

Hawaiian Electric Company, Inc.
Integrated Resource Planning Advisory Group Technical Session
Climate Change/Global Warming
June 8, 2007 – State Capitol Auditorium

On June 8, 2007, Hawaiian Electric Company sponsored a day-long, open discussion on climate change and the environmental, social, and economic effects of global warming on Hawaii. The meeting was held in the Hawaii State Capitol Auditorium and was attended by over 150 members of the public.

There were four panels throughout the day, with local experts representing the Hawaii Natural Energy Institute, the State Legislature, the Department of Business and Economic Development and Tourism, the Sierra Club, Life of the Land, and the University of the Hawaii-Manoa. Hawaiian Electric's Integrated Resource Planning public Advisory Group helped develop the discussion topics and recruit this distinguished panel.

'Olelo Community Television videotaped these important and informative meetings, which due to the length, have been edited into four one-and-a-half hour long segments which will be aired on their stations.

The agenda, the speakers/moderator biographies, and Akaku broadcast times are included below.

Meeting Agenda

8:30 – 8:45 Opening Remarks

- Moderator: Dr. Mike Hamnett, Research Corporation of UH

8:45 – 10:15 Background on Climate Change Issues

- An Overview of the Greenhouse Gas Issue- Dr. Terry Surles, Hawaii Natural Energy Institute (30 minutes)
- Hawaii's Greenhouse Gas Inventory- Dr. John Tantlinger, State of Hawaii, Dept. of Business, Economic Development and Tourism (15 minutes)
- Impact to Hawaii's Shorelines – Dr. Chip Fletcher, UH Dept of Geology and Geophysics (15 minutes)
- Q&A (30 minutes)

10:15-10:30 Break

10:30 – 12:00 Policy Implications for Hawaii (15 minutes each speaker)

- An Environmental Perspective - Mr. Henry Curtis, Life of the Land
- A Utility Perspective – Mr. Robbie Alm, Hawaiian Electric Company, Inc.
- A Legislative Perspective – Representative Hermina Morita, Chair of the House Committee on Energy and Environmental Protection
- An Economic Perspective –Dr. Jim Roumasset, UH Dept. of Economics & UHERO
- Q&A (30 minutes)

12:00 – 1:00 **Break**

- Film Presentation, “Washed Away”, Capitol Room No. 016

1:00- 2:45 **Options and Strategies for Controlling GHG Emissions** (15 minutes each speaker)

- Renewable Energy – Dr. Dave Rezachek, Hawaii Renewable Energy Association
- Energy Efficiency – Mr. Brian Kealoha, Energy Industries
- What Each of Us Can Do – Ms. Shanah Trevenna, Sustainable Saunders
- From Belief to Behavior: Motivating Change – Mr. Jeff Mikulina, Sierra Club
- Feedstock for the Future – Dr. Barry Raleigh, UH
- Q&A (30 Minutes)

2:45 – 3:00 **Break**

3:00- 4:30- **Incorporating Climate Change into the IRP Process** (15 minutes each speaker)

- How Does the Regulatory Process Work with Greenhouse Gas? – Mr. Carl Freedman, Haiku Design and Analysis
- How Does the State Government Play a Role? – Dr. John Tantlinger, DBEDT
- What Kinds of Things Can Utilities be Doing? – Mr. Darren Kimura, Energy Industries
- Q&A (30 minutes)

Biographies

Moderator

Michael P. Hamnett, PhD, is Executive Director of the Research Corporation of the University of Hawaii. He served as Director of the Social Science Research Institute at the University of Hawaii from 1996 until 2004, a Researcher in SSRI from 1986-1996, and as Deputy Director and Research Coordinator of the Pacific Islands Development Program at East-West Center from 1980-1986. He has 30 years of policy research, technical assistance, and training experience in the Pacific Islands region. He has organized and managed over 40 major public policy development, policy research, technical assistance and planning projects for Pacific Island governments, the State of Hawaii, and US government agencies. These projects have focused on energy, climate variability and change, application of climate information to decision-making, coastal resource and environmental management, disaster preparedness and mitigation, and other public policy problems. Dr. Hamnett has served as Principal Investigator of the Hawaii Coral Reef Initiative Research Program since it was established in 1998; chair of the Statewide Hazard Mitigation Forum since it was established 1998; and co-chair of the Hawaii Energy Policy Forum since it was established in 2003. He was also team leader for the Hawaii Coastal Hazard Mitigation Projects (1992-1993 and 1994-1996); co-Principal Investigator for the Pacific ENSO (El Niño Southern Oscillation) Application Center from 1994 to 2000; Principal Investigator on projects to assess the impact of climate variability on water resource management, health, fisheries, and disaster management in the Pacific Islands and served as General Secretary of the All Islands Coral Reef Coordinating Committee from 1994 until 2003.

