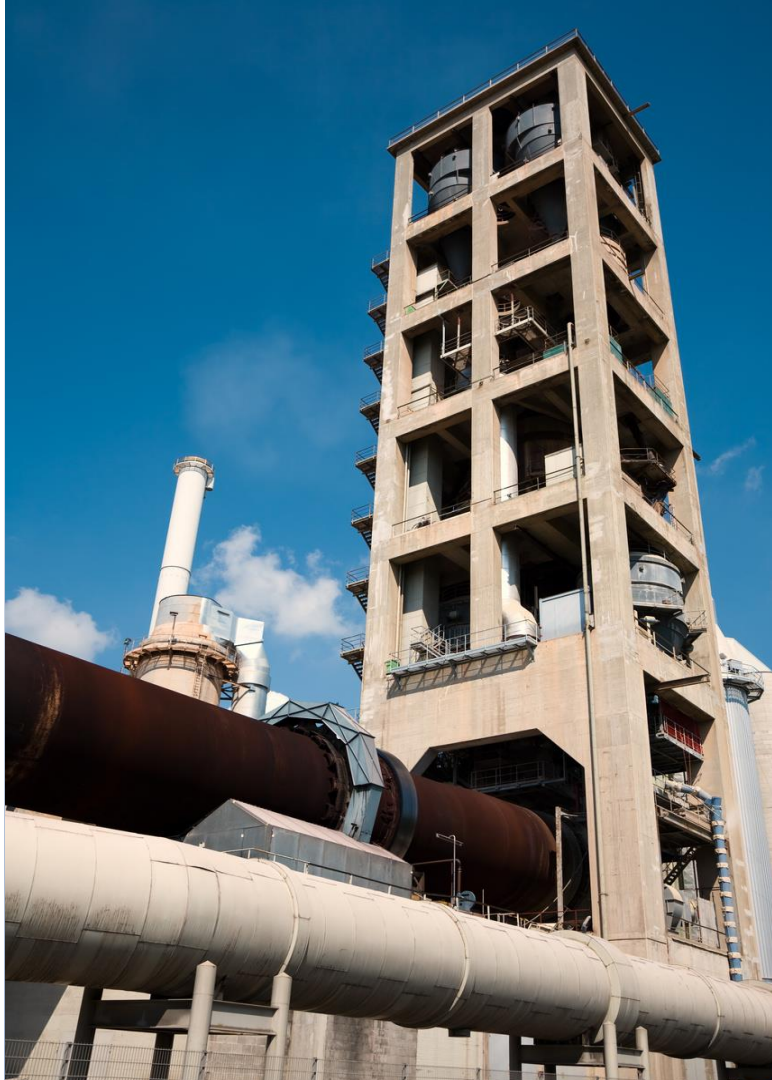
2022v1 Analytic Year Timeline

- Data about known point source changes through 2038 are needed, e.g., shutdowns, fuel switches, control device changes
- Regional projections approaches and data other than controls need to be communicated to the U.S. EPA by July 12, 2024
- 2022v1 analytic year inventory open review will occur during September 2024 using the online Emissions Data Review Tool
- 2022v1 analytic year inventories and documentation will be finalized by the end of CY2024

