

# Net Metering

Senate Finance Committee  
February 15, 2018  
Robert Dostis  
Green Mountain Power



# Net Metering – The Beginning

---

- ▶ Allowed customers to produce their own renewable electricity, generally rooftop
- ▶ Power produced went directly into the home or business
- ▶ Excess electricity was sent to the electric grid and “stored”
- ▶ If electricity produced was greater than what was used in a month the customers received a kilowatt hour credit towards their future bill
- ▶ If customer used more electricity than what they generated, they were billed for their “net” energy use



# Net Metering Today

---

- ▶ 1,300% increase since 2013
- ▶ Growth under NM 2.0 remains robust with 32.2 additional MW (= 4.6% of cap = Growth leader in U.S.)
- ▶ More than half of the capacity are 500 kw systems that are essentially stand-alone merchant generating plants
- ▶ Merchant generators receive the net meter rate, but
- ▶ Unlike traditional net metering (roof top/back yard):
  - ▶ They send power directly to the grid rather than to a home or business
  - ▶ They sell power to customers through PPA or contract
  - ▶ They serve primarily commercial customers

# 2011: Act 47 -- *The Vermont Energy Act of 2011*

---

## ▶ Net metering:

- ▶ Required all utilities to offer a solar adder setting total value at 20 cents/kWh.
  - ▶ GMP in 2008 started with 6 cent “solar adder” equal to the value distributed solar provided
- ▶ Increased capacity of generators to 500 kW. (= 4 acres dev.)
- ▶ Increased the cumulative net metering cap to 4%, or 28 MW for GMP.\*
- ▶ Allowed net metering credits to be monetized, thus the kWh credit converted to dollars that can also cover non-energy parts of bill.
- ▶ Guaranteed incentive for ten years from installation.

---

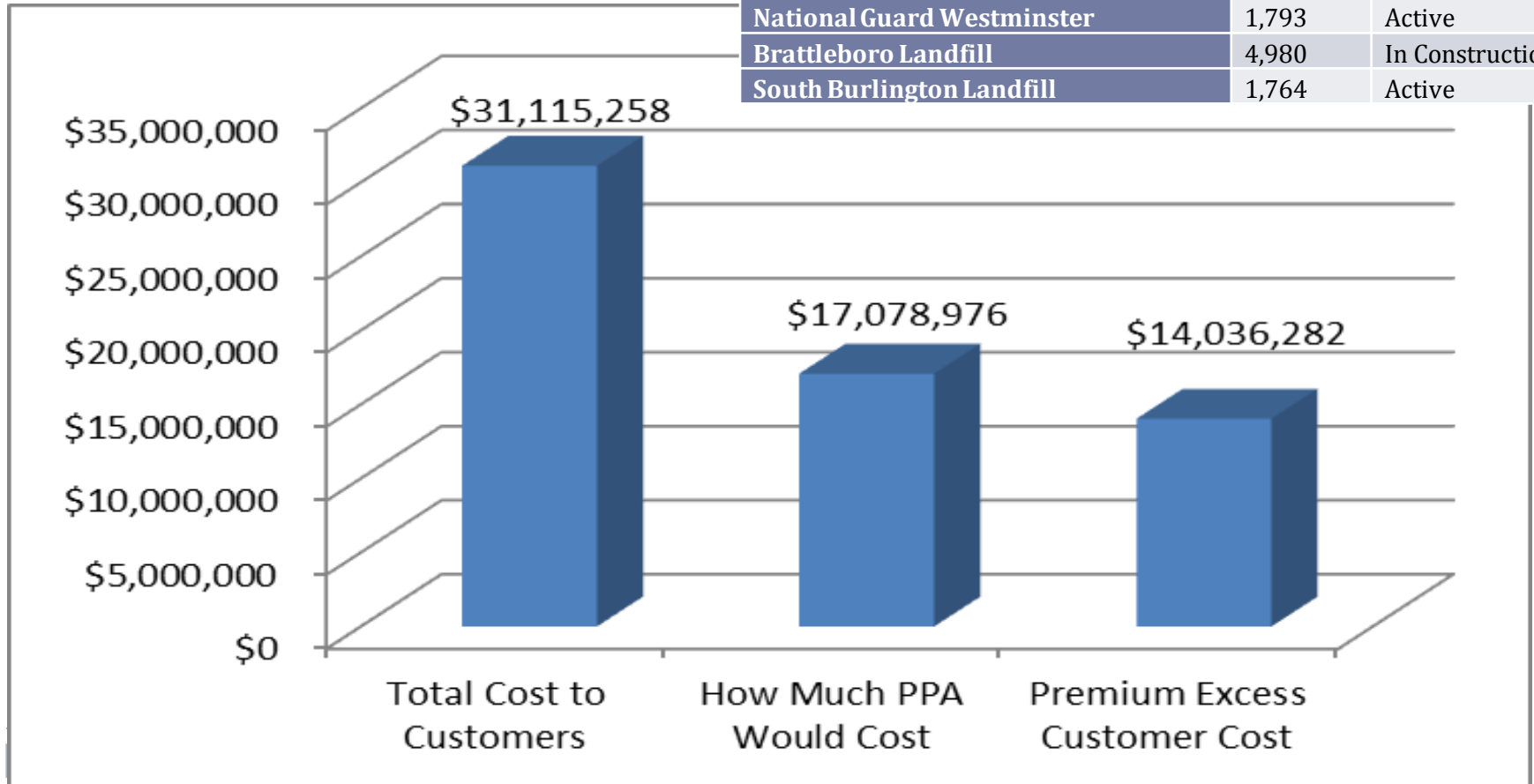
▶ \* GMP is presently at 183.8 MW of net metering; 178 is solar and = 26% of Peak Load; All Solar = 45% of peak load (Net metering 178 MW; and PPA; Standard Offer; GMP owned = 140.8)