Dr. Hamnett has authored or co-authored seven books, monographs and collected volumes, thirty-five policy and technical reports, and numerous articles and book chapters. He has authored *Natural Disaster*

Mitigation in Pacific Island Countries: A Policy Guide for Planners and Decision-Makers published by the UN Department of Humanitarian Affairs, and co-authored and edited *Global Trends and the Future of the Pacific Islands* published by the Asia Foundation's Center for Asia and Pacific Affairs.

Panel Session: Background on Climate Change Issues

Dr. Terry Surles has been working in the area of climate change research and technology development since 1981. He is currently a Researcher at the University of Hawaii's Hawaii Natural Energy Institute, evaluating the opportunities for and impacts due to increased renewable energy systems on electricity grids. He is also leading an effort examining the potential economic impact related to the reduction of petroleum use on the state of Hawaii. He is also a consultant to the University of California President's Office coordinating new regional carbon capture and storage efforts.

Prior to these activities, Dr. Surles was Vice President at the Electric Power Research Institute for Environment and at the Electricity Innovations Institute. For several years prior to EPRI, he was at the Lawrence Livermore National Laboratory. He was Associate Laboratory Director for Energy Programs and then on loan to the California Energy Commission as Director of the Public Interest Energy Research program. Dr. Surles came to California as the Deputy Secretary for Environmental Research and Technology at Cal/EPA in 1997. Dr. Surles was at Argonne National Laboratory for many years prior to moving to California and held a variety of positions, with the last being General Manager for Environmental programs.

He has a Ph.D. in chemistry from Michigan State University. He has numerous publications, technical reports, and presentations to his credit.

Dr. John Tantlinger, Manager, Energy Planning & Policy Branch, Strategic Industries Division, State of Hawaii Department of Business, Economic Development & Tourism, has 25 years experience in strategic planning and policy development in the State of Hawaii in the public and private sectors. He has served for nearly 20 years in the State of Hawaii Strategic Industries Division. He manages the Division's Energy Planning & Policy Branch, which is responsible for energy planning and policy development; energy emergency preparedness; energy data analysis and computer modeling; and, advancement of advanced energy technologies for the State of Hawaii. He manages the Hawaii Energy Strategy Program involving Hawaii's energy industry, key stakeholder groups, and all levels of government. Since 1988, he has managed the State Energy Emergency Preparedness Program coordinating with industry and government to address issues of energy security and disaster response, including Homeland Security protection of critical energy infrastructure. He serves as Vice Chair of the Hawaii State Energy Council, the State's mechanism to coordinate energy emergency preparedness. The Council includes Hawaii's major energy companies – electricity and gas utilities, oil refiners, critical fuel storers and distributors – specialized military units, and relevant agencies from all levels of government.

In 2002/2003, he led the project team of Stillwater Associates, National Conference of State Legislatures, and U.S. Federal Trade Commission, which conducted a comprehensive analysis of Hawaii's petroleum industry and fuel markets, and produced DBEDT's report to the 2004 Legislature.

Dr. Tantlinger has published and presented numerous invited papers on U.S. and international energy planning and policy. He is Vice Chair of the Energy Security & Data Committee of the National Association of State Energy Officials. He is a retired U.S. Army officer (Infantry) who rose from the ranks. Dr. Tantlinger has traveled extensively, living in Japan for 5 years. He has a B.S. in Business & Management (Summa Cum Laude), University of Maryland, M.S. in Administration, Central Michigan University, Doctorate in Administration of Higher Education, University of Southern California.

Dr. Charles (Chip) Fletcher has a Ph.D. in Geology at University of Delaware concentrating in coastal sedimentology and Pleistocene-Holocene sea-level change. He currently is Professor and Department Chairperson of Geology and Geophysics in the School of Ocean and Earth Science and Technology (SOEST) at the University of Hawaii at Manoa, Honolulu.

Fletcher teaches graduate and undergraduate courses in Physical Geology and Coastal Geology. He also conducts research in remote sensing and coastal hazards. Dr. Fletcher's work is published in over 50 peer-reviewed, international scientific journal articles and 20 books and reports. He heads the Coastal Geology Group at the University of Hawaii and has been principal advisor in the awarding of 18 graduate degrees (5 Ph.D. and 13 M.S.). Dr. Fletcher's research grants and contracts total \$5M since 1992.

He is recipient of awards for teaching and in recognition of community service and research excellence. For his work in service to government agencies and local groups, Professor Fletcher was the 2001 recipient of the *Robert W. Clopton Award for Outstanding Service to the Community* awarded by the University of Hawaii, Board of Regents.; and 2006 recipient of the *Hung Wo and Elizabeth Lau Ching Foundation Award for Faculty Service to the Community*. In recognition of his professional accomplishments, he was elected Fellow of the Geological Society of America and in 2004 was identified by UH Manoa Chancellor's Office as a "Leading Researcher at UHM". Fletcher has served as past member of the UH-Manoa Faculty Senate and the Kailua Neighborhood Board where he resides with his wife and 3 school-age children.

