
A BILL FOR AN ACT

RELATING TO ENERGY EFFICIENCY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that Hawaii's energy
2 sector is undergoing a transition to renewable energy, which is
3 strengthening the State's economy, environment, security, and
4 energy efficiency. In an effort to attain the State's goal of
5 reaching one hundred per cent of the renewable portfolio
6 standard by 2045, consumers must adopt more energy efficient
7 practices, including switching to efficient lightbulbs, biking,
8 driving an electric car, or simply turning off the lights in
9 rooms that are not in use. Another option is installing a grid
10 interactive water heater, to be used in place of a solar water
11 heater.

12 Under the renewable portfolio standard goals, electric
13 utilities must integrate increasing amounts of variable
14 renewable energy. The legislature believes that the
15 intermittent nature of renewable energy generation means that
16 electricity production is not always aligned with customer
17 demand, and there are frequent and sudden fluctuations in



1 generation. To manage this misalignment, grid resources must
2 provide support that can stabilize and shift the demand side to
3 account for variability. These are valuable services that a
4 grid interactive water heater can supply, but a solar hot water
5 heater or a conventional hot water heater cannot.

6 Water heater tanks represent the potential for large-scale
7 thermal energy storage across Hawaii. These are commercially
8 viable technologies that offer relatively inexpensive, non-
9 intrusive control of electric resistive water heaters. A grid
10 interactive water heater can control the best times to activate
11 a residential water heater, thus allowing more grid stability
12 and renewable integration at times when the public utility needs
13 it most.

14 While solar hot water heaters are required for every new
15 residential home, they may not be as cost effective as a grid
16 interactive water heater. Additionally, solar water heaters do
17 not necessarily afford the grid the same flexibility that a grid
18 interactive water heater offers, which is notable because the
19 State is moving towards a one hundred per cent renewable
20 portfolio standard.



1 The purpose of this Act is to require that a grid
2 interactive water heater, as an alternative to a solar water
3 heater, shall be an option for installation in new single
4 residential family homes.

5 SECTION 2. Section 196-6.5, Hawaii Revised Statutes, is
6 amended by amending its title and subsection (a) to read as
7 follows:

8 "~~[Solar]~~ Renewable resourced water heater system required
9 for new single-family residential construction. (a) On or
10 after January 1, ~~[2010,~~ 2021, no building permit shall be
11 issued for a new single-family dwelling that does not include a
12 solar water heater system that meets the standards established
13 pursuant to section 269-44~~[7]~~ or a grid interactive water heater
14 system, unless the chief energy officer of the Hawaii state
15 energy office approves a variance. A variance application shall
16 only be accepted if submitted by an architect or mechanical
17 engineer licensed under chapter 464, who attests that:

18 (1) Resource inadequacy:

19 [~~(1) Installation]~~ (A) The installation of a solar hot
20 water heater is impracticable due to poor solar
21 resource; or



- 1 (B) The installation of a grid interactive hot water
2 heater is impractical due to lack of inventory,
3 space, or installer availability;
- 4 (2) Installation is cost-prohibitive based upon a life
5 cycle cost-benefit analysis, performed separately for
6 the new solar water heater system or the new grid
7 interactive water heater system, that incorporates the
8 average residential utility bill and the cost of the
9 ~~[new solar water heater system]~~ proposed new systems
10 with a life cycle that does not exceed fifteen years;
- 11 (3) A renewable energy technology system, as defined in
12 section 235-12.5, is substituted for use as the
13 primary energy source for heating water; or
- 14 (4) A demand water heater device approved by Underwriters
15 Laboratories, Inc., is installed; provided that at
16 least one other gas appliance is installed in the
17 dwelling. For the purposes of this paragraph, "demand
18 water heater" means a gas-tankless instantaneous water
19 heater that is sourced from a renewable resource and
20 provides hot water only as it is needed."



1 SECTION 3. Statutory material to be repealed is bracketed
2 and stricken. New statutory material is underscored.

3 SECTION 4. This Act shall take effect upon its approval.

4

INTRODUCED BY: SCM SIR
JAN 22 2020

H.B. NO. 2400

Report Title:

Energy Efficiency; Grid Interactive Water Heater Systems

Description:

Requires grid interactive water heater systems to be an alternative to solar water heaters for required installation in new single residential family homes on or after 1/1/2021.

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