

NYSERDA's Power Systems and DG/CHP Program

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New York State Energy Research & Development
Authority

US DOE Electric Distribution Transformation Peer Review
Meeting – Coronado, CA
October 28, 2003



New York State Energy Research and Development Authority (NYSERDA)

- A Public Benefit Corporation established in 1975
- Mission: To identify solutions to State's energy challenges in ways that benefit the State's economy and environment
- Broad definition of “energy challenges”
- Public/private partnerships – strategic engagement
- Competitive and market-oriented approach

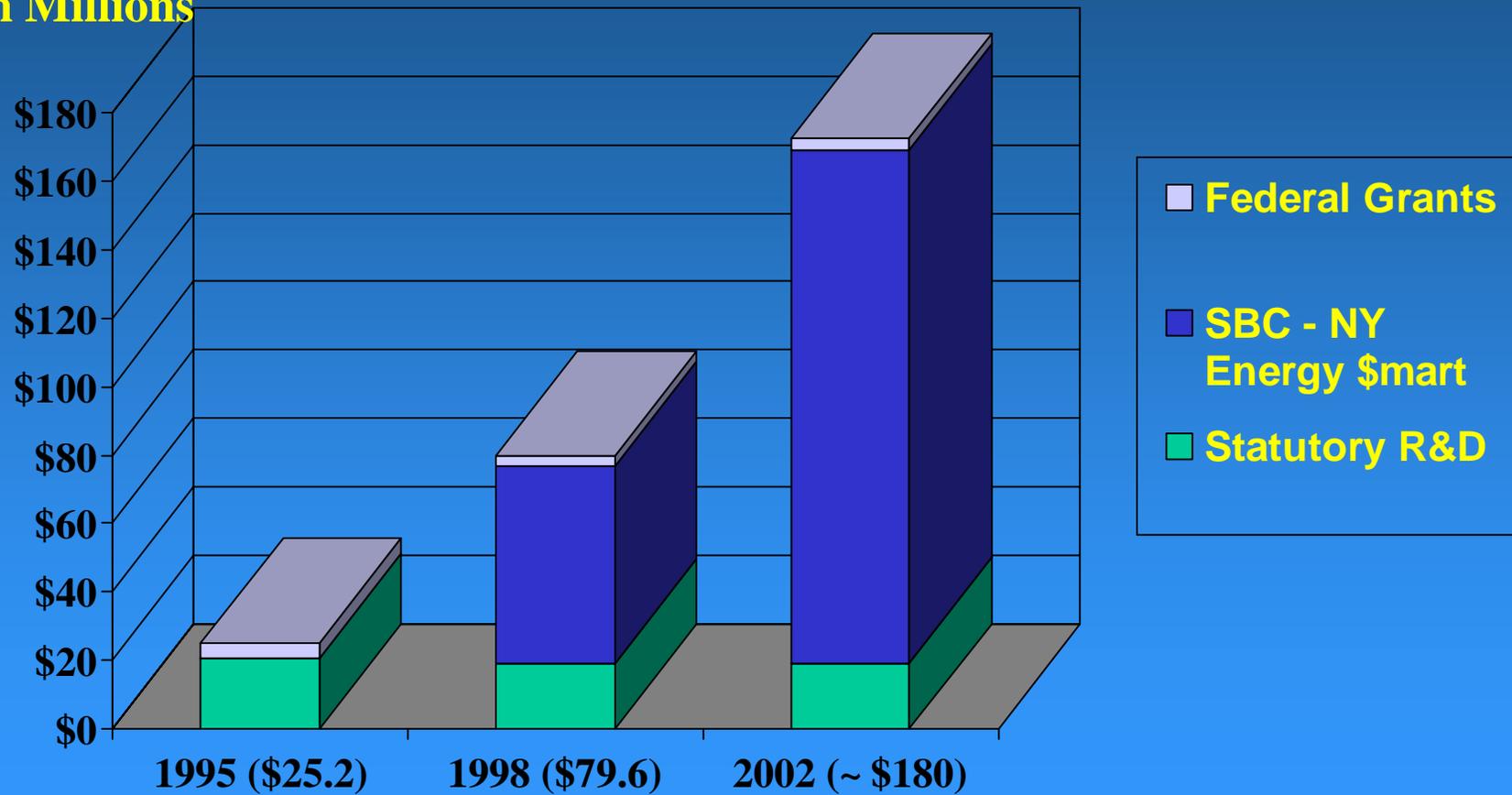
NYSERDA Responsibilities

- Energy research, development, and demonstration
- System Benefits Charge Administrator
- Energy planning & analysis
- Power Plant Siting Board Member
- Greenhouse Gas Task Force
- Public awareness of energy efficiency
- West Valley Demonstration Project
- Spearheading EO #111
- Energy Planning Board Member
- Environmental Regulation Board Member
- Technical support for RPS hearings



