

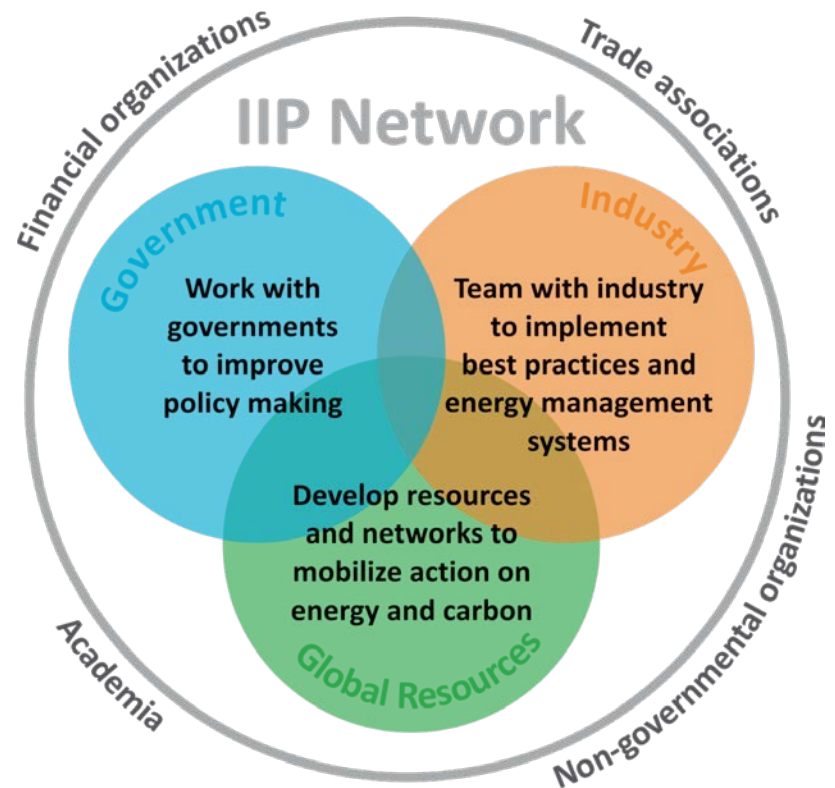
# CHP Stakeholder Perspective: Emerging Trends and Issues for 2014

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# About the Institute for Industrial Productivity