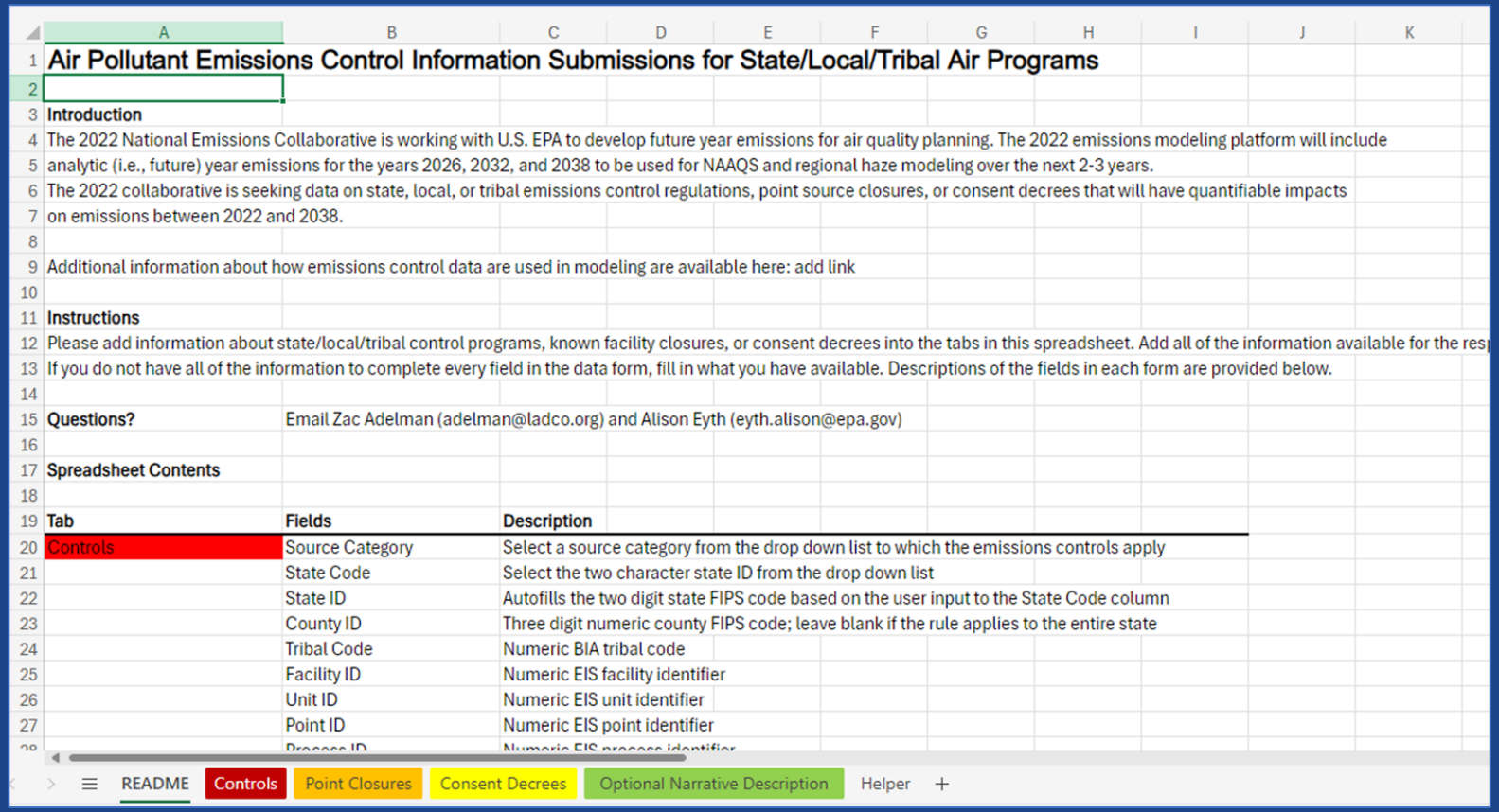
Overview of the Ask for Control Data

Controls spreadsheet will be used to collect data on:

- Facility, unit, or process retirements
- Fuel changes
- Changes to emission factors or control requirements in future years
- Consent decrees (may be linked to any of the above)
- State rules affecting point or nonpoint emissions (future year emission factors or control requirements)



2022 EMP Projections (Controls) Template (Spreadsheet)



Air Pollutant Emissions Control Information Submissions for State/Local/Tribal Air Programs

Introduction

The 2022 National Emissions Collaborative is working with U.S. EPA to develop future year emissions for air quality planning. The 2022 emissions modeling platform will include analytic (i.e., future) year emissions for the years 2026, 2032, and 2038 to be used for NAAQS and regional haze modeling over the next 2-3 years.

The 2022 collaborative is seeking data on state, local, or tribal emissions control regulations, point source closures, or consent decrees that will have quantifiable impacts on emissions between 2022 and 2038.

Additional information about how emissions control data are used in modeling are available here: add link

Instructions

Please add information about state/local/tribal control programs, known facility closures, or consent decrees into the tabs in this spreadsheet. Add all of the information available for the res

If you do not have all of the information to complete every field in the data form, fill in what you have available. Descriptions of the fields in each form are provided below.

