02-04-23

Energy Issues Presentation

- Chris James, CT DEP, Director, Air Planning and Standards Division
- 18 July 2002

What is distributed generation and why is it growing?

- Distributed Generation (DG) is electric generation located on the site where it is used, typically less than 1 MW, but can be up to 10 MW

DG is growing because:

- Businesses want greater reliability and power quality- tiny outages can cost millions of dollars
- Load/demand response programs pay customers to shed load - often switching to on-site generators
- High prices - make relatively expensive on-site options more attractive

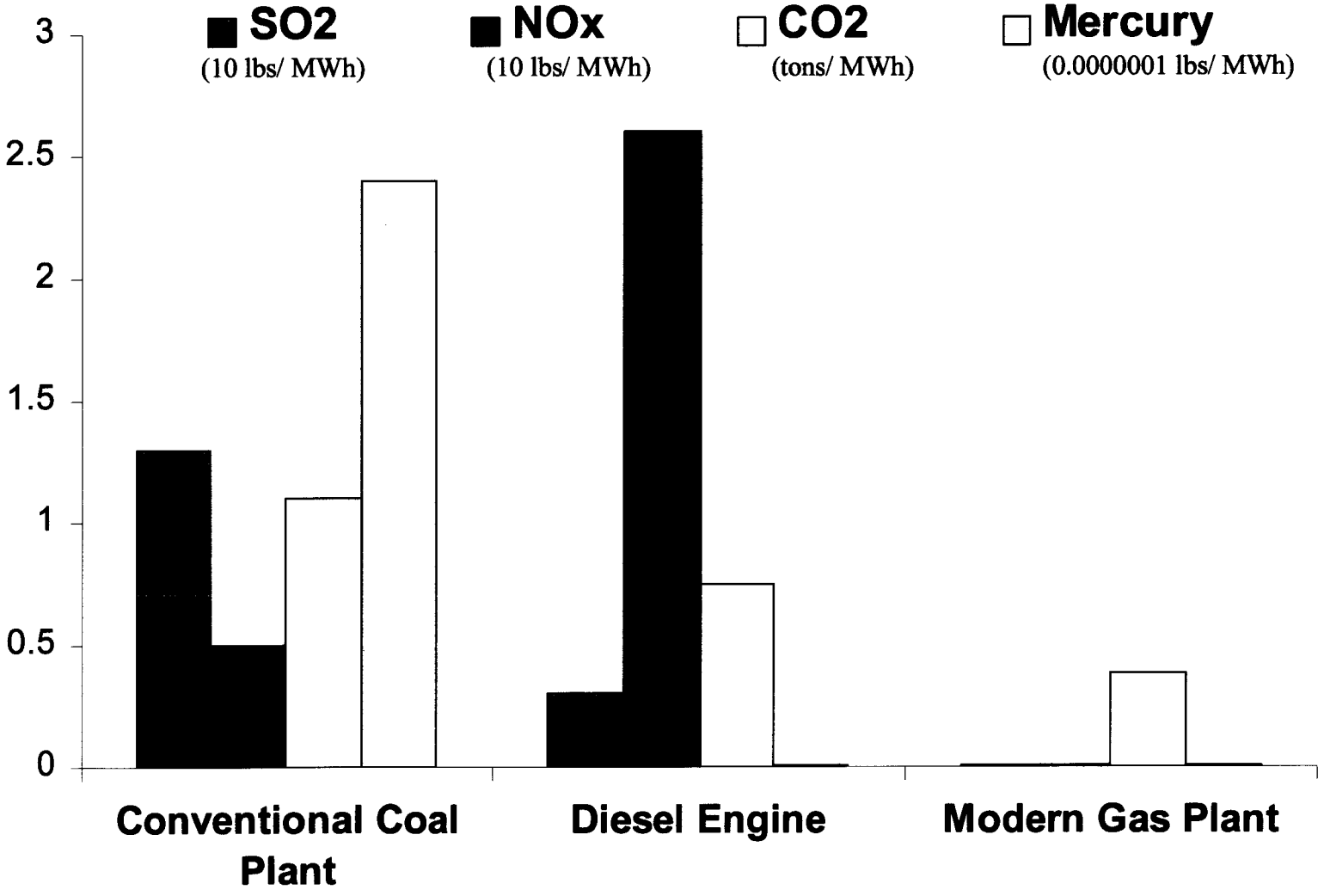
DG has the potential to create environmental benefits by . . .

