

NECPUC Plenary Panel

Energy from Afar - and Near

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New England Clean Energy Council & NECEC Institute

June 8, 2015

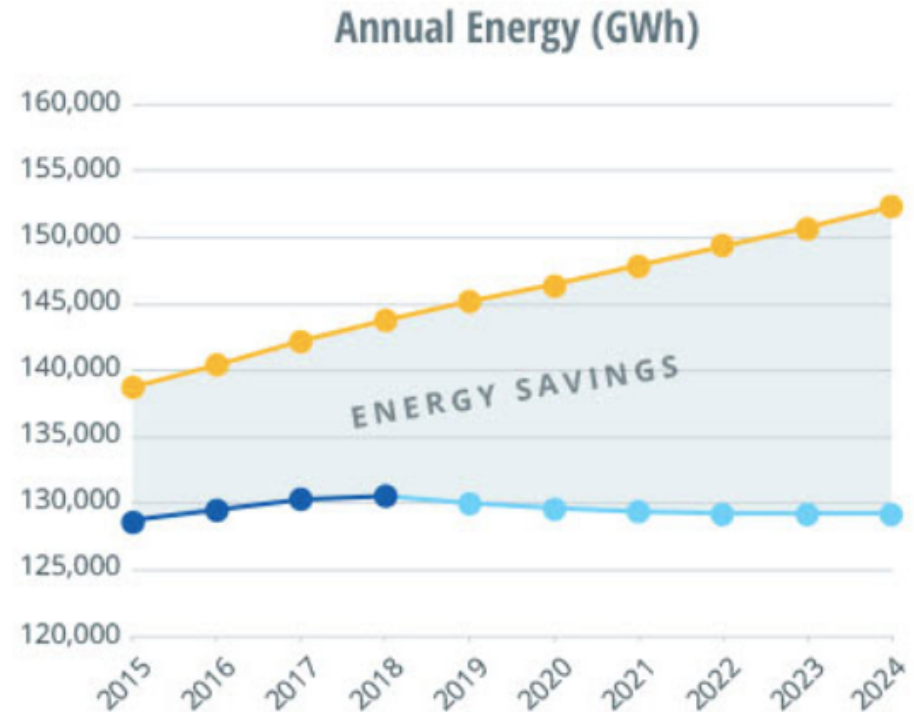
Energy from Afar – and Near

- New England’s evolving energy mix: clean, smart, networked
 - Distributed energy resources
(including EE, DR, DG)
 - Grid scale energy resources
 - Smart energy system
(integrating / enabling new models)
- Innovation: energy, business, markets

Efficiency Leadership: Bending the Curve



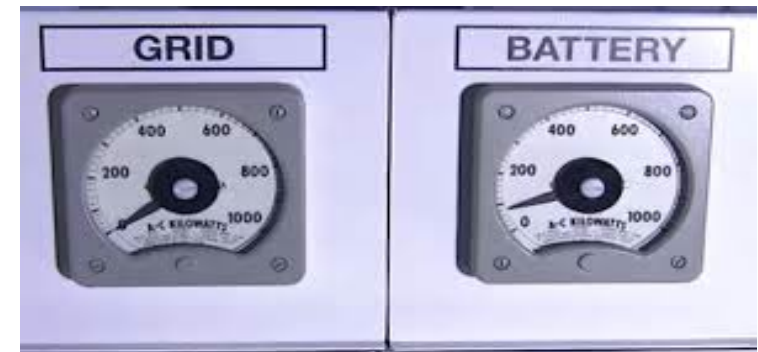
ACEEE: State Energy Efficiency Scorecard