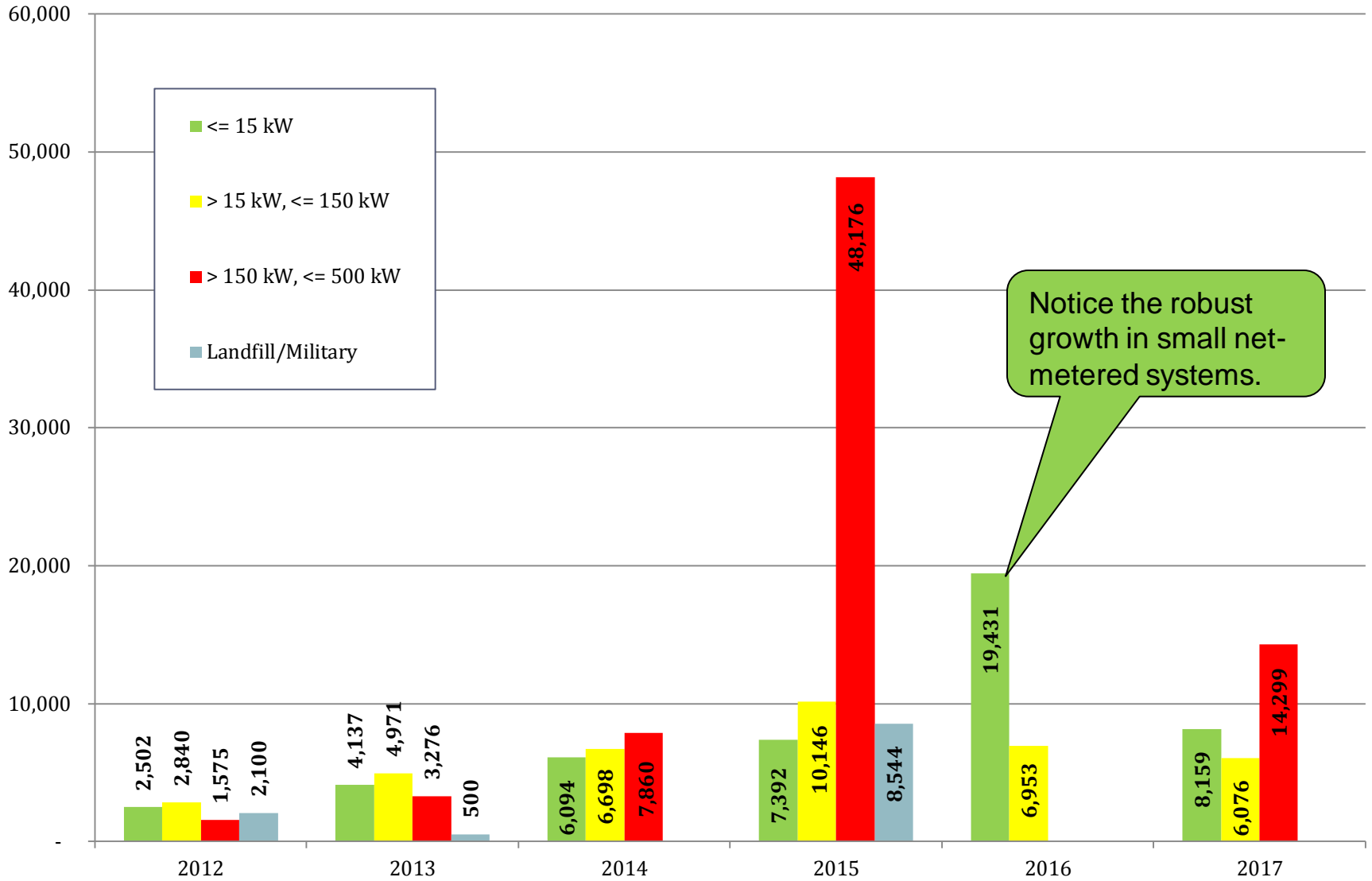
# 2014: Act 99 Net Meter Changes

- ▶ Increased cap from 4% to 15%
- ▶ Allowed 5 MW solar on a closed landfills (Cost – see chart - total built 11 MW)
- ▶ Charged PUC to design program to balance pace of deployment with cost shift starting 1/1/2017

Project (12/4/17)	Size (kW)	Status
Vermont Air National Guard (S Burlington)	2,100	Active
National Guard Westminster	1,793	Active
Brattleboro Landfill	4,980	In Construction
South Burlington Landfill	1,764	Active

