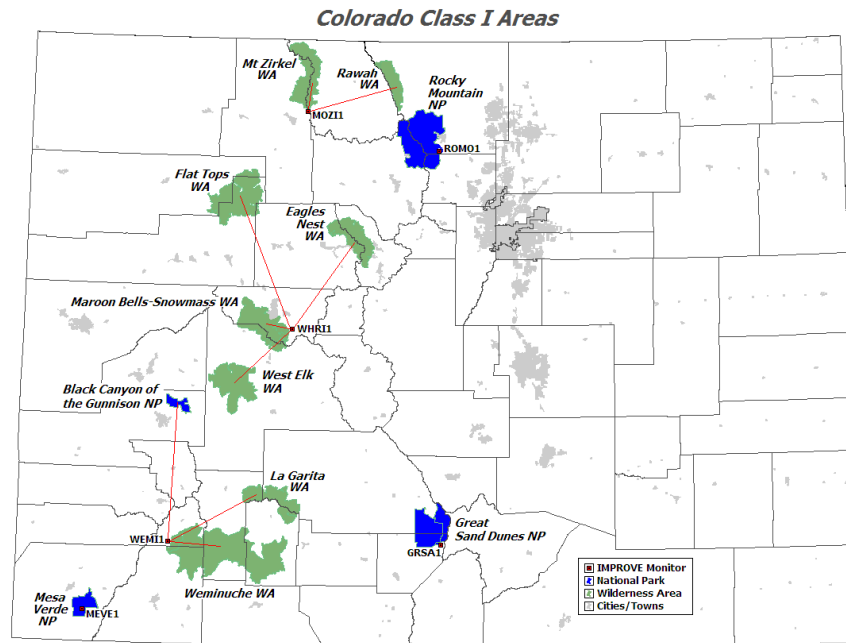


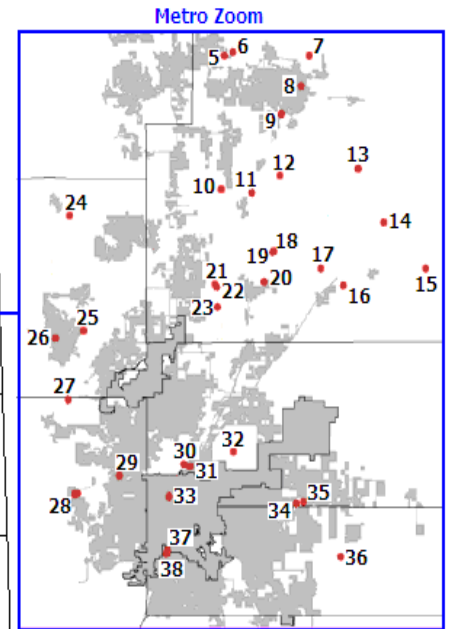
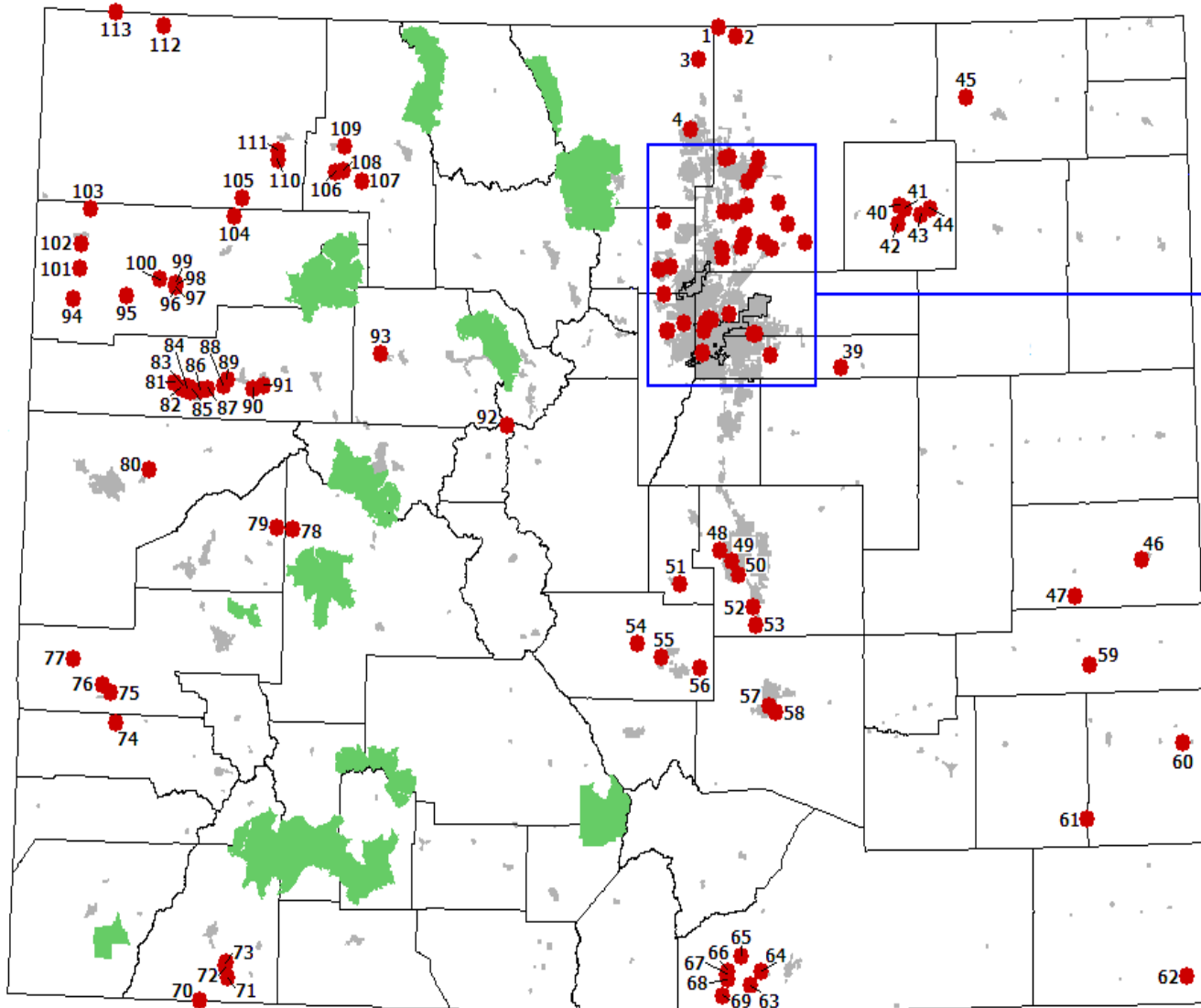
Colorado RH 4-Factor Analysis







Regional Haze Planning Workshop
December 7, 2017
Curt Taipale - Planning and Policy Program



Site Emission \geq 100 tpy for SO₂, NO₂ or PM₁₀
 Number of Sources = 113



Legend

-  Urbanized Areas
-  Class I Areas
-  County Boundary
-  Stationary Source \geq 100 tpy (SO₂, NO₂ or PM₁₀)



