Synapse
Energy Economics, Inc.

Climate Change Policies in the Northeast: Carbon Emission Caps and Energy Cost

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Climate change impacts in the Northeast (NYC example)

Evolution of CO2 emissions policy in the Northeast: NEG/ECP

August 2001 New England Governors and Eastern Canadian Premiers "Climate Change Action Plan."

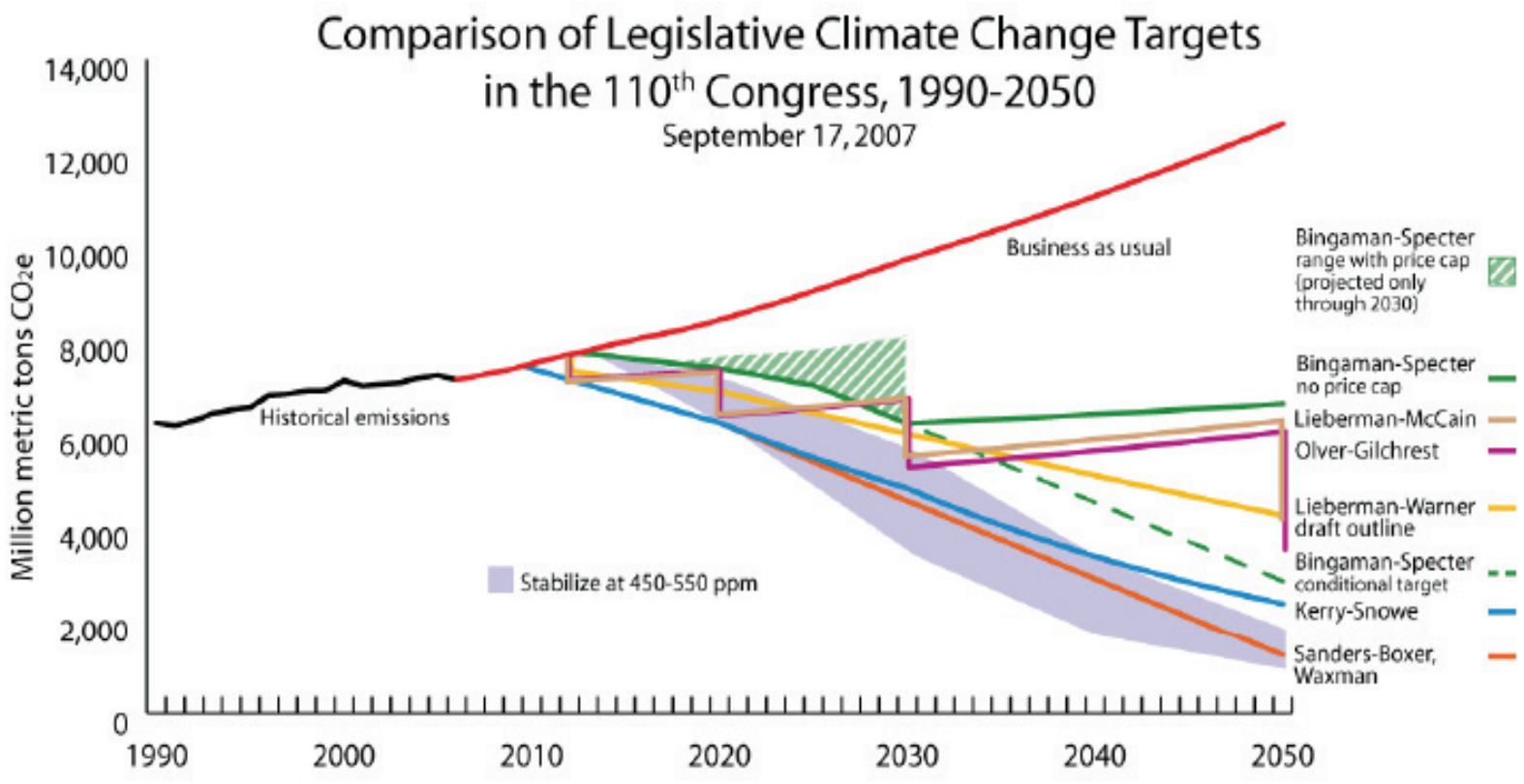
- Short-term Goal: Reduce regional GHG emissions to 1990 emissions by 2010.
- Mid-term Goal: Reduce regional GHG emissions by at least 10% below 1990 emissions by 2020…
- Long-term Goal: Reduce regional GHG emissions sufficiently to eliminate any dangerous threat to the climate; current science suggests this will require reductions of 75-85% below current levels.
- Nine "action steps" dealing with inventories, planning to meet targets, public awareness, energy conservation, etc.

June 2007 Resolution reaffirming.

