

DRAFT

**Greenhouse Gas Emission Reduction Task Force Meeting
(Act 234, Session Laws of Hawaii (SLH) 2007)
February 7, 2008
State Office Tower (SOT), Room 405
Meeting Minutes**

Task Force Members Present:

1. Ms. Estrella Seese, Designee for Co-Chair Theodore E. Liu, Director, Department of Business, Economic Development and Tourism (DBEDT)
2. Co-chair Laurence K. Lau, Deputy Director for Environmental Health, Department of Health (DOH)
3. Mr. Wilfred Nagamine, Designee for Co-chair Laurence K. Lau, Deputy Director for Environmental Health, Department of Health (DOH) *
4. Mr. Robbie Alm, Senior Vice President for Public Affairs, Hawaiian Electric Company, Inc.
5. Mr. Frank Clouse, Manager, Refining, Tesoro Hawaii Refinery
6. Dr. Makena Coffman, Assistant Professor, University of Hawaii (UH) Department of Urban and Regional Planning
7. Mr. Mark Fox, Director, External Affairs, The Nature Conservancy of Hawaii (TNC)
8. Dr. Lorenz Magaard, Professor, University of Hawaii (UH) Department of Oceanography
9. Mr. Jeffrey Mikulina, Chapter Director, Sierra Club Hawaii Chapter
10. Mr. Gary North, Senior Vice President, Matson Navigation Company.

Task Force Members Excused:

1. Co-Chair Theodore E. Liu, Director, Department of Business, Economic Development and Tourism (DBEDT)
2. Mr. Gareth Sakakida, Managing Director, Hawaii Transportation Association

Staff Members Present from DBEDT:

Mr. Theodore (Ted) Peck, Acting Manager, Energy Policy and Planning Branch, Strategic Industries Division
Ms. Estrella Seese, Energy Economist
Ms. Karen Shishido, Energy Analyst

Staff Members Present from DOH:

Mr. Wilfred Nagamine, Clean Air Branch Manager
Mr. Barry Ching, Planner
Ms. Marianne Fuji Rossio, Engineer
Ms. Priscilla Ligh, Engineer
Mr. Scott Takamoto, Engineer

Representative from Attorney General's Office:

Mr. Gregg Kinkley, Deputy Attorney General

* Mr. Nagamine took Co-Chair Lau's place at 3:35 pm, when Mr. Lau left the meeting.

1. The meeting was called to order by Co-Chair Mr. Lau at 3:07 pm
2. Review of the Minutes of the January 3, 2008 Task Force Meeting and Consideration for Approval
 - a. Co-Chair Lau handed out a document with suggested amendments to the January 3rd minutes. They consisted of additional details about the impact of climate change on Hawaii presented by Dr. Fred Mackenzie in his presentation, which Co-Chair Lau felt should be reflected in the minutes due to their importance.
 - b. Mr. Gary North moved to approve the minutes as amended. Mr. Mark Fox seconded the motion.
 - c. Minutes were approved with the amendments noted.
3. Craig Coleman, Graduate Assistant, University of Hawaii – Manoa School of Oceanography, gave a presentation on UH-Manoa’s GHG inventory efforts. The following is a summary.
 - Motivation for this work was becoming a signatory to the American College & University Presidents’ Climate Commitment (ACUPCC) in September, 2007. ACPUCC is “A high-visibility effort to make campuses more sustainable and address global warming by garnering institutional commitments to reduce and ultimately neutralize greenhouse gas emissions on campus.” Currently there are 487 signatories.
 - The effort is modeled after the U.S. Mayors Climate Protection Agreement.
 - Within one year of signing this document, UHM must complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) is required. UHM will update the inventory every other year thereafter. Inventory does not cover other campuses.
 - Scope of tracking and reporting: includes six greenhouse gases:

| <u>Name of gas, acronym and global warming potential (GWP)¹</u> | |
|--|---------------|
| carbon dioxide (CO ₂) | 1 |
| methane (CH ₄) | 21 |
| nitrous oxide (N ₂ O) | 310 |
| hydrofluorocarbons (HFCs) | 140 - 11,700 |
| perfluorocarbons (PFCs) | 5,210 - 8,700 |
| sulfur hexafluoride (SF ₆) | 16,300 |
 - Accounting protocols are derived from the World Resources Institute and World Business Council for Sustainable Development (WRI/WBCSD)
 - Website: <http://presidentsclimatecommitment.org/html/solutions.php>
 - Sources of GHG for campuses include: purchased electricity, purchased steam / chilled water, on-campus stationary sources (energy generation), transportation (commuting, air travel, campus fleet), agriculture (fertilizer use, animal waste) solid waste (incinerated, landfill), refrigerants and other chemicals, offsets (renewable energy credits purchased, composting, forest preservation, local offset project).

