



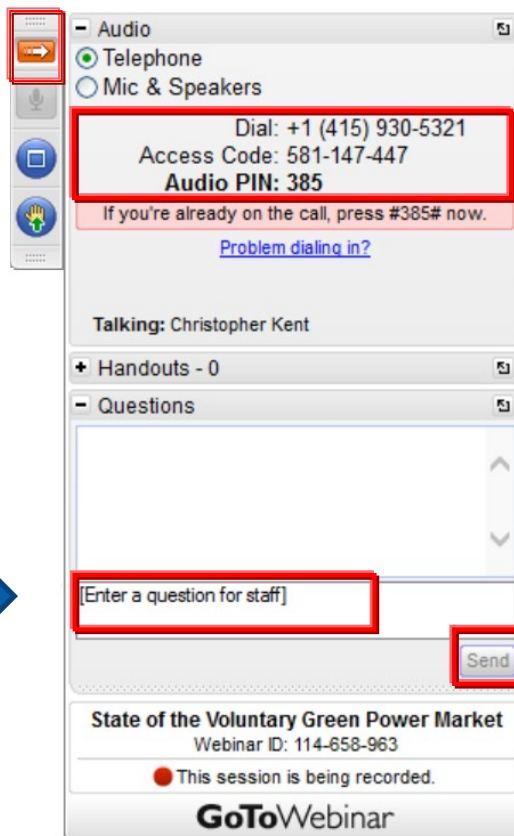
State of the Voluntary Green Power Market

January 28, 2021



Webinar Logistics

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Audio is available your computer's microphone and speakers (VoIP) or telephone:

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Speakers and Agenda

- **Speakers:**

- Christopher Kent, Program Manager, U.S. EPA's Green Power Partnership
- Eric O'Shaughnessy, an independent renewable energy research consultant, Clean Kilowatts LLC

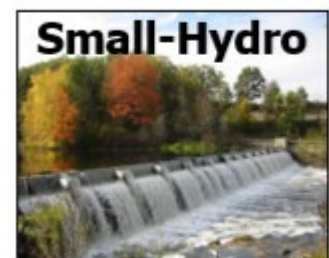
- **Agenda:**

- Basics of Green Power
- Green Power Partnership Overview
- GPP Program Data Summary
- Status and Trends in U.S. Voluntary Green Power Market
- Question & Answer Session



What is Green Power?

- Subset of renewable energy – representative of resources and technologies that offer the highest environmental benefit.
- Electricity generated from natural resources that replenish themselves over short periods of time, including the sun, wind, moving water, organic plant and waste material (biomass), and the Earth’s heat (geothermal).
- Must be from “new” facilities placed into service within last 15 years.
- Must be from the “voluntary” market.





Categories of Green Power Supply

| Category | Green Power Supply Option |
|--|---|
| <p>Retail Supply Options:</p> <ul style="list-style-type: none"> Standardized products (e.g., resource mix, price, 3rd-party certification status) for sale to consumers from retail suppliers, such as utilities, competitive electricity suppliers, and REC marketers. Generally involve short-term commitments by the consumer to purchase a pre-determined volume or a volume tied to their electricity consumption. The renewable energy project(s) used to supply the product may be periodically changed by the supplier during the duration of the contract. | Unbundled Renewable Energy Certificates (RECs) |
| | Competitive Green Power Product |
| | Utility Green Power Product |
| | Community Choice Aggregation |
| <p>Project-Specific Supply Options:</p> <ul style="list-style-type: none"> Generally customized products negotiated between the consumer and supplier. Involve long-term commitments by consumers to purchase a volume tied to the output of a pre-determined generation capacity. The renewable energy project used to supply the product is constant throughout the term of the contract or commitment. | Self Supply |
| | Utility Green Tariff |
| | Shared Renewables |
| | Physical Power Purchase Agreement |
| | Financial Power Purchase Agreement |



Green Power Partnership Overview

- **Summary**

- The U.S. EPA's Green Power Partnership is a voluntary program that encourages organizations to use green power.

- **Objectives**

- Reduce U.S. greenhouse gas emissions
- Expand the voluntary green power market
- Standardize green power procurement as part of best practice environmental management

- **Program Activities**

- Provide technical assistance and tools on procuring green power
- Provide recognition platform for organizations using green power in the hope that others follow their lead

- At the end of calendar year 2020, more than 700 Partners were collectively using nearly 70 billion kWh of green power annually

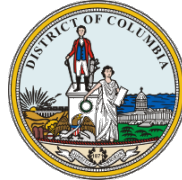


Partnership Requirements

- EPA supports Partners' procurement of green power by offering advice, technical support, tools and resources, and recognition.
- Partners agree to procure green power and provide an annual update.
- In return, EPA commits to:
 - Provide public recognition
 - Provide procurement and communications assistance, as requested
 - Provide a brief description of the Partner's green power use on EPA's website

| | Partnership Benchmark |
|------------------------------------|--|
| If your annual electricity use is: | You must, at minimum, use this much green power: |
| Over 100,000,000 kWh | 7% of your use |
| 10,000,001 - 100,000,000 kWh | 10% of your use |
| 1,000,001 - 10,000,000 kWh | 25% of your use |
| 100,000 - 1,000,000 kWh | 50% of your use |

EPA's 700 Green Power Partners



U.S. EPA's Green Power Partnership

■ **Credible Benchmarks & GHG Quantification**

- Metrics for "How much green power is enough?"
- Definition of eligible renewables & products
- Greenhouse gas accounting and calculations

■ **Planning & Implementation Resources**

- Purchasing strategy guidance
- Marketing and communications support
- Toolbox for Renewable Energy Project Development

■ **Recognition**

- Top Partner Lists
- Use of the Partner mark
- Green Power Leadership Awards
- Promotional opportunities

■ **Best Practices & Innovation**

- New contract mechanisms



EPA's Top Partner Lists

Green Power Partnership National Top 100



As of January 25, 2021, the combined annual green power use of EPA's Top 100 Partners amounts to more than 63 billion kilowatt-hours, which is equivalent to the annual electricity use of nearly 6 million average American homes.

