



CHP in Hawai'i: Performance-Based Regulations



Honolulu, Hawai'i

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In 2018, Hawai'i passed Senate Bill (SB) 2939 and became the first state to mandate that investor-owned utilities (IOUs) be incentivized by performance standards. Traditional regulations allow utilities to make a return on investment for capital expenditures, such as new power lines or power plants. These utility expenditures do not always align with state policy goals to adopt more renewable energy or make other important changes to the electric grid. To correct for this misalignment, SB 2939 directs the Hawai'i Public Utilities Commission (PUC) to establish performance-based regulations (PBR), which would tie utility revenues to the achievement of certain performance goals. The new framework will apply to the state's sole IOU, Hawaiian Electric (HECO), and its subsidiaries. As the Hawai'i PUC develops a PBR framework to better align utility business interests with the state's clean energy goals and customer preferences, there may be further opportunities to utilize a promising energy-efficient technology: combined heat and power (CHP).

Hawai'i's Clean Energy Goals and CHP

In 2015, Hawai'i established a renewable portfolio standard (RPS) calling for 100% renewable energy by 2045. Eligible renewable energy sources under this RPS include 1) biogas, including landfill and sewage-based digester gas; 2) biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; and 3) biofuels. In addition, Hawai'i established an energy efficiency portfolio standard. These standards will inform stakeholders as to what technologies may best contribute to Hawai'i's new PBR framework, which seeks to incentivize the deployment of renewable energy (RE) and distributed energy resources (DERs).

Statewide Goal	How CHP Can Help Achieve Goals
Renewable Portfolio Standard <ul style="list-style-type: none"> 100% net electric sales from renewable sources by 2045 	CHP systems can use biogas or waste heat to produce thermal heat (steam and/or hot water) and electric power.
Energy Efficiency Portfolio Standard <ul style="list-style-type: none"> Reduce electricity consumption by 4,300 GWh by 2030 	CHP systems typically operate at 65%–75% efficiency, a large improvement over the national average of ~50% for providing electric power and thermal energy separately.

Phase I of Hawai'i's PBR Proceeding

In May 2019, the Hawai'i PUC completed the first phase of its PBR proceeding, which established guiding principles, regulatory goals, and priority outcomes for the development of the PBR mechanisms in the second phase.

Overview of PBR Mechanisms

- Updated revenue adjustment mechanisms will establish target revenues based on priority outcomes, applied over a five-year multiyear rate plan.
- HECO companies will have the opportunity to earn additional performance revenues.
 - Performance incentive mechanisms (PIMs) will pair metrics for priority outcomes with a performance benchmark/target and financial incentives.
- Additional elements include an earning sharing mechanism and revenue decoupling.

Regulatory Goals	Priority Outcomes
Enhance Customer Experience	Affordability
	Reliability
	Interconnection Experience*
	Customer Engagement*
Improve Utility Performance	Cost Control
	DER Asset Effectiveness*
	Grid Investment Efficiency
Advance Societal Outcomes	Capital Formation
	Customer Equity
	Greenhouse Gas Reduction
	Electrification of Transportation
	Resilience

*Phase 2 will prioritize the development of PIMs addressing these three outcomes.

Potential Role of CHP in Hawai'i's Energy Future

Aligning Hawai'i's regulatory framework with the 12 priority outcomes identified above could encourage HECO companies to adopt more DER assets, such as CHP. CHP systems offer several benefits relevant to these outcomes:

- CHP systems are ideal for anchoring microgrids, which make infrastructure more stable and resilient.
- The high efficiency of CHP systems could result in significant reductions in greenhouse gas emissions per kilowatt-hour produced.
- CHP is a baseload technology that works well with other distributed generation technologies, such as solar photovoltaics and energy storage.

In addition, Hawai'i's PBR framework identifies interconnection experience as a performance metric. Interconnection complications are often identified as a barrier for customers that would like to integrate new CHP installations into the electric grid. Efforts to streamline and improve this process could facilitate the adoption of new CHP systems in the state.

Next Steps

Hawai'i is still in the early stages of developing a PBR framework. Phase 2 of the PUC's PBR proceeding will focus on design and implementation of new or updated regulatory mechanisms to achieve the priority outcomes identified in Phase 1 by January 1, 2020. The specific details of the regulatory adjustment mechanisms and performance mechanisms are currently being deliberated in Hawai'i Public Utilities Commission Docket No. 2018-0088.

For More Information

U.S. DOE WESTERN CHP TECHNICAL
ASSISTANCE PARTNERSHIP (CHP TAP)
www.wchptap.org

HAWAI'I PUC
<https://puc.hawaii.gov/>

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