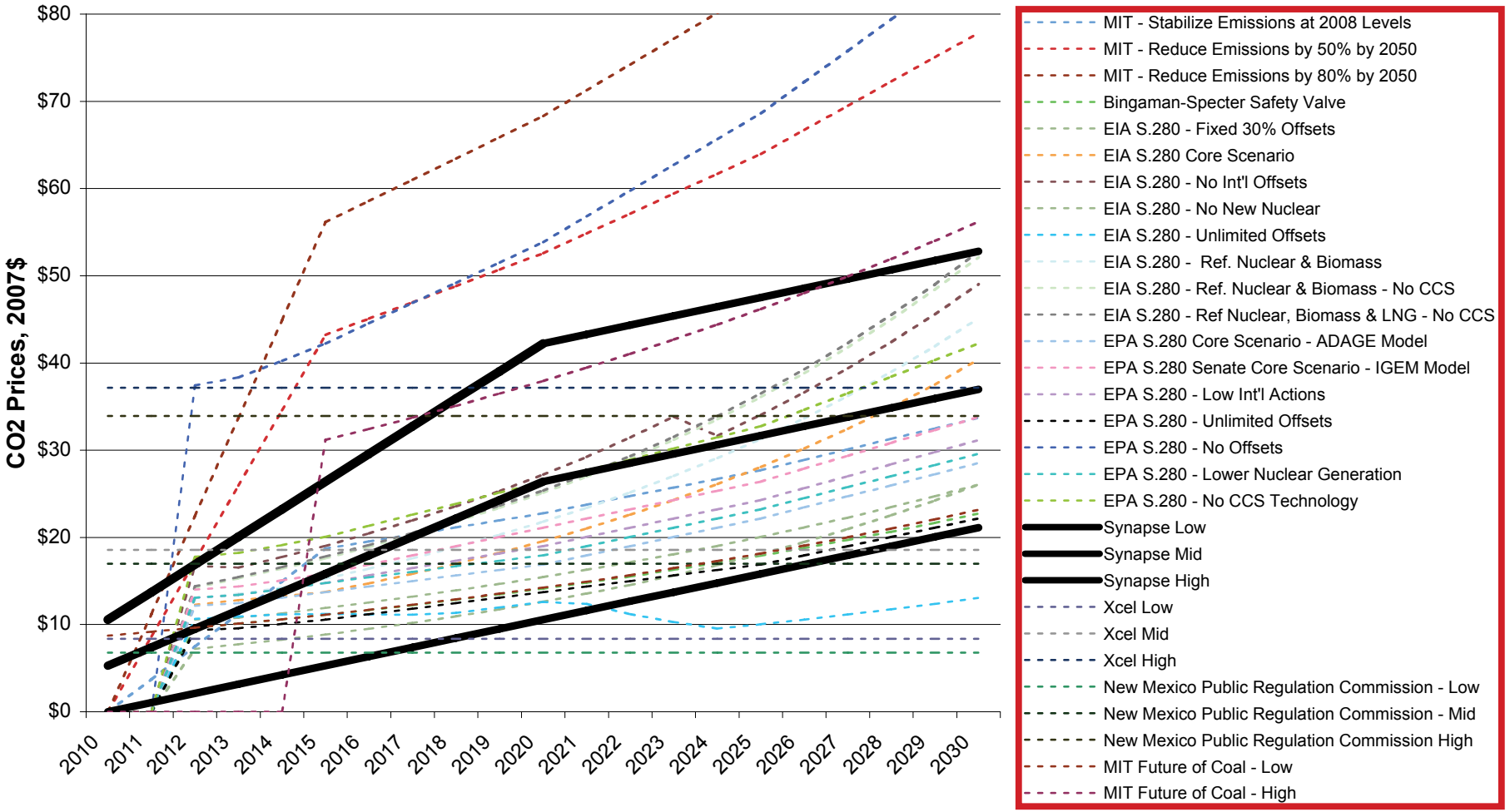
Evolution of CO2 emissions policy in the Northeast: RGGI

- December 2005 seven governors signed the “Regional Greenhouse Gas Initiative” Memorandum of Understanding.
- RGGI is the first mandatory cap and trade program in the US for CO2. Emissions capped at current levels in 2009, and then reducing by 10% by 2019.
- August 2006. RGGI Staff Working Group issues final drafts of model rules.
- January 2007. Massachusetts and Rhode Island commit to join.
- April 2007. Maryland commits to join.
- December 2008. Deadline for final regulations.

