

Re: age and size of coal power plants

CEED Presentation
Midwest Regional Air Quality Workshop
March 9, 2005
Chicago, IL

by

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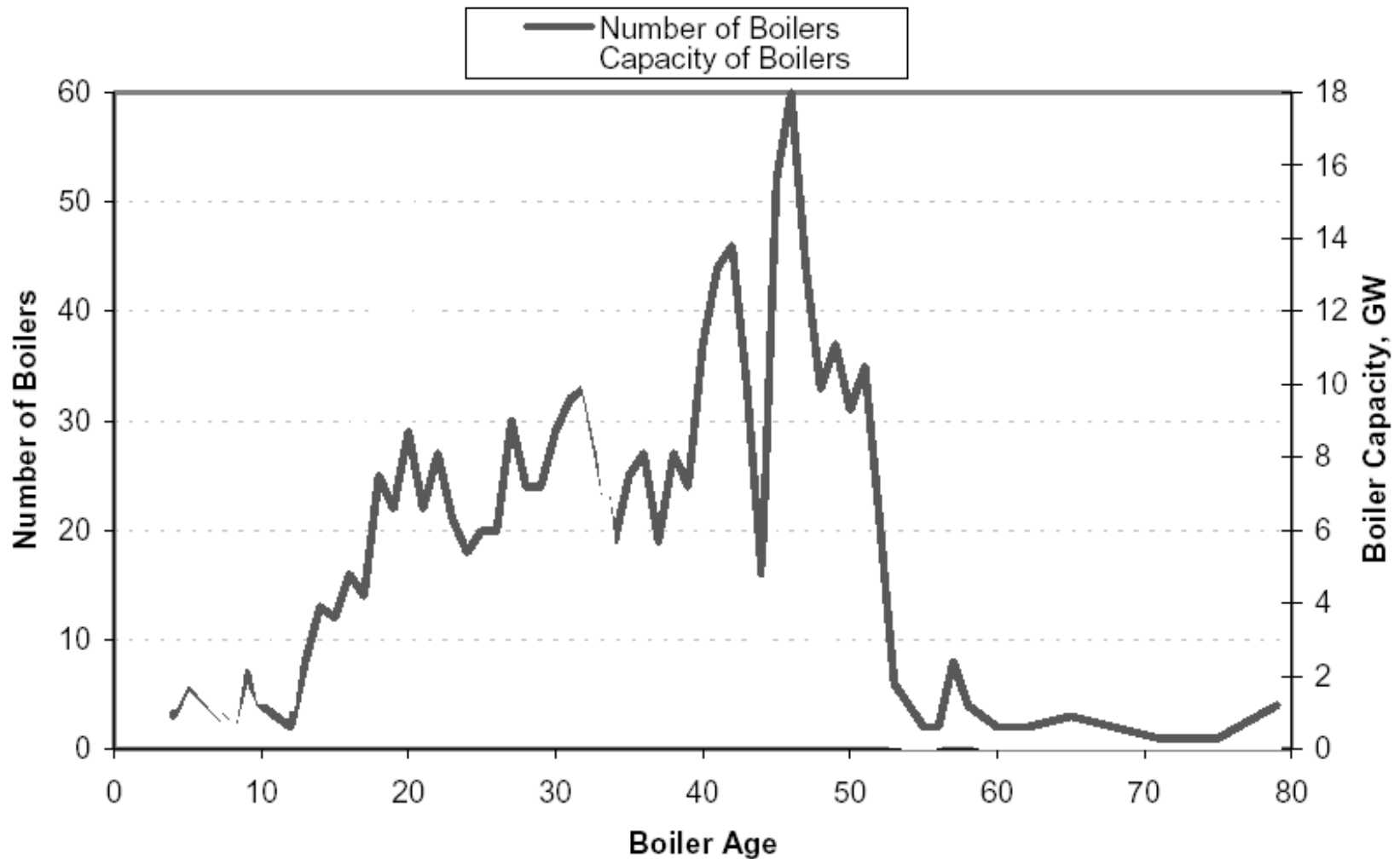
Focus of comments

LADCO White Paper SO₂ & NO_x Controls

- Look at national distribution of coal generating capacity by age and size of plant
- Focus on coal plants in the LADCO region on-line between 1962 and 1977 ("BART-eligible")
- Post-77 plants are larger, newer units subject to 1971 NSPS or 1978 RNSPS
- Pre-62 plants (>43 years) generally are smaller, intermediate or peaking units with poor retrofit economics

