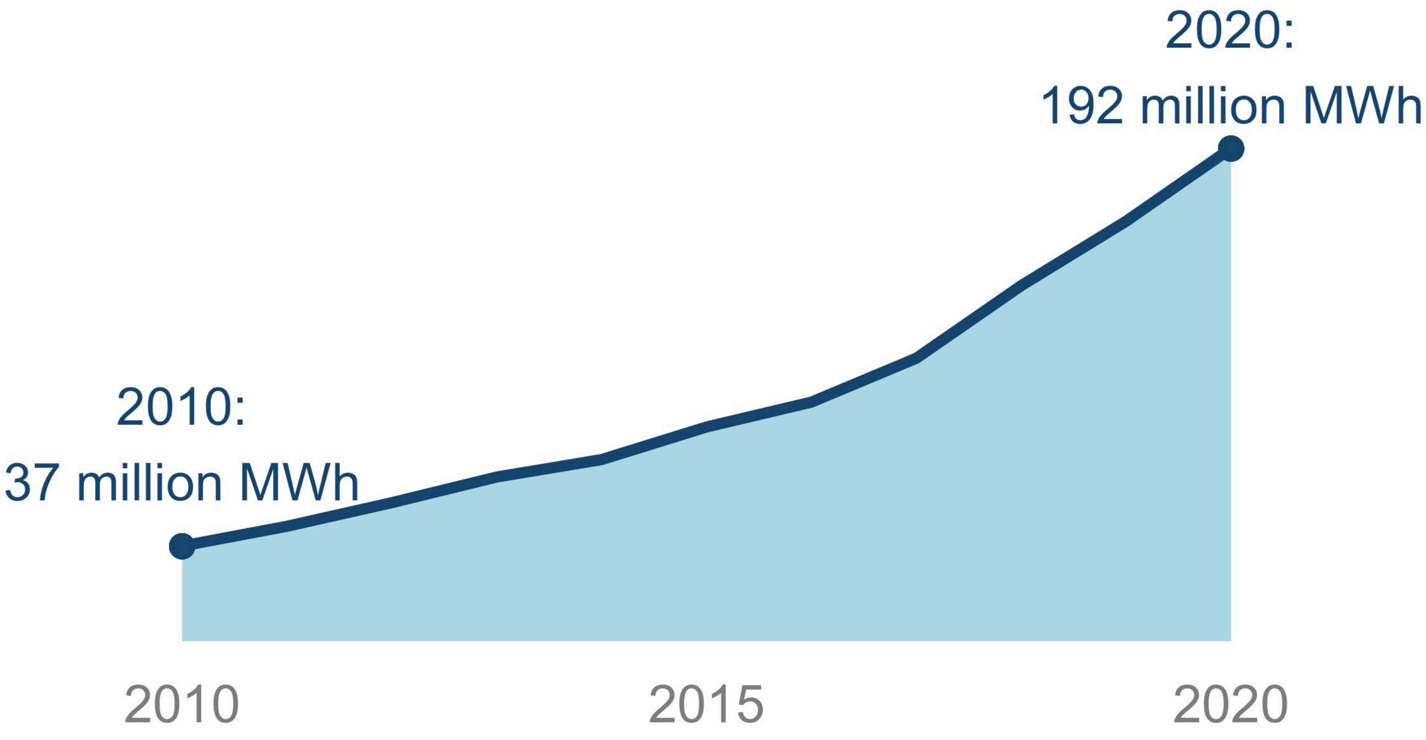
Status and Trends in the Voluntary Market (2020 data)

Eric O’Shaughnessy, Clean Kilowatts LLC

State of the Voluntary Green Power Market
Green Power Partnership Webinar
February 23, 2022

The Big Picture

In 2020, about **7.5 million customers** procured about **192 million MWh** of renewable energy through green power markets.



Total green power sales 2010-2020 (million MWh)

That represents about:

1 in 20

U.S. retail electricity customers

5%

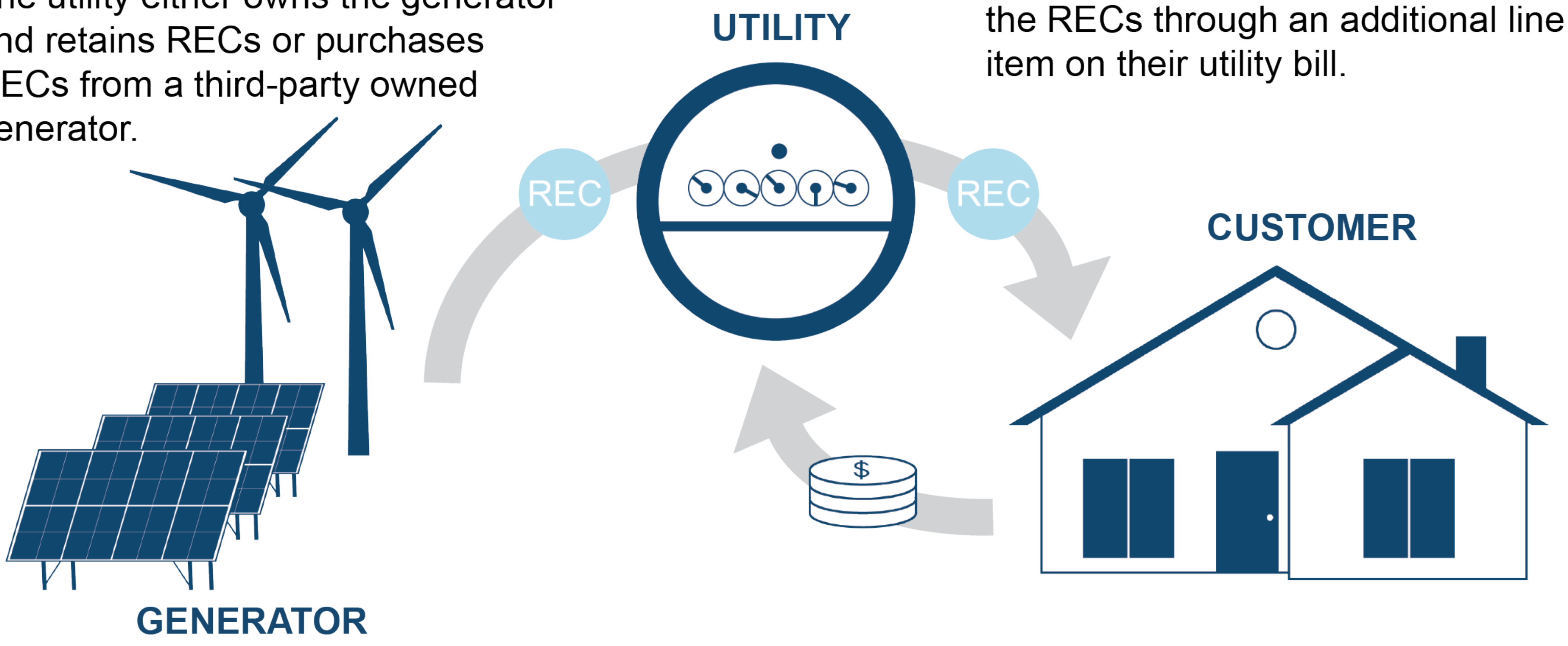
of U.S. retail electricity sales

Voluntary Market Trends by Market Segment

Utility Green Pricing

Utility green pricing programs begin with a renewable energy generator. The utility either owns the generator and retains RECs or purchases RECs from a third-party owned generator.

The utility retires the RECs on behalf of green pricing customers, who pay for the RECs through an additional line item on their utility bill.