- [\[National Top 100 \]](#)
- [Top 30 Retail](#)
- [Top 30 College & University](#)
- [Top 30 Tech & Telecom](#)
- [Top 25 K-12 Schools](#)
- [100% Green Power Users](#)
- [Top 30 Local Government](#)
- [Fortune 500® Partners List](#)
- [Top 30 On-site Generation](#)
- [Long-term Contracts](#)




| Partner Name | Annual Green Power Usage (kWh) | GP % of Total Electricity Use* | Industry | Green Power Resources |
|--|--------------------------------|--------------------------------|----------------------|--------------------------|
| 1. Google LLC | 7,492,567,647 | 106% | Technology & Telecom | Solar, Wind |
| 2. Microsoft Corporation | 5,982,112,000 | 100% | Technology & Telecom | Small-hydro, Solar, Wind |
| 3. Intel Corporation | 5,022,773,872 | 100% | Technology & Telecom | Various |
| 4. Walmart Inc. | 2,718,227,534 | 14% | Retail | Various |
| 5. Equinix, Inc. | 2,360,296,352 | 104% | Technology & Telecom | Solar, Wind |
| 6. Apple Inc. | 2,094,103,551 | 101% | Technology & Telecom | Various |
| 7. Bank of America | 1,855,505,589 | 109% | Banking & Fin. Svcs. | Various |
| 8. Wells Fargo | 1,843,545,975 | 105% | Banking & Fin. Svcs. | Solar, Wind |
| 9. T-Mobile | 1,602,206,000 | 26% | Technology & Telecom | Solar, Wind |
| 10. Samsung Electronics and Semiconductors | 1,246,201,605 | 99% | Technology & Telecom | Various |

GPP Resource – Supply Options Screening Tool

- Easy-to-use spreadsheet tool
- Available at: www.epa.gov/greenpower/procurement-tools-resources

Green Power Supply Options Screening Tool

The purpose of this tool is to help organizations identify possible green power supply options that are available to them. To learn more about the various supply options available in the renewable energy market, visit: <https://www.epa.gov/greenpower/green-power-supply-options>



DIRECTIONS

Answer the screening questions using the drop-down menus. Your answers will help identify possible supply options based on your organizational details as well as federal, state and utility policies. To learn more about each of the supply options and whether it works for your organization, click on the respective link in the results section at the bottom.

SCREENING QUESTIONS

Please answer the following questions by selecting an option from each drop-down menu:

| | | |
|--|------------|---|
| 1. Is your organization a for-profit or a non-profit organization? | Non-profit | ▼ |
| 2. In what state does your organization operationally consume electricity? View State's Policy Landscape >> | New Mexico | ▼ |
| 3. Is your organization open to procuring renewables from offsite projects outside of your state or the grid-region where you operate? | Yes | ▼ |
| 4. Is your organization willing to commit to a long-term energy purchase/use of 10+ years? | Yes | ▼ |
| 5. Does your organization use more than 40 million kWh per year of electricity? | Yes | ▼ |
| 6. Does your organization have investment grade credit? | Yes | ▼ |

RESULTS: Your Organization's Supply Options

Following is a listing of green power supply options and whether they are viable for your organization based on your answers to the screening questions. Click the links to learn more details about the different procurement options, including considerations and policy implications.

| Project-Specific Supply Options | | | | | | Retail Supply Options | | |
|---------------------------------|---------------------------------|---|--|---------------------------|----------------------|-----------------------------|---------------------------------|-------------------------------|
| Onsite Self Supply | Onsite Power Purchase Agreement | Offsite Physical Power Purchase Agreement | Offsite Financial Power Purchase Agreement | Community Solar | Utility Green Tariff | Utility Green Power Product | Competitive Green Power Product | Renewable Energy Certificates |
| Very Likely | Very Likely | Unlikely | Very Likely | Potentially in the Future | Possibly | Very Likely | No | Yes |



GPP Resource - Equivalency Calculator



- Resource to help you to better communicate your green power use to stakeholders by translating it from kilowatt-hours (kWh) into more understandable terms and concrete examples.
- Available at: www.epa.gov/greenpower/procurement-tools-resources

Enter Your Green Power Use

Note, 1 MWh is equal to 1,000 kWh.

10,000,000 kWh/year



CALCULATE

Equivalency Results *How are they calculated?*

This amount of green power is enough to power:

| | | |
|---|----|---|
|  939 Homes' electricity use for one year | or |  29,411,765 Miles driven by electric car |
|---|----|---|

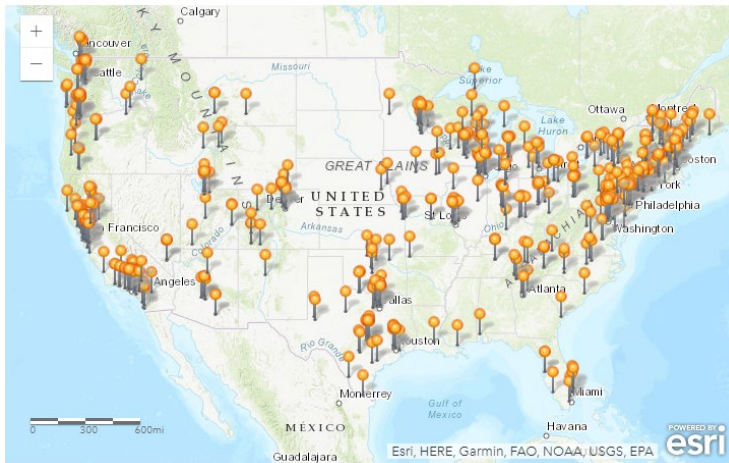
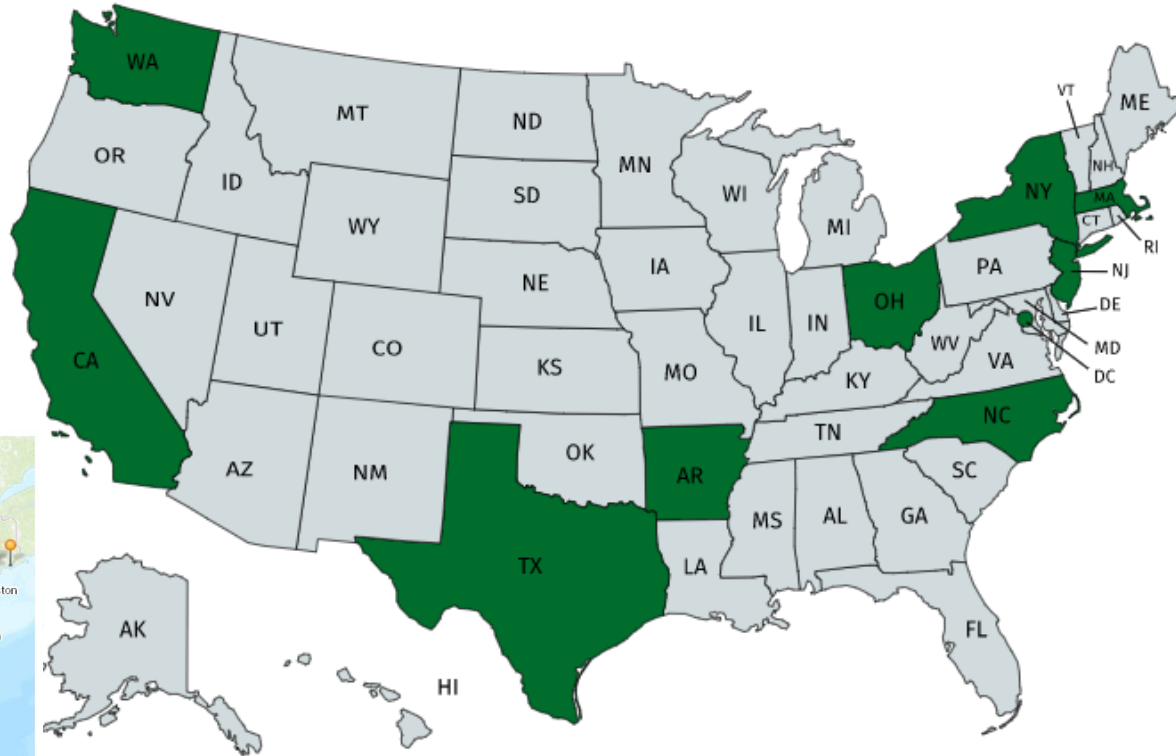
To produce an equivalent amount of power would require:

| | | |
|--|----|--|
|  1 Wind turbines running for one year | or |  8 Football fields of solar panels for one year |
|--|----|--|

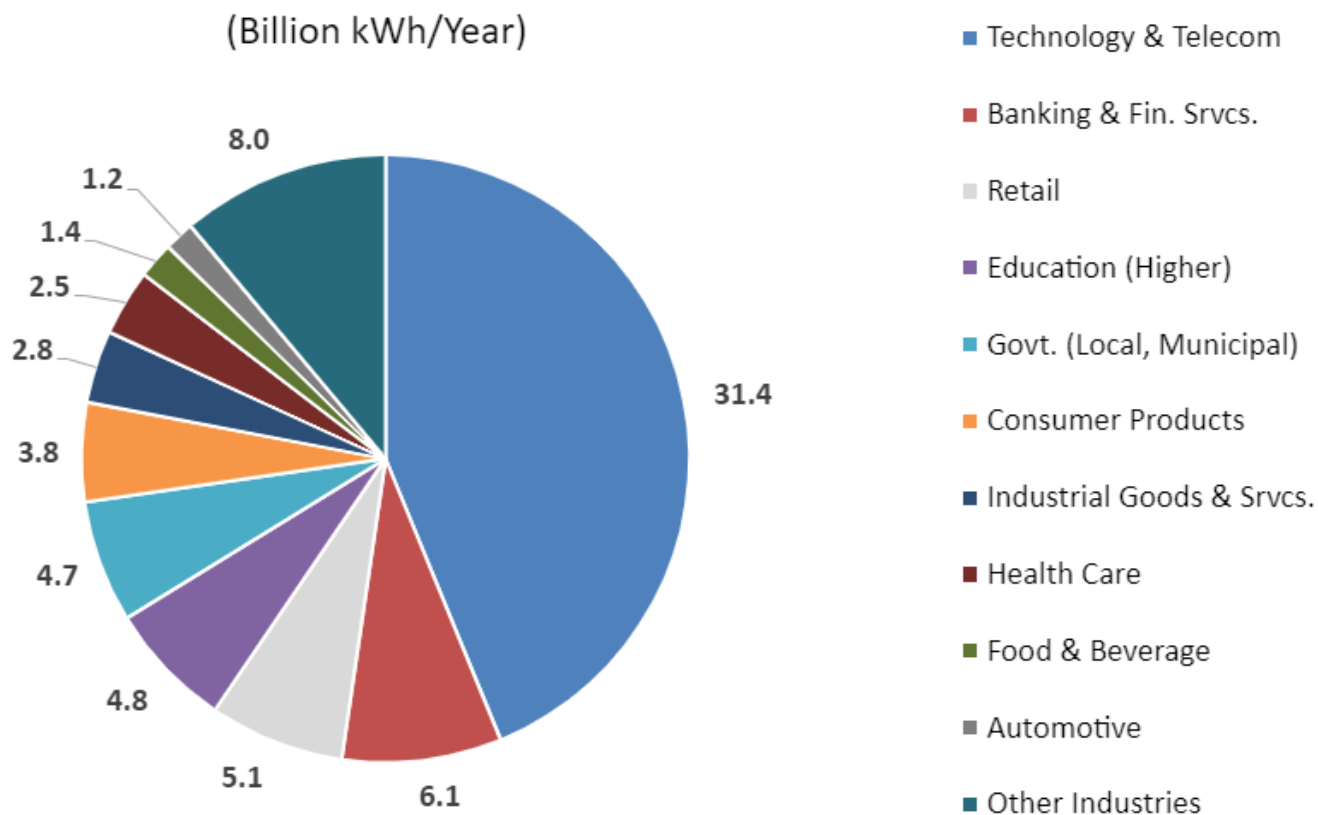


Top Green Power Usage by State

| State | Green Power |
|-------|----------------|
| CA | 24,969,781,133 |
| WA | 8,905,997,594 |
| TX | 4,886,122,474 |
| NY | 3,537,755,671 |
| OH | 3,412,153,603 |
| NJ | 3,294,297,811 |
| AR | 2,718,227,534 |
| NC | 2,089,814,812 |
| DC | 1,855,210,976 |
| MA | 1,778,843,104 |

