

JAN 22 2021

A BILL FOR AN ACT

RELATING TO ENERGY.

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

1 SECTION 1. The legislature finds that the human-induced
2 global climate crisis requires thoughtful but bold response on
3 many fronts to make Hawaii communities resilient to the impacts
4 of climate change that threaten the very survivability of these
5 fragile islands. Lest Hawaii lose its leadership position in
6 meeting the future of labor, justice, and equity, the
7 legislature embraces Aloha 'Aina as a green new deal to
8 decarbonize Hawaii's systems of food, energy, and
9 transportation, and to sequester carbon through systems of
10 agriculture, waste management, and ecosystem restoration. This
11 solid foundation finds synergies with expanded access to health,
12 housing, and education, multiplying good jobs and ensuring
13 justice and equity for Hawaii's citizens. This measure
14 represents a forward step in mitigating and adapting Hawaii to
15 inevitable change.

16 The legislature, as declared in the Hawaii commitments
17 presented to the World Conservation Congress in 2016, that "[w]e



1 must undertake profound transformations in how human societies
2 live on Earth, with particular attention to making our patterns
3 of production and consumption more sustainable. We must
4 recognize that human health and wellbeing depend on healthy
5 ecosystems. We must recognize that every form of life has
6 value - regardless of its worth to humans." Hawaii has been a
7 leader in conservation efforts for decades, through its
8 commitment to environmental and sustainability policies. In
9 1974, the State enacted the state environmental policy,
10 chapter 344, Hawaii Revised Statutes, as a mechanism to set
11 environmental goals. In addition, the laws enacted in Hawaii in
12 recent decades have served as a starlight for other
13 jurisdictions and set a global example on how to adopt policies
14 on sustainability. More recently, several approaches to
15 sustainability have emerged in Hawaii, including the Aloha+
16 challenge, the governor's sustainable Hawaii initiative, and
17 other initiatives inspired by the Malama Honua Worldwide Voyage
18 and Malama Hawaii.

19 In July 2014, the State launched the Aloha+ challenge: He
20 Nohona 'Ae'ōia, A Culture of Sustainability, a statewide
21 commitment to sustainability, with the leadership of the



1 governor, four county mayors, Office of Hawaiian Affairs,
2 legislature, and Hawaii green growth public-private partners
3 across the State. The Aloha+ challenge builds on Hawaii's
4 history of systems thinking, Hawaiian culture and values, and
5 successful track record on sustainability to outline six
6 ambitious goals to be achieved by 2030. Among the six goals,
7 two involved:

8 (1) Clean energy: Achieve seventy per cent clean energy
9 with forty per cent from renewables and thirty per
10 cent from efficiency; and

11 (2) Waste reduction: Reduce the solid waste stream prior
12 to disposal by seventy per cent through source
13 reduction, recycling, bioconversion, and landfill
14 diversion methods.

15 To increase the efforts of the Aloha+ challenge, the
16 governor launched the sustainable Hawaii initiative in 2016,
17 which encompassed five major goals, the most existential goal
18 was to achieve one hundred per cent renewable energy in
19 electricity by 2045.

20 At the global level, the United Nations sustainable
21 development goals, the Hawaii commitments presented to the World



1 Conservation Congress in 2016, and the Paris Climate Agreement
2 have been adopted to guide global efforts. The sustainable
3 development goals, otherwise known as the 2030 Agenda for
4 Sustainable Development, were born at the United Nations
5 Conference on Sustainable Development in Rio de Janeiro in 2012,
6 which came into effect in 2015, are a universal call to action
7 to end poverty, protect the planet, and ensure that all people
8 enjoy peace and prosperity. Dealing with the threat of climate
9 change impacts how people manage the world's fragile natural
10 resources.