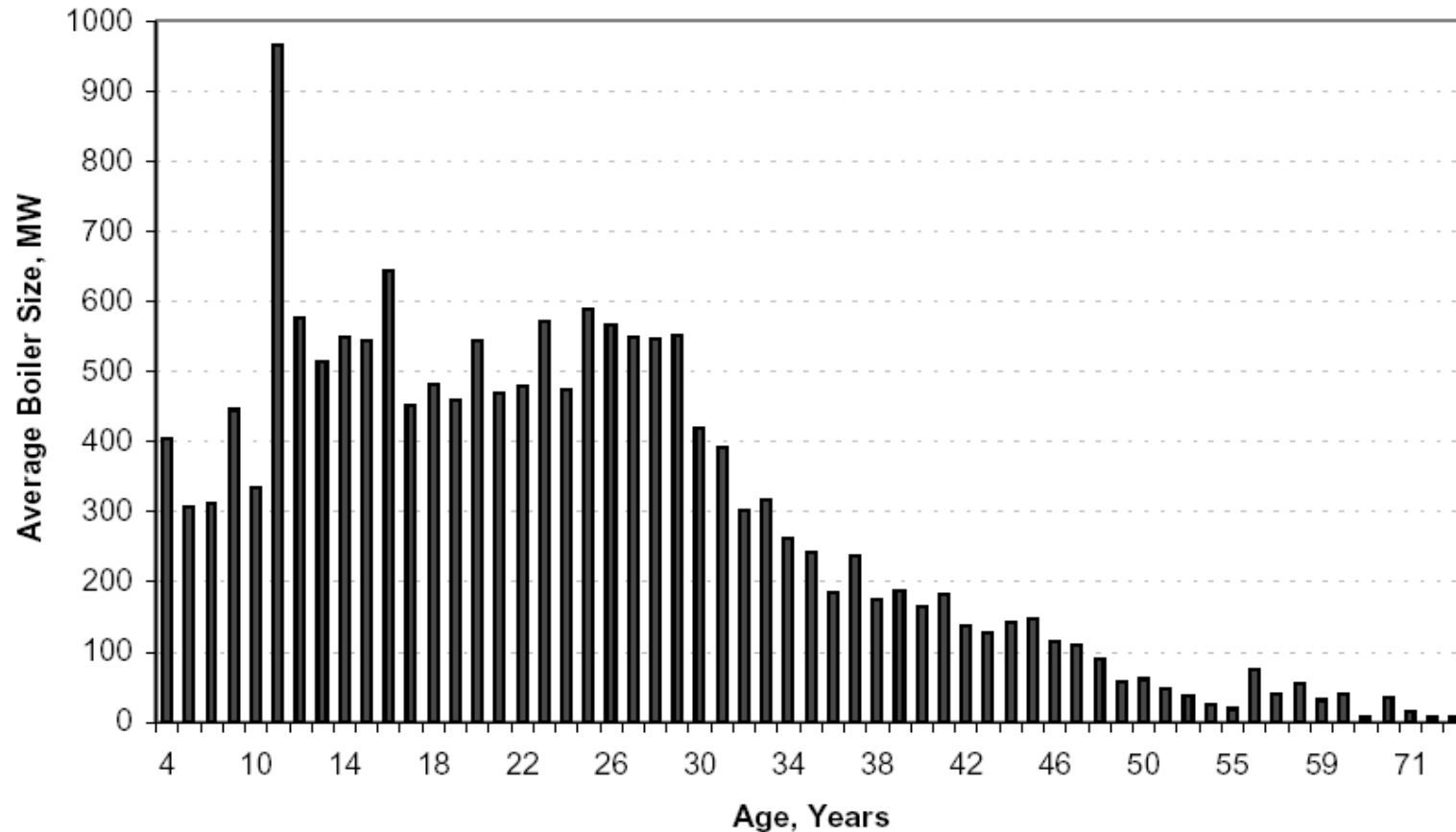
DOE/NETL 2000 U.S. Coal Plant Data (DOE/NETL 2002 Coal Plant Data Base)

