

WRAP Emissions Scenarios, Nov. 19, 2020

TSS Sector Name	TSS Selection Menu Label	WRAP Representative Base2	WRAP Representative Base2 changes from 2014v2	WRAP 2028OTBa2 changes from RepBase2	WRAP 2028OTBa2 +PAC2 changes	WRAP 2028OTBa2 +Wildfire changes	2028OTBa2 +Wildland Prescribed fire changes
California All Sectors		CARB-2014v2		X	X		
Electric Generating Units (EGU)	pt_egu	WRAP-RB-EGU	X	X ^a	X		
Oil&Gas- point -WRAP O&G states	pt_oilgas	WRAP-RB-O&G	X	X ^a	X		
Oil&Gas - point - WRAP other states		EPA-2016v1	X	X ^a	X		
Industrial and Non-EGU Point	pt_nonegu	EPA-2014v2	X	X ^a	X		
Oil&Gas - nonpoint -WRAP O&G states	np_oilgas	WRAP-RB-O&G	X	X			
Oil&Gas - nonpoint -WRAP other states		EPA-2016v1	X				
Residential Wood Combustion	rwc	EPA-2014v2					
Fugitive Dust	afdust	EPA-2014v2					
Agriculture	ag	EPA-2014v2					
Remaining Nonpoint	nonpt	EPA-2014v2					
On-road Mobile	onroad	WRAP-2014v2	X	X	CA only		
Non-road Mobile	nonroad	EPA-2016v1	X	X			
Rail	rail	EPA-2014v2		X			
Commercial Marine	cmv_c1c2c3	EPA-2016v1	X	X			
Agricultural Fire	ag-flaming	WRAP-2014v2					
Wildland Prescribed Fire	rxfire	WRAP-RB-fires	X				X
Wildfire	wildfire	WRAP-RB-fires	X			X	
Biogenic	biogenic	WRAP-2014v2					
Other non-WRAP 12WUS2, 36US		EPA-2016v1	X	X			

^a2028OTBa2 inventory is based on 2014v2/RepBase2 but updated based on state inputs.

2014v2 emissions and model run were used for the CAMx 2014 model performance evaluation compared to 2014 air quality data.

All 2028OTB emissions and model scenarios are based on Representative Baseline2 emissions.

Comparison of National Emissions Inventories to WRAP Modeling Inventories State = Montana

Pollutant = NOx (tons/year)

TSS Sector Name	NEI 2014	Model 2014v2	Model RepBase2	NEI 2017	Model 2028OTBa2
Electric Generating Units (EGU)	19877	19885	16958	14037	10167
Oil and Gas - point	1407	2820	2645	1321	2426
Industrial and Non-EGU Point ¹	6652	10628	7085	8102	7374
Oil and Gas - nonpoint	4419	4616	5660	2446	3819
Fugitive Dust ²	0	0	0	0	0
Agriculture ³	0	0	0	0	0
Residential Wood Combustion	177	177	177	194	177
Remaining Nonpoint	5041	5041	5041	5573	5041
On-road Mobile	38230	38220	38220	27636	12767
Non-road Mobile	13244	13174	10868	10452	4639
Rail	21338	21312	21312	19065	13988
Commercial Marine ⁴	0	0	0	0	0
Agricultural Fire	241	632	632	276	632
Wildland Prescribed Fire	2804	2448	2562	1751	2562
Wildfire	622	723	5915	26735	5915
Biogenic ⁵	45558	68577	68577	59604	68577

¹ Remaining Non-Electric Generating Units (Non-EGU) point sources including airports and industrial point sources

² The Fugitive Dust sector contains only PM10 and PM2.5 emissions from area-source anthropogenic dust sources.

³ The Agricultural sector includes only NH3 emissions from livestock and fertilizer

⁴ The Commercial Marine Shipping sector includes C1, C2, and C3 emissions within and offshore of the states.

⁵ Biogenic emissions are reported for CO, NOx, and VOC

Comparison of National Emissions Inventories to WRAP Modeling Inventories

State = Montana

Pollutant = SO2 (tons/year)

Emissions Sector	NEI 2014	Model 2014v2	Model RepBase2	NEI 2017	Model 2028OTBa2
Electric Generation	16548	16566	12549	11260	8079
Oil&Gas Point	106	1370	1373	59	1140
Industrial Point	3376	3437	2859	2850	2842
Oil&Gas Nonpoint	182	232	440	130	445
Fugitive Dust	0	0	0	0	0
Agriculture	0	0	0	0	0
Residential Wood Combustion	26	26	26	53	26
Remaining Nonpoint	3337	3340	3340	3042	3340
Onroad Mobile	117	117	117	90	62
Non-road Mobile	24	24	16	16	11
Rail	13	13	13	13	13
Commercial Marine	0	0	0	0	0
Ag Fire	53	135	136	69	136
Rx Fire	1706	1628	1977	1037	1977
Wildfire	434	479	3498	15720	3498
Biogenic ⁵	0	0	0	0	0

¹ Remaining Non-Electric Generating Units (Non-EGU) point sources including airports and industrial point sources

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³ The Agricultural sector includes only NH3 emissions from livestock and fertilizer

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Comparison of National Emissions Inventories to WRAP Modeling Inventories

