

2004 INNOVATIONS AWARDS PROGRAM
Application Form

1. Program Name
From Pollutant to Power: Transforming Marine Debris to Energy
2. Administering Agency
Dept. of Business, Economic Development, and Tourism, State of Hawaii
3. Contact Person (Name and Title)
Maurice H. Kaya, Chief Technology Officer
4. Address
P.O. Box 2359, Honolulu, HI 96804
5. Telephone Number
808-587-3812
6. FAX Number
808-587-2536
7. E-mail Address
mkaya@dbedt.hawaii.gov
8. Web site Address
<http://aloha.dbedt/ert>
9. Please provide a two-sentence description of the program.

Discarded fishing nets from Hawaii's Northwest Islands that were brought to Honolulu were landfilled. DBEDT launched a program to have them cut into pieces and burned to create electricity.

10. How long has this program been operational (month and year)? **Note: the program must be between 9 months and 5 years old on May 1, 2004 to be considered.**

DBEDT launched its program in 2001

11. Why was the program created? (What problem[s] or issue[s] was it designed to address?)

The problem was that boatloads of discarded commercial fishnet from the Northwest Islands were being taken to Honolulu's landfill. This meant that, a) the net had to be hauled to the landfill at considerable expense, b) the government had to pay a tipping

fee of approximately \$70 a ton for 75 tons, or over \$5,000 and c) the net was adding to a rapidly filling landfill site with no alternate site planned.

The program was created to eliminate the above problems and replace it with a volunteer-driven program to convert the net into electrical energy.

12. Describe the specific activities and operations of the program in chronological order.

2001: DBEDT was called into a multi-agency Marine Debris Task Force charged with harvesting the net from the Northwest Island reefs and disposing of it in the City and County of Honolulu's landfill.

2002: DBEDT arranged for H-POWER, Honolulu's garbage-to-energy plant, to accept the net at no cost. When it was learned that the clusters of net were far too large to be accommodated by H-POWER's conveyor belts, DBEDT arranged for Hawaii Metal Recycling (HMR), Hawaii's largest scrap-metal dealer, to cut the net at no charge.

2003: When other agencies charged with hauling the net from the docks to HMR ran into problems with hauling costs and storing the net until it could be accommodated by HMR, DBEDT arranged for HMR to use its own trucks to haul the net and store it on their site. DBEDT was also instrumental in securing a "Recycler of the Year" award for HMR from the Hawaii Chapter of the Audubon Society.

2004: DBEDT arranged for the Coast Guard, which transports the net from the Northwest Islands to Honolulu, to deposit the net at Pearl Harbor instead of the former site which is a busy and crowded site in Kewalo Basin. This enabled HMR trucks to travel in and out with ease and to relieve the Coast Guard boats of other debris, such as used fuel storage barrels.

13. Why is the program a new and creative approach or method?

The program was the subject of a paper at the January 2004 Asia Pacific Economic Cooperation seminar on Derelict Fishing Gear. Other papers from throughout the Pacific and Pacific Rim revealed that no similar program existed. The paper generated sufficient interest to warrant a tour of HMR and H-POWER, which was attended by a large portion of the attendees.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

Because of the strong community support and commitment by government and private sectors, the program cost DBEDT only a portion of staff time, which is estimated to be about 200 hours per year.

15. What are the program's annual operational costs?

The Coast Guard, National Oceanographic and Atmospheric Administration (NOAA), the University of Hawaii Sea Grant Program and other federal agencies spend an estimated \$3 million yearly to harvest the net. This is primarily due to the logistics involved in transporting large numbers of scientists to a remote site and the safety requirements of diving among tons of snagged net, which is moving with the waves and currents. HMR has donated more than \$50,000 in labor costs over a three-year period. H-POWER, which has since increased its fees, has waived the \$80 per ton tipping fee for about 290 tons of net, thus providing over \$23,000 in free service.

16. How is the program funded?

DBEDT provides no funding. The net-harvesting funds are derived primarily from federal grants to the Coast Guard, NOAA and the University of Hawaii Sea Grant Program.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

No legislation was required.

18. What equipment, technology and software are used to operate and administer this program?

No particular equipment, technology or software is required by DBEDT.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

The program originated in Hawaii. The person approving the concept of joining forces with the Multi-Agency Task Force was Maurice H. Kaya, Chief Technology Officer, DBEDT. His address is, DBEDT; P.O. Box 2359, Honolulu, HI 96804. His phone number is 808-587-3812, and his email address is mkaya@dbedt.hawaii.gov.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

The Northwest Straits Commission, consisting of government and private sector officials from Oregon, Washington and Alaska, have marine debris collection programs, particularly in Puget Sound. They have experimented with making the

collected available to fishermen for re-use. Most of the collected debris are landfilled.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

The program is fully implemented in that all marine debris and other recyclable debris arriving on the Coast Guard ships are collected and converted to electrical energy for the City and County of Honolulu.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

Effectiveness is measured as follows:

- Hauling costs to the landfill are avoided;
- Landfill costs of \$80 per ton totaling over \$23,000 for 290 tons over a three-year period are avoided;
- The net is not a burden to a rapidly-filling landfill site;
- The burned net generates enough electricity to power 42 homes each year;
- A model has been established for the entire Pacific Rim.
- Strengthened community support and partnerships.
- The program was also the stimulus for Japan's third-largest television network to produce a documentary of the operation, including extensive footage of the HMR and H-POWER sites. Over 10 million viewers in Japan saw the program. The marine debris problem is of considerable interest to Japan, as fishing is an extremely important industry.
- A paper describing the program was presented at the Asia Pacific Economic Cooperation (APEC) Conference in Honolulu in January 2004. The presentation led to an invitation to submit a paper at the prestigious Pacific Congress on Science and Technology (PACON) to be held in Honolulu May 30 to June 4, 2004. The paper will compare the cost of Hawaii's marine debris clean-up program with those of other debris retrieval programs described at the APEC conference. The goal of the paper is to describe the most cost-effective methods of marine debris clean up.

23. How has the program grown and/or changed since its inception?

In 2002 numerous problems were encountered and resolved:

- The problem of the net clusters being too large for H-POWER was resolved by HMR's cutting the net and not requiring payment;
- The cost of hauling the net from HMR to H-POWER was resolved by HMR's using their own trucks to haul without cost.

In 2003 other problems were encountered and resolved:

- The issue of storing the net while awaiting transfer to HMR was caught up in a larger political issue involving storage of waste at a City and County transfer station. It was resolved by HMR's agreeing to store the net on site;

- The original, paid hauler proved unreliable. Both concerns were resolved by HMR's providing free and reliable hauling services.

In 2004 more problems were encountered and resolved:

- HMR trucks hauling from Kewalo Basin were delayed by busy schedules and congestion at Kewalo Basin. This was resolved by shipping the net to Pearl Harbor, which is less congested and much nearer to HMR.
- The Coast Guard ships needed to bring in and dispose of other items. HMR hauled and recycled them at no cost.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

- Not all municipalities have garbage-to-energy power plants;
- Other collection entities may not be able to find a volunteer firm to equal HMR's commitment to the community.
- Other collection entities may not have equal pressure on landfill sites.
- Community and business willingness and commitment to partner.

Add space as appropriate to this form. When complete, return to:

CSG Innovations Awards 2004

The Council of State Governments

2760 Research Park Drive, P.O. Box 11910

Lexington, KY 40578-1910

innovations@csg.org

DEADLINE: All original applications must be received by April 20, 2004, to be considered for an Innovations Award for 2004.

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