
A BILL FOR AN ACT

RELATING TO ENERGY.

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

1 SECTION 1. Grid reliability has emerged as a central issue
2 in Hawaii's transition to clean energy. The potential impact of
3 increasing amounts of renewable energy on the electric grid has
4 been linked to technical concerns regarding interconnection that
5 could lead to the curtailment of the use of renewable energy for
6 the electric grid. The technical and contentious nature of this
7 issue demands careful review and formal adoption of reliability
8 standards and operating practices tailored specifically for
9 Hawaii. Formal reliability standards such as the North American
10 Electric Reliability Corporation (NERC) standards may be
11 particularly valuable to Hawaii because it can serve as a model
12 to assess any grid reliability impacts and ensure reliable grid
13 operation, thereby establishing an objective, verifiable basis
14 for determining the amount of renewable energy that can be added
15 to Hawaii's electric systems.

16 To achieve Hawaii's clean energy objectives,
17 interconnection and curtailment of renewable energy in Hawaii
18 should be governed by formally adopted electric system



1 reliability that are based upon existing NERC bulk electric
2 system reliability standards, modified as may be necessary and
3 appropriate for Hawaii's isolated island grids. Although
4 provisions in the Federal Power Act concerning electric
5 reliability standards do not apply in Hawaii, regulated
6 utilities' electric system planning and operations, including
7 decisions concerning the interconnection and curtailment of
8 renewable energy providers, should be governed by formal
9 reliability standards.

10 Reliability standards are planning and operating rules that
11 utilities follow to ensure system reliability, including the
12 ability of the electric system to supply the aggregate electric
13 power and energy requirements of the electricity consumers at
14 all times, taking into account scheduled and reasonably expected
15 unscheduled outages of system components, and the ability of the
16 electric system to withstand sudden disturbances such as
17 electrical short circuits or unanticipated loss of system
18 components.

19 Reliability standards should define circumstances in which
20 renewable energy projects can or cannot be incorporated on each
21 island. The standards should be flexible and responsive to
22 experience and changes in system conditions. They should be



1 modified as needed to reflect changes to transmission,
2 distribution, generation, demand, generation mix, ancillary
3 services availability, the results of ongoing studies, and any
4 other relevant factors, such as technology and advancement.

5 Once approved by the United States (U.S.) Federal Energy
6 Regulatory Commission, NERC reliability standards become legally
7 binding on all owners, operators and users of the bulk power
8 system. NERC has the legal authority to enforce compliance with
9 NERC reliability standards, which it achieves in part through
10 the imposition of financial penalties.

11 All electric utilities in the U.S. (except for Hawaii and
12 Alaska) are legally bound to comply with reliability standards
13 enforced by NERC. NERC reliability standards are used by
14 electric utilities throughout the U.S., Canada, and portions of
15 Mexico. The reasons compelling widespread use of the NERC
16 reliability standards throughout North America apply with equal
17 force in Hawaii. Although operational challenges in Hawaii may
18 require modification of NERC reliability standards, the basic
19 physical and operational characteristics of electric grids in
20 Hawaii and North America are essentially identical. All
21 utilities must maintain adequate voltage, balance supply and
22 demand in real time, and maintain system stability.



1 The experience of New Zealand demonstrates that formal
2 reliability standards are appropriate and used not only in North
3 America, but on isolated island electric grids similar to those
4 in Hawaii. The electric system in New Zealand consists of two
5 separate island grids with limited interconnection via a high
6 voltage direct current undersea cable. The bulk power electric
7 system is subject to formal reliability standards established by
8 the New Zealand Electricity Commission.

9 Formal reliability and grid interconnection standards based
10 on the NERC reliability standards are appropriate to guide
11 Hawaii's transition to electric grids supplied by increasing
12 amounts of renewable energy. The purpose of the reliability and
13 interconnection standards is to maintain system reliability and
14 grid stability and to ensure open access to transmission and
15 distribution systems.

16 The purpose of this Act is to establish the Hawaii
17 electricity reliability council to develop and implement grid
18 reliability and interconnection standards for renewable energy.

19 SECTION 2. Chapter 269, Hawaii Revised Statutes, is
20 amended by adding a new part to be appropriately designated and
21 to read as follows:



1 **"PART HAWAII ELECTRICITY RELIABILITY COUNCIL**

2 **"§269- Definitions.** Whenever used in this part, unless a
3 different meaning clearly appears from the context:

4 "Commission" means the public utilities commission.

5 "Council" means the Hawaii electricity reliability council.

6 "Electric system" means facilities and equipment used for
7 generation, transmission, and distribution of electricity.