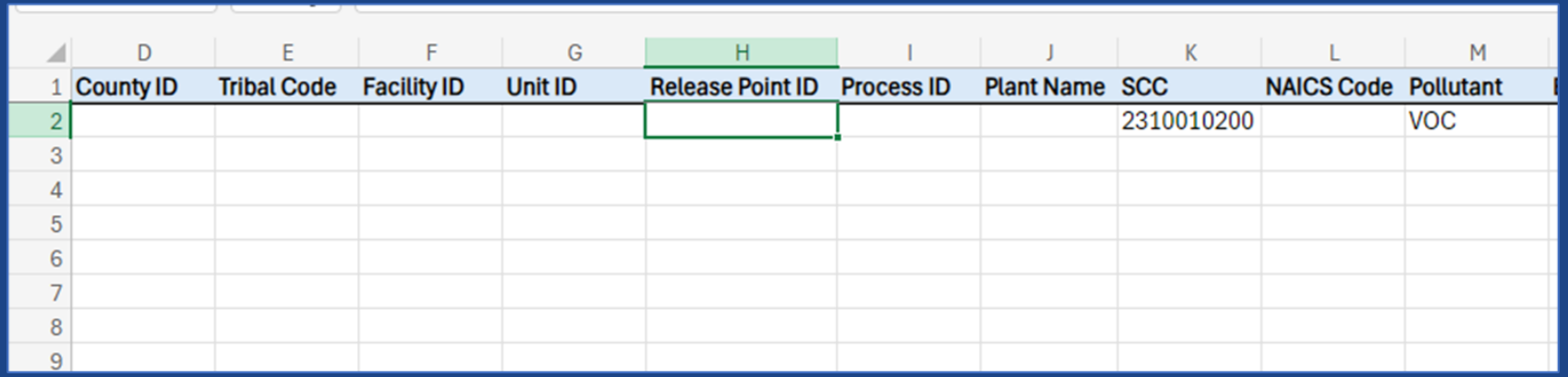
Questions? Email Zac Adelman (adelman@ladco.org) and Alison Eyth (eyth.alison@epa.gov)

Spreadsheet Contents

Tab	Fields	Description
Controls	Source Category	Select a source category from the drop down list to which the emissions controls apply
	State Code	Select the two character state ID from the drop down list
	State ID	Autofills the two digit state FIPS code based on the user input to the State Code column
	County ID	Three digit numeric county FIPS code; leave blank if the rule applies to the entire state
	Tribal Code	Numeric BIA tribal code
	Facility ID	Numeric EIS facility identifier
	Unit ID	Numeric EIS unit identifier
	Point ID	Numeric EIS point identifier
	Process ID	Numeric EIS process identifier

README | Controls | Point Closures | Consent Decrees | Optional Narrative Description | Helper

README | Controls | Point Closures | Consent Decrees | Optional Narrative Description



	D	E	F	G	H	I	J	K	L	M
1	County ID	Tribal Code	Facility ID	Unit ID	Release Point ID	Process ID	Plant Name	SCC	NAICS Code	Pollutant
2								2310010200		VOC
3										
4										
5										
6										
7										
8										
9										

Controls tab: Fill out future year controls requirements for both point and nonpoint SCCs. Some fields will be left blank depending on the specific requirements.

Point closures tab: Identify facilities that will be closing in future years.

Consent decrees tab: This tab may duplicate some information from the controls or point closures tabs but may provide additional helpful information. Or this tab may be a substitute if insufficient information is available for the controls tab.

