

Salesforce's Clean Energy Strategy

The what and how of reaching 100% Renewable Energy and beyond

The planet needs bold action now. At Salesforce, we are committed to doing our part to step up to the challenge of climate change and to ensure a just transition to a low carbon economy. This will require, among other things, rapid decarbonization of the world's electricity supply¹.

Salesforce is a cloud pioneer. The cloud runs on electricity, which today comes predominantly from burning fossil fuels -- a major source of global greenhouse gas emissions. Since making our first public commitment to 100% Renewable Energy in 2013, Salesforce has been working toward a clean energy future.

“Climate change is the biggest, most important and most complex challenge humans have ever faced.”

PATRICK FLYNN, VICE PRESIDENT
SUSTAINABILITY, SALESFORCE

We can't do it alone. Completely decarbonizing electricity systems will take time and trillions of investment dollars. It will require collaboration, as well as regulatory changes and technological advances. Every individual, institution, government, community and corporation has an essential role to play.

Our long-term target is a 24/7 clean energy grid in the locations and communities in which we operate. We believe the world needs more dialogue around this clean energy future and we encourage all stakeholders to think about their sustainability goals within this context.

In pursuit of this future, Salesforce set two interim targets to address the climate impacts of our own electricity use. We reached our first target in 2017, [Net-Zero Greenhouse Gas Emissions](#), by procuring carbon offsets for the emissions associated with our electricity use that we couldn't avoid, reduce, or offset with renewable energy purchases. Last fiscal year, we also made it halfway to our second target of 100% Renewable Energy.

Reaching 100% Renewable Energy means purchasing renewable energy equivalent to what we use to power our global operations on an annual basis. Achieving this the impactful way means thinking about deliberate, lasting, long-term grid transformation. That's why Salesforce focuses on purchasing renewable energy in ways that add new renewable energy to grid, avoid and reduce the greatest possible emissions, and blaze a trail for others to follow.

¹ Climate Change 2014: Mitigation of Climate Change. 2014. https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter7.pdf

This white paper will explore the interim goal of what 100% Renewable Energy means to Salesforce and how we evaluate renewable energy opportunities in the marketplace. In it we share high-level background on different ways for businesses to buy renewable energy and provide context for why we favor certain approaches over others. We believe it's important to transparently share our priorities, how they have defined our renewable energy procurement strategy and allowed it to evolve amid the changing landscape of renewable energy options. It's just one view and each company is on its own journey. We hope that by sharing what we've learned on our journey thus far, we will inspire others to join us, collaborate with us, and push us forward.

Key Learnings

Advocacy & Collaboration are Essential

We feel the single most important action is informing suppliers, utilities, regulators, and policy makers that mitigating climate change is a priority. We have to work together to create policies that work for all stakeholders and drive the systemic changes needed.

Businesses Need More Direct Purchase Options

Today, cost effective and environmentally impactful forms of renewable energy procurement are inaccessible or too complex for most businesses (let alone individuals). Options for renewable energy procurement that are part of the standard purchase of power for a home or business, called retail programs, can be simple, cost effective, and impactful. However few of these exist today. The proliferation of these retail programs offered by utilities, electric service providers, and consumer choice aggregators are critical to scaling from the 50 active corporate renewable energy buyers today, to the millions of participants needed to reach clean energy goals.

What 100% Renewable Energy Means to Salesforce

Reaching 100% Renewable Energy means purchasing renewable energy equal to what Salesforce has used annually around the world. This is different than only using electricity from renewable energy sources like wind and solar to power our offices and data centers.

To understand why, it's important to first understand more about the world's electricity grids. These grids can be massive, spanning millions of square miles and crossing borders. Every electricity generator on these grids adds energy. Once added, energy from one source becomes indistinguishable from other energy sources on the system. That means that energy from a specific point of generation, like a wind farm, cannot be tracked or directed to a point of consumption, like a data center or office.

Think of electricity grids like your bank account. You deposit money in a bank or ATM and can withdraw it anywhere. While the dollar withdrawn won't be the exact dollar bill you originally deposited, it performs

the same function. This same principle applies to energy deposited and taken from the electricity grid; we only track the total amount added and withdrawn.

