New York State's CHP Program & Challenges

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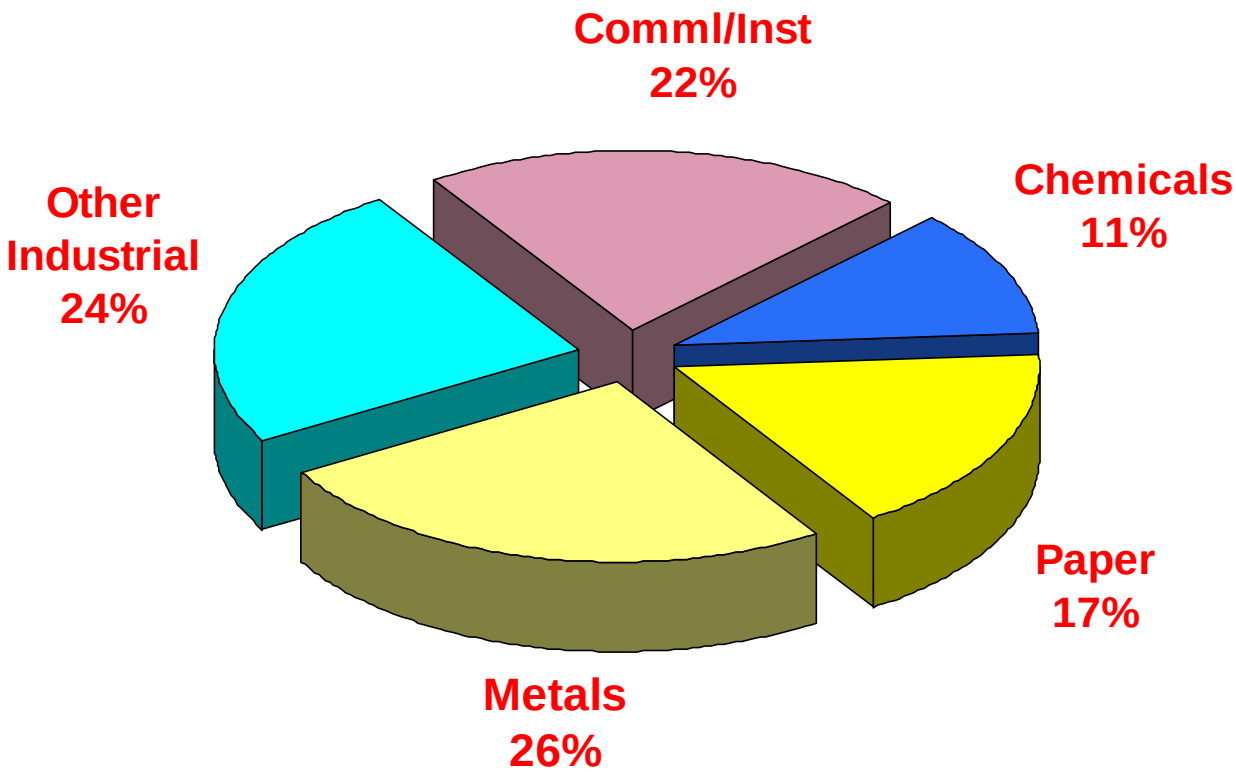
New York's Existing CHP Capacity: 5,070 MW