Emission Reductions Resulting from the Colorado Regional Haze Program - Round 1

Facility or Unit	Review Type	Assumed Emissions Control Type			2006-2008	Total	2006-2008	Total	2006-2008	Total
					Baseline NOx Emissions (tons/year)	Statewide NOx Reductions by 2018 (tons/year)	Baseline SO2 Emissions (tons/year)	Statewide SO2 Reductions by 2018 (tons/year)	Baseline PM Emissions (tons/year)	Statewide SO2 Reductions by 2018 (tons/year)
1/2 Cemex Cement -Kiln/Dryer	BART	NOx - SNCR	SO2 - none	PM - baghouse**	1,747	846	95	0	10	0
3 CENC-Boiler 4	BART	NOx - LNB+SOFA	SO2 - none	PM - baghouse**	599	214	780	0	11	0
4 CENC-Boiler 5	BART	NOx - LNB+SOFA+SNCR	SO2 - none	PM - baghouse**	691	354	1,406	0	18	0
5 CSU Drake-Unit 5	BART	Retired in 2016			768	768	1,269	1,269	27	27
6 CSU Drake-Unit 6	BART	NOx - ULNB+OFA	SO2 - LSD	PM - baghouse**	1,413	509	2,785	2,368	58	0
7 CSU Drake-Unit 7	BART	NOx - ULNB+OFA	SO2 - LSD	PM - baghouse**	2,081	749	4,429	3,764	55	0
8 PSCo Cherokee-Unit 4*	BART	Convert to Natural Gas by 2018 -operate as peaker			4,274	2,211	2,135	2,127	78	77
9 PSCo Comanche-Unit 1	BART	NOx - LNB**	SO2 - LSD**	PM - baghouse**	1,506	0	1,539	0	84	0
10 PSCo Comanche-Unit 2	BART	NOx - LNB**	SO2 - LSD**	PM - baghouse**	2,349	0	1,244	0	63	0
11 PSCo Hayden-Unit 1	BART	NOx - SCR	SO2 - LSD**	PM - baghouse**	3,750	3,120	1,172	61	96	0
12 PSCo Hayden-Unit 2	BART	NOx - SCR	SO2 - LSD**	PM - baghouse**	3,743	3,032	1,469	39	119	0
13 TriState Craig-Unit 1	BART	Subject to 4,065 NOx limit by 2020, Retire 2025			5,190	0	970	0	100	0
14 TriState Craig-Unit 2	BART	NOx - SCR	SO2 - WS**	PM - baghouse**	5,372	3,975	982	0	87	0
15 PSCo Cherokee-Unit 1*	BART Alt	Retired in 2012			1,556	1,556	2,221	2,221	37	37
16 PSCo Cherokee-Unit 2*	BART Alt	Retired in 2011			2,895	2,895	1,888	1,888	35	35
17 PSCo Cherokee-Unit 3*	BART Alt	Retired in 2015			1,866	1,866	743	743	65	65
18 PSCo Arapahoe-Unit 3*	BART Alt	Retired in 2013			1,771	1,771	925	925	109	109
19 PSCo Arapahoe-Unit 4*	BART Alt	Retired in 2013			1,148	1,148	1,765	1,765	20	20
20 PSCo Valmont-Unit 5*	BART Alt	Retire by 2018			2,314	2,314	758	758	42	42
21 PSCo Pawnee-Unit 1*	BART Alt	NOx - SCR	SO2 - LSD	PM - baghouse**	4,538	3,135	13,472	11,066	108	0
22/23 Black Hills Clark -Units 1/2*	RP	Retired in 2013			861	861	1,457	1,457	72	72
24 CENC-Boiler 3	RP	NOx - none	SO2 - none	PM - baghouse**	180	-66	257	0	2	0
25 CSU Nixon-Unit 1	RP	NOx - ULNB+OFA	SO2 - LSD	PM - baghouse**	2,357	707	4,121	3,215	87	0
26 Holcim Cement Plant	RP	NOx - SNCR	SO2 - WLS**	PM - baghouse**	3,186		287		58	
27/28 PSCo Cameo-Units 1/2	RP	Retired in 2010			1,140	1,140	2,618	2,618	225	225
29 PRP Rawhide-Unit 101	RP	NOx - ECC	SO2 - LSD**	PM - baghouse**	1,866	448	913	0	117	0
30 TriState Craig-Unit 3	RP	NOx - SNCR	SO2 - LSD**	PM - baghouse**	5,693	854	1,792	0	70	0
31 TriState Nucla-Unit 4	RP	Retire by 2022			1,675	0	1,335	0	55	0

Total Emissions (tons/year):	66,528	54,828	1,908
Annual Emission Reduction (tons/year)	34,407	36,285	709

"Assumed Emissions Control Type" reflects the control technology expected to achieve the respective BART or RP limit. * HB 10-1365 Source ** existing controls



