THIRD PARTY OWNERSHIP OF PV SYSTEMS IN WASHINGTON STATE

Evergreen State Solar Partnership

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PURPOSE

Rooftop solar installations in Washington are growing at a rate of over 30% annually, providing an ever increasing number of jobs, and a small but growing share of diversified clean energy. As residents and businesses increasingly choose to install solar electric systems, jurisdictions and utilities are searching for new systems to efficiently meet increased customer demand for permits and interconnection. Responding to this challenge, a team of four jurisdictions, utilities, and industry partners, has come together to develop standardized solutions to make the process of going solar simpler, faster, and more cost effective for customers and the jurisdictions and utilities that serve them. The Evergreen State Solar Partnership (ESSP) is one of 22 teams working under the U.S. Department of Energy's Rooftop Solar Challenge program, a nationwide effort to reduce the soft costs associated with installing rooftop solar electricity. The objectives of the ESSP project are to:

- Lower the cost of rooftop solar electric systems by streamlining and standardizing the permitting processes and interconnection standards throughout Washington State.
- Improve market conditions by creating business certainty for solar PV deployment across multiple jurisdictions.
- Facilitate the adoption of solar financing options to make solar energy affordable for all residents.

INTRODUCTION

Homeowners and businesses across Washington State are increasingly turning to solar energy for a variety of reasons - to achieve energy independence, diversify their sources of electricity, reduce climate impacts, or invest in local production. As of the end of 2012, Washington hosts approximately 3,000 PV installations comprising over 18 MW of distributed solar PV generation.[i] The market continues to grow, with the number of solar installations rising 34% in 2012. The State legislature, acknowledging the value of distributed generation, passed the net metering law (RCW 80.60) and the renewable energy system cost recovery incentive (the "Production Incentive" RCW 82.16.110), both of which have been critical for the growth of distributed PV installations. However, we are not coming close to realizing the potential of solar in Washington. The National Renewable Energy Laboratory notes that Washington has 13 gigawatts of rooftop PV technical potential. [ii] While this is not economically feasible, it illustrates that solar in Washington is not limited by resource availability, but rather by other factors, such as awareness and economics.

In 2011, the Washington State House TEC committee asked the Utilities and Transportation Commission (UTC) to conduct a study of distributed generation to offer recommendations on available options to encourage the development of cost effective distributed generation in areas served by investor owned utilities.[iii] The Federal Government has also spurred efforts to make solar PV more cost effective, through the Rooftop Solar challenge, aiming to make solar power cost competitive with grid power by the end of the decade. At this juncture, consumers, State lawmakers and regulators, and Federal initiatives are searching for solutions to make solar more affordable, accessible, and cost effective.

One of the tools for making solar more affordable and accessible is the third party ownership model. Currently, 22 states allow third parties to sign power purchase agreements (PPAs) with host customers, as shown in Figure 1.[iv] In Washington, the issue of third party ownership has been under discussion for several years, but there has been no clear resolution of how best to move forward.[v] While third party ownership is implicitly allowed in the net metering law definition of a customer generator, it is not clear whether a sale of electricity by the third party owner to the host could trigger regulation as a public service company, and interconnection customers may not claim the renewable energy production incentive unless they own the system. For these reasons, there is virtually no third-party ownership in Washington, other than Community Solar systems.

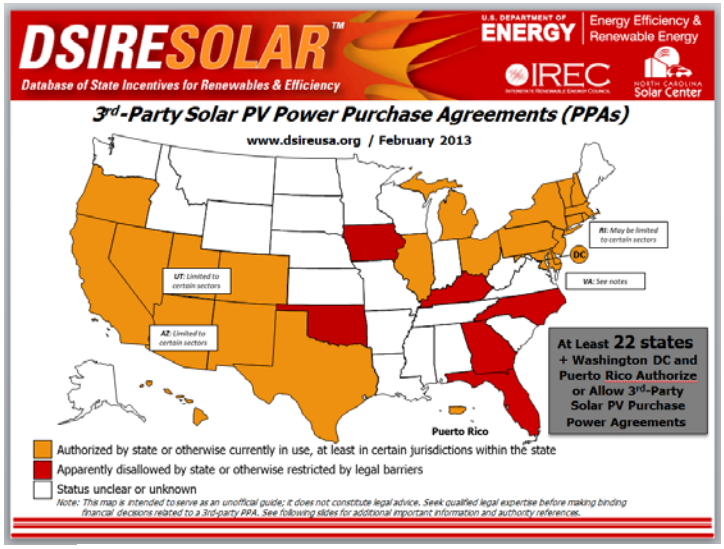


Figure 1. States that allow third party ownership models

This report provides an introduction to the concept of third-party ownership, summarizes lessons learned from states that have an active third-party market, and discusses the status of third-party policy in Washington State. The focus is primarily, but not exclusively, on third-party ownership of residential systems, because residential systems make up the bulk of Washington's installation market, accounting for 92% of installations and 87% of capacity installed in 2012.[vi]

THIRD PARTY OWNERSHIP: DEFINITION

A "third-party" owner of a solar PV system is an entity (other than the utility customer) that owns the solar generating equipment located on the customer side of a utility meter. It is usually a private company that has a tax liability and thus can take advantage of solar tax incentives. The third party typically handles financing, installation and maintenance of the solar PV system on the customer's roof. They may partner with installation companies or use their own in-house installers. The host of the solar system enters into a long-term contract with the third-party system owner that allows the host to use the solar electricity produced in exchange for a monthly payment. In addition, the host of a third-party owned system typically enters a net metering agreement with their electric utility, just as they would if they owned their own system.

THIRD PARTY OWNERSHIP: CONTEXT

Although the cost of solar PV has come down dramatically in recent years, the upfront cash outlay remains a barrier for many people. Some lending institutions offer "green loans" or credit-enhanced loan products that result in lower interest rates or expanded access to credit (i.e., for those with a low credit score, or not enough equity in their home). However, there remain some potential solar PV customers for whom making an upfront payment or taking on additional debt is not a feasible option. In addition, there are entities (e.g., governments, municipalities, schools, non-profit organizations) who cannot take advantage of the tax incentives that make traditional

solar financing economically viable. For those situations, third party ownership may offer a path to participate in solar energy.

