

Frequently Asked Questions about Hawai'i's Solar Water Heater Mandate and the Variance Process

Background and Basics of the Solar Water Heater Mandate

- **What is the Solar Water Heater Mandate?**

Act 204, Session Laws of Hawaii 2008, codified as Section [196-6.5](#) of the Hawaii Revised Statutes (HRS), requires that after January 1, 2010, any NEW single-family dwelling built in the State of Hawai'i is required to have a solar water heater. This law applies to accessory dwelling units (ADU) and similar single-family dwellings. This law does not apply to duplexes, triplexes, condos, or other multi-family dwellings. The law states, in relevant part:

§196-6.5 Solar water heater system required for new single-family residential construction. (a) On or after January 1, 2010, no building permit shall be issued for a new single-family dwelling that does not include a solar water heater system that meets the standards established pursuant to section 269-44, unless the chief energy officer of the Hawaii state energy office approves a variance. A variance application shall only be accepted if submitted by an architect or mechanical engineer licensed under chapter 464, who attests that:

- (1) Installation is impracticable due to poor solar resource;
- (2) Installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed fifteen years;
- (3) A renewable energy technology system, as defined in section 235-12.5, is substituted for use as the primary energy source for heating water; or
- (4) A demand water heater device approved by Underwriters Laboratories, Inc., is installed; provided that at least one other gas appliance is installed in the dwelling. For the purposes of this paragraph, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.

A subsequent ruling in Hawai'i Circuit Court in 2019 stated, in part:

"Specific direction as to ... reviewing gas variance applications is available from the statute's legislative history. The court directs DBEDT to the statements and findings above, as well as the following statements made by the legislature when amending the statute in 2009:

'It is the intent of the legislature that the variances provided for in Act 204, Session Laws of Hawaii 2008 (Act

204) will be rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a 30-year mortgage term.'”

- **Who can submit Solar Water Heater Variances?**

If you are considering requesting a “variance” (exemption) from the solar water heater law, your architect or mechanical engineer will need to submit a Solar Water Heater Variance Request to the Hawai'i State Energy Office. As required by HRS Section [196-6.5](#):

(a)... A variance application shall only be accepted if submitted by an architect or mechanical engineer licensed under chapter 464...

(b) A request for a variance shall be submitted to the chief energy officer of the Hawaii state energy office on an application prescribed by the chief energy officer of the Hawaii state energy office...

- **How/Where do I request a variance from the Solar Water Heater Mandate?**

Only architects and mechanical engineers licensed to do business in the State of Hawai'i may request a variance.

- a. Variances can be submitted online by Hawai'i licensed architects and mechanical engineers using this online application: [<https://swhv.ehawaii.gov/>](https://swhv.ehawaii.gov/)
- b. The mail-in (paper-based) application process has been discontinued due to COVID-19.

- **Do I have to be a licensed architect or licensed mechanical engineer to submit a variance request?**

Yes. Only applications from architects or mechanical engineers licensed in the State of Hawai'i under HRS Chapter 464 are accepted. This is specified in HRS Section [196-6.5](#).

- **Why is there now a \$25 processing fee for each solar water heater variance request?**

HRS [196-6.5\(c\)](#) allows DBEDT to adopt rules and to collect fees to cover the costs of administering variance requests.

The [Hawaii Administrative Rules, Title 15, Chapter 37](#), “Solar Water Heater Variance,” was adopted on August 27, 2018. This administrative rule authorizes a \$25 processing fee per variance request and enables the use of this solar water heater variance online application.

The processing fee was intended to help pay for processing costs, hosting and maintenance of the online application.

NOTE: There is no refund for denied variance requests.

- **Must I pay the \$25 processing fee for each variance request?**

Yes, there is a \$25 processing fee for each request. [Online](#) applicants (Hawai'i licensed architects and mechanical engineers) pay online via credit card or eCheck.

NOTE: There is no refund for denied variance requests.

