Regional Haze
Stakeholder Outreach Webinar #2

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Photo credit Rhett Zyla #IamNMED

What we will cover today

- Overview of Western regional planning ("Storyboard")
- Show examples of Class I Area monitor data
- Update on planning progress of NMED/COA
- Discuss four-factor analyses of control measures
- Modeling impacts
- Solicit feedback from stakeholders

WRAP Regional Planning

- The West is different: distinctive regional concerns

- Western Regional Air Partnership:
  - Provides data/technical services for Western states
  - Forum for consultation to develop consensus
    - States, Tribes, EPA, & Federal Land Managers

- WRAP "Storyboard"
  - Overview of Western perspective on Regional Haze
  - Accessible content, abundant visuals
  - https://views.cira.colostate.edu/wrap_rhpwg_Storyboard_draftNov20_2019/
  - Let's take a (brief) look!

WRAP Regional Planning Area

WRAP Stages of Planning Process

☐ Red highlight = SIP work currently underway

Step 1	**Ambient data analysis**
Step 2	**Determination of affected Class I Areas in other states**
Step 3	**Selection of emission sources for control measure analysis**
Step 4	**Characterization of four factors for control measures analysis**
Step 5	**Decisions on control measures necessary for reasonable progress**
Step 6	**Regional modeling to project 2028 reasonable progress goals (RPGs)**
Step 7	**Compare RPGs to baseline conditions and uniform rate of progress**
Step 8	**Additional requirements: emissions, monitoring, reporting, etc.**

Regional Haze Info and Resources

- NMED website: https://www.env.nm.gov/air-quality/reg-haze/
  - Regional Haze background information
  - View fall 2019 webinar/sign up for listserv
  - List of sources subject to four factor analysis
  - Drafts of four factor analyses submitted by facilities
  - Regional Haze planning schedule
- WRAP Regional Haze website: https://www.wrapair2.org/RHPWG.aspx
- WRAP Technical Support System: https://views.cira.colostate.edu/tssv2/

Ambient Monitor Data

☐ IMPROVE network data: Visibility at NM C1As

Visibility Progress Summary: New Mexico

New Mexico - Class I Area Visibility Trends Summary Most Impaired Days (defined by EPA guidance[1])					
Class I Area	Representative IMPROVE Monitor	IMPROVE 2000-2004	IMPROVE 2008-2012	IMPROVE 2014-2018	Estimated Natural Conditions 2064
Bandelier National Monument	BAND1	9.7 dv	9.3 dv	8.4 dv	4.6 dv
Bosque del Apache National Wildlife Refuge Wilderness	BOAP1	11.6 dv	11.2 dv	10.5 dv	5.4 dv
Carlsbad Caverns National Park	GUMO1	14.6 dv	12.9 dv	12.6 dv	4.8 dv
Gila Wilderness Area	GICL1	9 dv	8.3 dv	7.6 dv	4.2 dv
Pecos Wilderness Area	WHPE1	7.3 dv	6.7 dv	6 dv	3.5 dv
Salt Creek National Wildlife Refuge Wilderness	SACR1	16.5 dv	15.3 dv	15 dv	5.5 dv
San Pedro Parks Wilderness Area	SAPE1	7.7 dv	7 dv	6.4 dv	3.3 dv
Wheeler Peak Wilderness Area	WHPE1	7.3 dv	6.7 dv	6 dv	3.5 dv
White Mountain Wilderness Area	WHIT1	11.3 dv	10.5 dv	10 dv	4.9 dv

