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Best Practices in Public Claims for Solar Photovoltaic Systems

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SOLAR PHOTOVOLTAIC CLAIMS AND FREQUENTLY ASKED QUESTIONS

As markets for renewable energy grow, there is increasing interest in securing and selling Renewable Energy Certificates (“RECs”) and renewable electricity. Some renewable electricity generation technologies, like solar photovoltaics (“PV”), are slow to be widely adapted to market transactions because of the administrative costs of aggregating output into products that can be readily sold into compliance and voluntary electricity markets.

PV is typically installed in small amounts on residential and commercial rooftops. Rooftop PV requires many participating rooftops in order to produce a significant amount of electricity. This type of generation is called distributed generation (“DG”) because the multiple small units are located at or near where the energy will be consumed, in contrast to central station generation that feeds a locality from a distance. Because of the smaller size of DG units, a relatively large geographic area is needed to generate a significant amount of RECs.

This document presents a series of questions and answers regarding PV and the issues specific to selling and claiming RECs from such systems. Though the paper focuses mainly on PV, many of the issues discussed below pertain to other types of distributed generation as well.

Fundamental to this discussion is the agreed-upon definition of a REC as representing all of the “greenness” of electricity produced from renewable resources like PV. A REC includes everything that differentiates the effects of generating electricity with renewable resources instead of using other types of resources. It is important to remember that a REC also embodies the *claim* to the greenness attributes of renewable electricity generation, and only the ultimate consumer of the REC has rights to the claim; once a producer or owner of a REC has sold it, rather than consuming it themselves, they have sold the claim and cannot truthfully state that they are using renewable electricity, or that the electricity that was produced with the REC is renewable. For background on the voluntary renewable energy market, renewable energy, RECs and other topics that underlie much of the discussion presented here, please see www.green-e.org/learn.shtml.

This paper is considered a living document and will be updated with new information periodically.

Questions addressed in this paper:

- Why do people install and use PV?
- Do tax credits (Investment Tax Credit and Production Tax Credit) and other incentives affect REC ownership?

- Who owns and can claim the RECs generated by PV?
- When does the installer of the PV own the RECs?
- If RECs are sold, what is the perception created by the PV panels?
- Is selling RECs from my small system economical?
- What kinds of claims about PV systems and RECs can the sellers, buyers and ultimate users of RECs from small PV systems make?
- What are the risks of making renewable electricity claims when RECs have been sold off?
- If not all of the RECs are sold, what claims are valid?
- What happens to the electricity from which a REC has been stripped off?

Why do people install and use PV?

Most people are motivated to pay for a PV system because they want to use renewable electricity in their home and don't want their electricity consumption to cause pollution and emissions of greenhouse gases. Other benefits of PV are that the owners generate their own electricity and can avoid paying ever-rising utility electricity costs, and the owner gains a marketing value.

The reason that an individual installs PV will affect their willingness to sell solar RECs, since RECs must be retained by the system owner (and not sold) in order for the project owner to accurately claim that they are using solar power generated by their PV system.

Do tax credits (Investment Tax Credit and Production Tax Credit) and other incentives affect REC ownership?

The Investment Tax Credit (“ITC”) and Production Tax Credit (“PTC”) are monetary incentives given to owners of PV systems by the federal and/or local government. The ITC lowers the price of buying a PV system based on the generating capacity of the system (for example, the price might be lowered by \$2 per watt of capacity). The PTC is a payment based on the actual amount of electricity your PV system produces (for example, one cent per kilowatt-hour produced), which can be paid up front based on estimated production, or periodically based on actual metered production. These incentives encourage people to buy and use solar PV.

Typically, neither the ITC nor the PTC has anything to do with RECs. Unless explicitly stated otherwise by the provider of an ITC or PTC, accepting these payments does not affect REC ownership. In most cases PV system owners do not give up their rights to their RECs just because they receive these particular incentives. Other incentives that are granted based on use of renewable energy are more likely to require the recipient of such an incentive to give up their RECs in exchange for the incentive.