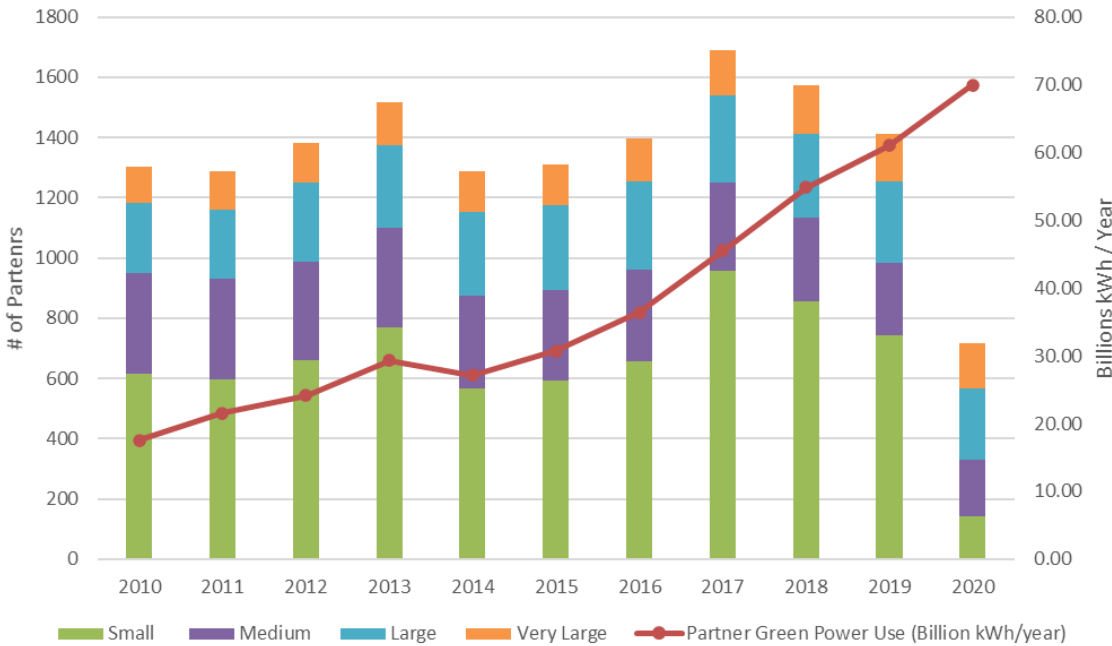


Green Power Usage by Industry

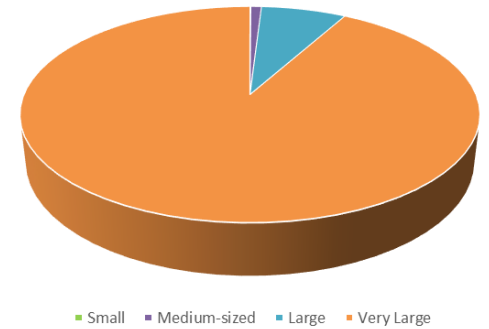


GPP Green Power Use and Number of Partners

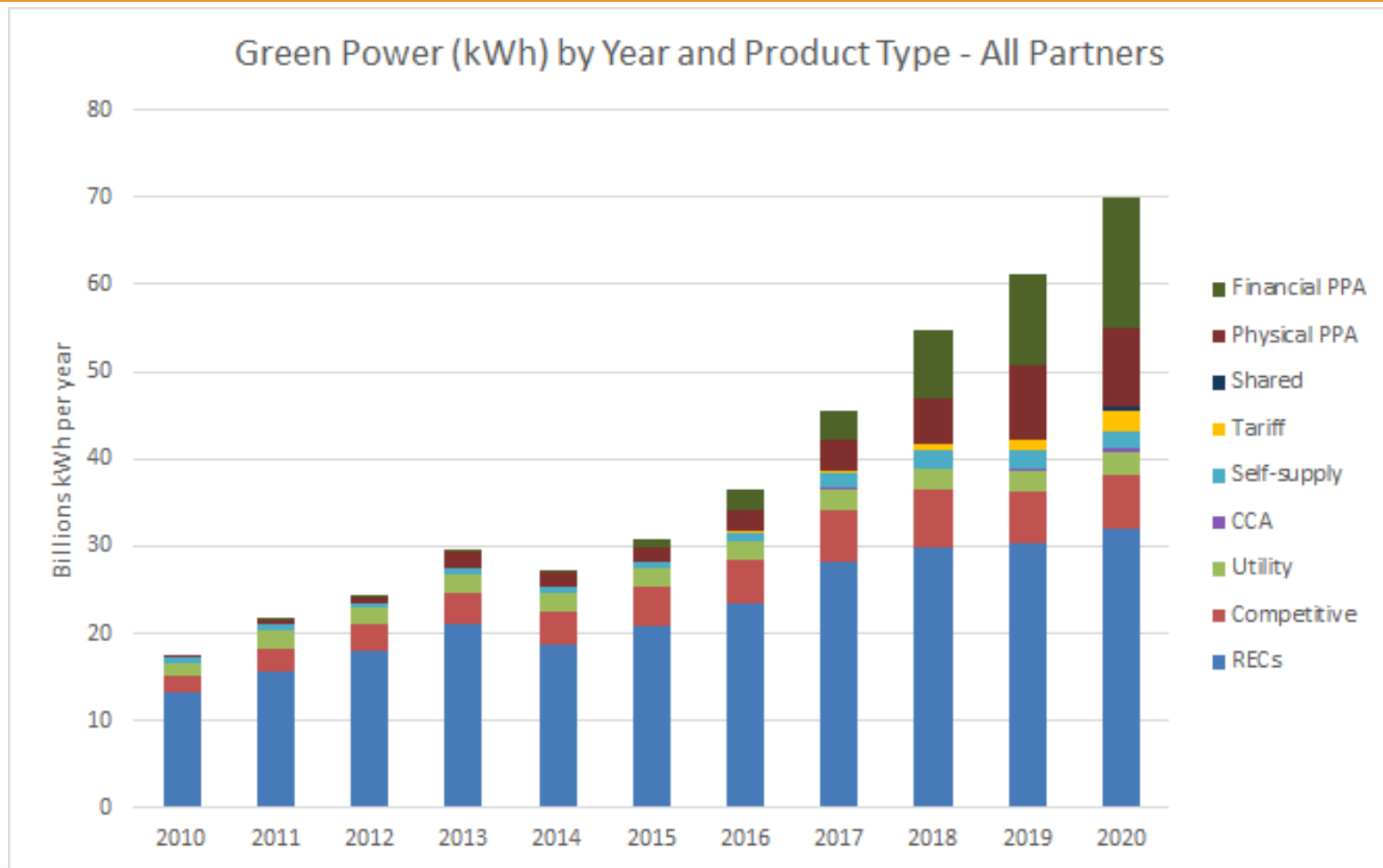
Partners' Green Power Use and Number of Partners by Size



Share of Green Power Use by Partner Size (2020)

