

Solar In Washington

-Why, How, and Do-

By James Stewart

Why Solar is not only viable in Washington, but a necessary and useful tool to combat global warming. This piece will give you some inn's and out's about the issue and how you can be a part of the solution. As well as benefit from it yourself!



1:1

A Global Peril

Since the industrial revolution humanity has nearly doubled the acceptable range of carbon in the atmosphere. [1] This has countless adverse affects that even by the most conservatively optimistic

projections have far reaching and catastrophic effects on our environment as detailed in the IPCC report.

[2] From loss of biodiversity to rising temperatures and sea levels, global warming is a very real threat.

Moreover, it is a threat no one can insulate themselves from. This is not something you get to ignore. If you live on this planet (as I imagine most of us do) you will be affected by this. Here in the Pacific Northwest we are better situated than most. But even then we are beginning to see what the earth's warming has in store for us.

Take the wildfires that ravaged our beleaguered drought struck forests as the most dramatic and recent example. In the summer of 2015 **nine hundred thousand acres** of woodlands burned, homes were destroyed, and a number of our firefighters tragically died trying to quell the inferno. Evan Bush of the Seattle Times rather aptly blames the fire on exponential rise in temperature and moreover, that the event was grimly predictable. [3] Unfortunately environmental catastrophes' such as this will not be the first or last of their kind, and we will likely only see more of them as temperatures continue to rise.

The cause of all this mayhem is plain for anyone with the sense to see. Elevated Co2 levels means more heat is getting trapped on the planet's surface. The vast majority of the excess heat trapping carbon that has been released into the atmosphere for the past century and one half is from human sources. Mainly from our burning of fossil fuels for our energy needs, and subsequent destruction of natural carbon sinks for our habitat/industry needs.[4]

1:2

The emerging Green Energy market

So if one of the major problems is our energy source, the solution would be to change that energy source, correct? Well there is good news and bad news on that front. The bad news of course is there are many powerful influences that stand to make or rather keep making money in a deregulated "business as usual" marketplace. [5] But hopefully they won't be in the picture for that much longer.

The reason for that is the Good News. There are the beginnings of competing powerful business interests, and venture capitalists (both big and small) that see the paradigm shifting to sustainable energy, and away from fossil fuels. They are willing to invest the capital and assume the risks to make it happen; what's more, as global warming becomes more of an issue there will be political pressure to see the change as well. Historically when the private and public sector get together in the pursuit of a common goal, good things happen. [6,7]

Of course the private investors are doing it mostly because they expect to see solid return on their investments rather than altruism. But that means we the consumers are likely to see a plethora of green low-carbon impact goods to consume as alternatives to the current high-carbon models. Plus greener is always better regardless of the motivation, right?

Now, one of the biggest problems facing the budding Green industry is that there simply is no singular green energy source than can replace fossil fuels. Rather it will take a multitude of different sustainable technologies and practices to make our new economy Green. From green energy solutions such as wind, to hydro, to geothermal, and of course solar. [17]

This is what this piece is about. Specifically Solar in Washington state, how it works, and how you can bring solar into your life to not only be part of the green revolution but save some green yourself.