1) U.S. EPA. December 2018. Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program. EPA-454/R-18-010
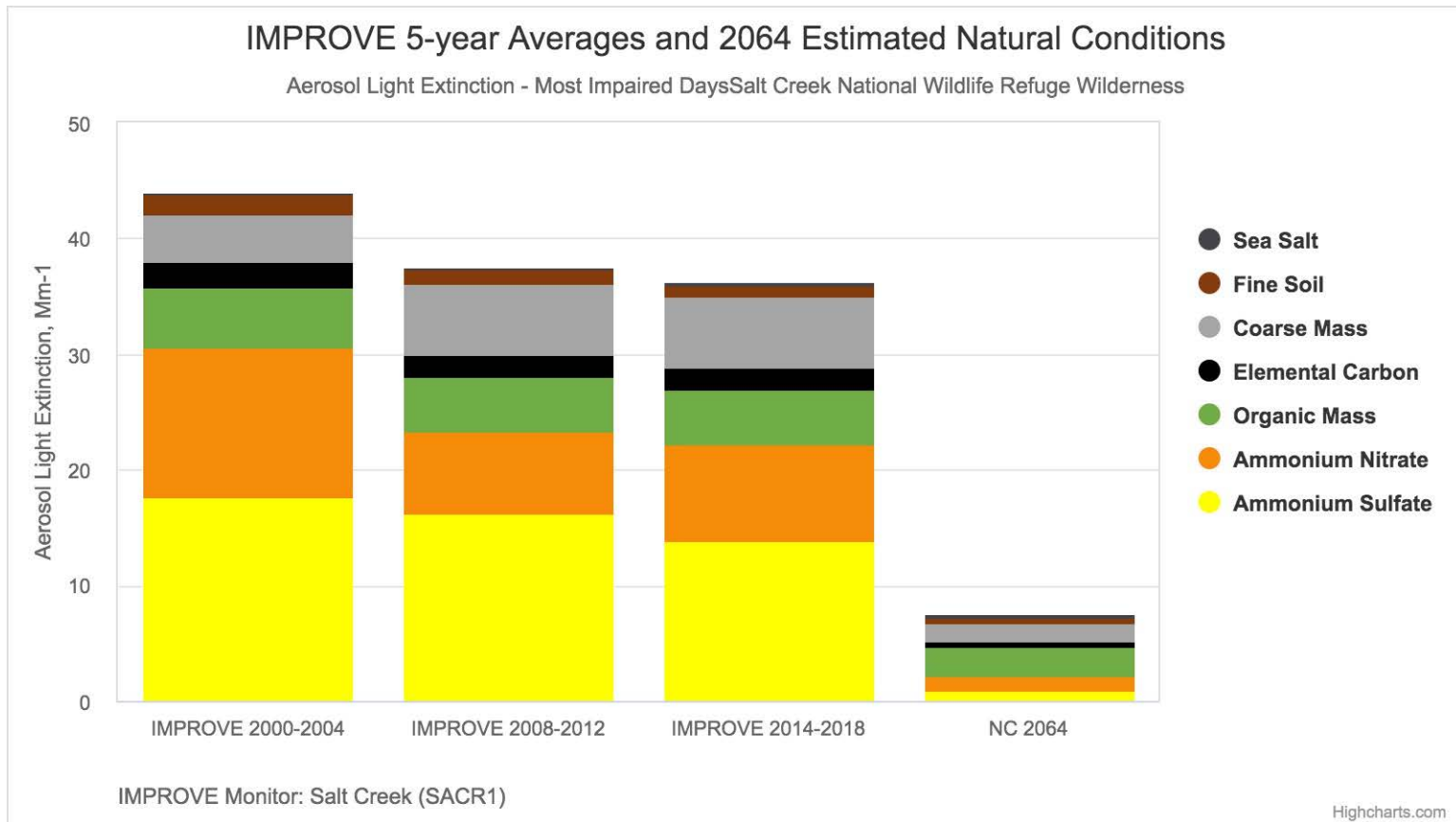
https://views.cira.colostate.edu/tssv2/Express/VisTools.aspx

Requirement:

40 CFR § 51.308(f)(1)(i) to (v)

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Ambient Monitor Data

☐ IMPROVE network data: speciated contributions

IMPROVE 5-year Averages and 2064 Estimated Natural Conditions

Aerosol Light Extinction - Most Impaired DaysSalt Creek National Wildlife Refuge Wilderness

Legend:
- Sea Salt
- Fine Soil
- Coarse Mass
- Elemental Carbon
- Organic Mass
- Ammonium Nitrate
- Ammonium Sulfate

IMPROVE Monitor: Salt Creek (SACR1)

Highcharts.com

https://views.cira.colostate.edu/tssv2/Express/VisTools.aspx

Requirement:
40 CFR § 51.308(f)(2)(iii)

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Ambient Monitor Data

- IMPROVE network data: other states

IMPROVE Annual Average Light Extinction
2000 - 2018 Most Impaired DaysMesa Verde National Park