¹ **Global warming potential (GWP)** is a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming. It is a relative scale which compares the gas in question to that of the same mass of carbon dioxide (whose GWP is by definition 1). A GWP is calculated over a specific time interval and the value of this must be stated whenever a GWP is quoted or else the value is meaningless.

- Current status: Inventory of direct and indirect campus emissions is near completion. Some emissions factors need to be resolved (principal sources are Energy Information Agency, Hawaiian Electric Company Inc., The Gas Company, and DBEDT).
 - UHM inventory methods are compatible with The Climate Registry (TCR) and therefore UHM could be the first reporting entity to TCR.
 - UHM feels it can streamline its processes to guide and facilitate other Hawaii organizations who are conducting inventories.
 - Funding: the inventory work and analysis is provided by UHM Chancellor's Office, Hawaiian Electric Company, Inc., UH Sea Grant Program, and two anonymous donors.
4. Mr. Randall Young, NAVFAC (Naval Facilities Engineering Command) Pacific, Mr. Steven Arenson, U.S. Air Force, and Col. Howard Killian, U.S. Army IMCOM (Installation Management Command) - Pacific, briefed the Task Force on past and current greenhouse gas emissions estimates and reduction projects. A summary follows.
- **NAVFAC PAC (Randall Young)**
 - 2006 Energy Usage for Island of O'ahu: 8,709,680 MWh.
 - Military usage is 14% of Oahu's energy usage. Army used 319,112 MWh (4%); Navy used 593,953 MWh (7%), Air Force used 167,459 (2%), and Marines used 118,276 MWh (1%). The Navy reduced its consumption 3% in FY 06-07.
 - Navy and Marine Corps housing have installed over 3,800 water heaters.
 - Navy GHG reduction: 43,779 MWh saved since 1996; a total of 39,878 tons of emissions avoided.
 - Navy renewable energy projects include Ford Island photovoltaic array (233 kW). Future distributed generation projects are planned.
 - **Air Force (Steven Arenson)**
 - The Air Force spent over \$7 billion for energy in FY06. Aviation fuel represents 81% of total energy costs. 2.6 billion gallons of fuel were used in 2006.
 - Several mainland bases feature solar and wind energy or are powered by green power.
 - The Air Force has reduced its fossil fuel powered ground fleet by 15% since 1999.
 - The Air Force has a goal of fueling aviation fleet with 50/50 blend of synthetic fuel by 2011.

- **Army (Col Howard Killian)**
 - Unofficial IMCOM-Pacific goals for its programs include to GHG reduction opportunities, publicly report and participate in voluntary GHG programs, participate in GHG markets, and establish installations as a sustainability leader.
 - The IMCOM-Pacific is also interested in developing baseline GHG inventories and developing a cost-effective GHG management strategy.
 - Col. Killian also presented some ideas especially pertinent to IMCOM in relation to Act 234 (below):
 - Natural carbon sequestration:
 - *Forested lands capture carbon dioxide (CO₂). Utility companies may need to offset their CO₂ emissions. An installation could quantify its forested areas on base and sell the associated CO₂ sequestration credits to a utility. As an example of the potential value, greenhouse gas storage in forests can be as high as \$2,200 per hectare.*
 - Habitat banking:
 - *Habitat for endangered and threatened species extends beyond the fence line. Quantifying its value allows installations to purchase or trade credits from other habitat banks in the same region. This could increase training capacity by reducing on-post endangered species restrictions. It would also allow regulators to manage species and habitats across regions.*
 - Natural filtration:
 - *Wetlands act as a natural filtration system. Installations could identify their ecosystem service value and use filtration credits or trade them for another environmental service needed to comply with requirements.*
 - Pollutant cap and trade:
 - *Regulatory bodies set overall caps on pollutants such as SO₂ and allocate pollutant baseline quantities to the producers. Producers could reduce their own emissions and sell the resulting credits, or they could purchase credits from others to avoid treatment or noncompliance costs.*
- a. Discussion
 - 1) Member of the public Mr. Henry Curtis asked at what point in their operation (e.g., travel from what point to what point) emissions from Navy ships would be included in a GHG inventory. Mr. Randall Young, NAVFAC-PAC, responded that the information is insufficient and no one entity he is working with has all the necessary data, but they are pursuing it.
 - 2) TF member Mr. Frank Clouse asked about the experimental projects to use hydrogen fuel cells in military operations – what process by which it is produced. Col. Killian, IMCOM-PAC, responded that he is not sure of the means of production