Panel Session: Policy Implications for Hawaii

Henry Curtis, Life of the Land, Executive Director, attended Queens College, City University of New York and has a B.A. in Theoretical (Mathematical) Economics, and completed his graduate course work but not his masters thesis for his M.A. in Theoretical Economics (graduate thesis focused on macroeconomic agricultural policy).

Henry pursued his graduate research in California, studying the international grain trade and agricultural commodity market futures. Henry became involved with the California environmental movement, focusing chiefly on unsustainable agricultural policies. He moved to Hawaii in 1991, joined the Life of the Land Board in 1994, and became the Executive Director in early 1995. The major issues he focused on were land use and toxics.

He served on military Restoration Advisory Boards (RAB) and Technical Review Committees for the Army, Navy and Air Force, serving as co-chair of the Hickam AFB RAB for 9 years. Henry has studied energy issues over the past 10 years, including the rise of the ethanol controversy, investigating all sides of the issue.

Robbie Alm, Hawaiian Electric Company, Senior Vice President Public Affairs. Born and raised in Hawaii. Attended University of Iowa School of Law (Juris Doctor w/ Distinction), University of Hawaii (BA in Political Science), and University High School. Current community affairs include: Bishop Museum (Board of Directors), Boys and Girls Club of Hawaii (Board of Advisors), Community Links Hawaii (Board of Directors), Hawaii Nature Center (Board of Directors), Hawaii Public Television Foundation (Treasurer, Board of Directors), and Helping Hands Hawaii (Chair, Board of Directors).

Representative Hermina Morita, Chair of the House Committee on Energy and Environmental Protection, member of the following committees: Consumer Protection & Commerce, Judiciary, Water, Land, Ocean Resources & Hawaiian Affairs. Attended George Washington University, University of Hawaii, and Kamehameha Schools.

In 1997 she was awarded the prestigious Arthur S. Flemming Fellowship given to emerging political leaders in the country. She was the second legislator in Hawaii to receive this nationally recognized award. In June 2002 she received an honorable mention as a finalist for the Good Housekeeping Award for Women in Government. Representative Morita was awarded "Hawaii Legislator of the Year-2002" by the Sierra Club Hawaii State Chapter and "President's Award" by the Hawaii Audubon Society. In Fall 2002 she served as "Legislator in Residence" within the College of Social Science, University of Hawaii, Manoa. In 2003, Representative Morita received a fellowship from the Eleanor Roosevelt Global Leadership Institute as one of twelve State Legislators selected nationally for a study tour of China focused on environmental, energy and trade issues and the EPA's 2003 Outstanding Environmental Achievement Award.

Rep. Morita also serves as a Board member for the following organizations: Council for Native Hawaiian Advancement, Legacy Foundation of the Pacific, Environment Hawaii, and Wai Ola. She also serves on the Advisory Board and as a volunteer for Kauai's Children's Discovery Museum.

Dr. Jim Roumasset is a Professor of Economics at the University of Hawaii, Manoa, specializing in public policy analysis, and director of UHERO's research program in Environmental Economics and Sustainable Resource Management. He has published widely on sustainable development, efficient resource use, energy modeling, and the optimal control of global warming. He currently serves on the Chancellor's Sustainability Council and the UHM Climate Commission. He is currently pursuing several initiatives in transdisciplinary sustainability science through a cooperative agreement between UHM and research institutions in SE Asia.

Panel Session: Options and Strategies for Controlling GHG Emissions

Dr. Dave Rezachek, is the associate development director for, and a full-time consultant to, Honolulu Seawater Air Conditioning, LLC.

Dr. Rezachek has more than 30 years of experience in energy and environmental systems research, design, demonstration, analysis and engineering and project management. He has been a registered professional mechanical engineer in the State of Hawaii for more than 21 years.

He has been a project manager for dozens of projects in the areas of renewable and conventional energy, energy efficiency and conservation, electric and hybrid vehicles, alternative fuels, energy and engineering education and environmental engineering. Many of these projects involved research, development, demonstration and commercialization of new and relatively untested technologies, systems and concepts. He has a B.S. in chemistry from the University of Minnesota, a B.S. in environmental technology and urban systems from Florida International University, an M.S. in mechanical engineering from the University of Hawaii and a Ph.D. in ocean engineering from the University of Hawaii.

He is the owner of, and principal consultant for, Rezachek & Associates, an international energy and environmental engineering consulting group with its base of operations located in Hawaii.

