

The logo for BROWNFIELD LISTINGS features a stylized green leaf icon on the left, consisting of three leaves on a stem. To the right of the icon, the words "BROWNFIELD" and "LISTINGS" are written in a bold, sans-serif font. "BROWNFIELD" is in blue and "LISTINGS" is in green.

BROWNFIELD
LISTINGS

Brightfields 2019-Virginia

Dealmaking 200: Due Diligence, PPA 2, Pitfalls, & Best Practices

COMPANY INFORMATION

 **RENEU ENERGY** is a solar plus storage developer and solar consulting firm focused on:

- Developing solar projects in the Northeast, Mid-Atlantic, and California.
- Brokered over \$28 million in Renewable Energy Credit (“REC”) transactions for clients.
- Sourcing and analyzing solar project opportunities for investors; 11.2 MW of project referrals was closed by one of our larger clients in 2018.
- Assisting with energy offtake through corporate PPAs and hedges.

ABOUT THE CEO

Benoy Thanjan Founder and CEO

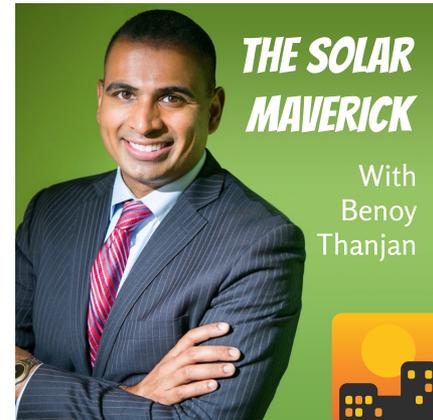
Before founding Reneu Energy, Benoy was in the Project Finance Group for **SolarCity** which merged with **Tesla**. Benoy was the Vice President at **Vanguard Energy Partners**, a national solar installer, where he focused on project finance solutions for commercial scale solar projects. He also worked for **Ridgewood Renewable Power**, a private equity fund, where he analyzed potential investments in renewable energy projects and worked on maximizing the financial return of the projects in the portfolio. He was in the Energy Structured Finance practice for **Deloitte & Touche** and in Financial Advisory Services practice at **Ernst & Young**. Benoy received his first experience in Finance as an intern at **D.E. Shaw & Co.**, which is a global investment firm with \$37 billion in investment capital. He has an MBA in Finance from **Rutgers University** and a BS in Finance and Economics from the **Stern School of Business at New York University**. Benoy was an Alumni Scholar at NYU.



THE SOLAR MAVERICK PODCAST

The Solar Maverick Podcast is where discussion on the solar and energy markets intersect with entrepreneurship and trailblazing. It is one of the most popular solar podcasts on all of the major podcast platforms. Hosted by Benoy Thanjan—a serial entrepreneur and founder of Reneu Energy, one of the industry’s top companies. Benoy is known for his passion, leadership, and style. Always eager to truly learn from his guests, Thanjan digs deep and provides a tangible blueprint for his listeners to put what he’s learning to immediate use – making the show not only funny but entertaining, energetic, and hyper-useful. The podcast is on iTunes, Google Play, Spotify, Stitcher Radio, Podbean, and Overcast. Below is the iTunes link to the podcast:

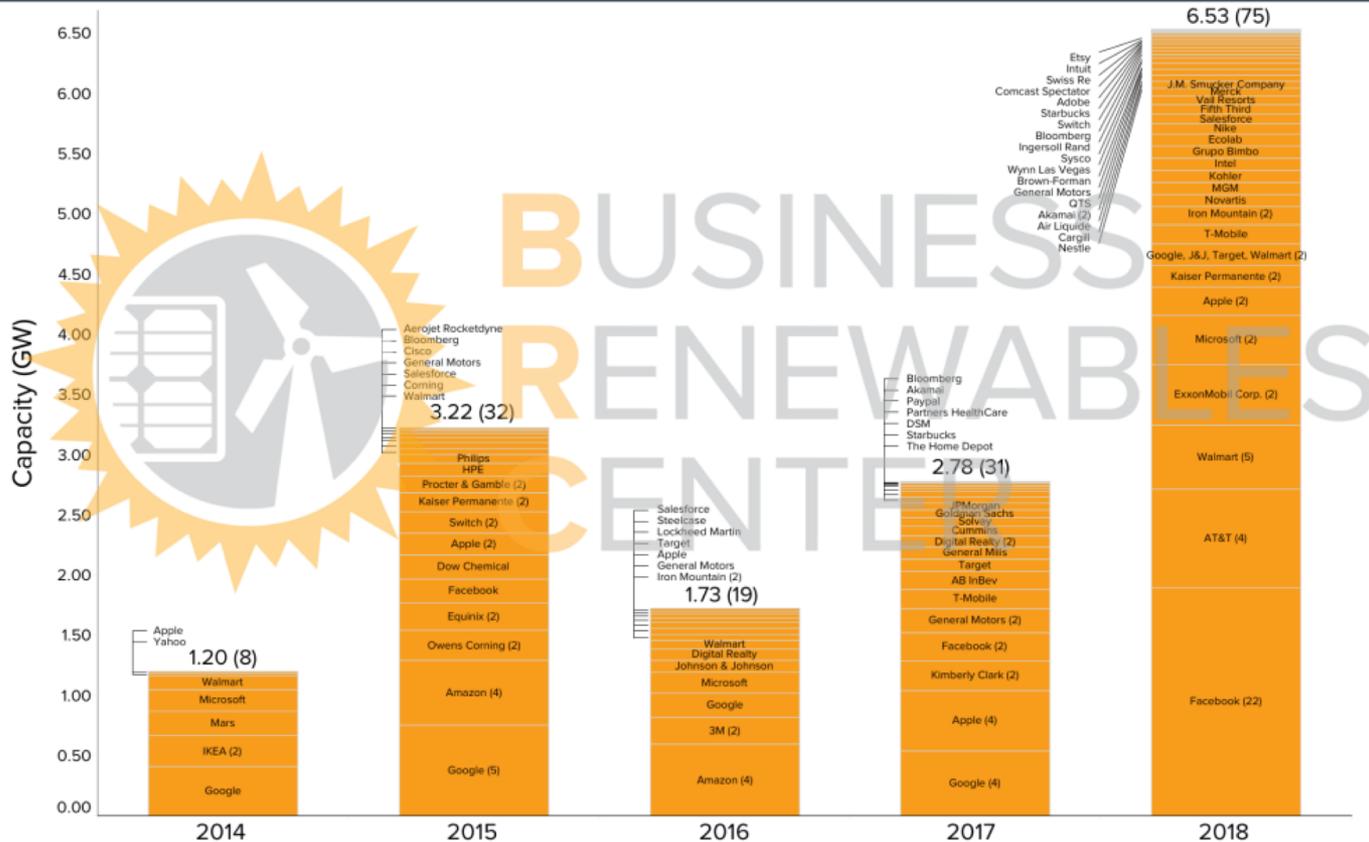
<https://itunes.apple.com/us/podcast/solar-maverick-podcast/id1441876259?mt=2>



CORPORATE PPA DEALS 2013-2018



Corporate Renewable Deals 2014 – 2018



As of December 31, 2018. Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US, 2014 – 2018. Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. (#) indicates number of deals each year by individual companies. Copyright 2018 by Rocky Mountain Institute.

OFF-SITE PPAs

- Offsite corporate power purchase agreements (PPAs) allow companies to buy renewable energy under long-term (10-20 year), fixed-price contracts with energy providers.
- *Like onsite PPAs*, offsite PPAs allow companies to hedge and lower their electricity costs while pursuing sustainability goals.
- *Unlike with onsite PPAs*, offsite PPAs do not require the company to physically take delivery of the electricity generated from the provider by owning, leasing or entering into a PPA contract.

Companies that want to lower their energy costs by purchasing renewable energy, but who have limited or no options for on-site generation, or whose on-site solar generation capacity does not cover their total energy load profile, should consider offsite PPAs.

CONTRACT FOR DIFFERENCES

- A Contract for Difference (CfD) is the most common structure for off-site corporate PPAs.
- Under CfD, renewable energy is purchased at the wholesale price and resold to the regional electricity grid for the buyer's benefit.
- There is no physical delivery of power to the buyer.
- This financial contract contains the additional benefit of the transfer of RECs to the buyer for the purchase of renewable energy.
- If the market price rises above the strike price then the project pays the difference to the off-taker. Inversely, the off-taker compensates the project if market electricity prices fall below the strike price.

