

Group F: Ensuring Sustainable Energy Resources



Policy Issue Brief:

"Ensuring Sustainable Energy Resources" by John Harrison, Sharon Miyashiro, and Regina Gregory

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Summary of the Work Sessions:

Session I. Preferred Futures and Public Policy Strategies

The prominent feature of the energy future preferred by the group was the use of local, renewable energy resources instead of fossil fuels. The energy should also be efficient, reliable, and affordable. Suggestions for public policy strategies included building codes, standardized grid interconnection agreements, tax credits and penalties, renewable portfolio standards, net metering, regulatory reform, enterprise zones, policies such as the Kyoto Protocol, and public education.

Session II. Public Policies and Recommendations/ Next Steps

Priority public policies to achieve the preferred future(s) should support: 100% locally generated renewable energy; support for strong local industry in

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renewables; development of energy with least adverse impact on environment; efficient, affordable, reliable, sufficient, convenient, and equitable.

The necessary next steps include education sessions for the public and for lawmakers; careful analyses of energy options by geographic location/different locales; identification of appropriate small, consumer-based projects as well as larger ones; review of regulatory agencies; state mandates and incentives; and a clear road map to achieve, e.g., at least 20% renewables by the year 2020.

The Public Policy Center can help with research and evaluation; convening planning groups; conducting community meetings; public education; and outreach activities.

F. Ensuring Sustainable Energy Resources

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Background

Introduction

Energy is generally divided into renewable and non-renewable resources. Renewables include solar, wind, hydropower, biomass, biogas, etc. whereas non-renewables include fuels such as petroleum and coal. Non-renewables are, strictly speaking, not sustainable. Sustainability for Hawai'i's energy economy will require a reduction in energy consumption and a shift to renewable resources. With its strong sun, steady tradewinds, mild climate and year-round growing season, and the highest electric rates in the country, Hawai'i would seem ideally suited for such a transition.

Hawai'i's energy situation

In ancient times, Hawaiians relied on biomass, which is sustainable so long as harvesting does not exceed the rate of regrowth. In the nineteenth century, 'Iolani Palace had electricity from a small hydropower plant (even before anyplace in the U.S. did), also a renewable resource. Shortly thereafter, gas lamps were installed for street lighting. By 1960, about 82% of Hawai'i's energy was from petroleum, about 17% was from biomass (mostly sugar cane residue), and the remainder (less than 1%) from hydropower. By 2000, biomass declined to only 2.2% due mainly to the demise of the sugar industry. Renewable resources were diversified with the addition of geothermal (0.8%), solar hot water (1.1%), wind (0.1%), and municipal solid waste (1.6%), but these were far outweighed by growth in fossil fuel consumption, with petroleum now providing 89.2% and coal 4.8% of Hawai'i's energy. In other words, Hawai'i is 94% dependent on non-renewable energy resources. Of Hawai'i's petroleum consumption, 31.5% is used to generate electricity; 35.7% is for air transportation, 19% for ground transportation, 7.1% for marine transportation. 6.3% is used in commercial/industrial applications and direct residential use accounts for 0.3%. Of the coal, all is used for electricity.

Hawai'i's energy policy

Hawai'i, like several other states, has had an energy policy that calls for reducing dependence on imported fossil fuels and increasing energy efficiency and the use of renewable energy. Hawai'i Revised Statutes §226-18 states the following objectives for Hawai'i's energy facilities:

1. Dependable, efficient, and economical energy systems capable of supporting the needs of the people
2. Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased
3. Greater energy security in the face of threats to Hawai'i's energy supplies
4. Reduction, avoidance, or sequestration of greenhouse gas emissions

§226-18 goes on to say that to achieve these objectives, it is state policy to:

1. Support research and development and promote the use of renewable energy resources
2. Ensure that the combination of energy supplies and energy-saving systems is sufficient to support demand
3. Base decisions on least-cost supply-side and demand-side options where least-cost is determined by a comprehensive, quantitative and qualitative accounting of long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits
4. Promote all cost-effective conservation of power and fuel supplies
5. Ensure to the extent that new supply-side resources are needed, they utilize the least-cost energy supply option and maximize efficient technologies
6. Support research, development, and demonstration of demand-side management
7. Promote alternate fuels and energy efficiency in transportation
8. Support actions that reduce, avoid, or sequester greenhouse gases.

In the early 1990s, Hawai‘i developed an integrated energy plan with leadership from the Department of Business, Economic Development and Tourism (DBEDT). This was followed by the initiation of an Integrated Resource Planning (IRP) process under the auspices of the Public Utilities Commission. The IRP system was intended to incorporate the full range of energy alternatives into electric utility regulation, including demand side management and the use and pricing of renewable energy. This did result in a significant demand-side management program for both residential and commercial electric customers. It is not certain, however, that the broad definition of “least-cost” under #3 above has been applied to new generating facilities.

