

**Legislative Briefing:
Solar Interconnection Update
and Future DG Plans
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**Hawaiian
Electric**

Commitment to Solar Integration

- ◆ Fully committed to integrating more distributed generation, including rooftop solar
- ◆ Energy plans for Hawai'i filed recently
- ◆ By 2030, expect to achieve:
 - More than 65% renewable energy
 - 3X distributed solar power
 - 20% reduction in customer bills

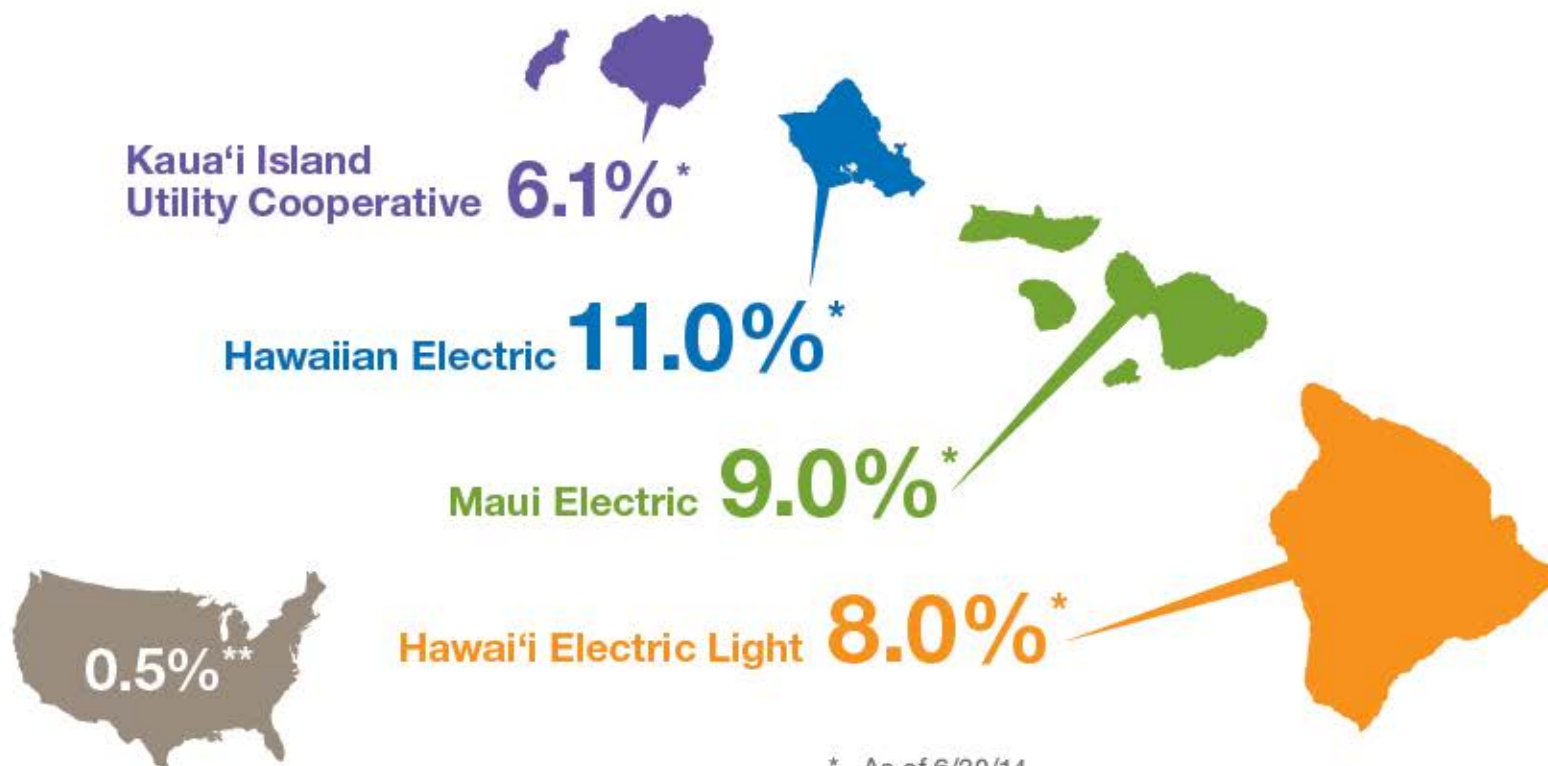


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Leading the Nation in Solar Integration