2:1

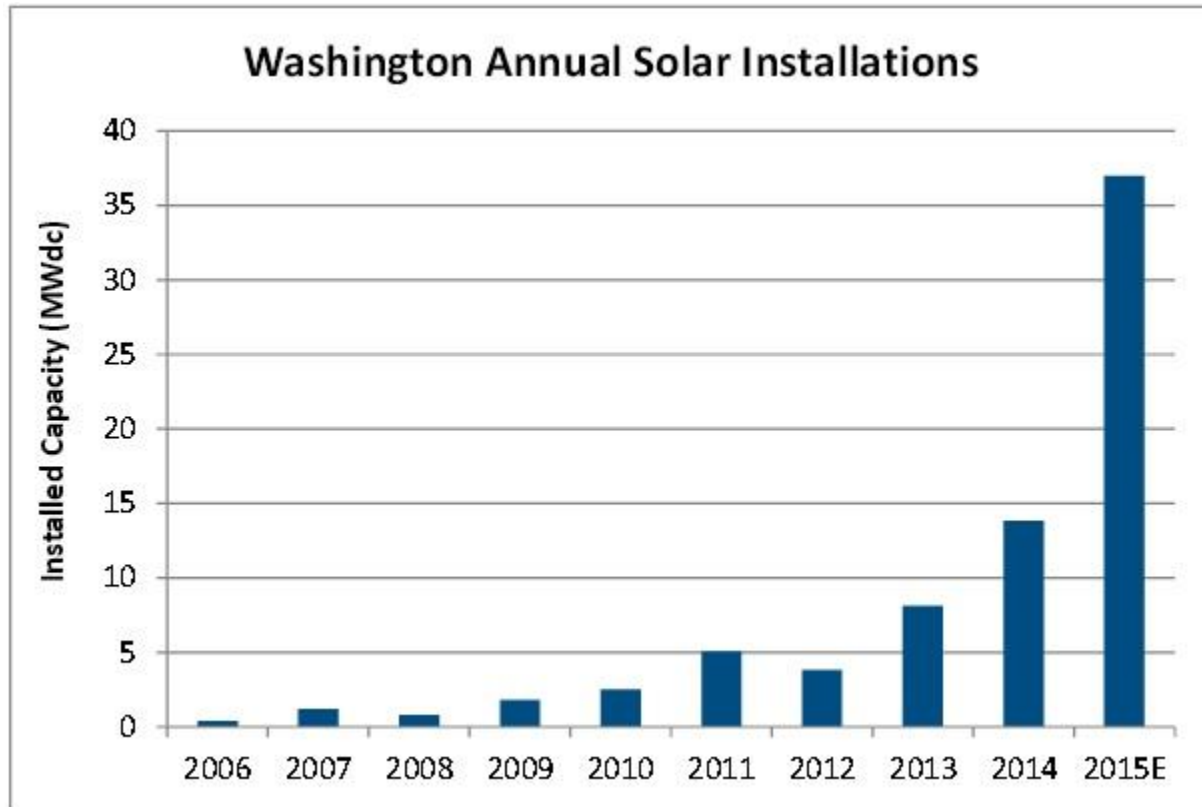
The light Myth



The first thing you'll often hear about Washington State in regards to solar is that it's "Too dark and dreary here" or "There's not enough sun," so it's not worth it. Well, that is a common mistake to make. In terms of light saturation we get more than Germany (currently the world's leader in solar) , Japan, the Czech Republic, Belgium and the UK. Furthermore we get about the same light as China and France. All these states are world leaders in solar energy.[8,9] The U.S is also a world leader in solar, but because of the virtue of localized efforts rather than a federal mandate, although there are federal solar incentive programs. Most of the solar wattage in the US is generated in California, which produces more solar energy than double the next 9 states combined at 4316 MW(megawatts).[10]

Washington produces 54 MW of solar. In comparison to California it is not much, but that actually places us roughly middle of the pack (27th) as far as states go. This is for a number of reasons, partly because of the aforementioned light misconception but also because much of our energy at the utility level comes from cheap hydro (Washington is #2 in hydro). That being said the MW produced by private

PV (photovoltaic) systems in the state have nearly tripled from 2014-2015 and has continued to grow.[11]



2:2

What keeps the industry going?

You might be asking yourself at this point "If Washingtonians get most of their power from hydro why bother with solar at all?" and "What keeps this industry going?" Lets answer both of those in turn.

As to the former there are a few answers. Firstly, while it's true that hydro is a renewable and vastly better than fossil fuels in terms of ecological impact, it's not without its own environmental concerns.

Namely Hydroelectric dams can be very damaging to river aquatic eco-systems (with the pacific Northwest being one of the last refuges of wild salmon in the world, This is no small thing. The area that

is flooded by them destroys that area's carbon sink potential. [12] Whereas solar panels on your private property can handily supplement or even meet your energy needs with minimal environmental impact.

But more importantly, Hydro is a utility power source. That is energy you have to pay for, whereas with a PV system, any energy you produce for your home is energy you don't have to pay the utility for. In fact in some cases depending on the size and sophistication of your array your utility (Puget Sound Energy in this case) The utility might end up **paying you** for surplus power.[13] In fact, if you have an EV car and a PV array you can use the power of the sun to drive around! How cool is that? Combine that with greatly reduced panel and installation prices it's no wonder more Washingtonians are going with solar.[11] Which in turn is supporting a growing solar installation and servicing industry in the state.

The next question is a little more pertinent. The solar industry as it is in Washington lives and dies on state & federal-funded incentives. There is a veritable mountain of legalese and specific incentives that go into subsidizing the solar industry (The full list can be found here @ <http://programs.dsireusa.org/system/program?state=WA>) But basically what it boils down to is the state provides incentives for solar companies to compete, and for utilities to provide financial incentives for installing PV's. These incentives are funded by the taxpayer on a local, state, and federal level to grow the solar industry to the point where it is self-sustaining. Which at this point is not the case.

Though the solar industry is indeed growing it does still depend heavily on these incentives. They come under threat every few years during a legislative period, mainly by unwillingness to renew the subsidies by republicans in the State Senate. If you are interested in keeping these programs alive (for financial or altruistic reasons) write your senator and let them know you would like them to vote in favor of keeping these subsidies active. If you don't know who that is you can find them here @

<https://www.opencongress.org/people/zipcodelookup>, and here @

<http://app.leg.wa.gov/districtfinder/>.

Personally I believe California's mandate model to be far more efficient and effective. The Californian Renewables Portfolio Standard simply mandates that an escalating percentage (by year) of Californian utility companies' energy must come from renewables. This lets the utilities compete with each other on who can muster the most renewables at the cheapest price. Hence, California by itself competes with entire nations in terms of Clean MW produced.[14] Washington, as one of the more progressive states can do better than our clumsy incentives system, but it's certainly far better than nothing.

3:1

Solar and You



Now that we know why, and a little bit of the how, let's get into the do. There are currently 136 solar companies in operation in Washington,[11] and depending on where you live in the state and what utility you use will affect the cost of installing a PV system on your house or business.