Third-party ownership has quickly gained traction in the residential market since the first residential solar lease was introduced, just over five years ago. By 2012, over half of all new residential installations in the major residential markets across the country were third-party owned.[vii]

Net Metering

Net metering is an important policy which encourages distributed generation by allowing utility customers to pay only for the ***net*** amount of electricity consumed from the grid. Any behind-the-meter solar production offsets the customer's consumption at their utility's retail rate. Currently, 43 states have adopted a net metering policy. Under Washington law, all utilities are required to offer net metering for grid-connected systems up to 100 kilowatts in size. Net-metered systems that produce more electricity than needed during a given month are credited for the excess production on the next month's utility bill. Credits carry forward for up to a year, ending annually on April 30 when they are zeroed out. Washington's net metering law (RCW 80.60.010) defines a customer generator as a "user" (not an "owner") of a net metering system thus allowing the host of a third-party-owned system to participate in net metering. In some states, the expansion of third party ownership, and thus the number of net-metered customers, has triggered a re-examination of the costs and benefits of distributed generation in general, and how those costs and benefits are shared under net metering.[viii] In Washington, utilities must make net-metering available on a first come, first served basis, but only up to a relatively low capacity limit (0.25% of 1996 peak load, slated to rise to 0.5% in 2014.) Potential costs may become significant only with higher penetration rates of distributed generation.[ix] Nevertheless, it is important to consider third party ownership in the context of the growth in net metering.

CUSTOMER PAYMENT STRUCTURES

There are two common payment structures used for third-party owned residential systems: solar lease and power purchase agreement. Both models require that the homeowner meet certain credit requirements (usually a FICO score of 680 or higher). Which model is offered in a particular location depends partly on the regulatory environment, but the solar lease appears to be more common than the PPA, especially in the residential market.

- **Solar Lease – fixed monthly payments.** Under this model, the homeowner hosts the system on their property and pays a fixed monthly fee for the equipment over the life of the contract, usually 15 to 20 years, regardless of how much electricity the system produces. The homeowner is typically guaranteed a minimum amount of production from the PV system, but the fee is not directly related to the amount of electricity the system produces. The lease payment fee is either fixed or escalates annually over the life of the contract. Typically, the contract includes maintenance services.
- **Power Purchase Agreement (PPA) – price per kilowatt-hour.** Under this model, the homeowner hosts the system on their property and purchases all of the energy produced. If the system does not produce any electricity, no payment is made. The third-party system owner assumes all risk of operation and is responsible for maintenance. The rate

is typically competitive with the local electric utility rate and may be fixed or escalate over time. In some cases, the homeowner may have the option to make a down payment in exchange for a lower price per kilowatt-hour, or enter into a "Pre-paid PPA" in which an up-front payment covers the anticipated production over the life of the contract.

For the customer, the primary benefits of third-party ownership include no or low up-front costs, a turnkey solar solution, a source of electricity that has a fixed rate or known escalation rate over the life of the contract, and in some cases the ability to take over ownership of the solar system at the end of the contract. The primary challenges for the customer include the need for strong credit scores and willingness to sign a long-term contract. If a homeowner decides to sell the property, the contract may be transferred to the new homeowner if credit requirements are met. Alternatively, the homeowner can buy out the contract.

FINANCIAL INCENTIVES AVAILABLE FOR SOLAR

Both leases and PPAs take advantage of available financial incentives for solar energy in order to make the arrangement financially attractive to the system host and the third-party system owner. Typically, the third-party claims the majority of incentives and passes along some of those benefits to the host in the form of lower rates or monthly fees in order to make payments cost-competitive with local retail electric rates. A summary of financial incentives that are available across the country is provided below, followed by a discussion of how third-party companies structure their product to monetize these incentives.

Federal Solar Incentives

Federal Tax Credit

A residential taxpayer may claim a one-time tax credit of 30% of qualified expenditures for purchasing a solar PV system that serves a residence that is owned and used by the taxpayer. If a third party owns the system, the resident is not eligible for this tax credit. However, a 30% tax credit is also available for businesses that invest in a renewable energy project under the Business Energy Investment Tax Credit (ITC). Expenditures include labor and assembly costs in addition to the equipment. Systems must be placed in service before December 31, 2016. Capturing the ITC is a critical component of the third party ownership financial model. It is unclear whether third party ownership will continue to grow after 2016, when the ITC drops to 10%.

Modified Accelerated Cost-Recovery System (MACRS) Bonus Depreciation

Commercial, industrial, and agricultural businesses can recover investments in solar PV equipment through depreciation deductions over a property life of five years. The tax benefit of this depreciation to the company is equivalent to about 26% of the project cost.[x] Third party owners can tap this benefit, whereas residential owners cannot.

State Solar Incentives

State solar incentives vary from state to state but may include:

Renewable Energy Credits and Rebates

Currently, 29 states including Washington have renewable portfolio standards (RPS) that require utilities to acquire a portion of their electricity from renewable resources. Utilities can acquire renewable generation by purchasing and operating a system themselves, by providing a financial incentive for their ratepayers to purchase and operate a system, or by purchasing renewable energy credits (RECs) from a renewable energy producer. In states where the RPS contains a specific "solar carve out" there is a market for solar RECs. In Washington, there is no solar "carve out" and thus no market for the solar RECs on a residential scale. However, some utilities in Washington offer solar rebates which, as distributed generation, allow them to claim double credit toward their RPS goals.

Solar Production Incentives

Unique among states, Washington offers a production incentive (RCW 82.16.110 and WAC 458-20-273). Funded by state taxpayers and administered by the Washington Department of Revenue and the local utilities, the renewable energy cost recovery incentive (the "production incentive") allows utilities to take a tax credit for production incentives paid to customer generators. PV system owners may apply to their utility for a payment of $0.15 to $0.54 per kilowatt-hour of solar energy produced, up to $5,000 per person per year. The incentive rate depends on the type of technology used, with Washington-made equipment receiving a higher rate. As of the date of this report, certified renewable energy systems may earn incentives until June 30, 2020.

State Tax Credits

Currently, 24 states offer personal and/or corporate tax credits for renewables. Washington does not offer state tax credits.

