

PRP18b Description

- **Second revision of WRAP 2018 point and area source inventory**
 - 2018 Base Case (completed in January 2006)
 - 2018 PRPa (completed in June 2007)

PRP18b Scope

- **Future EGU projections**
- **BART determinations**
- **New rulemaking, permit limits, consent decrees**
- **Other outstanding issues (“leftovers”)**

Methodology – General

- **Agency-specific spreadsheets developed:**
 - Future EGUs
 - BART status
 - Leftovers from PRP18a and Plan02d
- **Spreadsheets e-mailed to agencies**
- **Telephone conferences (December 2008)**
- **Updates to PRP18a inventory**

Methodology – EGUs

- **Revised coal-fired electricity generation projections from *Annual Energy Outlook***
 - Updated economic fundamentals (GDP and electricity demand growth reductions)
 - State renewable portfolio standards (RPSs)
- **Revised status of EGUs under construction or being permitted provided by agencies**
- **Results**
 - EGUs currently under construction or being permitted sufficient to meet latest coal-fired projections for 2018
 - Hypothetical model future 500 MW coal plants included in PRP18a are no longer needed

Methodology – BART

- **Confirmed PRP18a BART SO₂ emission rates for coal-fired EGUs**
- **Obtained BART NO_x emission reductions for coal-fired EGUs**
- **Obtained BART SO₂ and NO_x emission reductions for non-coal-fired EGUs**

Methodology – Miscellaneous

- **Changes consistent with Plan02d inventory**
- **Revision of a few area source categories**
- **Revision of facility information and stack parameters**
- **Incorporation of WRAP Phase II oil and gas emissions data**

Results

- **12 total tables (6 point and 6 area)**
- **For point and area**
 - 3 inventory tables
 - 2018 base case
 - PRP18a
 - PRP18b
 - 3 change tables
 - 2018 base case to PRP18a
 - PRP18a to PRP18b
 - 2018 base case to PRP18b

Summary of 2018 Base Case Emissions Inventory by State - Point (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	67,959	7,782	6,637	25,881	2,885	357	1,104
AZ	77,738	94,408	9,466	33,243	9,893	1,644	729
CA	109,515	49,632	54,632	123,795	33,192	19,497	
CO	112,240	69,213	98,630	58,211	28,697	307	623
ID	14,048	25,467	3,060	38,019	1,741	643	1,650
MT	62,583	45,321	10,446	62,354	11,266	692	422
ND	92,098	162,705	2,493	22,589	4,369	3,052	523
NM	74,874	41,392	26,187	57,506	3,392	1,749	123
NV	69,016	24,041	4,113	20,746	6,200	1,535	1,173
OR	31,761	21,686	41,169	53,655	13,518	16,660	1,016
SD	24,726	15,268	3,523	6,859	1,045	257	102
UT	96,974	52,953	13,600	98,373	18,382	5,812	2,082
WA	49,397	51,355	28,013	187,705	12,096	4,676	5,495
WY	132,116	145,100	27,542	60,504	42,819	19,496	811
Tribal	92,580	32,895	2,864	12,988	7,749	3,206	125
WRAP Total	1,107,626	839,218	332,375	862,429	197,245	79,583	15,978

Summary of PRP18a Emissions Inventory by State - Point (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	67,959	7,555	6,637	25,881	1,766	357	1,104
AZ	73,071	70,337	9,678	34,039	10,878	1,689	753
CA	109,515	49,632	54,632	123,795	33,192	19,497	
CO	113,361	56,979	77,529	63,994	28,296	96	537
ID	12,373	9,945	3,019	35,227	1,406	556	1,619
MT	62,365	36,480	10,501	63,354	11,134	445	422
ND	71,056	67,079	2,495	20,996	5,390	2,789	462
NM	74,600	32,380	26,187	57,376	3,317	1,662	118
NV	67,625	28,167	3,866	27,715	6,036	2,593	864
OR	24,947	7,952	40,639	50,152	13,084	1,283	832
SD	24,727	5,834	3,523	6,859	1,045	257	102
UT	79,761	37,939	13,193	96,453	15,478	4,501	2,050
WA	49,456	37,444	26,212	107,597	9,726	4,387	5,466
WY	133,216	95,144	28,270	64,782	42,839	19,167	811
Tribal	100,503	28,400	3,182	13,560	9,042	3,742	157
WRAP Total	1,064,536	571,266	309,563	791,780	192,630	63,020	15,297