8 **"§269- Hawaii electricity reliability council;**
9 **establishment.** (a) There is established within the public
10 utilities commission for administrative purposes only, the
11 Hawaii electricity reliability council that shall consist of
12 seven members. Members of the council shall be appointed by the
13 governor as provided in section 26-34. The term of each member
14 shall be four years; provided that, of the members initially
15 appointed, four members shall serve for four years and three
16 members shall serve for three years. Vacancies shall be filled
17 for the remainder of any unexpired term in the same manner as
18 original appointments. The council chairperson shall be elected
19 by the council from among the appointed members of the council.
20 The chairperson of the commission shall serve as an ex officio,
21 non-voting member.



1 Members shall have knowledge, experience, and expertise in
2 the area of renewable energy, electric public utility operation
3 and management, engineering, government regulation and energy
4 policy, economics, or climate and environmental protection;
5 provided that no more than two members shall represent, be
6 employed by, or be under contract with any electric public
7 utility or electric public utility affiliate. The members shall
8 include at least one representative each from the city and
9 county of Honolulu and the counties of Hawaii, Kauai, and Maui.
10 Four members shall constitute a quorum and a minimum of four
11 affirmative votes shall be necessary for all actions by the
12 council. The members of the council shall serve without
13 compensation but shall be reimbursed for expenses, including
14 travel expenses, incurred in the discharge of their duties.

15 (b) The council shall meet regularly and the meetings of
16 the council shall be open to the public as provided in section
17 92-3; provided that when it is necessary for the council to
18 receive information that is proprietary or confidential to a
19 particular enterprise or the disclosure of which might be
20 harmful to the business interests of the enterprise, the council
21 may enter into an executive meeting that is closed to the public



1 in accordance with the procedures provided for holding an
2 executive meeting under part I of chapter 92.

3 (c) Notwithstanding any law to the contrary, the council
4 shall be exempt from section 26-35 with the exception of section
5 26-35(a)(2), (3), (7), (8) and subsection (b).

6 (d) The council shall employ an executive officer and
7 other personnel as necessary to carry out the duties of the
8 council, who shall be exempt from chapter 76. The executive
9 officer shall have sufficient electricity grid or renewable
10 energy expertise to carry out the duties of the council.

11 **§ 269- Reliability standards.** (a) The council shall
12 develop standards to ensure the reliability of electric systems
13 in Hawaii. The reliability standards shall be modeled upon
14 North American Electric Reliability Corporation bulk electric
15 system reliability standards, modified by the council as may be
16 necessary and appropriate for electric systems in Hawaii. All
17 electric system owners, operators, and users shall comply with
18 any applicable reliability standards developed by the council.

19 (b) Reliability standards shall define the reliability
20 requirements for planning and operating Hawaii electric systems,
21 and shall define functions to be performed to ensure Hawaii
22 electric systems operate reliably and in a manner that is fair,



1 non-discriminatory, and consistent with state clean energy
2 objectives. The reliability standards shall address resource
3 and demand balancing, supply resource adequacy, transmission and
4 distribution planning and operations, and voltage and reactive
5 control, and may address other related areas. An electric
6 public utility may not curtail renewable energy production
7 unless such curtailment is necessary to prevent violation of a
8 reliability standard.

9 (c) Reliability standards shall be developed pursuant to a
10 process modeled upon the North American Electric Reliability
11 Corporation standards development process, modified by the
12 council as may be necessary and appropriate to Hawaii electric
13 systems; provided that the process shall provide reasonable
14 notice and opportunity for public comment, due process,
15 openness, a balance of interests, transparency, consensus-
16 building, and timeliness.

17 (d) The council shall submit for review to the commission
18 initial reliability standards for Hawaii electric systems not
19 less than eighteen months after the enactment of this Act. Upon
20 review, the commission may approve, deny, or approve with
21 modifications the initial reliability standards. The council
22 may, upon implementation of any initial reliability standards



1 approved by the commission, seek commission review and approval
2 of proposed amendments or modifications to the initial
3 reliability standards.

4 (e) Significant disturbances and abnormal system events
5 shall promptly be reported to the council and the council shall
6 investigate such events, identify their causes, and publish
7 findings in an effort to prevent and mitigate future such
8 events.

9 (f) As directed by the commission, periodic reports
10 concerning compliance with reliability standards shall be
11 submitted to the commission, and the council shall have access
12 to real-time data and other information it deems necessary to
13 monitor Hawaii electric systems for purposes of providing
14 notification concerning significant disturbances and abnormal
15 system events that may have the potential to affect electric
16 system reliability.