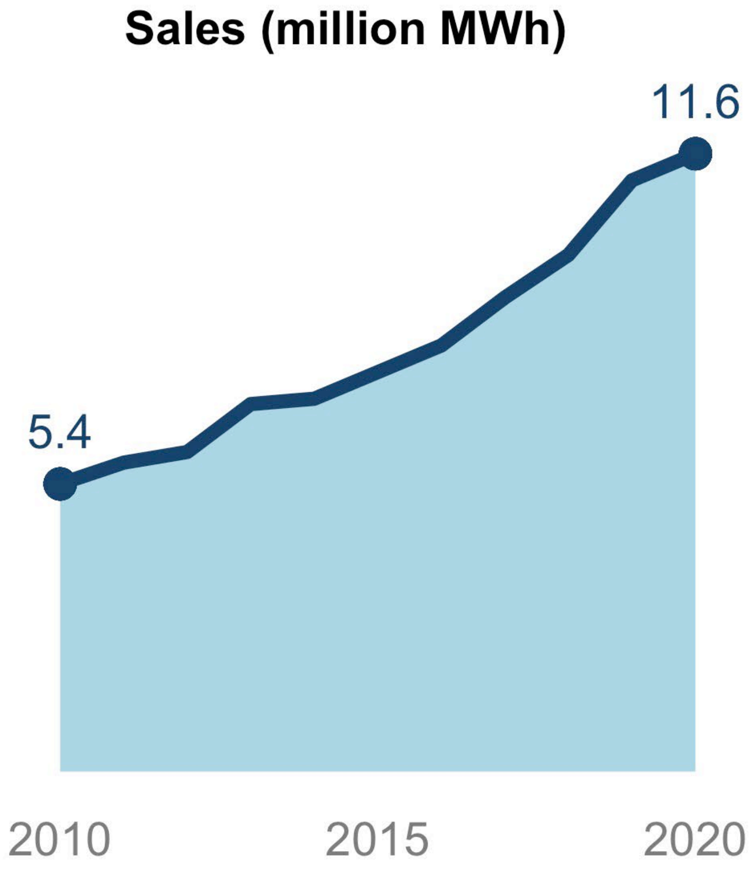


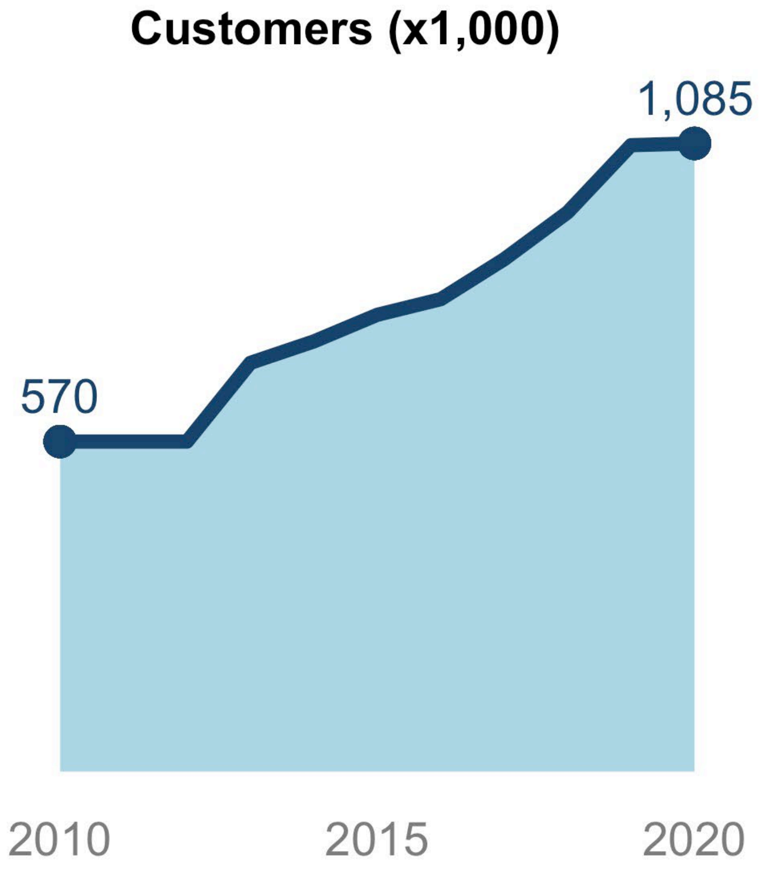
Basic utility green pricing program structure

Specific program structures vary

Utility Green Pricing Trends

About **1,085,000 customers** procured about **11.6 million MWh** of voluntary green power through utility green pricing programs in 2020. The relatively slow growth in 2020 may reflect program marketing challenges related to the Covid-19 pandemic.





Impacts of Covid-19 Pandemic on Utility Green Pricing Programs

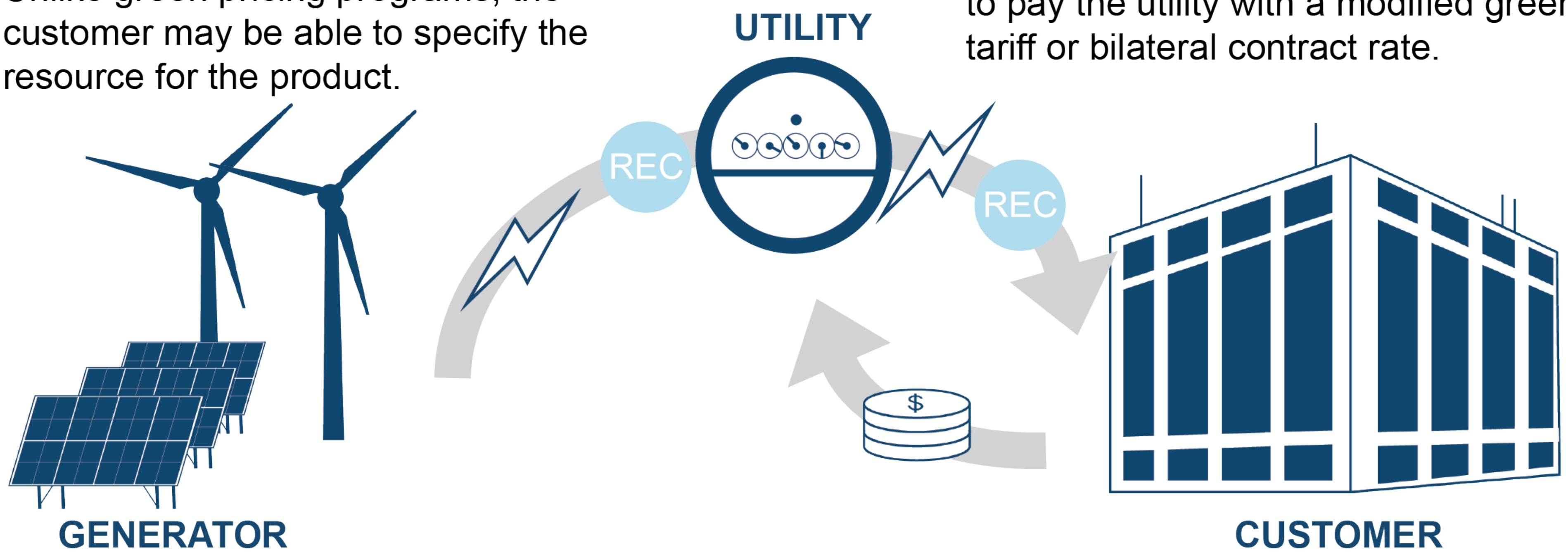
In a survey:

- Most respondents reported slight reductions in sales and participation from expected levels
- Respondents reported a reduced ability to actively market their programs, particularly through in-person marketing
- Some respondents noted that other extreme events such as wildfires have caused similar disruptions to program marketing in recent years
- At the same time, some respondents reported increased interest from proactive customers, perhaps because more time at home led to more interest in residential green power.

Utility Renewable Contracts

In a utility renewable contract, the customer enters into a contract with the utility to procure power and RECs from a renewable energy provider. Unlike green pricing programs, the customer may be able to specify the resource for the product.

The utility provides the power and RECs to the customer. The customer continues to pay the utility with a modified green tariff or bilateral contract rate.

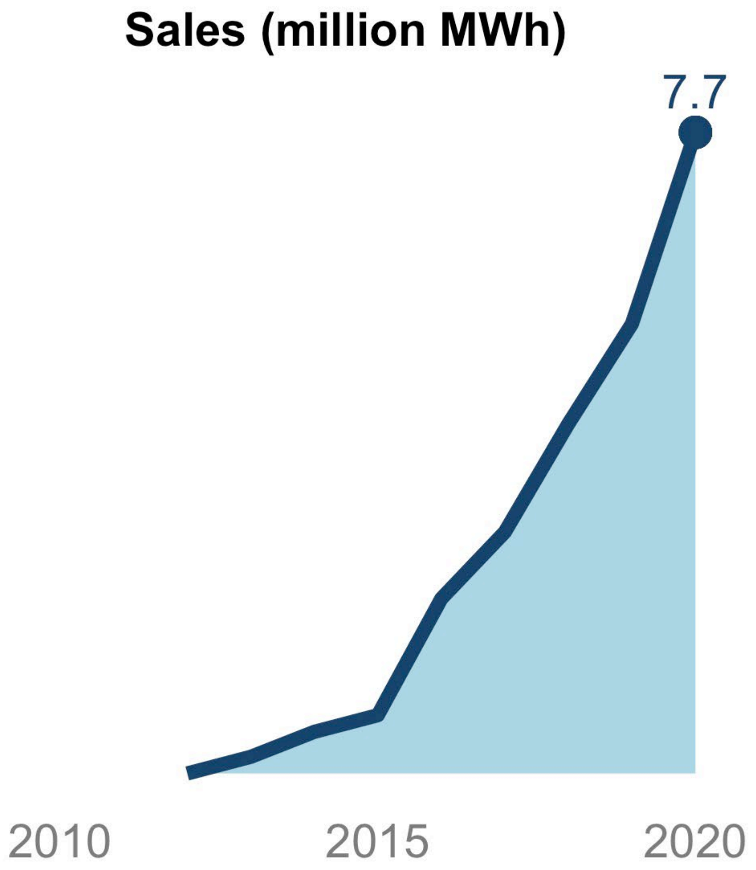


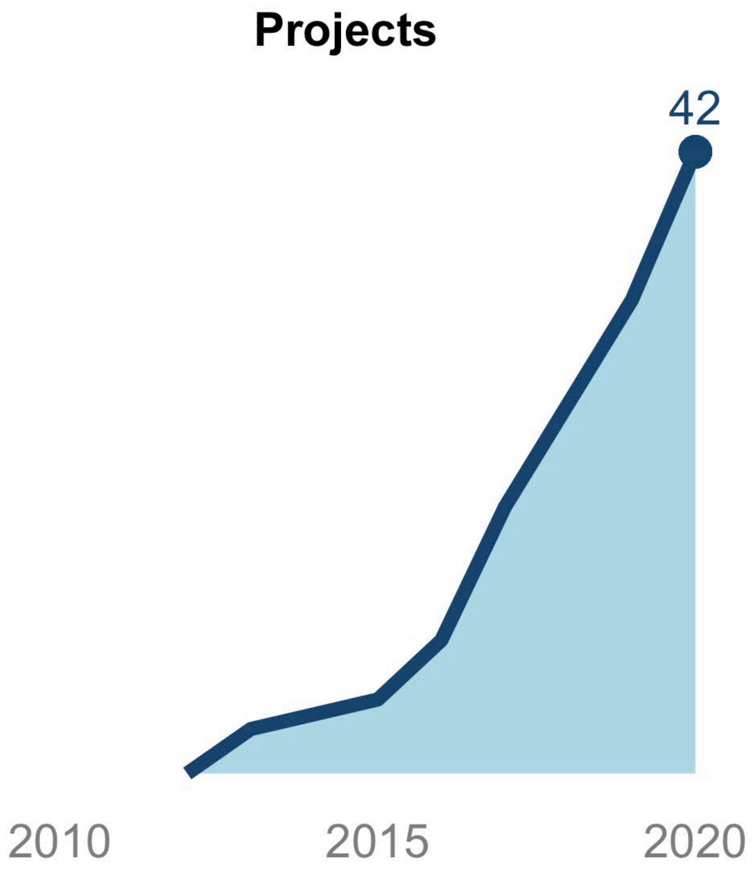
Basic utility renewable contract structure