In many markets, for every unit of electricity generated by renewable energy resources, an environmental attribute certificate (EAC) is also created. In the US these are known as renewable energy credits (RECs). A REC represents the right to claim the renewable attributes of an amount of electricity. RECs can be bought and sold with the energy from the facility or sold separately, known as ‘unbundled’ RECs. The owner of the REC therefore is the only party that can claim to have ‘used’ its associated renewable attributes. Learn more about RECs [here](#).

Our Renewable Energy Formula

Like many other leading companies, at Salesforce, we calculate our progress toward 100% Renewable Energy by adding up all of the RECs we have obtained annually from the renewable energy projects we support, and the renewable energy delivered from the grid. Then, we divide that total by our global electricity use in the same year. Put another way, when we match every unit of electricity we use annually with a REC, we will reach our 100% Renewable Energy goal.

Salesforce’s Approach to Clean Energy Procurement

The Values that Shape our Purchasing Criteria

There are many ways to buy renewable energy and RECs. Some do more to aid the clean energy transition than others. To ensure Salesforce supports the best projects, we evaluate each project against a set of positive environmental attributes we’d like to see in each purchase, including:

<p>Material Impact Commonly referred to as “additionality”</p>	<p>The purpose of our 100% Renewable Energy program is to increase the proportion of renewable energy on the grid. Therefore, we only count <u>new</u> renewable energy generation that we’ve helped catalyze or that our suppliers have catalyzed on our behalf. Often this means providing enough financial certainty to a project’s developer or financier to guarantee the return on investment necessary to justify large upfront capital investment.</p>
---	--

Not all renewable energy credits are created equal

While it would be straightforward and inexpensive to purchase RECs from existing renewable energy facilities, it’s uncertain that a purchase from an existing facility will lead to new renewable energy generation. Salesforce’s approach focuses on the types of renewable energy procurement that catalyze new renewable energy generation. We always need a REC for accounting purposes, but not just any REC will do.

<p>Reducing Emissions</p>	<p>Salesforce prioritizes projects that lead to the greatest reduction in greenhouse gas emissions. This means focusing on catalyzing renewable energy projects on the dirtiest electricity grids.</p>
<p>Blazing a Trail</p>	<p>We know that our efforts alone won't be enough to mitigate climate change, which is why we focus on blazing a trail for others to follow (as many have done for us). We believe we can have the greatest impact by piloting ways to procure renewable energy that increase access and improve the market for everyone.</p>

Our Ideal Project
 If cost and risk were not inherent factors, our ideal renewable energy project to support would be one in a market with poor climate and energy policies and a high proportion of fossil fuel generation. This would ensure that we catalyze emissions reductions where they are needed most.

While Salesforce is focused on maximizing our positive environmental impact, we always consider the costs and risks of procuring renewable energy. We look for projects and procurement options that reflect the low cost of renewables, come with price certainty, and guarantee expected delivery timing and project performance. We're also committed to transparently reporting the what, how and why of each project.

Business as Usual

The standard way an individual or business purchases electricity is through an electric provider, often known as a utility or retail service provider. Salesforce is no different. We purchase electricity for our operations either directly or often indirectly through property owners. The composition of the energy we receive from the grid is dependent on what the utility or retail service provider has procured on behalf of their customers -- generally some percent of renewable energy and non-renewable energy. It is exactly this grid mix that we want to see eventually shift to fully clean and renewable.

Regular Purchase



At each of our offices and data centers, Salesforce directly (or indirectly through the property owner) purchases electricity for its operations.

This “business as usual” structure underpins our daily operations and can be found underlying most renewable energy purchasing options.

Renewable Energy Purchasing Options

There are multiple renewable energy purchasing options that can be layered on top of this business as usual purchasing model. Each renewable energy option can align differently with a company’s purchasing values. At Salesforce, we group the options into four broad categories, each of which rely on RECs as a tracking and accounting mechanism.

1. Unbundled Renewable Energy Credits
2. Direct Access and Power Purchase Agreements
3. Virtual Power Purchase Agreements
4. Renewable Energy Tariffs

Unbundled Renewable Energy Credits

RECs can be sold separately from the electricity they're associated with. This renewable energy product is called an unbundled REC. Unbundled RECs are a relatively inexpensive and easy way to begin making progress toward renewable energy goals. Many companies, including Salesforce, have started their clean energy journeys here. Most voluntary corporate renewable energy purchases are, in fact, unbundled RECs.² Utilities and other regulated entities also use unbundled RECs to meet state mandated renewable energy targets.

