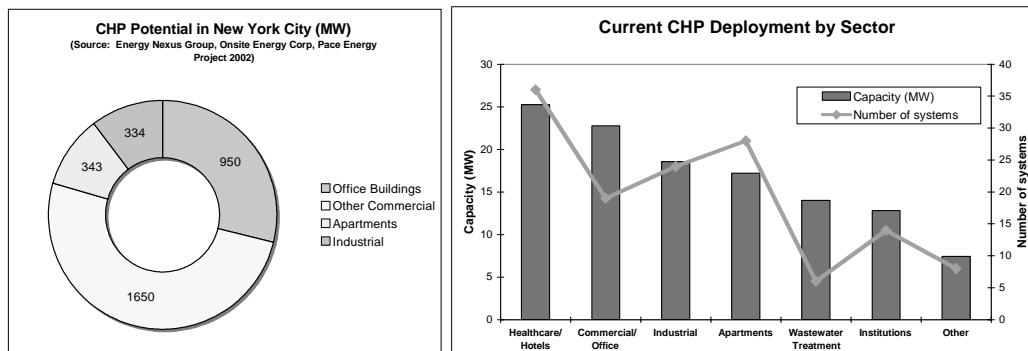




CHP in the Big Apple: Opportunities and Obstacles

There are currently 135 small-scale¹ CHP systems currently installed around the city, with an aggregate capacity of 118 MW_e, placing New York far ahead of most other cities in terms of small-scale CHP deployment. This figure pales in comparison to what is possible, however – a 2002 study estimated there was nearly 3,200 MW_e of potential across various commercial, residential, and industrial sectors in the city.²



A. Key Policy Drivers

Cost

New York City has the highest electricity prices in the continental United States, a function of its situation as a load pocket. Because CHP produces multiple forms of energy from a single fuel source, CHP can be quite cost competitive with grid-based power sources, resulting in a relatively quick payback period.

Reliability Concerns

New York City faces an imminent electricity supply shortfall due to steady demand growth, the anticipated retirement of existing in-city power generation capacity, and difficulty siting and financing large new in-city power plants or transmission. *PlaNYC2030*, the long-term growth and sustainability plan released by Mayor Michael Bloomberg in April 2007, details a variety of approaches local government will pursue to reduce the size of this gap, including the use of CHP.

Environmental Imperatives

In *PlaNYC*, Mayor Bloomberg announced a goal of reducing local greenhouse gas emissions by 30% by 2030. Because of the high efficiency of CHP systems, more widespread use could help reduce emissions associated with power and thermal energy production.

¹ Defined as <10 MW_e of nameplate power generation capacity.

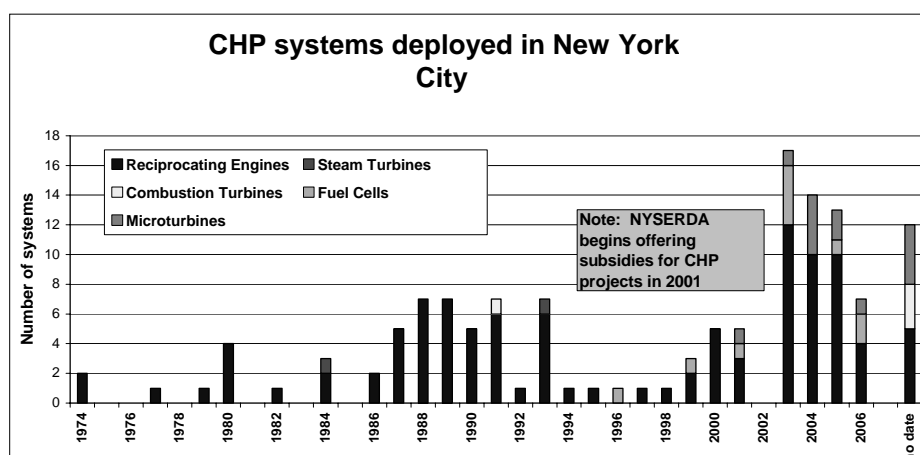
² Energy Nexus Group, Onsite Energy Corporation, and Pace Energy Project, *CHP Market Potential for New York State (Final Report 02-12)*. Prepared for New York State Energy Research and Development Authority (NYSERDA). October 2002.