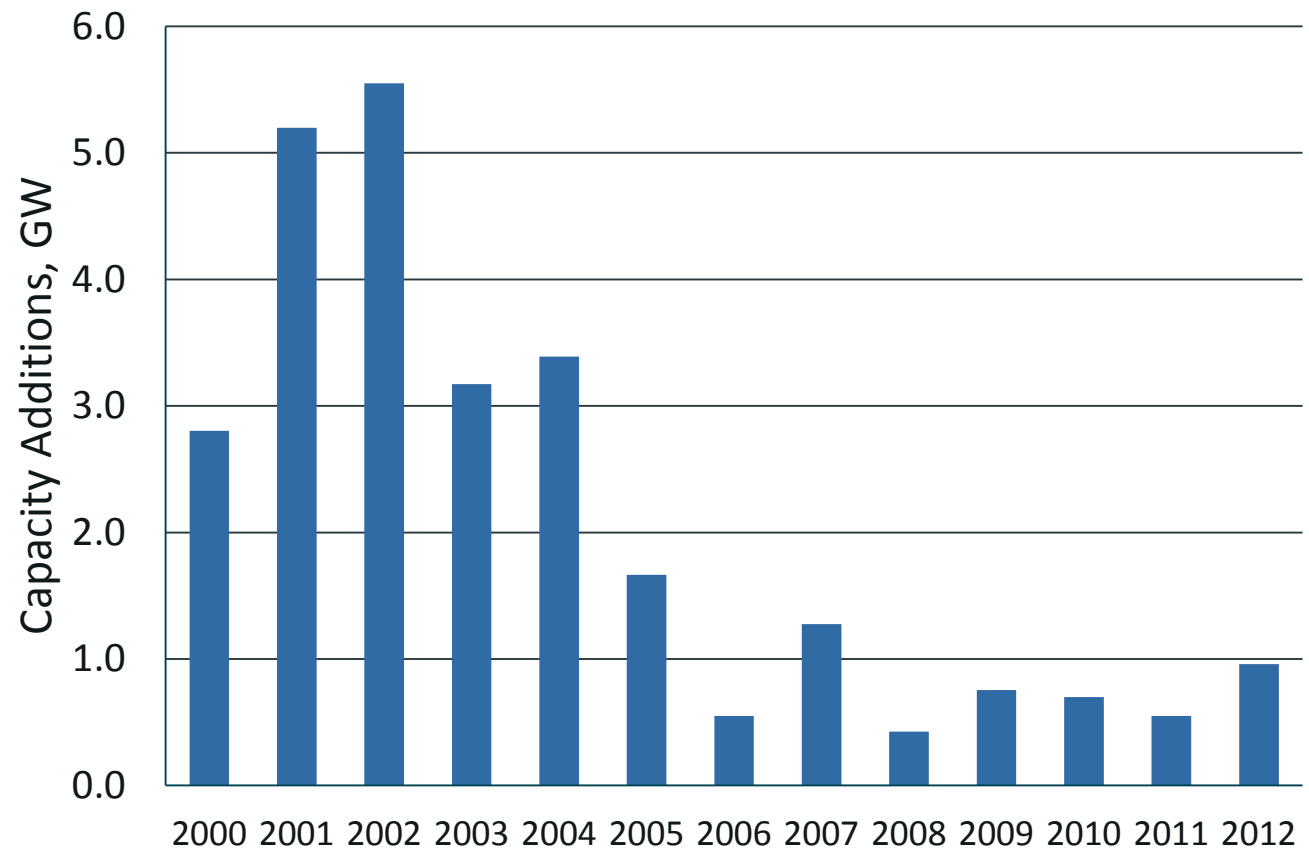
IIP provides industry and governments with the best energy efficiency practices to reduce energy costs, improve competitiveness and prepare for a low carbon future.

- Sharing best practices, including policy experience, and providing access to a network of international experts.
- Developing original research, analysis and databases.
- Bridging the gap between government policy and industry implementation.