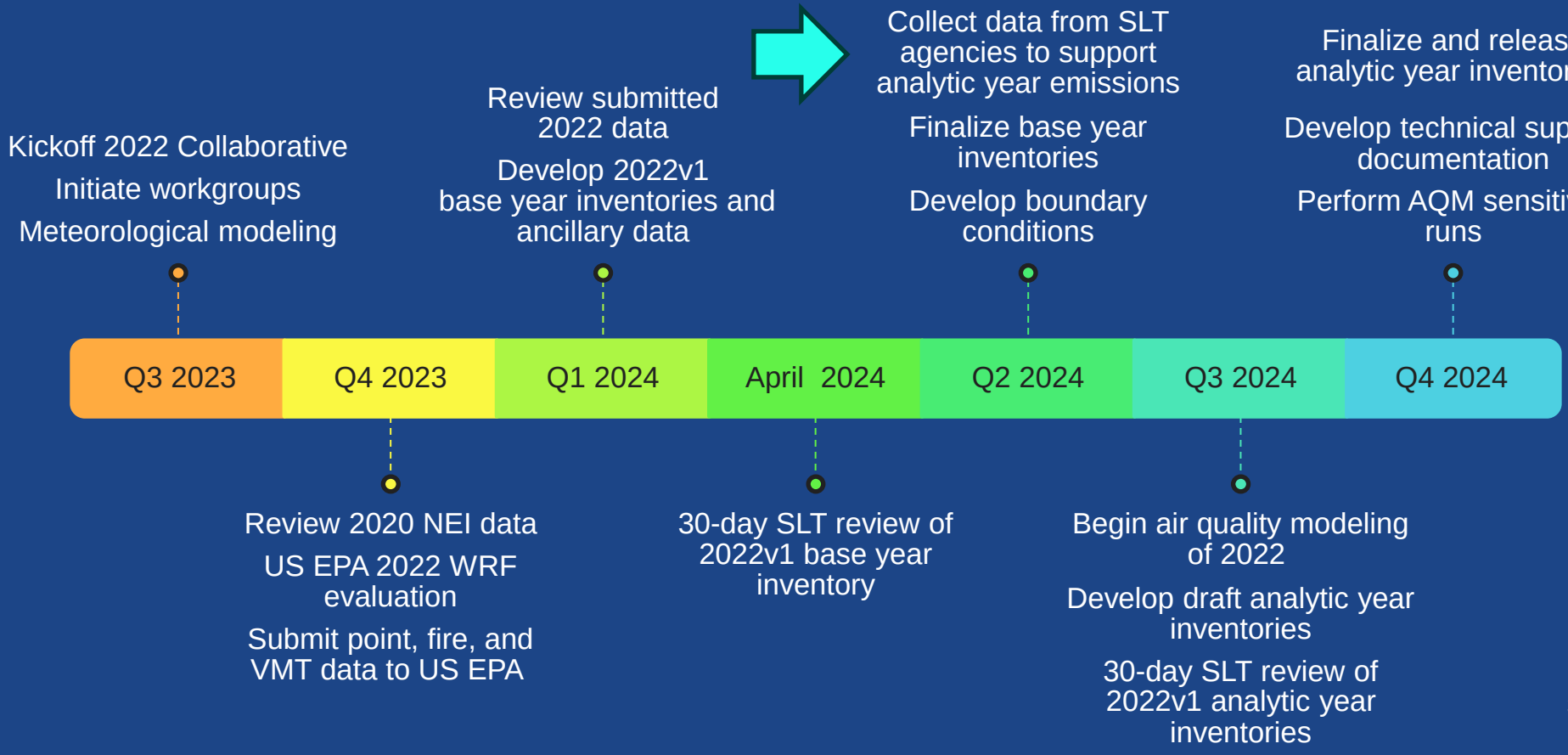
Optional narrative description tab: This tab is to describe state rules that will affect future year emissions, resulting in changes to emission factors or controls. But the state may not have sufficient information and/or expertise to develop a complete controls approach. This information may help develop better data for Version 2 of the 2022 EMP.

Providing Data

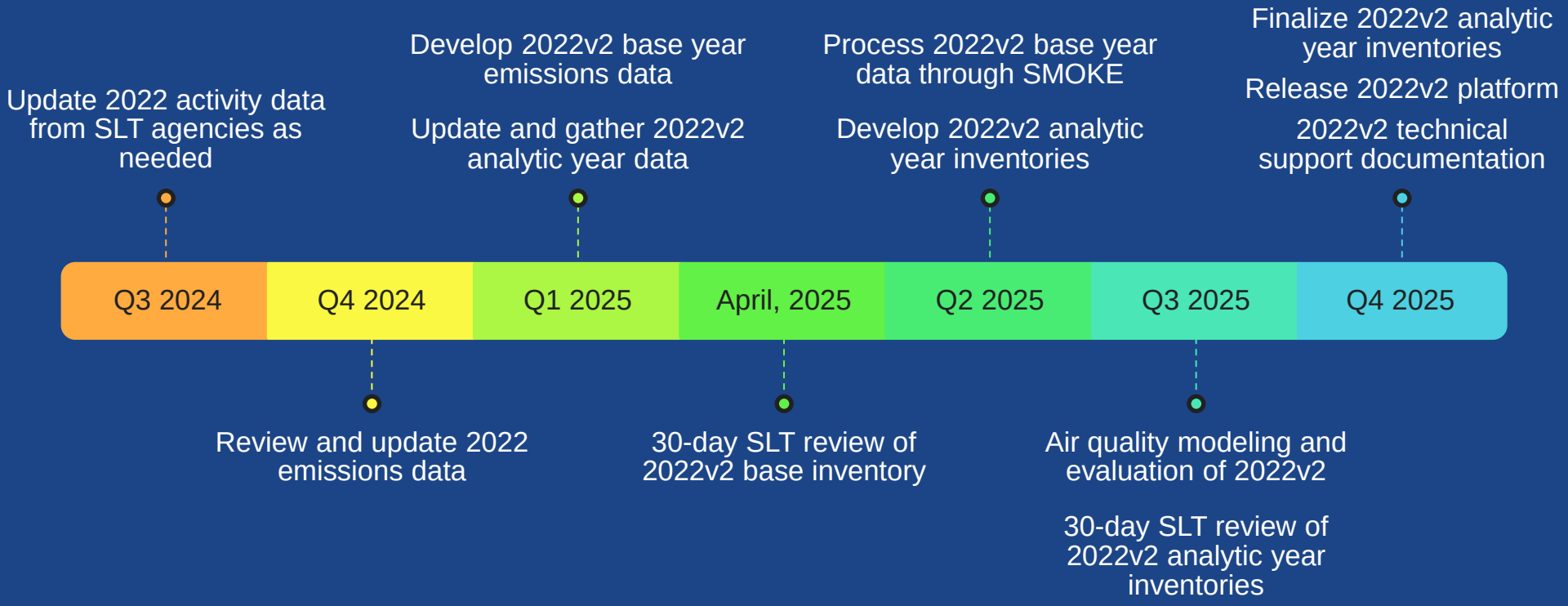
- Templates and instructions may be downloaded from the Projections workgroup wiki page
- Send completed templates to adelman@ladco.org, your MJO contact, and emissionsmodeling@epa.gov
- Data are needed by July 19