INCENTIVES INTERACTION WITH THIRD PARTY OWNERSHIP

Currently in Washington, if a homeowner purchases and owns a solar system, they typically claim the federal tax credit and take advantage of the state production incentive and/or utility rebates; they cannot claim depreciation. The system is typically net-metered. If a third party owns the system, the third party can claim the federal investment tax credit and accelerated depreciation. The homeowner typically signs the interconnection and net metering agreements with the utility, just as if they owned the system. However, neither the third party nor the homeowner who leases a system can claim the state production incentive.[xi] Except for Community Solar, the applicant for the incentive must be both the owner of the system and the customer generator.[xii] This lack of incentive, combined with the legal uncertainty around regulation, has the effect of discouraging third party ownership in Washington. In contrast, in Oregon, although third party owners are not eligible for state income tax credits, the homeowner who leases a system may claim a state income tax credit, thus realizing the value of the state tax credit under the third party ownership model.

Figure 2 shows that third party ownership captures the value of depreciation and is the only way for a non-taxpaying entity (government or non-profit) to monetize the value of the federal tax credit. In addition, the lack of production incentive for third party owned systems is a major barrier to this model in Washington.

Benefit	Customer Owns System	Third Party Owns System	
		Host	Third Party Owner
Federal Tax Credit	Yes*	No	Yes
Depreciation	No	No	Yes
Utility Net Metering	Yes	Yes	No
WA Production incentive	Yes	No	No

Figure 2: Summary of Financial Incentives for Solar PV in Washington State
**Provided the customer is a tax-paying entity*

THIRD PARTY OWNERSHIP: VARIATIONS

The concept of third-party ownership encompasses a number of business structures and funding sources that all offer customers ways to benefit from a PV solar system without actually owning the system. Below are some examples:

Vertically integrated solar finance company. A single company designs, finances, installs, insures and maintains the PV system. For example, SolarCity is a full-service solar provider that uses internal staff to provide everything from installation to insurance. Their customer service representatives address the initial customer inquiries and complete preliminary feasibility assessments with online tools. Local or regional staff in 14 states across the country then complete on-site visits and prepare custom bids. In-house engineering staff complete the system design and permitting while financing staff finalize the lease or PPA agreements with the customers. Certified technicians are on staff in each state to complete the system installation. Nationwide staff provide 24/7 monitoring services and dispatch local or regional SolarCity service technicians as necessary throughout the life of the contract and serve as a single point of contact for customers. SolarCity offers customers either a lease or PPA financing option, depending on local regulations, with leases making up the majority of residential contracts.[xiii]

Solar finance company partnering with local installers. A solar finance company partners with local installers to provide a lease option for customers. The system is owned by the solar finance company, but the local installer handles installation and maintenance. For example, SunRun subcontracts the installation and repair services to local solar companies that have been pre-certified by SunRun. The local installation company completes the site visit, permitting, system design, installation, and maintenance as needed. SunRun completes the financing, final system design approval, and remote system monitoring. Certified SunRun installers operate in 10 states, including Oregon. To work with SunRun, installers must be able to complete 15 installs per month. SunRun offers both a solar lease and PPA option, depending on the state.

Manufacturer offering a lease option. SunPower is a global manufacturer of solar panels with headquarters in Silicon Valley. The company maintains a network of local dealers across the country (including in Washington State) who work directly with clients to design, install, and maintain a system. In 2011, SunPower launched a $105 Million fund to provide the financial backing that allows the local dealers to offer their customers a solar lease option. The lease

option is currently available in 8 states, which have markets where third-party financing is allowed and encouraged.

State-sponsored initiative. The Connecticut Clean Energy Finance and Investment Authority, created by the Connecticut legislature, partnered with private institutions (CT Solar Leasing, LLC, AFC First Financial Corporation, and Gemstone Lease Management, LLC) to offer a residential solar lease program to low- and middle-income households. Homeowners select from a database of pre-approved local contractors who design and install the system. The financial institution verifies the quality of the installation, applies for utility rebates, and arranges for the sale of RECs.[xiv]

Community Solar. In the case of community solar projects, the third-party owner of the system is a group of individual community members who aggregate their funds to purchase a solar system. The host of the system is typically a public entity. Different models vary in terms of who receives the tax credits, incentives, and net metering benefits. In Washington, Community Solar is the only kind of third party ownership that is clearly allowed to receive the renewable energy production incentives, however they cannot explicitly enter into a PPA with the host to sell the power. Because of this, options for showing a bankable flow of income (necessary for financing) are limited to direct sales to the utility (e.g. PSE's schedule 91.)
Figure 3 summarizes the different business models of several leading third-party finance providers.