Specific program structures vary

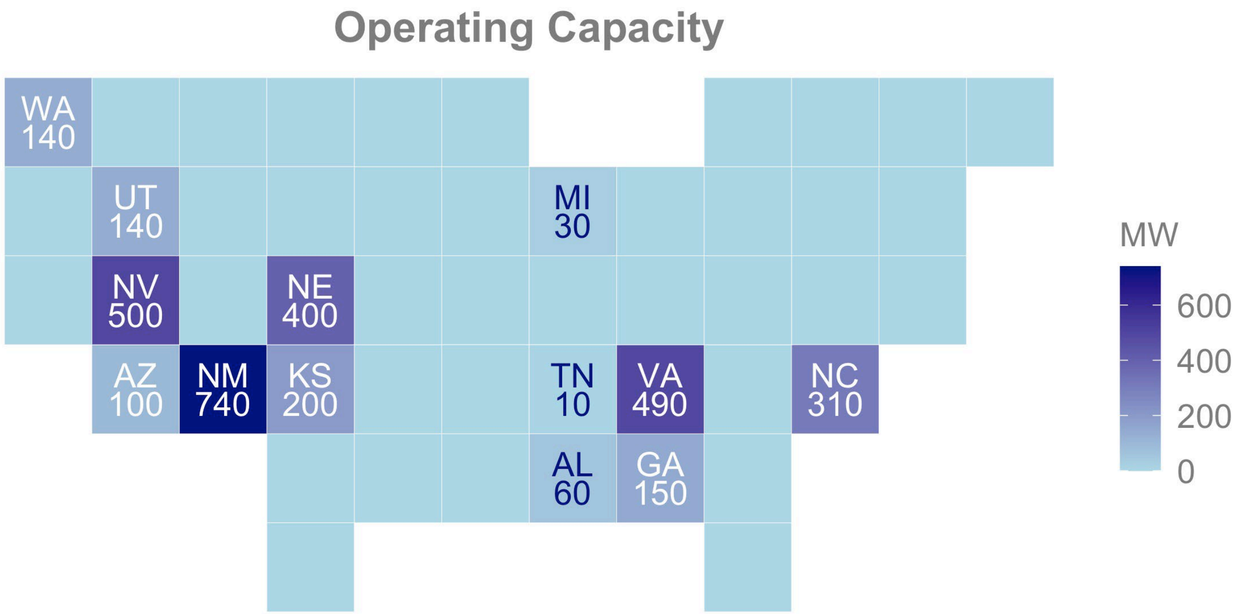
Utility Renewable Contract Trends

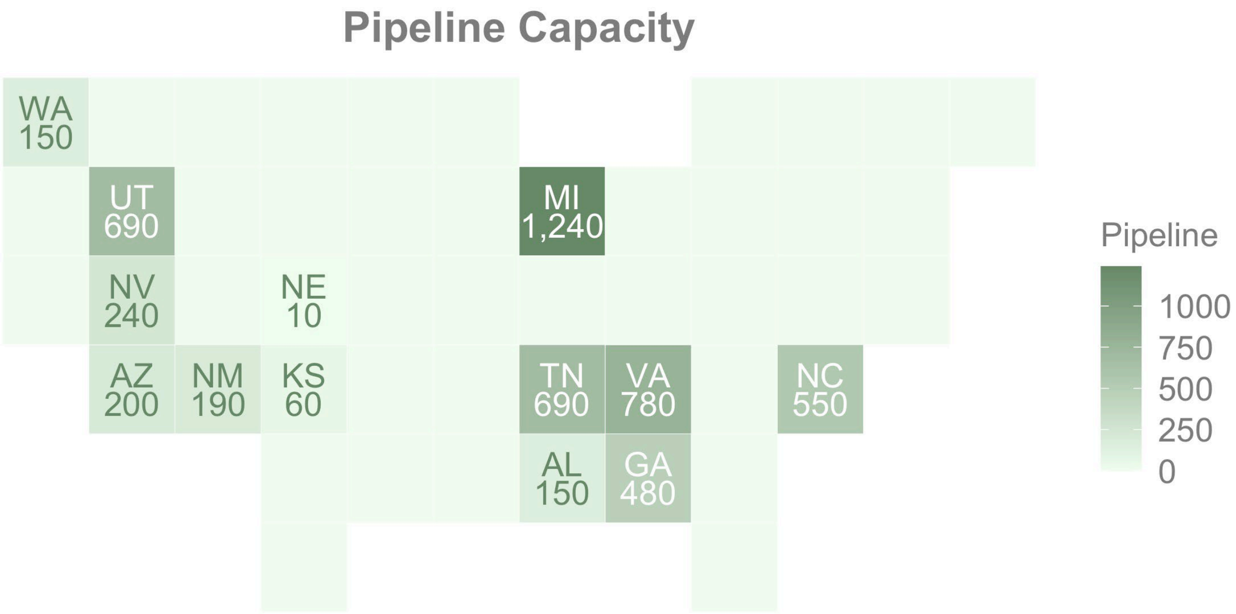
About **7.7 million MWh** of renewable energy was procured through **42 utility renewable contracts** through utility green pricing programs in 2020.





The Utility Contract Pipeline



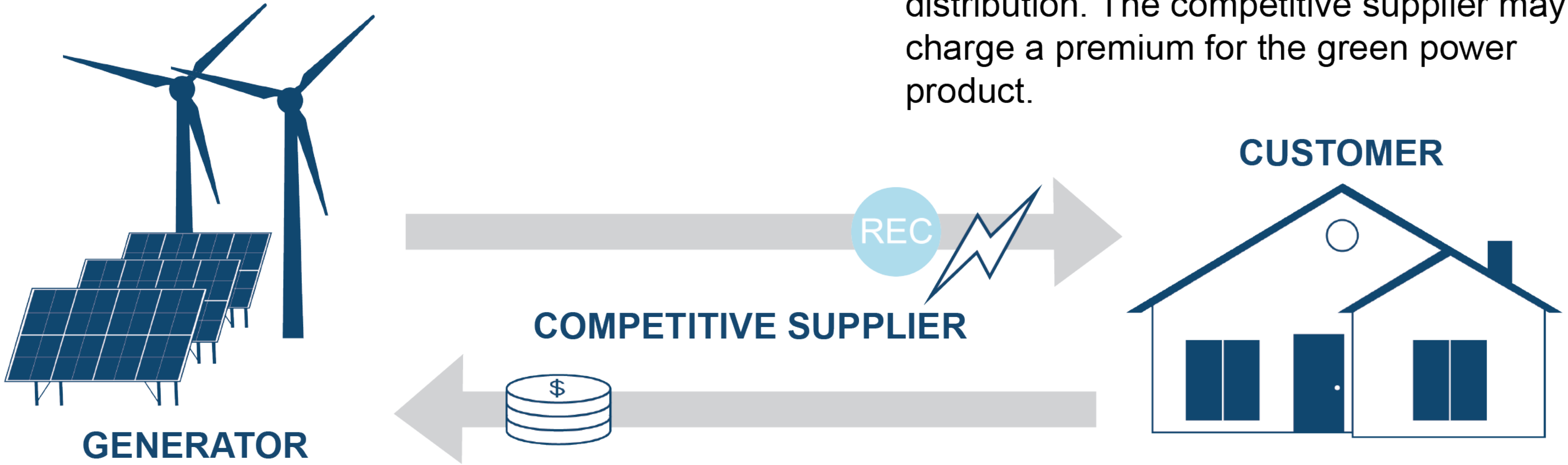


Data compiled by NREL and supplemented by BNEF (2021).

Competitive Suppliers

In restructured electricity markets, customers may choose a competitive electricity supplier that offers a green power product.

The competitive supplier provides the customer with power and RECs. The utility remains responsible for transmission and distribution. The competitive supplier may charge a premium for the green power product.

