



NAAQS/SIP, Permitting, & Other Air Quality Planning Updates

Spring 2020

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Office of Air Quality Planning and Standards



Overview

- EPA Strategic Plan Priority Goals
 - Nonattainment Areas
 - SIP Process Improvements
- NAAQS Implementation Updates
 - Ozone
 - Sulfur Dioxide (SO₂)
 - Fine Particulate Matter (PM_{2.5})
 - Lead (Pb)
- Advance Program
- Exceptional Events
- Startup, Shutdown & Malfunction
- Regional Haze
- Permit Program Updates

EPA Strategic Plan Foundation



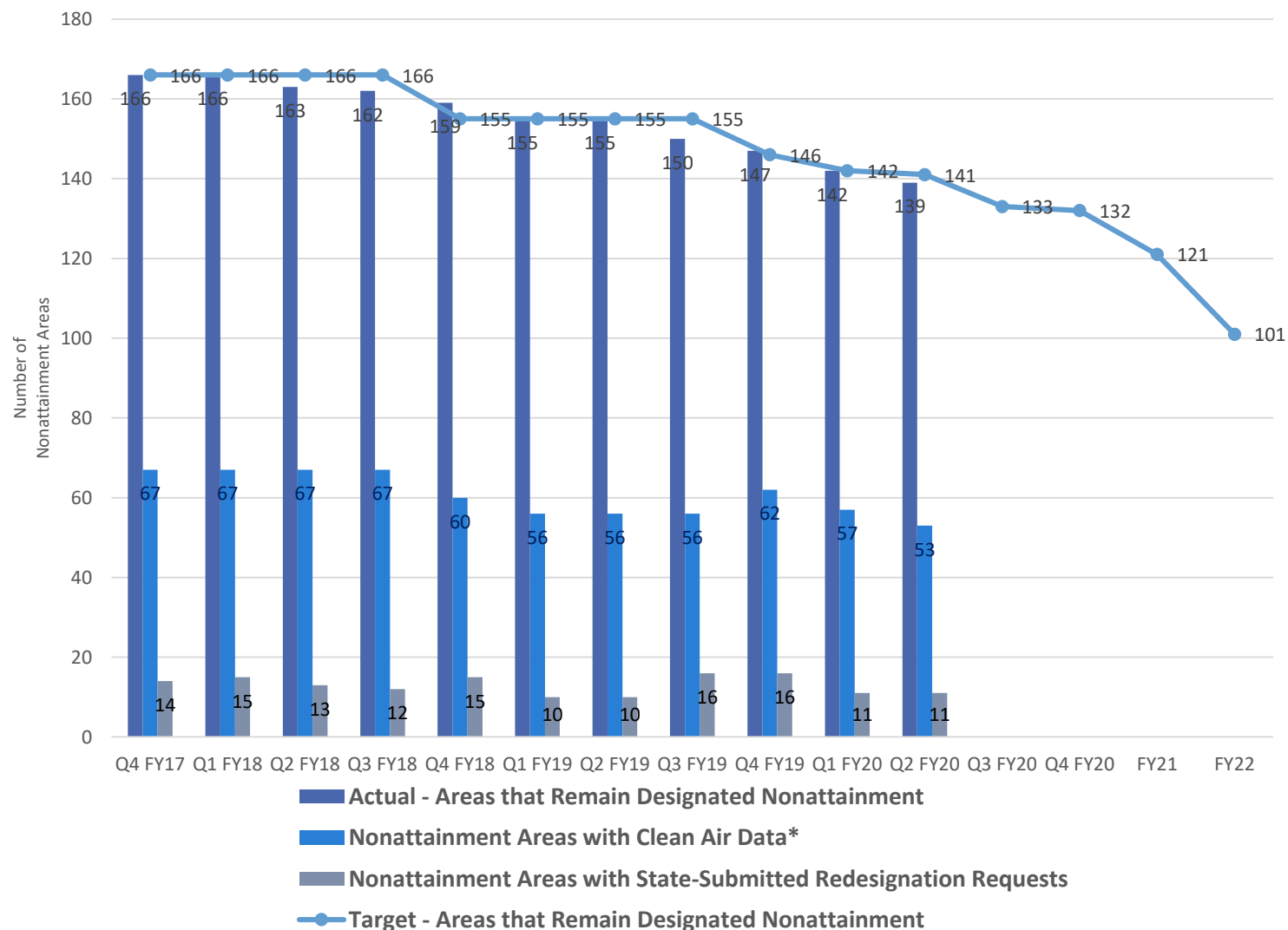
Goal 1: A Cleaner, Healthier Environment. Deliver a cleaner, safer and healthier environment for all Americans and future generations by carrying out the agency's core mission.

Goal 2: Provide certainty to states, localities, tribal nations and the regulated community in carrying out shared responsibilities and communicating results to all Americans.

Goal 3: Increase certainty, compliance and effectiveness by applying the rule of law to achieve more efficient and effective agency operations, service delivery and regulatory relief.

Reducing Number of Nonattainment Areas

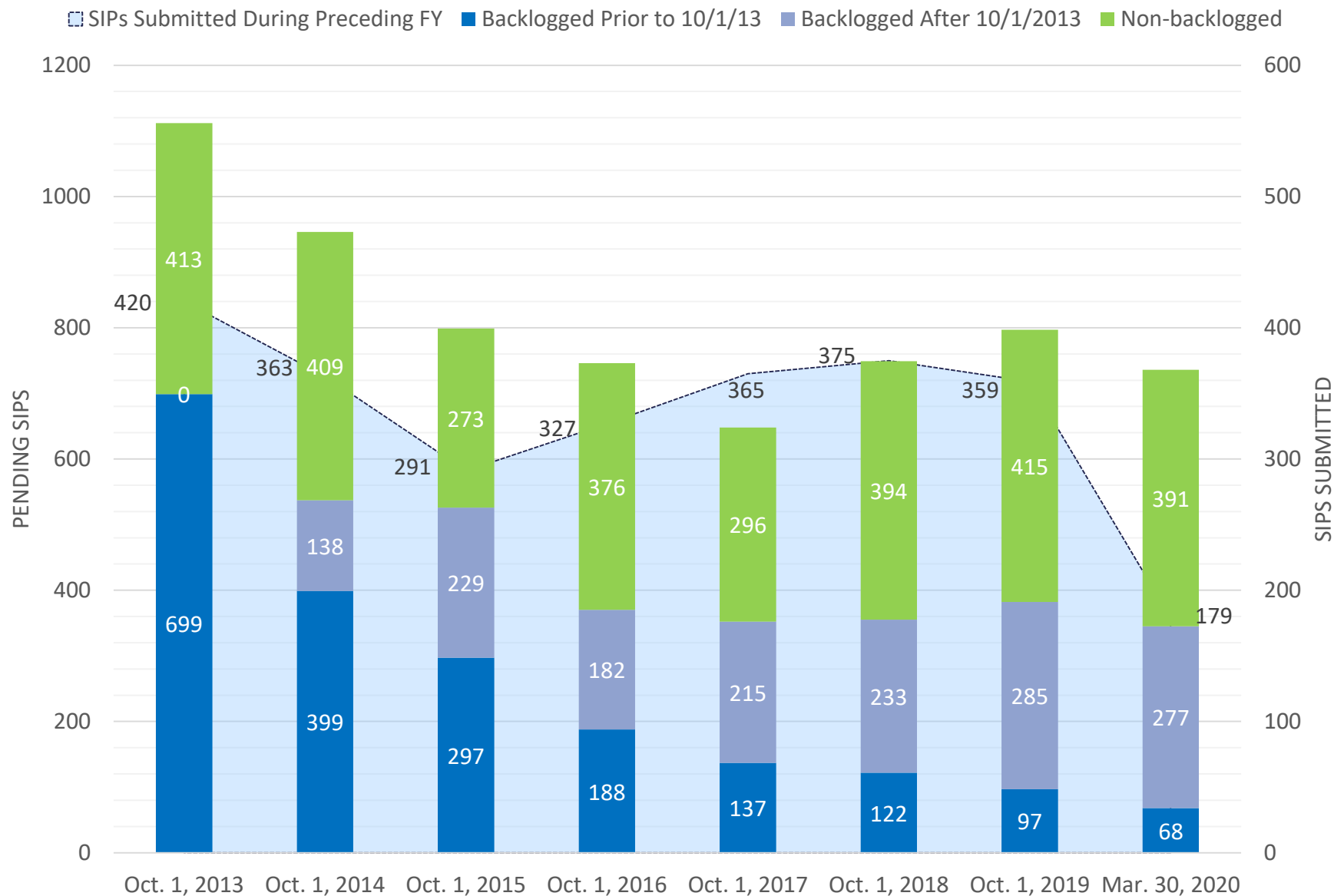
Agency Priority Goal: By September 30, 2022, EPA, in close collaboration with states, will reduce the number of nonattainment areas to 101 from a baseline of 166.