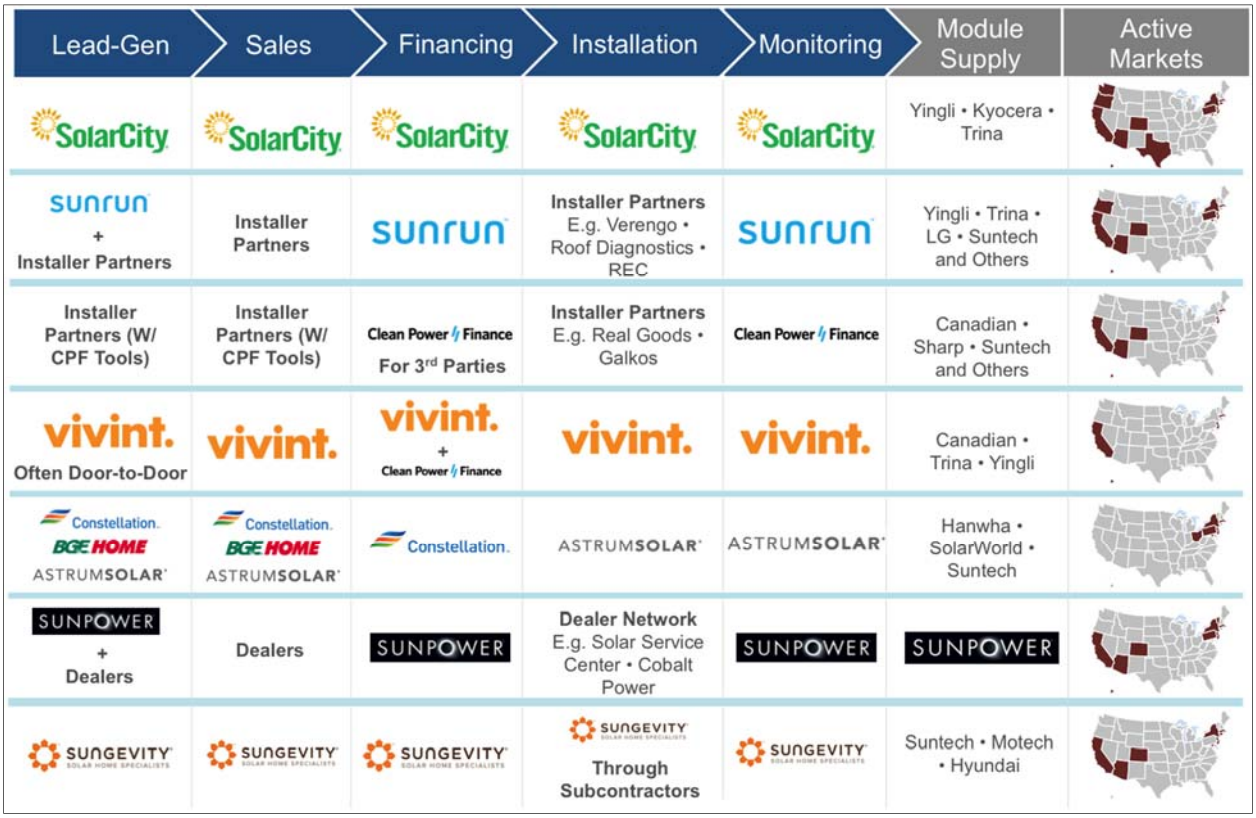


Figure 3: U.S. Residential Solar Finance Landscape Map[xv]

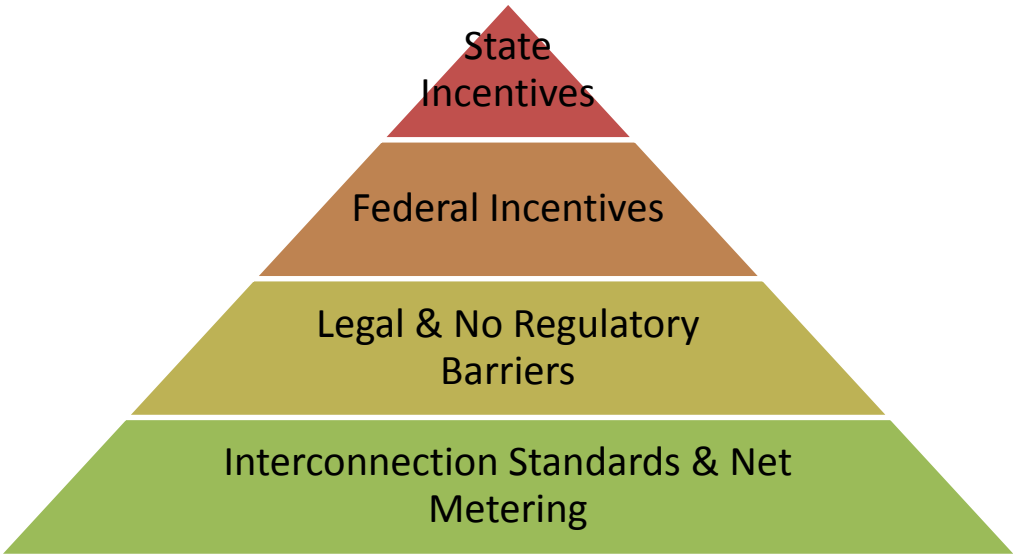
MARKET CONDITIONS FOR THIRD-PARTY OWNERSHIP

Currently, third party ownership is clearly allowed in 22 states plus Washington, D.C. However, simply allowing third party ownership is not sufficient to enable the model to work. Third party ownership models depend on markets with the following features:

- **Favorable interconnection and net metering policies.** The ability to connect a distributed solar system to the utility grid and net meter at retail electric rates is a significant benefit that is essential to the economic viability of third-party models. This is available in Washington State.

- **Exempt from regulation as a utility.** Public service companies are regulated by state utility commissions. In states where a "public utility" is defined as any retail seller of electricity, third-party owners of solar systems who enter into a Power Purchase Agreement with a site host may be subject to regulation by the utility commission. The additional time and cost associated with regulation would eliminate the economic viability of third party models. Some states have passed legislation to exempt third party owners from regulation as a utility; other states have clarified the regulatory definition of public utilities to exclude entities that provide electricity to a single on-site customer. In Washington, the Utilities and Transportation Commission has not ruled on whether a private, direct sale of electricity between a third party and a building owner would be considered sale of electricity to the public. The current Interconnection Rulemaking (Docket UE-112133) proposes to define third party owners and confirm that they may sell power to the host of the system, but it does not go so far as to define a situation under which the third party would not be subject to regulation.

- **State and local financial incentives or REC market**. In order to be cost-competitive with local retail electric rates, third party owners must be able to take advantage of local financial incentives or be able to sell renewable energy credits (RECs). In Washington, the state production incentive is not available to third party owners or customers who use leased systems, and there is no market for solar RECs, so even with exemption from regulation as a utility, it may not be economically desirable for solar financing companies to operate.



The following examples illustrate how some states have addressed these market conditions to encourage third-party financing options.

EXAMPLES FROM OTHER STATES

In states where third-party ownership is enabled, a growing percentage of residential customers select the third-party financing option, as shown in Figure 4. It should be noted that in these states, the absolute number of installations grew significantly. In other words, third party ownership has had an additive effect, expanding the overall market for solar, not simply displacing system sales.