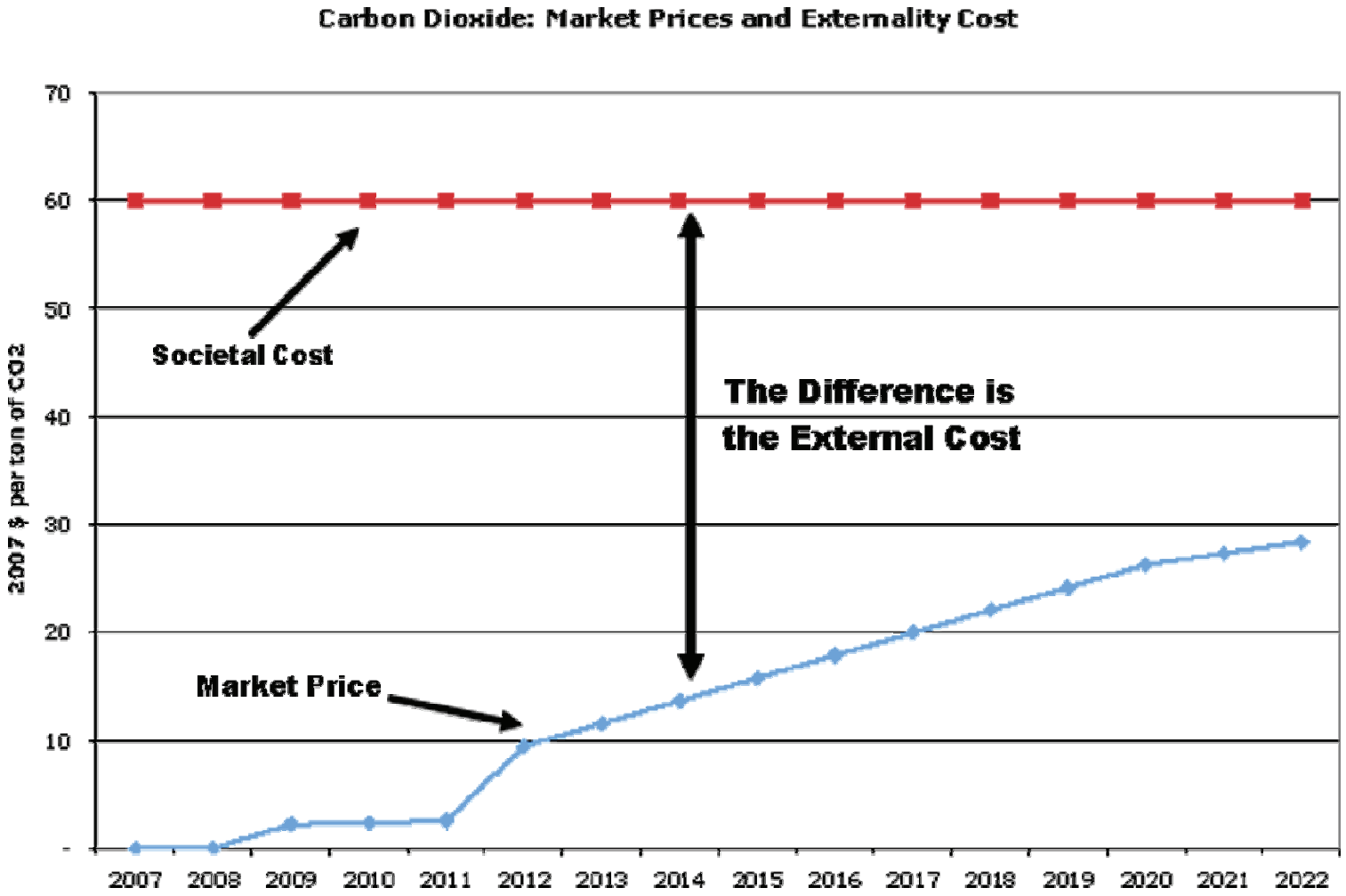
Proposals require deep CO2 emissions reductions