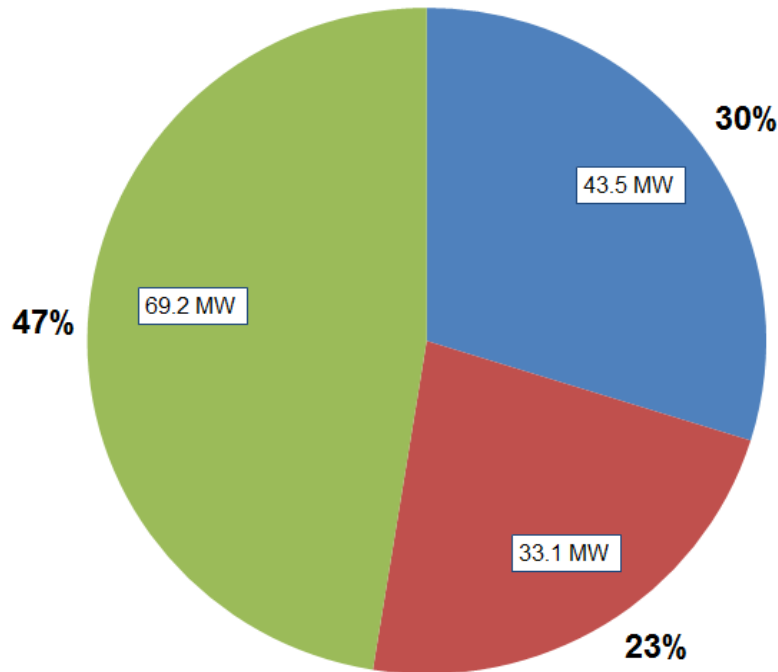


# Accepted Net Metering in kilowatts / Year

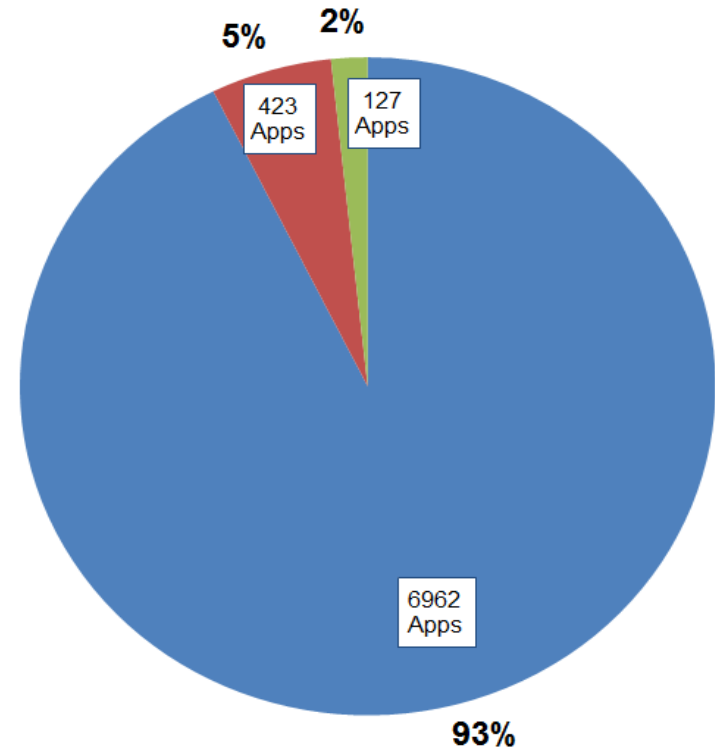


# Net Metering 1.0 - Capacity and Volume

NM 1.0 Application Capacity



NM 1.0 Application Count

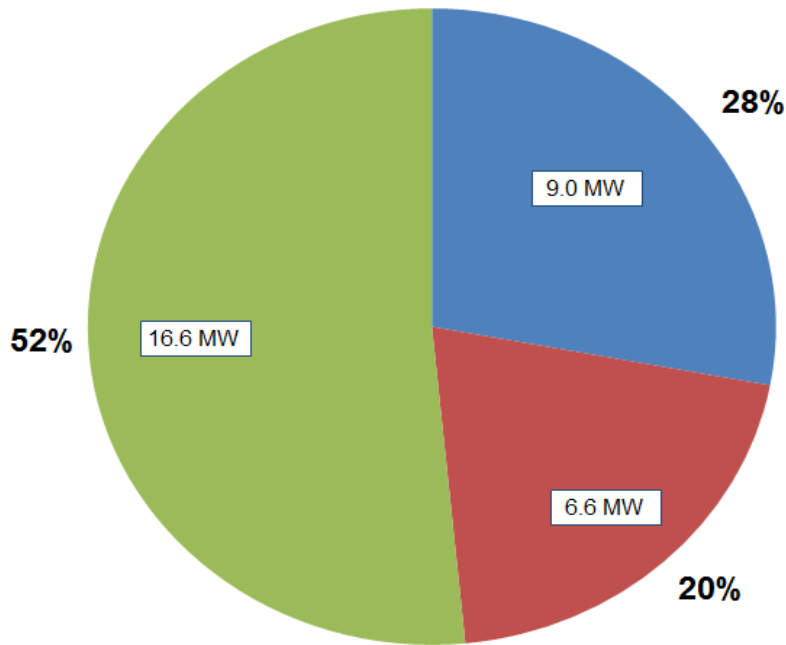


500 kw systems represent 47% (69.2 MW) of capacity and 2% of the application  
150 kw systems represent 23% (33.1 MW) of capacity and 5% of the application  
15 kw systems represent 30% (43.5 MW) of capacity and 93% of the application