Boiler Age Frequency Distribution



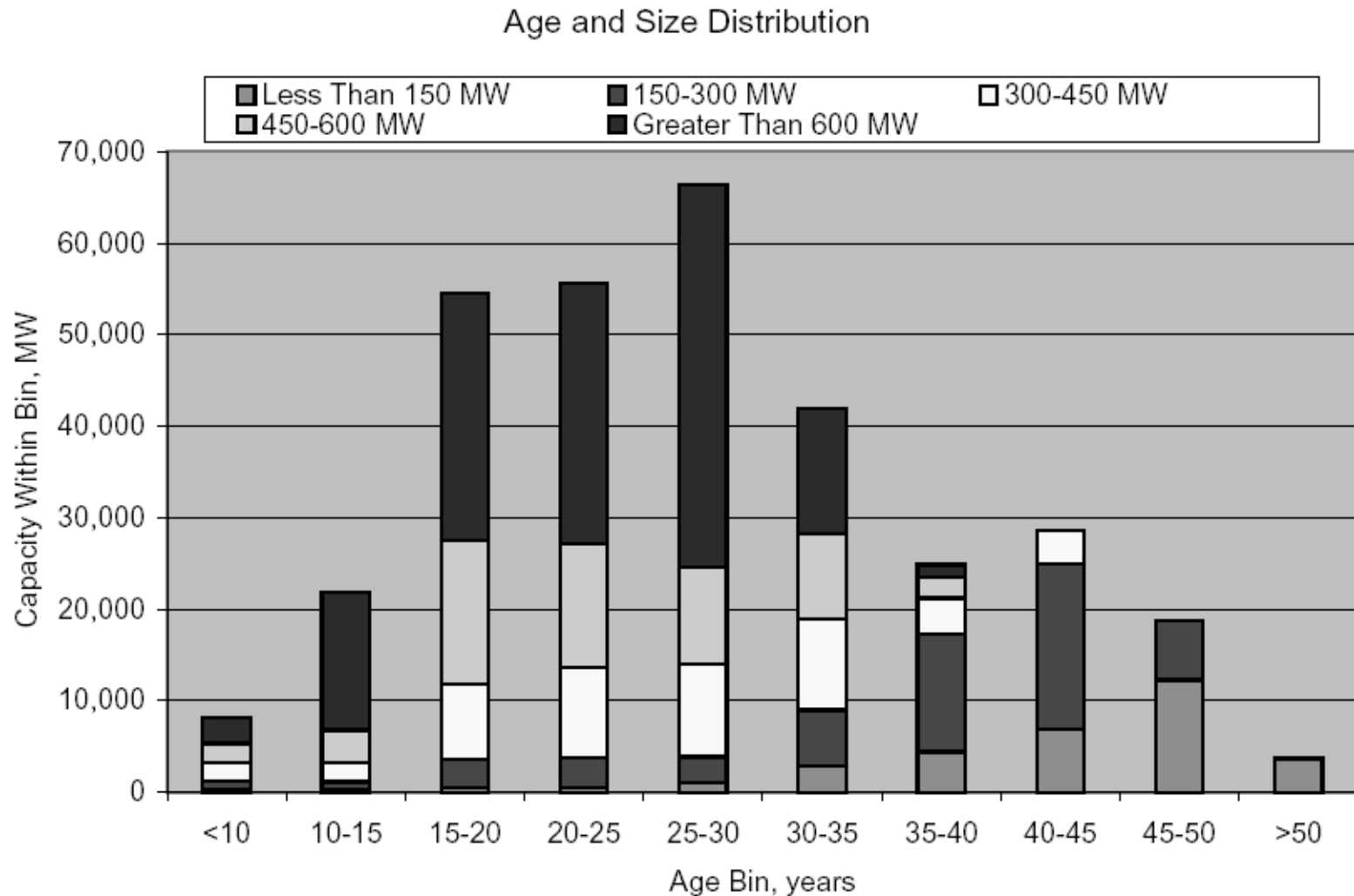
Boilers more than 30 years old tend to be smaller than 300 MW