- Achieving efficiencies of 80% and higher through Combined Heat and Power (CHP)
- Increasing the contribution of low to zero emissions technologies to power generation
- Eliminating the need to run older, dirtier reserve generating plants
- Reducing line losses

But, current DG trends present an environmental challenge

- Diesel internal combustion (IC) engines make up more than 90% of existing DG and a similarly large share of new sales
- Diesel IC engines pollute at much higher rates than new electric generating plants
- Even a few hours of operation can have big impacts on air quality
- Regulations need to catch up with market changes and new technologies

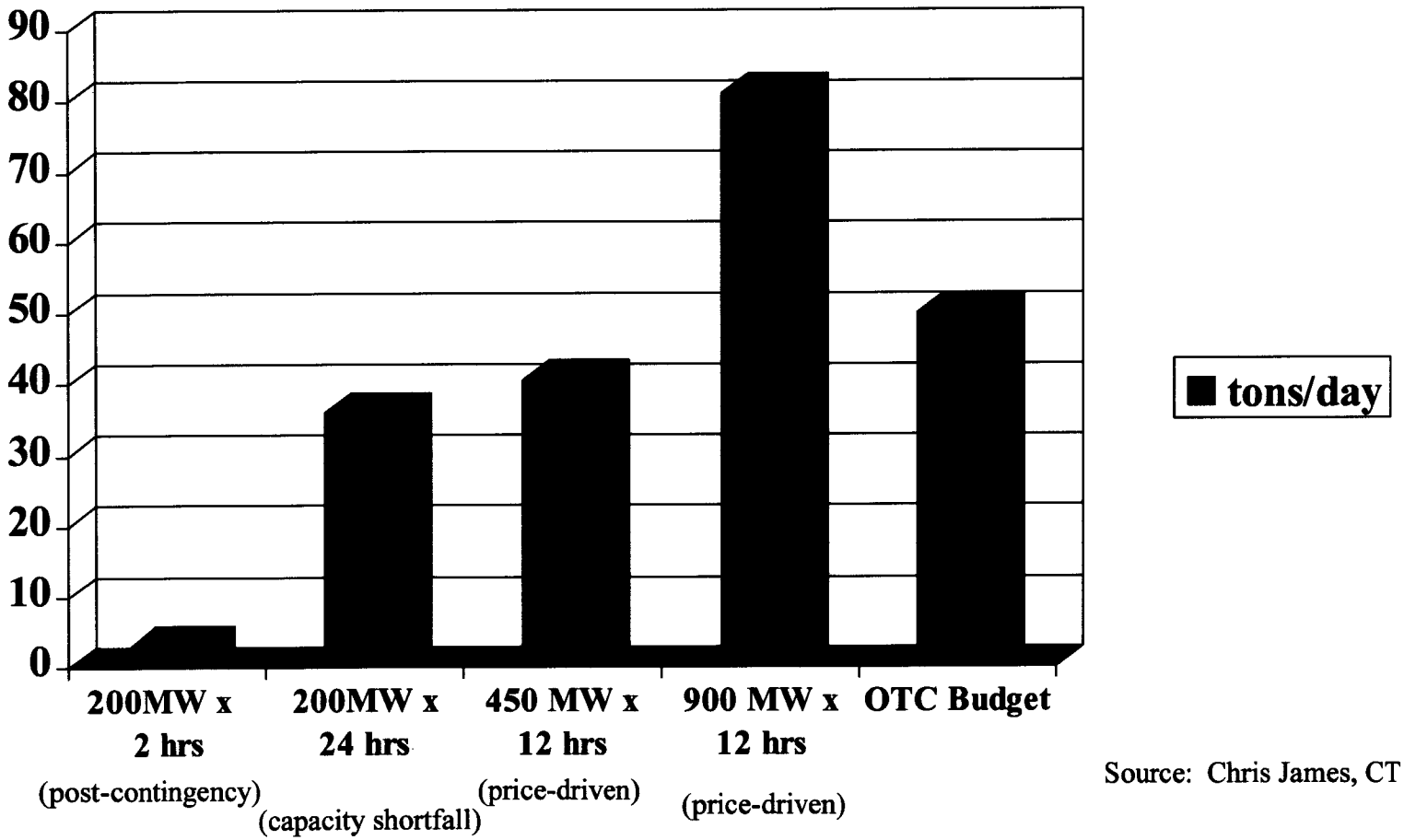
Diesel IC engines are far worse polluters than new gas plants



Even low levels of DG use can have big impacts on air quality

Potential Emissions Impact in Connecticut

(NOx tons on a given ozone season day)



Source: Chris James, CT DEP

Regulations did not anticipate today's DG trends

- Most on-site generators are "emergency" generators exempted from emissions requirements
- Emergency exemption assumed narrowly defined circumstances for use - *emergencies* - not load response or peak shaving
- Modification in CA, EPA has no plans to broadly expand guidance for these units
- Many new units fall outside existing state and federal permitting requirements

Permitting Requirements - CT

- New general permit language until 12/03, for units < 50 hp
- Annual tons per year limits - 5 tpy NOx, SOx, 3 tpy PM
- Ultra low sulfur fuel requirement
- SW CT (51 towns) exceptions
- Emergency engine limits