**Clean air data is a key step to redesignation to attainment, which can occur once an area's air quality attains the federal standard.*

Improving State Implementation Plan Reviews

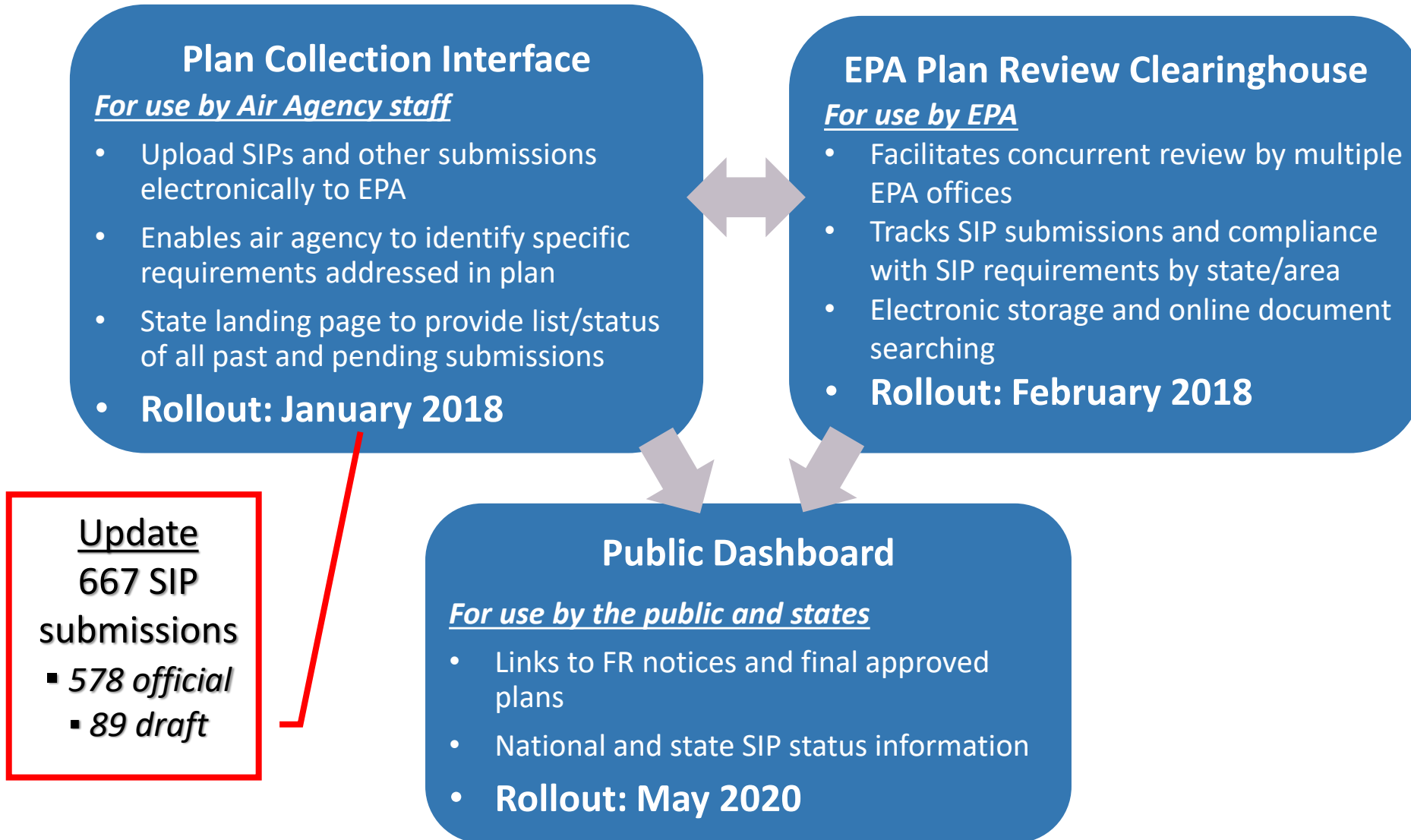
SIPs Pending EPA Review – 2013 to March 2020



SIP Process Improvements

- Early engagement during SIP development
- SIP Lean Toolkit - <https://www.epa.gov/air-quality-implementation-plans/state-implementation-plan-sip-lean-toolkit-collaboration-between>
- Ongoing activities:
 - Undertaking backlog reduction techniques for the most difficult SIPs including withdrawal and disapproval (letters sent in late 2019 followed by 1:1 conversations with states)
 - Updates to www.epa.gov/sips
 - State Plan Electronic Collaboration System (SPeCS) development