Average Boiler Size Distribution



U.S. coal plant age and size distribution

Most coal units less than 30 years are larger than 450 MW



Within the LADCO region

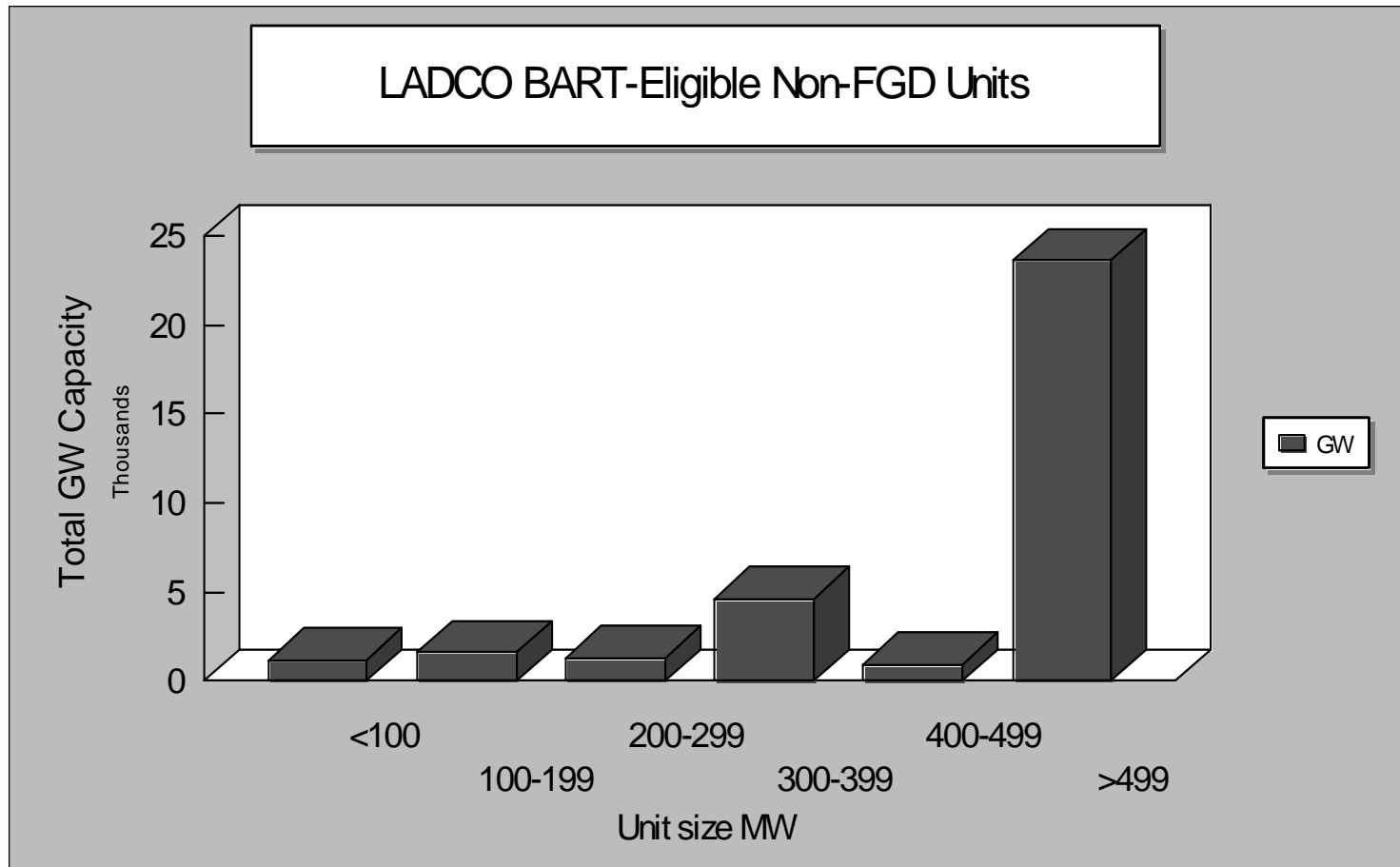
DOE/EIA data compiled by Jim Marchetti

- 340 coal units, total 81.2 GW capacity
- About one-fourth of U.S. coal capacity
- 122 total 1962-77 “BART-eligible” units representing 41.6 GW, or 51% of regional coal capacity
- 8.4 GW of BART capacity is scrubbed (20 units)

