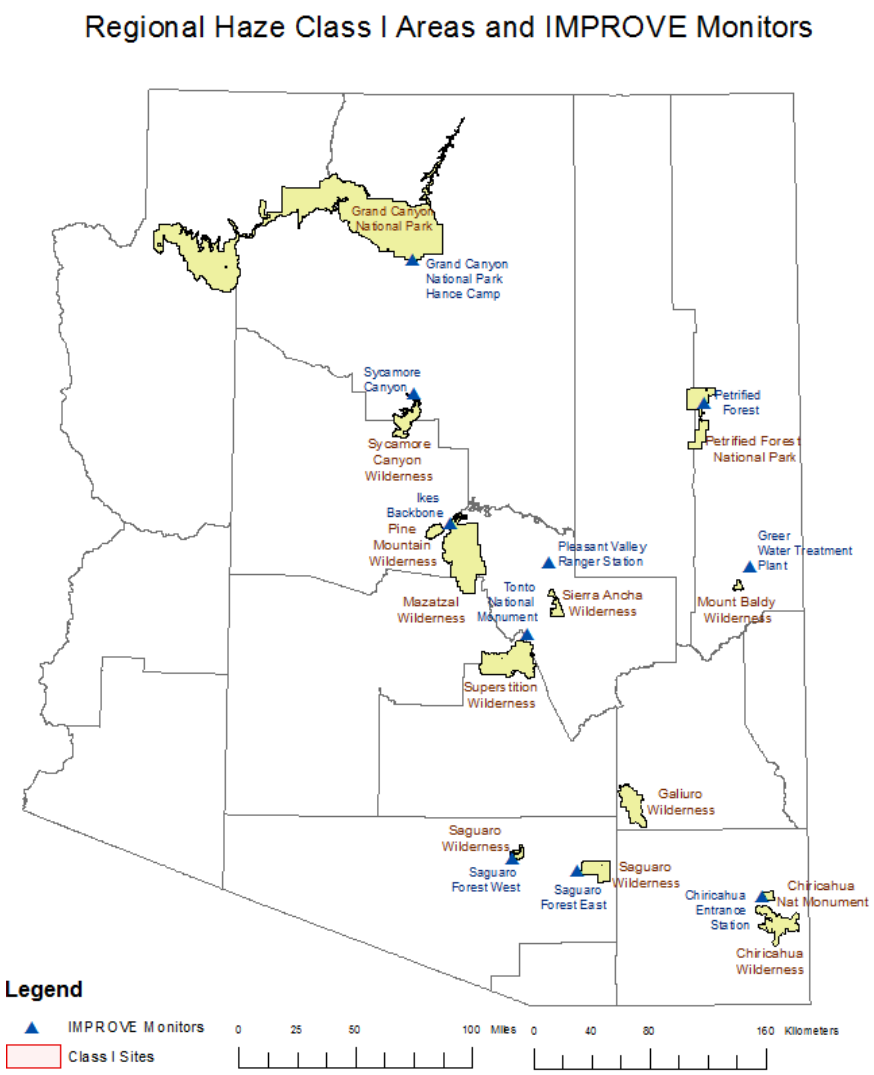
2021 Arizona Regional Haze SIP
2nd Stakeholder Meeting