Summary of PRP18b Emissions Inventory by State - Point (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	65,230	8,586	6,603	24,406	1,783	357	1,104
AZ	68,748	67,429	9,401	27,274	10,216	1,567	729
CA	109,290	41,932	54,632	123,795	33,037	19,497	
CO	101,818	44,058	77,312	51,985	26,923	96	571
ID	12,056	9,378	3,017	35,065	1,466	556	1,593
MT	33,505	36,697	10,582	61,044	11,994	641	422
ND	68,615	60,679	2,418	17,477	5,138	2,789	462
NM	73,412	31,012	26,308	55,875	3,537	1,683	118
NV	58,749	41,698	3,693	15,909	12,397	2,214	864
OR	22,292	10,176	42,298	53,373	14,568	1,268	803
SD	30,192	11,987	4,511	16,635	10,081	231	102
UT	78,329	35,429	13,091	90,825	15,003	4,474	2,050
WA	44,206	25,182	23,868	104,874	9,621	4,864	2,450
WY	110,109	96,809	29,378	60,025	42,695	19,167	1,112
Tribal	49,755	33,852	3,214	14,608	9,563	3,816	157
WRAP Total	926,308	554,904	310,327	753,170	208,023	63,220	12,538

Net Emission Changes from 2018 Base Case Emissions Inventory to PRP18a Emissions Inventory - Point (tpy)

Net Changes from 2018 Base Case to PRP18a Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK		-226			-1,119		
AZ	-4,667	-24,071	212	796	984	44	24
CA							
CO	1,121	-12,235	-21,101	5,783	-401	-211	-86
ID	-1,675	-15,522	-41	-2,792	-335	-87	-31
MT	-218	-8,841	55	1,001	-132	-247	
ND	-21,042	-95,626	2	-1,594	1,021	-262	-61
NM	-274	-9,012	0	-130	-74	-87	-5
NV	-1,391	4,126	-247	6,969	-164	1,058	-308
OR	-6,813	-13,734	-530	-3,503	-434	-15,377	-184
SD	1	-9,434		0			
UT	-17,213	-15,014	-406	-1,920	-2,904	-1,311	-31
WA	59	-13,911	-1,801	-80,108	-2,370	-290	-29
WY	1,100	-49,956	729	4,279	20	-329	0
Tribal	7,923	-4,495	318	572	1,293	536	31
WRAP Total	-43,090	-267,951	-22,812	-70,648	-4,615	-16,563	-681

Note: Blank cells represent no change.

Net Emission Changes from PRP18a Emissions Inventory to PRP18b Emissions Inventory - Point (tpy)

Net Changes from PRP18a to PRP18b Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	-2,729	1,031	-34	-1,476	17		
AZ	-4,323	-2,908	-277	-6,765	-661	-122	-24
CA	-225	-7,700			-155		
CO	-11,543	-12,921	-217	-12,008	-1,372		34
ID	-316	-567	-2	-162	60		-26
MT	-28,860	217	81	-2,310	859	196	
ND	-2,441	-6,400	-77	-3,519	-252		
NM	-1,188	-1,369	121	-1,501	220	21	
NV	-8,876	13,532	-173	-11,806	6,361	-379	
OR	-2,655	2,224	1,660	3,221	1,484	-14	-29
SD	5,465	6,153	989	9,776	9,036	-26	
UT	-1,432	-2,510	-102	-5,628	-475	-27	
WA	-5,250	-12,262	-2,344	-2,723	-105	478	-3,015
WY	-23,107	1,665	1,108	-4,758	-145		301
Tribal	-50,748	5,453	32	1,048	521	74	
WRAP Total	-138,228	-16,362	764	-38,611	15,393	200	-2,759

Note: Blank cells represent no change.

