California DG Program

CHP Turbine Technology and National Regulatory Forum

San Diego, 2003

Air Resources Board

California Environmental Protection Agency

Today's Presentation

- Background
- DG Certification Program
- DG Guidance

Today's Presentation

- Background
- DG Certification Program
- DG Guidance

Background

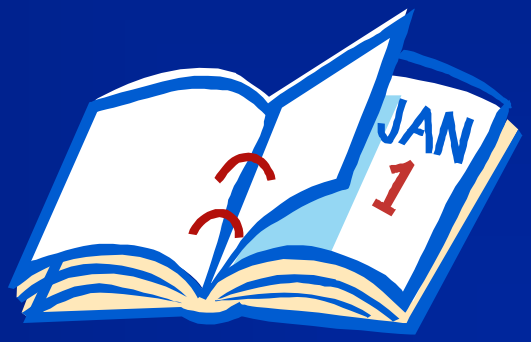
- California Air Quality Programs for Stationary Sources
- SB 1298 (2000)

Stationary Source Programs

- Administered by Local Districts
- Permits Required for Most Sources of Air Pollution

What Does SB 1298 Require?

- Commencing January 2003, all DG technologies must be either certified by ARB or permitted by one of California's 35 Air Districts prior to use or operation



What Does SB 1298 Require? (Continued)

- Adopt DG Certification Program, Including Uniform Emission Standards
- Provide Guidance to the Districts for Permitting of Electrical Generation Technologies

Program Status

- Certification Program Approved by Board
  - Program Effective October 2002
- Board Approved Guidance

Today's Presentation

- Background
- DG Certification Program
- DG Guidance

Applicability

- Applies to Manufacturers
- New Units Sold After January 1, 2003
- Examples of Affected Equipment
  - Microturbines (Less Than 300 kw)
  - Fuel Cells

Applicability
(Continued)

- Not Included
  - Emergency Standby
  - Portable

Microturbine

Fuel Cell

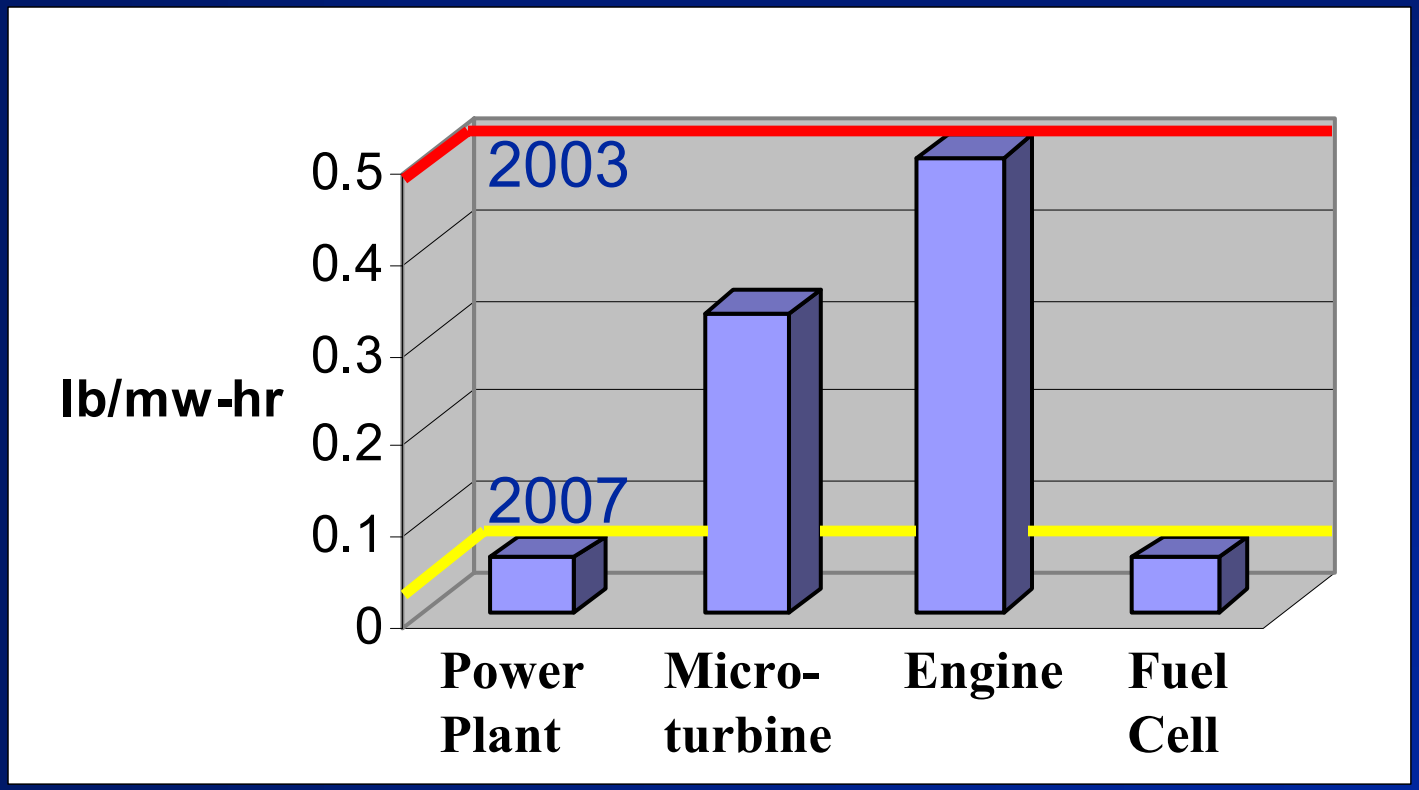
2003 Emission Standards
(lb/MW-hr)

