



# August 2018 Distributed Generation Survey Results

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*Distributed Generation Forecast  
Working Group*

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# AUGUST 2018 PHOTOVOLTAIC (PV) SURVEY RESULTS

# Determining Total PV Installed Through August 2018

- ISO requested distribution owners to provide the total nameplate of all individual PV projects (in MW<sub>AC</sub>) that is already installed and operational within their respective service territories as of August 31, 2018
  - PV projects include FCM, EOR, and BTM PV projects that are < 5 MW<sub>AC</sub> in nameplate capacity
- The following Distribution Owners responded:

CT	CL&P, CMEEC, UI
ME	CMP, Emera Maine
MA	Braintree, Chicopee, Reading, National Grid, NSTAR, Shrewsbury, Unitil, WMECO
NH	Liberty, NHEC, PSNH, Unitil
RI	National Grid
VT	Burlington, GMP, Stowe, VEC, VPPSA, WEC

- Thank you to all respondents for providing timely information
- Based on respondent submittals, installed and operational PV resource totals by state and distribution owner are listed on the next slides

# August 2018 Year-To-Date PV Installed Capacity

## *State-by-State*

The table below reflects statewide aggregated PV data provided to ISO by regional Distribution Owners. The values represent installed nameplate as of 08/31/18.

State	Installed Capacity (MW <sub>AC</sub> )	No. of Installations
Massachusetts*	1,762.37	86,837
Connecticut	420.97	33,517
Vermont*	280.70	11,102
New Hampshire	79.14	7,890
Rhode Island	77.25	5,307
Maine	38.73	4,074
<b>New England</b>	<b>2,659.16</b>	<b>148,727</b>

\* Includes values based on MA SREC data or VT SPEED data

# August 2018 Year-to-Date Installed PV by Distribution Owner

State	Utility	Installed Capacity (MW <sub>AC</sub> )	No. of Installations
CT	Connecticut Light & Power	324.15	25,201
	Connecticut Municipal Electric Energy Co-op	13.43	7
	United Illuminating	83.38	8,309
	<b>Total</b>	<b>420.97</b>	<b>33,517</b>
MA	Braintree Electric Light Department	4.35	26
	Chicopee Electric Light	13.00	27
	Unitil (FG&E)	24.15	1,604
	National Grid	945.00	44,669
	NSTAR	477.63	29,785
	Reading Municipal Lighting Plant	7.58	126
	Shrewsbury Electric & Cable Operations	6.09	73
	SREC I	54.21	589
	SREC II	77.91	1,574
	Western Massachusetts Electric Company	152.44	8,364
	<b>Total</b>	<b>1,762.37</b>	<b>86,837</b>
ME	Central Maine Power	33.86	3,418
	Emera	4.88	656
	<b>Total</b>	<b>38.73</b>	<b>4,074</b>

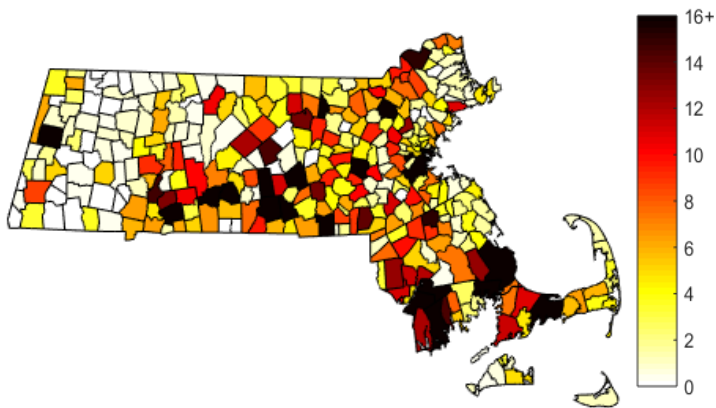
# August 2018 Year-to-Date Installed PV by Distribution Owner

State	Utility	Installed Capacity (MW <sub>AC</sub> )	No. of Installations
NH	Liberty Utilities	3.77	408
	New Hampshire Electric Co-op	9.74	963
	Public Service of New Hampshire	56.98	5,704
	Unitil (UES)	8.65	815
	<b>Total</b>	<b>79.14</b>	<b>7,890</b>
RI	National Grid	77.25	5,307
	<b>Total</b>	<b>77.25</b>	<b>5,307</b>
VT	Burlington Electric Department	6.37	242
	Green Mountain Power	233.83	8,736
	Stowe Electric Department	1.72	73
	Vermont Electric Co-op	26.24	1,109
	Vermont Public Power Supply Authority	9.65	510
	VT Other Municipals	0.10	1
	Washington Electric Co-op	2.79	431
	<b>Total</b>	<b>280.70</b>	<b>11,102</b>
<b>New England</b>		<b>2,659.16</b>	<b>148,727</b>