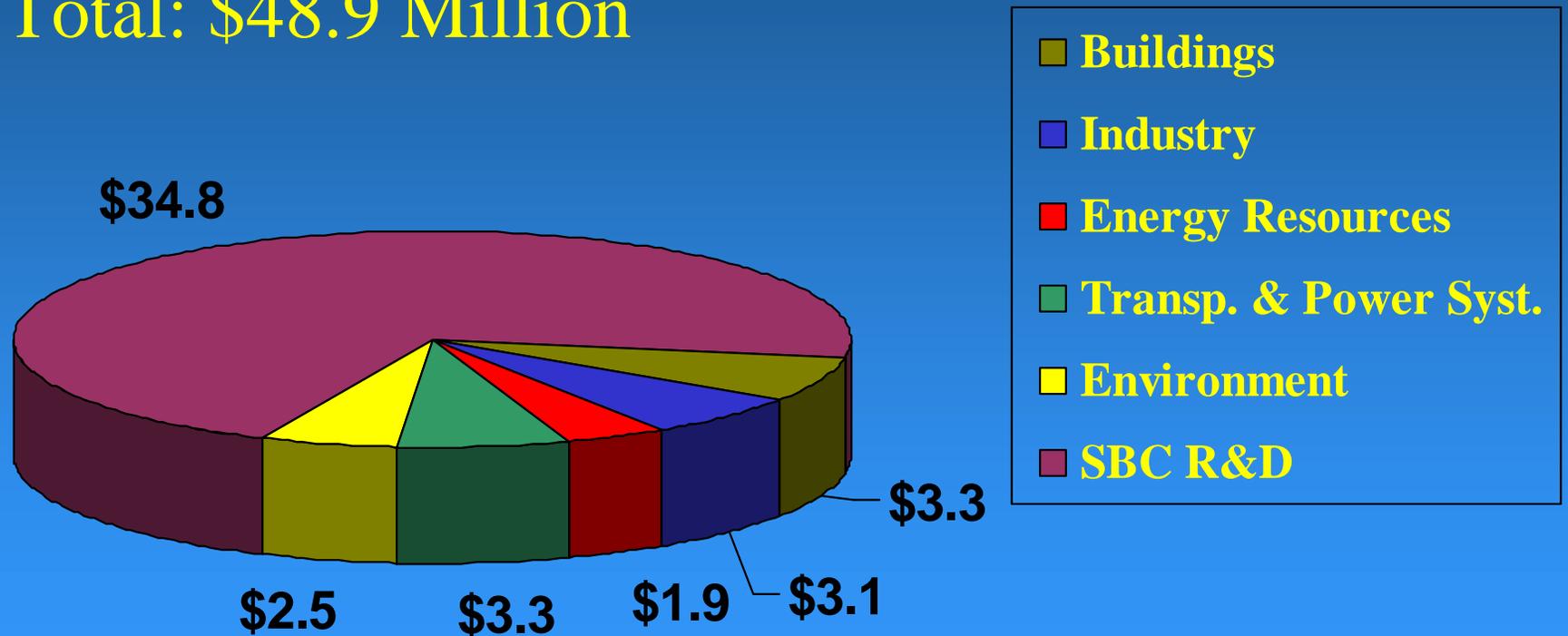
NYSERDA Funding

\$ in Millions

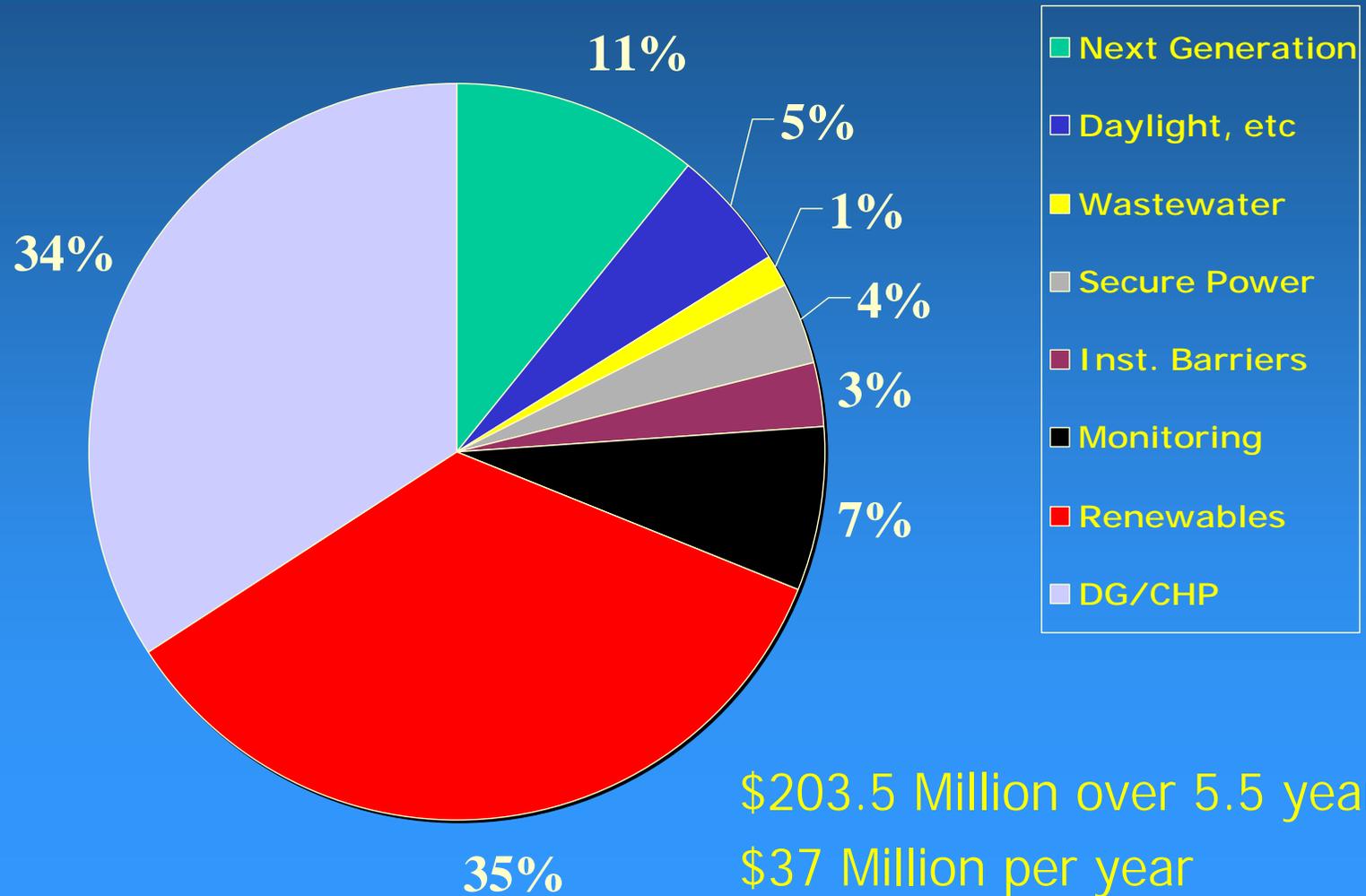


2003 R&D Funding

Total: \$48.9 Million



New York Energy \$martSM Budget for Renewables, Distributed Generation and Combined Heat & Power



\$203.5 Million over 5.5 years
\$37 Million per year

NYSERDA's DG-CHP Program

- Develop & demonstrate innovative DG technologies & CHP applications
- Promote clean & efficient available systems
- Reduce hurdles through shared knowledge
- Install megawatts of generation capacity
- Funding: \$15 million per year

Program Has Two Tracks: CHP Demo & Product Development

- CHP Demo
 - End user contractors
 - Commercial products
 - Long term demos
 - Goals:
 - Megawatts
 - Best practice
 - Mitigate early adaptor risk
 - Establish economic benefits
- Product Development
 - Contractors are manufacturers
 - Pre-commercial technology
 - Field test/demos
 - Goals:
 - Technology advancement
 - Commercial product development

NYSERDA's DG-CHP Program

- Special targets:
CHP from biogas
(anaerobic biological
technology – organic
wastes from farm
manure and
food/beverage
industry)



NYSERDA's CHP Demonstration Program Installations (kW)

Technology	No. of Projects	Total Capacity	Typical Size
Engines	54	56,714	1,000