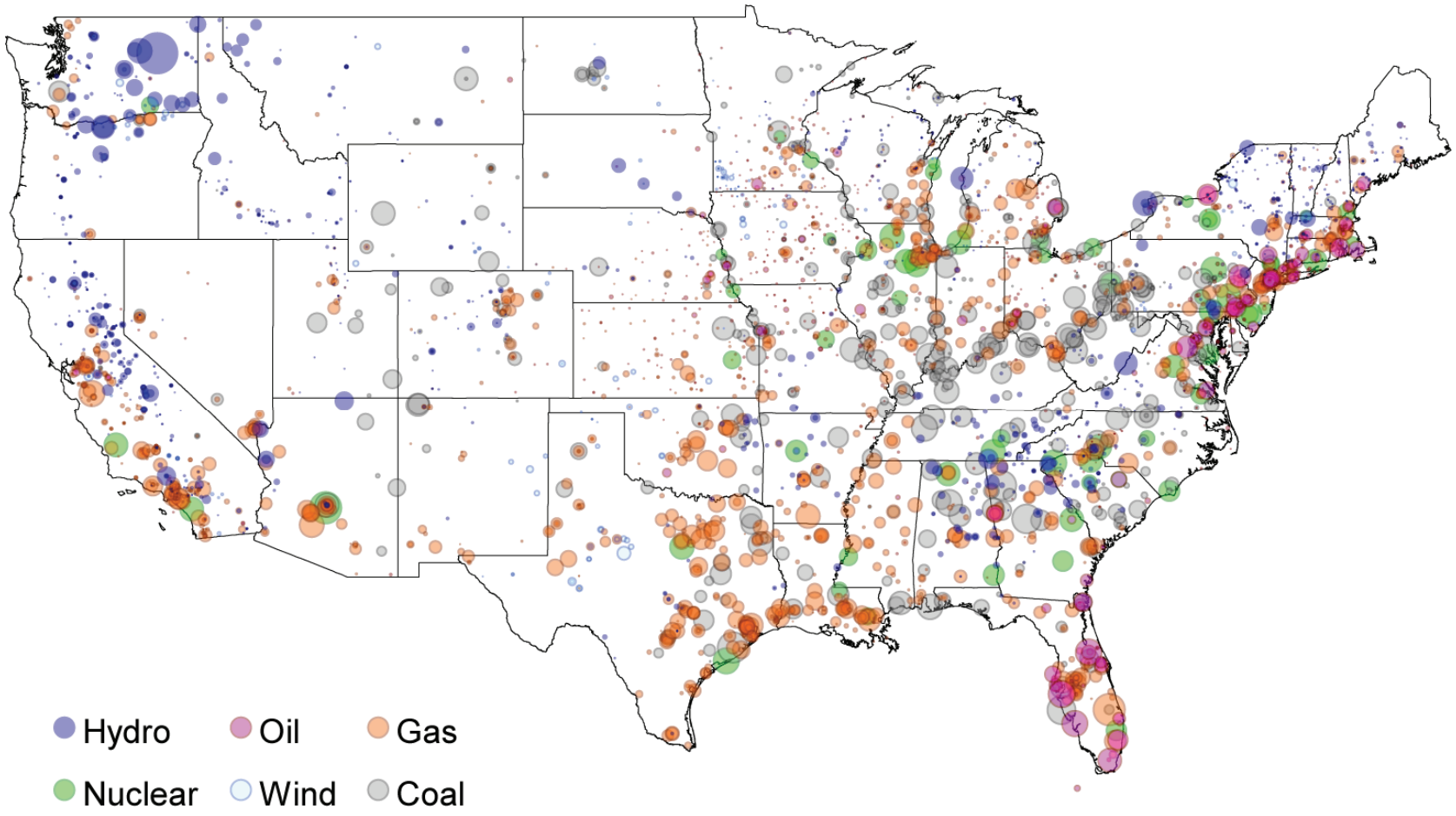
CO_2 emissions price forecasts



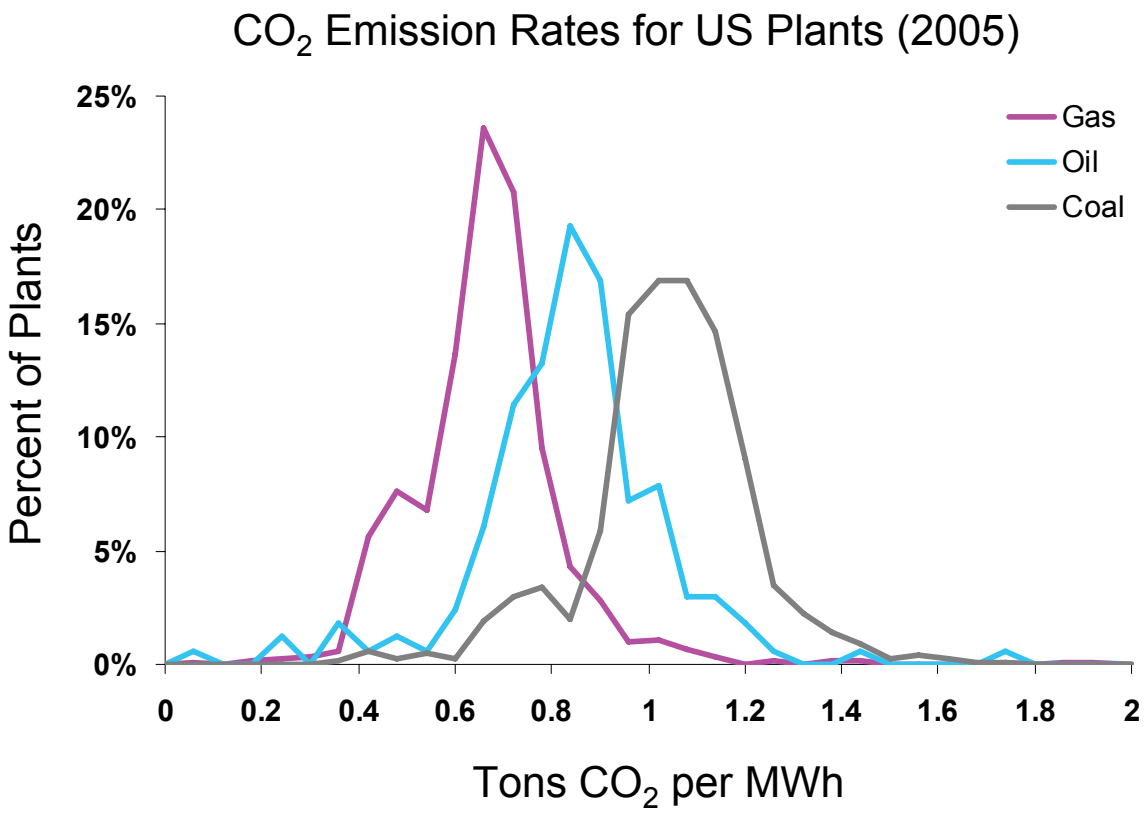
CO2 emissions: market prices and externality cost