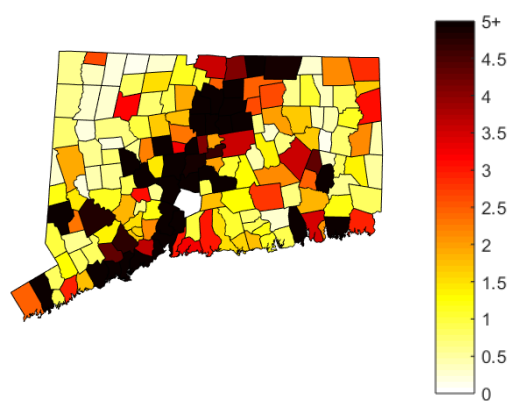
# Installed PV Capacity as of August 2018

## State Heat Maps

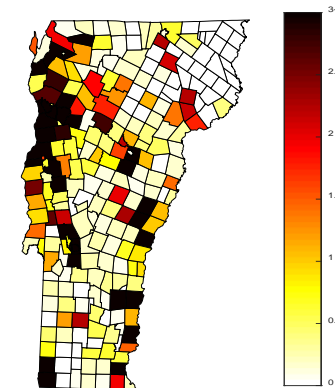
Massachusetts



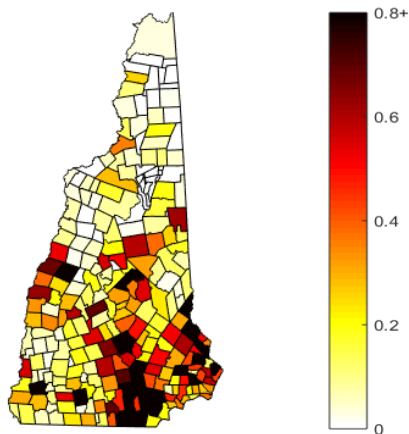
Connecticut



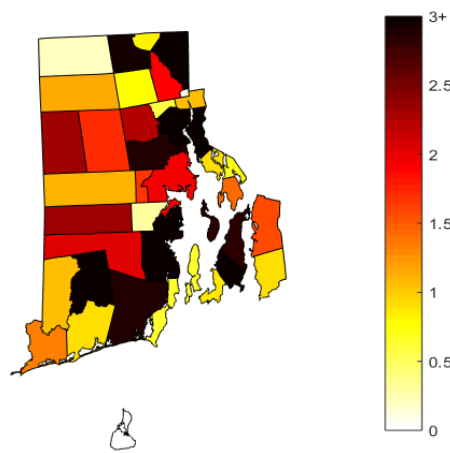
Vermont



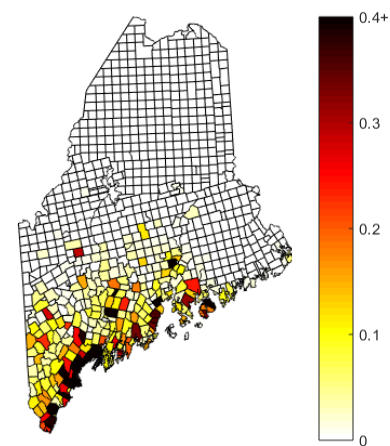
New Hampshire



Rhode Island



Maine



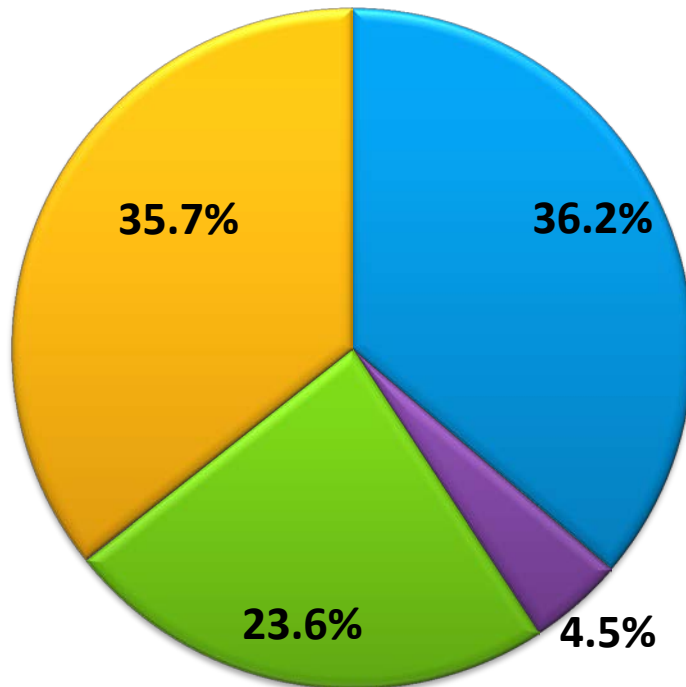
*Note: Legend to the right of each state plot shows a unique color scale of nameplate megawatts per town*

