



# Vermont Distributed Generation 2016-2025 Expectations

Distributed Generation Forecast  
Working Group  
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# Renewable Energy Standard

- Total Renewable requirement (55% by 2017 increasing to 75% in 2032)
  - Includes any vintage and large hydro
- Distributed Generation carve-out (1% of sales in 2017 increasing to 10% in 2032)
- Energy Transformation Projects (2% of sales in 2017 increasing to 12% in 2032)
  - Reduce fossil fuel use, including in thermal and transportation sectors (heat pumps, weatherization, electric vehicles)

# RES – DG carve-out

- “This category encourages the use of distributed generation to support the reliability of the State's electric system; reduce line losses; contribute to avoiding or deferring improvements to that system necessitated by transmission or distribution constraints; and diversify the size and type of resources connected to that system.” 30 V.S.A. § 8005(a)(2)(A)
- Eligible projects must be 5 MW or less, supporting Vermont’s electric grid, and commissioned after July 1, 2015
  - Exception to 5 MW size threshold may be granted in very limited circumstances

# RES – DG carve-out

## Expectations

- Flat retail sales in Vermont (5,500 – 5,800 GWh/year over the last ten years)
- At least 25 MW of solar per year needed to meet requirement
  - Assuming continued aggressive energy efficiency, with resulting flat load growth
  - Assumes that approximately 85 % of eligible resources will be solar
- Output from standard offer projects will count towards DG carve-out (RECs are purchased through the contract)
- Output of net metering projects from proposed program would count if customer transfers RECs to utility

# Standard-Offer Program - Overview

- Created in 2009, provides incentives for generation units utilizing renewable technology with a capacity of 2.2 MW or less
- Original programmatic cap of 50MW, fixed prices, expanded in 2012 to 127.5 MW, solicitation with specific solicitation guidelines:
  - 2013-2015: 5 MW per year
  - 2016-2018: 7.5 MW per year
  - 2019-2022: 10 MW per year
- In practice, more DG is acquired than the annual solicitation
  - 2014 = 6.5 MW solar
  - 2015 = 5.185 MW solar
- Outside cap: Farm Methane & projects that provide “sufficient benefit” to grid operations