ISO New England:
Energy-Efficiency Forecast

Evolving Demand & Distributed Portfolio

DEMAND RESPONSE

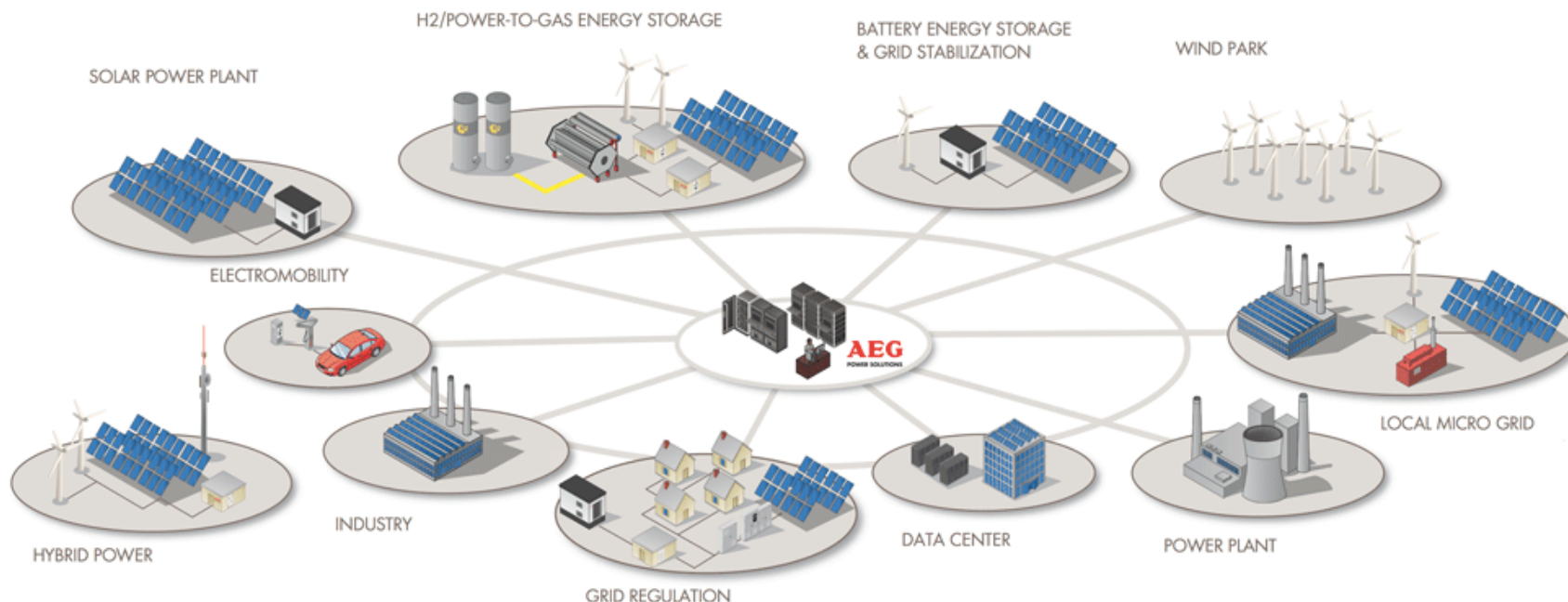


Evolving Grid-Scale Supply Portfolio



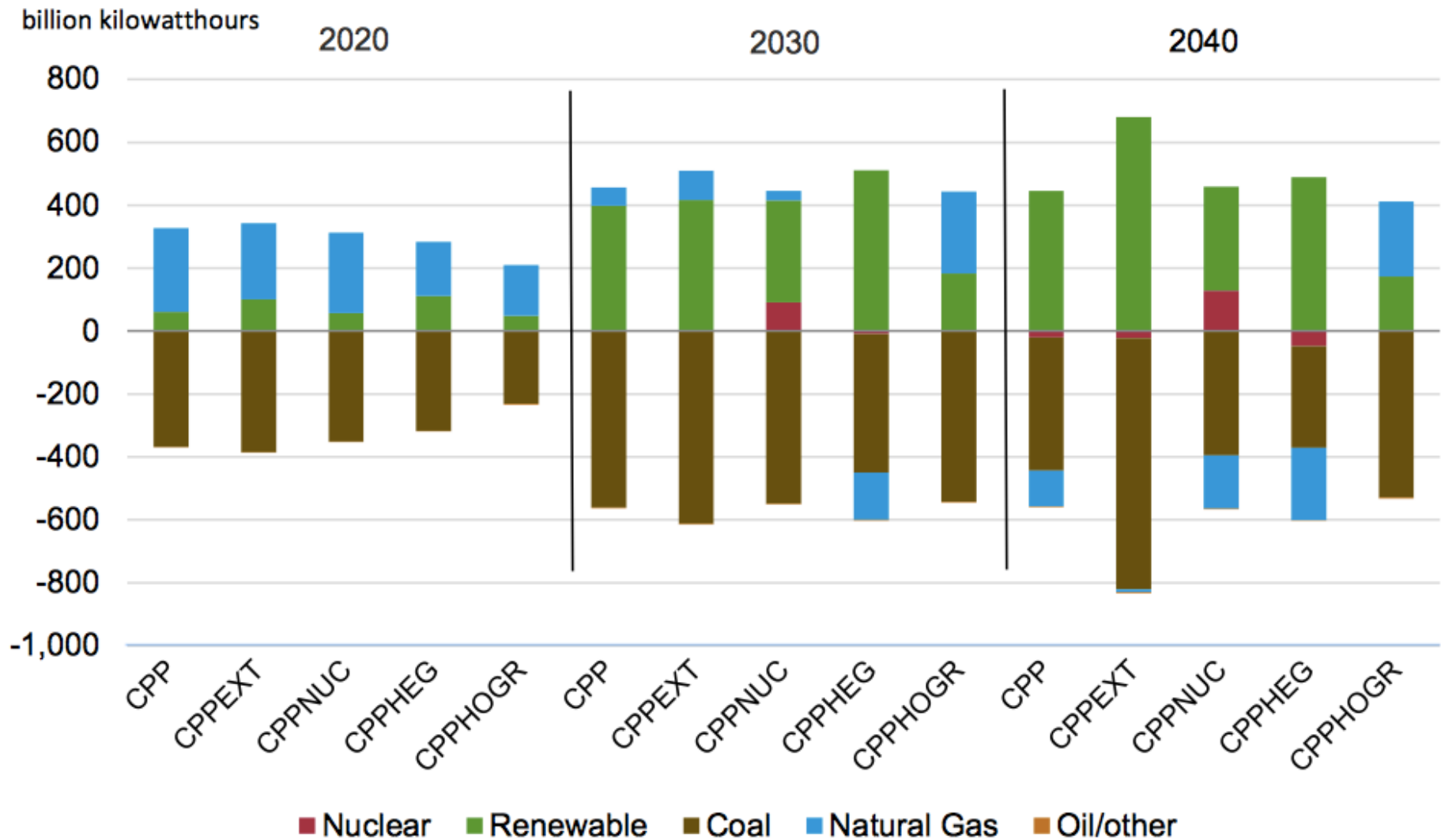
Tomorrow's Electricity System

- Bi-directional communications & metering
- Bi-directional power flows
- Millions of electric vehicles
- Applications
- Pervasive monitoring & digital controls
- Self-monitoring & high visibility
- Many consumer choices
- Condition-based maintenance
- Proliferation of numerous applications