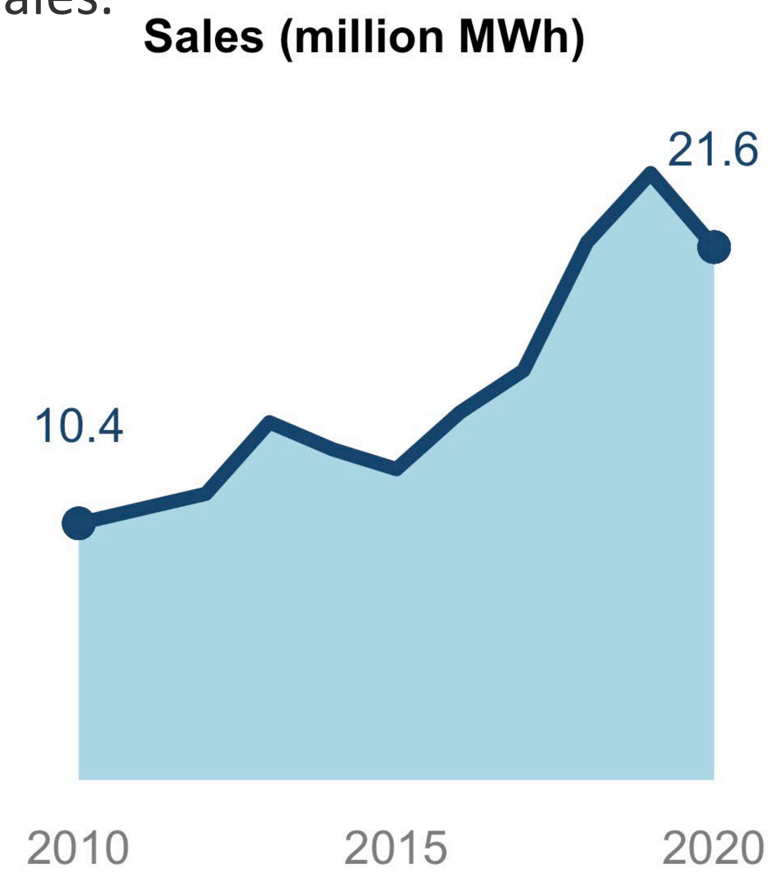


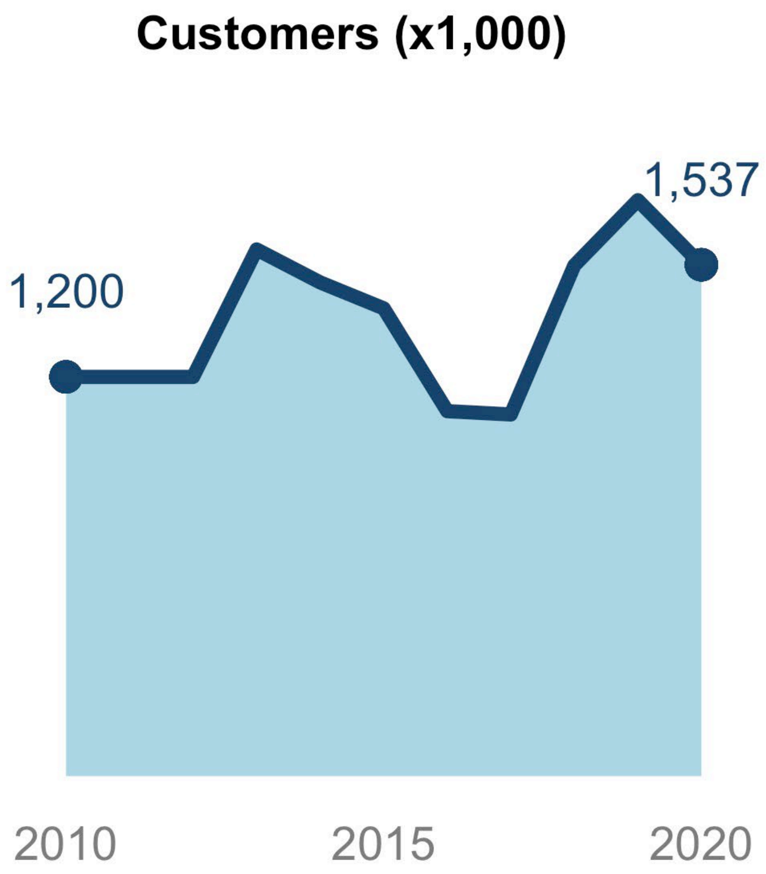
Basic competitive supplier sales structure

Specific program structures vary

Competitive Supplier Trends

About **1.5 million customers** procured about **21.6 million MWh** of voluntary green power through competitive suppliers in 2020. The year-over-year fall in sales likely reflects two trends: 1) a drop in electricity sales overall in 2020 due to the Covid-19 pandemic; and 2) ongoing increases in RPS requirements that reduced the green power portion of competitive supplier sales.

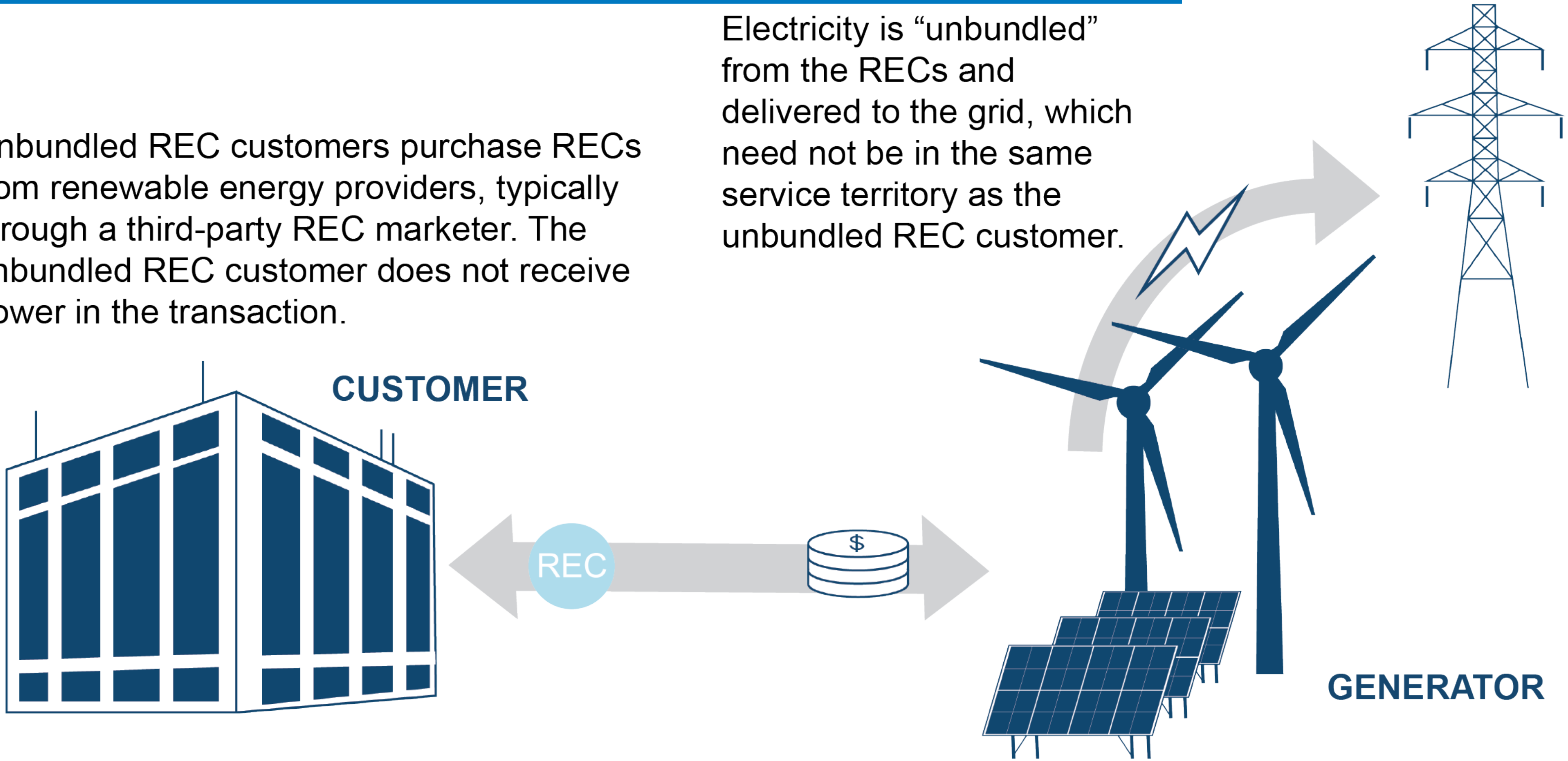




Unbundled RECs

Unbundled REC customers purchase RECs from renewable energy providers, typically through a third-party REC marketer. The unbundled REC customer does not receive power in the transaction.

Electricity is “unbundled” from the RECs and delivered to the grid, which need not be in the same service territory as the unbundled REC customer.