In states with strong renewable energy targets, demand for unbundled RECs is often high and consistent. Voluntary purchasing of RECs in these markets drives demand (and price) even higher, encouraging the development of new renewable energy. Unfortunately, the demand for unbundled RECs is low in most markets, especially those without state-mandated targets. In such markets, unbundled RECs are not a significant source of revenue for renewable energy projects, and therefore do little to drive additional renewable energy development.

For companies like Salesforce, focused on driving maximum environmental impact, unbundled RECs are not usually an attractive option. For others looking to take immediate action, unbundled RECs may seem appealing. However, we would encourage those companies looking for quick and relatively inexpensive ways to reduce their emission footprint to consider supporting sustainable development projects through the purchase of carbon credits instead of unbundled RECs. High-quality carbon credits are a viable way to take immediate action and drive a material reduction of global greenhouse gas emissions, and can have very high social impact as well.

² NREL: Status and Trends in the U.S. Voluntary Green Power Market, October 2017. <https://www.nrel.gov/docs/fy18osti/70174.pdf>

RECs vs Carbon Credits

Although fundamentally different commodities, RECs and carbon credits both represent environmental benefit and can be used to lower a company's emissions footprint.

The purchase of RECs, which represent the energy generated from a clean, renewable source, is a means of supporting renewable energy development. While purchasing RECs is intended to displace fossil fuel generation, there is no verification process guaranteeing that the renewable energy resource is beyond business as usual or a direct replacement of a fossil fuel resource.

Alternatively, carbon credits represent the act of reducing, avoiding or sequestering the equivalent of a ton of global greenhouse gas emission. Carbon credits go through a scientific review process and third-party certification to ensure each credit sold is associated with a real, verifiable, reduction in greenhouse gas emissions beyond the business as usual framework.

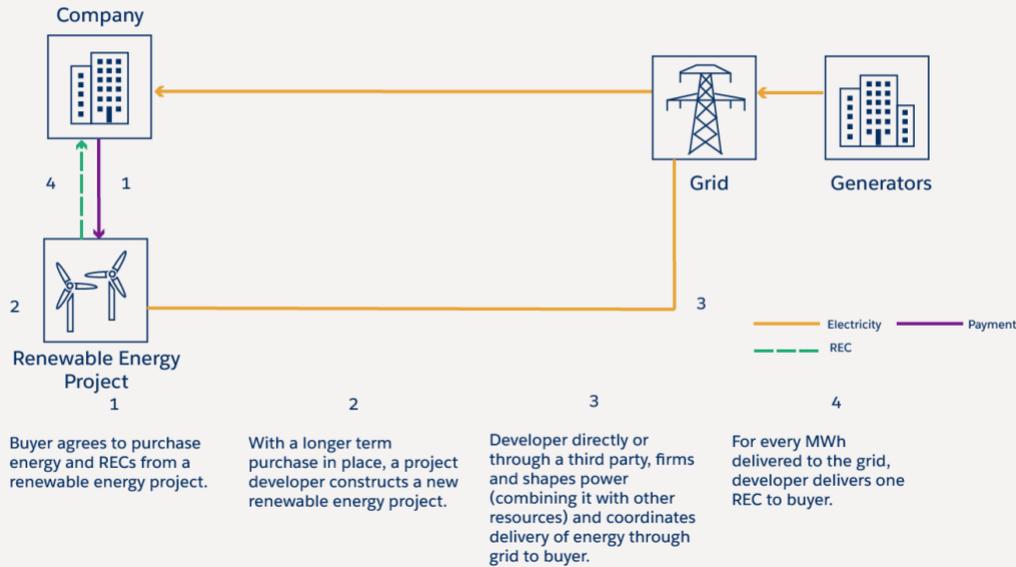
Learn more about the role of RECs and carbon credits [here](#). As with RECs, not all carbon credits are created equal. Learn more about [how Salesforce selected our projects](#) and assessed them for efficacy.