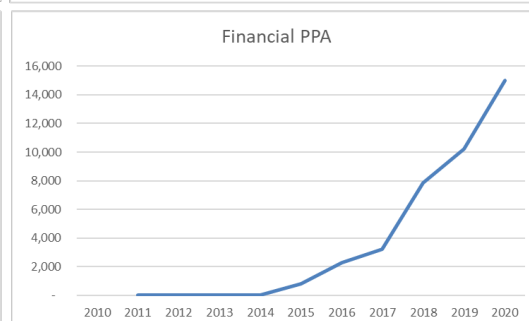
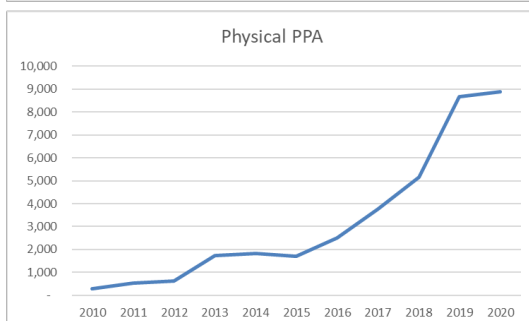
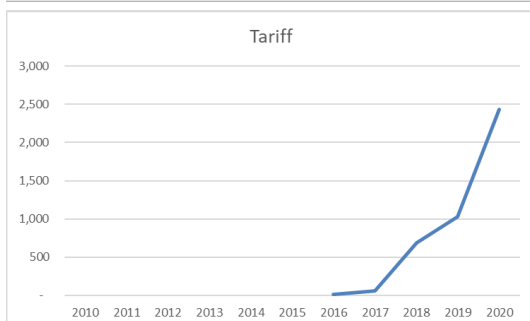
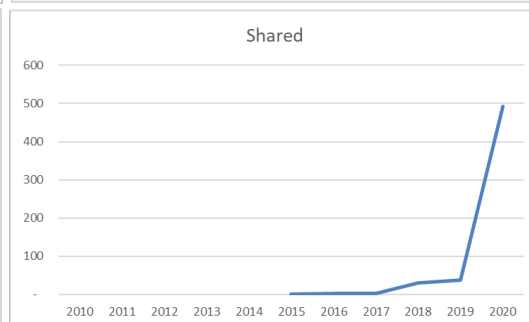
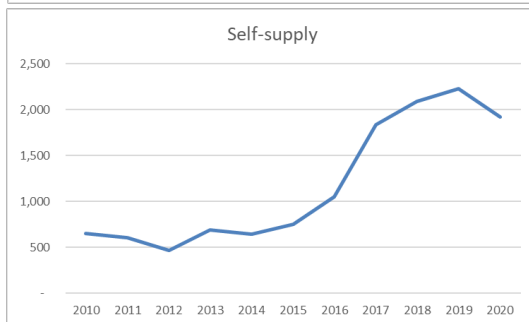
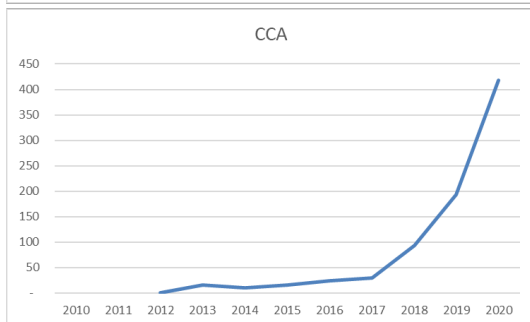
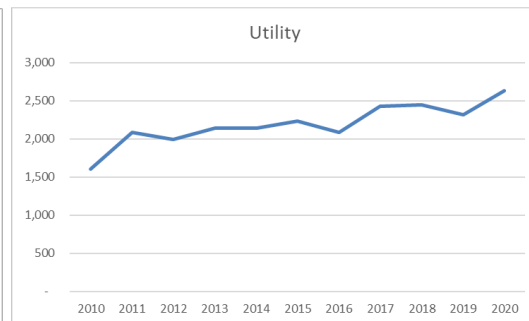
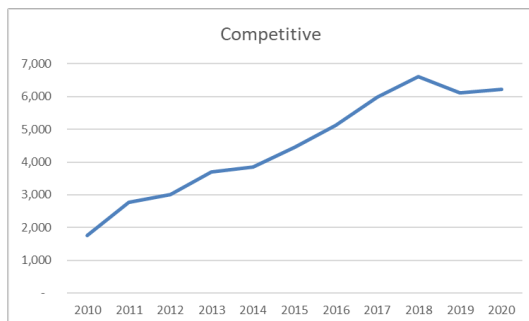
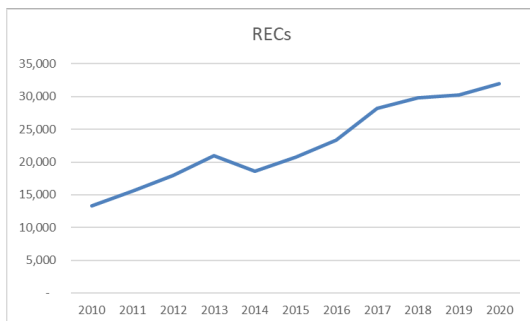