State Plan Electronic Collaboration System (SPeCS) for SIPs



Pollutant-Specific Implementation Updates

Ozone, SO₂, PM_{2.5}, Pb

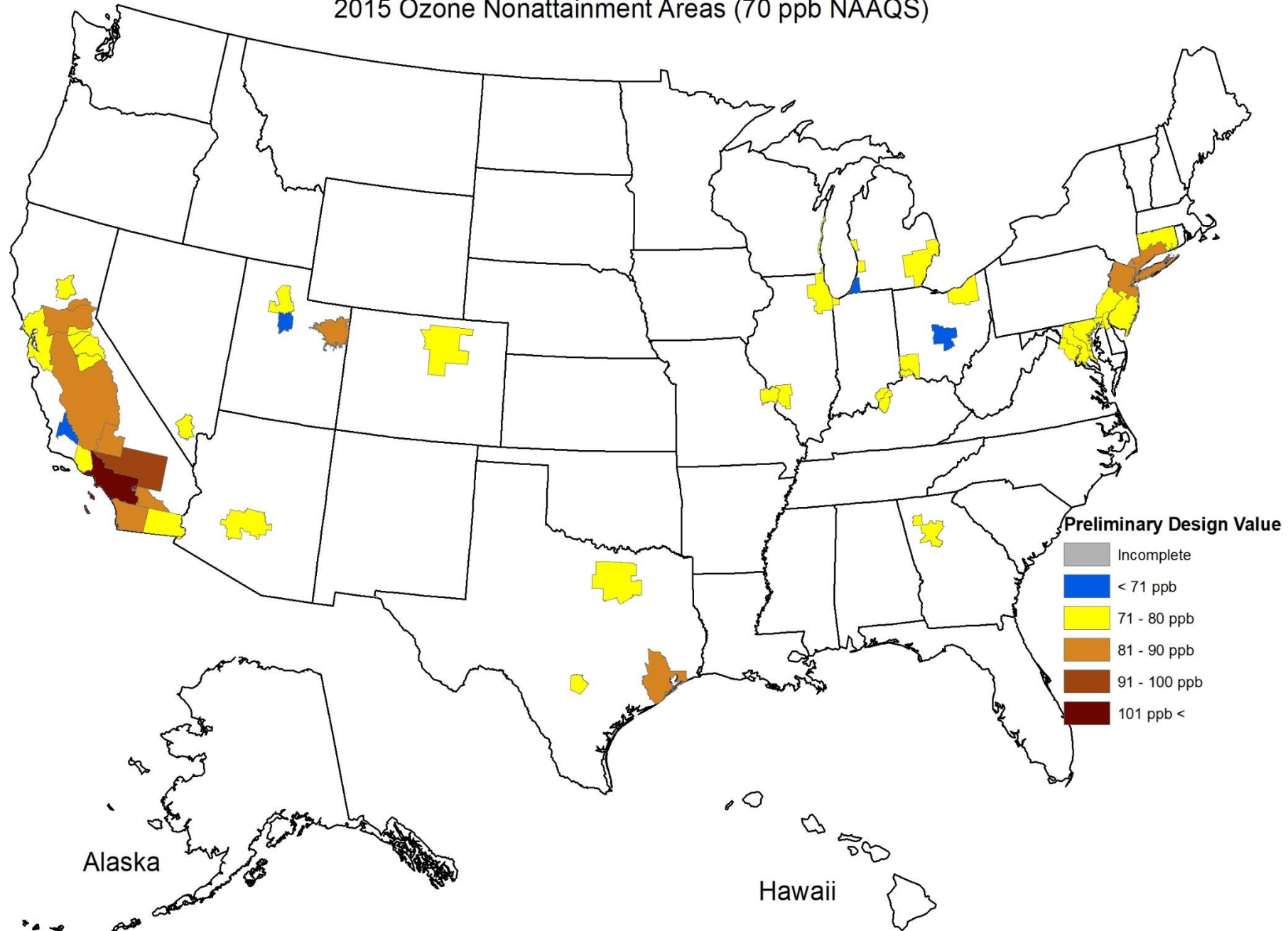
2015 Ozone NAAQS Implementation Update

- 52 areas initially designated nonattainment:
 - 51 areas (excluding San Antonio) effective August 3, 2018 (83 FR 25776; 6/04/18)
 - San Antonio, Texas area effective September 24, 2018 (83 FR 35136; 7/25/18)

Classification	Number of Areas	Attainment Deadline (years)	Attainment Date
Marginal	39	3	August 3, 2021* (2018-2020 DV)
Moderate	5	6	August 3, 2024
Serious	2	9	August 3, 2027
Severe-15	2	15	August 3, 2033
Extreme	2	20	August 3, 2038
Rural Transport (Marginal)	2	N/A	---
TOTAL	52		
* Sep 24, 2021 for San Antonio, TX area			

- Columbus, OH area redesignated to attainment (84 FR 43508; 8/21/19); redesignation proposals for Door County, WI and Berrien County, MI areas anticipated Spring 2020
- Initial SIP submittals (emissions inv./statements) due August 3, 2020

Preliminary 2017 - 2019 Design Values for
2015 Ozone Nonattainment Areas (70 ppb NAAQS)



2015 Ozone NAAQS Implementation Update (cont.)

- Infrastructure SIP update
 - SIPs were due October 1, 2018
 - As of April 2020, EPA has received 39 full submittals and 9 partial submittals
- Litigation on 2015 Ozone NAAQS SIP Requirements Rule
 - Final rule published December 6, 2018 (83 FR 62998)
 - Petitioners' brief filed July 22, 2019:
 - NNSR interprecursor trading
 - RFP requirements: milestone compliance demonstrations
 - RFP requirements: alternative baseline year
 - Early implemented contingency measures
 - Oral arguments Fall 2020 earliest

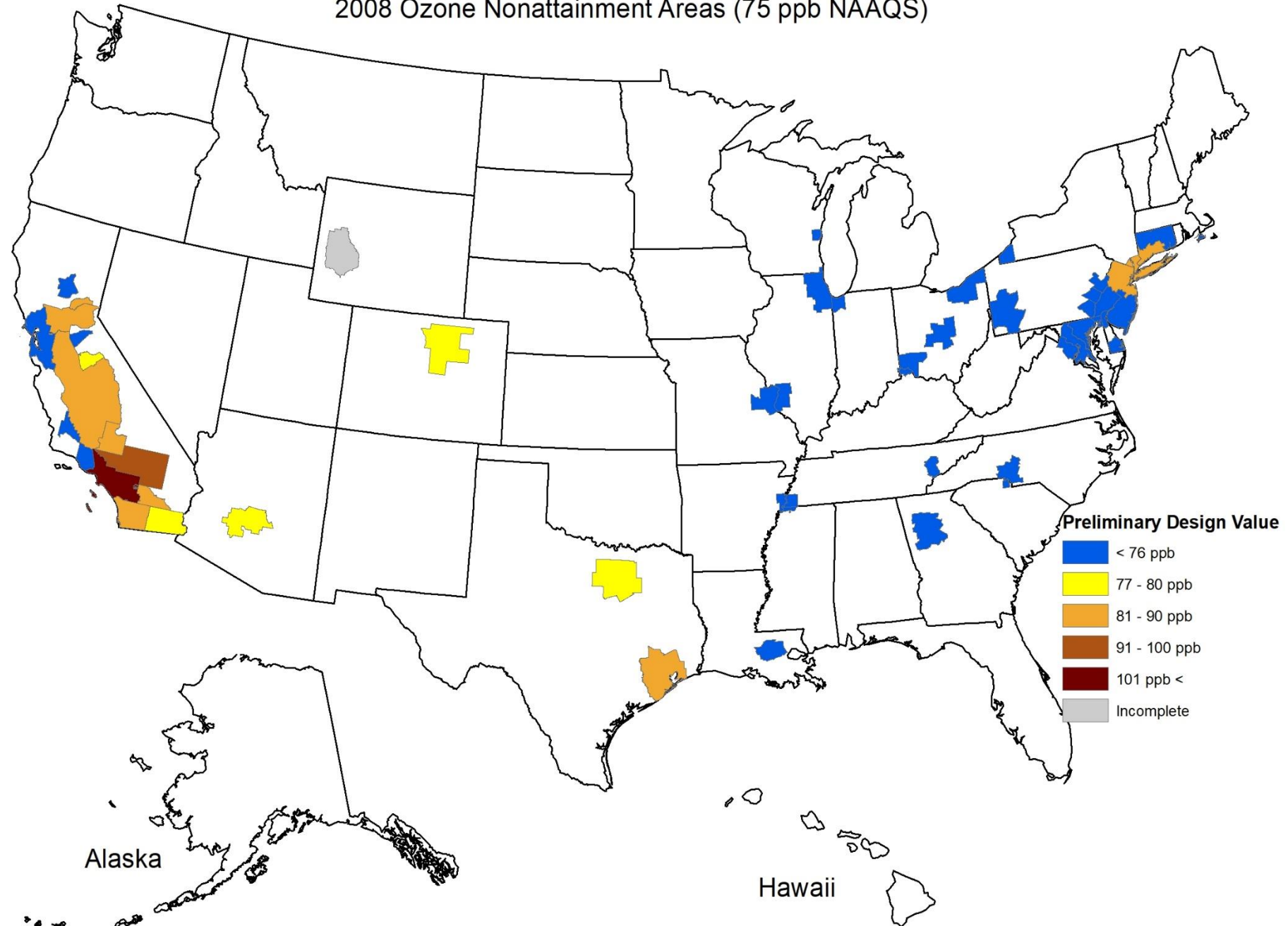
2015 Ozone NAAQS Interstate Transport

- EPA is actively reviewing submitted 2015 ozone NAAQS transport SIPs
 - Received 46 of 56 states/jurisdictions
 - Finalized approval action on 5 SIP submissions
 - Proposed approval on an additional 13 submissions
- Findings of Failure to Submit (FFS) outstanding interstate transport SIPs that were due October 1, 2018
 - On November 22, 2019, EPA issued an FFS finding that 7 states failed to submit interstate transport SIPs for the 2015 ozone NAAQS.
 - 2 states have since submitted
- EPA reviewing a section 176(a) petition from Maine regarding a partial withdrawal from the Northeast Ozone Transport Region; submitted February 24, 2020