- **Can I get a refund if I submit a variance request with errors or if my variance request is denied?**

No. There are no refunds for variance requests once the request is submitted.

- **Where can I get a copy of the Hawai'i State Law that mandates solar water heaters on all new Hawai'i homes beginning January 1, 2010?**

http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0006_0005.htm

- **Where can I get a copy of the Hawaii Administrative Rules, Title 15, Chapter 37, "Solar Water Heater Variance?"**

The administrative rule that implemented the solar water heater variance online application and the processing fee can be found at:

<<http://files.Hawaii.gov/dbedt/rules/15-37-tagged.pdf>>

- **If I have more questions, where can I get help?**

Send your questions to this e-mail address: DBEDT.SWH-Variance@hawaii.gov

Please put "SWH Variance Question" in the subject box.

How to Use the Online Application (licensed architects and mechanical engineers only)

- **How do I start using the online application?**

- a. First, decide if you will create a "company account" or an "individual account."
 - A "company account" will allow others in the company to also submit variance requests, and all the variances will be in one queue.
 - Create ONE GENERIC email account for the office.
 - An eHawaii.gov account can be the firm's name, for example: architect@ehawaii.gov.
 - Create a firm profile with the first or last name being the firm name. The main office number, address, and security question should be kept with the manager.
 - If you reset your password, you will need the security question to change it.
 - An "individual account," in which each person creates his/her own eHawaii.gov email account, will show in the queue only the variances that the individual has submitted.
 - Click here to view videos on creating an account. <https://swhv.ehawaii.gov/swhv-wikiflow/help.html;jsessionid=E65D1A7B6B8E289FD0720B883066938C.prodapp4>
- b. Create the account.
- c. Create a business profile (click on "Manage Profile" tab).
- d. Add submitter information.
- e. Click on "Submit a Request" tab to begin submitting variance requests.
- f. "Sign-in," thereafter, to apply for more solar water heater variances.

- **Do I have to be a licensed architect or licensed mechanical engineer to use the online application system?**

Yes. Users of this online application must be architects or mechanical engineers licensed to do business in the State of Hawai'i. This is specified in HRS Section [196-6.5](#).

- **How do I make a payment using the online application?**
 - a. Payments of the \$25 processing fee per variance request are made by either credit card or eCheck using the online application.
 - b. There is a payment screen where you will be asked to submit your credit card or bank account information.

- **What happens if my payment is denied?**
 - a. Payments that are denied at the submittal stage will stop the submittal of the variance request.
 - b. Payments that do not clear after the initial approval cause the variance request to be denied.

NOTE: There is no refund for denied variance requests.

- **Who receives the information about the approval/denial of the online form?**
 - a. When a decision has been made about the variance request, the approved or denied variance will be sent via email to whomever submitted it.
 - b. It is the responsibility of the architect or mechanical engineer who submitted the request to submit a copy of the approved solar water heater variance to the county. It is the homeowner's responsibility to ensure that the architect or mechanical engineer submits the approved variance to the county.

- **Must the solar water heater variance requests be submitted from only this online application?**

Yes. The option of submitting requests using the offline application process has been temporarily discontinued due to COVID-19.

- **How long does it take for a variance request to be processed online?**

Usually within 30 working days.

- **Is it okay for the homeowner or another person to submit a solar water heater variance request using this online application?**

No. Only architects or mechanical engineers licensed to do business in the State of Hawai'i can submit the solar water heater variance requests.

- **What does the "Cancel" button do?**

The "Cancel" button stops the submittal or processing of the variance request. If you click the "Cancel" button after you have submitted a request, it stops the processing of the request. There are no refunds for variance requests that are cancelled once a request is submitted.

- **Can I get a refund if I cancel my variance request after I submit it?**

No. There are no refunds for variance requests once submitted.