Annual Green Power Use by Supply Option

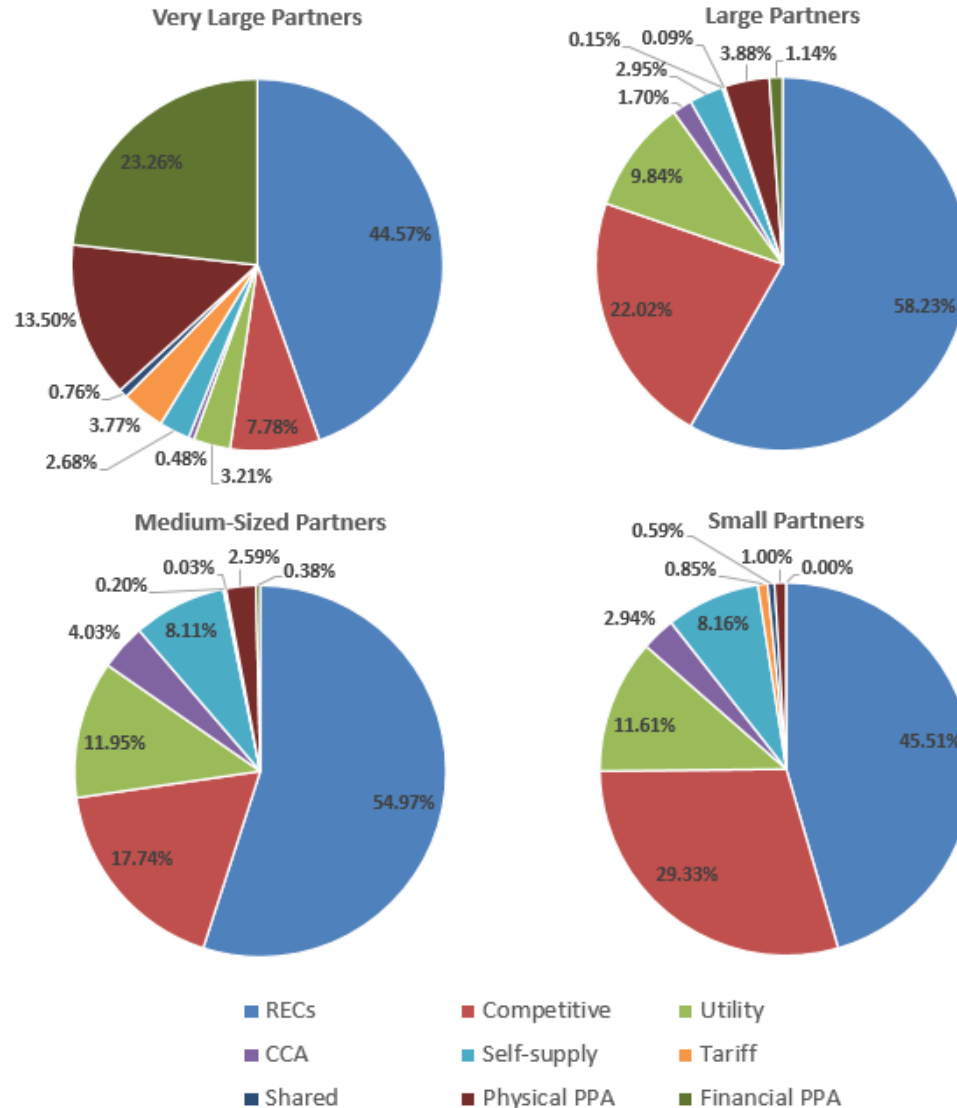


Green Power Supply Option Trends

Millions kWh per year

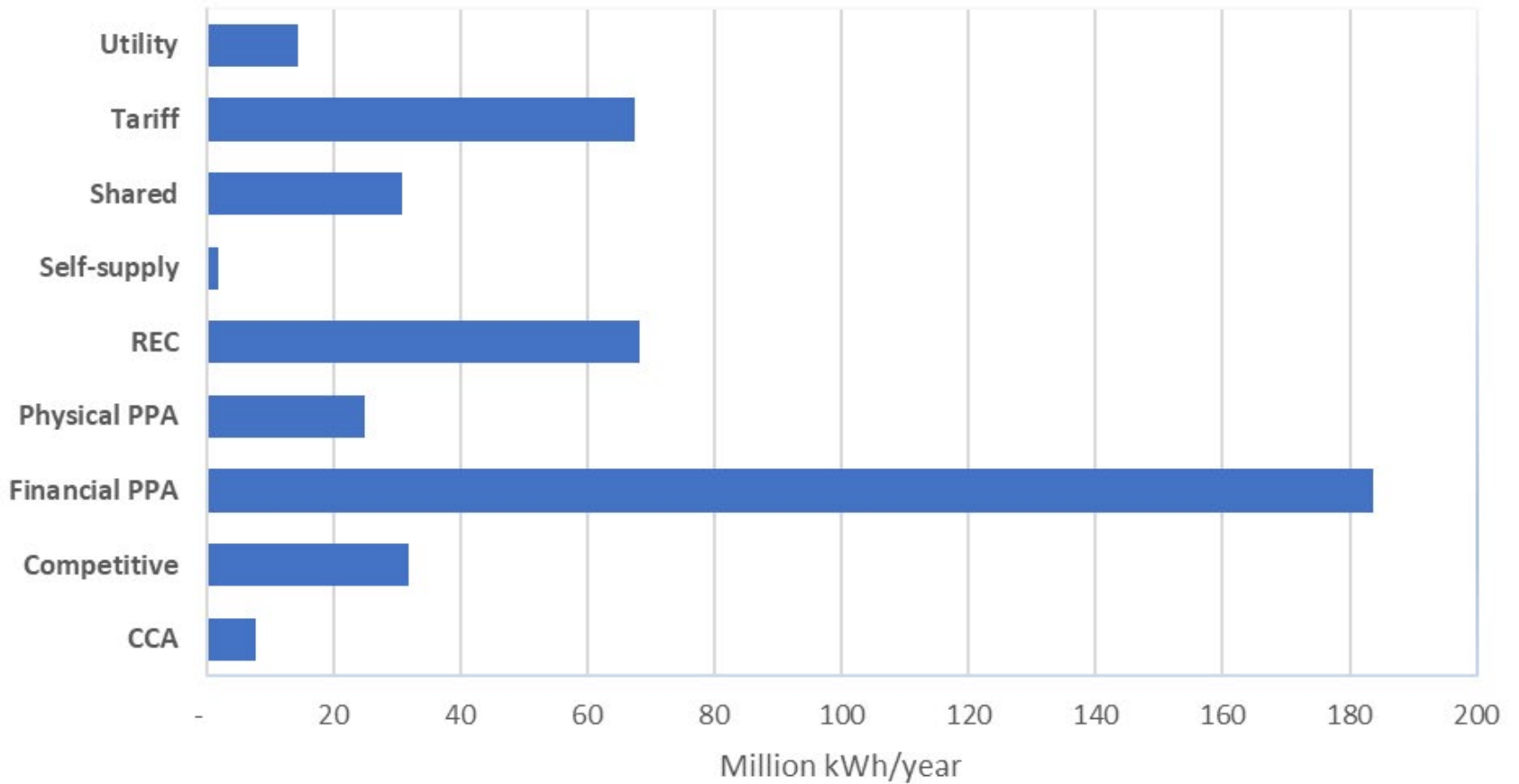