11 During September 2016, more than ten thousand leaders from
12 government, civil society indigenous communities, faith and
13 spiritual traditions, private sector, and academia gathered in
14 Hawaii for a meeting of the International Union for Conservation
15 of Nature World Conservation Congress. Delegates to the
16 congress adopted the Hawaii commitments to achieve the
17 transformation required to promote a "Culture of Conservation".
18 The Hawaii Commitments consist of seven identified challenges
19 and proposed solutions, among them included:

20 (1) Linking spirituality, religion, culture, and
21 conservation; and



1 (2) The challenge of climate change.

2 The Hawaii commitments build on the Paris Climate Agreement
3 and sustainable development goals to allow different global
4 voices to come together and find common ground in the spirit of
5 partnership, collaboration, and sustainability.

6 In 2018, Governor David Ige issued Executive Order No.
7 18-06, which directed all state agencies to implement practices
8 to assist the State in achieving the United Nations sustainable
9 development goals. Additionally, four counties have expressed
10 support for the sustainable development goals. In particular,
11 the county of Maui adopted Resolution No. 18-18, supporting "the
12 Hawaii State Senate's efforts to enact legislation to attain the
13 United Nations Sustainable Development Goals."

14 In order for Hawaii to continue to serve as a starlight for
15 the rest of the world in setting policies on sustainability and
16 to serve as a global leader on issues of conservation and
17 sustainability, it is essential that the State demonstrate its
18 full commitment to its own policies and goals as well as the
19 goals set on the international stage at United Nations
20 conferences and summits on sustainability. In particular, the
21 legislature has identified seven of the seventeen United Nations



1 sustainable development goals that are most immediately vital to
2 the State including:

- 3 (1) Sustainable cities and communities;
- 4 (2) Responsible consumption and production; and
- 5 (3) The formation of partnerships for the sustainable
6 development goals.

7 The legislature further finds and acknowledges that
8 municipal solid waste, particularly non-recyclable plastics, has
9 become a significant threat to Hawaii's environment, ecosystems,
10 and beaches, on which the State's economy, culture, and native
11 species rely.

12 Plastic waste and debris can be increasingly found on every
13 island and in every watershed and protected area in the Hawaiian
14 archipelago. Hawaii's forests, streams, and beaches are strewn
15 with plastic debris, including micro plastic debris smaller than
16 grains of sand which are consumed by a spectrum of animals from
17 the smallest of endangered birds to the largest of humpback
18 whales.

19 The Washington Post reported that an estimated five million
20 to thirteen million tons of plastic debris enter the ocean every
21 year, which has contributed to creating the Pacific garbage



1 patch, a mass of plastic debris larger than the state of Texas
2 floating north of Hawaii. If nothing changes, it is estimated
3 that by 2050, there will be more plastic in the Pacific Ocean,
4 by weight, than fish.

5 The legislature additionally finds that there is
6 opportunity to create clean energy, reduce waste management
7 costs to taxpayers, and protect Hawaii's environment from
8 greenhouse gas emissions from municipal solid waste, including
9 plastic waste, through landfill diversion, using recycling,
10 reusing, composting, and conversion technologies. Hawaii
11 residents generate 2.8 tons of waste per person per year, more
12 waste per capita than residents of any other state. More than
13 eighty per cent of plastic waste entering the Pacific Ocean come
14 from preventable land-based waste and pollution.

15 The legislature also finds that as a result of pursuing its
16 goal to reach one hundred per cent renewable energy by 2045,
17 Hawaii now leads other states in nearly every category of
18 renewable energy. Approximately twenty-six per cent of
19 electricity in the State is generated from renewable energy, and
20 there are sixty utility-scale renewable energy projects feeding
21 into the State's power grids. Notwithstanding such progress,



1 the State continues to depend heavily upon imported petroleum
2 for its energy needs and fall short of its ambitious renewable
3 energy goals.

4 The legislature additionally finds that the State must
5 continue to support established renewable energy sources that do
6 not create significant greenhouse gas emissions and those
7 emerging from new technological innovations to meet the State's
8 expansive renewable energy goals, such as clean conversion
9 technologies that do not release greenhouse gases into the
10 environment.