	NOx	VOC	CO
Without CHP	0.5	1.0	6.0
With CHP	0.7	1.0	6.0

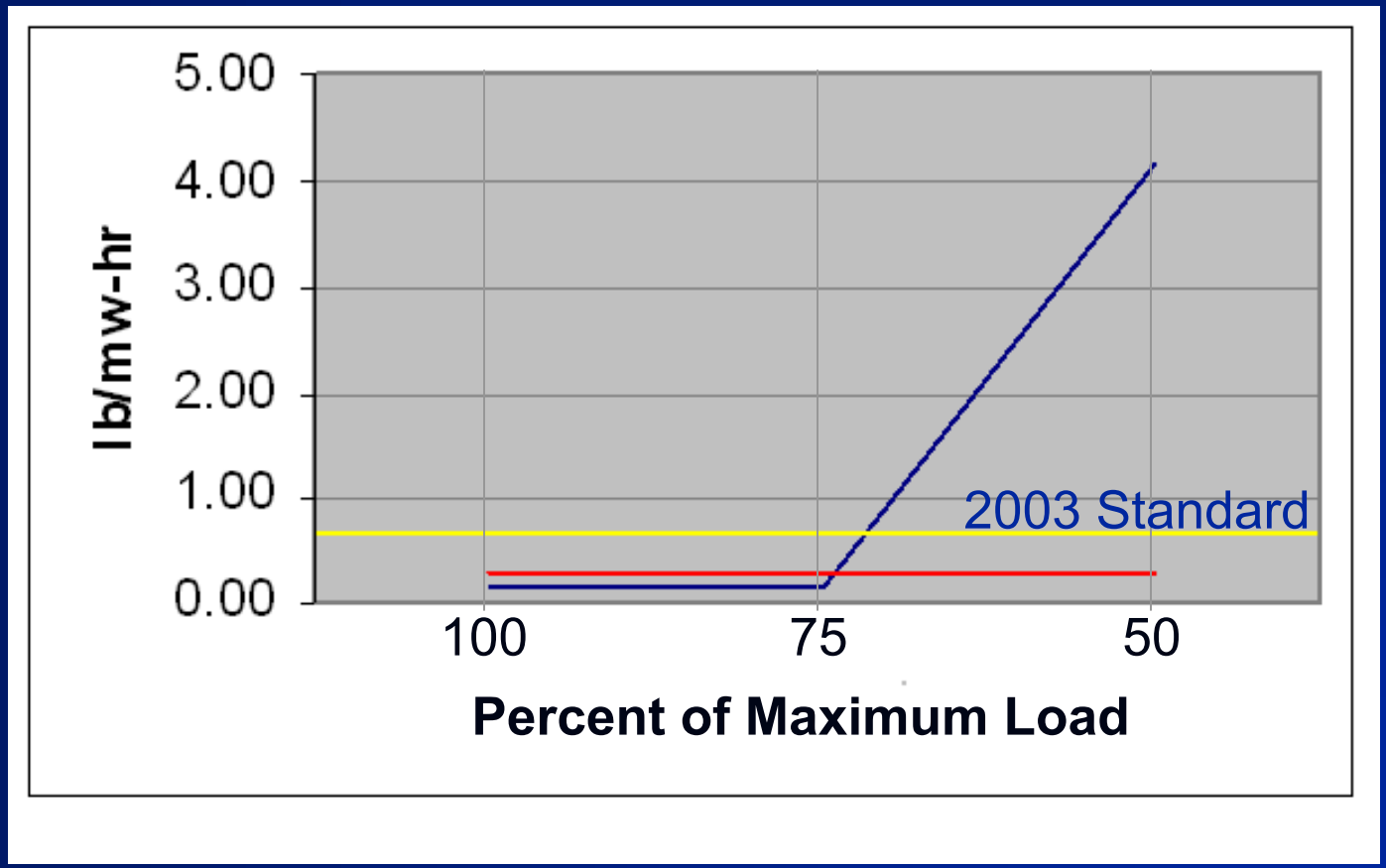
2007 Emission Standards
(lb/MW-hr)

NOx	VOC	CO
0.07	0.02	0.1

DG and Central Station Power Plant NOx Emissions



Microturbine NOx Emissions Versus Power Load



Technical Review by July 2005

- Evaluate Testing Procedures
- Evaluate Emissions Durability
- Evaluate CHP Benefit
- Evaluate 2007 Standards

Certification Program Status

- Certified Equipment
  - Fuel Cell
  - Microturbine

Today's Presentation

- Background
- DG Certification Program
- DG Guidance

What Does the DG Guidance Address?