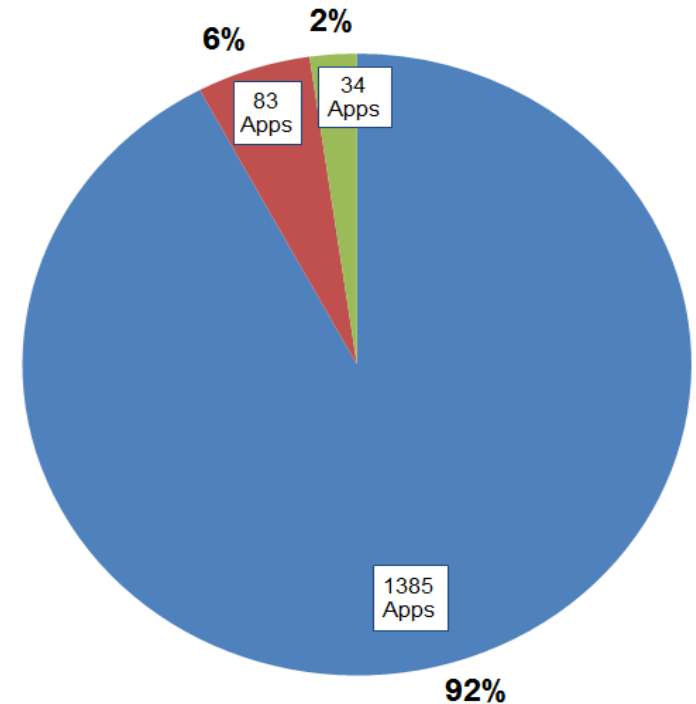
- Small <= 15 kW
- Med > 15 kW, <= 150 kW
- Large > 150 kW

# Net Meter 2.0 – Capacity vs Applications

NM 2.0 Application Capacity



NM 2.0 Application Count



500 kw systems represent 52% (16.6 MW) of capacity and 2% of applications  
150 kw systems represent 20% (6.6 MW) of capacity and 6% of applications  
15 kw systems represent 28% (9.0 MW) of capacity and 92% of applications

- Small <= 15 kW
- Med > 15 kW, <= 150 kW
- Large > 150 kW



# Net Metering 2.0

---

- ▶ Act 99 Resulted in Board Rule 5.100 – Effective 7/1/2017
  - ▶ PUC charged to support program growth while minimizing cost shift
  - ▶ No impact to projects that received CPG prior to January 1, 2017
- ▶ Limit Cost Shift
  - ▶ Incentive levels were **slightly reduced**
  - ▶ Siting: PUC identified “**preferred sites,**” such as brownfields. 150 kw systems get less if not on a preferred site. 500 kw can only be on preferred site.
  - ▶ Starting in 2017 all new net metering projects are required to pay the customer service charge, energy efficiency charge, energy assistance program charge, any on-bill financing and equipment rental charges
  - ▶ The total capacity of a single customer or group’s net metering systems may not exceed 500 kW

# Success of Net Metering & Solar Programs

---

- Financial incentives and policy changes = 1,300 % increase  
(184 MW in 2017 vs 13 MW in 2013)
  - Total Solar = 317 MW
    - 178 MW Solar Net Metering
    - 139 MW other Solar (standard Offer, PPM, GMP)
  - GMP Average Daily Load = 475 MW
  - GMP Peak Load = 715 MW (1/14/17)
  - The penetration of distributed solar capacity is second only to Hawaii
  - More solar has **diminishing value** – peak has moved to evening
  - Customer cost impact for 2018 around **\$24 million**
- 



# Net Metering 1.0 & 2.0

GMP Net Metering as of 2/9/2018									
		Solar NM 1.0		Solar NM 2.0		Non Solar NM		NM Total	
Size	Status	Count	AC Capacity (MW)	Count	AC Capacity (MW)	Count	AC Capacity (MW)	Count	AC Capacity (MW)
Small	Active	6356	38.6	1025	6.4	86	0.5	7467	45.5
	Proposed	606	4.9	360	2.6	4	0	970	7.5
Medium	Active	413	32.2	33	2	16	1.5	462	35.7
	Proposed	10	0.9	50	4.6	1	0.1	61	5.6
Large	Active	113	58.4	2	1	11	3.7	126	63.1
	Proposed	14	10.8	32	15.6	0	0	46	26.4
Total Active		6882	129.2	1060	9.4	113	5.7	8055	144.3
Total Proposed		630	16.6	442	22.8	5	0.1	1077	39.5
Combined Total		7512	145.8	1502	32.2	118	5.8	9132	183.8