Green Power Supply Options by Benchmarks

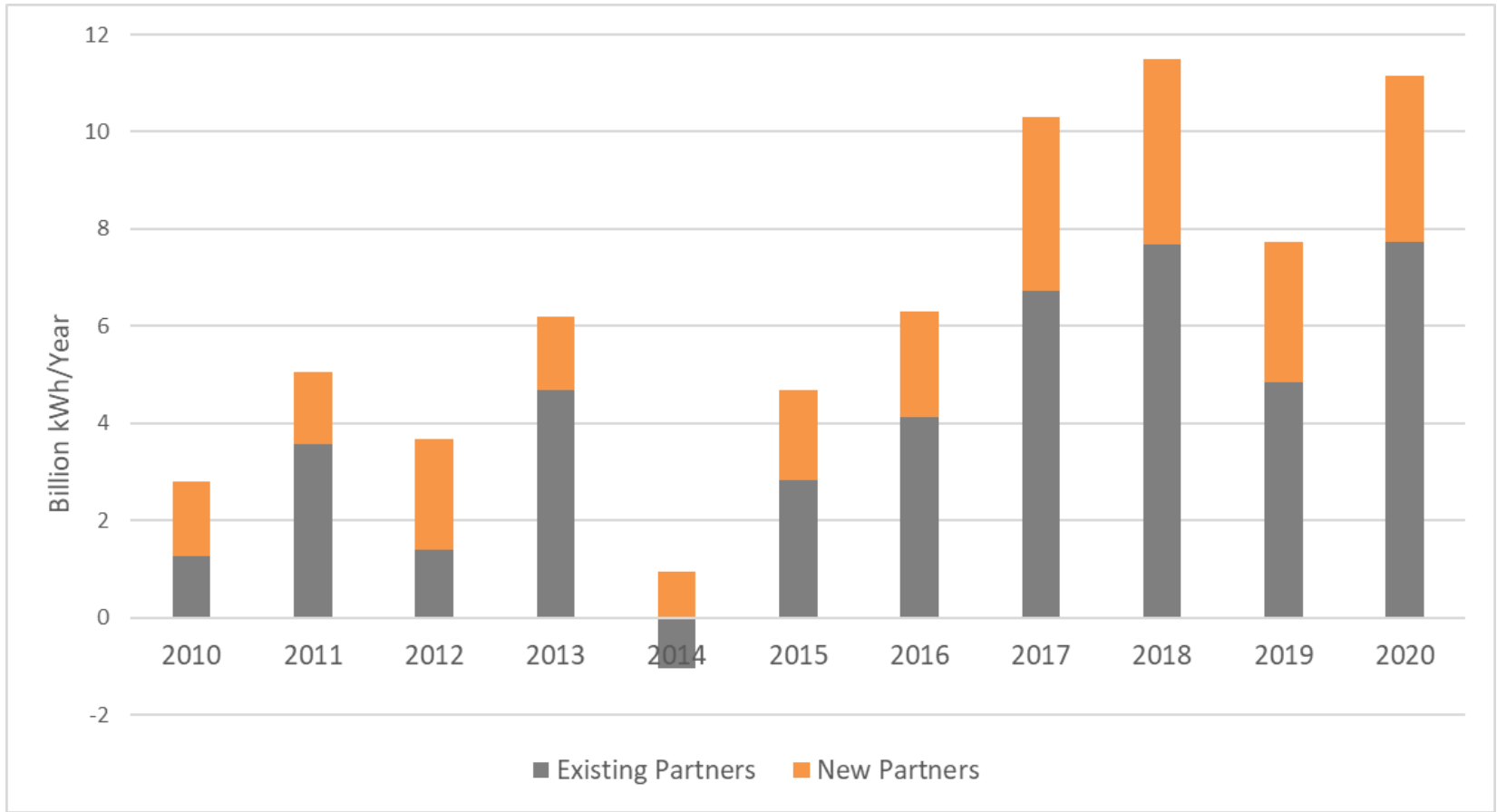




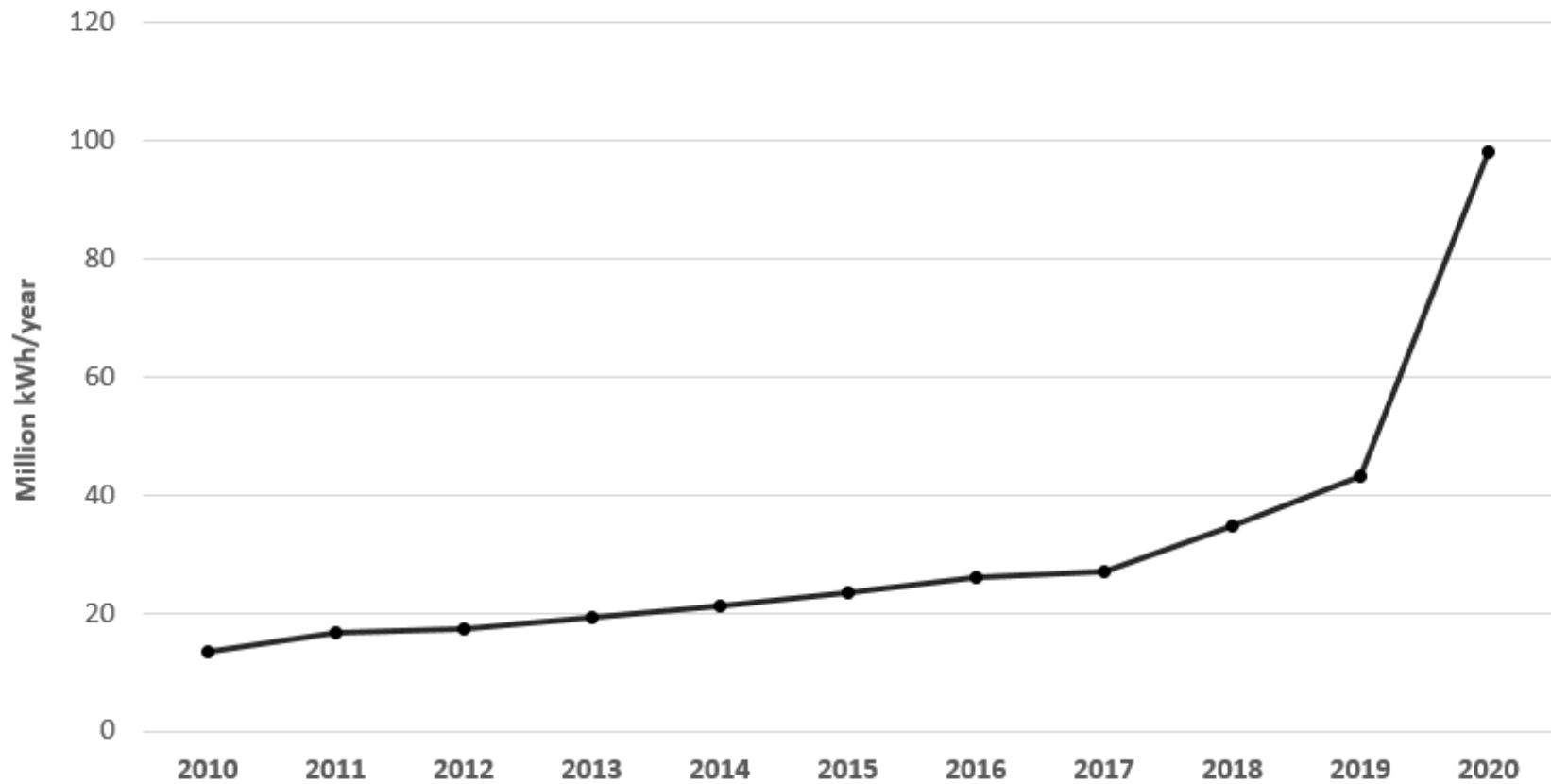
Average Green Power Contract Size in kWh by Supply Option

