

Linda Engle Introduction: Sustainable Idaho is brought to you by the Portneuf Resource Council.

Madison Long: Welcome to Sustainable Idaho. I'm your host Madison Long and today I talked with Brad Heusinkveld, the Interior West Regulatory Director of Vote Solar.

BH: Vote Solar is a nonprofit solar advocacy organization, and we work nationwide on state-based policy. We are active all over the place, and I in particular cover the Intermountain West. What we're trying to do is provide access and availability for renewable technologies, solar access, and good grid policy to ensure energy is affordable and available to all.

ML: Today, we're discussing a March 2025 amendment to Utah legislation, allowing balcony solar, or plug-in solar panels for residential homes. This legislation is the first of its kind in the U.S., and creates a category of small portable solar generation devices that have a power output of no more than 1,200 watts, meet National Electrical Code standards, and have a principal purpose of offsetting a portion of the residence's electricity consumption.

Would you tell us how these new plug-in solar panels work and why people are excited about them?

BH: Plug-in solar works essentially the way as all solar panels do. It's a photovoltaic panel, like you'd find on top of a roof or in a commercial-scale operation, but packaged in a way that all the equipment is self-contained and it plugs into the wall socket at home. What's interesting is there's nothing particularly new about them. It's just how they were arranged. The innovation there is putting a panel with an inverter and a plug in a size and format that's able to go straight into the wall of most residences.

Their chief virtue is simplicity and affordability. They're easy to purchase, easy to set up, easy to access, and they provide the same renewable power that a larger system would.

ML: Plug-in solar is different from rooftop panels because the output of the solar cells is DC, or direct current. That is the same type of current as a flashlight battery. Plug-in solar panels have a built-in inverter that changes direct current to alternating current, AC, which is what our appliances run on in a home wall socket. These plug-in solar panels have been shown to be effective in Europe since 2023, with Germany projected to have 215 gigawatts of solar capacity from these panels by 2030. Could you tell us a little bit about how widespread balcony solar is in the U.S.?

BH: With Utah being the first legislature to adopt rules formalizing how these panels could be used in the states, since then, we're seeing a lot of interest nationwide. Here in Idaho, a couple people are looking at putting these rules in place so people can access solar in the same way.

ML: Part of the adoption in Europe comes from their use of 220-230 volt systems, allowing for a lower current to achieve the same power output, and providing a bigger safety margin for

standard household outlets and wiring. In the U.S., systems are 110-120 volts, meaning the same amount of solar intake would double the amperage, posing risks to greater wiring.

What kind of homes or residences are most likely to benefit from this new solar option?

BH: On a physical and technical level, most of them. They operate on the same systems that most houses are wired for. But really economically, what they're best for is renters, people who move a lot, houses that can't afford or don't want long-term commitment of a rooftop panel array. They can move with you as you travel. So the name balcony solar really does apply to that sort of apartment scenario, but that's its chief market segment.

ML: Other states have made progress with adopting plug-in solar, notably California, Colorado, New York, and Hawaii.

Idaho has a proposed house bill 612, introducing these solar devices, focusing on non-approval-required language for pre-installation, explicitly stating that portable solar are not public utilities which thereby removes any arguments over homeowner utility regulation, and protecting consumers by lowering the retail barrier unlike long-term rooftop leases.

However, the bill does not address whether landlords can prohibit tenants from using the plug-in solar, the types of inverters that should be used if the grid goes down, whether these panels require a "solar-ready" outlet, and clarification over homeowner's and renter's insurance covering this system.

BH: Safety here is pretty much the most important legislative and policy concern that we're looking at. There's always a risk of overload, there's always a risk of fire involved there, so we have to be careful about this. Fortunately, these panels are pretty well engineered and they're sized appropriately to fit that. What we're seeing in Utah is being represented in most policy considerations, the state is adopting existing electrical code to fit these panels.

ML: Unlike rooftop solar, with no professional installation or permits required, these balcony solar panels are made to simply provide access.

BH: I think rooftop solar is still an investment to be considered. If it fits a home's energy use profile, financial capabilities, and access, people are still installing these. What plug-in solar does is it expands the sort of range of homes that can access customer-owned resources. It's pretty hard to install panels when you're a renter, when you're moving every couple years or so. A system like this is one that you can take with you over that payoff.

ML: How might the Utah legislation represent a broader shift across the U.S.?

BH: I think what the Utah bill really does is establish a baseline set of rules that the rest of the country is looking for. This is really the first policy consideration. The Utah bill figures out the sort of ownership between utility systems and the customer for installing. It wasn't so much about

answering complicated questions as just putting some basic principles on paper, and we think it's going to be adopted like much wider than just Utah.

We're seeing a lot of movement right now. Bills like this are being considered across the West, across the nation, to varying degrees of interest and there's a wide range of support. I think it's an easy win for customer access, and there's a lot of interest across the board, across a variety of geographies, states, and energy systems that this can fit into.

ML: With no tax credits on these systems, and with prices ranging from \$500 to \$2,000, balcony solar is one of the cheapest solar options. Heusinkveld also says that he believes these systems will reduce a payback time frame to around 8 years.

According to EnergySage, an average solar panel system in Idaho in 2024 would come out to around \$40,000 before incentives. A pay-back amount for a solar panel system would average out around the system's 25 to 30 year lifespan. This is in part due to Idaho Power's lowering of the solar export credit rate.

BH: The payback time on panels is directly related to how much electricity costs in a given area. All things being equal, a panel will pay itself off in a higher rate environment than sort of middle of the road or lower rate environment.

ML: Idaho has some of the lowest electricity rates in the nation, averaging around 20-30% lower. This extends the payoff period by a few years.

Is there anything else you wanted to add about what these plug-in solar panels can do or its benefits?

BH: Plug-in solar is a really interesting new technology. It repackages systems that we know, safety standards that we know, into a product that's more affordable for families, for renters, for small consumers, and we're excited to see this happen. It expands the envelope of who can access affordable customer-owned power.

ML: Thank you to Brad Heusinkveld for telling us more about the upcoming balcony solar. Following Utah's lead, Idaho's House Bill 612 has the potential to extend the generation of solar powered electrical energy to more Idahoans. See you next time on Sustainable Idaho.

L Outro: Funding for our Sustainable Idaho Student Hosts is provided in part by this radio station, the ISU Center for Ecological Research and Education, through the ISU Career Path Internship Program. Direction, funding, and additional support is provided by the Portneuf Resource Council.