Distribution of LADCO “BART-eligible” non-FGD capacity

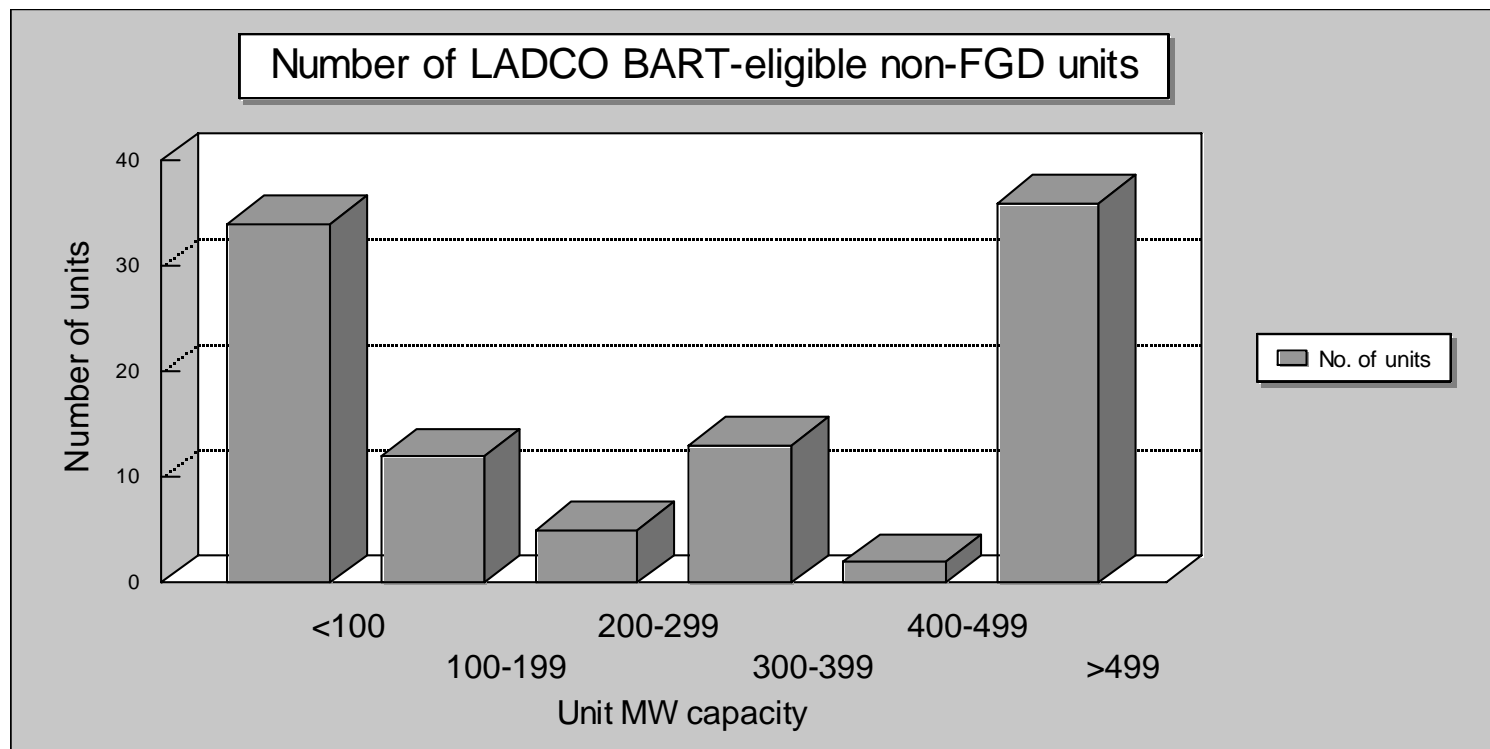
33 GW at 102 units

71% of GW capacity is at 36 units >500 MW



One-half of LADCO BART-eligible non-FGD units are smaller than 300 MW

These 51 units are “most at risk” of shutdowns



BART-eligible <300 MW units by state

51 units average 79 MW capacity

- IL - 5 units (83 MW avg.)
- IN - 6 units (67 MW avg.)
- MI - 17 units (72 MW avg.)
- OH - 15 units (96 MW avg.)
- WI - 8 units (72 MW avg.)
- Total - 51 units (79 MW avg.)

Key concerns

Electric reliability in the balance

- White paper levels of SO₂ and NO_x control are unit technology-forcing (FGD and SCR)
- Units <300 MW generally operate at low capacity factors, have limited amortization lifetime for capital cost recovery, poor retrofit economics
- Trading is crucial to the survival of many units
- White Paper emission limits would force widespread unit shutdowns, threaten reliability
- Mercury regs will compound shutdown risks for small units across the LADCO region

What we would like to see ...