Direct Access and Power Purchase Agreements

In regions where both wholesale and retail power markets are deregulated, a buyer is able to directly access renewable energy by entering into a Power Purchase Agreement (PPA). In this scenario, the buyer pays to have the project's output delivered to their facilities. They also receive supplemental power when the renewable energy facility isn't producing (e.g. when the sun isn't shining or the wind isn't blowing).

A PPA is typically a contract for the sale of energy (and potentially RECs) from a project owner to a buyer. The PPA gives the buyer legal title to the energy (as well as any associated RECs) from a project. The buyer is then responsible for managing the physical energy – either selling the energy on the wholesale power market or paying for the transmission of the energy to its operations. By agreeing to pay for the output of a renewable energy project, the buyer provides the project developers with financial certainty, a critical input in obtaining the project financing needed to make the project a reality. By entering into a PPA with a project before it has been constructed, organizations can be certain that their purchases will lead to new renewable energy generation.

Power Purchase Agreement



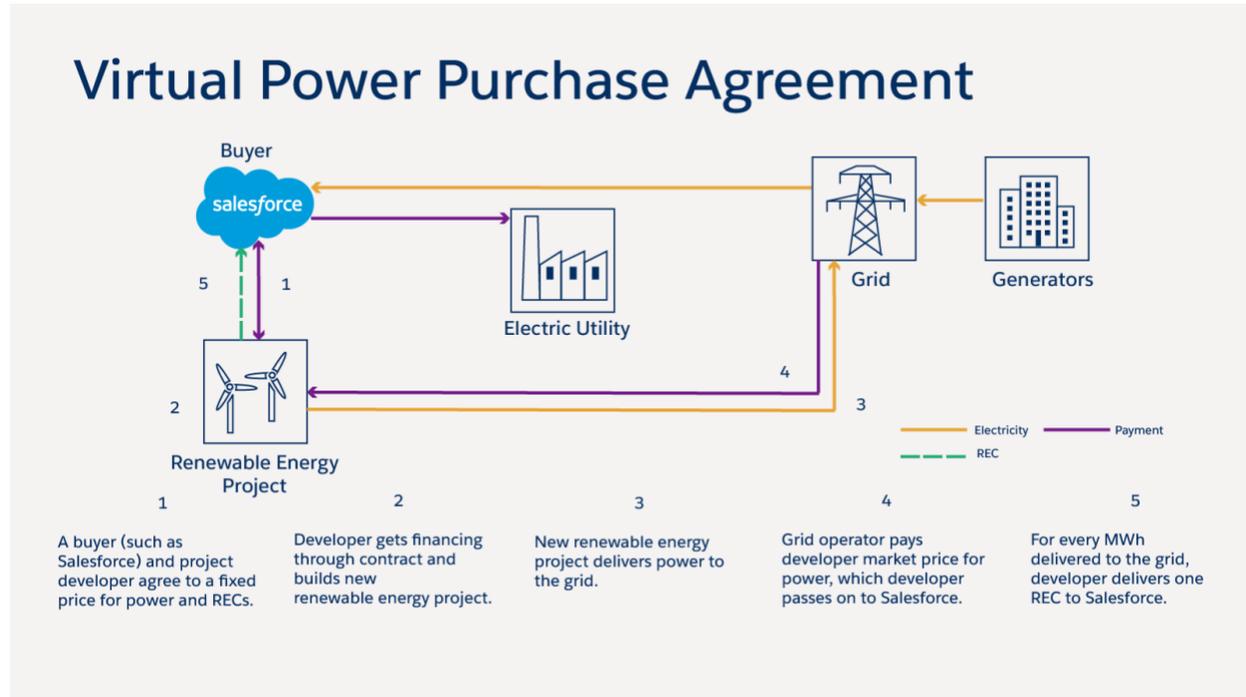
PPAs and direct access are often the lowest cost, most environmentally impactful ways of procuring renewable energy. Plus their ability to fix or hedge a customer’s electricity cost is appealing for companies looking for stable, consistent pricing. Together these attributes make PPAs an attractive way of purchasing renewable energy, especially for industrial or commercial users with very high energy consumption.