Turbines (Gas/Steam)	7	26,309	3,000
Microturbines	13	1,500	120
Fuel Cells	7 (10 sites)	4,050	200
Hybrids	4	4,598	1,000
Totals	84	93,171	1,000

CHP Program Challenges

- **Standby Rates** - NYS PSC is in the process of developing tariffs for all electric utilities.
- **Emissions Standard** - NYS DEC is in the process of developing air emissions standards.
- **Interconnection** - NYS PSC has set standards for systems up to 300 kVa on radial grid.
- **Utility Buy-In** - Grid support, congestion mitigation, alternative to grid expansion/upgrade, utility ownership or access to excess capacity

Power Systems Product Development Portfolio

Product Category	# of Projects
PEM fuel cells	7
Other fuel cells	6
Turbines	6
Engine/motors/other	6
Kinetic hydro turbines	2
Generators	1
Power quality/system reliability*	9
Grid support	5
Environmental performance	3
Generation performance testing/monitoring	3

*Includes battery storage and flywheels

Funding: Approximately \$5 million/yr.

Other Activities

- Alt fuels (methanol, LNG, cold CNG)
- NYS transmission grid reliability study for Renewable Portfolio Standard hearing (with NYISO)
- Seminars for utilities on advanced overhead conductors
- Superconducting transmission line
- Superconducting generator

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