



**ENVIRONMENTAL POLICY FOR THE HAWAIIAN ELECTRIC COMPANY'S PROCUREMENT
OF BIODIESEL FROM PALM OIL AND LOCALLY-GROWN FEEDSTOCKS
PREPARED BY HECO AND NRDC
AUGUST 2007**

I. Overview and Context

By developing this policy, the Hawaiian Electric Company, Inc. (HECO) and the Natural Resources Defense Council (NRDC) join in seeking a way to reduce the environmental and economic impact of burning nearly 100 million gallons per year of petroleum diesel to generate electricity for residents and visitors to the Hawaiian Islands. A transition from petroleum diesel to biodiesel derived from sustainably-produced palm oil and locally-sourced feedstocks offers enormous potential for near-term, dramatic reductions in greenhouse gas emissions and increased security from future oil market price hikes and supply interruptions.¹ In contrast, a failure to act means that Hawai'i will remain dependent on petroleum-based diesel for its electricity generation on Maui and longer term objectives to convert additional electrical generation to biofuels will not be realized. This unfortunate circumstance would continue a dependence that carries a high price in terms of greenhouse gas (GHG) emissions and energy security.

We believe that HECO's switch to biodiesel derived from sustainable palm oil and locally-sourced feedstocks can help lead the global transition to more sustainable fuels. HECO is the biggest utility sector consumer of petroleum diesel in the country and, when this transition is complete, will become the largest single consumer of biodiesel in the U.S. This effort is part of a broader strategy to transform Hawai'i's utilities into a model of diverse, sustainable supply and efficient use, and we believe that this policy represents a large step forward on the path toward increasing self-reliance and sustainability.

¹ Of course, inappropriate production methods could yield negative results, and experts are divided on long-term environmental and economic prospects for biodiesel. Our joint belief in the potential for significant net benefits assumes successful implementation of the policies included in this proposal, and also reflects independent assessments from a variety of sources, including the National Renewable Energy Laboratory and the Worldwatch Institute. *Biofuels for Transportation: Global Potential and Implications for Sustainable Agriculture and Energy in the 21st Century*, Worldwatch Institute. Washington, D.C. June 2006, and *Life Cycle Inventory of Biodiesel and Petroleum Diesel for Use in an Urban Bus*, National Renewable Energy Laboratory. Washington, D.C. May 1998.

The most difficult issue we faced is the purchase of imported palm oil as a biodiesel feedstock. The large volume of production and low cost make palm oil preferable from an economic perspective.² The high productivity, efficiency, and low inputs compared to other oil crops make it preferable from a climate perspective if it is managed sustainably.³ However, palm oil cultivation has also been responsible for widespread clearing of primary tropical forests, draining of peat soils, catastrophic fires in Southeast Asia, and a number of other negative social and environmental impacts.

We find no reason to assume that other vegetable oils will necessarily be a more sustainable choice, since cultivation of other oil feedstocks can also result in significant environmental harm. More generally, because vegetable oils are substitutable with each other for a variety of uses (and for biodiesel, in particular) an incremental increase in the demand for any vegetable oil will cause a corresponding increase in demand for all oils. The effect will be largely the same as a commodity purchase of palm oil, in terms of worldwide demand.

Fortunately, voluntary certification is emerging as an option for those who want to choose sustainable palm oil. Over 200 members of the Roundtable on Sustainable Palm Oil (RSPO) have worked for the past five years to create a sustainable model of palm oil production. We believe that widespread adoption of the full set of RSPO Principles and Criteria is essential to reducing future environmental, cultural and social harm from palm oil. Coupled with international agreements to drive reductions in the rate of deforestation, certification is the only alternative to a rapidly growing commodity market driven solely by low cost and lacking in most basic environmental, cultural and social protections.

There are a number of efforts underway to develop sustainability standards comparable to RSPO for other vegetable oil feedstocks.⁴ However, at present no such standards exist. Both NRDC and HECO support the development of comparable

² Of all vegetable oils, palm oil has the second highest worldwide production.