Net Emissions Changes from 2018 Base Case Emissions Inventory to PRP18b Emissions Inventory - Point (tpy)

Net Changes from 2018 Base Case to PRP18b Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	-2,729	804	-34	-1,476	-1,101		
AZ	-8,990	-26,978	-65	-5,969	323	-77	0
CA	-225	-7,700			-155		
CO	-10,422	-25,155	-21,318	-6,226	-1,774	-211	-52
ID	-1,992	-16,089	-43	-2,954	-275	-87	-57
MT	-29,078	-8,624	136	-1,310	728	-51	
ND	-23,483	-102,026	-75	-5,112	769	-262	-61
NM	-1,462	-10,381	121	-1,631	145	-66	-5
NV	-10,267	17,658	-420	-4,837	6,197	679	-308
OR	-9,468	-11,510	1,129	-282	1,050	-15,391	-213
SD	5,466	-3,281	989	9,776	9,036	-26	
UT	-18,645	-17,524	-509	-7,548	-3,378	-1,339	-31
WA	-5,191	-26,174	-4,145	-82,831	-2,475	188	-3,045
WY	-22,007	-48,290	1,837	-479	-125	-329	301
Tribal	-42,825	957	350	1,620	1,814	610	31
WRAP Total	-181,318	-284,314	-22,048	-109,259	10,778	-16,363	-3,440

Note: Blank cells represent no change.

Summary of 2018 Base Case Emissions Inventory by State - Area (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	9,293	6,044	16,539	29,056	21,531	6,878	639
AZ	12,559	3,410	171,415	70,097	137,883	39,333	9,457
CA	117,717	9,772	357,746	384,967	190,987	84,801	
CO	44,041	7,499	173,092	94,595	185,238	48,423	97
ID	42,068	2,721	194,210	40,971	62,881	7,703	2,288
MT	36,053	3,432	67,477	41,415	173,892	40,015	608
ND	21,129	5,856	82,651	21,607	311,273	64,978	463
NM	172,319	15,753	399,205	47,997	144,289	34,664	910
NV	7,488	14,194	47,610	17,479	97,756	23,313	1,646
OR	17,027	8,422	334,872	380,524	225,925	81,745	250
SD	7,207	11,667	50,072	25,112	226,750	48,648	502
UT	21,636	3,587	173,344	45,962	34,279	5,761	1,680
WA	22,746	8,667	253,710	252,447	348,329	113,985	7,022
WY	79,196	23,109	436,885	34,463	45,027	12,436	514
Tribal	6,639	2	18,240	564	2,062	412	0
WRAP Total	617,116	124,136	2,777,068	1,487,257	2,208,103	613,095	26,075

Summary of PRP18a Emissions Inventory by State - Area (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	9,178	6,044	16,459	29,055	21,531	6,878	639
AZ	12,799	3,408	170,958	77,964	136,760	39,625	9,457
CA	117,717	9,772	357,746	384,967	190,987	84,801	
CO	49,849	7,501	179,674	99,268	185,238	48,423	97
ID	42,068	3,053	194,210	40,971	62,881	7,703	2,288
MT	19,404	3,431	74,031	41,317	173,892	40,016	608
ND	33,320	5,858	87,567	21,646	311,273	64,978	463
NM	108,415	15,749	338,404	85,953	141,600	33,738	910
NV	7,478	14,194	53,180	17,478	97,756	23,313	1,646
OR	17,023	8,422	334,867	380,524	225,925	81,745	250
SD	5,004	4,085	50,238	24,087	224,076	48,157	496
UT	15,935	3,583	159,949	45,956	34,279	5,761	1,680
WA	22,746	8,667	253,710	252,447	348,329	113,985	7,022
WY	53,806	23,097	336,999	39,017	45,027	12,436	514
Tribal	6,639	2	18,240	564	2,062	412	0
WRAP Total	521,380	116,865	2,626,230	1,541,214	2,201,617	611,968	26,069

Note: Shaded cells indicate state-level emissions that include WRAP Phase II oil and gas emissions.