April 1st, 2019

ADEQ Arizona Department of Environmental Quality

Arizona Class I Areas

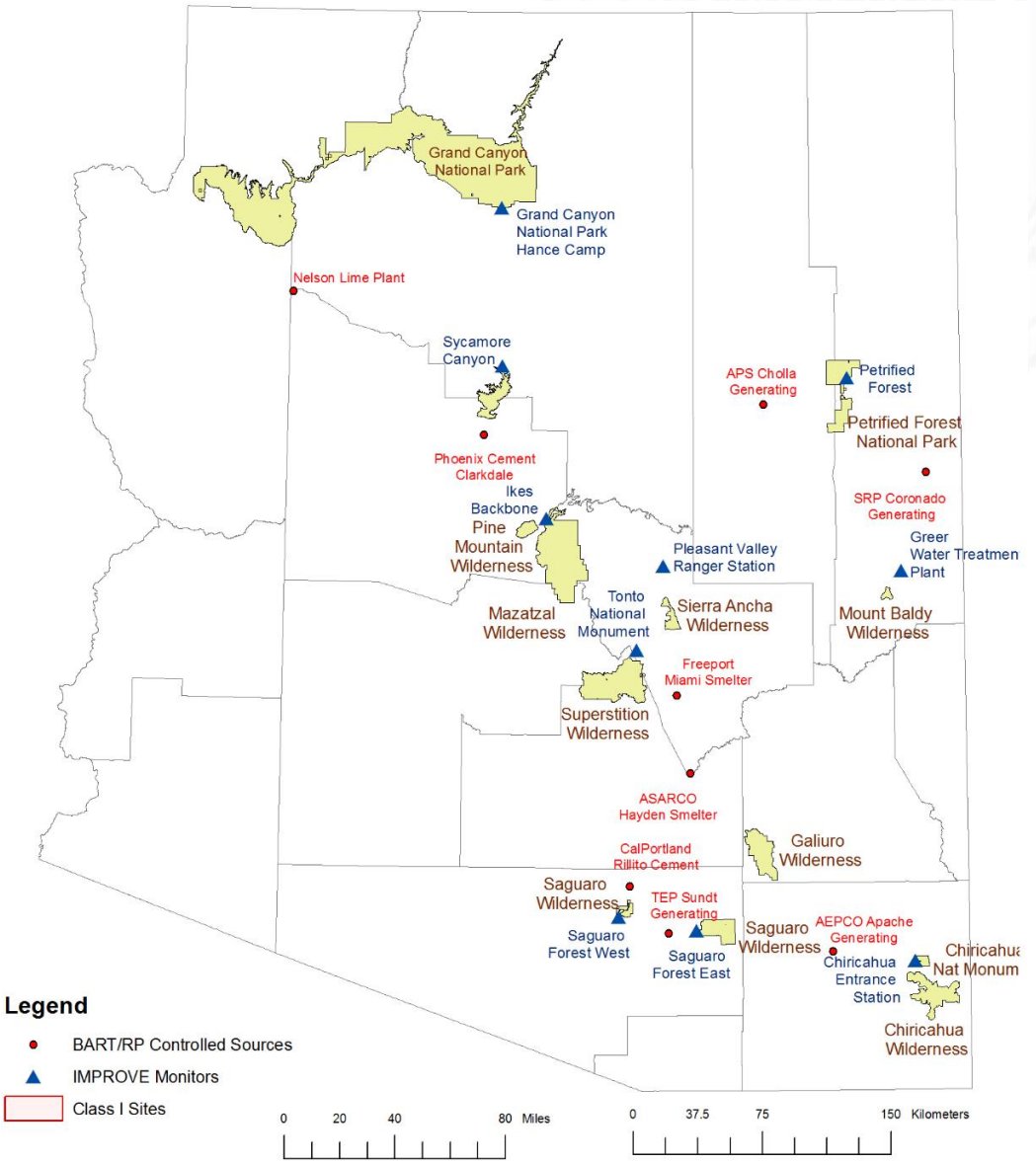


- 10 IMPROVE monitors are operated in Arizona that provide data for the 12 mandatory Class I federal areas.

Area Name	Acreage
Chiricahua National Monument Wilderness	9,440
Chiricahua Wilderness Area	18,000
Galiuro Wilderness Area	52,717
Grand Canyon NP	1,176,913
Mazatzal Wilderness Area	205,137
Mount Baldy Wilderness Area	6,975
Petrified Forest NP	93,493
Pine Mountain Wilderness Area	20,061
Saguaro Wilderness Area	71,400
Sierra Ancha Wilderness Area	20,850
Superstition Wilderness Area	124,117
Sycamore Canyon Wilderness Area	47,757

Regional Haze Round 1 Controlled Sources

- BART Controlled Sources
  - Apache Generating Station
  - Cholla Power Plant
  - Coronado Generating Station
  - Hayden Smelter
  - Miami Smelter
  - Nelson Lime Plant Kiln
  - Sundt Generating Station
- Reasonable Progress Controlled Sources
  - CalPortland Cement Rillito Plant
  - Phoenix Cement Clarkdale Plant



Voice of the Customer

Stakeholder Values	Design Principles
Reasonable progress toward visibility goals	Develop a control strategy that ensures continued progress towards State visibility goals.
EPA approval of SIP	Involve EPA early and often in development cycles for controls and SIP revision.
Produce accurate modeling	Perform model evaluation and calibration using the most recent, complete, and accurate datasets available.
Consider visibility improvement as focus of control analysis	When developing a control analysis methodology, evaluate visibility as a potential screening and/or reasonable progress consideration.
Follow the goals of the Regional Haze roadmap	Where reasonable, ensure the State process is in-line with EPA's recommendations.
Take credit for existing programs	Include existing controls and emission reduction programs in modeling and control analysis.
Affordability for industry and general public	Collect stakeholder feedback on and evaluate the cost of controls during the control analysis. Choose those controls that balance environmental benefit with cost.
Account for international transport	Evaluate available modeled international impacts and attempt to account for transport in visibility analysis.
Cost equity between sources	Stakeholders to lead conversations considering cost equity.
Reach out to sources for future emissions projections	Allow stakeholders ability to evaluate projected emissions and methodologies and provide feedback.