³ The low tillage requirements and carbon sequestration of oil palms has substantially lower climate impact than, for example, cultivation of soy oil, which has the largest volume of production worldwide. However, if palm oil is cultivated on a drained peat soil, decomposition can more than offset the climate benefit of switching from petroleum diesel.

⁴ In particular, the Energy Center at the Swiss Federal Technical Institute is coordinating the Roundtable on Sustainable Biofuels, a multi-stakeholder effort to international sustainability standards for biofuels production and processing.

standards for other biodiesel feedstocks and may consider expanding this policy to allow purchase of certified oils that meet those standards, if and when they are developed.

NRDC and HECO recognize that voluntary certification is not a panacea. There are limits to the effectiveness of voluntary certification in addressing the problems of today's commodity market for palm oil, in particular, and vegetable oils in general. Certification must be coupled with international agreements that value and protect forests and other biologically and carbon rich natural ecosystems and keep certification from simply displacing demand on to other land. NRDC and HECO are working to support the adoption of such agreements and U.S. government support and participation in them. However, by enacting this policy, we will be taking the first step towards creating a working model for sourcing sustainable palm oil. We hope that this model sends a powerful market signal and helps to create a foundation for the development and expansion of mandatory sustainability standards across the marketplace.

In sum, our approach to the problems associated with the purchase of commodity feedstocks is to rely on oils whose environmental impact is known and limited. In the near term, HECO will purchase palm oil from suppliers that comply with all of the criteria contained in the RSPO Principles and Criteria (P&C). In the long term, HECO will support the production of feedstocks that are sustainably grown in Hawai'i for which HECO is willing to create production incentives. HECO will not purchase biofuels feedstocks that do not meet the criteria of this policy, even if that means continuing to burn petroleum products at HECO generators that are allowed to do so.

II. Environmental Policy for HECO Biodiesel Strategy

HECO and NRDC have worked collaboratively in the past on energy efficiency and renewable energy programs. NRDC was a participant in the collaborative proceeding that established HECO's original Demand Side Management (DSM) programs in 1995. As other utilities moved away from DSM in the late 90's, HECO continued its work with energy efficiency. The execution of the utility programs benefited significantly from an NRDC lead review of HECO's DSM programs in 2002.

The results of HECO's energy efficiency efforts have been substantial. A unique accomplishment has been the solar water heating program, which is the largest in the nation. In 2005, the cumulative contribution from renewable energy and energy efficiency programs was 11.7 % of HECO's sales. Energy efficiency will continue to be

an integral part of the utility system's future, and between 2005 and 2009, HECO has set an objective to reduce electricity demand by 90 megawatts (MW) through DSM, demand response, and distributed generation. This 90 MW reduction approximately equals the size of the next generation unit planned for the Oahu electrical system, which will also be powered by biofuels. NRDC and HECO agree that the utility system needs to continue its acquisitions of energy-efficiency and renewable generation resources, and we view this policy as a complement, not a substitute, for them.

HECO approached NRDC to help determine how a transition to biodiesel could be accomplished in a sustainable manner. The two parties conducted research, negotiated issues, and developed the enclosed policy for HECO's biodiesel strategy.

This policy is supported by NRDC and HECO as a unified agreement, intended to address a range of issues raised by the transition to biodiesel and to provide a balance between environmental, social, cultural and economic objectives. Both parties believe that this policy provides benefits to HECO customers and the agricultural community in Hawai'i. Furthermore, it is fully consistent with international efforts to develop sustainable biofuels and respond to the threat of climate change. This policy does not in any way address the merits of building any specific biodiesel production facilities or power generation facilities in Hawai'i.

This policy was reviewed by a panel of academic experts with expertise in biofuels, agriculture, energy policy, and international development.⁵ Following the academic panel's review, a public review draft was made available and public meetings were held in Honolulu, Hilo, Kona, and Kahului. This policy was substantially revised based on the comments we received.