Issues

Looking forward, Hawai‘i will need to develop its long-term strategy within the context of national and global energy, environmental, and regulatory trends. These trends include the following: (1) rapid advances in energy technology; (2) new policy and regulatory approaches that may make renewable energy more cost competitive; (3) changing patterns of global fossil fuel supplies and costs; and (4) national and international requirements to curb greenhouse gas emissions. This strategy must lead to energy policies that are technically, economically, and politically feasible.

Given that the government does not actually own any energy facilities, its options for direct action are rather limited. It can, for instance, implement energy conservation programs in government buildings, acquire alternative fueled vehicles for the state fleet, etc. Legislation has also been proposed that would allow the government to sell bonds to directly invest in renewable energy production.

Most policy options for all the “promoting” and “supporting” mentioned above fall into two basic categories: incentives and mandates. Incentives include items such as direct funding (e.g. for ocean thermal research); tax credits (e.g. for solar water heaters); fee exemptions (e.g. for alternate fueled vehicles). Mandates include strategies such as instructions to the Public Utilities Commission; building codes for energy conservation; and requirements placed on electric utilities such as renewable portfolio standards and net metering.

Some of the main obstacles that need to be considered are: (a) technical problems (for instance, improving the “firmness” of intermittent sources like wind); (b) economic problems (chiefly the high cost of renewables compared to oil and coal); and (c) opposition from those on whom mandates would be imposed.

Our new governor has raised hopes by stating a goal of 20% renewable energy by the year 2020. However, the governor’s legislative package includes only a 4-year extension of the renewable energy tax credit. The House and Senate, on the other hand, have proposed a large number of additional measures. These include: funding for alternative energy systems on Kaho‘olawe and hydrogen research; tax incentives for clean fuel vehicles, fuel efficient vehicles, biodiesel fuel, and geothermal-to-hydrogen systems; requiring biodiesel in government vehicles; bonds for energy efficiency and renewables in state facilities; increased net metering; and a statewide energy audit.

F. Ensuring Sustainable Energy Resources

Work Session I. Preferred Futures and Public Policy Strategies:

- 100% renewable energy economy based on OTEC including
 - baseload electricity
 - hydrogen production for transportation
 - fresh water by-product from seawater
 - distributed generation for residential electricity
 - fixed rail mass transit renewably operated
 - proliferation of OTEC--adjunctive sustainable industries
- Move off fossil fuels as rapidly as possible
- Use local energy economy to generate job growth
- 100% renewable energy for transportation and power
- All Hawaii's energy needs are generated locally
- Support local industry and businesses in energy sector
- Responsible growth
- Our energy use has minimal negative impact in the environment
- Take responsibility for climate change actions
- "Invisible"
- Efficiency enforced in building codes and permitting process
- Sufficient clean, reliable energy to meet our business, community and recreational needs.
- Reliable, convenient, there when needed
- Energy costs are affordable (i.e. basic needs are not a problem for anyone)
- Cheap, affordable
- Efficient and effective use of energy
- Increase use of indigenous resources to create energy to keep our money in Hawaii and provide jobs for poor people (creates more jobs 7:1)
- 100% locally generated renewable energy
- Standard grid-interconnect policies for residential and commercial renewable projects
- Economic policy stimulating renewable energy
- Tax penalties for non-renewable energy choices

- Tax credits for renewable energy
- Fossil fuel import substitution
- Energy tax credits
- Incentives for local business to use and generate locally producible, renewable energy
- Change the way HECO makes money (incentive to conserve)
- Require all new (net) power capacity must be from local renewable energy
- Renewable portfolio standards
- Net energy metering
- Positive economic impact, local industry
- What is the feasibility of Hawaii becoming a leader in renewable energy technology? Exporting technology?
- Higher taxes for unsustainable choices, i.e., SUVs, AC, excessive packaging
- What policy incentives will motivate consumers to buy hybrid (gas-electric) cars?
- How can we make energy-efficient mortgages more attractive to homeowners?
- Realistic pricing of fossil fuels by increased taxes
- Industry enterprise zones
- Continued/enhanced tax credits to attract capital to local energy alternative industries
- Preferred tax status for local energy producers (renewable)
- Energy tax credits
- Low impact on environment
- Participate in international environmental dialogues
- Explicit, understandable permitting process and procedures by government consistently enforced
- Leadership by government officials toward business management
- Kyoto protocol
- Designated energy corridors or development areas
- Emissions trading extended to greenhouse gases
- Efficient, affordable, reliable, sufficient, convenient, and equitable
- Public education in schools to encourage responsibility
- Continued tax credits for implementing alternatives by consumers