11 The legislature further finds that landfills are a major
12 producer of greenhouse gas emissions. Landfilled waste is the
13 largest source of human-generated methane. In addition, if not
14 properly built and maintained, harmful leachate contaminates can
15 seep out of landfills and seep into local streams, soil, and
16 groundwater. Landfills are an unsustainable approach to waste
17 management as they impact native species, cause the release of
18 methane and carbon dioxide greenhouse gases effecting climate
19 change, and pollute the State's environment. The need for
20 landfills can be significantly reduced, if not eliminated,



1 through recycling, reusing, composting, and clean conversion
2 technologies.

3 Municipal solid waste can be converted into clean energy,
4 including clean electricity, diesel, hydrogen, and ammonia
5 without burning. Recent state-of-the-art technologies allow
6 gasification with zero greenhouse gas emissions. This includes
7 closed loop systems that convert waste into syngas which is
8 processed into clean energy.

9 The legislature finds that production of clean electricity
10 may be encouraged if government agencies, as sellers of clean
11 electricity, are allowed to engage in intra-governmental
12 wheeling, in which electric power is transmitted from one
13 agency's power of generation to the facilities of other
14 governmental agencies over the existing transmission lines of a
15 third-Party electric public utility. The State and other
16 government entities such as the counties could acquire clean
17 electricity by purchasing it from a clean electricity project
18 developer and then transmit it, across utility lines owned and
19 maintained by an existing electric utility, to the government
20 agency or another government agency. This Act would allow



1 wheeling from the microgrid natural energy laboratory of Hawaii
2 demonstration project.

3 The purpose of this Act is to:

- 4 (1) Establish a zero net energy and zero net waste
5 initiative program with the mission of achieving the
6 one hundred per cent renewable energy goal;
- 7 (2) Establish a zero net energy and zero net waste
8 advisory council;
- 9 (3) Designate property controlled by the natural energy
10 laboratory of Hawaii authority as a microgrid
11 demonstration project, which prohibits the use of
12 fossil fuels as an energy source in the project;
- 13 (4) Authorize the transmission of electric power from one
14 governmental agency's point of generation to the
15 facility of another governmental agency's existing
16 transmission lines within the boundaries of the Hawaii
17 ocean science and technology park; and
- 18 (5) Appropriate funds for the zero net energy and zero net
19 waste initiative program.



1 SECTION 2. The Hawaii Revised Statutes is amended by
2 adding a new chapter to be appropriately designated and to read
3 as follows:

4 "CHAPTER

5 ZERO NET ENERGY AND ZERO NET WASTE INITIATIVE

6 § -1 Definitions. As used in this chapter:

7 "Clean energy" means energy not generated from fossil fuel
8 and not produced by a combustion method that releases greenhouse
9 gases into the environment.

10 "Combustion" means a high-temperature chemical reaction
11 between a fuel and an oxidant, usually, atmospheric oxygen, that
12 produces light, heat, smoke, and can produce electricity.

13 "Commission" means the public utilities commission.

14 "Dirty electricity" means electricity generated from fossil
15 fuel or produced by a combustion method that releases greenhouse
16 gases into the environment.

17 "Fossil fuel" means coal, natural gas, petroleum, and non-
18 compostable plastic.

19 "Microgrid" means an interconnected system of loads and
20 energy resources, including but not limited to distributed
21 energy resources, energy storage, demand response tools, or



1 other management, forecasting, and analytical tools,
2 appropriately sized to meet customer needs, within a clearly
3 defined electrical boundary that can act as a single,
4 controllable entity, and can connect to, disconnect from, or run
5 in parallel with larger portions of the electrical grid, or can
6 be managed and isolated to withstand larger disturbances and
7 maintain electrical supply to connected critical infrastructure.