This policy has eight separate components including (1) local feedstock support mechanisms, (2) sourcing requirements for palm oil, (3) baseline criteria for all biodiesel feedstocks, (4) chain of custody tracking for feedstocks and oils, (5) greenhouse gas emissions accounting and reporting, (6) establishment of a Biofuels Public Trust Fund, (7) public review and notification, and (8) public progress reporting and contingencies.

⁵ The academic panel members were: Alex Farrell, U.C. Berkeley, Mike Hamnett, University of Hawai'i, and Pamela Matson and Peter Vitousek, Stanford University. None of these reviewers necessarily endorses or is responsible for the recommendations of this document.

1. Local Feedstock Support Mechanisms

- 1.1. HECO will preferentially purchase biodiesel from feedstocks grown in Hawai'i.***
- 1.2. HECO will work with the Hawai'i State Government and other stakeholders, including the new Biofuels Public Trust Fund (see section 6 below) to develop and implement an incentive program for biodiesel feedstocks grown in Hawai'i.***
- 1.3. HECO will work with the Hawai'i State Government to identify and support low Greenhouse Gas (GHG) biodiesel feedstocks and cultivation practices, using accounting protocols developed in criteria 5.1, below.***

Both NRDC and HECO have a strong preference for the purchase of biodiesel feedstock grown in Hawai'i. Local feedstock cultivation can benefit the State's economy, improve energy security, and substantially reduce the cost and emissions associated with transportation of imported fuels.

Our goal is for 100% of the biodiesel feedstocks to be grown in Hawai'i. To facilitate the development of locally-grown feedstocks, HECO is committed to the new Biofuels Public Trust Fund and to working with Hawai'i State government agencies, the University of Hawai'i and Hawai'i's agricultural industry to conduct research and development on sustainably-produced biodiesel feedstocks, to support the development of processing facilities for these biodiesel crops, to develop an economic analysis that considers job creation in Hawai'i and import costs to ensure that feedstocks grown in Hawai'i enter the market on an even playing field with imported palm oil, to develop policy incentives to make feedstocks grown in Hawai'i competitive with imported palm oil, and to provide production incentives, when necessary, for feedstocks grown in Hawai'i.

2. Sourcing Requirements for Palm Oil

- 2.1. All palm oil feedstocks sourced under this policy will meet or exceed all of the Roundtable on Sustainable Palm Oil Principles and Criteria (RSPO P&C) prior to the first shipment into Hawai'i.***
- 2.2. HECO and all participants in the chain of custody will work closely with the RSPO, in recognition that this policy is a pilot test of the RSPO P&C.***
- 2.3. HECO will hire an independent auditor to evaluate performance throughout the entire supply chain relative to the RSPO P&C.***
- 2.4. The palm oil producer and all downstream participants in the chain of custody will allow an independent audit of performance relative to the RSPO P&C.***
- 2.5. The independent auditor will identify any deficiencies relative to the RSPO P&C and propose corrective actions and a schedule for remediation of the identified deficiencies.***
- 2.6. The producer and all downstream participants in the chain of custody will agree to work towards remediation of the identified deficiencies, adoption of the corrective actions identified in the independent audit, and RSPO certification.***
- 2.7. HECO will only source palm oil from suppliers once the independent auditor verifies that the supplier meets or exceeds all of the RSPO P&C.***

The Roundtable on Sustainable Palm Oil (RSPO) was founded in 2002 by a group of concerned stakeholders whose principal objective was to “promote the growth and use of sustainable palm oil.” In March 2006, the 200+ members of RSPO agreed upon a set of Principles and Criteria (P&C) which define the requirements for sustainable production of palm oil. The RSPO P&C impose upon growers and processors a demanding and detailed set of requirements across a wide range of social, economic, cultural and environmental concerns.