Power plants in the United States

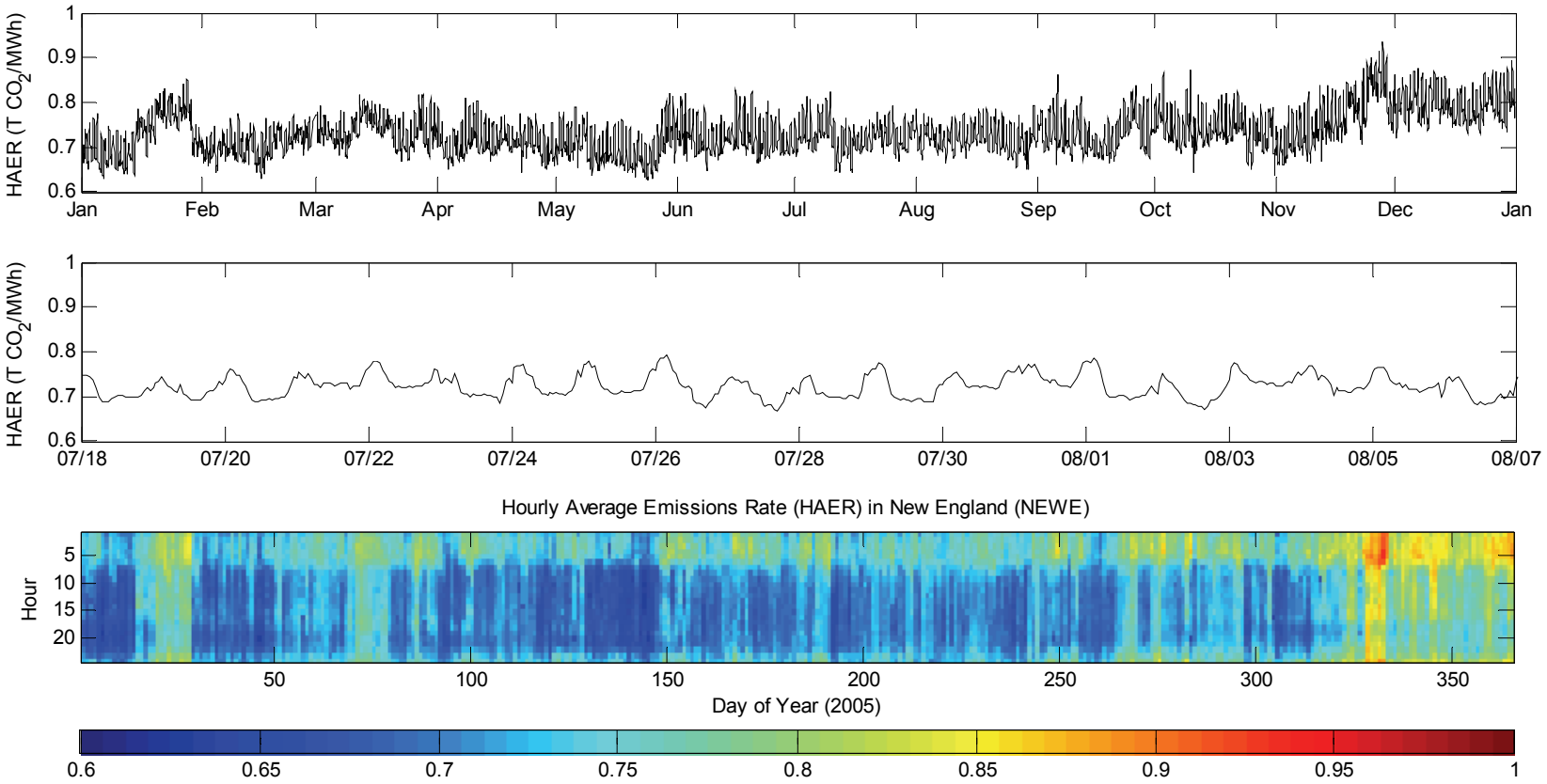


CO2 emission rates from fossil-fueled electric power generation



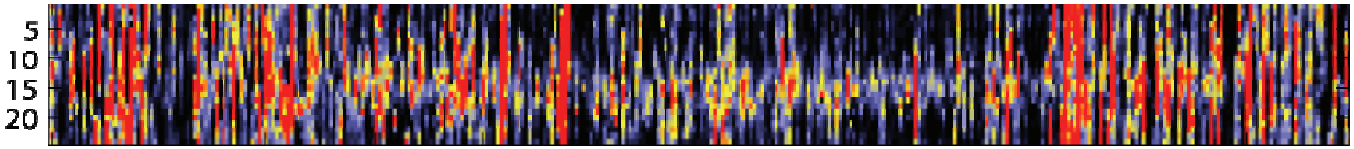
	Coal	Oil	Gas
Median	1.02	0.81	0.64
Num Plants	1065	166	1570

Hourly fossil average CO2 emissions rates from the New England electric power system (2005)