- Broader menu of more flexible control options
- Assessments of costs, electric rate and reliability impacts
- Consideration of cost-effectiveness of controls on all sectors (incl. agriculture)
- Incremental (Beyond-CAIR) analysis of control options, costs and air quality benefits

ANALYSIS OF BART-POTENTIAL RETROFIT CAPACITY IN THE LADCO/MWRPO REGION

IL	MW CAP	# UNITS	AVG MW CAPACITY	BART-ELIGIBLE NON FGD <300 MW NO. OF UNITS	AVG MW CAPACITY
TOTAL COAL CAPACITY	16,849	56	301		
TOTAL FGD CAPACITY	1,024	6			
62-77 FGD CAPACITY	644	4	161		
62-77 NON-FGD CAPACITY					
<100 MW	136	4	34		
100-199 MW	0	0			
200-299 MW	280	1	280		
300-399 MW	1,496	4	374		
400-499 MW	0	0			
>499 MW	8,149	12	679		
TOTAL 62-77 NON-FGD	10,061	21		5	83
IN					
TOTAL COAL CAPACITY	21,230	74	287		
TOTAL FGD CAPACITY	8,938	21			
62-77 FGD CAPACITY	4,620	12	385		
62-77 NON-FGD CAPACITY					
<100 MW	52	3	17		
100-199 MW	348	3	116		
200-299 MW	0	0			
300-399 MW	1,099	3	366		
400-499 MW	429	1	429		
>499 MW	1,660	3	553		
TOTAL 62-77 NON-FGD	3,589	13	276	6	67
MI					
TOTAL COAL CAPACITY	12,322	65	190		
TOTAL FGD CAPACITY	164	3	55		
62-77 FGD CAPACITY	0	0			
62-77 NON-FGD CAPACITY					
<100 MW	677	14	48		
100-199 MW	283	2	142		
200-299 MW	265	1	265		
300-399 MW	385	1	385		
400-499 MW	0	0			
>499 MW	4,359	6	727		
TOTAL 62-77 NON-FGD	5,969	24	249	17	72
OH					
TOTAL COAL CAPACITY	23,599	96	246		
TOTAL FGD CAPACITY	4,964	7	709		
62-77 FGD CAPACITY	3,095	4	774		
62-77 NON-FGD CAPACITY					
<100 MW	231	9	26		
100-199 MW	487	3	162		
200-299 MW	718	3	239		
300-399 MW	317	1	317		
400-499 MW	461	1	461		
>499 MW	8,941	14	639		
TOTAL 62-77 NON-FGD	11,155	31	360	15	96
WI					
TOTAL COAL CAPACITY	7,161	49	146		
TOTAL FGD CAPACITY	160	2	80		
62-77 FGD CAPACITY	0	0			
62-77 NON-FGD CAPACITY					
<100 MW	64	4	16		
100-199 MW	511	4	128		
200-299 MW	0	0			
300-399 MW	1,338	4	335		
400-499 MW	0	0			
>499 MW	512	1	512		
TOTAL 62-77 NON-FGD	2,425	13	187	8	72

	MW CAP	# UNITS	AVG MW CAPACITY	% OF MW	% OF UNITS	% OF 62-77 NON FGD MW	% OF 62-77 NON FGD UNITS
SUBTOTAL LADCO STATES							
TOTAL COAL CAPACITY	81,161	340	239	100.0%	52.2%		
TOTAL FGD CAPACITY	15,250	39		18.8%	6.0%		
62-77 FGD CAPACITY	8,359	20	418	10.3%	3.1%		
62-77 NON-FGD CAPACITY							
<100	1,160	34	34	1.4%	5.2%	3.5%	33.3%
100-199	1,629	12	136	2.0%	1.8%	4.9%	11.8%
200-299	1,263	5	253	1.6%	0.8%	3.8%	4.9%
300-399	4,635	13	357	5.7%	2.0%	14.0%	12.7%
400-499	890	2	445	1.1%	0.3%	2.7%	2.0%
>499	23,621	36	656	29.1%	5.5%	71.2%	35.3%
TOTAL 62-77 NON-FGD	33,199	102	325	40.9%	15.7%	100.0%	100.0%