Industrials Represent 78% of Existing CHP in New York

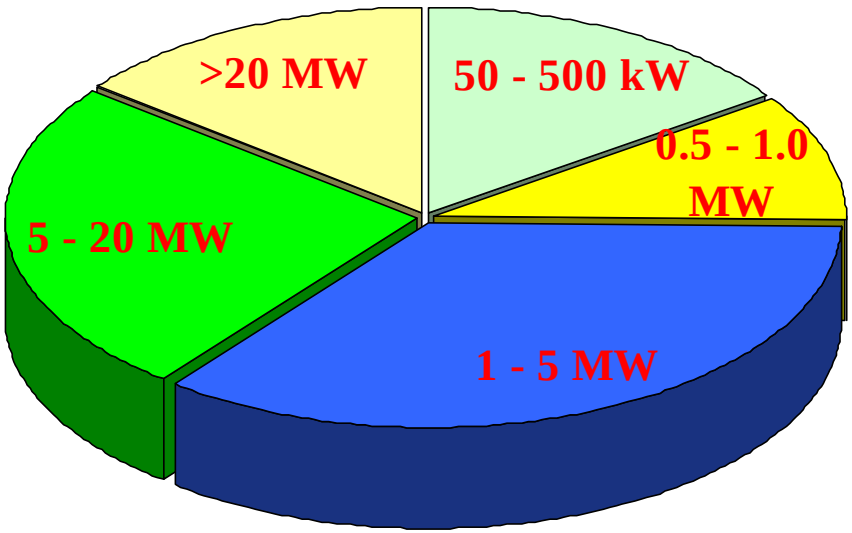


NYSERDA

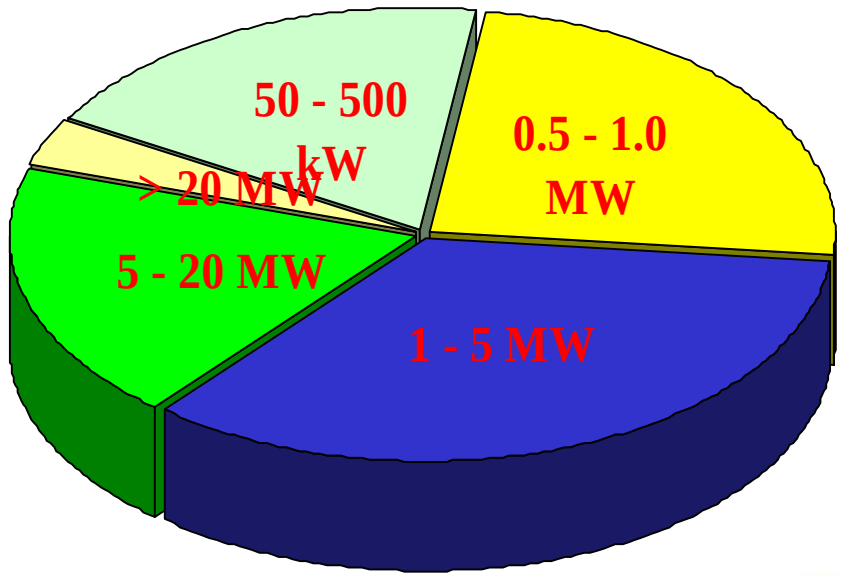
Source: Energy Nexus Group

New York's CHP Technical Potential 8,477 MW (Thermal Demand Sized)

Industrial Potential: 1948 MW
60% is in Systems Below 5 MW



Commercial/Inst. Potential: 6529 MW
78% is in Systems Below 5 MW



Source: Energy Nexus Group

Cumulative CHP Market Penetration Projection by 2012 (MW)

CHP System Size	Business As Usual	Accelerated
50 to 500 kW	0	61
500 kW to 1 MW	92	331
1 MW to 5 MW	204	699
5 MW to 20 MW	208	704
> 20 MW	260	374
Total	764	2,169

CHP Benefits At Full Market Penetration

CHP Benefits	Business As Usual	Accelerated
Economic Savings ($ million)		
2012 Annual	$109	$487
Cumulative (02-12)	$536	$1,825
Net Present Value	$253	$808
Energy Savings (trillion Btu)		
2012 Annual	25	74
Cumulative (02-12)	118	316
Annual Emissions Savings After 2012(tons/year)		
NOx	3,210	10,282
CO2	1,259,000	3,854,000
SO2	9,778	27,766

NYSERDA's CHP Demonstration Program Installations (kW)

Technology	No. of Projects	Total Capacity	Typical Size
Engines	46	39,652	750
Turbines (Gas/Steam)	4	9,443	2,000
Microturbines	13	1,500	120
Fuel Cells	3 (8installs)	2,300	250
Hybrids	3	3,428	1000
Totals	69	56,323	800

SUNY Buffalo/Grester Trane

- Two 60 kW Capstones
- Peak demand Reduction: 300 kW
- CHP Application: Swimming Pool
  - Power to water circulation pumps
  - Heat to substitute electric water heaters
- Funding: NYSERDA: $310000 + SUNY + Gerster Trane: $310,000
- Status: Currently Operational
- Savings: 2000 MWh/yr, $73,000 per year

Greater Rochester International Airport

- Two 750 kW Gas Recip. engines
- Heat recovered for space and DHW heating and a 300 ton absorber
- NYSERDA: $500,000; GRIA $2,000,000
- Status: Fully Operational since Summer ‘02.

DG-CHP Program Summary

- Supporting 69 demo projects,12 feasibility studies, and 10 technology/programmatic studies
  - NYSERDA funding of $30 million (in ~$100 M)
  - Demonstration projects will install 30 MW of capacity for a peak demand reduction of 26 MW by in 2003
- CHP applications in industrial, agricultural, municipal, institutional, commercial, and residential sectors
- Field-Performance: Monitoring and Data Collection is Underway
- PON 750 – In Review - 50 Demo Projects - $32 million, 107 MW

CHP Program Challenges

- Interconnection – NYS PSC has set standards for systems up to 300 kVa on radial grid.
- Emissions Standard - NYS DEC is in the process of developing air emissions standards.
- Standby Rates - NYS PSC is in the process of developing tariffs for all electric utilities.

DG Standby Rates - Context

- Revenue Neutrality – Stranded costs (/CTCs), Cost allocation (shared, local), loss of load (back-up options), etc.
- Public Benefit – Energy -Efficiency, -Security, -Availability, and the Environment
- Economic Development – Energy costs, fuel diversity, business and technology development, etc.

ConEd Prop. SC-14 RA – Issues

- Cost allocation (shared vs. local)
- Elimination of two service classes (SC-3 and SC-10) and absence of SC-14
- Elimination of QF exemption
- No minimum threshold (size of DG)
- Electricity storage subject to standby rate
- Utility specified contract demand

ConEd Case – Initial Settlement

- Restored service classes and provider of last resort obligations
- CHP and Renewables Phase-in AND Limited exemptions for small customers
- 15% Threshold
- Cost allocation (shared vs. local)
- Minor Infractions - “mulligan”
- Contract demand (Off-peak hours or maintenance allowance)
- Utility triggered outages
- Utility Specified contract demand
- Treatment of electricity storage

The Success of DG Needs…

Electric Utility Buy-in

- Grid support, peak demand, and congestion mitigation
- Grid expansion/upgrade vs. DG
- Utility ownership of DG
- Access to excess capacity, i.e., spinning reserve
- Competing w. other options (islanding, diesel)