Processing and Applying for a Solar Water Heater Variance

- **I want to apply for a variance (exemption) from the solar water heater mandate. What are the options for justifying a variance request?**

Justification #1: Installation of a solar water heater is impracticable due to poor solar resource; and/or installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed 15 years.

- For this option, an architect or mechanical engineer licensed by the State of Hawai'i must attach a completed current version of the "Water Heating Life Cycle Cost Comparison" Excel spreadsheet downloaded from:
<<http://energy.hawaii.gov/resources/solar-water-heater-variance>>.

Justification #2: A renewable energy technology system, as defined in HRS Section [235-12.5](#), is substituted for use as the primary energy source for heating water.

- The variance application form must specify the technology that will be installed: Photovoltaics, Solar Thermal, or Wind.

Justification #3: A gas demand water heater device approved by Underwriters Laboratories, Inc., or another Nationally Recognized Testing Laboratory, is installed; provided that at least one other gas appliance is installed in the dwelling. For the purposes of this justification, "demand water heater" means a gas-tankless instantaneous water heater that provides hot water only as it is needed.

The following are requirements for the gas-tankless instantaneous water heater justification and must be completed or this SWHV request will not be accepted:

- (a) This solar water heater variance request is for a new single-family dwelling and the party making the request is the one who will ultimately pay for the energy cost consumption, as required in Act 155, Part VII, section 13 (June 25, 2009).
- (b) The applicant has demonstrated that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a 30-year mortgage term. Attach a correctly completed DBEDT "Water Heating Life Cycle Cost Comparison" found at <http://energy.hawaii.gov/resources/solar-water-heater-variance>.)
- (c) The gas-tankless instantaneous water heater device to be installed has been approved by Underwriters Laboratories, Inc., or another Nationally Recognized Testing Laboratory. Manufacturer, model name, and model number must be listed.
- (d) At least one additional gas appliance(s) must be installed and listed on the request.

For questions, please contact <DBEDT.SWH-Variance@hawaii.gov>

- **When do I use the "Water Heating Life Cycle Cost Comparison" spreadsheet?**

The DBEDT "Life Cycle Cost Comparison" (LCCC) worksheet must be completed when Justification #1 or Justification #3 is selected on the variance request.

- For Justification #1 (Impracticable or cost prohibitive): It must be shown that installing a solar water heater that is designed to meet a 90% solar fraction ("that meets the standards established pursuant to HRS Section 269-44") is impracticable due to poor solar resource, and/or a solar water heater that meets the standards established pursuant to HRS Section 269-44 is cost-prohibitive based upon the LCCC worksheet. The LCCC must show that the total cost over the life cycle of the proposed device is lower than the total cost of a solar water heater. When the quoted price for the solar water heater system and other required data are entered into the LCCC, the Microsoft Excel program will calculate the comparable life cycle costs.
- For Justification #3 (gas-tankless instantaneous water heater), the LCCC must show that the gas-tankless instantaneous water heater has a total cost that is lower than the total

cost of a solar water heater. The LCCC will automatically calculate when using a computer with the Microsoft Excel application.

Submit the LCCC with the solar water heater variance request and \$25.00 processing fee to the Hawai'i State Energy Office.

The LCCC must show that the alternative water heating device chosen has a lower life cycle cost than a solar water heater, or the variance request will be denied.

The latest version of the LCCC must be used (dated February, 2021 or later) or the variance request will be denied.

There are no refunds for denied solar water heater variance requests.

- **How do I complete the "Water Heater Life Cycle Cost Comparison" worksheet and where can I find it?**

Please see the instructions on the worksheet found at:

<http://energy.hawaii.gov/resources/solar-water-heater-variance>.

- **For a variance request under justification #3, what is considered a "gas appliance?"**

Additional gas appliances that meet this requirement are stoves, ranges, ovens, cooktops, and clothes dryers. Contact <DBEDT.SWH-Variance@hawaii.gov> if you are not sure if the gas appliance you plan to install meets this requirement.

