



# Hawaii Interconnection Standards & Procedures

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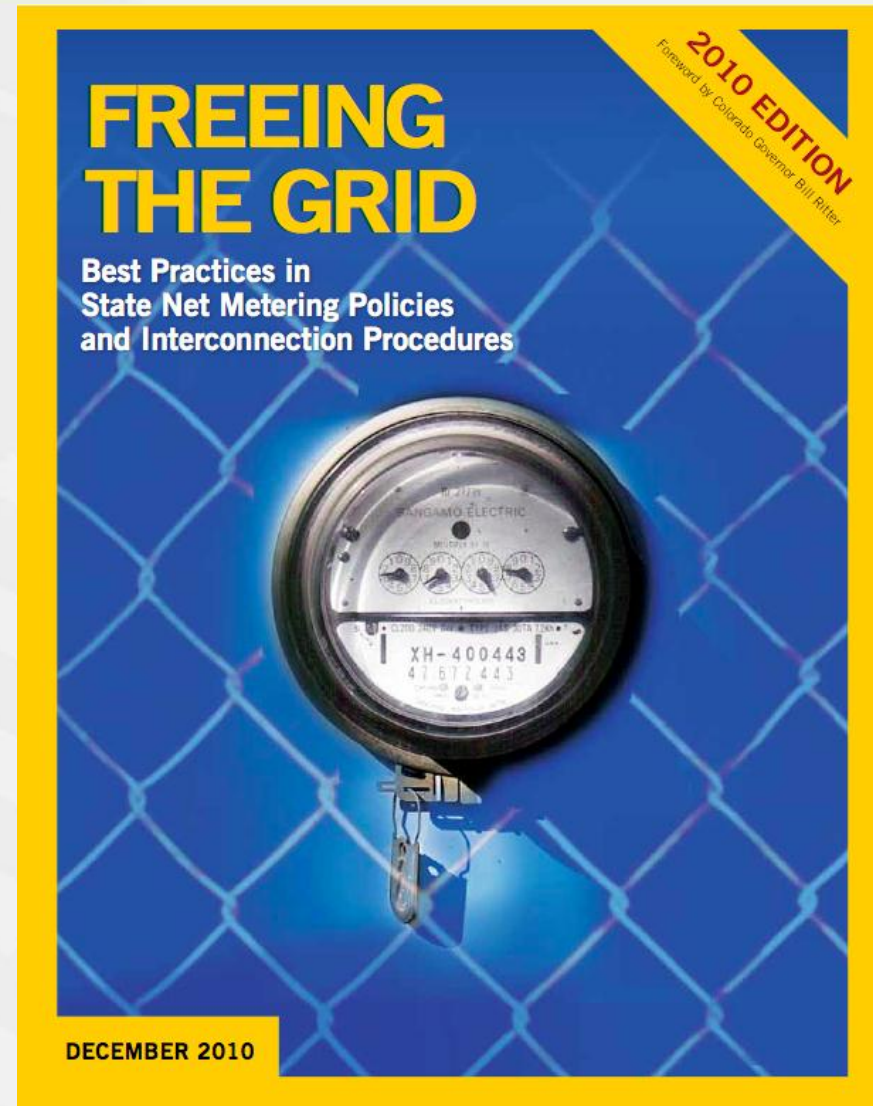
2011 Fall UWIG Technical Workshop

# Who is IREC?

- 501(c)(3) non-profit, non-lobbying organization
- Offer technical support to state policy makers on renewable policies
  - Active in over 35 states in the last four years
  - Net metering, interconnection, and community solar policies
  - Develop model rules containing “best practices”
  - Co-author of annual *Freeing the Grid* publication
- Currently working on interconnection standards and procedures in: Hawaii, California, New Jersey, Maryland, Delaware, Massachusetts
- Authored numerous reports for the Solar America Board of Codes and Standards (Solar ABCs), including several on the topic of interconnection

## Freeing the Grid 2010

- Introduction to net metering and interconnection issues
- 43 States plus D.C. and Puerto Rico have adopted a state interconnection standard
- Grades state policies
- Provided to commissioners, commission staff and public
- Collaborative effort, including IREC, solar industry, others



# Interconnection Procedure Goals

- 1) maintain the safety, reliability and service quality of electric power systems; *and*
- 2) provide transparent requirements, procedures, timelines and agreements to make the process of interconnecting a generator as predictable, timely and reasonably priced as possible.

## Hawaii Interconnection

- Good on the first goal, but needs improvement on second goal
- Currently scores an “F”
- 33<sup>rd</sup> place nationally
- Lack of transparent requirements
- Uncertain timeframes
- Uncertain costs
- Unnecessary requirements
- Unbounded discretion to determine whether study is required

HAWAII

NET METERING				INTERCONNECTION			
C	C	C	B	F	F	F	F
2007	2008	2009	2010	2007	2008	2009	2010
Eligible Renewable/ Other Technologies:		Photovoltaics, Wind, Biomass, Hydroelectric, Small Hydroelectric		Eligible Renewable/ Other Technologies:		Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Microturbines, Other Distributed Generation Technologies	
Applicable Sectors:		Commercial, Residential, Local Government, State Government, Fed. Government		Applicable Sectors:		Commercial, Industrial, Residential, Nonprofit, Schools, State Government, Fed. Government	
Applicable Utilities:		All utilities		Applicable Utilities:		Investor-owned utilities	
System Capacity Limit:		100 kW for HECO, MECO, HELCO customers; 50 kW for KIUC customers		System Capacity Limit:		No limit specified	
Aggregate Capacity Limit:		3% of utility's peak demand for HELCO and MECO; 1% of utility's peak demand for KIUC and HECO		Standard Agreement:		Yes	
Net Excess Generation:		Credited to customer's next bill at retail rate; granted to utility at end of 12-month billing cycle		Insurance Requirements:		Amount not specified	
REC Ownership:		Not addressed		External Disconnect Switch:		Required	
Meter Aggregation:		Not addressed		Net Metering Required:		No	