A REC is *not* a subsidy or incentive like the ITC or PTC. Although a REC may incent investment in renewable technology, it is not given by the Government, but rather created in the course of producing electricity from a renewable resource. A REC is a *commodity* produced along with electricity production by PV and other renewable electricity

technologies. Accepting money for a REC means that the buyer takes all rights to the REC and the claims it embodies. RECs are often touted as a tool to pay off a PV system more quickly, but they are different from the ITC and PTC, since a seller can no longer claim to be using solar electricity while selling the RECs from their electricity production.

Who owns and can claim the RECs generated by PV?

The basic answer is it depends on the laws of the state in which the PV system is installed and on the contract between the system host¹ and the installer or provider of the system.

Rules on REC ownership by PV system owners vary by state; however, many states have not specifically addressed the issue. It could be argued that when state law is silent on ownership of a REC, the owner of the PV system has the right to the REC, because a primary motivation for installing PV is to be able to make the claim that the owner is using renewable electricity. However, until a state clearly defines REC ownership, one must look to specific language within contracts to determine REC ownership.

Electric utilities or other programs that offer incentives or subsidies for installing PV may give such money in exchange for the RECs generated by the PV. It is important to thoroughly review all program rules before signing up for such programs because of this potential.

If the PV system owner retains all of the rights to their RECs, then the contract(s) between system host, system owner, the electricity user and/or the REC buyer dictates who can own the RECs and can make the claims. The types of contracts and relationships between seller and buyer will be discussed in another section, but what is most important is that a system owner that contractually sells their RECs can no longer claim to be using renewable electricity from that system. Similarly, a system host that does not own the PV system it is hosting cannot claim to be using renewable electricity unless they are buying RECs from the installed system or another generation facility. In the case that the host is buying RECs from another facility, statements made by the host should make it clear that the renewable electricity they are buying is not from the system they host.

When does the installer of the PV own the RECs?

There are two common ways in which RECs from PV systems are accounted for: through a Power Purchase Agreement (“PPA”) between a system owner and the host of the system or purchaser of the power generated, and through a PPA between a PV system installer and the owner of the system.

In a typical PPA, a company will install and own a PV system on the host's roof, but the

¹ A system host is the owner of the building or land upon which a PV system is installed. The host might not own the system, instead simply allowing the system owner to install the PV system on the host's property.

installing company will own the system and sell the host the electricity that the PV system generates, while keeping the RECs that are generated by the PV system for the installing company.

In these kinds of PPA agreements, it should be explicitly stated that the system owner, and not the host, owns the RECs and that the host understands that they cannot and should not make any claims or statements about the use of renewable electricity from the system. System hosts see advantages in this kind of agreement as they do not have to spend money up front on the cost of the PV system, and usually buy the electricity at a fixed cost in a multi-year contract, which protects the hosts from utility rate increases.

It is also possible to modify the contract such that the system's RECs are also delivered to the host, so that the host acquires the environmental attributes associated with the solar electricity being produced on their roof. In this case the cost of the electricity will typically appear higher because it includes the cost of RECs in addition to the cost of electricity.

A second common situation is when the PV system is purchased by the host. In this model, the building owner owns the PV system and consumes the electricity from the PV system. In these situations, installers that sell PV systems to building owners are increasingly interested in keeping the RECs generated by the PV systems they install.

These contracts between system buyer and installer should explicitly state which party retains all RECs generated by the PV system. If the installer retains the RECs (typically in order to sell them to an end-user or other seller), the system owner cannot claim to be using renewable electricity, even though the owner owns the PV system itself. In this case, the installer typically installs an electricity meter that allows them to monitor the PV system's output, so that the installer knows how many RECs they have earned without having to visit the building. In exchange for the REC ownership rights, installers often charge less for installation and/or equipment.

It is advisable that REC ownership always be made explicit in contracts, whether the system buyer / host is to retain the RECs or the installer / system leasing company will take the RECs, in order to avoid ownership issues down the road.

If RECs are sold, what is the perception created by the PV panels?

An average person seeing a building with PV on its roof will assume that the building is using solar electricity that is generated by those panels, since most people do not know much about RECs and the possibility that the environmental attributes associated with the renewable electricity have been sold. To a large extent this cannot be avoided, and the building owner will gain some amount of benefit from this perception.

However, the host of a system from which all of the RECs have been sold must not make any statements that would lead a person to believe the host is using solar electricity from the system. When discussing electricity use of the building, staying silent about REC

sales to intentionally allow a person to maintain their incorrect perception is disingenuous, reinforcing the misperception about renewable electricity use.