17 (g) The council shall maintain a list of registered
18 entities subject to compliance with the reliability standards.

19 (h) The council shall comply with all federal laws and
20 rules related to national security, including but not limited to
21 critical energy infrastructure information.



1 **§ 269- Reliability standards; compliance and enforcement.**

2 The council may identify potential violations of reliability
3 standards through self-reporting by owners, operators, and users
4 of specific incidents and events; information provided in annual
5 compliance reports, audit reports, or other reports; information
6 received by the council from other industry participants; audits
7 and other monitoring programs; and investigations by the
8 council. The council shall report potential violations to the
9 commission. If the commission determines that any person has
10 violated or is violating this section, the commission shall
11 undertake enforcement pursuant to this chapter.

12 **§ 269- Interconnection standards and procedures. (a)**

13 The council shall prepare initial interconnection standards and
14 procedures not less than eighteen months after the enactment of
15 this Act. The council shall, upon implementation of any initial
16 interconnection standards and procedures, seek commission review
17 and approval of proposed amendments or modifications to the
18 standards and procedures.

19 (b) The interconnection standards and procedures shall
20 establish the technical requirements that govern interconnection
21 to the transmission, sub-transmission, and distribution levels
22 of an electric system by generators of electricity, and by



1 providers of electricity storage and services to aid the proper
2 and efficient functioning of the electric system.

3 (c) The standards and procedures shall replace
4 interconnection standards and procedures, and tariffs, in effect
5 at the time they are prepared, and shall be based as may be
6 reasonable and appropriate on model standards and procedures.
7 Notwithstanding the foregoing, the council shall govern
8 interconnection upon the enactment of this Act and shall use
9 interconnection standards and procedures, and tariffs, in effect
10 until such time that initial interconnection standards and
11 procedures are prepared.

12 (d) The council shall undertake technical studies
13 necessary to evaluate compliance of the requested
14 interconnection with the interconnection standards. The council
15 shall consult with the utility concerning any request to
16 interconnect to an electric system; provided, however, that the
17 council shall retain final authority to approve or deny, at its
18 sole discretion, any request to interconnect to the electric
19 system.

20 (e) The council shall grant any request to interconnect to
21 an electric system, and shall direct the utility to complete the
22 requested interconnection, upon a showing by the requesting



1 party that interconnection will comply with all applicable
2 interconnection standards and procedures and is consistent with
3 any applicable reliability standards.

4 **§ 269- Technical guidance.** Upon the commission's
5 request, the council shall provide technical guidance to the
6 commission concerning the development and implementation of
7 clean energy policy and programs, including smart grid systems,
8 system reliability standards, electric grid stability, energy
9 storage, advanced metering, electric grid communications
10 systems, transmission and distribution issues, fuel and non-fuel
11 generation, and other system-level issues associated with
12 renewable energy production and use.

13 **§ 269- Hawaii electricity reliability council functions.**

14 (a) The council may arrange for the conduct of research through
15 contractual services with the University of Hawaii or any agency
16 or other qualified persons concerning technical, engineering,
17 economic, social, and environmental aspects of renewable energy
18 development in the State.

19 (b) The council shall do any and all things necessary to
20 carry out its purposes, to exercise the powers and
21 responsibilities given in this part, and to perform other



1 functions required or authorized by law, including contracting
2 for services when required for the implementation of this part.

3 (c) The council shall develop and maintain a comprehensive
4 summary of all interconnection requests, including progress
5 toward clean energy goals, including interconnection and the
6 aggregate amount of renewable energy available, to facilitate
7 public knowledge and participation.

8 (d) The council may assess the effectiveness of policy and
9 develop proposals to increase the integration of renewable
10 energy in Hawaii."

11 SECTION 3. There is appropriated out of the public
12 utilities special fund established under section 269-33 the sum
13 of \$ or so much thereof as may be necessary for fiscal
14 year 2011-2012 and the same sum or so much thereof as may be
15 necessary for fiscal year 2012-2013 for the establishment and
16 filling of a permanent executive officer position and one
17 clerical position for the hawaii electricity reliability
18 council.

19 The sums appropriated shall be expended by the public
20 utilities commission for the purposes of this Act.



1 SECTION 4. This Act shall take effect on July 1, 2011.

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Report Title:

Renewable Energy; Hawaii Electricity Reliability Council;
Reliability and Interconnection Standards

Description:

Establishes the Hawaii Electricity Reliability Council to
develop and implement grid reliability and interconnection
standards.

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not legislation or evidence of legislative intent.*