IMPROVE Monitor: Mesa Verde NP (MEVE1)

https://views.cira.colostate.edu/tssv2/Express/VisTools.aspx
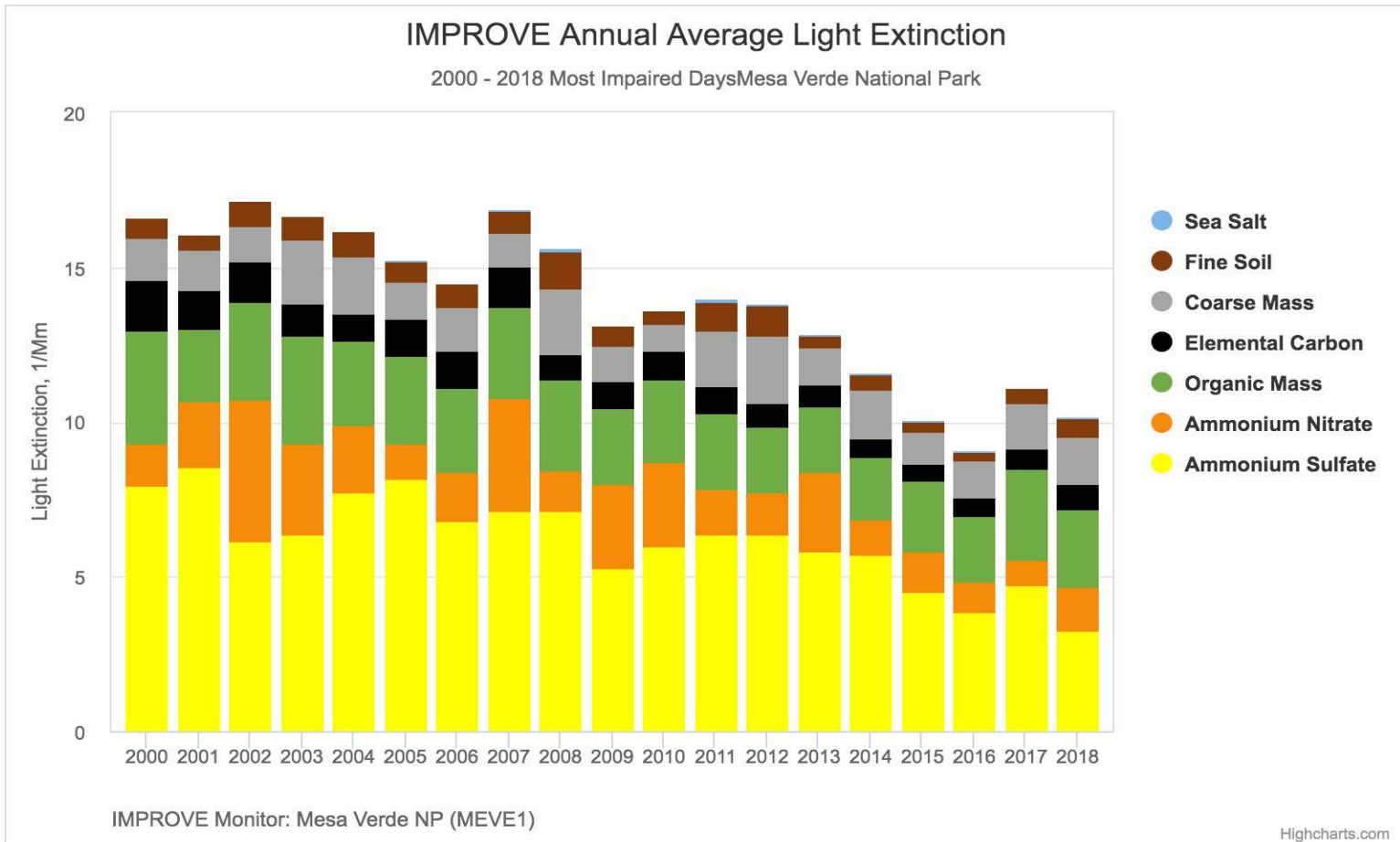
Requirement:

40 CFR § 51.308(f)(2)(ii)

Source Selection Process

- ☐ **"Source selection"**
  - ◘ Determine which facilities will be subject to analysis of potential new control measures (Four-Factor Analysis)
- ☐ **NMED/EHD process based on WRAP guidance**
  - ◘ Target key drivers of visibility impairment: SO_2 and NO_X
  - ◘ For each Title V facility, calculate the following:
    - ■ Q = reported SO_2 + NO_X emissions (tons, 2016)
    - ■ d = distance (kilometers) to nearest Class I Area
    - ■ Q/d = potential visibility impact of facility
  - ◘ Rank all facilities highest to lowest Q/d
  - ◘ Identify facilities accounting for 80% of SO_2 + NO_X
  - ◘ These facilities are subject to Four-Factor Analysis
  - ◘ Minor & Area sources not considered for evaluation

New Mexico Four-Factor Facilities

Title V Facilities w/ Q/d > 5.5	Q/d	Class I area	Company Name
Cunningham Station	7.72	Carlsbad NP	Xcel Energy
Prewitt Escalante Generating Station	26.1	San PedroParks WA	Tri-State Generation and Transmission Association
Roswell Compressor Station No9	7.6	Salt Creek WA	Transwestern Pipeline
Mountainair No7 Compressor Station	5.7	Bosque del Apache WA	
Monument Gas Plant	20.4	Carlsbad NP	Targa Midstream Services
Eunice Gas Processing Plant	13.0	Carlsbad NP	
Saunders Gas Plant	11.7	Salt Creek WA	
San Juan Generating Station	461.0	Mesa Verde NP	Public Service Co. of New Mexico
Indian Basin Gas Plant	9.4	Carlsbad NP	Oxy USA
Bitter Lake Compressor Station	50.2	Salt Creek WA	IACX Roswell, LLC
Kutz Canyon Processing Plant	10.3	Mesa Verde NP	Harvest Four Corners, LLC
Harvest Pipeline - San Juan Gas Plant	8.3	Mesa Verde NP	
Jal No3 Gas Plant	20.5	Carlsbad NP	ETC Texas Pipeline, Ltd.
Chaco Gas Plant	28.2	Mesa Verde NP	Enterprise Field Services
Blanco Compressor C & D Station	7.8	Mesa Verde NP	
South Carlsbad Compressor Station	5.9	Carlsbad NP	
Washington Ranch Storage Facility	23.5	Carlsbad NP	El Paso Natural Gas Company
Pecos River Compressor Station	13.9	Carlsbad NP	
Blanco Compressor Station A	5.6	Mesa Verde NP	
Eunice Gas Plant	18.4	Carlsbad NP	DCP Operating Company, LP
Linam Ranch Gas Plant	7.6	Carlsbad NP	DCP Midstream
Artesia Gas Plant	5.7	Carlsbad NP	
Denton Gas Plant	7.6	Salt Creek WA	Davis Gas Processing
Rio Grande Portland Cement Plant*	16.0	Bandelier WA	

*Located in Bernalillo County outside of NMED Jurisdiction.

Four-factor analysis documentation available at:

https://www.env.nm.gov/air-quality/four_factor_analysis-reports/

What is a Four-Factor Analysis?

- Identify additional controls that are technically feasible for equipment that emits ≥ 5 tpy SO_2/NO_X

- Assess the four factors for feasible controls:
  - Cost of compliance
  - Time necessary for compliance
  - Energy & non-air environmental impacts
  - Remaining useful life of the source

- Calculate cost effectiveness of each control
  - Expressed as $ per ton of annual emission reduction achieved
  - Anticipated cost effective threshold: ≤ $7,000 per ton/year
  - Case by case basis for final determination

Equipment Under Evaluation

- ☐ Oil and gas mid-stream facilities
  - ◻ Reciprocating internal combustion engines (RICE)
  - ◻ Turbines & boilers
  - ◻ Amine units & sulfur recovery units
  - ◻ Flares
- ☐ Power plants
  - ◻ Boilers & turbines
- ☐ Cement manufacturing
  - ◻ Kilns

Example of Potential Controls

- Two-stroke lean burn engines
  - Low emissions combustion, including the Cooper Bessemer Clean Burn Technology™
  - Selective catalytic reduction
  - Replace internal combustion engines with electric utility powered compressors
 - Reduce capacity and/or operating hours

Four-Factor Analysis Progress

- Spring 2019:
  - Q/d to identify facilities subject to four-factor analysis
  - Consultation with EPA & federal land managers
- Summer 2019:
  - Request four-factor analyses from facilities
- Fall 2019:
  - Facilities submit four-factor analyses
  - Initial NMED/EHD review and requests for additional information
- Spring 2020:
  - NMED/EHD continue analysis
- Summer 2020
  - Begin determination of cost effective controls

Regional Modeling

□ WRAP is developing modeling to supply information on weight of evidence for sources of impairment for each Class I area.