NM 2.0 1,502 applications for 32.2 MW = ~ 4.6% of peak capacity



# Solar in Vermont

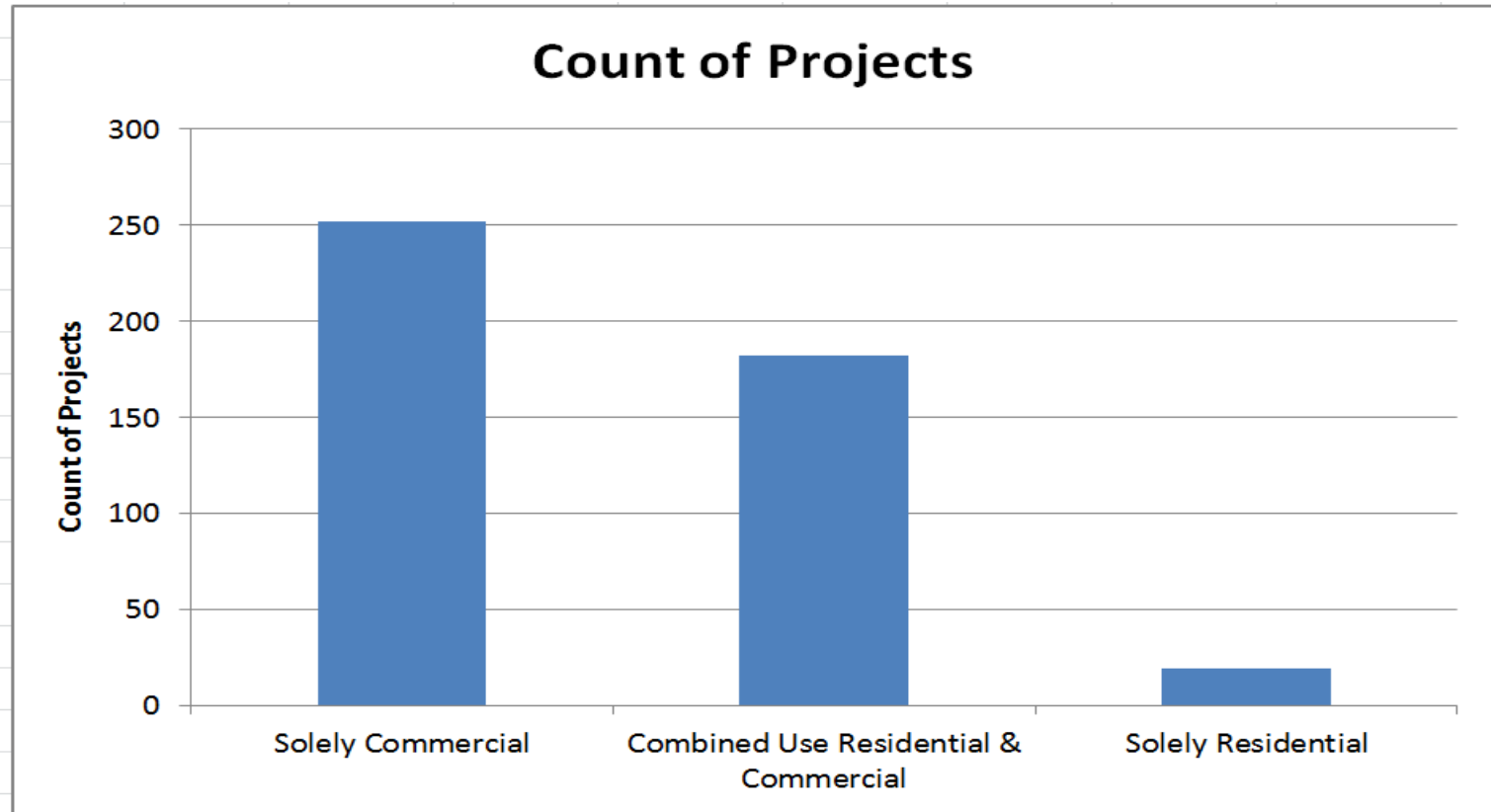
---

- ▶ Incredible success story
- ▶ Important for our distributed energy future
- ▶ Cost-effective development is essential



# Off takers of Group Net Metering Projects “Community Solar”

---



453 Project >15 kw: 250 only Commercial, 182 both, 19 only residential