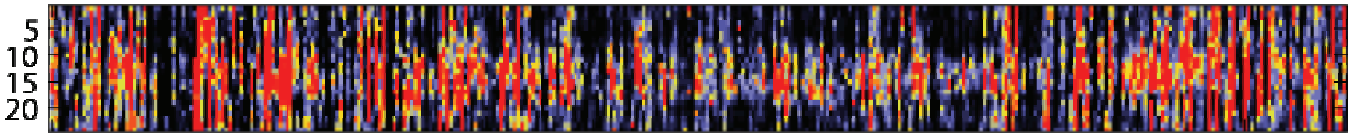


Hourly simulated wind generation for New York and New England

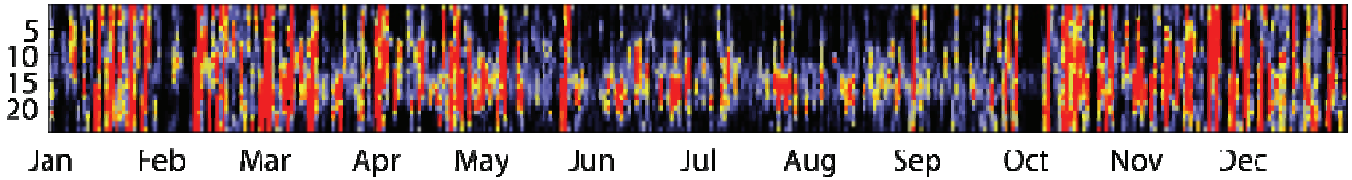
New England (Boston)



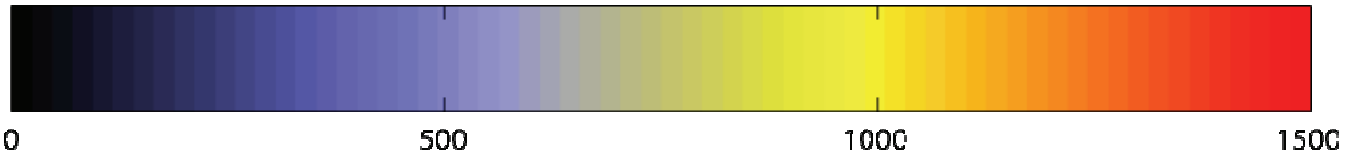
New York (Upstate: Binghampton)



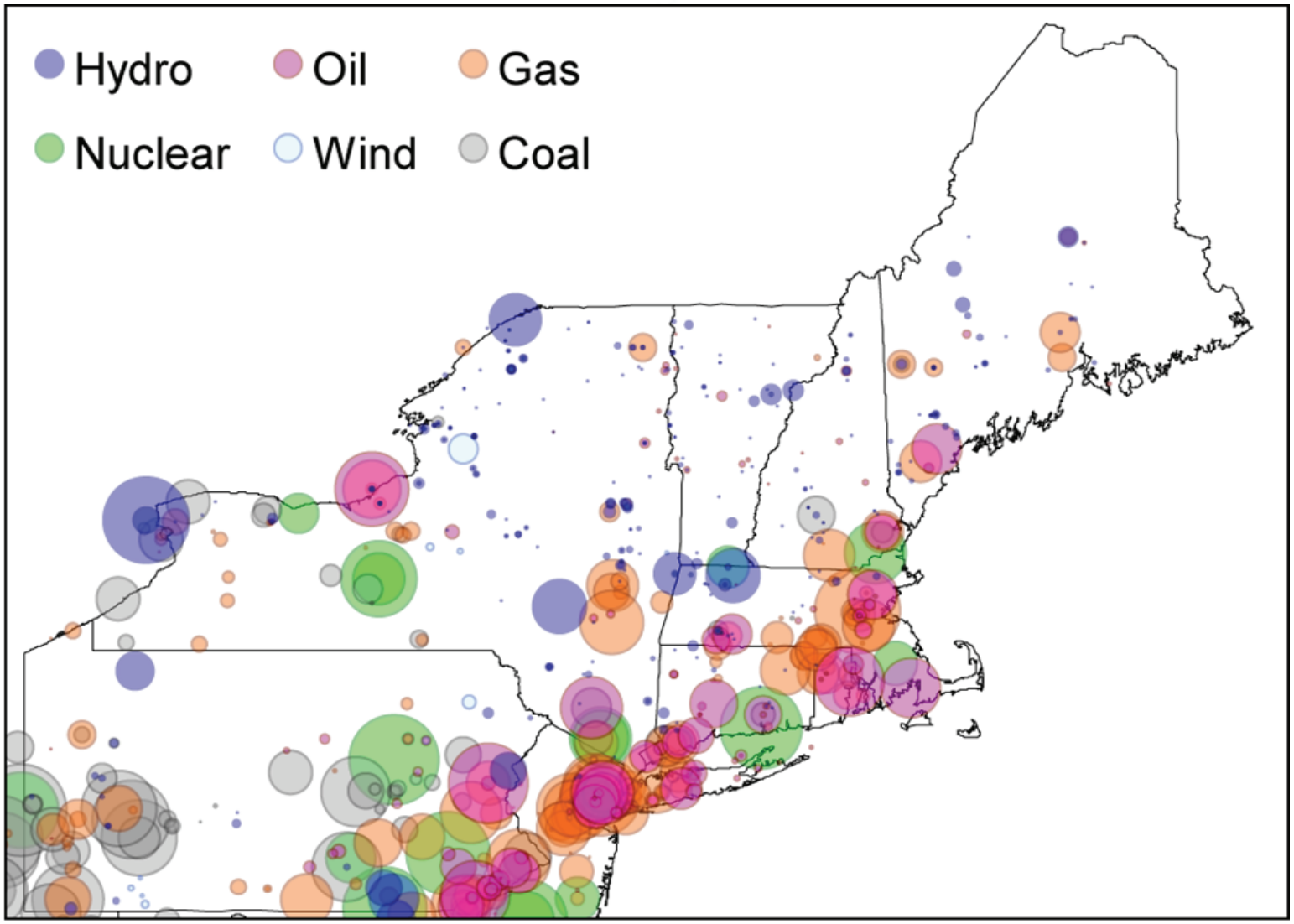
New York (City)



