
# 15% cap starting to slow PV growth in some areas

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(Pacific Business News) With nearly 7,700 photovoltaic systems now connected on Oahu, Maui County and the Big Island, some areas are reaching the 15 percent penetration threshold. That is leaving some businesses worried that growth in the state's fastest-growing industry could begin to slow.

Although most of the state still remains well below the 15 percent limitation for the amount of energy allowed to be supplied to any given circuit by solar power, three areas on Maui — Kahului, Makawao and Ulumalu — are nearing that point.

It's unclear when other areas across the state could follow suit, but it's a problem Hawaii Pacific Solar President Bob Johnson has seen up close and personal.

"It's been very difficult in Kahului," said Johnson, who owns a photovoltaic company based in that area. "Maui Electric Co. isn't saying you cannot do PV, but instead is telling people that they need to do a study, which they have to pay for and results could jeopardize the project."

Johnson said he also notices a sense of urgency from customers as circuits start to build up.

"Increasing the overall penetration rate would be great," he said. "People in our industry think so slowly over time, and a rule change is a way to continue to add renewable energy to variable circuits, so there's not just one standard test."

Industry experts say the circuit caps present a serious hurdle to businesses looking to install PV, so they are calling on the state Public Utilities Commission to raise this limitation.

"This means, effectively, those home-owners and business owners will likely be unable to add PV systems to their properties," said Sunetric CEO Alex Tiller, referring to areas that surpass the threshold. "It's a domino effect, so we don't know which one will fill up next."

Off-grid systems aren't affected, although Tiller says purchasing an expensive battery storage system is required. Fewer than 1 percent go the battery route, Tiller said.

“When you show people the economics of being connected to the grid and buying battery backups, they almost always go the route of being connected [to the grid],” Tiller said. “The only people who buy the battery system are the sciency-type, engineering-type persons or if they have no grid connectivity.”

An off-grid system costs as much as double what a grid-connected system typically costs, Tiller said.

While there is no established industry procedure to integrate more PV on small island grids like Hawaii’s, Hawaiian Electric Co. spokesman Darren Pai says the utility is developing technical solutions to integrate even more solar power.

“An example is the three separate smart-grid projects on Maui, each of which is aimed at improving integration of PV power and other clean-energy resources,” he said. “Other utilities are looking to us [HECO] for answers, as we are working with the Sacramento Municipal Utility District on deploying solar sensors and developing advanced modeling tools, which will monitor solar power on the grid and give system operators more tools to manage the grid.”

Additionally, HECO is exploring the use of battery energy storage systems to improve PV integration.

“The PUC has convened the Reliability Standards Working Group to address these issues,” Pai said. “Everyone in Hawaii’s energy community recognizes that we must find a way to work together to develop solutions that will help us reduce our dependence on imported oil.”

According to Hawaii Solar Energy Association President and RevoluSun Principal Mark Duda, raising the cap is not the only solution.

“We have to improve grid technology, understand the circuits or even upgrade the infrastructure of the grid itself,” he said.

Despite a recent ruling by the PUC that gives businesses and homeowners another option when it comes to purchasing a PV system connected to HECO’s grid, there’s still the possibility of needing to undergo an interconnection study whenever a specific property is within an area with a high number of homes or businesses with existing solar power systems.

This happens when the combined capacity of PV installed on a single circuit reaches a checkpoint of about 15 percent of the circuit’s peak demand.

An interconnection study is designed to determine the area circuit’s ability to accept additional power from PV without unfavorable effects on others connected to the circuit.

“The goal of the study is to see what can be done to allow the installation to go forward, not stop it,” Pai said. “In most cases, solar installations proceed successfully for customers and, in many cases, studies are not needed.”

Cost of these studies vary depending on size of the system and configuration of the circuit. A study for a small, residential system ranges from $3,000 to $4,000, while one for a larger, commercial system can cost up to $15,000.

But a new PUC decision makes it cleaner and simpler to connect smaller customer-sited renewable-energy systems of 10 kilowatts or less.

“For example, it provides a simplified interconnection review process for small systems which will be paid for by the utility,” HECO spokesman Peter Rosegg told PBN in an email.

He said the PUC did agree that larger distributed solar generation units may be required to include a computer and connection equipment to allow the utility to monitor output to the grid. As solar power on the grid increases this is important to insuring the reliability that the utility is required to provide and customers have a right to expect, he said.

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