RISKS

- The primary risk that the corporate buyer takes on in an off-site PPA deal is **basis risk**.
 - In this case of off-site PPA projects, this is the risk that the electricity price at the “hub”—where electricity is traded on the spot market—will be less than the electricity price at the actual location, or “node,” where the electricity enters the grid.
 - This is a major consideration in any of the Independent System Operator (ISO) markets
- The corporate buyer also takes on long-term **power price risk**, since by entering into a contract with a fixed price, there is the chance that prices will decrease for a longer period of time than anticipated.



CORPORATE PPAs FROM DIFFERENT INDUSTRIES

- **Retail**

- Walmart has more than 480 on-site and off-site projects in operation or under development in 7 countries and 16 US states, supplying 2,300 MW

- **Technology**

- Prime candidate for offsite PPAs due to high energy usage in data centers and 100% renewable energy goals
- Amazon partnered with Dominion Energy to expand its renewable energy generation through PPAs with solar projects in Virginia totaling 260 MW

- **Education**

- 61 universities have entered into PPAs
- More than 100MW of solar power of universities have been developed utilizing on-site and off-site PPA agreements

- **Healthcare**

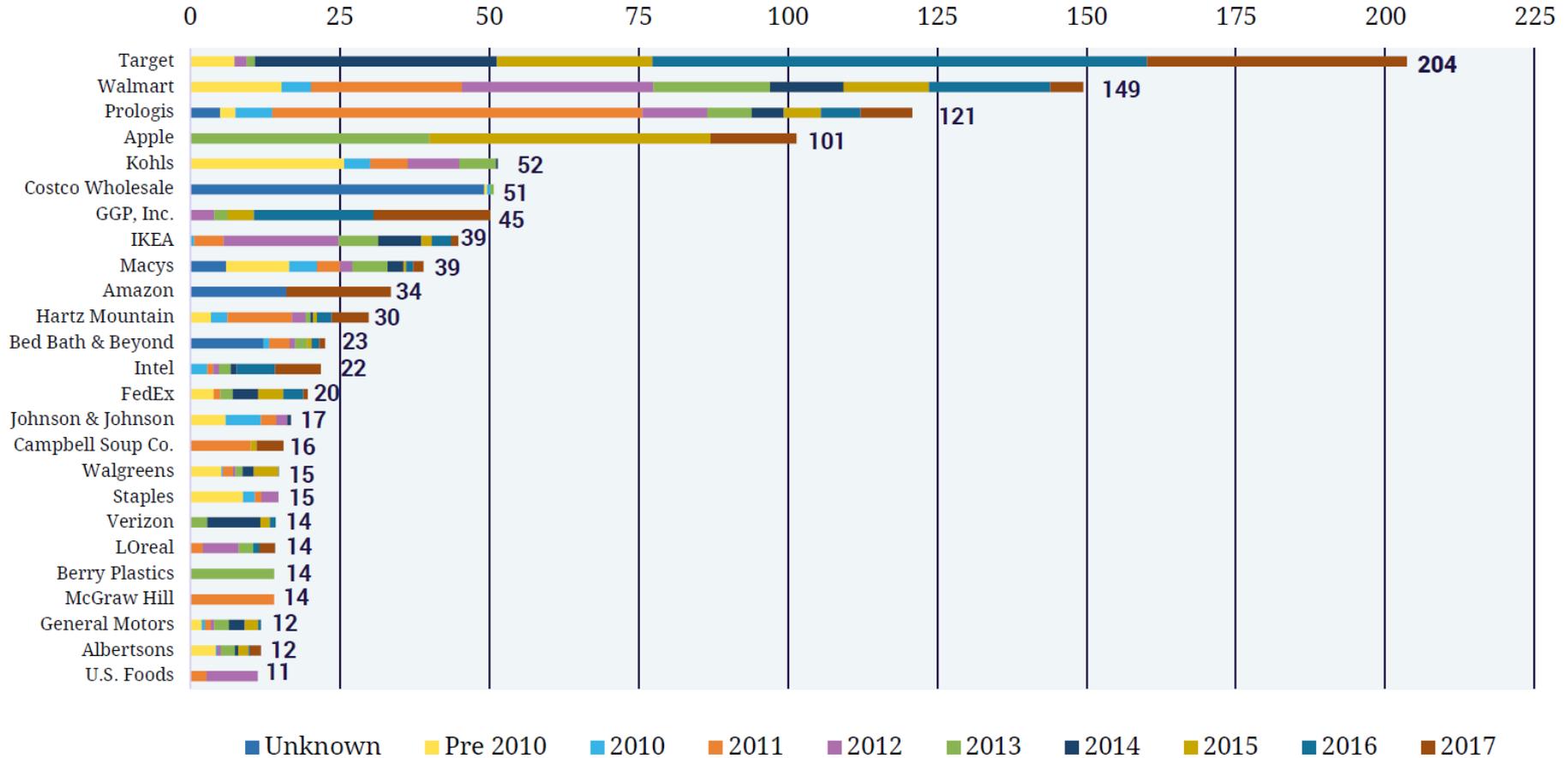
- Kaiser Permanente added on-site solar to 85 hospitals in California totaling 70 MW
- Kaiser Permanente has two off-site PPAs totaling 143 MW of solar power