The issue of a perceived claim being an actual claim is still not fully resolved, but it is always simplest and cleanest for the owner of the building on which the PV system is installed to avoid controversy in these cases by keeping RECs and making legitimate renewable electricity claims.

Is selling RECs from my small system economical?

Economies of scale apply to most transactions of commodities, including REC transactions. Most wholesale buyers of RECs look to purchase as many as possible in one transaction to keep transaction costs per REC low. Purchases of tens of thousands of RECs are common. In contrast, a 5-kilowatt (5 kW) residential PV system will produce roughly 9 to 10 RECs per year. To date, very few sellers of RECs find it economical to spend the time to purchase RECs 10 at a time when they have to supply customers purchasing hundreds or thousands of RECs per year.

It is often cost-prohibitive for the potential REC buyer to spend an appropriate amount of time to educate small PV system owners about what a REC is so that they truly understand what they are giving up, to develop, sign and keep current legal documents with each PV system owner, to get the system owner to sign periodic documents attesting to their system's generation, and to track purchases from a large number of system owners. On the other side of the transaction, many PV system owners find it to be not worth their while to go through the trouble of a contracting process and creation of documents to transfer title of the RECs (contracts, for example) in order to sell less than \$100-worth of RECs per year (assuming that they get \$10 per REC, though prices will necessarily vary).

What kinds of claims about PV systems and RECs can the sellers, buyers and ultimate users of RECs from small PV systems make?

When all of the RECs are sold from a PV system, the user of the system's electrical output can no longer make the claim that they are using solar electricity, renewable electricity, or emissions-free electricity. A system owner or host selling RECs cannot make any statement that would imply that their electricity use is different from a neighbor without solar panels. The ultimate consumer of RECs has bought the RECs in order to make those claims.

What can generators, buyers, sellers and users of RECs say? It is best to always be as clear as possible. Deciphering the subtleties and semantics of REC claims is often very difficult for the public. The FTC Green Guides section on Renewable Energy can be helpful in determining what kinds of claims one can make. For more information see: <http://www.ftc.gov/opa/reporter/greengds.shtml>

System hosts and system owners that do not retain the system's RECs

The Federal Trade Commission (FTC) has recently stated that simply statements such as “I host a renewable energy system” are misleading to and misunderstood by the majority of consumers. Therefore, it is advised that any claims about electricity use and PV systems by entities that do not own the RECs explicitly state that the RECs or renewable electricity from the system is being sold to other parties.

The statements below are technically accurate, but without further explanation the public could easily make the incorrect assumption that PV on a building's roof means that the building uses solar electricity. When using the statements below, or any permutation, be cautioned that the FTC’s guidance is not yet final and may change.

System hosts and owners that do not retain the system’s RECs *should not say* the following without also clearly disclosing that some or all of the RECs from the system are sold to others:

- I generate 100% renewable electricity
- I have PV on my roof
- I host / own a solar PV system

Buyers of the RECs from PV, who wish to re-sell the RECs rather than consume the RECs, may say

- I have solar RECs in my portfolio
- I have bought solar RECs to re-sell
- I am a REC aggregator / seller / marketer

Buyers of RECs that wish to re-sell RECs *should not* state that because they own RECs they are using renewable electricity, since a renewable electricity use claim constitutes consumption of RECs.

Buyers of RECs from PV that wish to green their electricity may say

- I am using solar electricity for a portion of my electricity use
- I am using renewable electricity for a portion of my electricity use
- I buy solar RECs for a portion my home electricity use
- I support solar electricity by buying RECs
- A portion of my building / property / process is powered by solar electricity

Owners of PV systems that retain their RECs for their own use may say

The same claims as Buyers of RECs from PV may be made, as well as:

- I am using solar electricity generated by my PV system
- I generate solar electricity

Note that when final FTC guidelines are published they may require alternative language.

What are the risks of making renewable electricity claims when RECs have been sold off?

The predominant risks for the seller include breaching your contract with the buyer, and negative media attention from promoting false information to customers and the general

public about your use of renewable electricity. The Federal Trade Commission (FTC) and the National Association of Attorneys General (NAAG) have both put out guidance on green claims² as a basis for bringing complaints against companies making false statements or otherwise publishing false information.