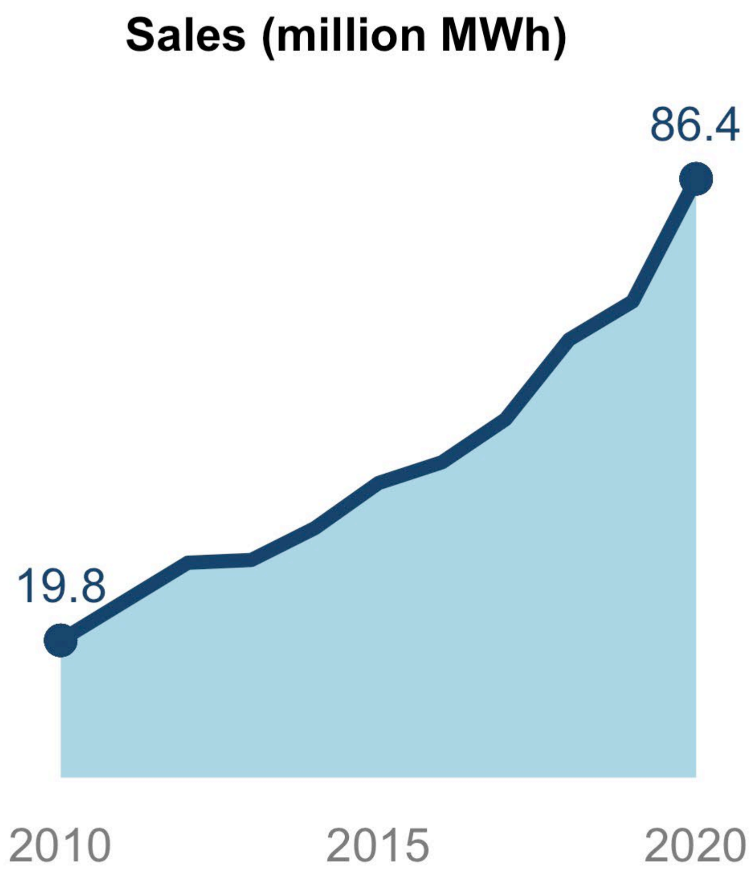


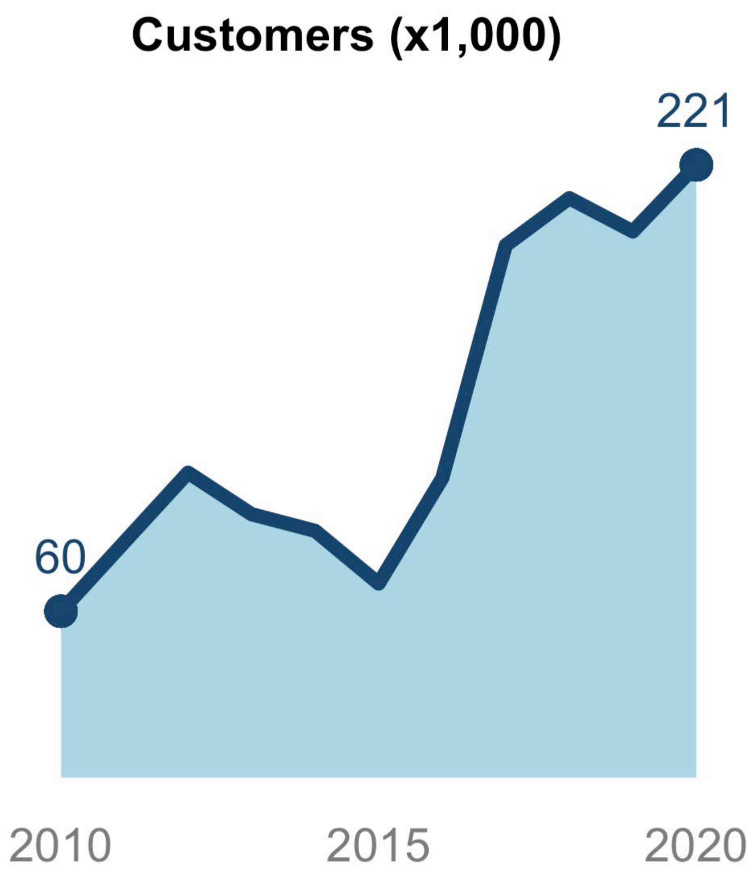
Basic unbundled RECs sales structure

Specific program structures vary

Unbundled RECs

About **221,000 customers** procured about **86.4 million MWh** of voluntary green power through unbundled RECs in 2020.

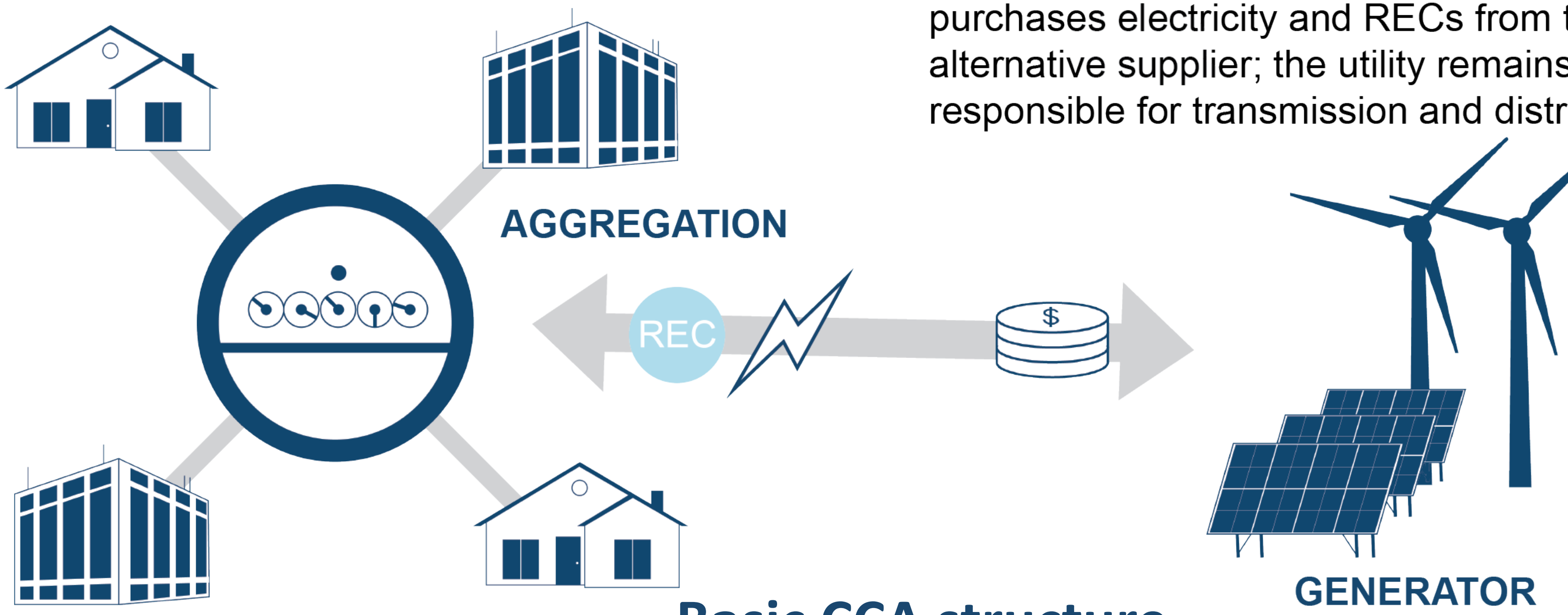




Community Choice Aggregation

A CCA effectively "aggregates" the electricity demand of many customers (residential and non-residential) in order to procure electricity from an alternative supplier.

The CCA "switches" from an incumbent electricity supplier to an alternative supplier with a renewable energy product (though the switch may include a non-renewable product). The CCA purchases electricity and RECs from the alternative supplier; the utility remains responsible for transmission and distribution

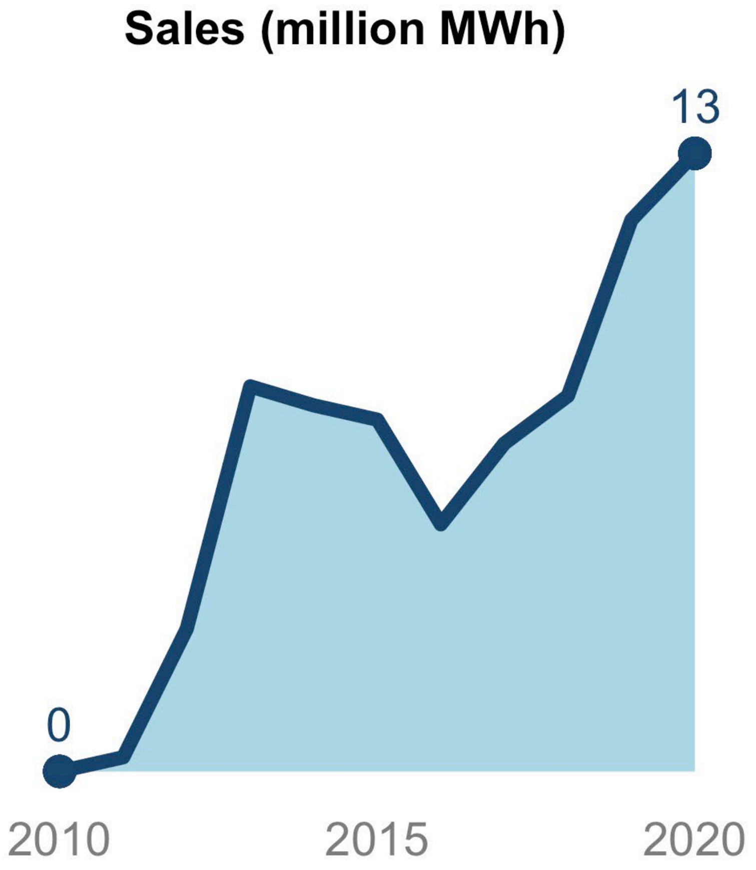


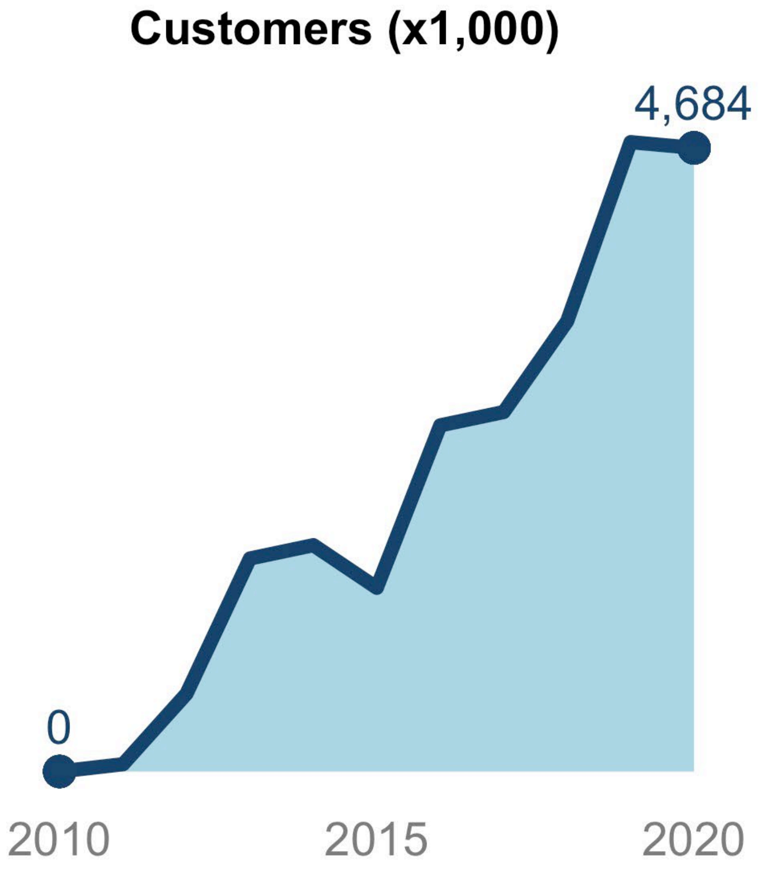
Basic CCA structure

Specific program structures vary

CCA Trends

About **4.7 million customers** procured about **13 million MWh** of voluntary green power through CCAs in 2020.