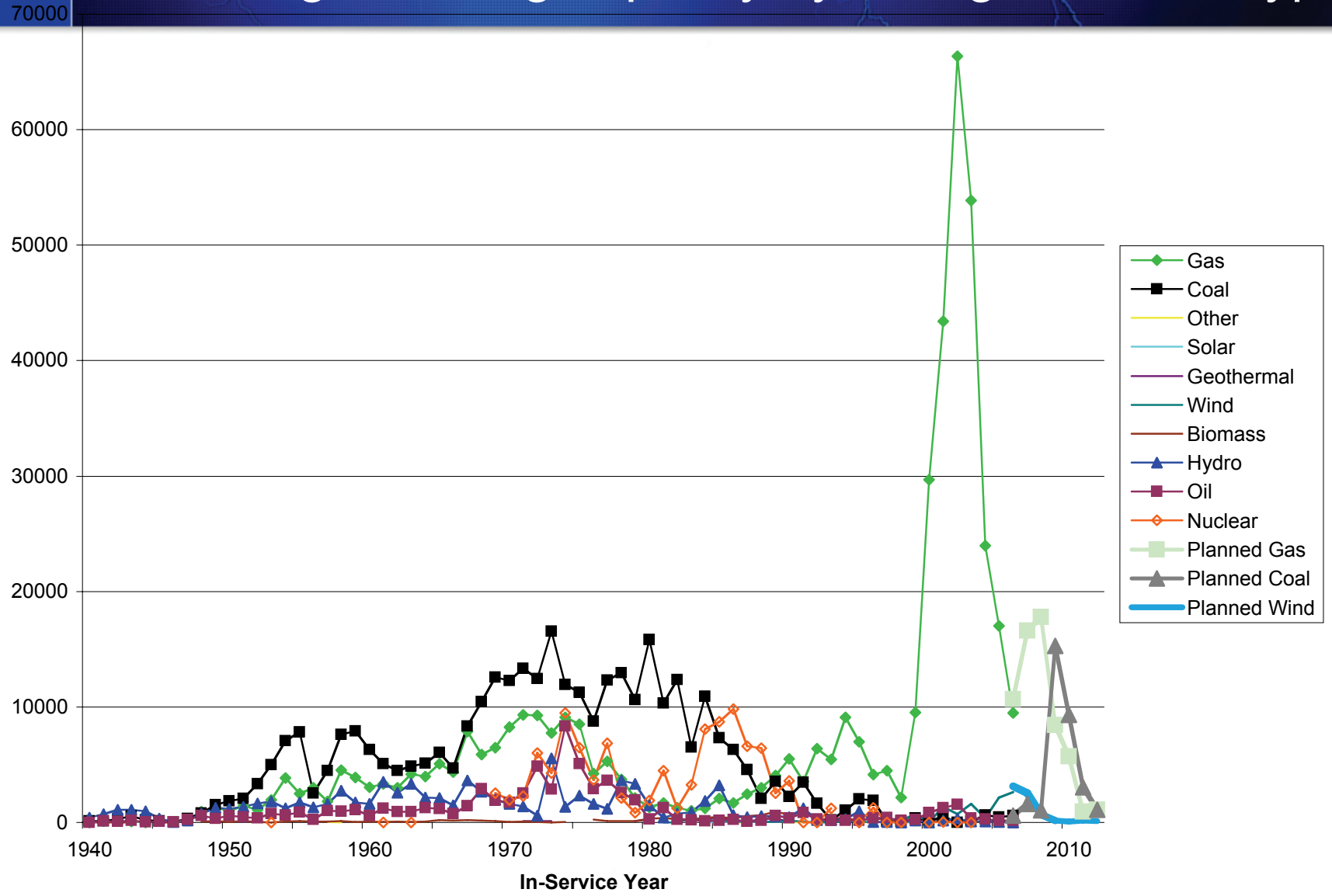
Synthetic Wind Power (KW)