Despite Salesforce’s familiarity with and favorable feelings toward PPAs, our ability to execute them has been limited for two main reasons. First, our energy use is dispersed across numerous facilities, many of which are located in regulated markets where direct access isn’t possible. Second, we typically don’t own our offices or data centers – we’re often one tenant among many, and don’t control the retail electricity supply. This means we’d have to work through our lessors to enter into a PPA on our behalf, which would also impact other tenants. However because this provides opportunity to increase our positive environmental impact, Salesforce does dedicate significant time to working with lessors.

Virtual Power Purchase Agreements

Virtual Power Purchase Agreements (VPPAs), also known as “contracts for differences,” are a financial mechanism to support renewable energy projects. Similar to PPAs, VPPAs provide the same guaranteed returns for the project owner as a PPA does, without a buyer (such as Salesforce) taking legal title to the energy from the project. In a VPPA, just like in a PPA, the buyer also commits to pay for the electricity generated by the project. However with VPPAs, the project owner sells the electricity into a wholesale

electricity market and passes through any revenue from the sale to the buyer along with any of the project's RECs.



As a company with a portfolio of data centers and offices that are dispersed across the world and largely in leased spaces, Salesforce faces a number of purchasing challenges that can be mitigated by using a VPPA rather than a PPA. First, lessors tend to control the retail purchase of electricity in facilities for all their tenants, so any PPA would need to be coordinated by the lessor and would likely affect all of the facility's tenants. Additionally, a project developer typically requires a ten to fifteen year contract term on a PPA or VPPA. Our leases are often much shorter, which would leave the lessor exposed to the outer contract years of a PPA at their site, even if we could get it coordinated and executed. Since a VPPA doesn't have to be tied to a specific facility's energy use or lease, they can be executed independent of electricity service providers, lessors or lease terms and the RECs can be used for any facility in a portfolio. The versatility of VPPAs is critical for Salesforce to achieve 100% Renewable Energy.

Salesforce works to locate offices and data centers on cleaner grids, with strong government policies to further reduce greenhouse gas emissions. That means a renewable energy project close to our operations may lead to less overall emissions reductions than a project further away, in a more fossil fuel heavy region of the world. Since a VPPA doesn't have to be tied to the physical supply of electricity from a business's operations, buyers aren't bound by geography in the projects they select. This means buyers like Salesforce are free to select the highest impact projects, located in regions with the dirtiest grids, worst climate policies, and the best financial value.

While VPPAs exhibit most of the positive environmental attributes Salesforce looks for in renewable energy purchases, there are drawbacks. Because we’re not purchasing renewable energy through our utility retail electricity provider, regular “brown” power (energy that comes from conventional fossil fuels) is still being purchased for our operations. This can send a mixed signal to the market about our desire to use renewable energy. VPPAs can also have financial shortcomings. When buyers provide a fixed price to the project developer in exchange for the revenue that the project receives from the wholesale market, the buyer must accept the possible market fluctuation of power prices, which can be very volatile.

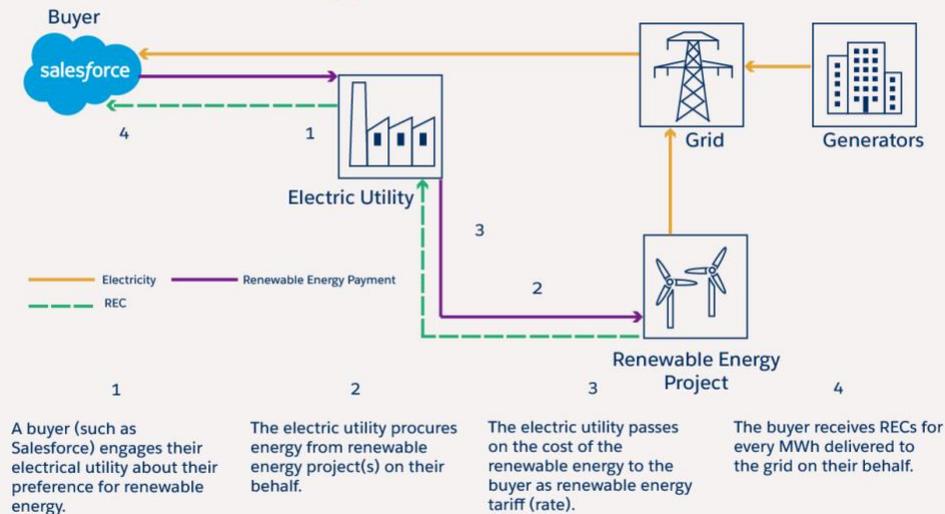
For these reasons, we prefer sourcing renewable energy as part of our standard electricity purchase, such as renewable energy tariffs, at our offices and data centers.