# Installed PV Capacity as of August 2018

## ISO-NE by Size Class

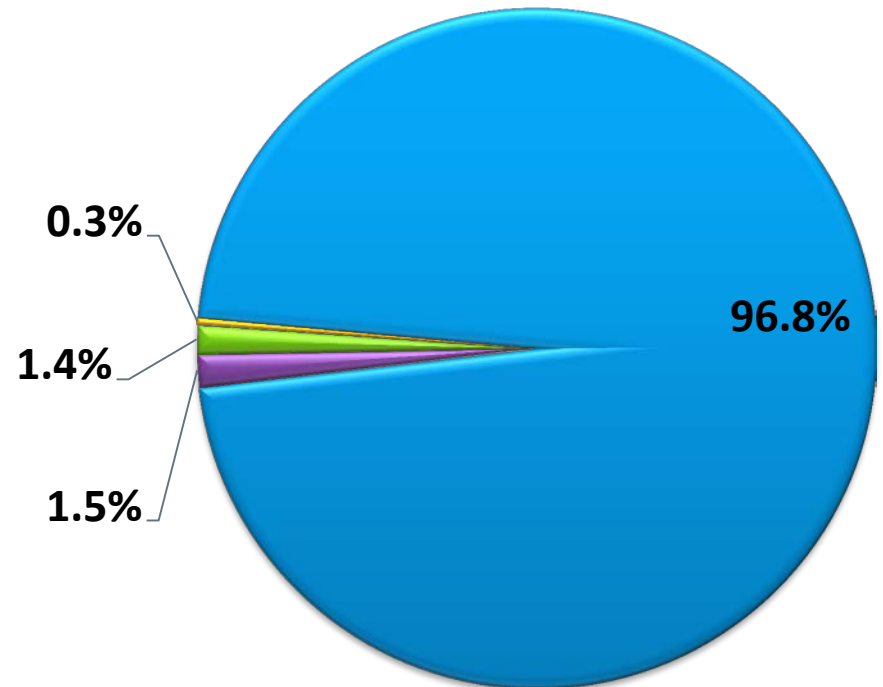
### Installed Capacity ( $MW_{AC}$ )

Total = 2,659  $MW_{AC}$



### Number of Sites

Total = 148,727



■ <25kW   ■ 25kW-<100kW   ■ 100kW-<1000kW   ■ >=1000kW



# AUGUST 2018 NON-PV SURVEY RESULTS

# Non-PV DG Survey Results

## *Overview of August 2017 Survey*

- ISO summarized non-PV DG data provided by Distribution Owners last December: [https://www.iso-ne.com/static-assets/documents/2017/12/dgsurvey\\_results\\_201708.pdf](https://www.iso-ne.com/static-assets/documents/2017/12/dgsurvey_results_201708.pdf)
- Focused on non-PV units  $\leq 5$  MW in reported nameplate capacity in accordance with the DG definition used by the DGFWG
  - Identified approximately 40 MW of growth between 9/1/2016 and 8/31/2017