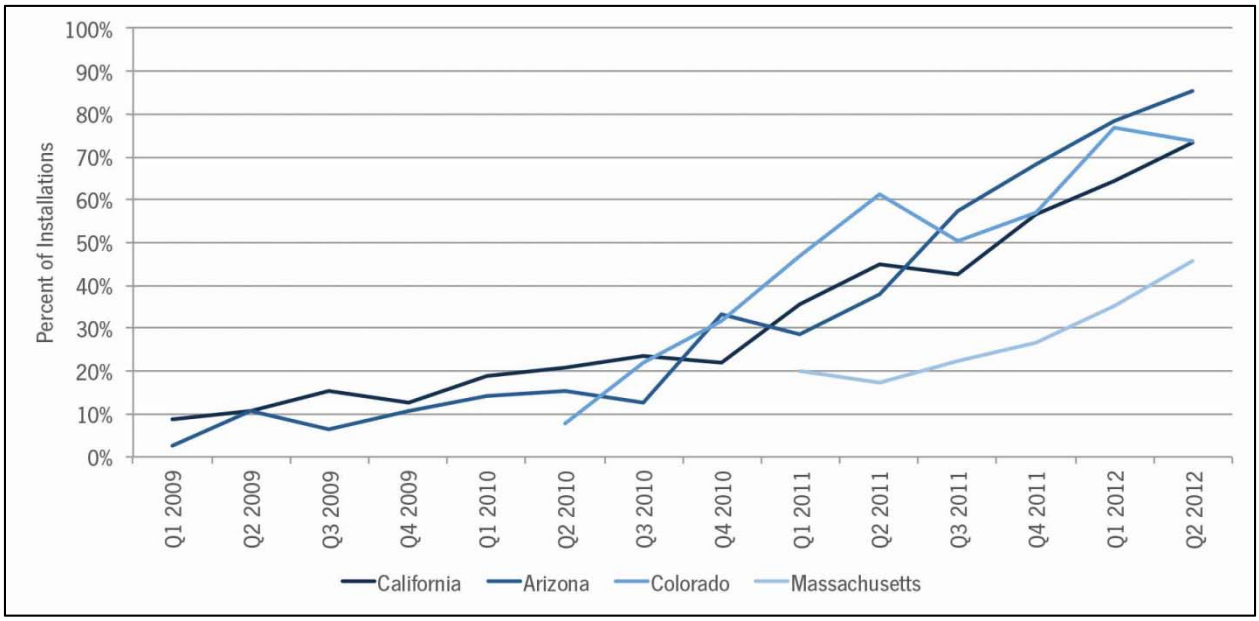


Figure 4: Percentage of Third-Party-Owned Residential Installations, Select States[xvi]

Oregon

In 2008, the Oregon PUC ruled that third-party-owned solar systems are excluded from the definition of a public utility and are therefore not regulated by the PUC. Third-party-owned systems had already been installed in Oregon prior to 2008; however, the legality of these systems was questioned and the PUC ruling provided a greater level of certainty for third-party investors to expand their business in the state. Third-party leases and PPAs were limited to commercial installations until 2011 when a clarification to the state tax code allowed residents who sign a minimum 10-year lease for a solar energy system to claim the State income tax credit, up to $6,000. This additional incentive improved the economics of the leasing option enough to make it attractive to homeowners. In 2011, third-party leases accounted for about 25% of residential installations.[xvii] In 2012 that number grew to 52%.[xviii] Third-party leases and PPAs are only offered to customers of Portland General Electric and Pacific Power, as these utilities provide solar rebates through the Energy Trust of Oregon that third-parties rely on for the economic viability of their projects.

Notably, in FY 2012, Oregon's market was double the size of the Washington market (1,500 residential systems in Oregon versus 745 systems (mostly residential) in Washington.[xix]) Even if third party ownership has attracted some Oregon customers away from purchasing outright, the remaining market for homeowner owned systems is as large as Washington's. This is even more striking, given the fact that Oregon has only slightly more than half the population of Washington.

California

Third-party ownership became an option in California in 2007 when the legislature excluded third-party owned systems from being considered regulated utilities. The language states that third parties can sell power to one or two entities located on the property where the power is produced.[xx] Since the legislation passed in 2007, contracts for third-party-owned residential systems have reached over $1 billion, growing from a 10% market share to nearly 70% in early 2012. A recent study suggests that the majority of third-party customers in California live in medium-income areas (median household income of $50,000 to $75,000).[xxi]

Arizona

In 2012, Arizona ranked second in terms of total number of PV installations in any state.[xxii] Within that market, nearly 90% of residential PV installations were third-party owned and financed.[xxiii] Third-party owners are eligible for Arizona's corporate solar tax credits.[xxiv]

Colorado

Colorado defines utilities as any entity selling electricity, including third-party owners of solar systems. However, in 2009, the PUC recommended changes to the renewable electricity standard stating that systems less than 10 kW in size do not require PUC regulation. At the same time, legislation was passed to clarify that third-party owned solar systems of any size are not subject to PUC regulation as long as they generate less than 120% of the customer's annual energy use. Colorado's first third-party-owned residential solar system was installed in February 2010. By mid-2012, third-party-owned systems accounted for 70% of the residential market.[xxv]

Florida

Florida does not allow the third-party PPA model because the retail sale of electricity would require the third party owner to be regulated by the PUC. However, third-party leases are allowed since the customer is paying for the equipment, not the power, even though they receive the power generated by that equipment. This technical loophole allows third parties in Florida to avoid PUC regulation.[xxvi]

THIRD PARTY OWNERSHIP IN WASHINGTON

Barriers

Currently, third-party ownership models in Washington State are extremely rare due to regulatory uncertainty and lack of access to incentives. There are a few examples on new construction (where the financials may work without the production incentive) and community solar projects, which are the only third party owned systems to receive the state production incentive. Even community solar, with access to incentives, is hampered by regulatory uncertainty over whether selling power to the host under a PPA would trigger UTC oversight. In sum, Washington is unlikely to see much third-party ownership under the present market conditions:

Relatively low electric rates

In places where energy costs and solar insolation are high (e.g. Arizona, California), the monthly lease fee is often less than or equal to the amount the host's previous utility bills. However, in Washington, with relatively low electric rates and a seasonal solar resource, it's difficult for a third party to offer the same value proposition.

Regulatory uncertainty

There is currently a risk that third-party owners would be regulated as a utility. Either the UTC or state legislature could clarify that third-party owners will not be regulated as a utility. For example, the legislature recently considered a bill (HB 1106) that would have clarified that a third party owner is not an electric utility. In addition, the UTC could define a scenario in their current rulemaking for interconnection of electric generators, under which a third party would not be subject to regulation as a utility.

Unavailable incentives

The Washington state production incentive is unavailable to third party owners (except for community solar), or users of leased systems. In addition, it is capped at $5,000 per recipient per year. While this incentive is extremely important in encouraging direct ownership of residential systems, it does not encourage third-party-owned or commercial systems. In order to improve the economics of third-party-owned systems the incentive cap could be raised or it could be available to utility customers who lease systems (as it is in Oregon). In addition the production incentive is set to sunset in 2020.

Opportunities

If third-party ownership were to be enabled and encouraged in Washington it could bring about the following market changes.