8 "Program" means a zero-net energy and zero net waste and
9 initiative, including a microgrid natural energy laboratory of
10 Hawaii demonstration project that allows wheeling between the
11 boundaries of Hawaii ocean science and technology park.

12 "Wheeling" means transmitting electric power from one
13 governmental agency's point of generation to the facilities of
14 other governmental agencies over the existing transmission lines
15 of a third-party electric public utility.

16 "Zero net energy building" means an energy-efficient
17 building where, on a source energy basis, the actual annual
18 consumed energy is less than or equal to the on-site renewable
19 generated energy.

20 "Zero net energy campus" means an energy-efficient campus
21 where, on a source energy basis, the actual annual consumed



1 energy is less than or equal to the on-site renewable generated
2 energy.

3 "Zero net energy community" means an energy-efficient
4 community where, on a source energy basis, the actual annual
5 consumed energy is less than or equal to the on-site renewable
6 generated energy.

7 "Zero net energy portfolio" means an energy-efficient
8 portfolio in which, on a source energy basis, the actual annual
9 consumed energy is less than or equal to the on-site renewable
10 generated energy.

11 "Zero net waste" means no by-products of manufacturing are
12 sent to landfills and all materials generated in the
13 manufacturing process are either reused, recycled, composted, or
14 converted into clean energy.

15 **§ -2 Zero net energy and zero net waste initiative**
16 **program; established.** There is established within the
17 commission a zero net energy and zero net waste initiative
18 program with the mission of achieving the one hundred per cent
19 renewable energy mandate using a combination, as applicable and
20 environmentally feasible, of the following resources:

21 (1) Wind;



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- 1 (2) Sun;
- 2 (3) Falling water;
- 3 (4) Biogas, including landfill and sewage-based digester
- 4 gas;
- 5 (5) Geothermal;
- 6 (6) Ocean water, currents, and waves, including ocean
- 7 thermal energy conversion;
- 8 (7) Biomass, including biomass crops, agricultural and
- 9 animal residues and wastes, but not including mono-
- 10 cultured wood crops;
- 11 (8) Biofuels;
- 12 (9) Hydrogen produced from renewable energy sources; and
- 13 (10) Other self-replenishing non-fossil fuel, non-nuclear
- 14 resources, and conversion to clean energy technologies
- 15 to achieve zero net energy for zero net energy
- 16 buildings, zero net energy campuses, zero net energy
- 17 communities, zero net energy portfolios, and zero net
- 18 waste by recycling, reusing, composting, and
- 19 conversion technologies.

20 **§ -3 Zero net energy and zero net waste advisory**
21 **council; duties; established.** (a) There is established the



1 zero net energy and zero waste advisory council, which shall
2 consist of the following members:

3 (1) The chairperson of the commission or the chairperson's
4 designee, who shall serve as the chair of the council;

5 (2) The chief energy officer of the Hawaii state energy
6 office or the chief energy officer's designee;

7 (3) The chairperson of the board of land and natural
8 resources or the chairperson's designee;

9 (4) The executive director of the board of directors of
10 the natural energy laboratory of Hawaii authority or
11 the executive director's designee;

12 (5) The chairs of the standing committees of the
13 legislature with subject matter jurisdiction over the
14 environment;

15 (6) A representative from the city and county of Honolulu
16 department of environmental services;

17 (7) A representative from the county of Maui department of
18 environmental management;

19 (8) A representative from the county of Kauai department
20 of public works;



- 1 (9) A representative from the county of Hawaii department
2 of environmental management;
- 3 (10) One representative each from four community
4 organizations that focus on recycling, composting, and
5 conversion technologies for clean energy, to be
6 selected by the chair of the council;
- 7 (11) An engineering expert in sustainability, renewable
8 clean energy, and advanced energy solutions;
- 9 (12) An expert in governmental agencies, including state
10 government, counties, and cities with sustainability
11 clean energy goals to achieve full zero net energy and
12 zero net waste status; and
- 13 (13) A representative from Hawaiian Electric Company, Inc.
- 14 (b) The zero net energy and zero net waste advisory
15 council shall:
- 16 (1) Be subject to section 26-34;
- 17 (2) Serve without compensation but shall be reimbursed for
18 expenses, including travel expenses, necessary for the
19 performance of their duties;