Summary of PRP18b Emissions Inventory by State - Area (tpy)

State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	9,178	6,044	16,459	29,055	21,531	6,878	639
AZ	12,799	3,408	170,958	77,964	136,760	39,625	9,457
CA	90,084	9,747	356,057	378,271	191,010	84,827	
CO	49,849	7,501	179,674	99,268	185,238	48,423	97
ID	42,068	3,053	203,875	40,971	62,881	7,703	2,288
MT	19,404	3,431	74,030	41,317	173,892	40,015	608
ND	33,320	5,858	87,567	21,646	311,273	64,978	463
NM	108,415	15,749	338,404	85,953	141,600	33,737	910
NV	7,478	14,194	53,180	17,478	53,361	23,313	1,646
OR	17,023	8,422	334,867	380,524	225,925	81,745	250
SD	3,860	1,663	50,221	23,789	223,940	48,058	453
UT	15,935	3,583	159,948	45,956	34,279	5,761	1,680
WA	21,861	8,576	215,450	199,929	341,174	108,249	7,022
WY	53,805	23,097	336,999	39,017	45,027	12,436	514
Tribal	6,639	2	18,240	564	2,062	412	0
WRAP Total	491,719	114,327	2,595,930	1,481,702	2,149,954	606,159	26,027

Note: Shaded cells indicate state-level emissions that include WRAP Phase II oil and gas emissions.

Net Emission Changes from 2018 Base Case Emissions Inventory to PRP18a Emissions Inventory - Area (tpy)

Net Changes from 2018 Base Case to PRP18a Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	-116	0	-80	-1			
AZ	240	-2	-457	7,867	-1,123	292	
CA							
CO	5,808	2	6,582	4,673			
ID		333					
MT	-16,649	-2	6,554	-98			
ND	12,192	1	4,916	39			
NM	-63,904	-4	-60,801	37,956	-2,689	-927	
NV	-9	0	5,570	-1			
OR	-4		-5	0			
SD	-2,203	-7,582	166	-1,025	-2,674	-491	-6
UT	-5,701	-4	-13,396	-6			
WA							
WY	-25,391	-12	-99,886	4,554			
Tribal							
WRAP Total	-95,738	-7,270	-150,838	53,958	-6,486	-1,126	-6

Note: Blank cells represent no change.

Net Emission Changes from PRP18a Emissions Inventory to PRP18b Emissions Inventory - Area (tpy)

Net Changes from PRP18a to PRP18b Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK							
AZ							
CA	-27,633	-25	-1,688	-6,696	22	26	
CO							
ID			9,665				
MT							
ND							
NM							
NV					-44,395		
OR							
SD	-1,143	-2,422	-17	-298	-136	-99	-42
UT							
WA	-885	-91	-38,260	-52,518	-7,155	-5,736	
WY							
Tribal							
WRAP Total	-29,661	-2,538	-30,300	-59,512	-51,663	-5,809	-42

Note: Blank cells represent no change.

Net Emissions Changes from 2018 Base Case Emissions Inventory to PRP18b Emissions Inventory - Area (tpy)

Net Changes from 2018 Base Case to PRP18b Emissions Inventory (tpy):							
State	NO _x	SO ₂	VOC	CO	PM ₁₀	PM _{2.5}	NH ₃
AK	-116	0	-80	-1			
AZ	240	-2	-457	7,867	-1,123	292	
CA	-27,633	-25	-1,688	-6,696	22	26	
CO	5,808	2	6,582	4,673		0	
ID		333	9,665				
MT	-16,649	-2	6,554	-98			
ND	12,192	1	4,916	39			
NM	-63,904	-4	-60,801	37,956	-2,689	-927	
NV	-9	0	5,570	-1	-44,395		
OR	-4		-5	0			
SD	-3,347	-10,005	149	-1,324	-2,810	-590	-49
UT	-5,701	-4	-13,396	-6			
WA	-885	-91	-38,260	-52,518	-7,155	-5,736	
WY	-25,391	-12	-99,886	4,554			
Tribal							
WRAP Total	-125,397	-9,809	-181,138	-5,555	-58,149	-6,936	-49

Note: Blank cells represent no change.