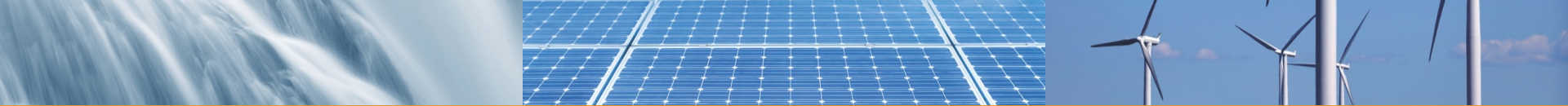


Program Growth



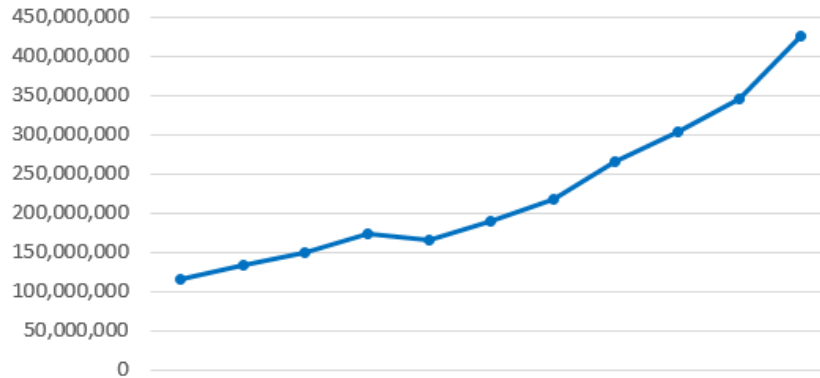
Average Green Power Use by Partners



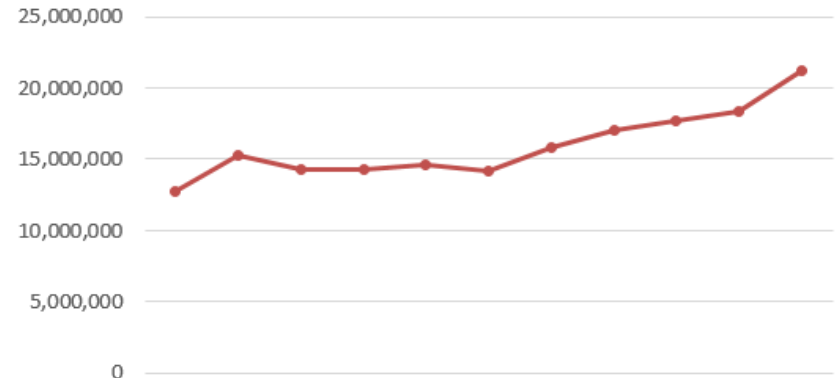


Average Green Power Use by Partners

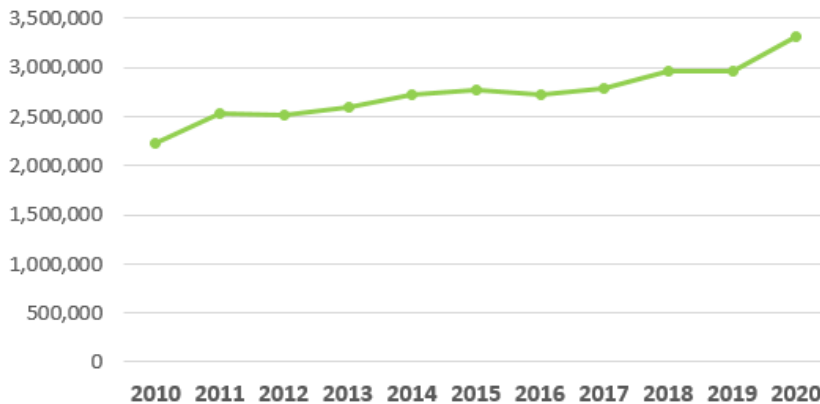
Very Large Partners



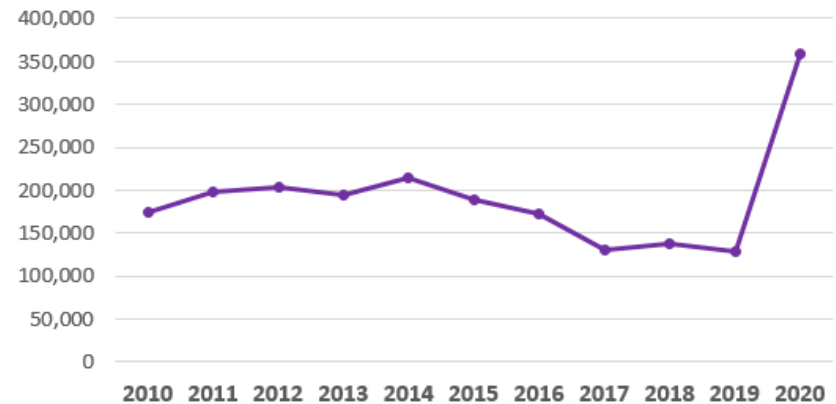
Large Partners



Medium-Sized Partners

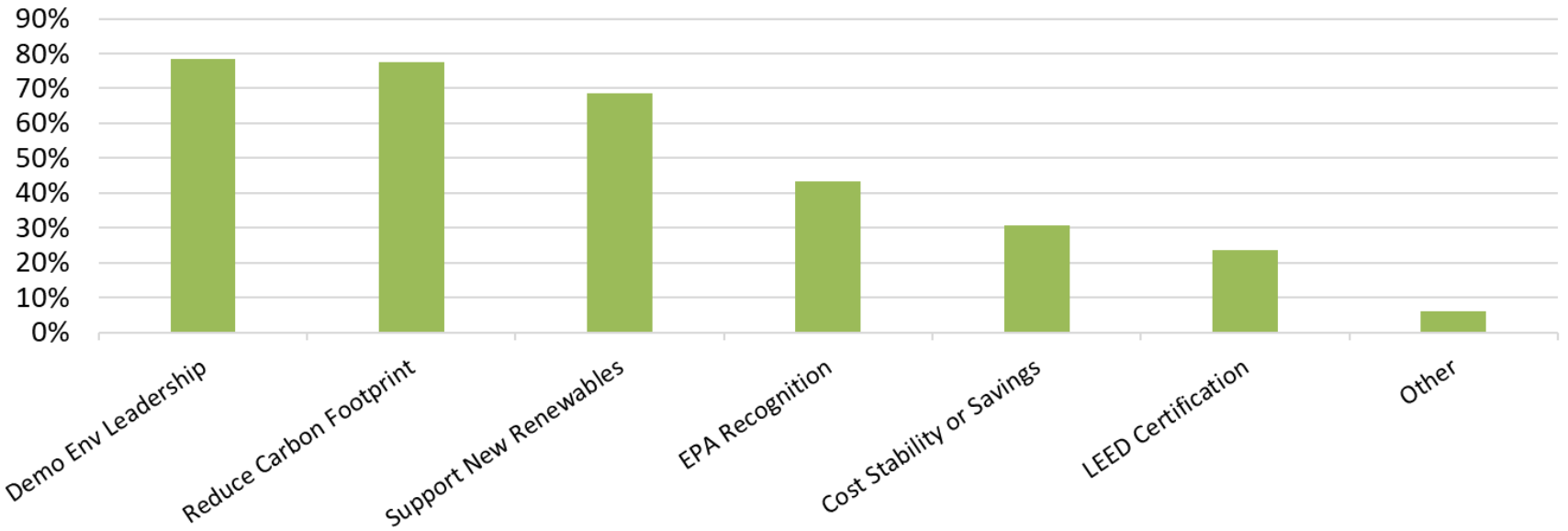


Small Partners



Motivation

Why GPP Partners Use Green Power





Questions?

- Christopher Kent, EPA, kent.christopher@epa.gov
- Eric O'Shaughnessy, Clean Kilowatts LLC, eric.oshaughnessy@cleankws.com

Resources:

GPP Program Success Metrics

- <https://www.epa.gov/greenpower/green-power-partnership-program-success-metrics>

Status and Trends in the U.S. Voluntary Green Power Market (2019 Data)

- <https://www.nrel.gov/docs/fy21osti/77915.pdf>