- 1 (3) Perform any relevant analysis and develop appropriate
2 plans or recommendations for the legislature,
3 counties, and other stakeholders;
- 4 (4) Obtain from state and county agencies all relevant
5 data on recycling, composting, landfills, conversions
6 technologies, any associated waste management costs,
7 and microgrids and wheeling, as they relate to the
8 mission of the program;
- 9 (5) Obtain from state and county agencies all relevant
10 data on energy, electricity, hydrogen, and diesel fuel
11 generation and any associated costs and benefits as
12 they relate to the mission of the program;
- 13 (6) Assist with coordination between the state agencies
14 and other government agencies with the general public
15 on the mission of the program; and
- 16 (7) Submit a report of its progress and any findings and
17 recommendations, including any proposed legislation,
18 to achieve zero net energy and zero net waste by 2030
19 based on the microgrid natural energy laboratory of
20 Hawaii demonstration project and wheeling within the
21 boundaries of the Hawaii ocean sciences and technology



1 park to the legislature no later than twenty days
2 prior to the convening of each regular session.

3 § -4 **Microgrid demonstration project; natural energy**
4 **laboratory of Hawaii authority.** Property controlled by the
5 natural energy laboratory of Hawaii authority, established
6 pursuant to chapter 227D, is designated as a microgrid
7 demonstration project. The natural energy laboratory of Hawaii
8 authority shall plan, design, and implement a microgrid, with
9 the support of the zero net energy and zero net waste advisory
10 council, and public and private sector partners, if necessary,
11 on property controlled by the natural energy laboratory of
12 Hawaii authority. No dirty electricity shall be generated or
13 allowed within the microgrid natural energy laboratory of Hawaii
14 demonstration project. No fossil fuels shall be used as an
15 energy source within the microgrid natural energy laboratory of
16 Hawaii demonstration project.

17 § -5 **Wheeling; renewable energy; government agencies;**
18 **rules.** (a) The commission may allow government agencies to
19 engage in wheeling of electricity produced at its own facilities
20 from renewable energy resources within the boundaries of the
21 Hawaii ocean science and technology park.



1 (b) The commission may disallow a wheeling project if the
2 commission determines that the project is either:

3 (1) Detrimental to an electric utility company; or

4 (2) Not in the public interest.

5 (c) The commission shall adopt rules pursuant to
6 chapter 91 to implement this chapter."

7 SECTION 3. There is appropriated out of the general
8 revenues of the State of Hawaii the sum of \$ or so
9 much thereof as may be necessary for fiscal year 2021-2022 and
10 the same sum or so much thereof as may be necessary for fiscal
11 year 2022-2023 for the:

12 (1) Establishment of the zero net energy and zero net
13 waste initiative program;

14 (2) Establishment of the zero net energy and zero net
15 waste advisory council;

16 (3) Planning and designing of a microgrid on the natural
17 energy laboratory of Hawaii property for a renewable
18 clean energy system capable of providing backup
19 electrical power in the event the electric grid cannot
20 provide power; and



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Report Title:

Zero Net Energy; Zero Net Waste; Initiative Program; Advisory Council; Public Utilities Commission; Wheeling; Appropriation

Description:

Establishes a zero net energy and zero net waste initiative program in the public utilities commission. Establishes a zero net energy and zero net waste advisory council. Designates property controlled by the natural energy laboratory of Hawaii authority as a microgrid demonstration project. Authorizes the transmission of electric power from one governmental agency's point of generation to another governmental agency's existing transmission lines within the boundaries of the Hawaii ocean science and technology park. Appropriates funds for the zero net energy and zero net waste initiative program.

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