The FTC has recently released proposed updates to its environmental claims guidance,³ and the issue of hosting an on-site renewable electricity system is specifically addressed. While their guidance is not yet final at the time of the last revision of this document, the currently proposed language states that simply saying that a PV host is “hosting” a solar facility is not sufficient to avoid a double claim on the RECs. This guidance is based on a survey that found that two-thirds of respondents did not understand the significance of the term “hosting” an on-site system, and thought that hosting a system meant that the renewable output of the facility was used on-site.

Once final language is released by the FTC, the guidance provided in this document may be updated as well. The current guidance provided by this document is meant to encourage clarity and disclosure in the interim until the FTC publishes its final guidelines.

If not all of the RECs are sold, what claims are valid?

The examples cited have pertained to cases where all the RECs created by the generation are sold. However, sometimes a generator or host wishes to make some environmental claims (by consuming a portion of their RECs) and sell only some of their RECs. In these cases the generator or host must accurately reflect the ratio of renewable and non-renewable electricity they are using.

As an example, consider a building that consumes 10,000 kilowatt-hours (kWh) of electricity per year that has a 5 kW PV system on its roof. This particular PV system produces 10,000 kWh per year, meaning it produces 10 RECs per year (one REC is produced with every 1,000 kWh of electricity from the PV system). The building owner sells 4 RECs but keeps 6 RECs. Under these circumstances the building owner can accurately say that the building is 60% solar powered that year, since they have enough RECs to cover 60% of the building's electricity use for the year.

This type of scenario is not very common, since RECs are typically all sold or all kept contractually. However, there is no reason a contract between a PV system buyer and installer couldn't specify that the buyer keeps only a certain portion of the RECs.

² The FTC guidelines are available at <http://www.ftc.gov/bcp/gmrnrule/guides980427.htm>, and the NAAG guidelines are available at http://apps3.eere.energy.gov/greenpower/buying/consumer_protection.shtml?page=1&companyid=169

³ The proposed updates are available at <http://www.ftc.gov/os/fedreg/2010/october/101006greenguidesfrn.pdf>

If the building became more energy efficient and used only 6,000 kWh of electricity per year, the building could then claim to be 100% solar powered and legitimately sell 4 RECs, the amount equivalent to their surplus power production.

What happens to the electricity from which a REC has been stripped off?

If a building has a visible PV system on its roof but sells the RECs, there is a natural question as to what happens to the electricity that the PV system generated.

Electricity always flows along the path of least resistance, and no place, person, appliance or electric utility can know exactly where their electricity is coming from because of this characteristic of electricity. The only way to for an electricity buyer or consumer to claim ownership of electricity from a particular electricity generator is to have a contract with that generator that states that the electricity buyer is receiving electrical output from the specific generator. The generator puts the contracted amount of electricity onto the grid at the same time the buyer takes out that amount of electricity elsewhere on the grid. Since the buyer is the only one with that particular contract proving ownership of that amount of electricity from that generator, they buyer has used electricity from that generator.

This is the same for electricity from PV, wind, coal, nuclear or anything else; all electricity generated has some set of attributes that identifies it as coming from that particular resource type. You can think of a REC as that identifying contract for a particular amount of renewable electricity generation.

So, when a REC is sold from a PV system, the electricity generated follows the path of least resistance like all other sources of electricity connected to the grid, and despite the likelihood that the electricity flows into the building on which the PV system sits⁴ it must be treated like the output of any other generator that is connected to the grid. Treatment like any other source means two things: that the owner of the REC (the contract in the above paragraph) that is pulling electricity out of the grid is the only one with an identifiable claim to the solar REC, and that the building hosting the PV is responsible for the emissions associated with the electricity delivered from the grid too any average customer of the electric utility of which the building is a customer.. In this way, emissions in the electricity sector aren't created or destroyed, but the responsibility for their existence is accounted for.

It is important to remember that electricity without a particular REC associated with it is no longer zero emissions; the “lack-of-emissions” aspect of renewable electricity travels with the REC, and it is the primary reason that anyone buys a REC. Electricity without a REC must be assigned the average emissions of local generation attributed to it in order to avoid double claims.

⁴ Though where the electricity flows depends on the configuration of the PV system.