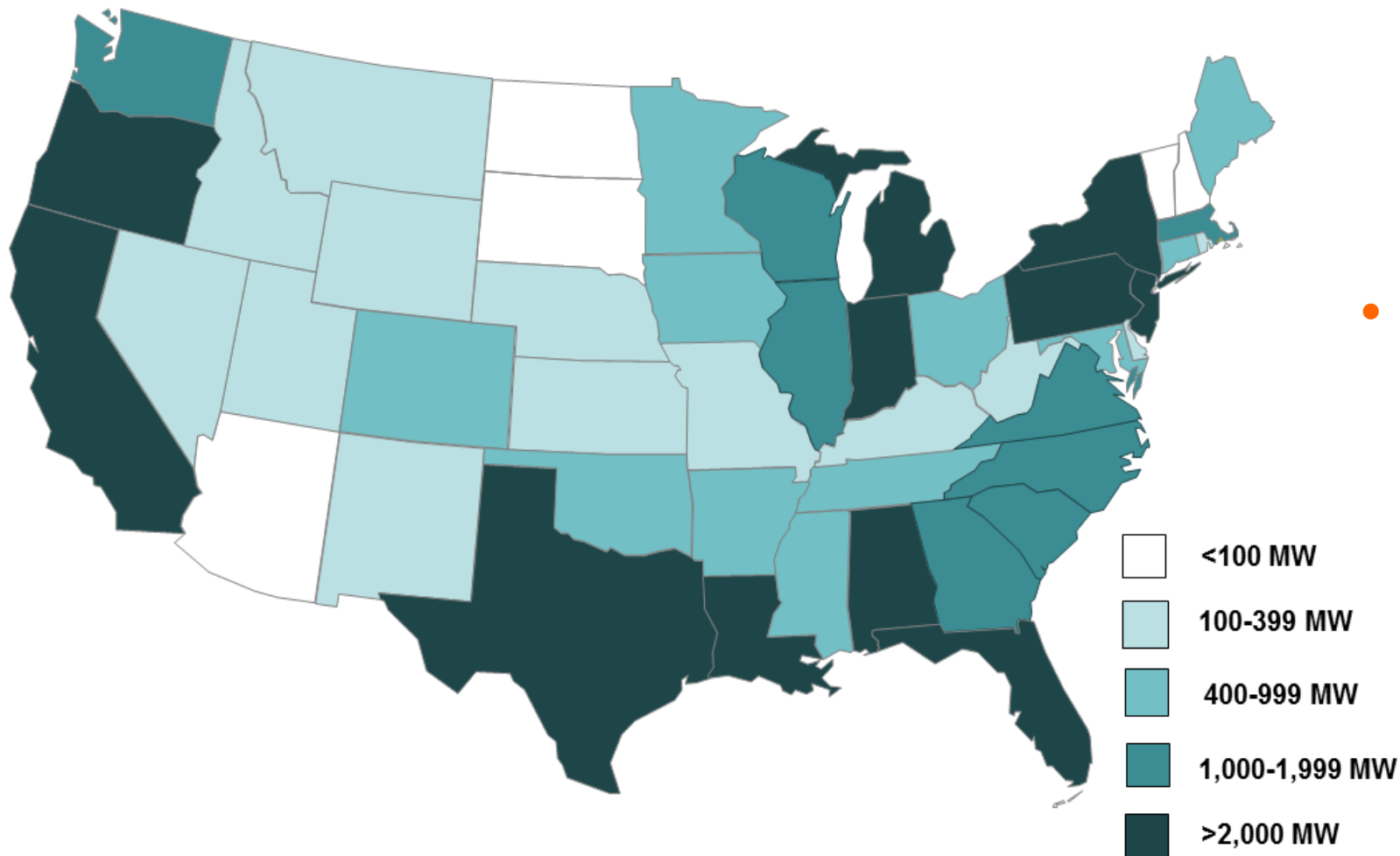
# CHP Market Status

- National Profile (2012):
  - 83.3 GW
  - 4,220 sites
  - 86% Industrial
  - 70% Natural gas
- Game-changing outlook for natural gas supply and price in North America
- Benefits of CHP recognized by Federal and State policymakers