2008 Ozone NAAQS Implementation Update

- Moderate Area Update
 - Moderate area Determinations of Attainment by the Attainment Date (DAAD) published August 23, 2019 (84 FR 44238), effective September 23, 2019
 - Separate related final actions for Phoenix, AZ (Nov 2019); Denver, CO (Dec 2019); and Imperial County, CA (Feb 2020)
 - DAAD action established new SIP submittal and RACT implementation deadlines for newly-reclassified Serious areas
 - Redesignation proposals for Inland and Shoreline Sheboygan County, WI areas and Chicago-Naperville, IL-IN-WI area anticipated Spring 2020
- 2008 Ozone NAAQS Interstate Transport
 - **CSAPR Update** – September 13, 2019, D.C. Circuit decision on *Wisconsin v. EPA* ruled for EPA on a number of issues but concluded that EPA's interpretation of the Good Neighbor Provision was unreasonable with regard to the timing of upwind emissions reductions. The court remanded the CSAPR Update without vacatur. EPA is currently reviewing the decision and discussing options.
 - **CSAPR Closeout** – October 1, 2019, D.C. Circuit decision on *New York v. EPA*, was to vacate and remand the CSAPR Close-Out because it did not address states good neighbor obligations with respect to the next applicable attainment date in 2021.

Preliminary 2017 - 2019 Design Values for
2008 Ozone Nonattainment Areas (75 ppb NAAQS)



1997 Ozone NAAQS Implementation Update

- The February 2018 South Coast II ruling reversed several antibacksliding approaches for the revoked 1997 ozone NAAQS, including:
 - not reclassifying areas upon failure to timely attain;
 - “redesignation substitute” mechanisms to terminate antibacksliding controls; and
 - excusing 2nd 10-year maintenance plan obligation for “orphan maintenance areas”
- The ruling held that to remove antibacksliding requirements, areas that were designated nonattainment for the 1997 NAAQS at time of revocation needed to meet all redesignation requirements under CAA section 107(d)(3). Region 6 finalized new redesignation actions:
 - Houston-Galveston-Brazoria, TX area (85 FR 8411; 2/14/20)
 - Dallas-Fort Worth, TX area (85 FR 19096; 4/06/20)
- We plan to update 40 CFR part 52 to reflect certain nonattainment areas that previously attained the 1997 NAAQS by their respective attainment dates (direct final rule anticipated mid-2020).
- We plan to update 40 CFR Part 51 regulatory text to reflect the vacatur.

2010 SO₂ NAAQS Implementation Update

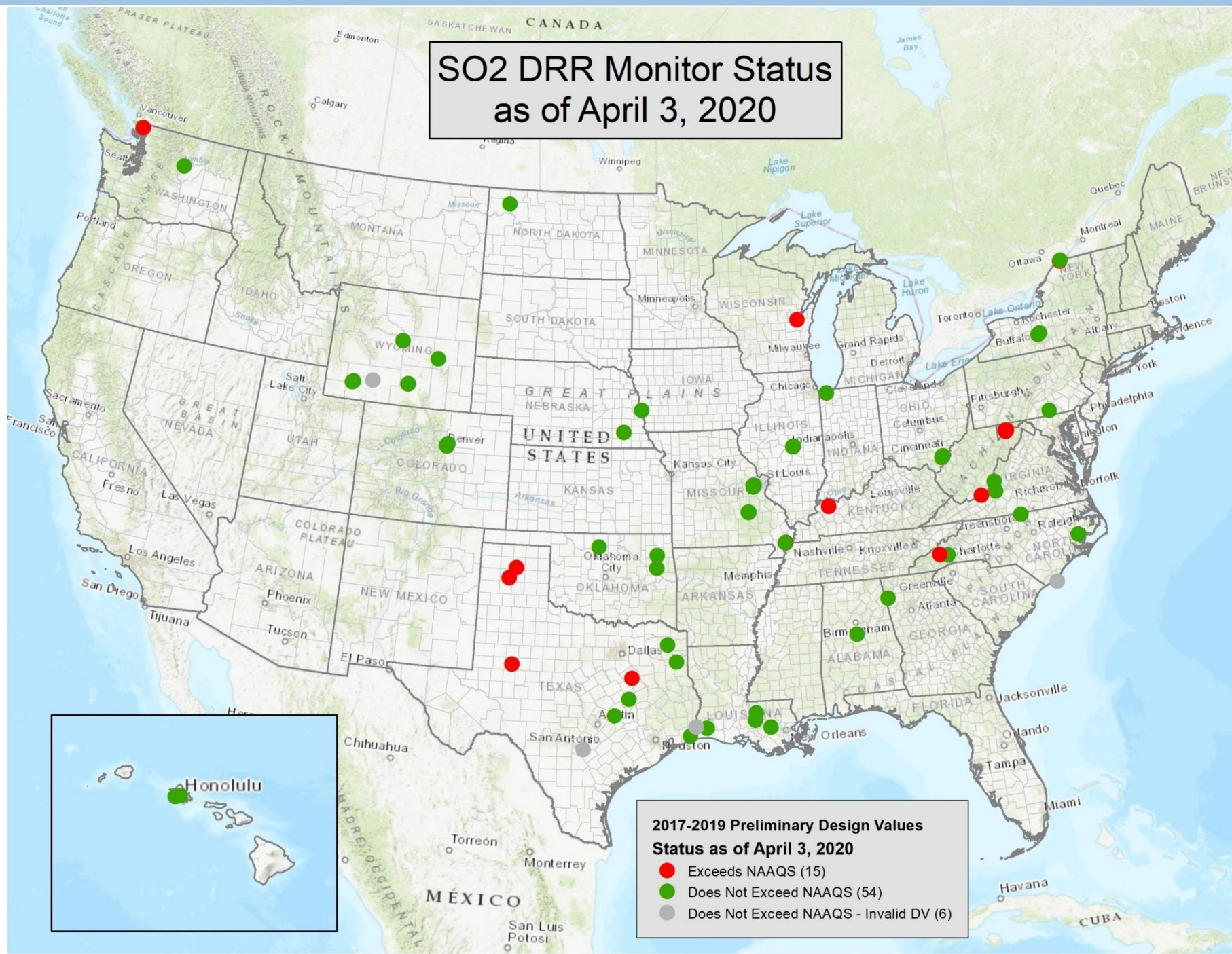
- Round 1 nonattainment areas:
 - EPA has approved attainment plans for 18 areas (out of 29); one area has a CDD
 - EPA is under consent decree to take final action on submitted plans for 1 area by April 30, 2020 and for 8 other areas by October 30, 2020
 - Regional Offices are working with HQ and states on addressing approvability issues for all remaining attainment plans and acting quickly on redesignation requests
- Round 2 nonattainment areas:
 - EPA issued Findings of Failure to Submit attainment plans for two areas in a FR notice dated September 20, 2019, with an effective date of October 21, 2019
 - Attainment plans were due March 12, 2018
- Round 3 nonattainment areas:
 - Attainment plans were due October 9, 2019
- Interstate transport:
 - EPA continues to make good progress approving submitted SO₂ interstate transport SIPs and continues to work with states to submit approvable SIPs addressing the good neighbor provision.