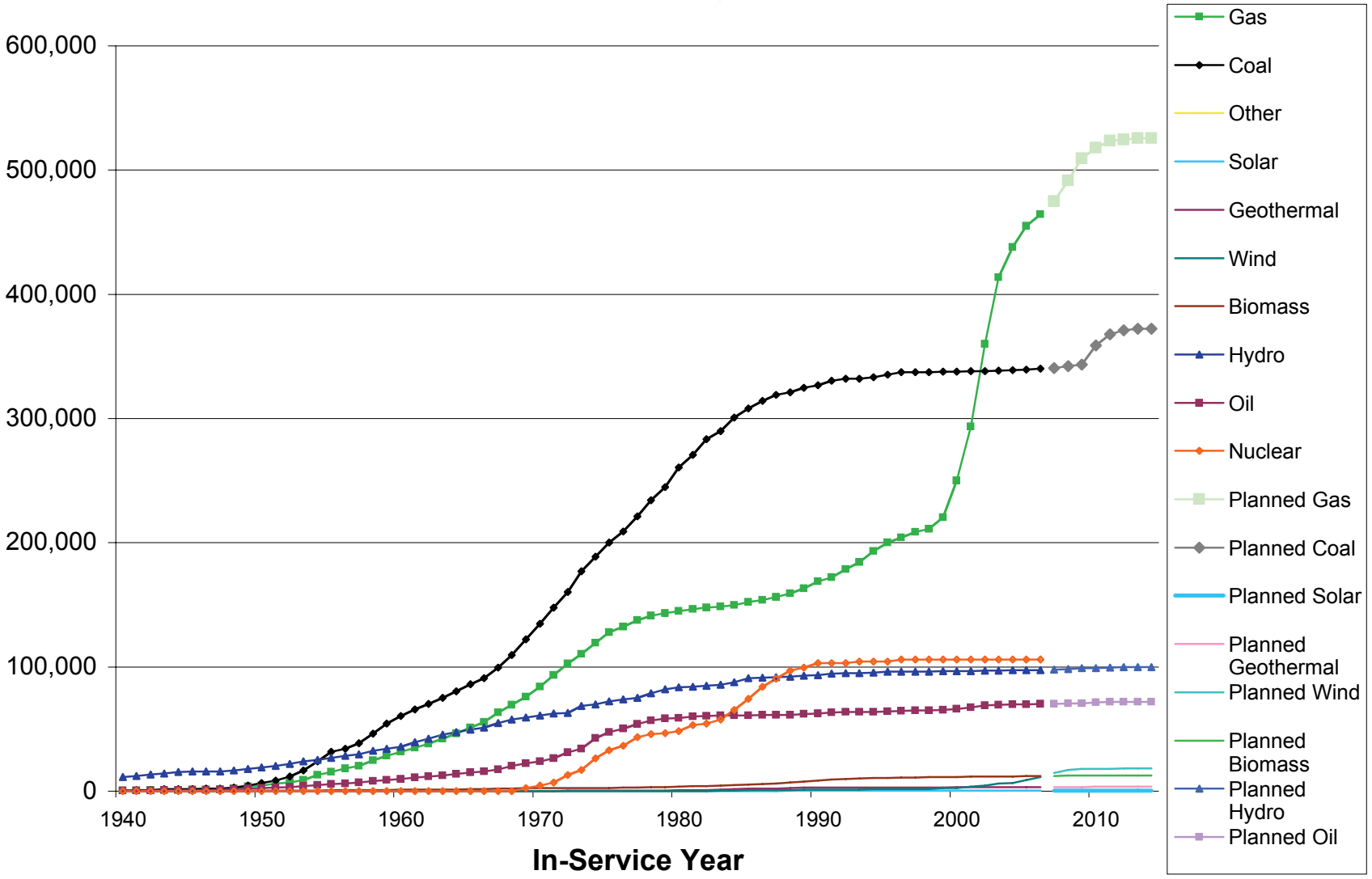
Power plants in the Northeast



U.S. generating capacity by vintage and fuel type



U.S. generating capacity: cumulative by vintage and fuel type



Sources

- Page 2 – Frumhoff, Peter, James McCarthy, Jerry Melillo, Susanne Moser, and Donald Wuebbles. *Confronting Climate Change in the U.S. Northeast.* Northeast Climate Impacts Assessment / Union of Concerned Scientists: 2007. Map source: Google, Sanborn Map Company, Inc.
- Page 5 – World Resources Institute
- Page 6 – Carbon price forecasts from:
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  - U.S. Environmental Protection Agency, Office of Atmospheric Programs. *EPA Analysis of the Climate Stewardship and Innovation Act of 2007: S. 280 in 110th Congress.* Washington, DC: July 16, 2007.
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Sources, continued

- Page 7 – Hornby, Rick, et al. *Avoided Energy Supply Costs: 2007.* Synapse Energy Economics.
- Page 8 – Map created by Synapse based on NERC ES&D data.
- Page 9 – Based on EPA EGRID data.
- Page 10 - Based on EPA ETS data.
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- Page 12 - Map created by Synapse based on data from NERC ES&D.
- Page 13 - Synapse calculations based on EIA-860 and NERC ES&D data.
- Page 14 - Synapse calculations based on EIA-860 and NERC ES&D data