Source: ICF CHP Installation Database,  
March 2014

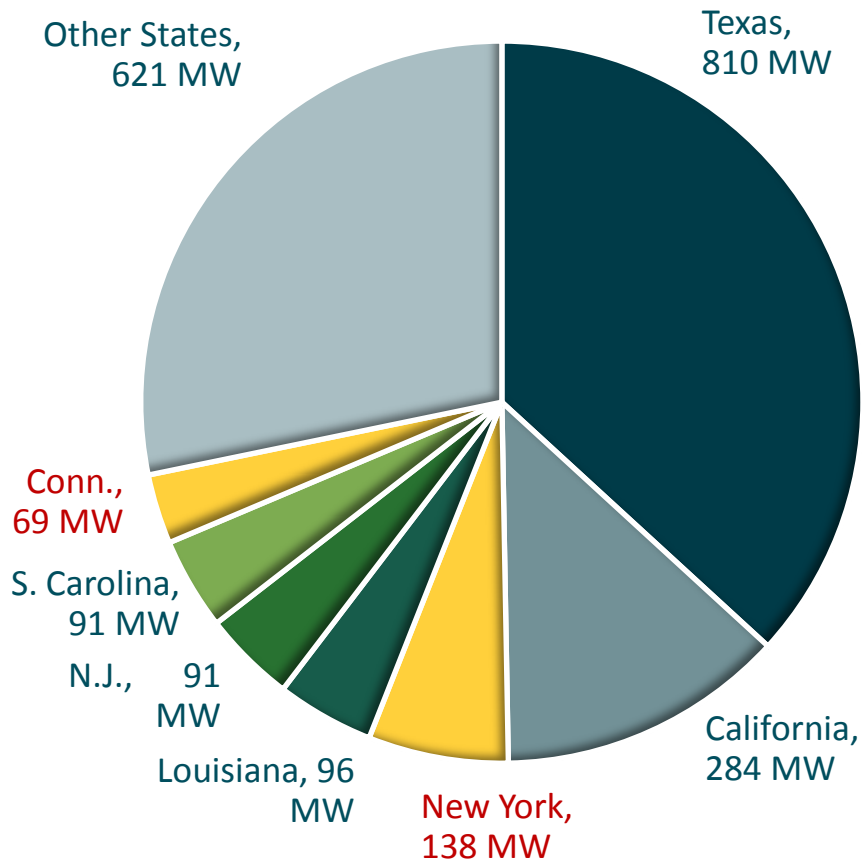
# Existing CHP



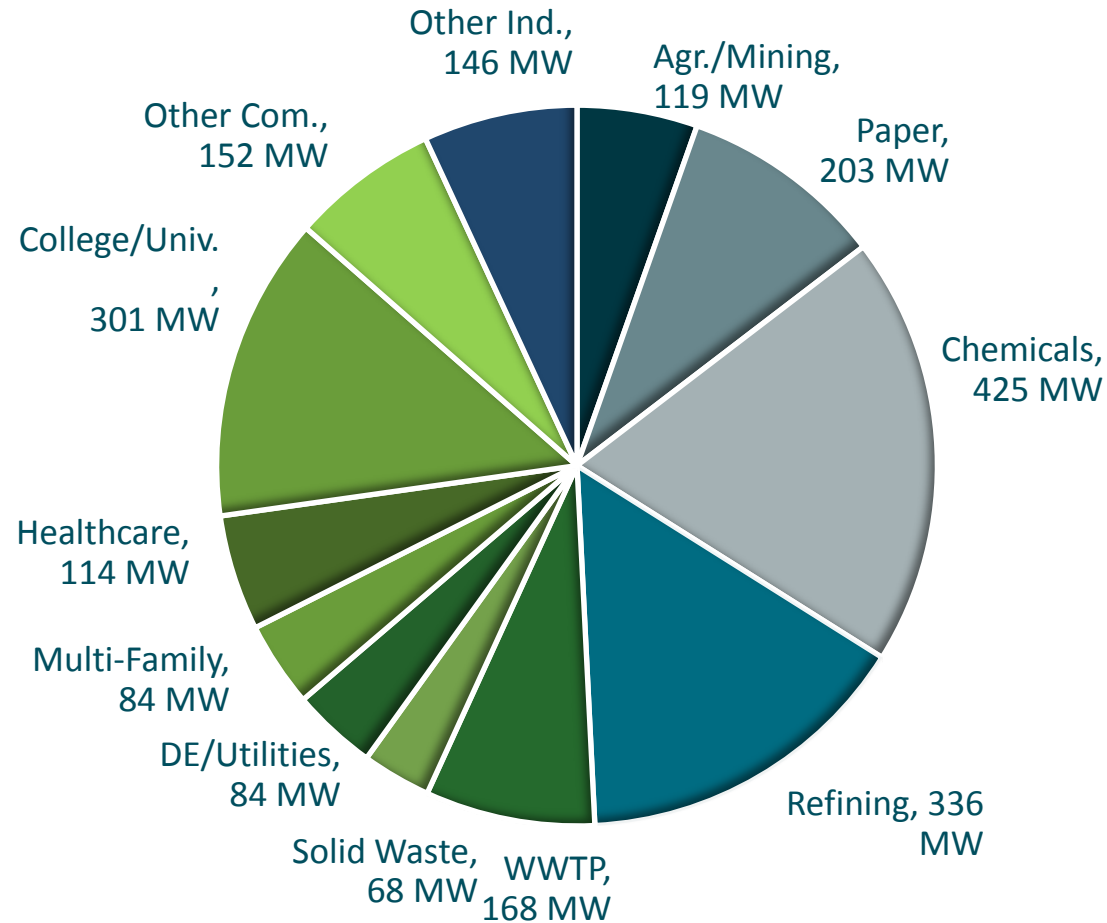
- Natural gas based CHP concentrated in Northeast, Gulf Coast, Midwest and California
- Northwest and Southeast have high concentration of sites in forest products and paper industries