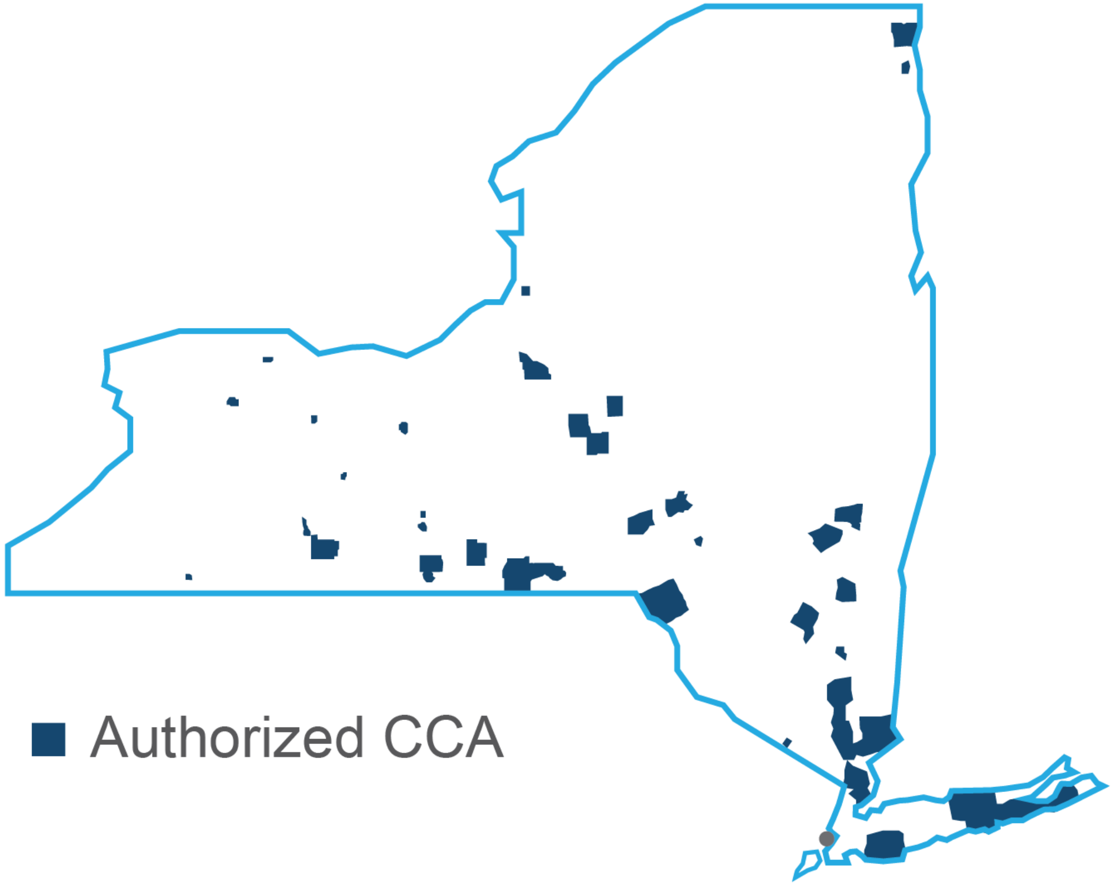


CCA Sales by State

State	Green Power Sales (MWh)	Green Power Customers
California	9,632,000	3,888,000
Illinois	336,000	45,000
Massachusetts	1,580,000	507,000
Ohio	693,000	111,000
New York	745,000	133,000
TOTAL	**12,986,000**	**4,684,000**

CCAs in New York

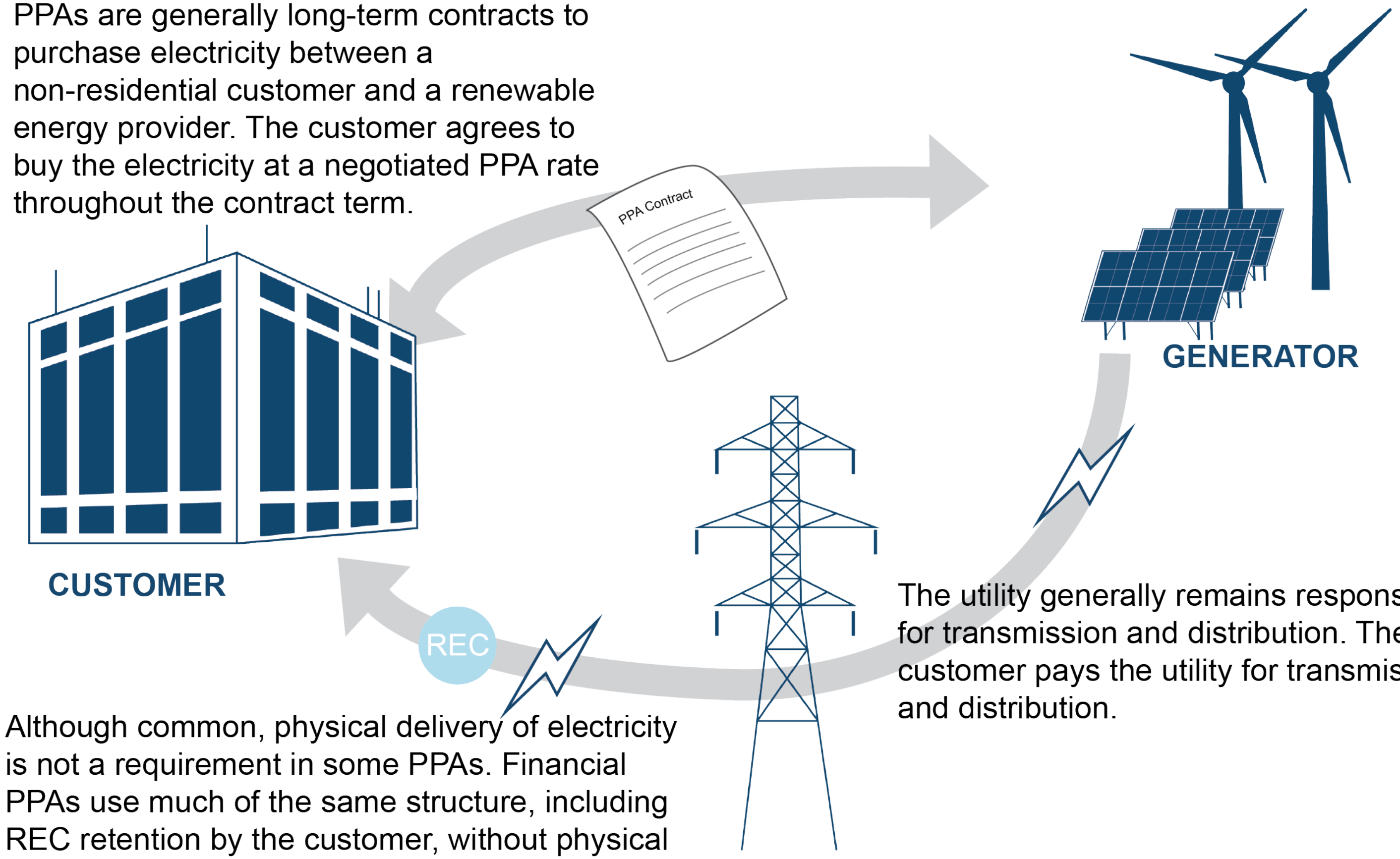
- Since Westchester County formed the first NY CCA in 2014, three other aggregators have emerged throughout the state.
- Many NY communities have chosen to provide 100% renewable energy by default (opt out), and all aggregators offer opt-in green power products.
- NY CCAs are also innovating. Several CCAs offer their own community solar programs, and one aggregator (Joule Assets) offers a unique opt-out community solar product to eligible CCA customers.



Map modified from New York Department of Public Service “Community Choice Aggregations” map, accessed 8/23/2021.

Power Purchase Agreements

PPAs are generally long-term contracts to purchase electricity between a non-residential customer and a renewable energy provider. The customer agrees to buy the electricity at a negotiated PPA rate throughout the contract term.



The utility generally remains responsible for transmission and distribution. The customer pays the utility for transmission and distribution.