The RSPO is in the process of developing a verification protocol that will be used to certify compliance with the P&C. The verification protocol is expected to be completed in time for the next meeting of the Roundtable this fall. A number of pilot projects have been initiated with baseline audits underway or completed. However, formal certification of compliance with the RSPO P&C is not possible until the verification protocol is complete and a verification system is in place. While we believe that sustainable palm oil markets eventually require international agreements to protect biologically and carbon-rich natural ecosystems, we believe that the RSPO P&C, if fully

implemented and verified, represent a sustainable model of palm oil cultivation. More generally, we believe that the only environmentally acceptable method for sourcing palm oil is for buyers and consumers to demand that it is sustainably grown and processed. Therefore, we will require that all palm oil sourced under this policy comply with all of the RSPO P&C prior to the first shipment into Hawai‘i.

3. Additional Baseline Environmental Criteria for All Feedstocks

- 3.1. There must be a clear and undisputed title to the land.***
- 3.2. As provided in RSPO Principle and Criterion 2.3, the use of the land is in full accordance with the free, prior and informed consent of Indigenous Peoples and other customary users.***
- 3.3. Practices must adhere to existing local and national laws.***
- 3.4. Plantations or crops shall not be established on land that was converted from natural ecosystems after 2005, the date adopted in the RSPO P&C.***
- 3.5. As provided in RSPO Principles and Criteria 3.1 & 6.1, the producer has developed and is implementing a management plan that addresses long-term economic and financial viability and is responsibly considering the social and cultural effects of their operations on employees and communities.***
- 3.6. As provided in RSPO Principle and Criterion 5.6, the producer has developed and is implementing plans for identifying, reducing and monitoring all polluting activities and emissions, including greenhouse gases.***
- 3.7. Fire is not used to clear land for new plantings.***

In addition to meeting the feedstock-specific criteria above, these baseline environmental criteria impose additional standards that must be met by any biodiesel producer in order to be considered for sourcing under this policy. In order to develop these criteria, we reviewed a number of sourcing standards adopted by other organizations.⁶ We limited our baseline criteria to a set that could be rapidly assessed to determine compliance.

Some of these criteria overlap with requirements in the RSPO P&C, while others – in particular, criteria 3.4. and 3.7. – impose even more stringent requirements on feedstock suppliers. Criterion 3.4 prohibits conversion from natural ecosystems after 2005, while the prohibition on conversion in the RSPO P&C is limited to “primary forest

⁶ We reviewed standards developed by Migros, Unilever, and Cargill, among others.

or any area containing one or more High Conservation Values.” In contrast to Criterion 3.7, the RSPO P&C allow the use of fire, although only when found to be environmentally preferable by a documented assessment.

4. Chain of Custody Tracking for Feedstocks and Oil

4.1. There is a clear, documented and verifiable chain of custody for all feedstocks.

Establishment of a clear and verified chain of custody is an essential component of this policy. Mass-balance and tradeable certificate accounting may provide an acceptable approach to establishing chain of custody at some point in the future.⁷ However, NRDC and HECO believe that segregation of fuel supply is currently the most reliable and credible approach to ensuring that purchased oil is compliant with this policy. In order to ensure that it meets the requirements of this agreement, HECO must be able to track the feedstock from the fields in which it is grown to HECO’s facilities.

5. Greenhouse Gas (GHG) Emissions Accounting and Reporting

5.1. HECO will participate in efforts to develop protocols for calculating and tracking greenhouse gas emissions from biofuels.

There are as yet no widely accepted accounting protocols for estimating GHG emissions from biofuel production and processing. The development of biofuel accounting protocols is essential because of the rapid growth in demand for biofuels. HECO and NRDC both commit to support efforts to develop biofuel accounting protocols, with organizations like the California Climate Action Registry, that address emissions from conversion of natural ecosystems, land use, cultivation practices, transport, and processing.