# CHP Additions, 2010-2012 (2,200 MW)

## By State (MW)



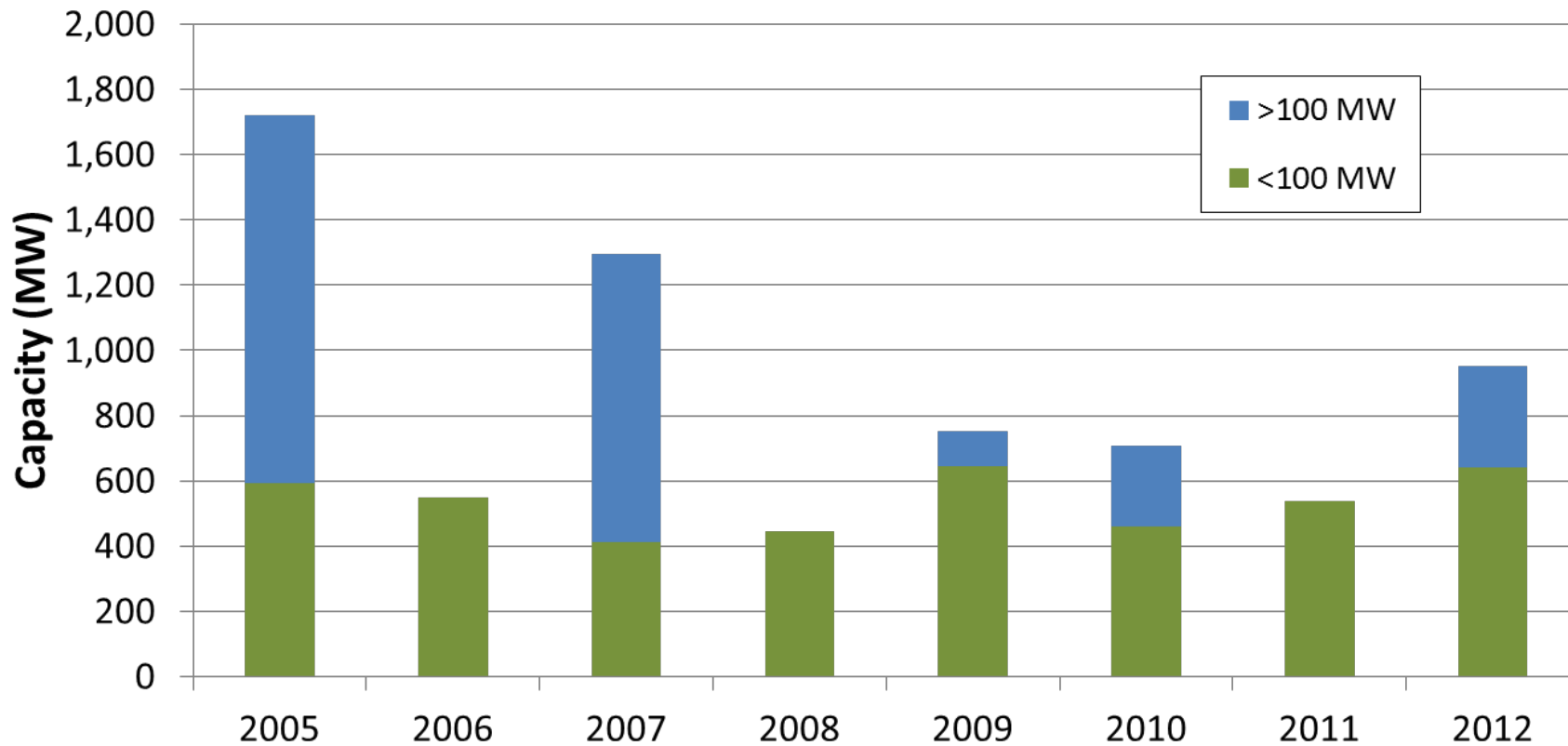
## By Application (MW)