Project Update

- **2014 Base Year Emission Inventory**
- **Initial Control Analysis Source Screening**
- Monitoring Data Analysis
- Outreach

Emission Inventory Development

May 2019	• WRAP review of 2014 NEI dataset • Western EGU emissions analysis workgroup
July 2019	• Base year regional modeling
October 2019	• 2028 on-the-books & on-the way projected emission inventory
December 2019	• 2028 controlled projected emission inventory
April 2020	• Regional control scenarios modeling

- PDEQ undergoing intensive emission inventory review for permitted sources
- Additional coordination with some point sources is needed to consistently define representative and fugitive emissions

Stakeholder Review of 2014 Emissions

- **Please provide base year EI feedback by April 30th**
- 2014 EPA National Emission Inventory (NEI) Point and Nonpoint source data:

  https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- 2014 EPA NEI Point Source Data:

  http://static.azdeq.gov/aqd/haze/doc_2014emissionsinventory.xlsx
- Feedback:
  - Are these emissions correct?
  - Are these emissions representative of normal annual operations?
  - Are there additional controls, unit/source shutdowns, or new units/sources that ADEQ should consider?

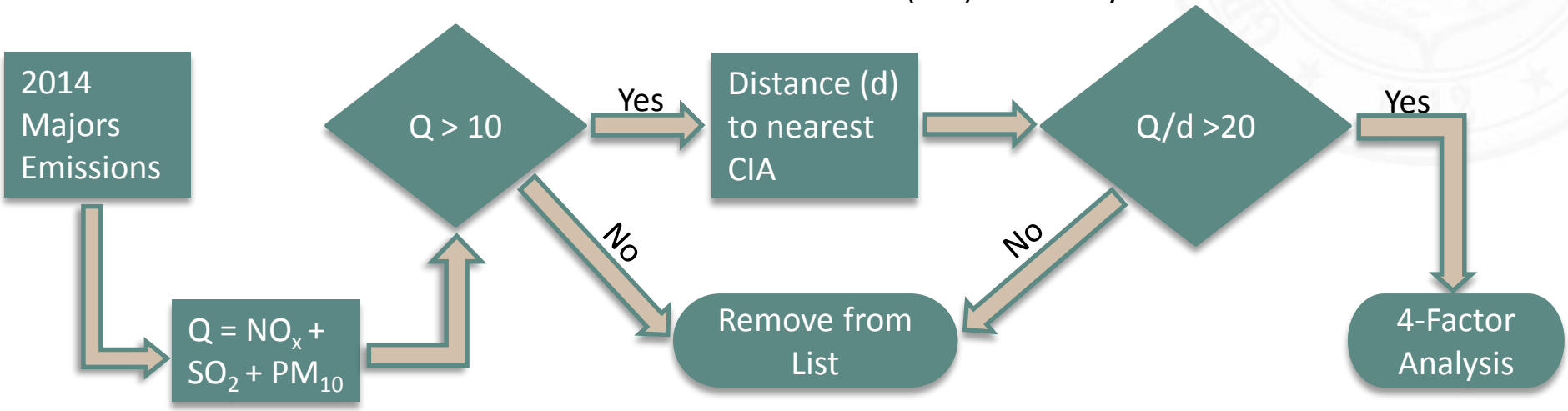
ADEQ Q/d Source Screening Approach

- Additional emission updates, stakeholder feedback, EPA guidance clarification, and modeling results may/will impact the results of this screening analysis
- Impetus for Q/d:
  1. Utilized in approved Round 1 FIP and SIP actions
  2. Federal Land Manager recommended approach
  3. WRAP recommended approach
  4. Recognized in 2016 EPA Regional Haze guidance
  5. Surrogate for baseline visibility impact
- ADEQ is requesting stakeholder feedback on this initial screening approach

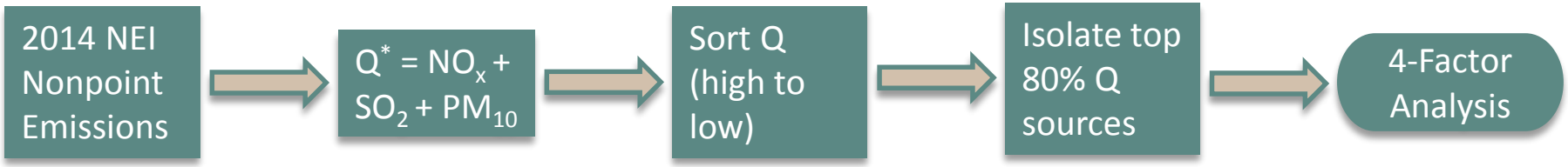
Initial Source Screening Process

Point Source Screening Flow Chart

Q is measured as annual tons of facility-wide emissions for the year 2014.
d is measured as distance in kilometers to nearest Class I area (CIA) boundary