Timeline Review and Next Steps

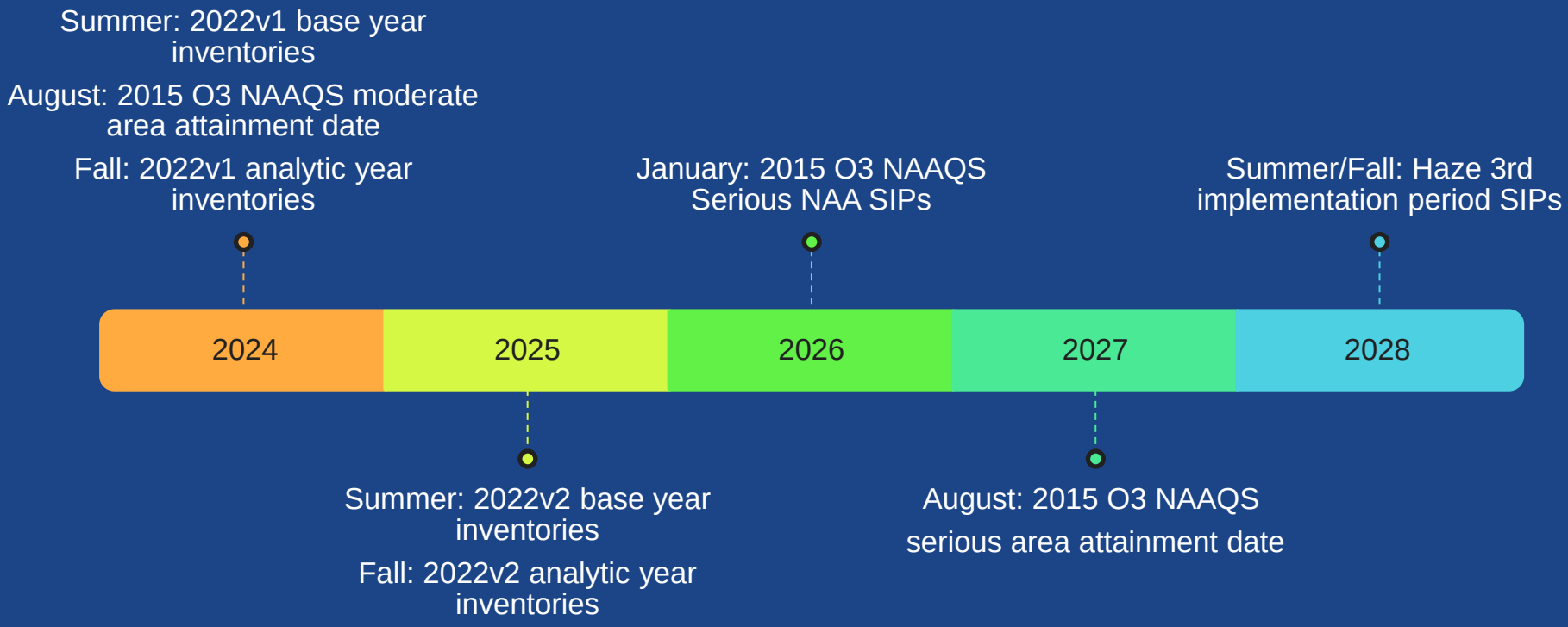
Timeline for 2022v1 Platform Development



Timeline for 2022v2 Platform Development



2022 Platforms and Planning Timelines



Next Steps

- Task forces provide recommended projection methods by July 12, 2024
- Agencies provide data on controls from state regulations by July 19, 2024
- EPA applies projection methods and reflects control data in the 2026, 2032, and 2038 inventories
- Status update to be provided August 7
- Data review for projected inventories to start in September (date TBD)