Source: ICF CHP Installation Database, March 2014

# CHP Installations Below 100 MW are an Increasing Share of New Capacity

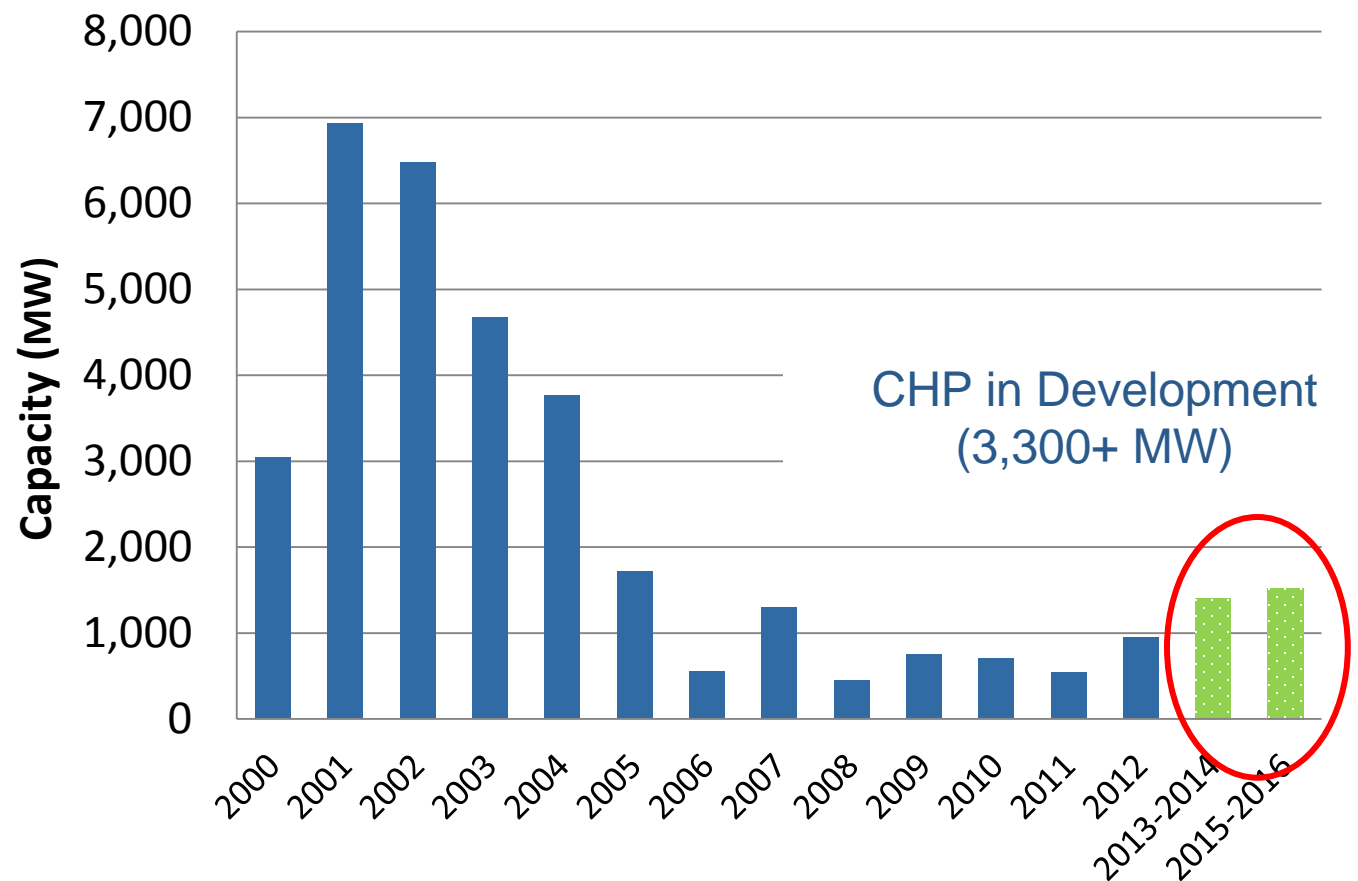
## Annual Capacity Additions by Size



Source: ICF CHP Installation Database,  
March 2014

# Emerging Trends in 2014

- CHP as energy efficiency
- CHP and ancillary services
- Energy reliability and resiliency
- Micro-CHP
- Grid interconnection and utility integration (continuing)



Source: ICF CHP Installation Database, March 2014

# CHP Is Becoming Accepted as a Key Energy Efficiency / Clean Energy Measure by Many States

- CHP is now included as an eligible technology in state energy efficiency resource standards:
  - Ohio 2012
  - Maryland 2012 (pilot program 2013)
  - Illinois 2014 (pilot program under development)
  - Minnesota, Iowa (under consideration)
- Implications of overlapping policies / programs need to be considered as new policies are introduced:
  - Efficiency requirements versus tightening emissions standards
  - Interaction of CHP and traditional energy efficiency
  - Deployment of multiple technologies



