

NO_x – stationary/area sources*

* Control technology listings are examples; additional possibilities exist for some categories

** Efficiency and cost effectiveness from Air ControlNet(ACN)

Source category	Identified by	Potential measure/control technology	Efficiency(%)	Cost effectiveness (\$/T)
ICI boilers <u>Coal – cyclone</u>	LADCO, OTC, ACN	Coal Reburn	50	300(large); 1,600(small)
		SCR	80	820
		Natural Gas reburn	55	1,600
		SNCR	35	840
Coal – FBC		SNCR(urea)	(large/small) 40/ 700	(large/small) 75/900
Coal – stoker		SNCR	40	900
Coal- Wall – Large		LNB	50	1,100
		SCR	70	1,100
		SNCR	40	840
Coal – Wall – Small		SNCR	40	1,040
		LNB	50	1,500
Coke – Small		SNCR	40	1,040
		LNB	50	1,460
		SCR	70	1,260
Distillate Oil		Large – SNCR	50	1,900
		Small – LNB	50	1,200
		Small – LNB+FGR	60	2,500
		Small - SCR	80	2,800
		Small – SNCR	50	4,600
Liquid Waste		SCR	80	1,500
		LNB	50 (small)	400 (small)
		LNB+FGR	60 (small)	1,100 (small)

		SNCR	50 (small)	2,600
LPG – Small		SCR	80	2,800
		LNB+FGR	60	2,500
		SNCR	50	4,600
		LNB	50	1,200
MSW/Stoker – small		SNCR (urea based)	55	1,700
Natural Gas – Large		SNCR	50	1,600
Natural Gas – Small		LNB + FGR	60	2,600
		Oxygen trim+Water injection	65	680
		SCR	80	2,200
		LNB	50	820
		SNCR	50	3,900
Process Gas – Small		Oxygen trim+Water Injection	65	680
		LNB	50	820
		LNB + FGR	60	2,600
		SCR	80	2,200
Cement plants -existing kilns – low-NO _x burners, mid-kiln firing(MKF). SNCR may be possible	LADCO, OTC, CAN; STAPPA	LNB	25-30	300 – 620
		MKF	30-35	-460 – 720
		SNCR +SC	50 -70	770
New kilns – SNCR plus staged combustion; SCR may be feasible				
Fiberglass –recuperative	ACN	LNB	40	1,700

furnace				
Glass-container	LADCO, OTC, ACN	LNB SNCR	40 40	1,700 1,800
Glass – flat	ACN	Oxyfiring SCR SNCR	40 75 40	700 710(large) 700
Glass – Pressed	CAN	LNB SCR	40 75	1,500 2,500
EGU	TX	Requirements for nonattainment area EGU (where appropriate considering factors such as: cost of controls, technical feasibility, impact on other control installations, and local air quality impact).		
Asphalt plants	LADCO, OTC, ACN	LNB + flue gas recirculation	50	2,200
Petroleum refineries including fluid catalytic cracking units & other	OTC, ACN	e.g., LNB + FGR (fluid catalytic cracking units)		
Iron/steel mills <u>Annealing furnaces</u>	STAPPA, ACN	SNCR LNB LNB + FGR LNB + SCR	60 50 60 80	1,600 570 750 1,700
<u>Galvanizing furnaces</u>		LNB + FGR LNB	60 50	580 490
<u>Reheating furnaces</u>		LNB + FGR LNB	77 50	380 490
Lime kilns	OTC, ACN	Mid kiln firing LNB	30 30	460 560

Source category	Identified by	Potential measure/control technology	Efficiency(%)all ACN	Cost effectiveness(\$/T)
Stationary IC engines Rich burn Lean burn	ACN, TX	non-selective catalytic reduction	90	340
		low-emission combustion retrofits	87	180
Process heaters (multiple industries) <u>Distillate oil – small sources</u>	ACN	SCR	75	9,200
		LNB + SNCR	78	3,600
		ULNB	74	2,100
		SNCR	60	3,200
		LNB + FGR	48	4,300
		LNB	45	3,500
		LNB+SCR	92	9,100
LPG- small sources		SNCR	60	3,200
		LNB + SCR	92	9,100
		LNB + SNCR	78	3,600
		SCR	75	9,200
		ULNB	74	2,100
		LNB	45	3,500
		LNB + FGR	48	4,200
<u>Natural gas – small sources</u>		ULNB	55	3,200
		SNCR	60	2,800
		SCR	75	12,000
		LNB + SCR	88	11,600
		LNB + SNCR	80	3,500
<u>Other fuel – small sources</u>		LNB + SMCR	75	2,300
		SCR	75	5,300
		ULNB	73	1,300
		SNCR	60	1,900
		LNB	37	2,500
		LNB + FGR	34	3,500

		LNB + SCR	91	5,400
<u>Process Gas - small sources</u>		LNB + SCR	88	11,600
		LNB + FGR	55	3,200
		SNCR	60	2,800
		ULNB	75	1,500
		SCR	75	12,000
		LNB + SNCR	80	3,500
		LNB	50	2,200
<u>Residual oil – small sources</u>		LNB + SCR	91	5,400
		SCR	75	5,400
		LNB + SCR	75	2,300
		ULNB	73	1,300
		SNCR	60	1,900
		LNB	37	2,500
		LNB + FGR	34	3,500
Non-EGU combustion turbines Gas fired – new or reconstructed small units	ACN	SCR + LNB	94	2,600
		Dry low-NOx combustion	84	490
Oil fired		Water injection(WI)	68	1,300
		SCR/WI	90	2,300
Commercial/institutional natural gas	ACN	Water heater + LNB space heater	7	1,200
Industrial combustion (coal, oil, natural gas)	ACN	RACT to 25 tpy		
Industrial incinerators	ACN	SNCR	50	820
Sulfate pulping-recovery furnaces	ACN	SCR	80	2,200
Secondary aluminum production	ACN	LNB (smelting furnace)	50	600

Residential natural gas	ACN	Water heater + LNB space heater	7	1,200
Open burning restrictions	Delaware DNREC; Kansas; Wyoming DEQ; CO APCD Chattanooga/Hamilton County, TN; ACN	Limits on outdoor fire or outdoor smoke-producing process from use of burn barrels, screened pits, backyard incinerators or piled-up refuse, including yard trimmings, leaves or materials from cleared land— http://www.epa.gov/ttn/atw/burn/burnpg.html	100	NA

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