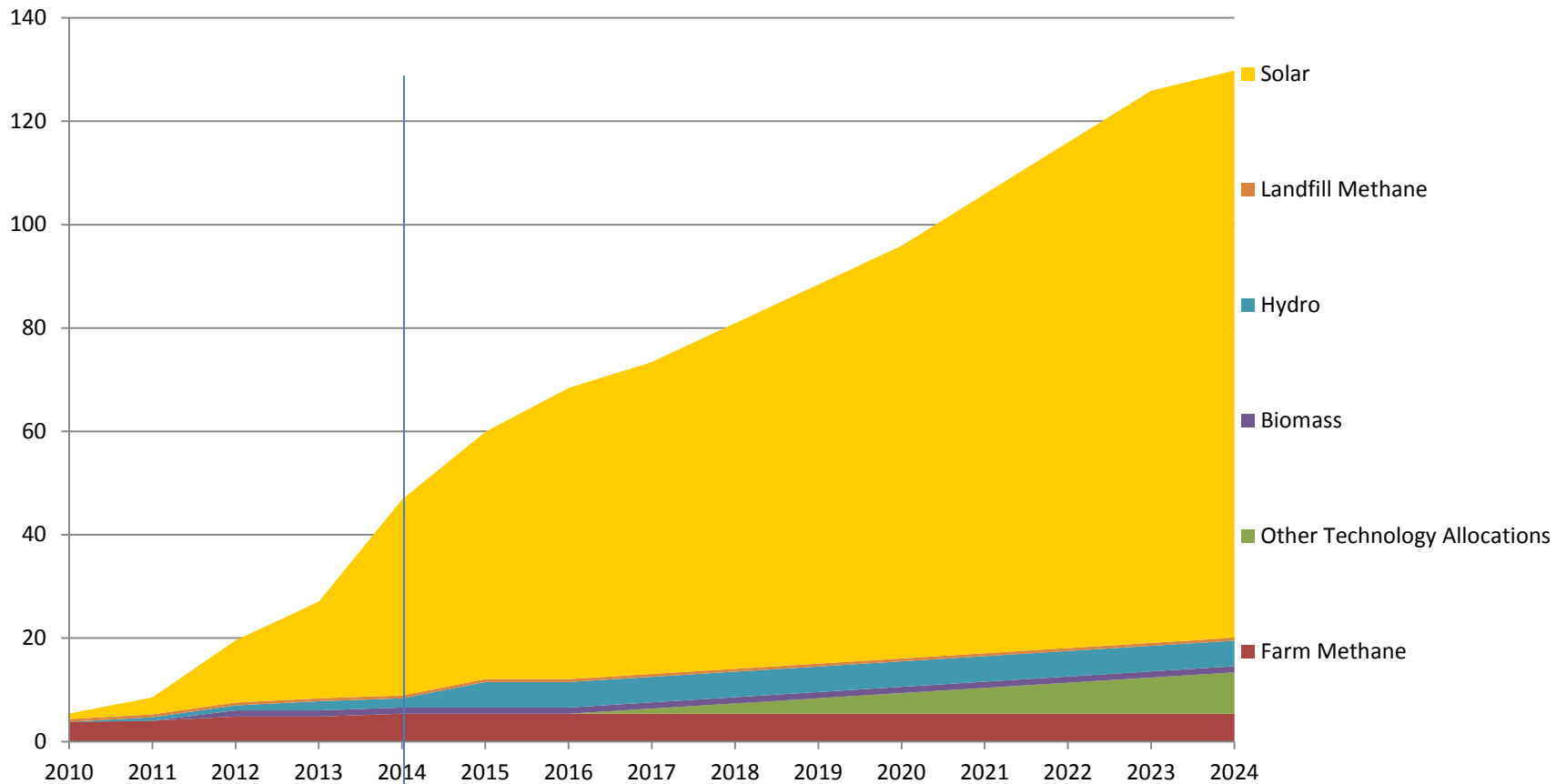
# Standard-Offer Program – Costs

- 2009-2012 Rates fixed – varied by technology
  - Solar rates varied from \$0.24 to \$0.30 per kWh
- 2013-2015 Competitive solicitation results in reduced costs
- 2013 auction results: 4 PV projects:
  - Between \$0.134 and \$0.1441, incl RECs
- 2014 auction results: 3 PV projects:
  - Between \$0.119 and \$0.129, incl RECs
- 2015 auction results: 2 PV projects
  - \$0.1096 and \$0.1097, incl RECs



# Standard-Offer Program – Future Expectations

## Cumulative Standard Offer Resources



\*Additional Farm Methane “sufficient benefit” projects could be built but difficult to predict

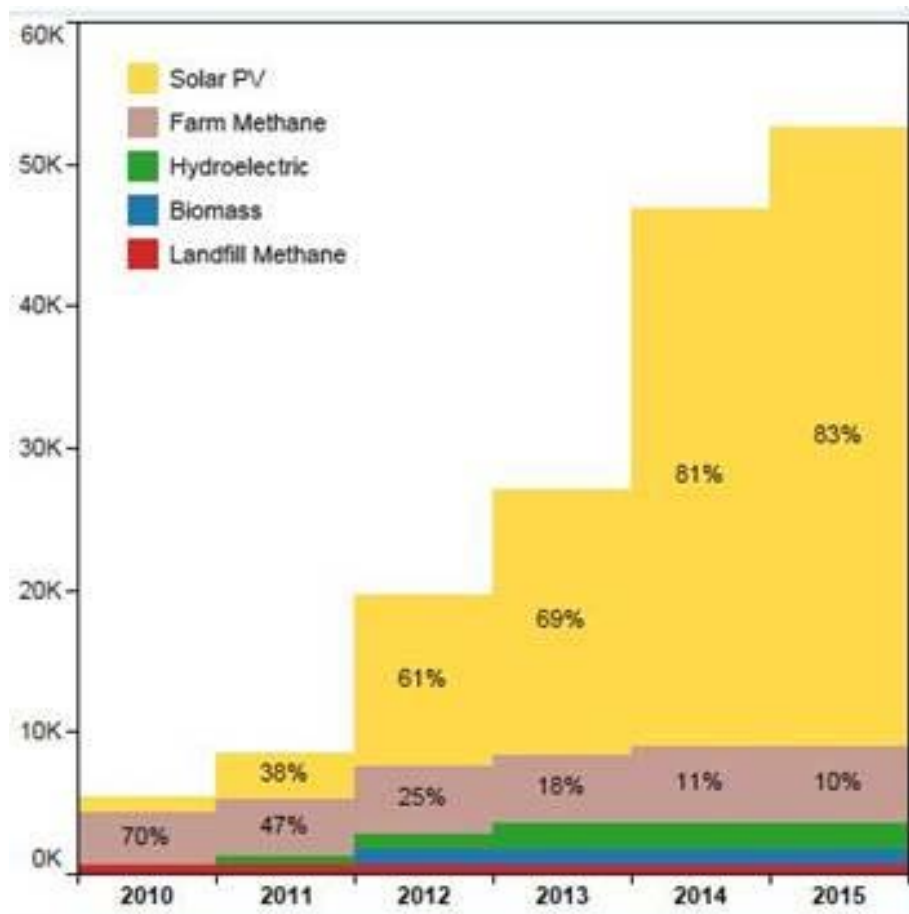
# Standard-Offer Program – Certainty of Resources