# Policymakers Need to be Mindful of the Unintended Interactions of Overlapping Policies / Programs

- Deployment of multiple technologies
  - Interconnection, net metering and tariff policies intended to support individual technologies may negate one another when multiple technologies used
  - CHP and Solar PV
    - CHP supplemental tariffs do not support net metering benefits for solar PV
    - CHP interconnection requirements discourages export power, Solar PV often relies on periodic export of excess power
- *We ask that the New York Public Service Commission clarify the interactions of overlapping policies and be sensitive going forward to potential overlaps and contradictions that may arise from policies developed in silos*

# CHP and Ancillary Services for the Grid

- CHP can provide a variety of ancillary services for grid support:
  - Capacity
  - Operating and Spinning Reserves
  - Regulation and Frequency Response
  - Reactive Power and Voltage Control
- Payment for these services can represent a significant enhancement of CHP project economics
- CHP participation in these markets is currently very limited due to the complexity of the rules and requirements, and a perceived mismatch between CHP operating characteristics and system requirements

# CHP and Ancillary Services for the Grid

- CHP systems can provide valuable ancillary services to the grid when needed, and, if properly compensated, could be designed to provide even greater value
  - Baseload CHP currently provides uncompensated value to the grid during peak days
- Successful participation in ancillary markets requires the development of program rules and mechanisms that recognize the operating characteristics and requirements of both CHP systems and grid operators
- *We ask that the New York Independent System Operator consider new mechanisms to recognize the capacity benefits of baseload CHP*

# CHP Can Provide Critical Energy Reliability and System Resiliency Benefits

- Traditional backup generators do not always perform during emergencies, a system operating on a daily basis (CHP) is more reliable
- CHP provides continuous benefits to host facilities, rather than just during emergencies
- CHP systems kept running during Sandy:
  - South Oaks Hospital (LIH) - Amityville, NY, 1.25 MW
  - The College of New Jersey - Ewing, NJ, 5.2 MW
  - Public Interest Data Center - New York, NY, 65 kW
  - Bergen County Wastewater – Little Ferry, NJ, 2.8 MW
  - New York University – New York, NY, 14 MW
  - Princeton University - NJ, 15 MW
  - Sikorsky Aircraft Corporation – Stratford, CT, 10 MW



# CHP and the Long Island Home (South Oaks Hospital)

- The Long Island Home is located on a 26 acre campus in Amityville
  - Seven major buildings representing 325,000 square feet
  - South Oaks Hospital – 200 bed healthcare facility
  - Broadlawn Manor Nursing and Rehabilitation – 320 bed sub-acute/long term care
- Current CHP system is comprised of five 250 kW engine systems with heat recovery
  - Provides electricity, steam, hot water and cooling to the campus
  - Original system installed in 1990
- The CHP system provided 100% of the facility's power and heating/cooling needs for 15 days during and after Sandy
  - LIH operated separately from the grid for 10 days after power was restored to the area at LIPA's request (this allowed LIPA to provide power to 400 homes as it worked to stabilize the grid)
  - LIH supported local residents and responders, and served as a "shelter in place" for patients, residents, evacuees and staff

# CHP and Critical Infrastructure and System Resiliency

- The Federal Hurricane Sandy Rebuilding Task Force recognized CHP's valuable role in keeping critical infrastructure running during the storm and its aftermath
- In 2013, NYS announced a \$20 million investment program for clean energy projects (including CHP) that provide continuous power and heat during grid outages (based on NYS2100)
- New York City's "A Stronger. More Resilient New York" recommends improving building and other codes to enable increased use of CHP to increase the resiliency of infrastructure
- Legislation in New York (Bill S1617-2013, Bill A1044A-2013) specifically recognized the benefits of CHP in supporting Places of Refuge
- *NECHPI stands ready to serve as a resource to stakeholders and CHP allies working to advance policy initiatives that promote the deployment of CHP for critical infrastructure and system resiliency*

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# Thank You!

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