Round 4 SO₂ NAAQS Area Designations

- EPA must designate all remaining portions of the U.S. by December 31, 2020.
- Round 4 Process Guidance Memo issued September 5, 2019.
- The next major milestones are on May 1, 2020.

Milestone	Date
States and tribes certify 2019 SO ₂ monitoring data	No later than May 1, 2020
States and tribes may submit updated recommendations and supporting information for area designations to EPA*	No later than May 1, 2020
States submit exceptional events demonstrations for event-influenced SO ₂ monitoring data from 2017-2019	No later than May 1, 2020
EPA notifies states and tribes concerning any intended modifications to their recommendations (120-day letters)	On or about August 13, 2020
EPA publishes public notice of state and tribal recommendations and EPA's intended modifications, initiating a 30-day public comment period	On or about August 26, 2020 (No later than 120 days prior to final designations)
End of 30-day public comment period	On or about September 25, 2020
In response to EPA's intended designations, states and tribes submit additional information, if desired, to demonstrate why EPA's proposed modification in the 120-day letter to the state's recommended designation or boundary is inappropriate	No later than October 16, 2020
EPA signs notice promulgating final SO ₂ area designations for Round 4	On or about December 17, 2020 (No later than December 31, 2020)

* For any remaining undesignated area (i.e., those areas that installed and began operating EPA-approved SO₂ monitoring networks pursuant to the DRR and that have not been previously designated).



Progress on PM_{2.5} NAAQS Attainment

(as of March 31, 2020)

	1997 PM _{2.5} (2005 Designations)	2006 PM _{2.5} (2009 Designations)	2012 PM _{2.5} (2015 Designations)
Initial Nonattainment Areas	39	32	9
Areas Redesignated to Attainment	35	18	3
Current Nonattainment Areas	4	14	6
Attainment Deadlines	Serious 11/2021	Serious 12/2019	Moderate 12/2021

PM_{2.5} NAAQS Implementation: 2019 Actions

NAAQS	DATE	STATE	AREA	ACTION
1997	5/28/2019	IL	St. Louis	Final Redesignation
2006	4/10/2019	UT	Provo (Serious)	Final Clean Data Determination
2006	9/29/2019	UT	Salt Lake City (Serious)	Final Clean Data Determination
2006	10/03/2019	AZ	West Central Pinal	Final DAAD
2012	4/12/2019	OH	Cleveland	Final Redesignation
2012	9/30/2019	PA	Lebanon County	Final Redesignation
2012	9/30/2019	PA	Delaware County	Final Redesignation

Lead (Pb) NAAQS Implementation Update

- Of the 22 areas designated nonattainment for the 2008 Pb NAAQS, 11 have been redesignated to attainment
- All areas have fulfilled attainment planning requirements
- Current focus:
 - Remaining redesignations
 - Monitor removal issues

Exceptional Events Update

- EPA has concurred on 34 state demonstrations that were submitted since EPA revised the Exceptional Events Rule in September 2016
- Guidance documents to help right-size demonstrations and facilitate the exceptional events process:
 - Stratospheric Ozone Intrusion Guidance – Released November 2018
 - Updated High Wind Dust Event Guidance – Released April 4, 2019
 - Clarification Memo on Data Modification – Released April 4, 2019
 - Prescribed Fire Guidance – Released August 9, 2019
- SPeCS for Exceptional Events is under development and expected to be deployed this summer
- EPA's exceptional events webpage provides additional resources, including example demonstrations for Ozone and PM, and will continue to be updated as new materials become available
 - <https://www.epa.gov/air-quality-analysis/treatment-air-quality-data-influenced-exceptional-events>

ADVANCE

www.epa.gov/advance

- A collaborative program for states, tribes and local governments to achieve ongoing emission reductions in areas designated as attainment/maintenance for ozone or PM_{2.5}
 - 40 current partners with 360+ counties and 45 million population
 - Forum for stakeholder collaboration, monthly info on grants and training opportunities, access to EPA technical assistance
 - Provide annual plan updates to EPA describing relevant programs (e.g., mobile sources, transportation, energy efficiency, renewable energy, stationary, woodsmoke, education)
 - Plans for current partners are on the EPA website
- There are a significant number of other areas with air quality values that are approaching the level of the ozone and PM_{2.5} NAAQS and may be good candidates for Advance
 - We would be happy to schedule a presentation with your organization
 - Contact Rich Damberg (damberg.rich@epa.gov) for more info

Provisions Concerning Start-Up, Shutdown and Malfunction (SSM) Events in SIPs

- In 2015 EPA finalized the SSM SIP Action. That action included: (1) a response partially granting and partially denying Sierra Club's petition for a SIP call; (2) updating, restating, and consolidating SSM policy; and, (3) a SIP Call applying that policy and directing several states to revise SSM-related provisions for exemptions and affirmative defenses in their SIPs. Litigation in the D.C. Circuit challenging that action was put in abeyance in April 2017.
- EPA Region 6 announced an alternative interpretation and withdrew the SIP call for Texas with respect to affirmative defense provisions.
 - Final action published in the Federal Register on February 7, 2020
 - On April 7, 2020, a group of environmental and public health organizations led by Sierra Club filed a petition in the D.C. Circuit for review of EPA's action withdrawing the SSM SIP call issued to Texas
- EPA Region 4 announced an alternative interpretation and withdrew the SIP call for North Carolina with respect to automatic and director's discretion exemptions
 - Final action signed by the Regional Administrator on April 2, 2020

Regional Haze Program: Ongoing Work

- Moving forward as described in the September 11, 2018, Regional Haze Reform Roadmap and supporting states for the second and future implementation periods:
 - 2018 Technical Guidance on Tracking Visibility Progress (completed December 2018)
 - Guidance on Regional Haze State Implementation Plans for the Second Implementation Period (completed August 2019)
 - 2028 Modeling including estimates of U.S. and international source contributions for Class I Areas (completed September 2019)
- Second planning period SIPs due by July 31, 2021
- EPA remains engaged in SIP development
 - We encourage early engagement on all SIPs
 - Regional Offices are available for questions or preliminary feedback

Permitting Related Updates

Overview

- Review Completed Permit Policy Actions
- Update on Recent/Ongoing Actions
- Website Enhancement/NSR Training
- Permitting Process Improvements

Review of Completed Permit Policy Actions

- Actual-to-Projected Actual Emissions Applicability Memo (12/7/2017)
- Project Emissions Accounting Under NSR Memo (83 FR 13745; 3/13/2018)
- PM_{2.5} and Ozone Significant Impact Level (SIL) Guidance (4/17/18)
- Project Aggregation Reconsideration Final Rule (83 FR 57324; 11/15/18)
- Source Determination Clarifications – “Common Control” Interpretation
 - Meadowbrook 4/30/2018 memo to Pennsylvania DEP
 - Ameresco 10/16/2018 memo to Wisconsin DNR

Update on Recent/Ongoing Actions

- Source Determination Clarification – Adjacent
- Ambient Air Policy
- Project Emissions Accounting Rule
- Tribal NSR Oil & Gas FIP Streamlining Amendment
- NSR Error Corrections
- Plantwide Applicability Limit (PAL) Guidance
- Begin Actual Construction Guidance
- Treatment of Biogenic CO₂ in PSD
- Reasonable Possibility Rule Reconsideration
- Ethanol Production Major Source Rule Reconsideration
- Fugitive Emissions Rule Reconsideration

Source Determination Clarification – Adjacent

- **11/26/2019: Final Guidance issued “Interpreting Adjacent for New Source Review and Title V Source Determinations in All Industries other than Oil and Gas”**
- For all industries other than oil and natural gas production and processing, EPA adopts an interpretation of “adjacent” based on physical proximity only
- The concept of “functional interrelatedness” would not be considered by EPA when determining whether activities are located on adjacent properties