- **Must the solar water heater variance request be completed and submitted by a Hawai'i licensed architect or licensed mechanical engineer?**

Yes. Only applications from architects or mechanical engineers licensed in the State of Hawai'i under HRS Chapter 464 are accepted. This is specified in HRS Section [196-6.5](#).

- **Can another type of engineer substitute for a mechanical engineer?**

No. The only engineer authorized by State law for solar water heater variance requests is a MECHANICAL engineer licensed under HRS Chapter 464

http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0006_0005.htm

- **Is it required that the architect or mechanical engineer who designed my home to also complete the solar water heater variance request?**

No. Any architect or mechanical engineer licensed to do business in the State of Hawai'i may complete the request.

- **DENIAL REASONS: What are the reasons that a solar water heater variance request will be denied in the online application?**

- a. The information provided about the property is incorrect or inconsistent with public records.
- b. The \$25 payment submitted for the variance request could not be processed.
- c. The Life Cycle Cost Comparison is incomplete.
- d. The Life Cycle Cost Comparison does not demonstrate that a solar water heater installation is cost-prohibitive because the selected water heating device has a higher life-cycle cost than a solar water heater.
- e. The Life Cycle Cost Comparison is inadequate or incorrect.
- f. The renewable energy technology system is inadequate or incorrect.

- g. The additional gas appliance listed is incorrect or not adequate.
- h. There was an error(s) with your variance request or payment.

- **What do I do if I get denied?**

If the variance request was denied, you can submit a new variance request for consideration. You must pay the \$25 fee with each variance request submitted, regardless if you have been denied before.

Water Heating Technologies

- **Will I be approved for a variance from the solar water heater mandate by installing an electric-powered on-demand water heater?**

No. Electric-powered on-demand water heaters are NOT a valid justification for exemption from the solar water heater mandate.

- **If I choose to have a gas-tankless instantaneous water heater in my new home instead of a solar water heater, am I required to also install another gas appliance?**

1. Yes, if justifying the solar water heater variance with the use of a gas-tankless instantaneous water heater, you must also install at least one additional gas appliance.
 - a. Acceptable gas appliances are stove, range, oven, cooktop, and clothes dryer. If you question whether the device you want will qualify for “one other gas appliance,” please contact DBEDT.SWH-Variance@hawaii.gov.
2. You must also submit a correctly completed DBEDT “Water Heating Life Cycle Cost Comparison” (LCCC), available on the Hawai‘i State Energy Office website, <https://energy.hawaii.gov/resources/solar-water-heater-variance>.
 - a. It must be signed and stamped by a Hawai‘i licensed architect or mechanical engineer.
 - b. Only the latest version of the LCCC will be accepted (dated February, 2021 or later). Using an outdated LCCC will cause your request to be denied.
 - c. There are no refunds for denied requests.

- **How do I know if the gas-tankless instantaneous water heater I want to install is “UL-certified” or certified by other Nationally Recognized Testing Laboratories (NRTL)?**

- a. The “UL certified” label is usually printed on the box, water heater, instructions manual, brochure, or specification sheet. Check with the manufacturer and keep printed evidence that the model you are using is UL certified. You can also check the UL website to check if any UL-certified gas-tankless instantaneous water heaters are listed: <https://iq.ulprospector.com/en/>. After registering (free), type “gas tankless water heater” into the “Create a Search Now” box. Click on “Search” button.
- b. To find a list of NRTLs, please go to the Occupational Safety and Health Administration website at: <https://www.osha.gov/nationally-recognized-testing-laboratory-program/current-list-of-nrtls>. As with the “UL certified” label, the NRTL’s label is usually printed on the box, water heater, instructions manual, brochure, or specification sheet. Check with the manufacturer and keep printed evidence that the model you are using is NRTL certified.