Renewable Energy Tariffs

Renewable energy tariffs, often called “green tariffs,” are voluntary programs that allow buyers to purchase renewable energy through their utility or retail electricity provider. Participation in these voluntary renewable energy tariffs sends a clear and consistent signal to the electricity provider about a customer’s preference for renewable energy. There are many variations of renewable energy tariffs, but they can be roughly divided into two types: sleeved programs and subscription-based programs.

<p><i>Sleeved Programs</i></p>	<p>Allow a customer to work directly with their utility or retail electricity provider to contract with a specific off site renewable energy project. Sleeved programs can offer the benefit of a low, long-term fixed price for power. However, they often require a long-term (ten to twenty year) commitment. This can be prohibitive for many buyers, especially those who have shorter leases. They also typically require customers to purchase a large amount of energy making them generally only available to large commercial or industrial customers.</p>
<p><i>Subscription Programs</i></p>	<p>Allow multiple buyers to purchase renewable energy through their utility or retail electricity provider from one or more renewable energy facilities. These programs often have the most flexible requirements for contract length and size. This makes them one of the most appealing options for buying renewable energy for both businesses and residents.</p>

Renewable Energy Tariff



Utilities and retail electricity providers are well positioned to offer renewable energy solutions to companies looking to speed the transition to clean energy. Unfortunately, few of these renewable energy tariffs exist today. With new options coming online every year, Salesforce is actively engaging with utilities and retail electricity partners to identify available renewable energy solutions.

Salesforce looks for renewable energy tariffs with these characteristics:

New generation: Participation directly leads to an increased proportion of energy generation from renewable energy sources.

Replicable: Open to other customers, ideally of many sizes and types.

No negative impacts on non-participating customers: Customers not participating in the renewable energy program are not negatively impacted by it.

Fair and transparent pricing: Renewable energy is procured through a competitive and transparent selection process and pricing reflects the actual cost of renewable energy and reasonable program administration costs.

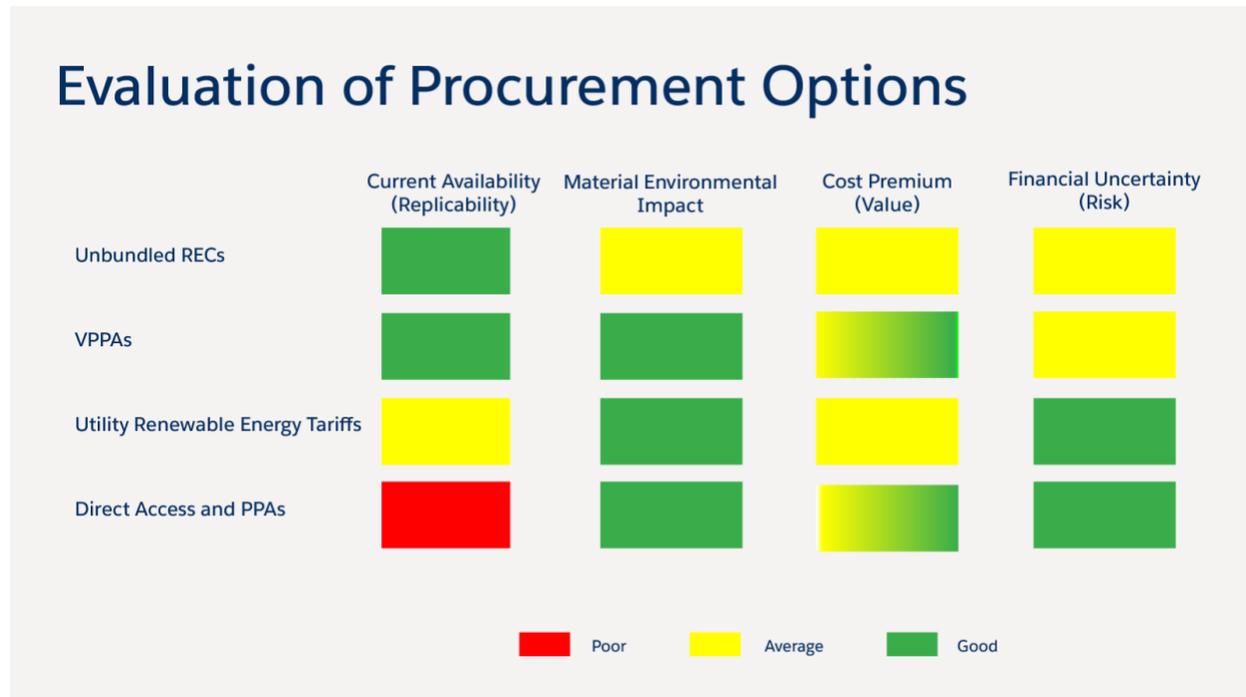
Customer claimed: Purchasers of renewable energy have the sole claim to its environmental attributes.