Ambient Air Policy

- **12/10/2019: Final Policy issued “Revised Policy on Exclusions from Ambient Air”**
- Limited change to the way EPA applies regulatory definition of ambient air, *“that portion of the atmosphere, external to buildings, to which the general public has access”* – 40 CFR 50.1(e)
- EPA policy for implementing ambient air for PSD was stated in a 1980 Costle letter, *“the atmosphere over land that is owned or controlled by the source and to which public access is precluded by a fence or other physical barriers”*
- Change replaces specific concept of a fence or other physical barriers with *“measures, which may include physical barriers, that are effective in deterring or precluding access to the land by the general public”*

NSR Rulemakings Underway

- **Project Emissions Accounting Rule**

- Proposed rule revisions (84 FR 39244, 8/9/2019) would clarify that both increases and decreases resulting from a project are to be accounted for under Step 1 of the NSR applicability process
 - Intended to eliminate any uncertainty with the rule language
 - Comment period closed 10/8/2019
- Final Rule expected Fall 2020

- **Tribal NSR Oil & Gas FIP Amendment**

- Proposed Part I Registration Form streamlining amendment 7/15/2019
- Rule would reduce the pre-construction waiting period by up to 30 days by providing for concurrent submissions of Part I Form and ESA/NHPA screening documentation
- Final Rule published on March 19, 2020 (85 FR 15279)

- **NSR Error Corrections Rule**

- Proposed rule (12/20/2019, 84 FR 70092) would correct NSR regulation typos and incorrect citations, and update the regulations to remove vacated elements
- Final Rule expected Spring 2020

NSR Rulemakings Underway (cont.)

- **2008 Fugitive Emissions Rule Reconsideration**

- Final Rule exempted certain source categories from considering fugitive emissions in NSR major modification determinations
- EPA granted an NRDC petition for reconsideration of the Rule and stayed its effectiveness
- Litigation (Newmont Mining and NRDC) held in abeyance
- Currently working on a proposal: to OMB April 2020; signature Summer 2020

- **2007 Ethanol Major Source Rule Reconsideration**

- Final Rule raised the applicability threshold from 100 tpy to 250 tpy for major NSR and title V for certain ethanol production facilities
- EPA granted 2009 petition for reconsideration from NRDC; litigation held in abeyance
- EPA letter to NRDC issued 10/21/2019 partially denying/granting petition
- Region 7 is taking action on several SIPs involving ethanol facilities
- Currently working on a proposal to address partial grant (target proposal date is February 2021)

ACE Rule EGU Hourly Emissions Test

- As part of the ACE proposed rule, EPA proposed to incorporate an hourly emissions test for NSR modification applicability for EGUs
- Hourly test would be a tool for states to implement the ACE rule; adoption would not be mandatory
- NSR rulemaking was severed from June 2019 final ACE rule
- Administration still interested in pursuing action on the NSR hourly emissions test

Treatment of Biogenic CO₂ in Air Permitting

- **Consolidated Appropriations Act** (FY2017-FY2020) outlines how EPA and other agencies are to establish consistent policies regarding the use of forest biomass for energy production, including policies that reflect the carbon-neutrality of forest bioenergy
- April 2018 EPA policy statement: Forthcoming regulatory actions will treat biogenic CO₂ resulting from the combustion of biomass from managed forests at stationary sources for energy production as carbon neutral
- Draft Proposed Rule is currently at OMB for review

NSR Guidance Underway

- **Plantwide Applicability Limit (PAL) Guidance**

- PAL regulations were established as part of 2002 NSR reform
- Guidance addresses elements of the PAL regulations that stakeholders have identified as generating perceived risk/disincentives
- Comment period closed 3/16/2020; Final guidance anticipated –Summer 2020

- **Begin Actual Construction Guidance**

- Sources cannot legally “begin actual construction” of a major source or major modification without first obtaining a major NSR permit
- Guidance explores flexibilities under the existing rule language that would allow certain non-emitting activities to be undertaken prior to obtaining a permit
- Draft guidance memo posted for 45-day comment 3/25/2020; Final guidance anticipated – Fall 2020

Title V Petitions Rule

- EPA published the final “**Revisions to the Petition Provisions of the Title V Permitting Program**” in the Federal Register on February 5, 2020 (85 FR 6431)
 - Effective April 6, 2020
- Three main :
 - How to submit a petition (*where* to send it)
 - Mandatory content for petitions (tell us *what* the problem is, on *which* permit)
 - Requires permitting authorities to respond in writing to significant comments, and provide the response with the proposed permit to EPA for review
 - Permitting authorities determine what is significant
 - We have spelled out how this works with “concurrent” review

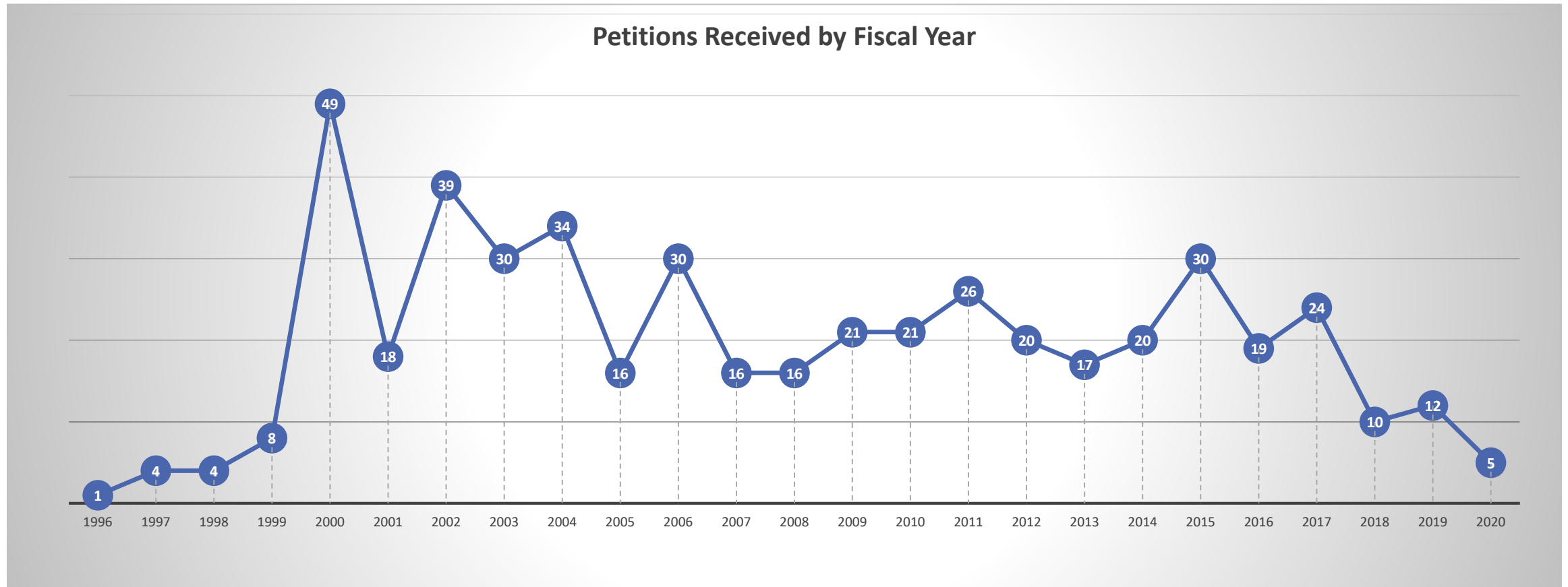
Website Enhancements/Training Development