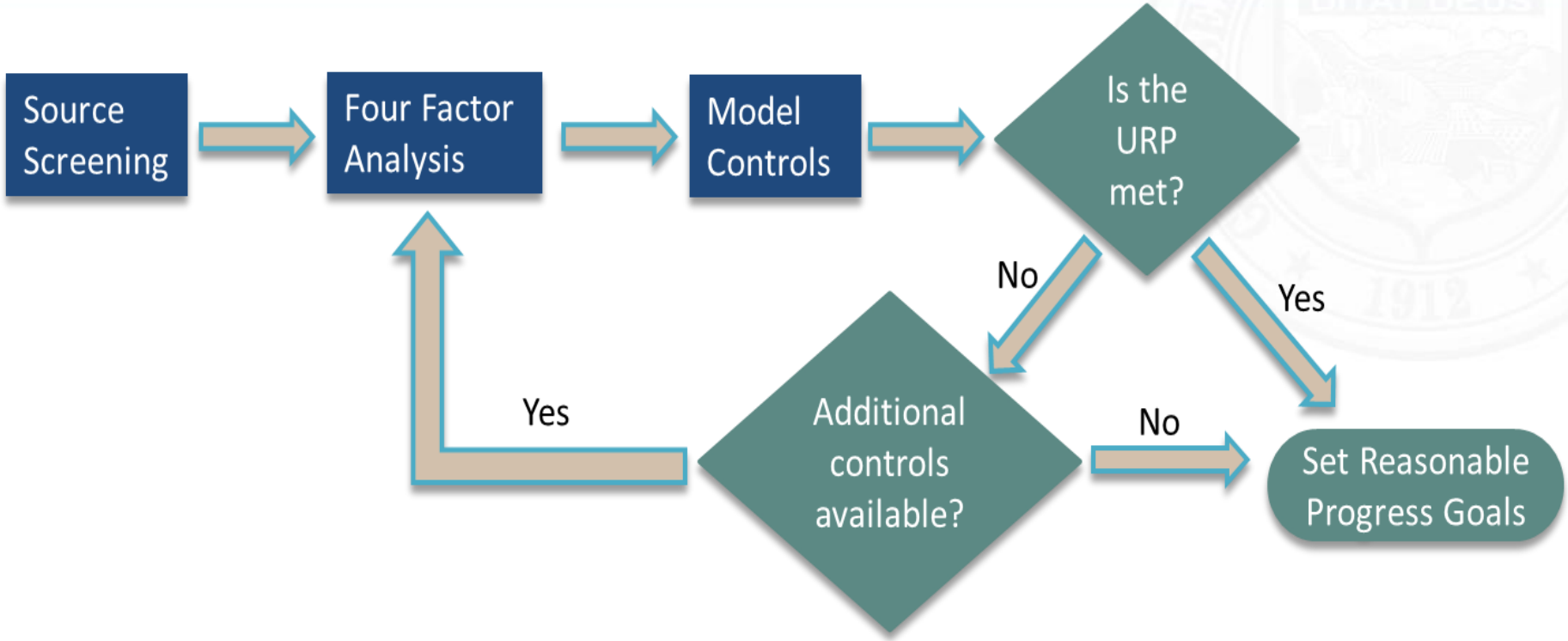


Nonpoint Source Screening Flow



*PM_{10} emissions from counties within 50km of a coarse mass impacted CIA were utilized to estimate Nonpoint Q.

Control Analysis Flow



Regional Haze 4 factors:

1. Cost of compliance
2. Time necessary for compliance
3. Energy and non-air quality environmental impacts
4. Remaining useful life of the source

(Optional) – Visibility impact modeling

Point Source Screening Initial Results (2014 EI)

Source	Q (tpy)	d (km)	Q/d
AEPCO – Apache	11,087	45	247
APS – Cholla	13,174	30	433
ASARCO – Hayden Smelter	17,700	46	381
ASARCO – Mission Complex	3,399	42	81
ASARCO – Ray Complex	874	26	34
CalPortland – Rillito	2,449	8	303
Chemical Lime – Nelson	3,614	27	134
EPNG – Williams Compressor	1,070	19	55
FMMI – Miami Smelter	4,975	18	277
FMMI – Morenci	2,503	54	47
Phoenix Cement – Clarkdale	902	10	91
SRP – Coronado	8,171	48	169
TEP – Springerville	15,555	50	309
TEP – Sundt	2,533	16	160
Transwestern Pipeline – Flagstaff Compressor	626	19	33