- Regulatory support for selling back to the grid for consumers
- Regulatory reform
- Increased competition in the energy sector
- Tax incentives (fee-bates) for efficiency
- Financial incentive for utility and its customer to increase energy efficiency

Work Session II. Public Policies and Recommendations/Next Steps:

- WHAT ARE 2 OR 3 PRIORITY PUBLIC POLICY AREAS FOR THIS GROUP?
 - 100% locally generated renewable energy
 - Positive economic impact, strong local industry
 - Low impact on environment
 - Efficient, affordable, reliable, sufficient, convenient, and equitable energy
- WHAT NEXT STEPS ARE PROPOSED?
 - Education for public and legislators: energy choices
 - Complete and "hard" analysis of looking at different islands and time/parts
 - Lots of good work has been done already and is being done--don't lose it!
 - Examining regulatory agencies in terms of achieving the policy of local renewable energy
- WHAT SHOULD HAPPEN NEXT TO ADDRESS THOSE PRIORITY POLICIES?
 - Tax incandescent lighting (200%)
 - State mandate for efficient state building (solar, etc.)
 - Standardized net-metering power and grid interconnect agreements
 - Stipulate no additional (net) power generation from fossil fuels
 - "Enterprise zone" approach for renewable projects
 - "Fast-track" renewable E.I.S. requirements
 - Make Molokai and Lanai 100% renewable within 8 years
 - Concerted effort to promote public awareness:
 - of not changing our energy structure (i.e., 97% imported fossil fuel)
 - of not changing personal energy consumption choices (i.e., SUV's, 60 degree AC)
 - of energy security issues (i.e., supply interruption)
 - of alternative energy options (wind, solar, OTEC, etc)
 - of benefits of energy self-sufficiency
 - of realistic costs of energy transformation
 - of reasonable time frames for energy transformation
 - of existing national/international subsidies of fossil fuels and need for a level playing field

- Specific projects need to be identified which will advance the goal of switching to renewables, not just big projects but small consumer based ones as well.
- These projects need to be analyzed for cost, political and social viability, and applicability to specific locales or groups
- Public education/presentations need to be developed to promote these projects
- A group of individuals/groups' representatives have to be formed to advocate for the project(s).
- Public needs to be informed comprehensively of long term/short term costs--both financially and environmentally--of current energy choices and the alternatives
- Public participation in policy decision-making must be evoked
- Conduct "hard" analysis of costs, choices to be made
- Find a credible, energetic champion to provide leadership to convert all previous studies, focus groups, task forces, etc. recommendations into action
- Legislative awareness and understanding of complex issues
- Proper tax incentives for renewables and renewable research
- Complete analysis of impacts
- Recognizing that someone needs to pay - structure mechanisms consistent with decision on who should pay
- Public education
- Clear incentives to move forward on energy efficiency and renewable energy
- Examine regulatory compact to remove barriers
- Develop a clear road map to get to 20% renewable by 2020
- Prioritize the policy issues
- Organize the islands
- Conduct hard analysis
- Assess hard choices
- Develop roadmap (of islands)
- WHO ELSE SHOULD BE INVOLVED?
 - Public outreach in primary and secondary schools
 - Neighborhood boards
 - Utility companies

- Industry, farmers
- Hawaii Natural Energy Institute (HNEI)
- Media--papers, TV, PSA's, etc
- Government--agency efforts need to be highlighted
- K-12 schools
- Private Sector
- Communities who are specifically impacted (both positively and negatively) brought together as early in the process as possible
- Energy professionals both private and public
- Legislators (county and state) and their staffs
- Media savvy people, perhaps from universities, public TV, 'Olelo, journalism clubs, etc.
- Energy professionals to inform the content of programs
- Internet providers/professionals to create web site to focus information distribution and public feedback
- Legislature and regulators
- Administration
- Companies and individuals in energy industry
- Broader public with special focus on involved communities
- Vested interests (oil companies)
- Government (Leg, state, etc)
- Environmental groups
- Industry
- HOW CAN THE PUBLIC POLICY CENTER HELP?
 - Compare applicability of other states' solutions to our issues
 - Make the economic case for renewable energy jobs
 - Collect, organize, analyze, and objectively evaluate energy information
 - Conduct town hall meetings reaching out to communities
 - Serve communities nationally and internationally to identify transition strategies, legislative initiators, educational resources to enhance public awareness
 - Convene symposia to explore renewable energy options and current research

- Provide leadership coaching for public figures promoting energy transformation
- By confirming to call together a planning group to get through steps 1 and 2
- Host planning group to gather participants
- Be impartial facilitator, secure grants, publicity, opinion surveys
- Education for informed decision making
- Continue work with University of Hawaii's Energy Policy Forum
- Coordinate item 1
- Assist in funding analysis and other tasks
- Lead community outreach activities