Bundled: Energy and all associated environmental attributes are provided as a bundled service.

Local: The project is located within the same market or ideally within the utilities service territory.

Overview of Purchasing Options

Over the years, Salesforce has explored each of these methods. We have identified where these options are available and how they align with our key values. We've synthesized our findings on each method in the table below.



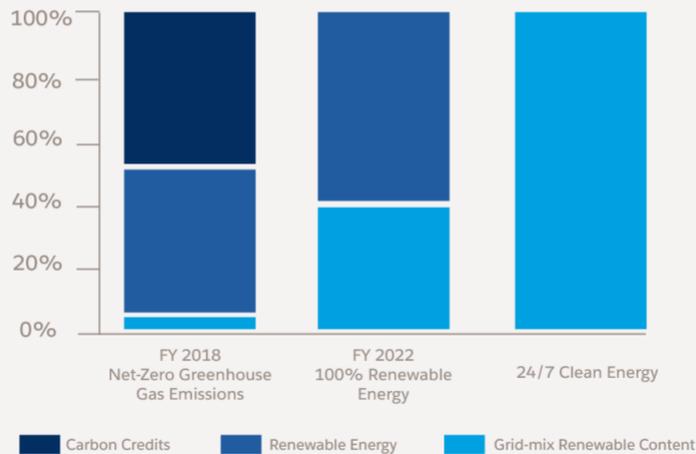
Often, our preferred options are unavailable. But the world cannot afford to wait. That's why Salesforce has elected to pursue a balanced approach. Embracing imperfect options available today, and working to create better options along the way for everyone to benefit from.

Progress Toward 100% Renewable Energy

Salesforce Has Reached 50% Renewable Energy

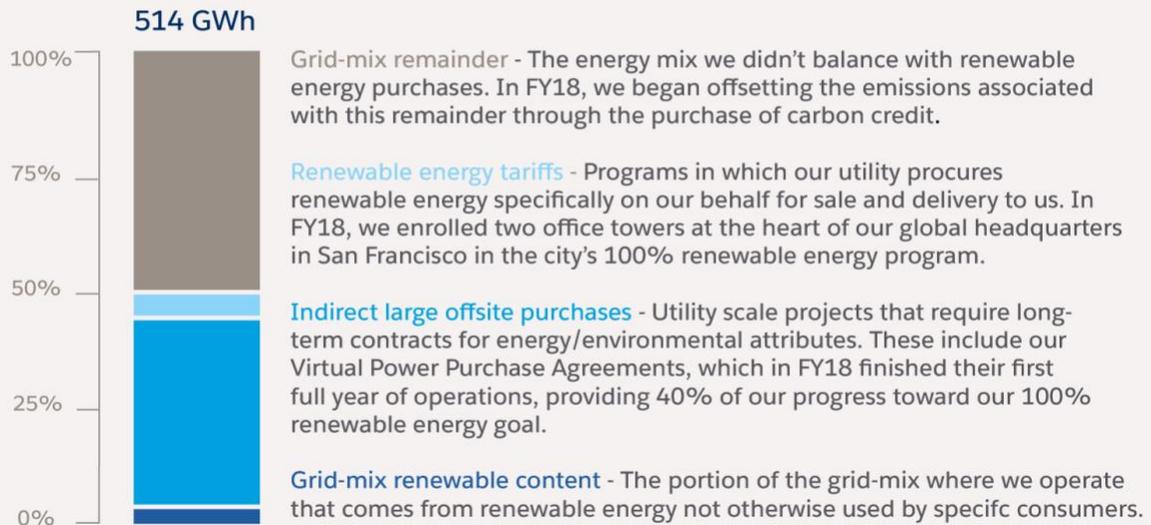
We want a future in which clean and renewable energy is powering our data centers and offices around the clock. A 24/7 clean energy grid where we operate. In this journey, Salesforce's clean energy strategy is broken out into two interim targets: reaching Net-Zero Greenhouse Gas Emissions and achieving 100% Renewable Energy. We reached our first target in 2017 by procuring carbon offsets for the emissions that couldn't be avoided, reduced, or offset with [renewable energy purchases](#). We are committed to reaching our second target of 100% Renewable Energy by 2022.