State = Montana

Pollutant = PM2.5 (tons/year)

Emissions Sector	NEI 2014	Model 2014v2	Model RepBase2	NEI 2017	Model 2028OTBa2
Electric Generation	1828	1829	1771	1654	1283
Oil&Gas Point	41	60	58	64	55
Industrial Point	2234	2635	2051	2196	2051
Oil&Gas Nonpoint	137	125	109	89	65
Fugitive Dust	24339	24155	24155	52758	24155
Agriculture	0	0	0	0	0
Residential Wood Combustion	1389	1387	1387	1726	1387
Remaining Nonpoint	2297	2297	2297	2253	2297
Onroad Mobile	1225	1224	1224	847	463
Non-road Mobile	1192	1162	959	910	369
Rail	627	626	626	543	353
Commercial Marine	0	0	0	0	0
Ag Fire	1040	2687	2688	919	2688
Rx Fire	21384	21799	25914	12712	25914
Wildfire	6008	6401	43838	191517	43838
Biogenic	0	0	0	0	0

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Comparison of National Emissions Inventories to WRAP Modeling Inventories

State = Montana

Pollutant = PM10 (tons/year)

Emissions Sector	NEI 2014	Model 2014v2	Model RepBase2	NEI 2017	Model 2028OTBa2
Electric Generation	2325	2326	2195	2029	1611
Oil&Gas Point	93	60	108	71	105
Industrial Point	6586	8927	6374	7422	6374
Oil&Gas Nonpoint	139	125	109	89	65
Residential Wood Combustion	1392	1389	1389	1729	1389
Fugitive Dust	156806	156205	156205	368618	156205
Agriculture	0	0	0	0	0
Remaining Nonpoint	4099	4100	4100	3792	4100
Onroad Mobile	1801	1798	1798	1331	1065
Non-road Mobile	1242	1239	997	947	388
Rail	681	680	680	560	364
Commercial Marine	0	0	0	0	0
Ag Fire	1451	3771	3772	1340	3772
Rx Fire	25233	25723	29143	15000	29143
Wildfire	7090	7553	49466	225991	49466
Biogenic	0	0	0	0	0

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Comparison of National Emissions Inventories to WRAP Modeling Inventories

Bernalillo County, New Mexico

Pollutant = NOx (tons/year)

TSS Sector Name	NEI 2014	Model 2014v2 ⁶	Model RepBase2 ⁶	NEI 2017	Model 2028OTBa2 ⁶
Electric Generating Units (EGU)	116.40			155.53	
Oil and Gas - point					
Industrial and Non-EGU Point ¹	1691.40			1838.98	
Oil and Gas - nonpoint					
Fugitive Dust ²					
Agriculture ³					
Residential Wood Combustion	27.95			95.90	
Remaining Nonpoint	3.36			4098.22	
On-road Mobile	9185.30			4098.22	
Non-road Mobile	1859.02			1892.42	
Rail				67.19	
Commercial Marine ⁴					
Agricultural Fire					
Wildland Prescribed Fire	8.11			8.79	
Wildfire	3.15			0.18	
Biogenic ⁵	291.22			384.42	

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⁶ County-level 2014v2, RepBase2, and 2028OTBa2 emissions are already in the TSS database, ready to implement

Comparison of National Emissions Inventories to WRAP Modeling Inventories

Bernalillo County, New Mexico

Pollutant = SO2 (tons/year)

TSS Sector Name	NEI 2014	Model 2014v2 ⁶	Model RepBase2 ⁶	NEI 2017	Model 2028OTBa2 ⁶
Electric Generating Units (EGU)	0.40			0.702	
Oil and Gas - point					

Industrial and Non-EGU Point ¹	234.81			139.485066	
Oil and Gas - nonpoint					
Fugitive Dust ²					
Agriculture ³					
Residential Wood Combustion	4.01			18.4374778	
Remaining Nonpoint	0.36			414.503111	
On-road Mobile	45.94			63.2017983	
Non-road Mobile	4.85			4.83115813	
Rail				0.03072419	
Commercial Marine ⁴					
Agricultural Fire					
Wildland Prescribed Fire	4.21			5.166073	
Wildfire	1.33			0.083726	
Biogenic ⁵					

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Comparison of National Emissions Inventories to WRAP Modeling Inventories

Bernalillo County, New Mexico

Pollutant = PM2.5 (tons/year)

TSS Sector Name	NEI 2014	Model 2014v2 ⁶	Model RepBase2 ⁶	NEI 2017	Model 2028OTBa2 ⁶
Electric Generating Units (EGU)	3.16			4.161	
Oil and Gas - point					
Industrial and Non-EGU Point ¹	172.51			107.788702	
Oil and Gas - nonpoint					

Fugitive Dust ²	3564.56			3605.71685	
Agriculture ³					
Residential Wood Combustion	227.45			832.973988	
Remaining Nonpoint	3.70			777.356234	
On-road Mobile	270.03			282.415517	
Non-road Mobile	211.26			229.036006	
Rail				1.9945087	
Commercial Marine ⁴					
Agricultural Fire					
Wildland Prescribed Fire	45.46			62.894685	
Wildfire	10.64			0.77555	
Biogenic ⁵					

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