Percentage of customers in Hawai'i with solar

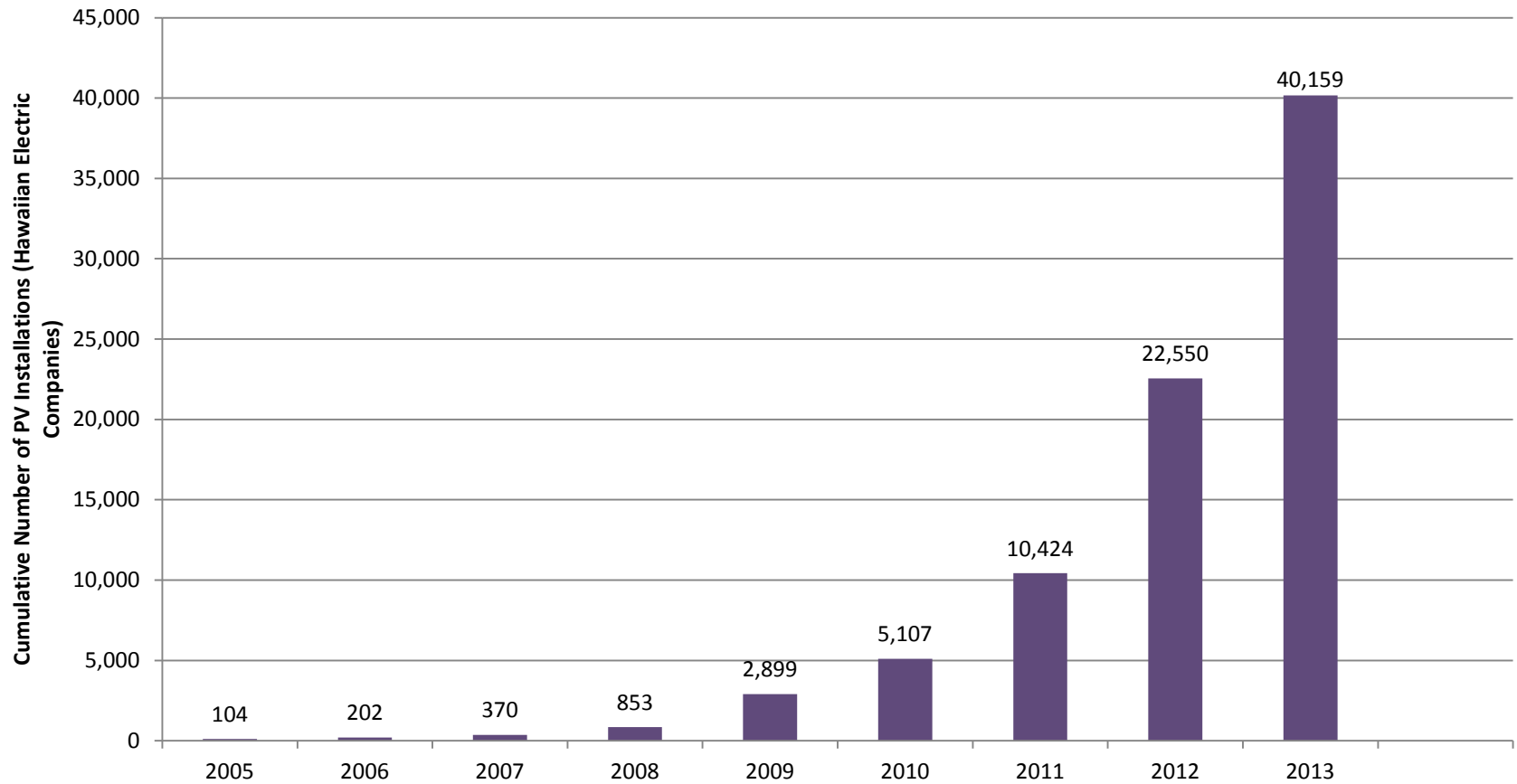


* As of 6/30/14

** As of 12/31/13

National data courtesy of Solar Electric Power Association

Cumulative PV Installations



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Solar Interconnections: By the Numbers