□ Weight of evidence helps develop Reasonable Progress Goals using:

  ◘ Future visibility projections

  ◘ Source apportionment

  ◘ Weighted emissions potential
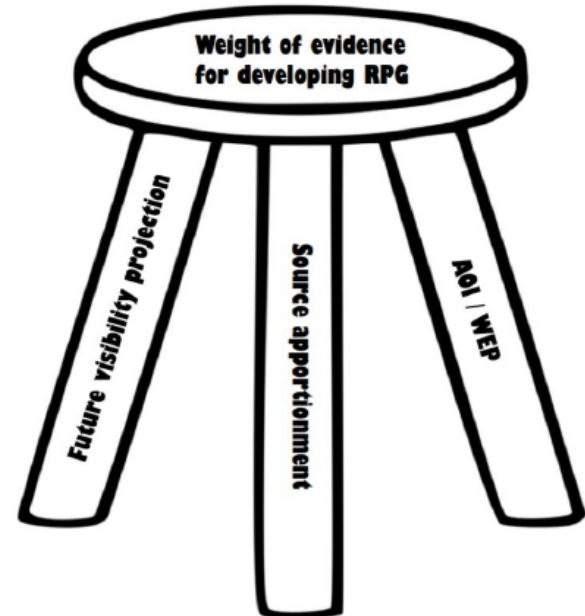
WRAP Modeling for Regional Haze

https://www.wrapair2.org/rtowg.aspx

Regional Technical Operations Work Group

Overview

- Regional analyses in support of planning activities related to emissions and modeling for regional haze, ozone, PM, and other indicators.
- Evaluation of background and regional transport, international transport, sensitivity and other analyses of emissions data focused on the western U.S.
- Perform and leverage modeling, data analysis, and contribution assessment studies.
- Investigation of "background ozone" impacts to western U.S. locations.
- Coordination and collaboration with other WRAP member-sponsored regional air quality modeling groups including IWDW, NW-AIRQUEST, EPA-OAQPS, BAAQMD, and otherstate and local agencies performing regional ozone modeling.
- Provide guidance on more complete and uniform model performance evaluations (MPEs).
- Develop and implement a protocol to use the IWDW-WAQS capabilities as the WRAP Regional Technical Center.

Guidance Documents (final and draft as noted)

Procedures for Making 2028 Visibility Projections using the WRAP-WAQS 2014 Modeling Platform (July 24, 2020 draft)

Adjusting the URP Glidepath Accounting for International Anthropogenic Emissions and Prescribed Fires using the WRAP 2014/2028 Modeling Platform Results (July 24, 2020 draft)