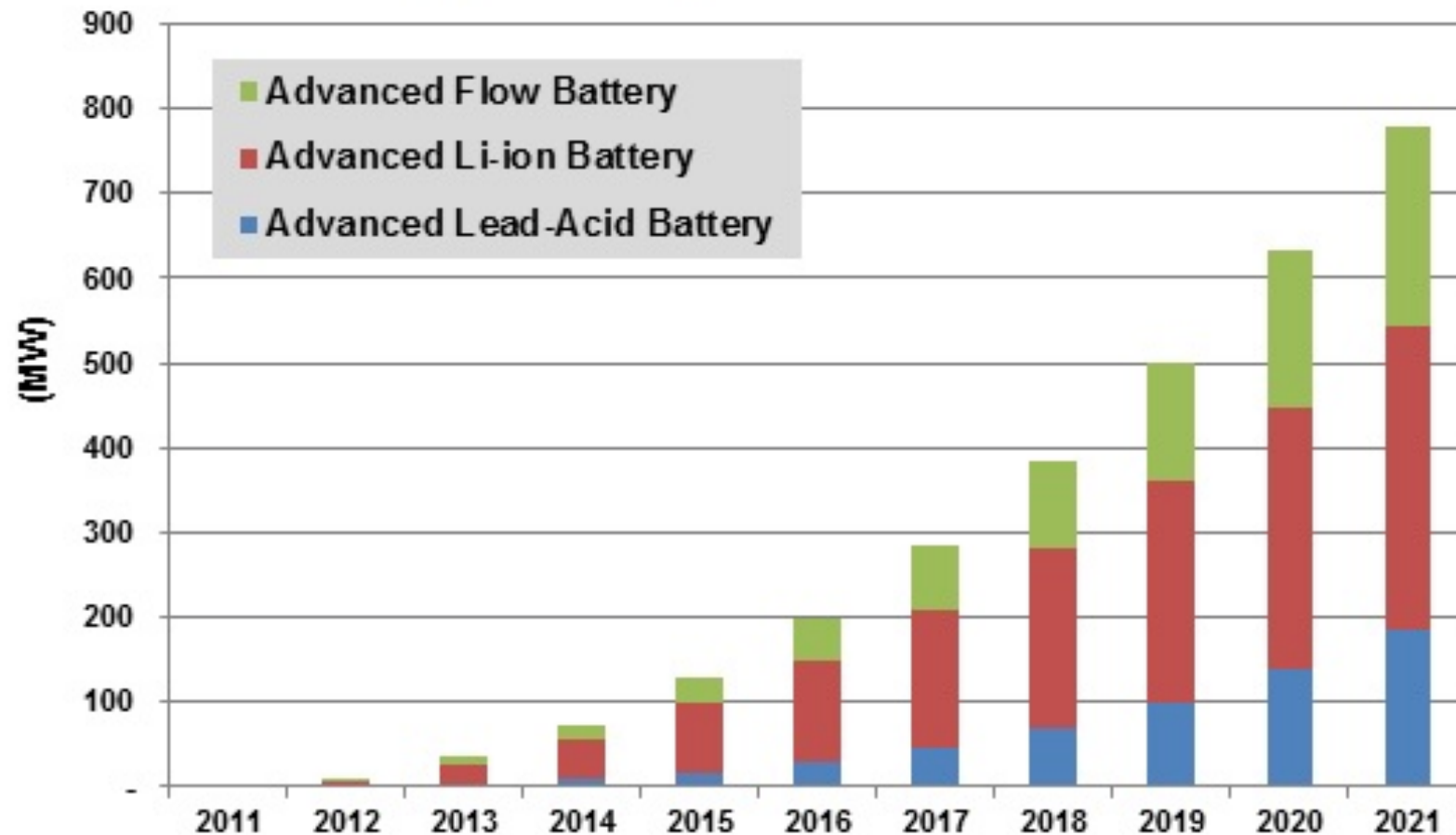


Natural Gas: Bridge to Renewable, Zero-Emission Energy System

(EIA-CPP scenarios)



Emerging Energy Storage Market: Enabling Distributed, Modernized Grid



Leading Energy Innovation Areas

(partial list)