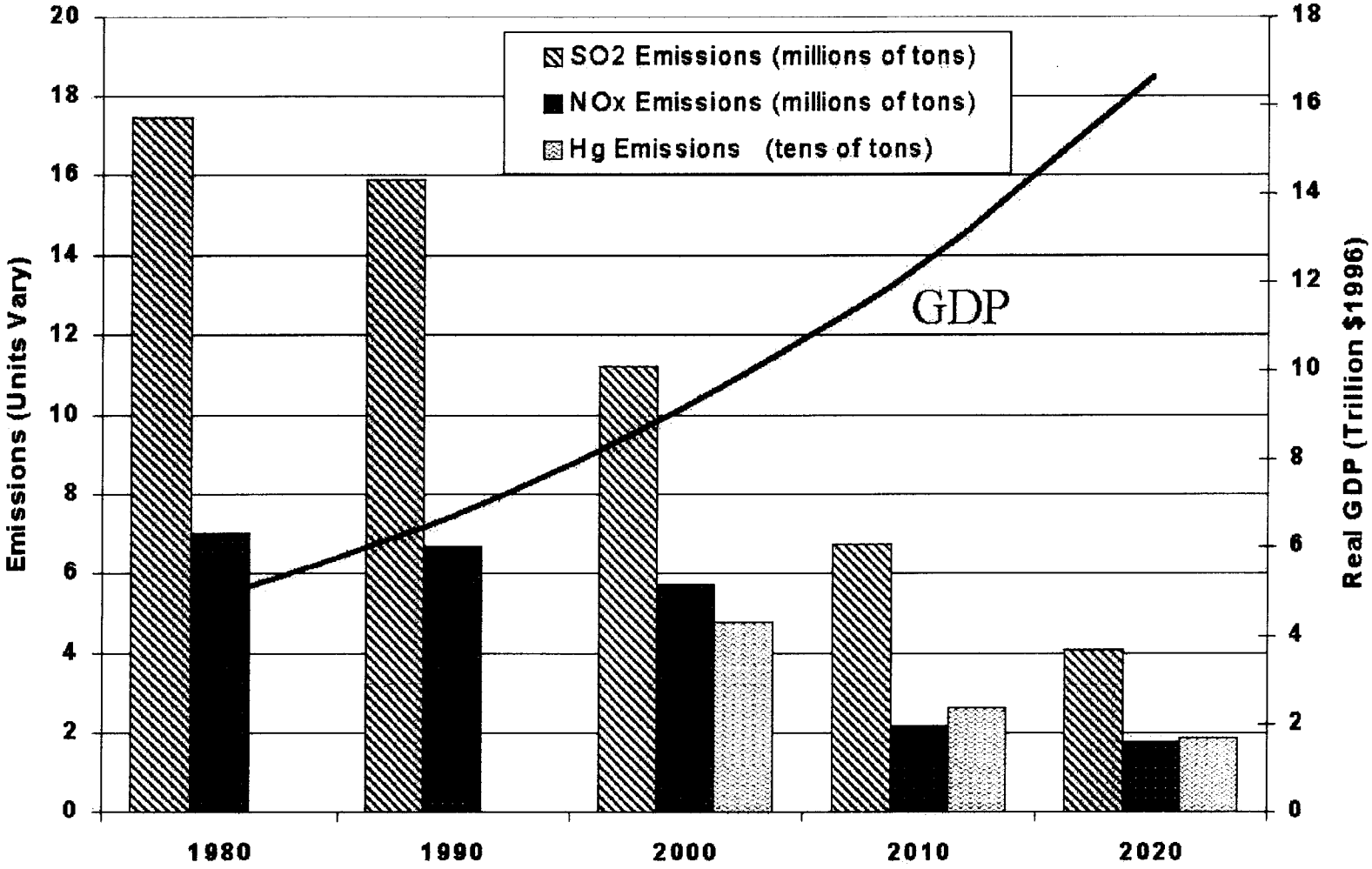
States and EPA are taking steps to meet the DG challenge

- Ozone Transport Commission (OTC) Model Rule lowers applicability thresholds for DG
- EPA and NESCAUM developing inventory of installed on-site capacity in the Northeast
- States are moving to integrate DG into air quality budgets for power generation
- Connecticut General Permit for Distributed Generation issued earlier this year

Bottom line: DG can be good for the air, as long as it's clean

- Update regulations to capture diesel IC engines generating electricity
- Don't increase use of emergency backup generators
- Level the playing field for clean, efficient DG by removing regulatory and market barriers and creating incentives
- Clean DG can keep us on track to continue adding capacity while reducing emissions

Simultaneous Economic Growth and Environmental Improvement



Sources: 1970 - 1999 emissions data is from the National Air Pollutant Emissions Trend Report, (EPA, March 2000). Projections for SO2 and NOx are derived from the Integrated Planning Model (IPM). GDP data through 2000 is from the Bureau of Economic Analysis, GDP projections follow EIA's assumptions in AEO 2001 of 3% growth per year.