**Recommendations:**

- Remove system size limits and allow systems to be sized to meet on-site load
- Increase capacity to at least 5% of a utility's peak demand

**Recommendations:**

- Remove requirements for redundant external disconnect switch
- Prohibit requirements for additional insurance

Net metering is available in Hawaii for systems up to 50 kW for Kauai Island Utility Cooperative (KIUC) and up to 100 kW for the state's three IOUs (HECO, MECO and HELCO). Each of these four utilities' net metering programs are slightly different but each has a set-aside within their participation caps for systems 10 kW and smaller. All utilities are required to develop a pilot program for large systems. NEG is credited to the customer's next bill until the end of a 12-month period, at which point any remaining NEG is granted to the utility. In October 2008, Hawaii's governor signed an energy agreement with utilities and other key players in the state, as part of the Hawaii Clean Energy Initiative. This agreement provides that there should be no system-wide caps on net metering, and that net metering should transition toward a feed-in-tariff. A manual disconnect switch is required, but no additional fees are allowed for purposes of interconnection.

## HECO Rule 14H, Appendix III, Section 2.b

“The degree of technical review required for a request for interconnection, and the extent to which additional technical study will be needed, will depend on factors such as (1) complexity of the utility system that the generating facility is proposed to be interconnected to that must be modeled (i.e., the distribution, subtransmission or transmission system); (2) connection to a network system; (3) plan to export power; (4) feeder penetration greater than 15% of the annual peak KVA load; (5) starting voltage drop; (6) generating facility capacity; (7) short circuit contribution ratio greater than 5%; and (8) type of interface transformer.” -- **underlining added**

# Hawaii PUC Docket 2010-0015

- Initiated January 7, 2010
- Application made by the Hawaiian Electric Companies
- Targeted modifications sought
- Modifications protested by numerous parties, including the Hawaii Department of Business, Economic Development, and Tourism; The Solar Alliance; Hawaii Solar Energy Association; Hawaii Renewable Energy Alliance; Zero Emissions Leasing LLC; and Blue Planet Foundation

# HECO Issues

- Proposed 33% feeder minimum load screen
- Modifications to isolation device requirements
- Ability to remotely disconnect generators
- All generators to have adjustable voltage, frequency, and clearing time set points
- Expansion of supervisory control to smaller generators
- System level grid interconnection limits
- Modifications to interconnection agreements
- *Several others*

# Intervenor Issues

- Clarification of technical screening process
- Applicability of interconnection rules to net metering and feed-in tariff generators
- Spot and area network interconnection screens
- Whether 15% peak load screen applies to all generators
- Simplified process for inverter-based systems < 30 kW
- Clarifying when additional studies are needed
- Expedited dispute resolution procedures
- Incorporating future revisions
- Reporting requirements

# Docket 2010-0015 Process

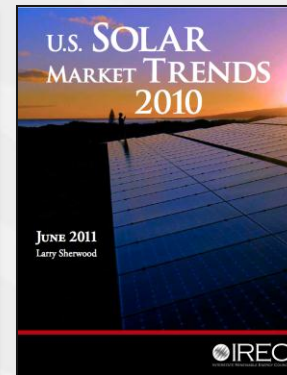
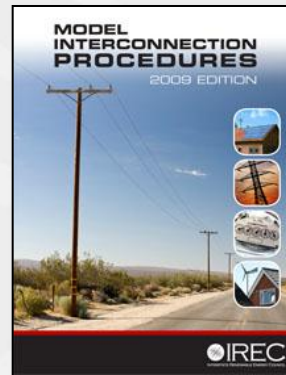
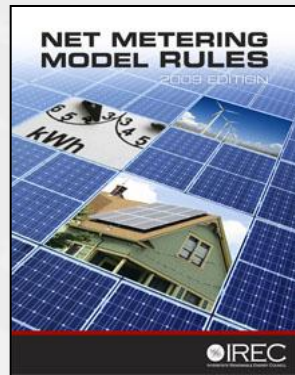
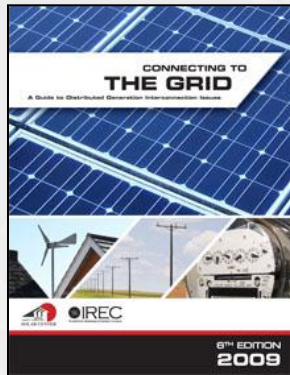
- Technical workshops – *Summer 2010*
- Information requests – *Fall 2010*
- Opening statements of position – *Winter 2010*
- Settlement meetings – *Winter to Summer 2011*
- Final Statements of Position – ***FRIDAY!!***

# Final Thoughts...

- The Hawaiian Electric Companies have been very open to modifying their interconnection procedures to provide transparent requirements, procedures, timelines and agreements to make the process of interconnecting a generator more predictable, timely and reasonably priced as possible.
- IREC expects Hawaii's Freeing the Grid score for interconnection will move from an "F" to a "B"

# IREC Resources

[www.irecusa.org](http://www.irecusa.org)



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