- Statutory directive for “rapid deployment” of standard offer projects
- Contracts contain milestones with financial penalties if milestones are not met (tracked by purchasing agent)
  - Interconnection application – must be filed prior to entering program
  - Permitting application – must be filed within 12 months
  - Commissioning – must be achieved within 24 months (solar)
- If project drops out, capacity becomes available during the next auction



# Standard-Offer Program – Technology Distribution

Installed Standard Offer Capacity  
(as of August 2015)



- Percentage of solar has increased each year and likely to continue to grow
- Limited opportunities for other technology types

# Net Metering

- 30 V.S.A. § 219a modified in 2014 to require utilities to make net metering available to customers until cumulative capacity equals 15% of a company's peak demand. (increase from 4%)
  - Eligible technologies: any renewable technology and micro combined heat and power
- Solar credit for first 10 years (then blended res retail rate) – credit equals residential rate + X = the price/kWh below:
  - \$0.20/kWh  $\leq$  15kW
  - \$0.19/kWh -  $>$ 15kW,  $\leq$  500kW including group NM
  - Other technologies at residential retail rate
- Substantial program re-design to take effect for projects applied after 1/1/2017

# Net metering 15 % Minimum Requirement

- In 2014, the 15% requirement was forecasted to be met around 2021
- 15% requirement was met at the end of 2015
- Some utilities continue to allow new net metered projects of 15 kW or less
- Green Mountain Power proposing to allow an additional 7.5 MW of 150 kW-scale net metered projects

# Net Metering Future Process

- Act 99, passed in 2014, requires establishment of a new program commencing on January 1, 2017
- VT Public Service Board convened workshop process with final stakeholder proposals filed June 2015.
- Act 99 requires PSB to have initiated rulemaking process and completed the public hearing and comment process under the VT Administrative Procedures Act by January 1, 2016
- PSB has not yet made public its proposed rules
- PSB required to adopt final rules for net metering by July 1, 2016



# Net Metering DPS Proposal

- Net metering bill credit would have two components
  - Electric system value – statewide levelized estimate of the value of avoided energy, capacity, and RNS plus utility specific values for avoided transmission and distribution costs
  - Value of environmental attributes – including both renewable energy attributes (REC value) and siting-related attributes (e.g., adder for brownfield development)
- Utility receives the RECs, although customers could receive lower credit and not transfer the RECs

# Vermont DG Summary 2017-2032

- Vermont will need at least 36,850 MWh per year of new DG, for 2017 through 2032, to meet the RES DG carve-out requirement (assuming no load growth)
- Assuming 85% of that amount comes from solar, at least 25 MW of new solar DG is needed each year to meet RES DG requirement
- Some amount of non-solar will be built, but likely to be fairly limited absent significant technology changes

# Vermont DG Summary 2016

- Recent changes in statutes and hitting the net metering cap make 2016 estimates difficult
- Standard offer program will likely obtain 6.35 MW of solar (85% of 7.5 MW annual allocation)
- Number of projects 15 kW or less likely to be unaffected by hitting the 15 % net metering requirement, but very few large net metered projects will be built in 2016
- Projects built in 2016 are eligible for RES DG carve-out, some projects may be built prior to 2017

# Questions?



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