Residential Market Potential

In the current residential market, homeowners purchase the solar system by paying with cash, using a home equity line of credit, or applying for a solar loan where the solar equipment is used for collateral instead of the home. The availability of solar loans has made the investment in solar possible for people who have limited equity in their homes. However, there is an untapped market of homeowners who are hesitant to take on additional debt and the responsibilities associated with system maintenance. For example, the Solarize Washington program has facilitated 1,800 site evaluations for highly motivated potential solar customers over the past 2.5 years. Of these, 280 have decided to purchase a system. While some customers were certainly discouraged by a poor solar site, follow-up surveys have indicated that the high up front cost was the number one reason why these motivated customers chose not to go solar. Experience from other states indicates that offering a third-party option will at least double the installation market for residential systems.

Community Solar Potential

If the UTC were to provide regulatory clarity that a third party owner could sell power to an on-site host without triggering regulation as a utility, it could provide an avenue for expanded community solar installations, by allowing the developers to sign PPAs with the host. Presumably, some hosts would be willing to pay a premium for local solar power, thereby giving community solar developers a revenue stream that is both attractive and predictable.

Commercial/Government Sector Potential

The vast majority of Washington's solar installations are on residential buildings (92% in 2012); Washington's commercial and government solar sector lags considerably behind other states. Non-taxpaying entities currently have no way to monetize the Federal tax credit or depreciation, significantly limiting the economic viability of a project. As shown in Figure 5, states where commercial systems make up a significant market share (California, Arizona, New Jersey, Massachusetts, and Hawaii) all allow third-party ownership models. The third-party monetizes the tax benefits and passes some of those savings on to the commercial or government host.

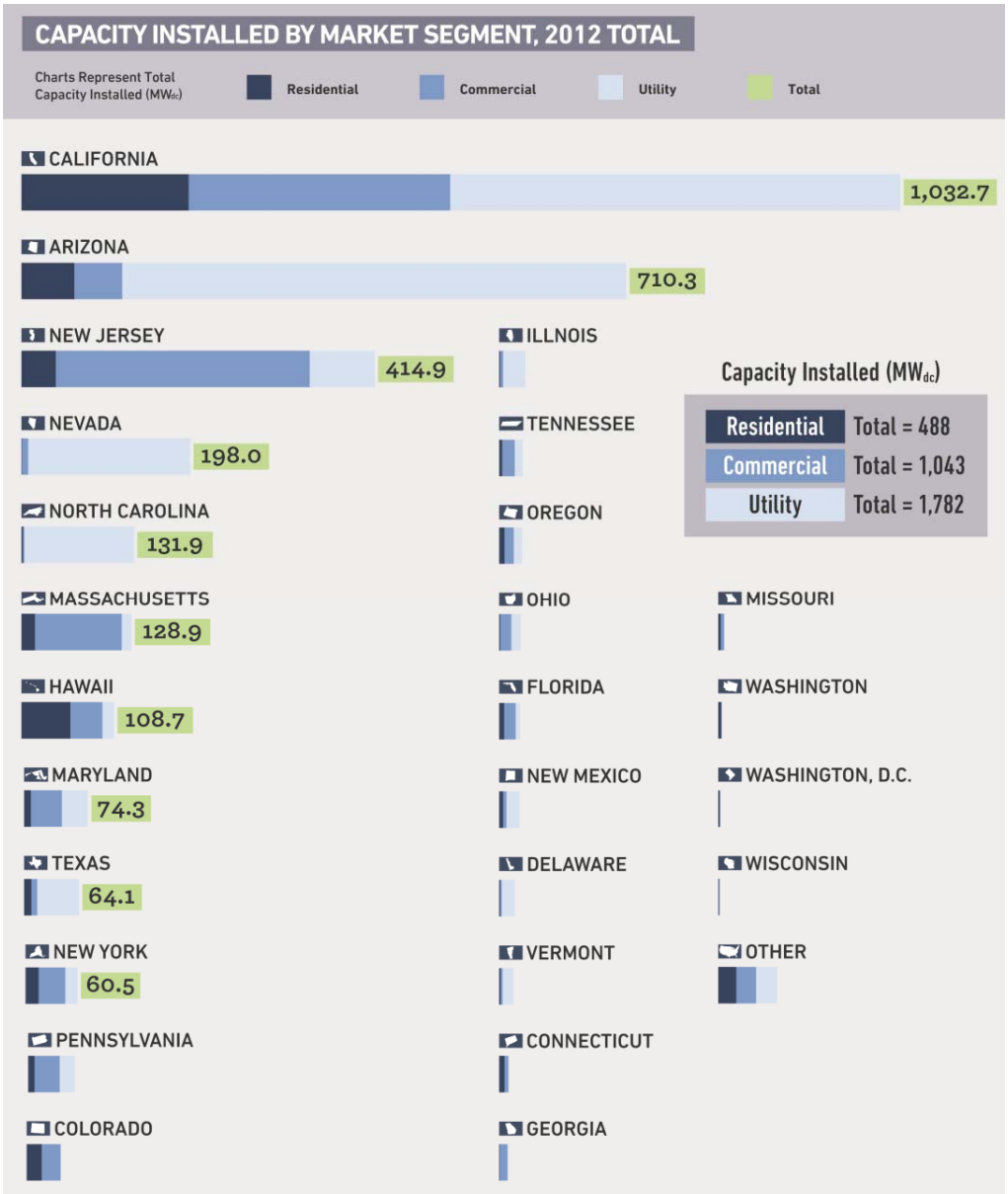


Figure 5: U.S. PV Installation by State and Market Segment, 2012[xxvii]

Concerns & Potential Safeguards

The issue of third-party ownership has raised concerns among solar stakeholders in Washington. The following is an attempt to air these concerns and suggest some potential mitigating factors or safeguards.

Consumer Protection

Concern: Out-of-state companies may install systems to take advantage of tax credits and local incentives and then abandon the systems once they have recouped their investment, leaving the system host with aging or non-functional equipment.

Potential Safeguards: Because most, if not all, third party financing companies include a production guarantee that, if not met, allows the customer to stop lease payments, it is in their

interest to ensure that the systems continue to produce power for the course of the 15 – 20 year lease. In this regard, homeowners who lease systems actually have at least as much recourse, if not more, than homeowners who purchase systems outright.

A law could be designed to require that net-metering applicants with leased systems must include a copy of the lease contract that sets forth the terms of the contract and that the contract be good for at least 10 years. To make sure that consumers understand the fine print, certain information could be required to be disclosed on the front page of the third-party contract in nothing smaller than a 12-point font, which might include power production guarantees, a clear payment schedule, responsibility for system installation, repairs & monitoring, and options when lessees move or sell their homes.