- ◆ Approved almost all applications received *before* Sept. 2013
- ◆ Approved 9,600+ applications *since* Sept. 2013
- ◆ Approved 5,200+ year to date in 2014
- ◆ Approx. 4,500 pending **applications**

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Solar Interconnections: More Progress

- ◆ All **~900** “transition customers” approved for interconnection
- ◆ Increased safety threshold for circuits **from 100% to 120%**
- ◆ Circuit upgrades enabling **800** customers
- ◆ Collaborative work with solar industry and inverter companies on new inverter standards to interconnect more customers
- ◆ Mailed letters regarding “unapproved systems” – a matter of fairness



Testing Underway to Raise to 150%

- ◆ Identify path to increase circuit capacity for PV
 - Fast operation of PV inverters
 - Working with solar industry and inverter manufacturers to test functionality
 - Testing begins 9/22 at National Renewable Energy Lab facility (partners: Solar City, inverter manufacturers, Dept. of Energy, and Electric Power Research Institute)
 - Results will determine stepwise increase in PV capacity levels – modeling at 150%
- ◆ Deploy additional monitoring equipment on circuits
- ◆ Upgrade Load Tap Changer controllers



ACTIONS: Going Forward

- ◆ Clear, open planning process
- ◆ Pursuing new technologies, including energy storage
- ◆ RD&D with inverter manufacturers to design/demo advanced capabilities
- ◆ Continuing to work with solar industry and inverter manufacturers on other solutions