Brian Kealoha has been active in energy efficiency and renewable energy since 1994. He is currently the Senior Vice President of Sales and Business Development for Energy Industries, a Hawaii based energy services company with offices throughout the U.S. and Asia. He has assisted thousands of businesses decrease their energy consumption and expenditures while reducing their carbon footprint. Mr. Kealoha is a Certified Energy Manager, Certified Lighting Efficiency Professional, and Certified Demand Side Manager. He has spoken at national conferences for the Department of Energy, Rebuild America, and was a lecturer in Maui Community College's Sustainable Technologies Program for several years. Prior to joining Energy Industries, Mr. Kealoha developed and supervised energy efficiency programs for Pacific Gas & Electric in California and Avista Utilities in Washington. He was also employed by Maui Electric Company and served as project manager on a number of projects ranging from the first utility owned combined heat and power unit in Hawaii to the first net energy metered photovoltaic system in Hawaii. Mr. Kealoha was recently honored by Pacific Business News as part of its Top Forty Under 40 leadership award for 2007. Mr. Kealoha holds a BBA in Marketing and Economics as well as a Masters in Business Administration from Gonzaga University.

Shanah Trevenna has worked as a Mechanical Engineer in Canada with corporations such as IBM and Philips. Specializing in metering and process stream lining she has always had a passion for technology and efficiency. Concerned with the rise of global warming she turned her skills to sustainability focusing on transforming ideas into tangible action. As a student at UHM pursuing her PhD in Political Science specializing in Alternative Futures, Shanah now leads a devoted student sustainability group called the HUB standing for 'Help Us Bridge'. Their first project, Sustainable Saunders, will evolve a seven-story building housing the social sciences into a testing bed for solutions, serving as an inspirational model for the campus and beyond!

Jeffrey Mikulina is the Director of the Sierra Club, Hawai`i Chapter. He serves as the lobbyist for the organization and oversees the activities of the four Sierra Club groups in Hawai`i that have a combined membership of over 5,500. He returned to Hawai`i after graduate study through a National Science Foundation Fellowship in engineering at the University of Illinois at Urbana-Champaign. He has served as the Vice Chair of both the Honolulu Planning Commission and the Honolulu Charter Commission. Some of his accomplishments with the Sierra Club include passing legislation that requires returnable deposits on all beverage containers, increases the funding of natural resources through tourism taxes, and increases renewable energy use in the state.

Dr. C. Barry Raleigh, got a Phd from UCLA and went to join the Research School of Physical Sciences at the Australian National University in 1963. He became a research Geophysicist in the USGS' Earthquake Research Program in Menlo Park, CA in 1966 where he and others demonstrated in 1967 that the Denver earthquakes were caused by injection of pressurized toxic waste at the Rocky Mountain Arsenal. Later Raleigh conducted an active earthquake control experiment at the Rangely Oil Field in western Colorado in which he turned earthquakes on and off by controlling the fluid pressure in the oil reservoir.

In 1982, Raleigh became Director of Columbia University's Lamont-Doherty Geological Observatory where he started the Climate Research Center and initiated the Continental Drilling Program and the Greenland Ice Cap drilling program. He gave his first lecture on global warming in 1981.

Raleigh became the first Dean of the UH's School of Ocean, Earth Science and Technology in 1989. He is now a Researcher in the Hawaii Natural Energy Institute and President of HR Biopetroleum, Inc.

Panel Session: Incorporating Climate Change into the IRP Process

Carl Freedman is the principal of Haiku Design & Analysis, a Maui consulting firm specializing in public utility regulatory affairs, Integrated Resource Planning (IRP) and economic analysis. Carl has been an active participant in Hawaii's energy utility IRP process since its inception. Carl was one of the stakeholders in the collaborative process that defined the principle characteristics of IRP in Hawaii in the PUC docket that established the existing IRP Framework. On behalf of the Hawaii Consumer Advocate, Carl reviewed and testified before the PUC regarding the first IRP's filed by each of Hawaii's energy utilities. Carl is now under contract with the Maui County Department of Water Supply to provide the technical and economic analyses for the IRP components of the Maui County Water Use and Development Plan. Carl is the Chair of the Regulatory Reform Work Group of the Hawaii Energy Policy Forum.

Dr. John Tantlinger, (see above)

Darren Kimura is the Founder and Chairman of the Board of Energy Industries Holdings, Inc. Energy Industries Holdings is comprised of a number of companies including Energy Industries a national energy services company, Sopogy a renewable energy technology company and 7 other energy companies. Mr. Kimura is a recognized expert in energy conservation and renewable energy systems and has been a speaker on global warming for the Department of Energy, and The Guam Energy Office. He is the President elect for the nation's largest energy association PLASMA, a co-chairperson for the Hawaii Energy Policy Forum and on the advisory group for Hawaiian Electric's Integrated Resource Plan. He is also a certified sustainable development professional.

If you would like to receive a DVD of the Climate Change/Global Warming session or have any questions, please email info.mecoirp@mauielectric.com.