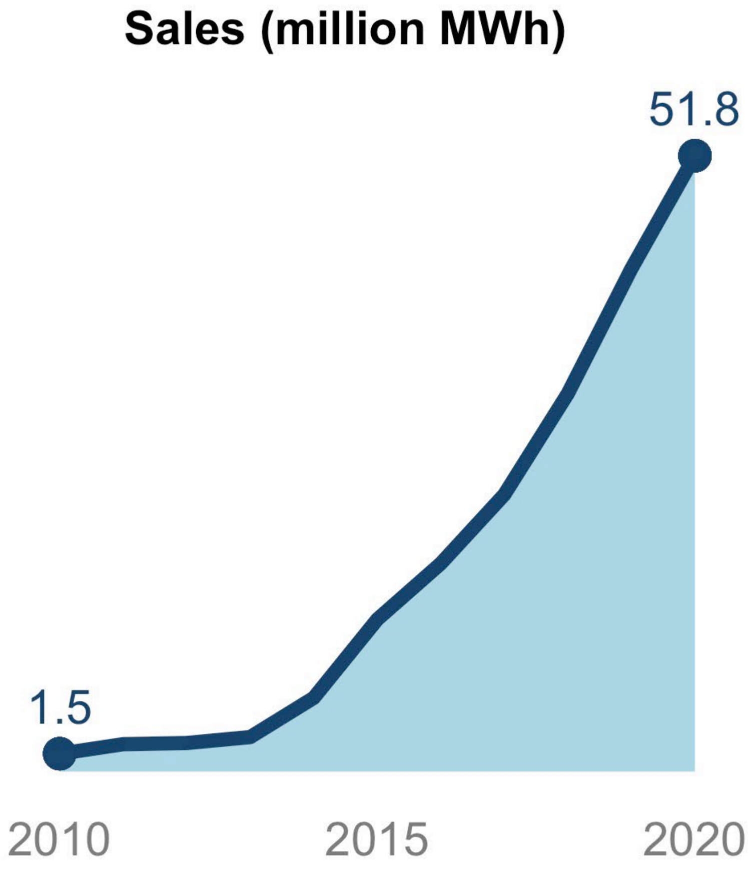
Although common, physical delivery of electricity is not a requirement in some PPAs. Financial PPAs use much of the same structure, including REC retention by the customer, without physical electricity delivery.

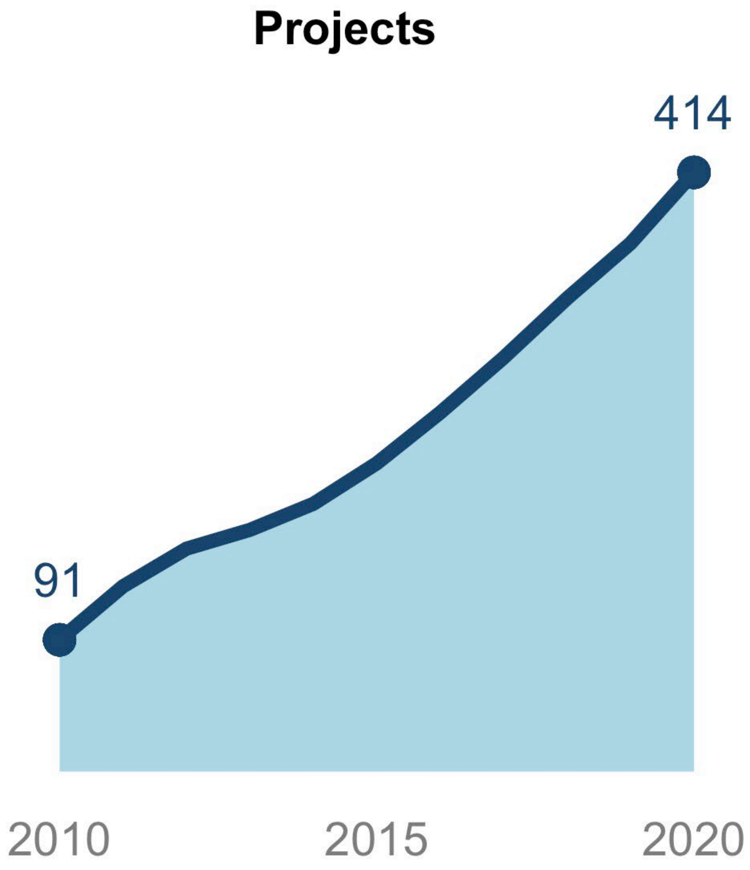
Basic PPA structure

Specific program structures vary. See full report for a more complete description of the differences between physical and financial PPAs

PPA Trends

About **414 offtakers** procured about **51.8 million MWh** of voluntary green power through PPAs in 2020. These figures include only PPA sales where we estimate that the purchaser has retained the RECs.



