



## FAQs on curtailment and right-sizing rooftop solar

During the daylight hours, more than 70 percent of the electricity generated by Kaua'i Island Utility Cooperative can come from solar. That's the highest percentage of solar on any grid in the U.S., maybe even the world.

But there's a physical limit to how much solar can be put on the grid. As more oversized residential photovoltaic systems come online, there's less room on the grid for future residential solar and cheap utility-scale solar. That's why KIUC encourages "right-sizing" of rooftop systems so they don't generate a lot more electricity than the household uses.

For those who still want to buy an oversized system that exports energy to the grid, KIUC is requiring a shutoff device that enables the utility to limit the amount of energy being exported during times of peak solar generation. This new requirement affects only systems installed after Nov. 17, 2015.

This limiting, known as curtailment, occurs when the power generated by solar photovoltaic systems exceeds the demand for electricity. For example, on a cool and sunny Sunday afternoon when solar power generation is at its peak, consumption of electricity is at its minimum. Supply and demand of electricity must be in constant balance to maintain the stability of the grid.

### *How does curtailment work?*

A second electric meter is installed on your house to give KIUC the ability to interrupt power flowing from your rooftop solar system. KIUC sends a signal to this meter and shuts it off when curtailment is required, then turns it back on when the curtailment period ends. You won't notice when it happens. When the system is curtailed, it will not export energy to the grid and solar power also won't be available for your household use. You'll still be connected to the grid, so you'll be getting power from KIUC during the time your system is curtailed.

### *Why now?*

Only 10 percent of KIUC's members have solar, but their systems can generate nearly 22 megawatts of electricity. That's a lot when you consider the peak demand for electricity on Kaua'i is only about 72 megawatts, and that peak occurs at night. When rooftop solar started, systems were sized to offset the household's daytime electric use to reduce the utility bill. Now, most rooftop systems are significantly oversized for the purpose of selling

electricity to KIUC - some are 5 times larger than what the household needs. This leaves less room on the system for future installations. And some of this electricity can cost more than the electricity generated by KIUC's solar arrays and some of its hydroelectric plants. It doesn't make sense for all of KIUC's members to pay a higher price for electricity that isn't needed.

*Are you doing this to discourage people from installing solar?*

No. This action leaves room on the system for members who want to install solar in the future. This doesn't prevent anyone from installing solar. It doesn't even prevent anyone from installing an oversized system. It simply requires that a meter be installed on the system so that KIUC can temporarily disconnect it from the grid when solar output exceeds demand. A customer also has the option of separating the system so that only the oversized portion is turned off during a curtailment event; the household can still draw solar power from the portion of the system that is sized to the home's average usage.

*When will curtailment occur and how long will it last?*

There's no set schedule. It depends on the weather, the demand for electricity and the availability of KIUC's generating resources. Curtailment would typically occur on clear, sunny days when demand for electricity is relatively low - usually on weekends. It could last for a few minutes or for several hours.

*Does that mean my power will be shut off?*

No. Curtailment affects only the energy produced by rooftop solar. You're still connected to the grid, so you'll get your electricity from KIUC during the curtailment period.

*What formula do you use for determining the size of systems?*

The criteria are based on the average monthly kilowatt-hour usage of the household. The average household uses about 25 percent of its electricity between 9 a.m. and 3 p.m., so any system that produces more than that could be considered oversized. With the understanding that all customers have different needs, KIUC developed this chart that allows for solar systems that produce more than 25 percent of a household's energy but are not designed primarily to export energy to the grid. These systems are considered to be right-sized and do not require a curtailment device.

<b>Right-Sizing Criteria</b>	
Average monthly usage in kWh	Maximum PV Size
0-500	2.5 kW
500-800	2.75
800-900	3.00
900-1000	3.5
1000-1100	3.75
1100-1200	4.25
>1200	5.25