- Electrical Generation < 50 MW
- Recommended BACT Levels
- Attainment of Central Station Power Plant Levels

Turbine with CHP

Internal Combustion Engine

Waste Gas Flare and Engine

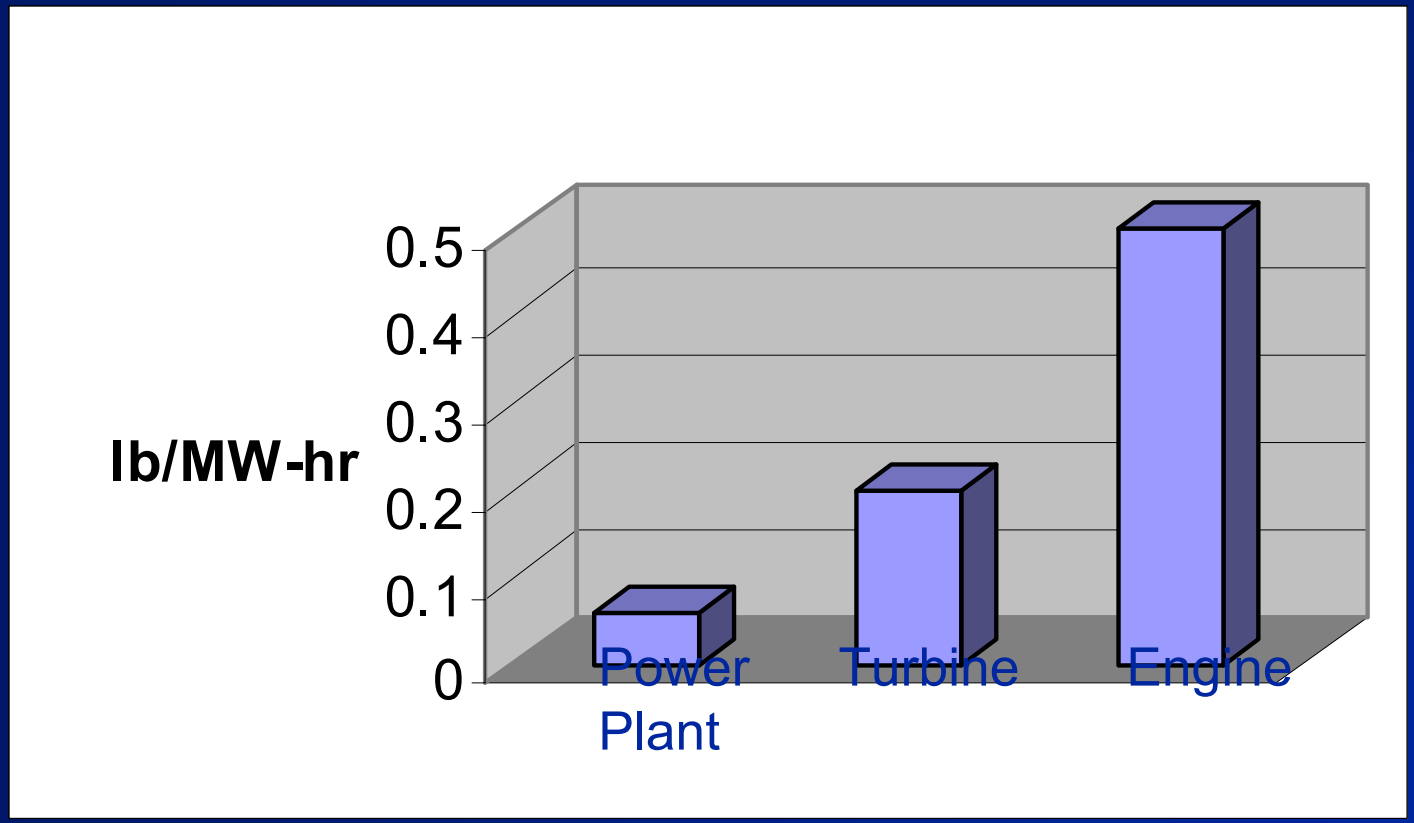
Recommended BACT Levels For Turbines
(lb/MW-Hr)

Size (MW)	Type	NOx	VOC	CO
< 3	--	0.5	0.1	0.4
3-12	CC	0.12	0.04	0.2
	SC	0.25	0.04	0.2
>12 - <50	CC	0.1	0.03	0.12
	SC	0.2	0.03	0.12

Recommended BACT Levels For Engines
(lb/MW-Hr)

NOx	VOC	CO
0.5	0.5	1.9

Recommended BACT Levels for NOx from Electrical Generation (lb/MW-hr)



Recommended BACT Levels for Waste Gas (lb/MW-hr)

Technology	NOx	VOC	CO
Turbine	1.25	--	--
Engine	1.9	1.9	7.8

Implementation of Guidance

- Districts using BACT guidance
  - Not using output-based standards
- BACT process most expedient tool to achieve central station power plant levels

Additional Information

http://www.arb.ca.gov/energy/dg/dg.htm

gchin@arb.ca.gov