DOMINION ENERGY IS THE LEADING DEVELOPER OF SOLAR PROJECTS IN VIRGINIA

Project Name	System Size(MW)	In-Service Date	Location	Project Details
Cherrydale	20	Nov. 2017	Kendall Grove	PPA with Old Dominion Electric Cooperative
Clarke County	10	Operational	White Post	PPA with Old Dominion Electric Cooperative
Colonial Test West	142	Dec. 2019	Surry County	Project to Offset Electricity Demand from FB Datacenter in Henrico County. FB buys environmental commodities.
Spring Grove 1	98	Oct 2020	Surry County	Project to Offset Electricity Demand from FB Datacenter in Henrico County. FB buys environmental commodities.
Oceana	18	Dec. 2017	Virginia Beach	PPA with Commonwealth of Virginia
Remington	20	Oct. 2017	Faquier County	Commonwealth purchase all the solar energy output and Microsoft buys the environmental commodities.
Scott	17	Dec. 2016	Powhatan County	
Whitehouse	20	Dec. 2016	Louisa County	
Woodland	19	Dec. 2016	Isle of Wright County	
Amazon Solar Farm Virginia-Accomack	80	Oct. 2016	Eastern Shore	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
Amazon Solar Farm Virginia-Buckingham	20	Dec. 2017	Buckingham	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
Amazon Solar Farm Virginia-New Kent	20	Dec. 2017	New Kent	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
Amazon Solar Farm Virginia-Scott	20	Dec. 2017	Scott	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
Amazon Solar Farm Virginia-Sappony	20	Dec. 2017	Sappony	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
Amazon Solar Farm Virginia-Southampton	100	Dec. 2017	Southampton	The facility supplies both current and future Amazon data centers in Ohio and Northern Virginia.
UVA Holyfield	17	Sept. 2018	King William County	University of Virginia and The Darden School purchase the electricity from the facility under 25 year PPA.
UVA Puller	15	Oct. 2018	King William County	University of Virginia purchases the electricity from the facility under 25 year PPA.
Total	656			

TOP 25 CORPORATE SOLAR USERS

Installed Capacity (MW)



SEIA Solar Means Business (April 2018)

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SOURCES

1. Reneu Energy wrote an article for PV Magazine on off-site corporate PPAs:
https://static1.squarespace.com/static/553e8897e4b0836f4e9a5ccd/t/59bd51a4e5dd5b51a03c20ab/1505579432776/09050_Corporate_PPAs.pdf
2. Reneu Energy wrote an article for Renewable Energy World on Off-Site PPAs helping corporations with achieving affordable clean energy and meeting their sustainability goals:
<https://www.renewableenergyworld.com/ugc/articles/2017/11/27/achieving-affordable-clean-energy-goals-through-offsite-corporate-ppas.html>
3. SEIA Solar Means Business (April 2018)

SOURCES

4. Business Renewables Center (BRC) Corporate Renewable Deals from 2013 to 2018 YTD