

## Preliminary Analysis of EPA Information Collection Request MACT Data for Acid Gas (HCL) Emissions at 206 Coal-Based Generating Units

This preliminary assessment sorted EPA's November 2010 ICR database for coal units based on ascending levels of emissions of HCL, measured in pounds per million BTU heat input. It determined average emission rates for the "top-12%" units with the lowest HCL emission rates, and for all other units. Information on coal input for 2010 for each unit (source state(s), sulfur content and heat content) was developed from an EIA data base. Pollution controls installed at each unit are based on EPA's data.

Alternative methods for ranking the "top-12%" units are used: one analyzes the top 135 units as a surrogate for the top-12% of the 1,000+ unit universe, based on EPRI methodology; the alternative approach was used in the industrial Boiler MACT rule. This determines the average HCL emission rate from just the top 25 units, representing 12% of the 200+ unit sample in the ICR database.

The assessment did not include any factor for emissions variability based on operations or fuel. It did not subcategorize by fuel type or other factor. As such, this is a "raw data" compilation that needs further refinements. The preliminary findings, however, suggest that designing a workable acid gas standard based on HCL emissions may be very difficult due to the extreme range of emissions among the 206 units in the ICR data base, and the relatively high rates of emissions even at "well-controlled" units.

The tables below provide information on a number of "well-controlled" units using the two alternative methods for measuring the top-12%. The first group shows eastern bituminous units with flue gas scrubbers (FGD) for SO<sub>2</sub> control, selective catalytic reduction (SCR) technology for NO<sub>x</sub> control, and electrostatic precipitators (ESP) for control of particulate matter. Some of these units use spray dryers (SD) for SO<sub>2</sub> control and Selective Non-Catalytic Reduction (SNCR) for NO<sub>x</sub> control.

The second group illustrates scrubbed units fueled by low-sulfur western subbituminous coals, typically with wet or dry scrubbers or spray dryers for SO<sub>2</sub> controls and fabric filters (FF) or bag houses (BH) for particulate control.

Eastern Bituminous Scrubbed Units' HCL Emission Rates Compared with  
Alternative Top-12% Averages

Unit	MW Cap.	State	HCL % Diff. vs. Top-12% (Boiler MACT method)	HCL % Diff. vs. Top-12% (EPRI method)	Fuel source(s)	Avg fuel sulfur pct.	Controls
Bowen 2	755	GA	182%	-46%	E.KY/S.WV	1.0%	FGD, SCR, ESP
Ghent 1	520	KY	225%	-37%	IL/KY/WV	3.0%	FGD, SCR, ESP
Mountaineer1	1320	WV	288%	-25%	WV/OH/KY/VA	2.5%	FGD, SCR, ESP
Cross 4	625	SC	315%	-20%	KY/PA	1.7%	FGD, SCR, ESP
Henderson 2	173	KY	453%	7%	KY	3.2%	FGD, SCR, ESP
Mt. Storm 3	560	WV	416%	0%	WV/PA/MD	1.9%	FGD, SCR, ESP
Wansley 1	920	GA	463%	9%	S.WV/E.KY	1.2%	FGD, SCR, ESP
Conemaugh 2	936	PA	503%	16%	PA	2.4%	FGD, ESP
Cumberland2	1300	TN	507%	17%	IL/KY	3.0%	FGD, SCR, ESP
Montour 2	792	PA	638%	42%	PA/WV/KY	2.4%	FGD, SCR, ESP
Homer City 3	680	PA	856%	84%	PA	3.0%	FGD, SCR, ESP
Bailly 8	352	IN	942%	101%	IN/IL	2.5%	FGD, SCR, ESP
Harrison 3	692	WV	1025%	117%	WV	3.2%	FGD, SCR, ESP
Zimmer 1	1408	OH	1491%	207%	OH/WV/KY/IN	3.6%	DRY SORB, SCR, ESP
Allen 3	281	NC	1819%	270%	E.KY/S.WV	1.0%	FGD, SNCR, ESP
Big Bend 2	410	FL	11387%	2117%	KY	3.0%	FGD, SCR, ESP
Gavin 1	1320	OH	21475%	4063%	OH/WV/WY	3.0%	FGD, SCR, ESP, DRY SORB
Mitchell 2	816	WV	22370%	4236%	WV	2.0%	FGD, SCR, ESP
James River Cogen1	57	VA	71891%	13792%	S.WV/VA	1.2%	SD, FF
Cedar Bay CBA1	280	FL	76992%	14777%	E.KY	1.0%	CFB, DRY FGD, SNCR, FF

Western Subbituminous Scrubbed Units' HCL Emission Rates Compared  
with Alternative Top-12% Average

Unit	MW Cap.	State	HCL Pct. Diff. vs. Top-12% (Boiler MACT method)	HCL Pct. Diff. vs. Top- 12% (EPRI method)	Fuel source(s)	Avg fuel sulfur pct.	Controls
Rawhide 1	305	CO	504%	17%	WY	0.3%	SD, FF
Wygen 2	96	WY	735%	61%	WY	0.5%	SD, SCR, FF
Boswell 3	371	MN	869%	87%	WY/MT	0.4%	FGD, SCR, BH
Dunkirk 4	195	NY	1652%	238%	WY	0.2%	DRY SORB, SNCR, FF
Coffeen 1	360	IL	2651%	431%	WY/IL	0.6%	FGD, SCR, ESP
Arapaho 4	118	CO	11045%	2051%	WY	0.3%	DRY SORB, FF
Culley Config 3	287	IN	188433%	36282%	SUB NA	NA	FGD, SCR, FF