

Assessment of All Available Cost-Effective Energy Efficiency and Combined Heat & Power (CHP): Preliminary Assessment

Council Consultants

MA EE Advisory Council Meeting
June 9, 2009

Status and Process

- Statute (GCA) requires assessment
- Preliminary Assessment dated June 5
- Preliminary Assessment builds on the memo discussed at the May 26 meeting, in the focused manner directed by the Council
- Council review of preliminary assessment; discussion today, comments by June 12
- Final assessment, with Council comments incorporated, for June 23 Council meeting (distributed June 18)

Requirements of the Green Communities Act

- Electric and natural gas resource needs shall first be met through all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply. [Section 21 (a)]
- Each plan shall provide for the acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply. [Section 21 (b)(1)]
- Green Communities Act (GCA)
Chapter 169 of the Acts of 2008

Assessment vs. Savings Goals

- The “Assessment of All Available Cost-Effective EE and CHP” is not necessarily the same thing as the savings goals for the 2010-2012 Plans
- The Plan savings goals need to consider a ramp up period, which will result in savings goals lower than “all available cost-effective EE”
- The “considerations” for other funding approved by the DPU (EERF), including rate & bill impacts and other sources of funding
- Savings goals in future years could be higher than current Assessment (cost-eff, measures)

Work to Date

- Presentation/memo summarizes recent energy efficiency and CHP studies for Northeast U.S.
- Summary of state goals/legislative mandates
- Studies tend to be conservative/limited
- Market results in some cases exceed study estimates for the same area at the same time (e.g., VT: 2.5% statewide, 4.5% in geo-targeted)
- Efficiency potential is not a finite resource (NY potential 30% in 1989 and 33% in 2003,

Consultant Estimates

- Reasonable long-term value for all available cost-effective electric energy efficiency savings from the combination of energy efficiency programs and CHP is at least 3% per year
- At least 2.5% per year from EE programs and 0.5% per year from CHP
- Natural gas: reasonable long-term value for all available cost-effective EE program savings is at least 2% per year.

Electric Energy Efficiency Potential

State	Year of Study	Analysis Period (yrs.)	Achievable* (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	22.5%	2.3%	KEMA	Draft. Total achievable estimated at 31% including codes & standards.
New England	2004	10	23.0%	2.3%	OEI	Meta-analysis for NEEP. Older relatively low CT and ME estimates drove result down. CT study was also assumed to apply to RI. More recent CT and RI studies would have resulted in significantly higher estimate.
New Hampshire	2009	10	22.7%	2.3%	GDS	Ignored most retrofit (early retirement) savings, so viewed as substantially low.
Vermont	2007	10	22.0%	2.2%	GDS	Constrained analysis to 50% of incremental cost incentive levels. For some markets, estimate of achievable was already being exceeded by Efficiency VT at the time of the study. In 2008 EVT achieved 2.5% savings statewide and 4.5% in geotargetted areas (unevaluated results).
Averages		10.0	22.5%	2.3%		Mean of data available.

Figures are net savings, exclusive of codes & standards savings and CHP.

Electric CHP Potential

State	Year of Study	Analysis Period (yrs.)	Achievable Potential (% of total forecast load)	Average Annual Achievable* (% of total forecast load)	Source	Notes
Massachusetts (NSTAR Only)	2007	10	3.2%	0.3%	OEI	Constrained potential recognizing no programs existed at the time, no clear ability to coordinate with gas utilities, or assumptions about improved stand-by or interconnection policies.
New York	2002	10	10.5%	1.1%	Energy Next	Estimates are net of expected natural market adoption. The study did not estimate achievable potential. "Achievable" estimate represents assumed market penetration without any state or utility programs but with reduction by 50% of stand-by charges and a 10% federal tax credit only. Figures are based on installed load estimates, 65% of electricity used on-site (Study estimate for existing NY CHP load) and assumed 80% load factor.
Massachusetts	2008	see notes	4.3%	0.4%	KEMA/RET	Study extended through 2026, but figures here are based on reported results from 2010 through 2019. Figures are based on installed capacity estimate, assuming load factor of 80%.
Massachusetts	2007	see notes	5.7%	0.6%	NESCAUM	Study extended through 2026, but figures here are interpolated to the period 2010 through 2019. Figures are based on installed capacity estimate, assuming load factor of 75%.
Averages		10	5.9%	0.6%		Mean of data available.

Figures are net savings.

Gas Energy Efficiency Potential

State	Year of Study	Analysis Period (yrs.)	Achievable * (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	17.0%	1.7%	KEMA	Final draft. Gas efficiency only. Total achievable including codes & standards estimated at 22%.
New Hampshire	2009	10	21.1%	2.1%	GDS	Ignored most retrofit (early retirement) savings. Typically retrofit measures account for a large portion of EE opportunities over 10 years.
New York	2006	10	19.0%	1.9%	OEI	Conservative estimate of max achievable based on 67% of economic, without detailed analysis.
Averages		10.0	19.0%	1.9%		Mean of data available.

Figures are net savings, exclusive of codes & standards savings and CHP.

Energy Efficiency Resource Standards

State	Date Established	Goal	Target End Date	Implied Annual % savings* (% of total forecast load)
Texas	2007	20% of load growth	2010	0.5%
Vermont	2008	2.0% per year (contract goals)	2011	2.0%
California	2004	EE is first resource to meet future electric needs ¹	2013	2.0% +
Hawaii	2004	.4% - .6% per year ²	2020	0.5%
Pennsylvania	2008	3.0% of 2009-2010 load	2013	0.6%
Connecticut	2007	All Achievable Cost Effective ³	2018	2.0% +
Nevada	2005	0.6% of 2006 annually ⁴	n/a	0.6%
Washington	2006	All Achievable Cost Effective	2025	2.0% +
Colorado	2007	1.0% per year	2020	1.0%
Minnesota (elec & gas)	2007	1.5% per year	2010	1.5%
Virginia	2007	10% of 2006 load	2022	2.2%
Illinois	2007	2.0% per year	2015	2.0%
North Carolina	2007	5% of load ⁵	2018	0.4%
New York (electric)	2008	10.5% of 2015 load ⁶	2015	1.5%
New York (gas)	2009	15% of 2020 load ⁶	2020	1.5%
New Mexico	2009	All achievable cost-effective, minimum 10% of 2005 load	2020	1.0% +
Maryland	2008	15% of 2007 per capita load ⁷	2015	3.3%
Ohio	2008	2.0% per year	2019	2.0%
Michigan (electric)	2008	1.0% per year	2012	1.0%
Michigan (gas)	2008	0.75% per year	2012	0.8%
Iowa (electric)	2009	1.5% per year	2010	1.5%
Iowa (gas)	2009	0.85% per year	2013	0.3%
Massachusetts	2008	All Achievable Cost Effective		2.0% +
New Jersey (electric & gas)	2008	20% of 2020 load ⁸	2020	≤2.0%
Rhode Island	2008	All Achievable Cost Effective		2.0% +

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