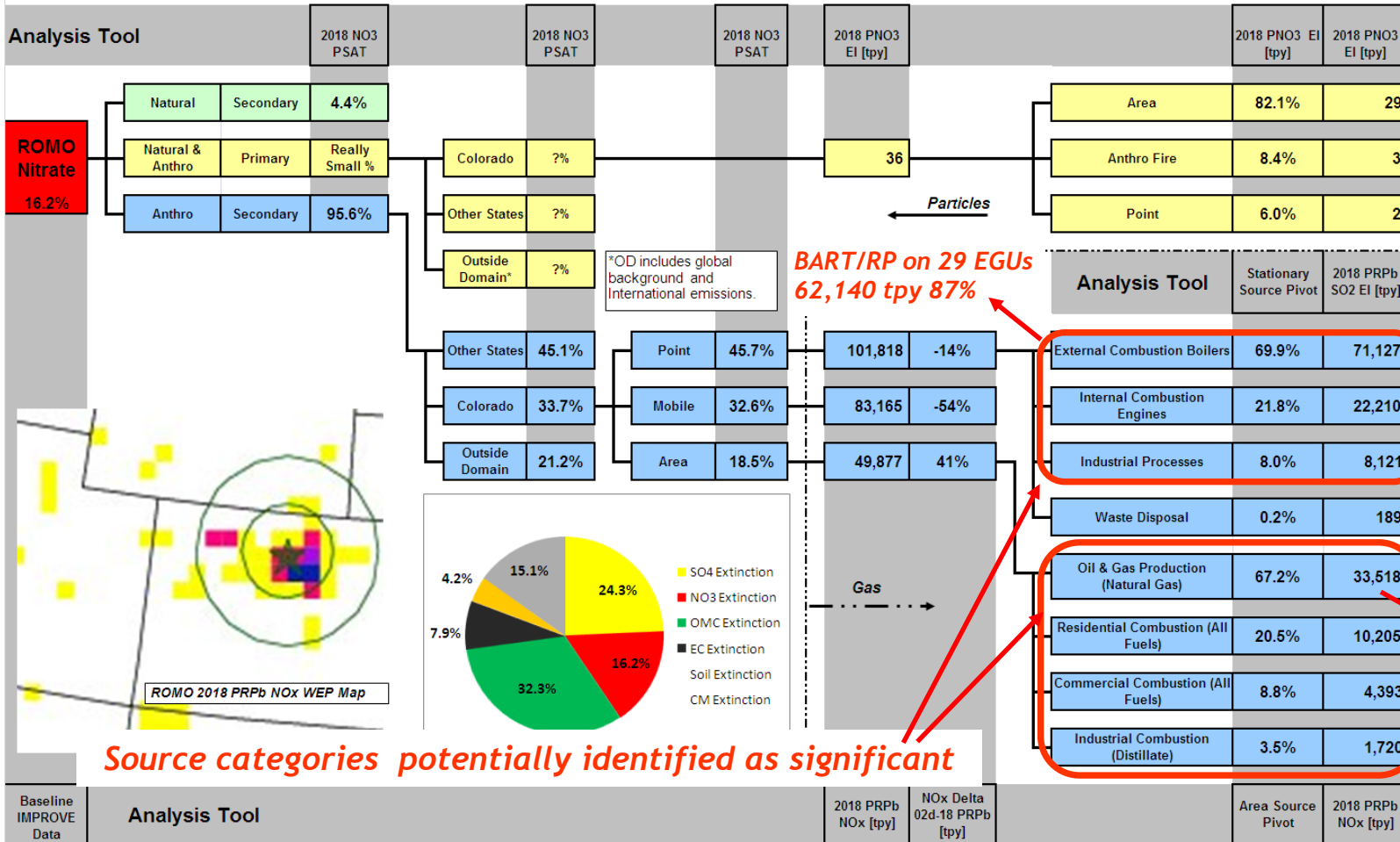
Rocky Mtn Nitrate – Emissions Trace

Rocky Mountain National Park
2018 PRPb Nitrate Emissions Trace

- ROMO has highest monitored Nitrate concentrations (~16%) in State

CAMx PM Source Apportionment (PSAT) Modeling for 2018 Worst Days

Statewide Emission Inventories for 2018



BART/IRP on 29 EGUs
62,140 tpy 87%

Category 4-factor on 16 Turbines 470 tpy (2%)

Category 4-factor on 497 NG RICE 16,199 tpy (73%)

BART/IRP on 2 Kilns 2,800 tpy (34%)

Category 4-factor on 26,000 Heaters 22,901 tpy (68%)

Source categories potentially identified as significant

Baseline IMPROVE Data

Analysis Tool

2018 PRPb NOx [tpy]

NOx Delta 02d-18 PRPb [tpy]

Area Source Pivot

2018 PRPb NOx [tpy]