Energy Storage in Transportation



Renewables & MicroGrid Integration



Grid-Scale Storage



Solar Efficiency



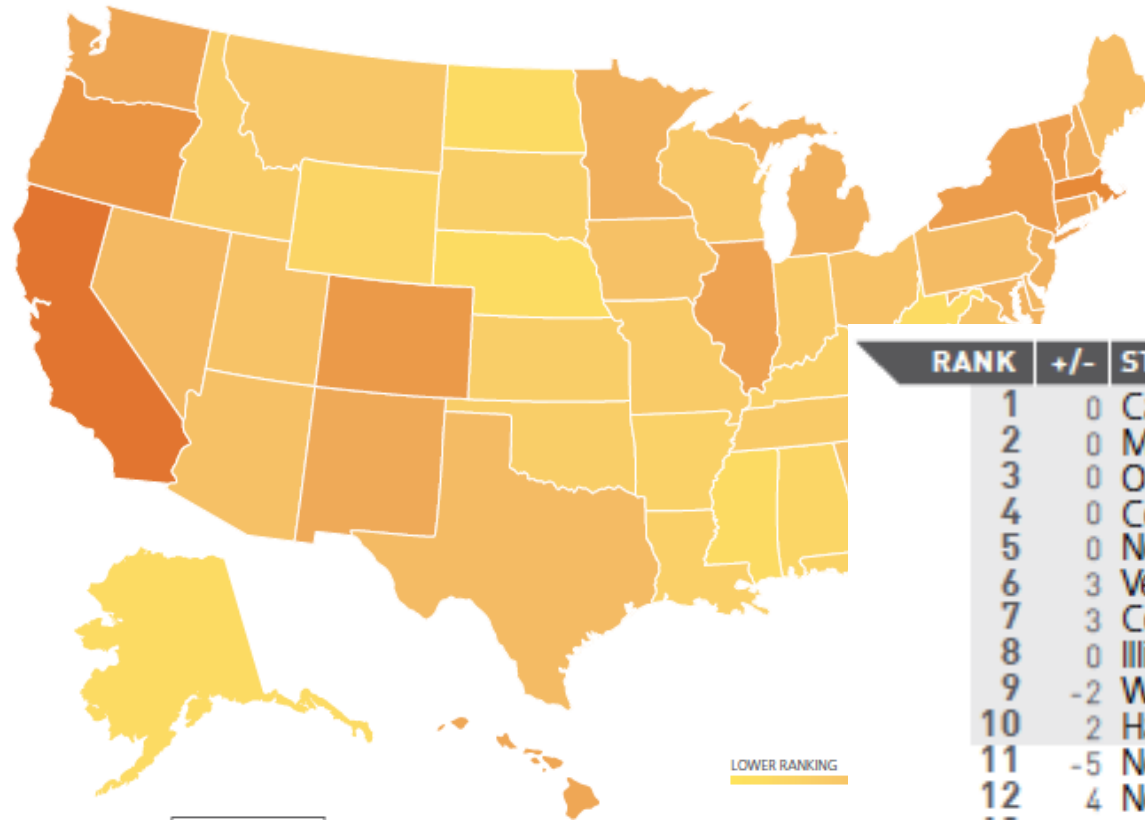
Building Efficiency & Intelligence



Carbon Capture



2015 U.S. Cleantech Leadership Index



RANK	+/-	STATE	LEADERSHIP SCORE
1	0	California	94.0
2	0	Massachusetts	78.8
3	0	Oregon	72.0
4	0	Colorado	67.1
5	0	New York	65.1
6	3	Vermont	62.9
7	3	Connecticut	59.9
8	0	Illinois	59.6
9	-2	Washington	57.5
10	2	Hawaii	56.5
11	-5	New Mexico	54.5
12	4	New Hampshire	50.6



Transition to Clean Energy System



2015-2025:

- Early stage of clean energy transition
- Natural gas majority of gen
- Design of new electricity market, business & regulatory models

2025-2030:

- Current renewables growing to 25-30% gen
- Storage joining mix
- Gas declining % of gen (w/out CCS, effic)
- New electricity network, models in place

Path to 2050:

- Renewables, zero-emission majority gen
- GHG 80% below 2005
- Modernized grid
- Innovation driving growth in storage, smart buildings, devices, evolving markets, applications