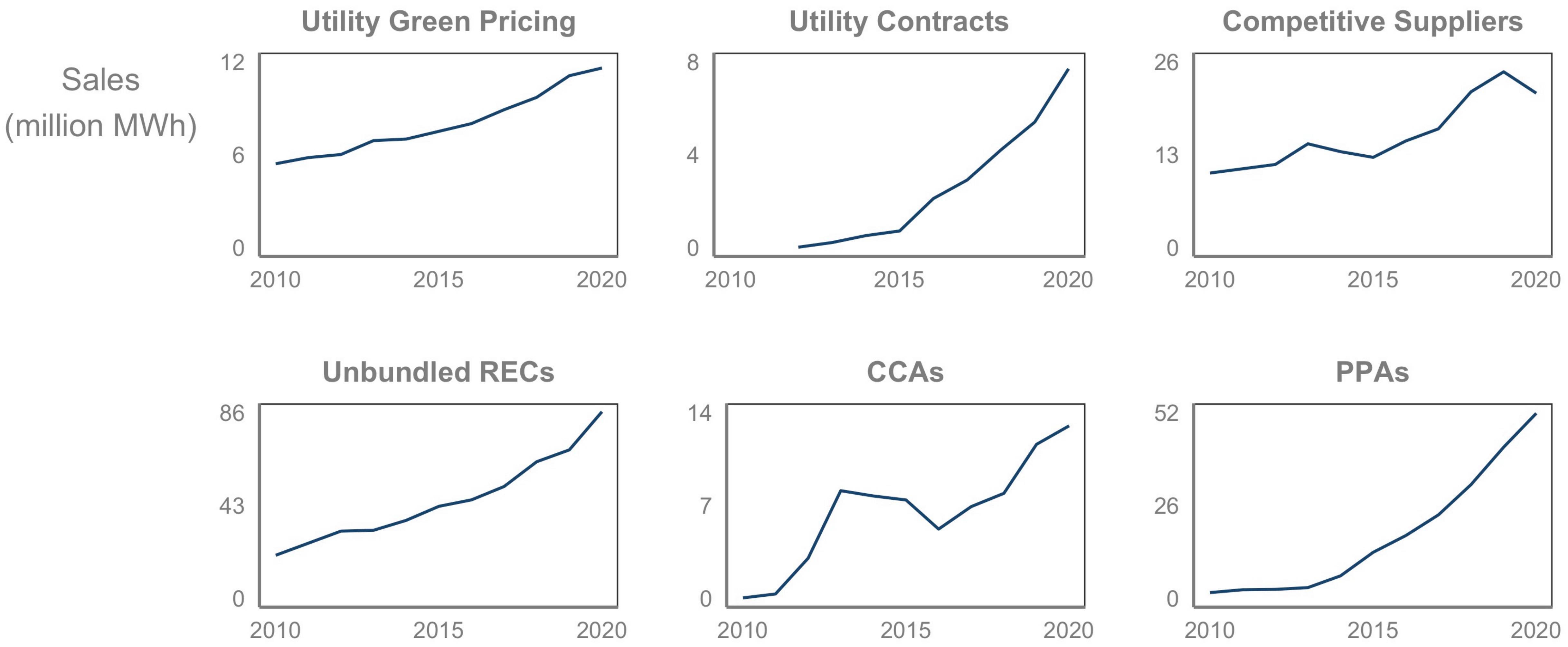


Summary Trends

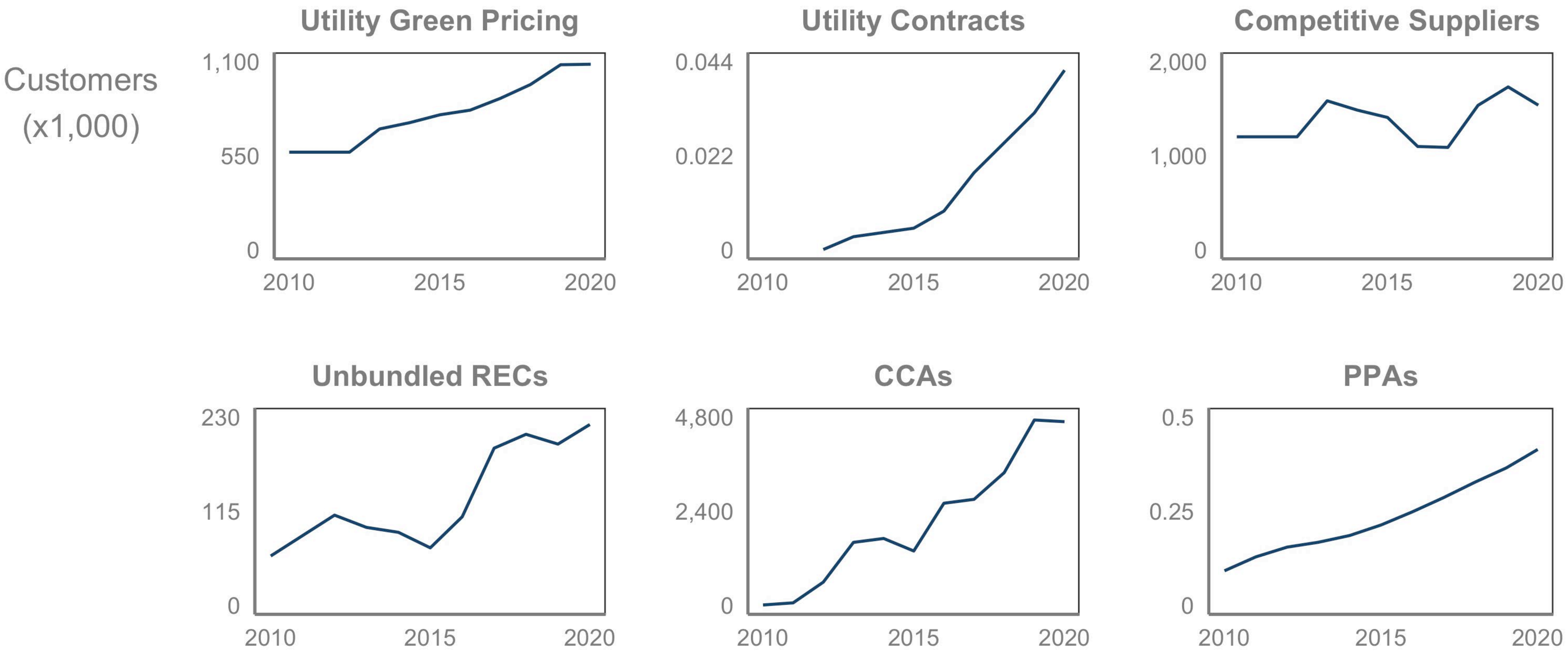
2020 Green Power Sales and Participation

Segment	Sales (million MWh)	Participation
Utility green pricing	11.6	1,085,000
Utility renewable contracts	7.7	42
Competitive suppliers	21.6	1,537,000
Unbundled RECs	86.4	221,000
Community choice aggregation	13.0	4,684,000
Power purchase agreements	51.8	414
Total	**192.1**	**7,527,000**

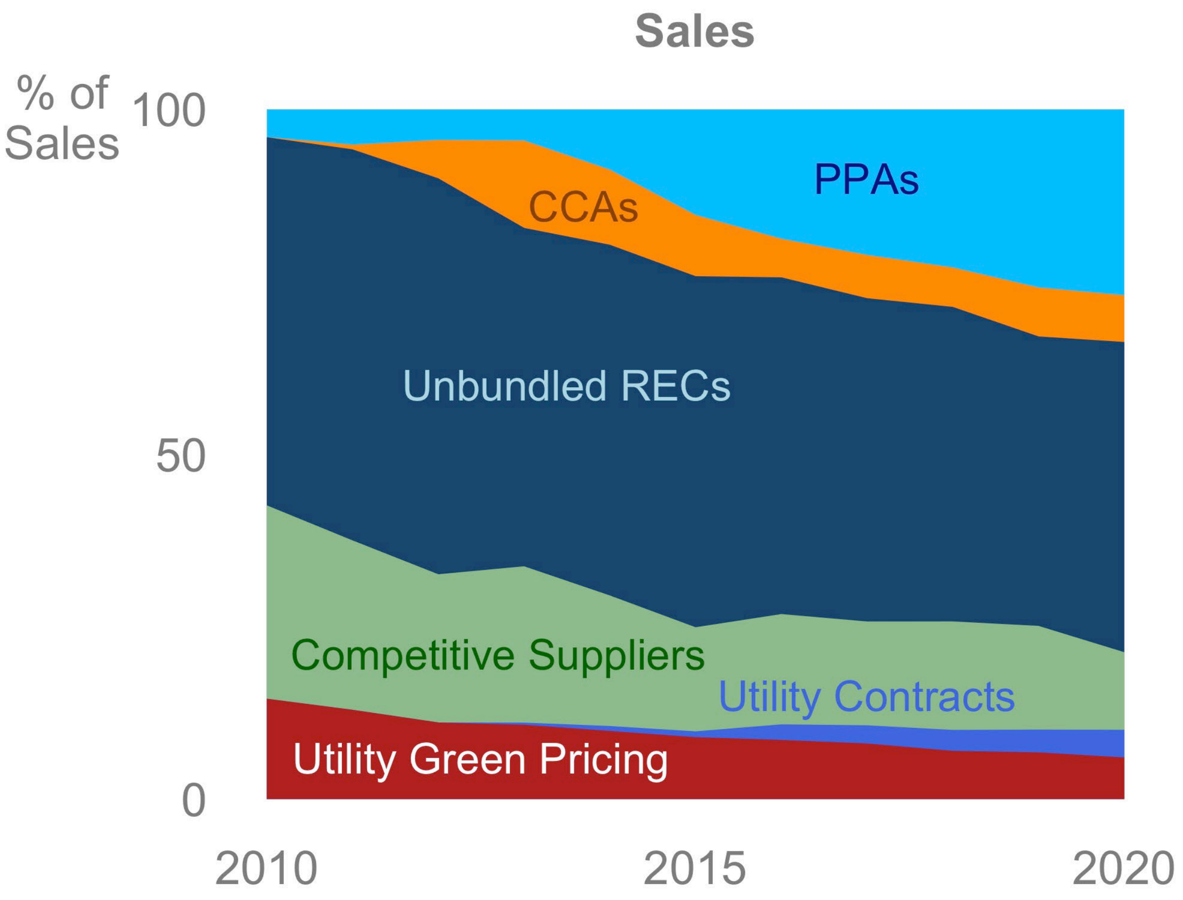
Voluntary Sales Continue to Increase

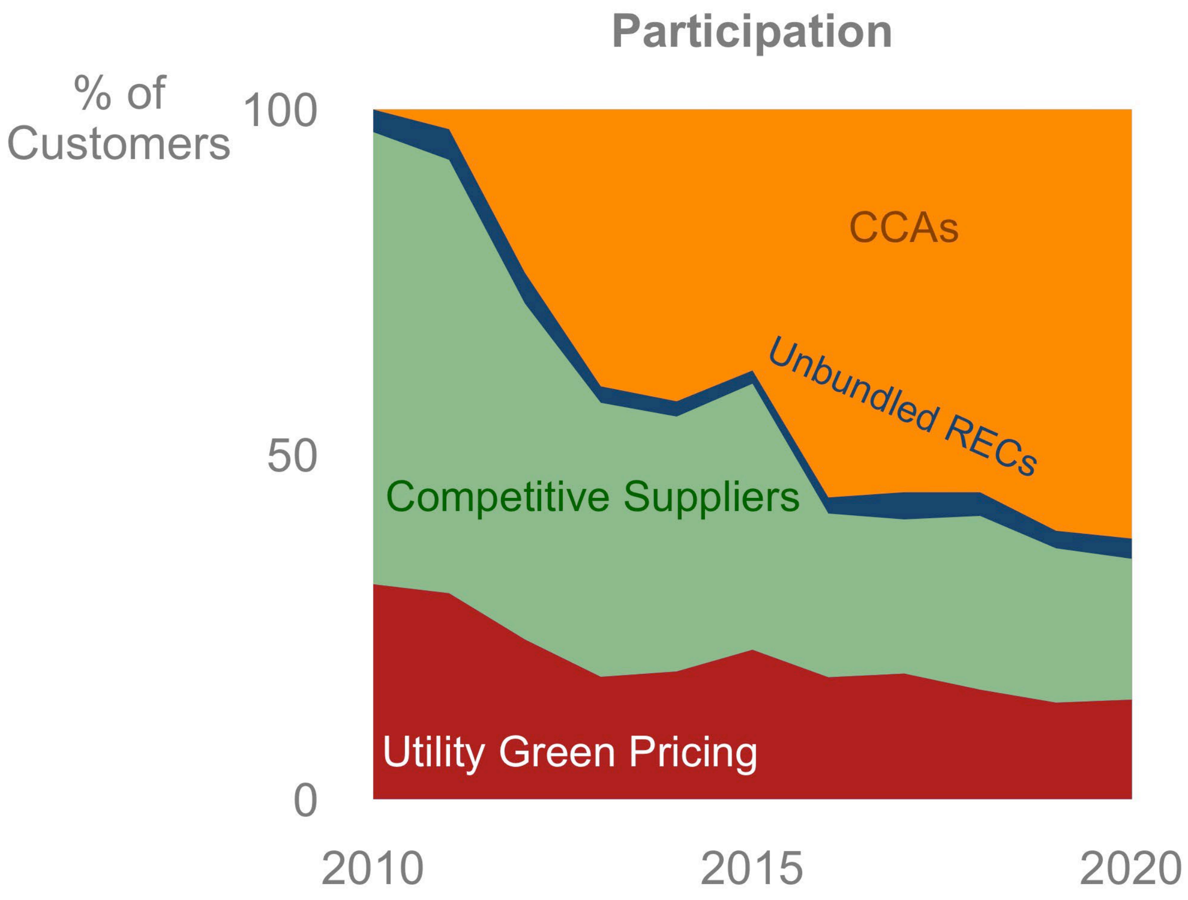


Participation Leveled Off in 2020



Green Power Sales and Customers by Mechanism





NREL’s Voluntary Market Research

Jenny Heeter

jenny.heeter@nrel.gov
303-275-4366

https://www.nrel.gov/analysis/green-power.html

Thank you!

Eric O'Shaughnessy
eric.oshaughnessy@cleankws.com

www.nrel.gov

This work was authored by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

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