Progress Toward a Completely Decarbonized Electricity System



As of our fiscal year 2018, Salesforce is 50% of the way toward matching our annual electricity use globally with renewable energy. This progress is largely due to two VPPAs that were signed in 2015 and helped catalyze the construction of 64 MWs of new wind power in [West Virginia](#) and [Texas](#), some of the most fossil fuel-heavy regions of the United States. The projects began operating in 2017, and represented about 40% of our progress to our 100% Renewable Energy goal in fiscal year 2018.

Salesforce's Fiscal Year 2018 Energy Mix



In June 2018, Salesforce executed a new VPPA for 80 MWs of wind power in Illinois, twice the size of either of our previous two agreements. The project, which is scheduled to be completed by the end of 2019, is expected to generate enough clean electricity to power more than 27,000 Illinois homes annually. This is a critical step toward our goal of sourcing 100% Renewable Energy for our operations by 2022.

Join the Clean Energy Movement

We know that businesses can be powerful platforms for change, and we are committed to doing our part. To amplify our voice, we focus on three key engagement strategies and invite you to do the same:

<p><i>Using our voice</i></p>	<p>Governments have to play a leading role in decarbonizing the world's electric grids. Renewable portfolio standards and cap and trade schemes have proven to be effective tools at catalyzing large amounts of clean energy. Their proliferation, along with other policies that properly value the benefits of clean energy, such as a revenue neutral carbon tax, are paramount. We believe in using our corporate voice to advocate for these policies and legislations promoting renewable energy and mitigating greenhouse gas emissions. Learn more about how we have engaged in California and Virginia, encouraging more renewables on the grid.</p>
-------------------------------	--

<p><i>Working together</i></p>	<p>We know we're stronger when we work together. That's why Salesforce participates in environmental coalitions and working groups such as We Are Still In, the Renewable Energy Buyers Alliance, We Mean Business, RE100, Ceres BICEP Network, Future of Internet Power and the Advanced Energy Buyers Group. These organizations allow us to join forces with like-minded organizations to share best practices and scale our impact.</p>
<p><i>Collaborating</i></p>	<p>Engaging with our suppliers, utilities, and electric service providers on renewable energy is essential. Their position within the market, as aggregators of demand and deep experts in energy procurement, leave them uniquely qualified to improve access to renewable energy. That's why Salesforce was proud to support San Francisco's transition to a low-carbon economy. Partnering with these entities allows us to amplify our impact, improving options for our own renewable energy portfolio as well as blazing a trail for others to follow.</p>

Climate change impacts everyone--every individual, company, city and nation. And its effects are compounded in the world's poorest regions, amplifying global inequality. Each of us has a role to play and it requires that we look beyond the four walls of our company. At Salesforce, we know business is a powerful platform for change and we're stepping up to the challenge of climate change. The world can't afford to wait. We hope you'll join us.

Acknowledgement

Special thanks to Salesforce's renewable energy program lead, Max Scher, who crafted our company's energy and carbon strategy.

Special acknowledgement to the entire Salesforce sustainability team for their contributions to this important work.

Max Scher
Megan Lorenzen
Patrick Flynn
Sunya Ojure
Shengyuan Su
Amanda von Almen
Julie Moorad
Erin Linney
Sammy Spiegel