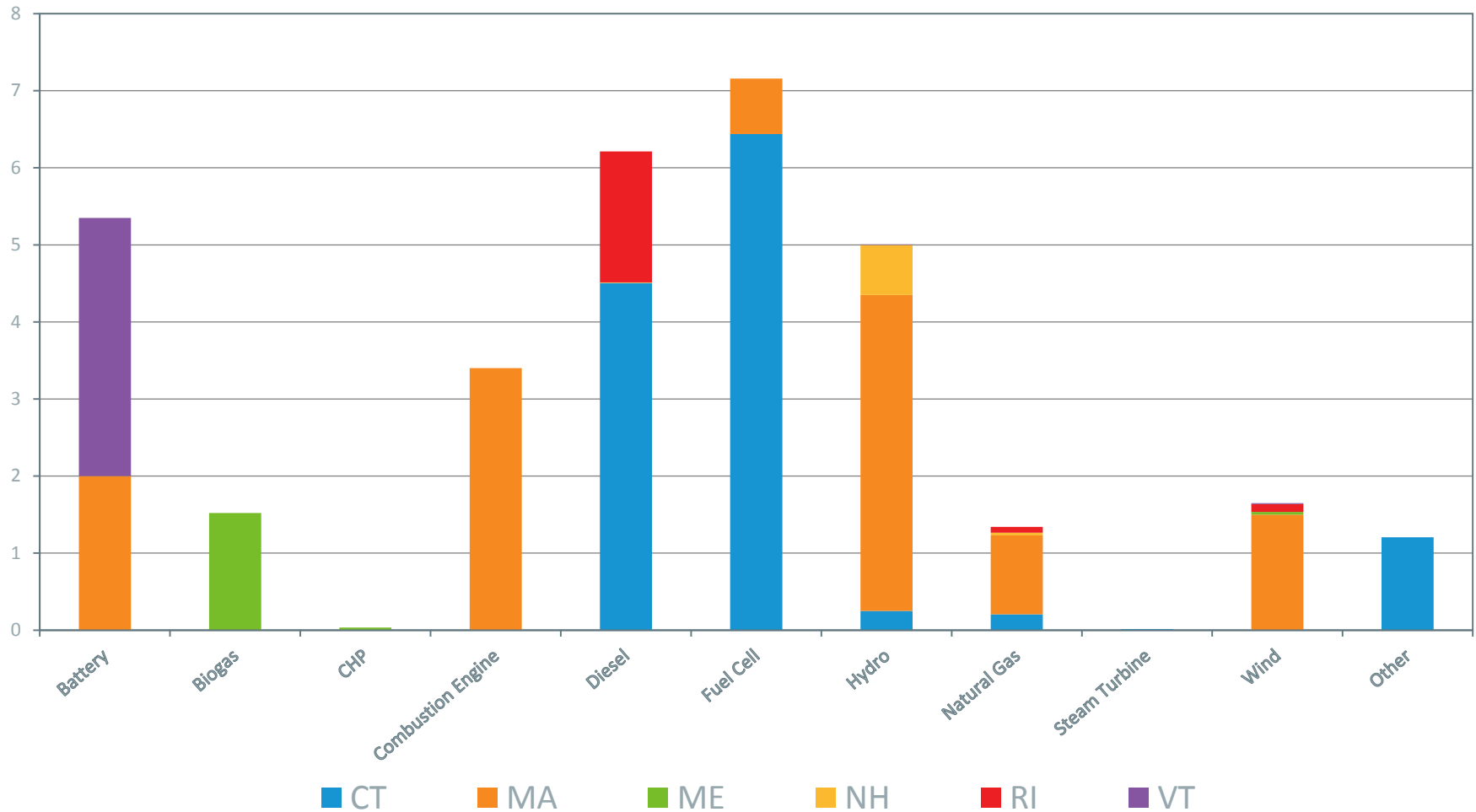
# Non-PV DG Survey Results

## *Growth from September 2017 to August 2018*

- ISO updated this analysis to report the growth of non-PV DG from 9/1/2017 through 8/31/2018 (recent 1-year period)
  - Total of 32.9 MW growth of non-PV DG units with  $\leq 5$  MW nameplate, encompassing an array of fuel/technology types
    - Includes about 6.2 MW of diesel, and about 7.2 MW of fuel cell
  - Note that the data reviewed contain quality issues, including missing in-service dates, missing or mixed technology and/or fuel type designations
  - Slide 12 illustrates survey results by fuel/technology type from September 2017 through August 2018

# Non-PV DG $\leq 5$ MW Survey Results ( $MW_{ac}$ )

*September 2017 through August 2018*



# Non-PV DG Survey Results

## *Distributed Energy Storage*

- Survey data provided by Distribution Owners through August 2018 suggest minimal growth of distributed energy storage (all battery storage) to date
  - Small growth in battery storage (approx. 5.35 MW) in Connecticut, Vermont, and Massachusetts identified in the data
  - Approximately 3.1 MW stated in the report through August 2017



# Summary of Findings Concerning Non-PV DG Survey Results

- Similar to previous analysis, growth of non-PV DG remains consistently modest relative to trends for PV and EE and encompasses an array of technology/fuel types
- Analysis of survey data provided by Distribution Owners through August 2018 again suggests minimal growth of distributed energy storage to date
- Recent growth trend of non-PV DG:
  1. Continues to be somewhat consistent with historical growth trend
  2. Continues to be much more modest than PV/EE
  3. Encompasses an array of fuel/technology types

# Questions