Regional Haze Round 1 Point Source Controls

Source	Round 1 RH Controls
AEPCO – Apache	Unit 1: NOx, PM10, SO2 emission limits Unit 2: Conversion to Natural Gas, emission limits (Dec. 5. 2017) Unit 3: SNCR w/ NOx, PM10, SO2 emission limits (Dec. 5 2017)
APS – Cholla	Unit 2: Shut down unit 2 by April 1, 2016. Unit 3: Cease burning coal by April 30, 2025. Option to convert to natural gas by July 31, 2025 (annual average capacity factor of less than or equal to 20 percent). Unit 4: Cease burning coal by April 30, 2025. Option to convert to natural gas by July 31, 2025 (annual average capacity factor of less than or equal to 20 percent).
ASARCO – Hayden Smelter	Anode Furnaces 1 and 2: annual NOX emission limit of 40 tpy and only be charged with blister copper or higher purity copper in order to limit SO2 emissions.
CalPortland – Rillito	Kiln 4: SNCR, NOx emission limits
Chem Lime – Nelson	Kiln 1 and 2: NOx and SO2 emission limits (correspond to SNCR, lower sulfur fuel, existing fabric filter baghouse)
FMMI – Miami Smelter	All Bart Units: NOx emission limits, PM10 emission limits Converters 2-5: SO2 emission limit: control efficiency of 99.7%.
Phoenix Cement – Clarkdale	Kiln 4: SNCR, NOx emission limits
SRP – Coronado	Interim Unit 1: Seasonal Curtailment, plant wide SO2 cap, and emission limits Final Unit 1: After Dec. 31, 2025 install SCR and emission limits or shutdown unit.
TEP – Sundt	Unit 4 Conversion to natural gas with emission limits

Point Source Screening - Next Steps

- Further Screening of previously controlled sources
  - EPA 2016 Guidance: "A source subject to a federally enforceable emission limit that effectively requires it to apply the **most effective control technology** for a given PM species or precursor may be screened out of further analysis for that pollutant…"
- Emissions Data Review
  - Representative Data Review: Are 2014 emissions representative of normal operation?
  - Fugitive emissions reporting review and revision
- Potential consideration of modeling results

Nonpoint Source Screening Results

Source Sector	SCC	2014 Emissions (tpy)			
		NO_x	PM_{10}	SO_2	Q
Non-Residential Construction Dust	2311020000	0	15,536	0	15,536
Locomotives – Mobile	2285002006	18,045	541	11	18,597
Mining & Quarrying	2325000000	0	44,753	0	44,753
Paved Road Dust	2294000000	0	14,501	0	14,501
Unpaved Road Dust	2296000000	0	107,924	0	107,924
Vegetation and Soil – Biogenics	2701220000	13,192	0	0	13,912

- ADEQ considered statewide NOx and SO_2 emissions. PM_{10} emissions were included from counties within 50km of a coarse mass impacted Class I area.
- Where nonpoint source controls are needed, ADEQ will consider emissions within a zone of impact of the CIA.

Arizona Stakeholder/Planning Process

Planning Task	Start Date	End Date	Tentative Stakeholder Feedback Deadline	Stakeholder Input
2028 Emission Inventory	Sept 2018	Oct 2019	Q3 – 2019	Projected emissions, facility information
2028 On-the-Books Air Quality Modeling	Jan 2019	Nov 2019	Q3 – 2019	Facility specific modeling parameters
CIA Progress / Source Screening	Oct 2018	May 2019	Q2 – 2019	ADEQ project update
Control Measure Analysis	Feb 2019	Dec 2019	Q3 – 2019	Tech & economically feasible controls
2028 Control Scenarios Modeling	Sept 2019	Mar 2020	Q4 – 2019	Controlled modeling parameters
Public Comment Period	Mar 2021	May 2021	May 2021	General Stakeholder feedback

SIP Submittal Date is 7/31/2021

EPA Reform Roadmap

- ~~Dec 2018 – Finalized tracking metric~~
- Spring 2019 – Finalized guidance & natural visibility
- Summer 2019 – Revised visibility modeling
- ???? – Revised Rule

Thank you

Questions?

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ADEQ RH 2021 Planning Webpage - http://www.azdeq.gov/2021-regional-haze-sip-planning