- Website Improvements
 - Completed several enhancements to the existing EPA air permitting rule and guidance website
 - Organizing guidance documents in NSR and Title V index by topic area
 - Phase I enhancements completed November 2019
 - Phase 2 including topic page descriptions and document summaries targeted for completion of June 2020
- NSR Training Development
 - Received state agency input on recommended NSR training topics
 - Currently developing NSR training modules that will be available through the improved permitting website
 - Targeted for completion of July 2020

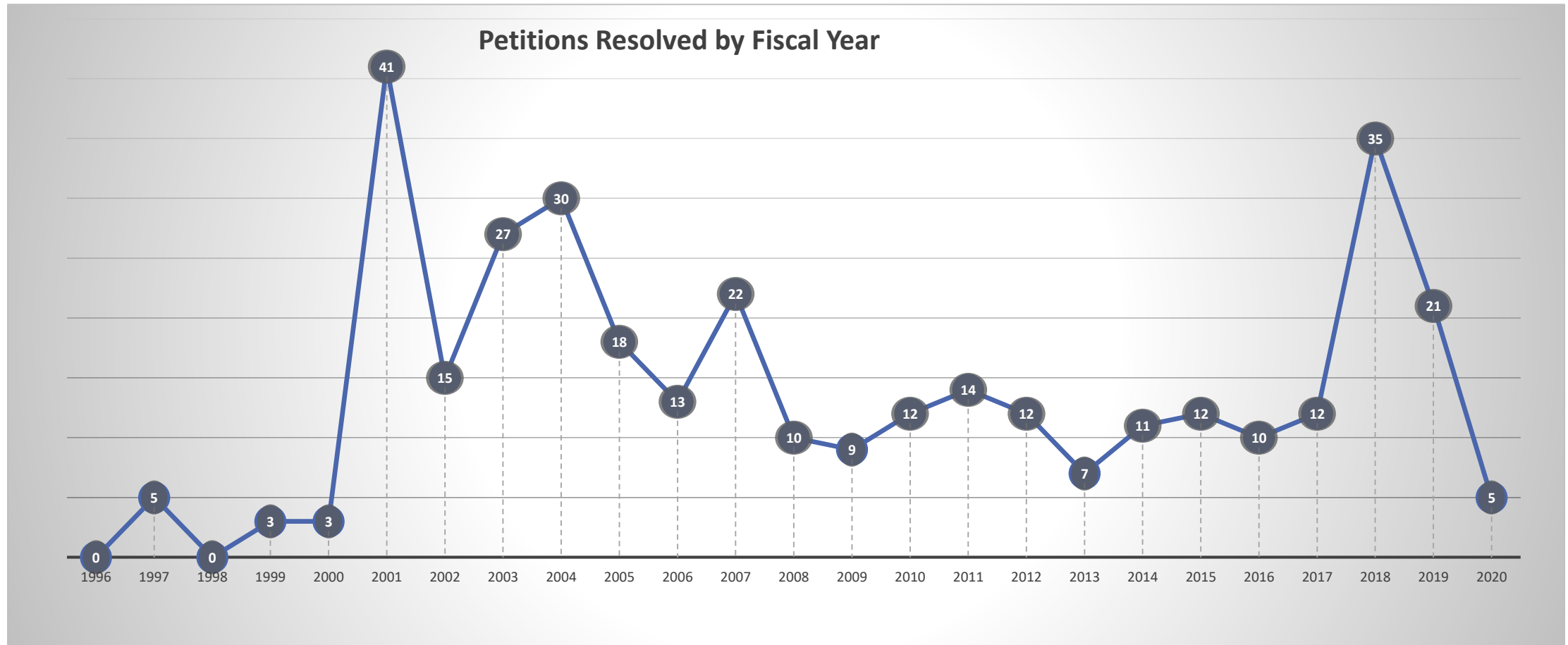
Process Improvements: Electronic Systems

- Central Data Exchange (CDX) for receipt of Title V petitions
 - Target completion date - September 2020
- Electronic Permitting System (EPS)
 - Working with 35 state and local programs to develop system that will allow electronic submittal of state-issued NSR, Title V, and other permits for EPA review
 - Also electronic processing of EPA-issued NSR and title V permits
 - Target for completion – FY-2021
- Replacing and modernizing RACT/BACT/LAER Clearinghouse
 - Target for completion – FY-2021

Title V Petitions Received by Year



Petitions Resolved



Questions and Comments



Appendix

NAAQS Reviews: Status Update

(April 2020)

	Ozone	Lead	Primary NO ₂	Primary SO ₂	Secondary (Ecological) NO ₂ , SO ₂ , PM ¹	PM ²	CO
Last Review Completed (final rule signed)	Oct. 2015	Sept 2016	April 2018	Feb 2019	Mar 2012	Dec 2012	Aug 2011
Recent or Upcoming Major Milestone(s)	<u>Sept 2019</u> Draft ISA ³ <u>Oct 2019</u> Draft PA <u>Early 2020</u> Proposal <u>Late 2020</u> Final	<u>TBD</u> ⁴	<u>TBD</u>	<u>TBD</u>	<u>TBD</u> Final ISA; draft REA/PA	<u>Dec 2019</u> Final ISA <u>Jan 2020</u> Final PA <u>April 2020</u> Proposal <u>Late 2020</u> Final	<u>TBD</u>

Additional information regarding current and previous NAAQS reviews is available at: <http://www.epa.gov/ttn/naaqs/>

¹ Combined secondary (ecological effects only) review of NO₂, SO₂, and PM

² Combined primary and secondary (non-ecological effects) review of PM

³ IRP – Integrated Review Plan; ISA – Integrated Science Assessment; REA – Risk and Exposure Assessment; PA – Policy Assessment