⁷ Mass balance allows suppliers to blend certified and uncertified oil if they have tracking systems in place to insure that the amount sold as certified does not exceed the amount purchased. The tradable certificate approach allows producers to sell certificates for sustainable oil, independently from the oil itself. For a discussion of these issues see *Developing a Mechanism for Palm Oil Traceability from Plantation to End User*, ProForest. Oxford, UK. Aug. 2006.

6. Establishment of a Biofuels Public Trust Fund (BPTF)

- 6.1. HECO will work with other interested parties to establish a Biofuels Public Trust Fund at the earliest practicable date (targeting a launch no later than January, 2008).**
- 6.2. HECO will provide seed funding for agricultural research related to biodiesel feedstock production.**
- 6.3. HECO will dedicate to the Trust all net profits that it earns from the BlueEarth Maui Biodiesel Project.**
- 6.4. The BPTF governing board should represent the following constituencies:**
 - **Hawai'i State government**
 - **HECO**
 - **Labor**
 - **Local agricultural community**
 - **Local environmental community**
 - **Native Hawaiian cultural practitioners**
 - **R&D/engineering**
- 6.5. The BPTF should, at a minimum, fund activities in the following areas:**
 - **Research and development of locally-grown vegetable oil feedstocks**
 - **Research and development of algae and other next generation feedstocks**
 - **Research into measuring and reducing the environmental impacts from RSPO certified palm oil and potential local feedstocks, including the net GHG emissions from different agricultural practices**
 - **Support for local feedstock production, processing, and use**
 - **Development and testing of biofuel accounting protocols and sustainability standards**
 - **Conservation and restoration of ecosystems affected by worldwide biodiesel feedstock production**

HECO will direct all of its net profits from the Maui biodiesel plant to a new organization, the Biofuels Public Trust Fund (BPTF). The BPTF will have representation from key stakeholders that will be affected by the transition to biodiesel, including state, local agricultural, local environmental, native Hawaiian cultural, and R&D/engineering interests. The BPTF will use the funds to invest in efforts to enhance the environmental, social, cultural and economic viability of the production and consumption of biofuels in Hawai'i.

7. Public Review and Notification

- 7.1. A draft of this policy was made available for public review and comment.***
- 7.2. The adopted policy and any future amendments or revisions shall be publicly available and posted on NRDC and HECO's websites.***

Both NRDC and HECO value and support public input into the development of this policy and to the public decision-making process. NRDC and HECO are two independent, private organizations with primary responsibility to our members and shareholders, respectively. We believe that this policy will provide benefits to Hawai'i's citizens, Hawai'i's environment and, in particular, to HECO's customers. However, we recognize that state and county officials and regulators must balance competing interests and concerns and make their own determination.

8. Public Progress Reporting and Contingencies

- 8.1. NRDC and HECO presented a draft policy at four public meetings in Hawai'i, reviewed all public comments, and subsequently revised the draft policy in response to those comments.***
- 8.2. HECO will report on its plan for implementing this policy no later than 9 months from the adoption of this policy.***
- 8.3. HECO will prepare a public report summarizing progress and issues encountered in its efforts to implement this policy no later than 18 months from the adoption of this policy and annually thereafter.***
- 8.4. Either party will inform the other as soon as possible in the event of unforeseen issues associated with either the content or implementation of this policy.***
- 8.5. Both NRDC and HECO agree to work together to resolve issues and/or problems that arise in the implementation of this policy.***

NRDC and HECO recognize that the adoption of this policy represents merely a first step. New issues and problems or opportunities may arise that require further effort and/or discussions to resolve. In particular, HECO has not tested this policy in the market and does not know whether it is possible to contract for a reliable and cost-effective source of oil that meets the foregoing criteria. Both NRDC and HECO are committed to working collaboratively to resolve any issues that arise in implementation of this policy.

APPENDIX A: RESOURCES FOR ADDITIONAL INFORMATION

Information for the following organizations is available at these websites:

NRDC: www.nrdc.org

HECO: www.heco.com

RSPO: www.rspo.org

Roundtable on Sustainable Biofuels: <http://cgse.epfl.ch>