Concern: Does a third party owned system complicate real estate transactions upon sale of the home?

Potential Safeguards: Solar finance companies anticipate that homeowners may move before the 15 – 20 year contract term. Unlike the Property Assessed Clean Energy (PACE) model, a third party owned system does not place a lien on the property. Contracts with solar finance companies typically set out the terms for at least two options upon sale of the home, including transferring the contract to the new owner and purchasing the system outright.

Utility Lost Revenue

Concern: If third-party ownership causes a significant increase in the number of solar PV systems on the grid, a utility's sales and revenue could decline to the point that they can't recover their fixed costs.

Potential Safeguards: This concern needs to be addressed regardless of whether net metering expands through third party ownership or other mechanisms. For regulated utilities, the UTC regularly hears rate cases and if the utility's revenue is dropping due to growth in net metering, the UTC can approve rate increases. For example, in Arizona all utility customers, including net-metered customers, are paying a "Lost Fixed Cost Recovery Charge" of $1 per month. However, Washington revenue impacts due to expansion of net metering are much more limited than in Arizona, given that net metering capacity in Washington is limited to .25% of a utility's peak 1996 demand (set to rise to .5% in 2014.)

Cost Shifting

Concern: With an increase in net-metered customers who pay reduced utility bills, there is concern that the costs of maintaining the grid will be unfairly shifted to non-net-metered customers. Net-metered customers are dependent on the grid to export excess electricity but under the current rate structure, do not pay an equal share of the cost of grid improvements.

Potential Safeguards: Shifting of costs as a result of increased net metering needs to be considered along with the shifting of benefits. According to a report by the National Renewable Energy Laboratory, net-metered solar energy systems provide benefits to utilities, ratepayers, and the state in the form of delayed infrastructure development, reduced transmission line losses, increased grid security and reliability, and improved air quality, which outweigh the costs of net-metering. Utilities do incur costs associated with

implementing net metering policies; however, studies from California, Texas, and Arizona show that these costs are minimal and are not unfairly shifted to customers who are not participating in net metering.[xxviii] The percent of net metered systems in California, Texas, and Arizona is much higher than that of Washington State, so the potential impact of cost shifting is even lower in Washington.

Protecting Local Jobs

Concern: There is some concern that allowing third party owners to finance systems in Washington would result in national solar finance companies dominating the installation market, thereby taking business away from local installers.

Potential Safeguards: Existing solar installers could be given time and possibly state support to develop their own lease options, or to partner with companies that offer lease options. This could be an opportunity for business expansion, rather than a threat. (Sungevity is an example of a solar installation company that grew to encompass their own financing option.) Based on experience in Oregon, installers that offer a third-party option report that over 50% of their customers elect this option and their overall installation business is growing.[xxix]Those who cannot offer a lease option may lose some business to those who do, but there will always be a market for homeowner-owned systems, which can be served by the existing installers.[xxx] Rather than replacing the existing market, third-party-ownership models may expand the market to previously un-served customers. Not only will it attract new residential customers, but it could be especially appealing to commercial or governmental customers – market sectors that have not been served in Washington.

Keeping Dollars Local

Concern: Third-party models introduce a middleman, often from out of state, that takes a cut of the profit.

Potential Safeguards: In some states, local installers have partnered with national companies to provide third-party options; other installers are working to develop their own third-party products in order to offer customers the option. The third party will retain some profit in exchange for their services, but the increased business may lead to increased volume and thus increased profit for the local installer as well. According to one installer in Oregon, the availability of third-party options expands the market to people who otherwise would not have access, and the increased number of installations helps to bring down costs for all customers.[xxxi]

At least one state (Connecticut) devised their own financing program to keep the majority of benefits within the state. Any incentive program may have to accept that some of the benefits flow out of state, as long as there are also benefits accruing in state (local spending, jobs, or distributed energy infrastructure) to justify the incentive.

Avoiding Boom/Bust Incentive Cycles

Concern: If third party models actually took off and grew the installed PV capacity exponentially, the Washington state production incentive would quickly be used up and the installation market would crash.

Potential Safeguards: The "Solar Coaster" (i.e. the boom and bust cycles based on short-lived incentives) is a real and unpleasant market phenomenon. However, it is unlikely that third party ownership will be the cause of crashing the installation market in Washington: The current incentive program is nowhere near fully subscribed. Puget Sound Energy (the largest utility with the most PV) is currently disbursing only 10% of their potential incentives annually. Installations in PSE could grow by a factor of ten before they would be exhausted. To avoid a boom and bust, we must either extend the production incentive or find a more cost effective way to finance solar. Although the production incentive ends in 2020, it will be essentially ineffective by 2015, when it offers only five years of incentive payments. A more effective way to avoid the solar coaster would be to extend the production incentive in some form, and allow it to ratchet down as solar costs fall.

Local Control of Energy Generation

Concern: If third party ownership becomes the dominant form of ownership that might diminish the local ownership of energy resources.

Potential Safeguards: The concern hinges on the question of whether third party ownership displaces local ownership, or builds new capacity where none existed before. There is no question that when third party ownership is enabled, the ***percentage*** of distributed generation capacity owned by a third party increases; but the overall ***amount*** of distributed generation, including locally owned generation, increases even more.

Concern: Isn't ownership a better deal for the consumer?

Potential Safeguards: Direct ownership has some benefits over third-party ownership: the homeowner can take advantage of tax credits, the monthly payments are locked-in if using a loan, the solar system will likely increase the value of the home, and the homeowner has the right to alter the system or move without having to terminate a contract. However, depending on the homeowner's unique financial situation and the structure of payments, leasing may be a better deal. Improved customer education about the long term costs and benefits of a purchase versus a lease could help customers choose the option that best suits them. In addition, not every consumer is in a position to own and maintain a system. For these consumers, a third party owned system might be the only option for access to solar energy.

CONCLUSION

In recent years, a number of innovative solar project financing strategies have been developed across the country to help address the diverse financial needs of potential customers. These strategies include crowd-funding, community solar, group purchase campaigns, property assessed clean energy (PACE), and green loans from traditional lenders. Third-party financing offers another solution that helps expand the market and bring solar within reach to a wider audience. In most markets, it is the only financing option that allows non-profit and government customers to monetize federal tax credits and depreciation. It is also the only option for those who would like to support/use solar power, but don't want to deal with monitoring and

maintenance. Similar to the auto industry, where a growing number of payment plans are available (cash, loan, lease, rental, car-sharing) to fit different lifestyles, the solar industry will benefit from business models that make solar easy and accessible.