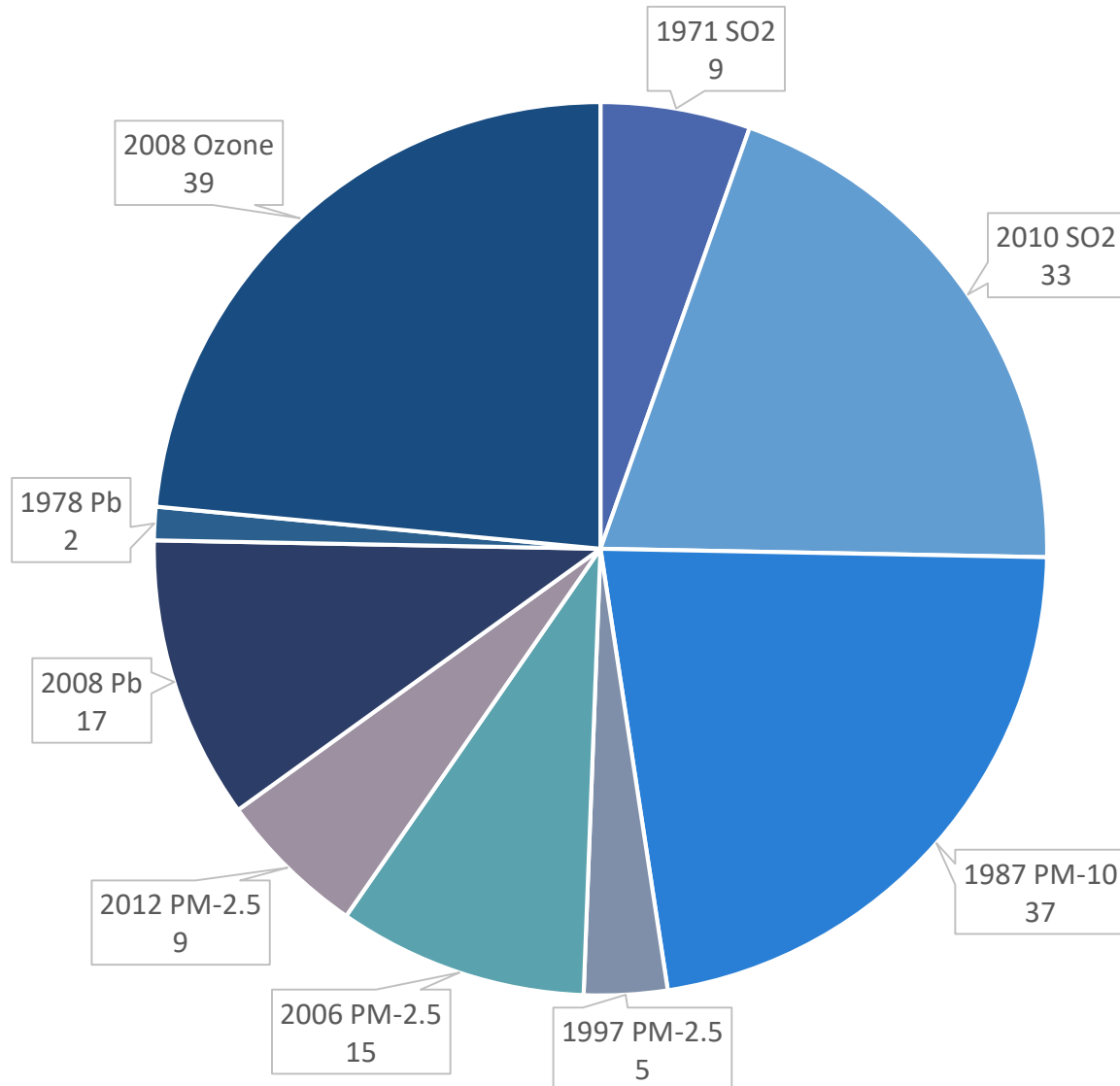
⁴ TBD = To be determined

NAAQS Implementation Milestones (February 2020)

Pollutant	Final NAAQS Signature	Nonattainment Designations Effective	Infrastructure SIP Due	Attainment Plans Due	Attainment Date
PM _{2.5} (2006)	Oct 2006	Dec 2009	Oct 2009	Dec 2014	Dec 2015 (Moderate) Dec 2019 (Serious)
Pb (2008)	Oct 2008	Dec 2010-2011	Oct 2011	June 2012-2013	Dec 2015-2019
PM _{2.5} (2012)	Dec 2012	Apr 2015	Dec 2015	Oct 2016 (Moderate)	Dec 2021 (Moderate) Dec 2025 (Serious)
NO ₂ (2010) (primary)	Jan 2010	Feb 2012	Jan 2013	N/A	N/A
SO ₂ (2010) (primary)	June 2010	Oct 2013, Sept 2016, Apr 2018 (early 2021)	June 2013	Apr 2015, Mar 2018, Oct 2019 (mid 2022)	Oct 2018, Sept 2021, Apr 2023 (early 2026)
Ozone (2008)	Mar 2008	July 2012	Mar 2011	July 2015-2016*	July 2021-2032
Ozone (2015)	Oct 2015	Aug 3, 2018 (Sep 24, 2018 for San Antonio, TX)	Oct 2018	Aug 2021-2022	Aug 2021-2038

* January 2017 for areas reclassified from Marginal to Moderate. August 2020 for areas reclassified from Moderate to Serious.

Nonattainment Areas for Non-revoked NAAQS as of October 1, 2017 (166)



EPA Priority Goal: Reduce Number of Nonattainment Areas

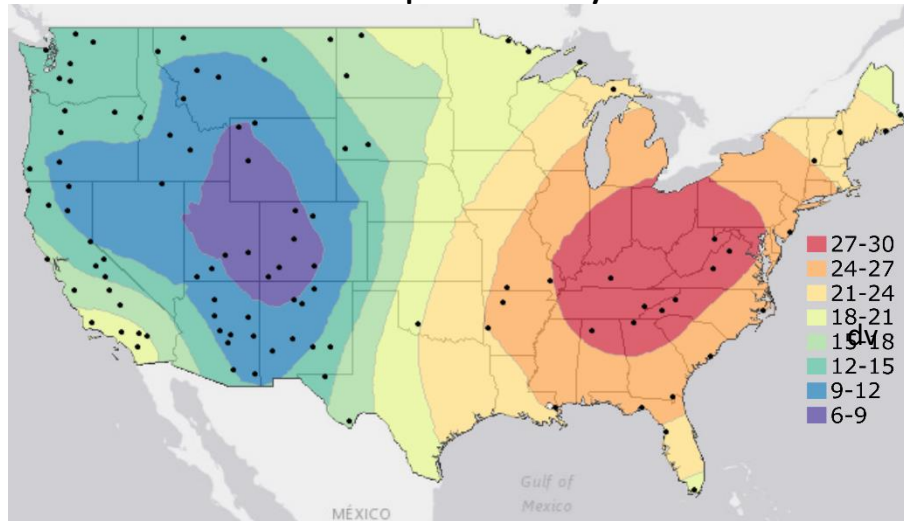
- Work with states to prioritize redesignation request submissions.
- Ensure states have necessary rules, guidance, and tools.
- Improve the efficiency and effectiveness of the SIP/TIP process, including EPA's review process, to maximize timely processing of requested SIP/TIP actions.
- Take federal oversight actions, where necessary.
- For EPA to approve a state's requests to redesignate a nonattainment area, the request must meet the minimum Clean Air Act requirements, which include:
 - A demonstration that the area has air quality that is attaining the NAAQS;
 - Establishing that pollution reductions are due to implementing permanent and enforceable measures;
 - A 10-year maintenance plan that includes contingency measures to be triggered in the event of a re-violation of the NAAQS; and,
 - Satisfying any other applicable and outstanding attainment planning and emissions control requirements.

Regional Haze Program First Planning Period: Visibility is Improving

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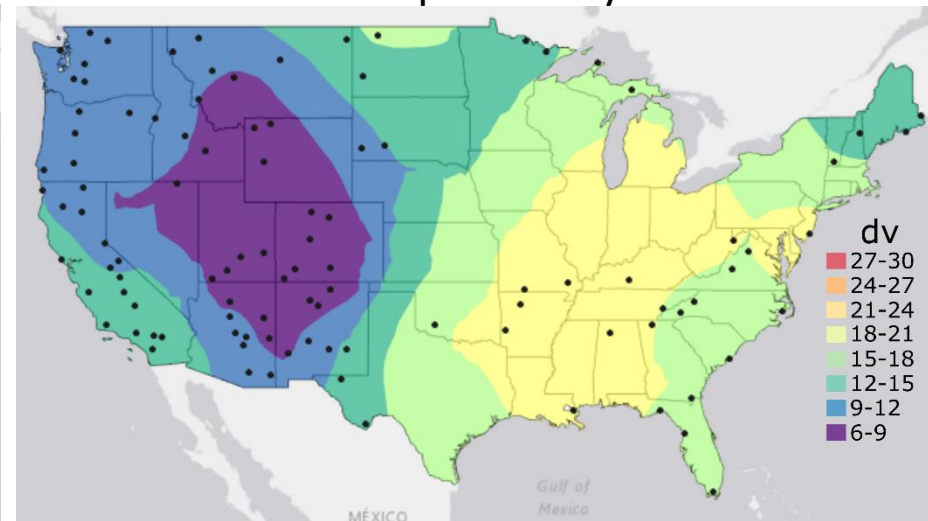
2000-2004

Visibility (dv) on 20% most
impaired days



2013-2017

Visibility (dv) on 20% most
impaired days



- Between 2000 and 2017, state and Federal emissions control programs, including the 1st implementation period of the Regional Haze Program have reduced total SO₂ emissions by 13.6 million tons per year (-84%) and total NO_x by 11.7 million tons per year (-52%)
- EPA estimates that visibility has improved significantly with the average visual range increased by 20 – 30 miles in Class I areas