But as an example let's assume you're a homeowner in Olympia who is serviced by PSE. And my work has inspired you to install a PV system on your home if not for altruistic reasons than for financial ones, a 10\$ monthly energy bill sounds mighty enticing right? So, how would you go about doing that?

Step one, pick a contractor. This is very important, as with anyone working on your home you would want to pick someone trusted and vetted. (I personally would go with South Sound Solar, you can find their website at <http://www.southsoundsolar.com/>.)

Step two, you need to get your property assessed. Unfortunately, while light is not an issue in Washington trees are. Tree shade will vastly reduce the effectiveness of a PV array, and chopping them down is a bit of a lose-lose. Not only does it devalue your property but those trees have a much higher carbon offset than your PV array could hope to produce. There are some other factors that may make your property unsuitable for a PV array, but as long as a piece of your property (usually your roof) gets regular light exposure throughout the day you should be fine.

Step three, assess the cost and figure out what incentives & loans you qualify for. You can usually figure this out with your contractor. Let's not kid ourselves, you're adding a sophisticated electrical system to your home. Even though the cost has been reduced greatly over the past few years a private PV system will still run you between 13,000 and 29,000 dollars. However there are numerous incentives that offset this cost including the federal tax credit for 30% of the installation. Furthermore this investment adds tremendous value to your home. In addition, the savings on energy means the system pays for itself in approximately 4-8 years, at the end of which you have raised the equity of your property and get cheap (or even surplus) electricity.[15]

3:2

Things to look out for

As with any industry there are pitfalls, con-artists, and things to look out for. Chiefly what this means is you have to thoroughly vet your contractor. This is still a fairly new industry with no major companies that one can go to, and still fairly new regulatory standards. Therefore read reviews, ask for credentials, and see how long they have been in business. This is good practice with any major investment decision and solar is no exception.

Do not under any circumstances go with a solar leasing company. They are a scam through and through. In theory these companies will offer you what seems to be a great deal on paper. They will lease you panels for next to no money down, for long 20 year or more contracts. Theoretically providing you cheap electricity with none of the investment. However what they often fail to specify is you are liable for maintenance fees, premium spikes, and a number of other hidden fees which significantly offset any money you might be saving. In fact in some cases the aggregating fees end up costing you more than just buying your power from the utility. What's more the leasing company gets all the incentives and kickbacks for the installation, not you. So what ends up happening is you assume all of the risk with very little pay off, and the leasing company gets to run away with your money and incentives (as most of these companies are located in Texas and California they are funneling your dollars out of state.) These companies already have numerous class action lawsuits levied against them. Don't be a victim to scam-artists. [16]

3:3

In closing

The purpose of this piece was to give you a small insight as to why solar is necessary, how it works in this state, and how you can go about securing green energy for your home. Our dirty energy market is

causing unprecedented spikes in global Co2 levels which is causing global and local catastrophe year after year.

We got here because we like to burn fossil fuels, and live comfortable disposable lifestyles. Every single one of us owns a piece of that. Young and old, ignorant and enlightened. Solar as I said before is not a magic bullet that will cause our polar ice to stop melting. Indeed by my estimation the best we can hope for is to blunt the damage and make sure it gets no worse than it already is. But that's no reason to do nothing, and why not make a little green while you go a little green?



Bibliography

1. <https://www.co2.earth/>
2. <http://www.ipcc.ch/index.htm>
3. <http://www.seattletimes.com/seattle-news/northwest/why-we-have-such-damaging-wildfires-this-summer/>
4. <http://whatsyourimpact.org/greenhouse-gases/carbon-dioxide-sources>
5. <http://www.theguardian.com/environment/2012/may/30/companies-block-action-climate-change>
6. <http://www.inc.com/jeremy-quittner/venture-capital-flows-to-sustainability-companies-and-earth-day.html>
7. <http://www.businessclimatesummit.com/>
8. <http://pureenergies.com/us/blog/top-10-countries-using-solar-power/>
9. https://en.wikipedia.org/wiki/Sunshine_duration
10. <http://www.seia.org/research-resources/2014-top-10-solar-states>
11. <http://www.seia.org/state-solar-policy/washington>
12. http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-hydroelectric-power.html#.VtPyzOY5Tm4
13. https://pse.opower.com/ei/app/tip/tip057_install_solar_photovoltaic
14. http://www.cpuc.ca.gov/RPS_Homepage/
15. <https://solarpowerrocks.com/washington/>
16. <http://www.newsmax.com/LarryBell/solar-bailout-gosar/2015/03/30/id/635202/>

All photo's provided by: <http://www.publicdomainpictures.net/>

Index

Part 1 intro

- 1:1 A global Peril. pg 1
- 2:1 The emerging Green energy market. pg 2

Part 2 Solar in Washington

- 2:1 The light myth. pg 4
- 2:2 What keeps the industry going? pg 5

Part 3 Installing solar

- 3:1 Solar and you. pg 7
- 3:2 Things to look out for. pg 9
- 3:3 In closing. pg 9