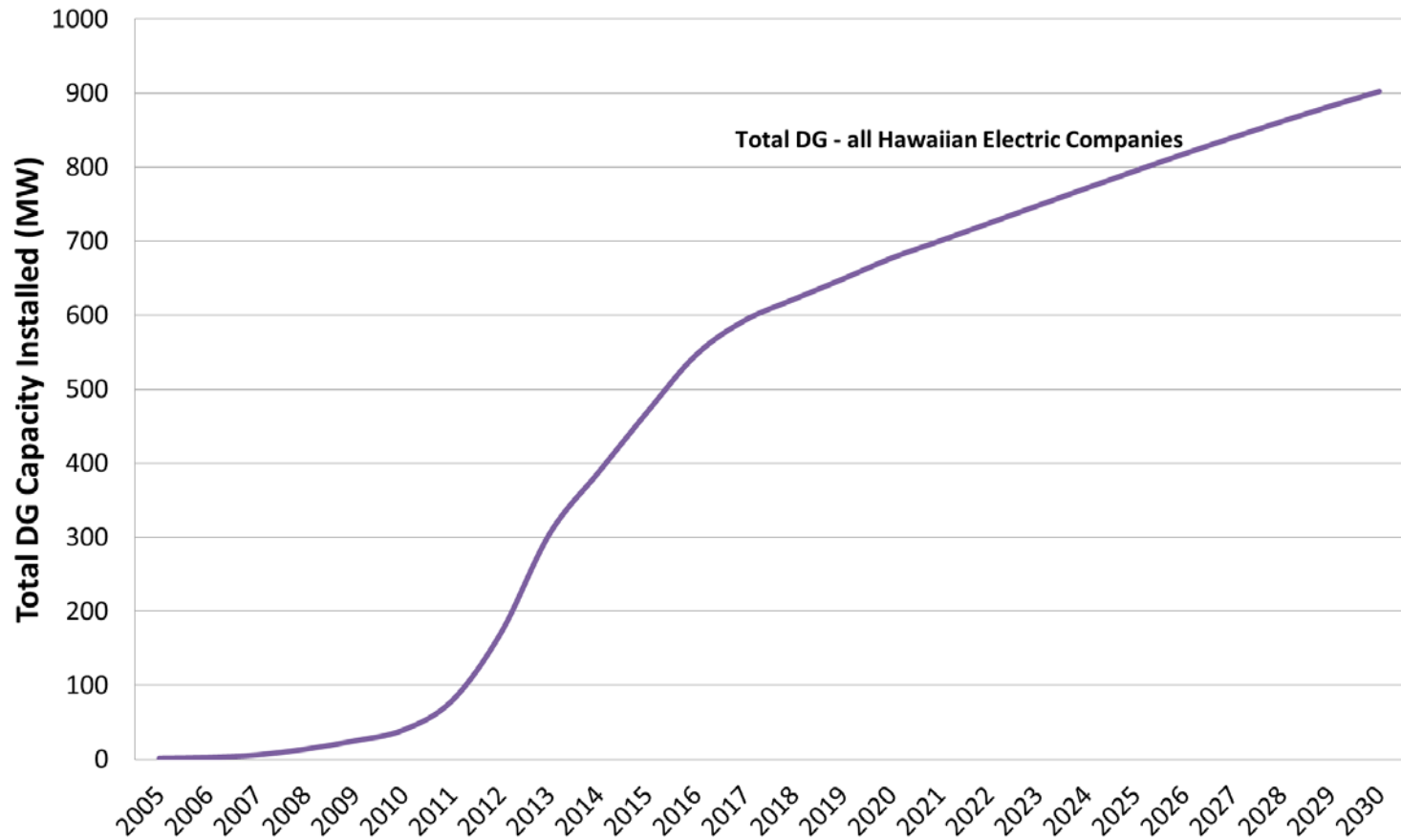


Distributed Generation Interconnection Plan (DGIP)

- ◆ Committed to making DG – rooftop PV – a sustainable AND fair program
- ◆ Ensure everyone is paying their fair share
- ◆ Charges outlined in plan – a scenario
- ◆ Also, “minimum charges” (not additional charges)
- ◆ PUC opened a proceeding – will ultimately decide rate structure



Where We're Headed

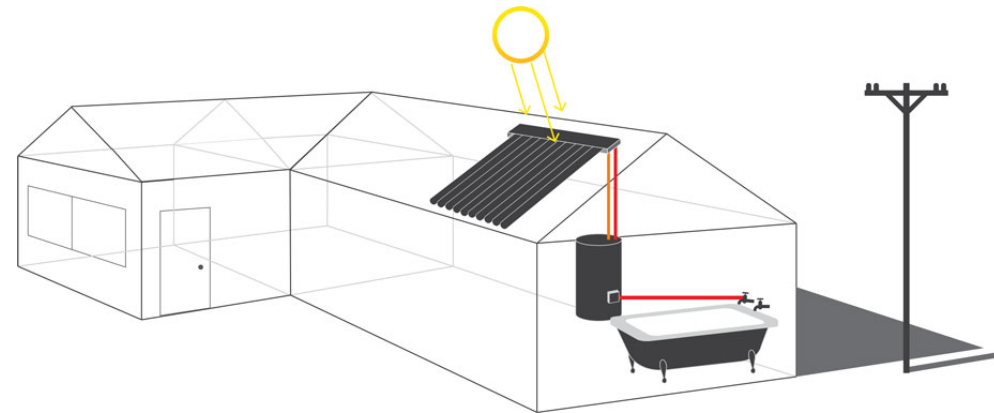


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Expanded Customer Options for Lowering Bills



- Solar Water Heating/Solar AC
- Community Solar
- Storage
- Demand Response
- Electric Vehicles
- TOU/Dynamic Pricing
- Non-Export DG options
- Energy Efficiency
- More...



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Mahalo



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