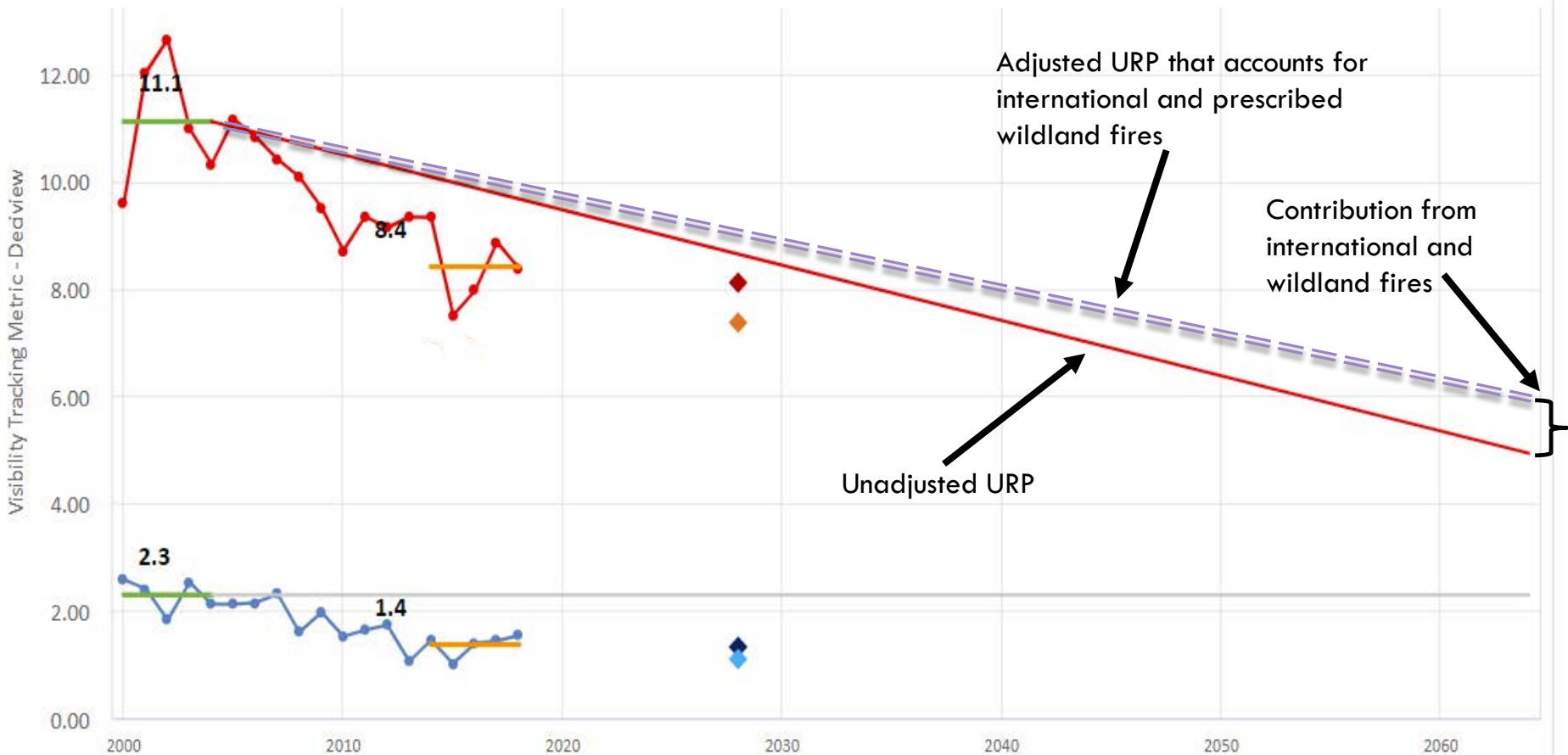June 2020 Regional Haze Modeling Plan Schedule update (PDF) (final)

March 2020 Regional Haze Modeling Plan update (PDF) (final)

January 2020 Regional Haze Modeling Plan update (PDF) (final)

Modeling Products

EPA Uniform Rate of Progress Glidepath for the Visibility Tracking Metric – Deciview

Potential Additional Controls Modeling

- Potential Additional Control (PAC) run for 2028 visibility projections.
  - Submittal to WRAP due September 10th

- Part of weight of evidence for determining reasonable controls and progress goals.

Continuing EPA Steps 4 & 5

- Discuss controls analysis with companies
- Finalize technical feasibility and evaluate the four factors
- Finish the process of identifying cost effective control measures
- Determine emissions reductions that result from preliminary cost effective controls
- Model visibility impacts from potential additional controls
- Stakeholder outreach

EPA Steps 6 & 7

- Develop Reasonable Progress Goals (RPGs) based on WRAP three pillars for weight of evidence

- Compare RPGs to visibility "glidepath"

- Analysis of past and current visibility at New Mexico Class I Areas

- Consultation with other states, tribes, and Federal Land Managers on interstate emissions impacts

- Timeline is available on NMED website: https://www.env.nm.gov/air-quality/reg-haze/

Next Steps in Stakeholder Process

- ☐ Additional Outreach Webinar

- ☐ NMED and EHD plan to release draft State Implementation Plan (SIP) in early 2021.

- ☐ NMED/EHD NM Regional Haze webpage and listserv
  - ▣ https://www.env.nm.gov/air-quality/reg-haze/

- ☐ Please contact NMED/EHD with input
  - ▣ nm.regionalhaze@state.nm.us or
  - ▣ Mark Jones mark.jones@state.nm.us (505) 566-9746
  - ▣ Ed Merta emerta@cabq.gov (505) 768-2660