Given the concerns over third party ownership, it makes sense that stakeholders carefully review the potential costs and benefits of encouraging third party ownership of solar PV in Washington. Third-party ownership could be enabled, through regulatory certainty and access to State incentives, in three stages:

1. **Provide a third party option for non-tax-paying customers.** (Community Solar is a limited version of this but could be expanded to all government and non-taxpaying entities as hosts.)
2. **Provide a third party option for commercial customers**
3. **Provide a third party option for residential customers**

If pursued in this order, we could grow our market and give local installers time to develop a financing mechanism so they can compete with out of state third-party financing providers. In addition, we could begin to see the volume of sales and installations that is necessary to bring the market to scale, and bring down costs.

Third-party ownership is necessary but not sufficient to expand solar markets in the region. Since allowing 3rd party financing in 2011, Oregon has seen 40% annual growth (versus 30% in Washington), and is on track to achieve more than twice the annual installations of Washington, despite a lower population. Leasing accounted for a majority of residential installations (54% in Q1 2013), and presumably many of those who leased would not have been able to purchase.

While Washington is a pioneer in offering a community solar incentive, it has not given such solar installations a clear right to sign a PPA with the project host, thus denying developers a bankable contract. In addition to gaining clarification on 3rd party ownership, we must address the issues of incentive availability (for customers who own or lease) and incentive caps to make the model work in Washington.

Third party ownership is one of many tools for expanding customer choice, diversifying our energy sources, and making clean energy more accessible to all, from homeowners, to government to business customers.

REFERENCES

[i] Phil Lou, presentation to Solar Washington, Nov. 2012
[ii] US Renewable Energy Technical Potentials: A GIS based analysis. p. 12
http://www.nrel.gov/docs/fy12osti/51946.pdf
[iii] UTC documents and comments on this study filed at
http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx?FilingID=110667
[iv] DSIRE. (2013) "3rd-Party Solar PV Power Purchase Agreements (PPAs)." Last updated February 2013.
http://www.dsireusa.org/documents/summarymaps/3rd_Party_PPA_map.pdf. Accessed April 30, 2013.
[v] For example, see UTC Docket UE-112133 Interconnection Rulemaking, initiated in May 2011, which defines third party owners but does not clarify whether such owners could be subject to regulation as a public service company.
[vi] Phil Lou, personal email correspondence, May 21, 2013
[vii] "U.S. Solar Market Insight Report: 2012 Year in Review." Greentech Media Inc and Solar Energy Industries Association. 2013.
[viii] For example, Minnesota's Dept. of Commerce is undertaking a Value of Solar examination.
http://www.midwestenergynews.com/2013/06/10/minnesota-to-ask-what-is-the-value-of-solar-power/
[ix] Doris, Elizabeth and Ryan Citron. "White Paper: Net Metering Overview and Options in Oregon." National Renewable Energy Laboratory Solar Technical Assistance Team. 29 December 2012.p. 7
[x] "Solar Leasing for Residential Photovoltaic Systems." National Renewable Energy Laboratory. NREL/FS-6A2-43572. Revised April 2009. http://www.nrel.gov/docs/fy09osti/43572.pdf
[xi] Department of Revenue Determination Number 12-0021, 32 WTD 22.
http://dor.wa.gov/Docs/Rules/wtd/2013/32WTD22.pdf. January 10, 2013.
[xii] Per WAC 458-20-273.
[xiii] SolarCity website. http://www.solarcity.com. Accessed 13 May 2013.
[xiv] "Solar Leasing for Residential Photovoltaic Systems," NREL/FS-6A2-43572
http://www.nrel.gov/docs/fy09osti/43572.pdf
[xv] GreenTech Media http://www.greentechmedia.com/research/report/u.s.-residential-solar-pv-financing
[xvi] SEIA: US Solar Market Insight Report Q2 2012 http://www.seia.org
[xvii] Solar Oregon website. http://solaroregon.org/residential-solar/steps-to-solar/solar-electric/leasing-solar. Accessed 15 May 2013.
[xviii] Oregon Department of Energy, RETC data provided by Matt Hale, March 2013
[xix] Phil Lou, presentation to Solar Washington, November 2012
[xx] Speer, Bethany, Katharine Kollins, and Karlynn Cory. "Solar PV Project Financing: Regulatory and Legislative Challenges for Third-Party PPA System Owners." National Renewable Energy Laboratory Technical Report NREL/TP-6A2-46723. February 2010.
[xxi] PV Solar Report. "Third-Party-Owned Residential Solar Delivers $1 Billion to California: Executive Brief." August 23, 2012.
[xxii] "U.S. Solar Market Insight Report: 2012 Year in Review." Greentech Media Inc and Solar Energy Industries Association. 2013.
[xxiii] Lacey, Stephen. "Can Better Solar Loans Slow the Surge of Third-Party Ownership?" March 13, 2013.
http://www.greentechmedia.com/articles/read/to-lease-or-own-in-solar. Accessed May 9, 2013.
[xxiv] Speer, Bethany, Katharine Kollins, and Karlynn Cory. "Solar PV Project Financing: Regulatory and Legislative Challenges for Third-Party PPA System Owners." National Renewable Energy Laboratory Technical Report NREL/TP-6A2-46723. February 2010.
[xxv] "U.S. Solar Market Insight Report: 2012 Year in Review." Greentech Media Inc and Solar Energy Industries Association. 2013.
[xxvi] Speer, Bethany, Katharine Kollins, and Karlynn Cory. "Solar PV Project Financing: Regulatory and Legislative Challenges for Third-Party PPA System Owners." National Renewable Energy Laboratory Technical Report NREL/TP-6A2-46723. February 2010.
[xxvii] U.S. Solar Market Insight Report: 2012 Year in Review" Greentech Media Inc and Solar Energy Industries Association. 2013.
[xxviii] Doris, Elizabeth and Ryan Citron. "White Paper: Net Metering Overview and Options in Oregon." National Renewable Energy Laboratory Solar Technical Assistance Team. 29 December 2012.

[xxix] Personal conversation with Sunlight Solar Energy Inc. 28 January 2013.
[xxx] Personal conversations with Synchro Solar and Sunlight solar Energy Inc, 28 January 2013
[xxxi] Personal conversation with REC Solar. 28 January 2013.