B. Key Initiatives

New York City has taken several steps in the past year to expand CHP deployment, including:

- Establishing an 800 MW_e target for local CHP deployment by 2030
- Passing a new law requiring local government agency buildings to be assessed for CHP viability
- Requiring large new development schemes (> 350,000 ft²) to assess the viability of CHP as a condition of building permit approval
- Encouraging the use of microgrid and small-scale district heating systems in massive new real estate development projects planned for Manhattan and Brooklyn

Financial support from the State of New York has also been critical in advancing the use of CHP around the city. Subsidies are available for both CHP system viability assessments and project installations. As shown below, there has been a sizable jump in the number of installations since state subsidies were initiated in 2001.



C. Key stakeholders

Lead policy makers: NYC Economic Development Corporation (Energy Department)
Mayor's Office of Long-term Planning and Sustainability.

Key state agencies: New York State Energy Research and Development Authority (NYSERDA)
NYS Public Service Commission (regulatory agency)

D. Key Obstacles

Interconnections

Because the local grid was designed to provide ultra-high levels of reliability, it can be difficult – and possibly unsafe – to introduce new power sources into the grid in locations where they were not originally intended. Others argue, however, that Con Edison's approach to CHP interconnections is excessively conservative, delaying projects or imposing technical requirements that drive up costs to the point where CHP installations are no longer economically viable.

State officials have required Con Edison to upgrade their network so interconnections are less problematic; this work will be completed by 2014. Technological advances involving the use of fault current limiters and power electronics as part of the system design may also help, although these technologies are still at the early stages of development, and their local viability remains unproven.

An open question is how much of the difficulty faced by new CHP projects is actually a learning curve issue rather than a technology problem. Given that there are fewer than 140 small-scale systems currently interconnected to the local grid, as Con Edison engineers and CHP project developers gain experience working with this technology, the process may become more predictable and less technically onerous.

Project Economics

Several competing cost considerations weigh heavily on CHP system sizing. If a CHP system is too small – which may occur due to space-constraint reasons in densely developed New York City – the building will be forced to continue to buy large quantities of grid-based power. If the system is very large, it competes with other potential rent-earning uses for the space. ‘Standby’ electricity tariffs also weigh on this decision, as systems generating more than 15% of a building’s power needs shift the building to an alternative – far more costly – rate class. As a result, developers must carefully balance these various factors to determine how large a system to install, or whether it is economically viable at all.

The viability of a project will also hinge on the cost of resolving any interconnection-related issues. In addition to addressing the more technically-oriented problems noted above, many projects have also had difficulty navigating what some characterize as an opaque permitting process. The City of New York has sought to resolve this problem by encouraging Con Edison to post the current application status of all projects undergoing interconnection review.

E. Moving Forward

Columbia University researchers examining CHP deployment in New York City³ recently made several suggestions to enhance local deployment efforts:

- Develop a CHP Partnership composed of local technology companies, real estate developers/owners, and local electric and gas utilities to guide the growth of the CHP sector.
- Establish a CHP project ombudsman to improve communication and address problems between project developers, Con Edison, and state regulatory officials.
- Hire an external consultant to examine the interconnection issue to better assess the extent to which interconnections are a real vs. perceived problem.
- Work with state officials to examine standby tariffs to ensure they do not unfairly penalize CHP projects in New York City.
- Work with state officials to examine regulatory rules or alternative market structures that create a more CHP-friendly environment, either through the use of microgrids or by incentivizing Con Edison to embrace CHP and other forms of distributed generation within their current network operation.

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³ A copy of the study can be found at http://energy.sipa.columbia.edu/PDFs/uep_chp_200709.pdf

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The International CHP/DHC Collaborative

The International Energy Agency launched the International CHP/DHC Collaborative in March 2007 to help evaluate global lessons learned and guide G8 policy makers, industry and other nations as they attempt to assess the potential of CHP and district energy as an energy technology solution.

The Collaborative includes the following activities:

- collecting global data on CHP/DHC
- assessing growth potentials for key markets
- developing country scorecards with data and relevant policies
- documenting best practice policies for CHP and DHC
- convening an international CHP/DHC network, to share experiences and ideas

Participants in the Collaborative include government and industry Partners, as well as over 300 government, industry and non-governmental organizations that provide expertise and support via the Network.

If you are interested in participating in the Collaborative or want more information, please visit www.iea.org/G8/CHP/chp.asp.

For More Information about the IEA's International CHP/DHC Collaborative: Contact Tom Kerr, email tom.kerr@iea.org.