- **How do I find out the specifications for a solar water heater system in Hawai'i?**
The specifications for a solar water heater system in Hawai'i were developed by the State of Hawai'i Public Utilities Commission (PUC). Please see the following PUC websites:
 - a. PUC page listing all the links regarding solar water heater standards:
<http://puc.hawaii.gov/energy/residential-solar-water-heating-systems-standards>
 - b. Specific standards: "Docket No. 2008-0249, Decision and Order" (the actual standards begin in Exhibit 1, page 36, of the PDF), <http://puc.hawaii.gov/wp-content/uploads/2013/06/Decision-and-Order-Issued-on-Oct-29th-2009.pdf>
 - c. The "Solar Collector BTU/Day Output by Hawaii Sunshine Zone, Attachment A," which begins on page 56 of the PDF, was updated in the link entitled, "Agreed-Upon Revised Output Tables, Updated November 30, 2009 ...": <http://puc.hawaii.gov/wp-content/uploads/2013/06/Updated-Output-Tables.pdf>

Accessory Dwelling Units (ADUs) and the Solar Water Heater Mandate

- The City and County of Honolulu allows the construction of an Accessory Dwelling Unit (ADU) on certain properties:
<http://www.honolulu.gov/Portals/0/pdfs/construction/ADU_FAQ.pdf>
<<http://www.honolulu.gov/Portals/0/pdfs/construction/ADUquickguide.pdf>>
- Because these units are "single family dwellings," they are covered under the State of Hawai'i solar water heater mandate, Hawaii Revised Statutes (HRS) §196-6.5:
<http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0006_0005.htm>
- [HRS §196-6.5](#) requires all new single-family dwellings in the State of Hawai'i to install a solar water heater system. ADUs and similar structures are considered single-family dwellings.
- If the home owner wants to apply for a variance from the solar water heater mandate, he/she may have a Hawai'i licensed architect or mechanical engineer submit a variance request using the online application: <https://swhv.ehawaii.gov>.
- General information about ADU and Primary Residence water heating
 - a. According to the City & County of Honolulu Building Division, the primary home's hot water system (which can include a solar water heater system) is allowed to provide hot water to another dwelling within the property. In other words, the hot water system from the primary dwelling can supply hot water to the ADU if the ADU is within the property.
 - b. All solar water heater systems must comply with the Hawai'i Public Utility Commission's (PUC) requirement (Docket No. 2008-0249, Decision and Order: Solar Water Heater Standards) to provide a minimum of 90 percent of the annual average water heating load:
<<https://puc.hawaii.gov/wp-content/uploads/2013/06/D-O.pdf>>
- If the homeowner is connecting the solar water heater of the primary residence to the ADU, and the system meets the PUC solar water heater requirements, this meets the requirements of the mandatory solar water heater law ([HRS §196-6.5](#)) for the ADU. In this situation, a solar water heater variance is not required for the ADU.

- If the hot water for the ADU will be from a device that is not a solar water heater (e.g., electric resistance, heat pump, gas, or gas-tankless instantaneous water heater; photovoltaic system; etc.), then the ADU is required to have a solar water heater variance. In this situation, a solar water heater variance request must be submitted to the Hawai'i State Energy Office.

Notes about the February, 2021 update

DBEDT has new requirements for acceptance of variances from the solar water heater mandate for **gas-tankless instantaneous water heaters**. These requirements are in accordance with the final judgment from Hawai'i Circuit Court Judge Jeffrey Crabtree in *Hawaii Solar Energy Association and Sierra Club v. DBEDT*, Civil No. 18-1-1398-09 (JPC), February 5, 2019, which states, in part:

“Specific direction as to how DBEDT should exercise its discretion when reviewing gas variance applications is available from the statute’s legislative history. The court directs DBEDT to the statements and findings above, as well as the following statements made by the legislature when amending the statute in 2009:”

- “It is the intent of the legislature that the variances provided for in Act 204, Session Laws of Hawaii 2008 (Act 204) will be rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a 30-year mortgage term.”

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