yet but because hydrogen is an energy carrier, it would need to be produced with the use of a diesel generator or other means. One option would be by electrolysis.

3) Asked by a member of the public if the military is covered by Act 234. Col. Killian replied it is not, but that military emissions are already wrapped into the state's aggregated inventory, with the exception of aviation fuel.

5. Mr. Sam Pintz, Senior Resource Planning Analyst at Hawaiian Electric Company Inc. (HECO) presented on "HECO IRP-4 Integration: Conceptual Issues relating to GHG Analysis." The following is a brief summary.

- Tools for Reducing CO2 Emissions include energy conservation, substitution of equipment (like Wind and Solar), substitution of fuels (Green Fuels in place of Fossil Fuels), and purchase of "Carbon Credits"
- IRP4 will need to develop GHG analysis against background major planning uncertainties such as: volatile fossil fuel prices, any bio-fuel initiatives, condition of Hawaii's economy, sales / demand uncertainties, refurbishing vs. retiring existing plants, and DSM responsibilities which will change under PUC decision.
- Policy Assumptions-Carbon Credit system will revolve around "tradable carbon credits." Each year the state will provide an emission target for HECO. Every ton of CO2 emitted will require one permit / credit. The permits/credits will be auctioned and HECO will have to pay the government for them. Costs will be passed to consumers.
 - IRP4 will evaluate multiple permit/credit prices; 1) a safety valve price and 2) a market price
 - If HECO ends the year with more credits than it needs it can "sell" or "bank" the excess. If HECO does not have enough permits it can buy credits from other emitters. If HECO does not have enough permits to cover its emissions it will have to pay a heavy fine or some other penalty.
 - Market Prices for Credits: Studies suggest a wide range of prices between \$10 and \$100/credit. In practice carbon credit prices will vary from year to year due to supply- demand. No one knows where market prices will end up. Safety Valve Price may be set to guard against damage to economy by aggressive increases in energy prices. Common values suggested are \$10-\$12 per credit. However, this is not a universally accepted number or policy principle because safety valves can compromise GHG targets.
 - Planning Scenarios must examine future combinations involving sales and peak forecasts, fuel oil prices, value of carbon- and cost of credits.

a. Discussion

- 1) Dr. Coffman asked Mr. Pintz about life cycle cost accounting and leakage issues in renewable technologies -- if there was any research by HECO or anyone else that accounted for and compared the life-cycle energy and greenhouse gas impacts of producing a photovoltaic panel, compared to the energy savings and avoided emissions over its usable life. Mr. Pintz referred to a German study which pointed to possible unintended consequences and negative life cycle impacts, but also recommended that since Hawaii is a unique place, many technologies should be considered in our greenhouse gas reduction efforts, with consideration of our unique characteristics.

- 2) Col. Killian asked if HECO was developing any carbon sequestration technology. Mr. Pintz replied that in a carbon credit system, there would be two types of credits: Offsets and sequestration. Mr. Pintz commented that Hawaii's geology is not amenable to ground burial as a means of sequestration and marine burial has met with opposition on environmental grounds.

6. Mr. Ted Peck led a discussion with TF members on the scope of three standing committees, to be called "Analysis," "Policy," and "Outreach," respectively, as introduced at the February 7, 2008 TF meeting. The TF unanimously agreed to accept the divided scopes of work for each committee as suggested by staff. They are as follows:

a. Analysis Committee:

- 1) Investigate and develop analytical tools, economic models, and other scientific methods to evaluate total potential costs and benefits
- 2) Review and recommend emissions reduction measures, compliance and regulatory mechanisms
- 3) Make recommendations to minimize leakage (reduction in-state causing out-of-state increase)
- 4) Consider of relative contribution by source or category, and establishing minimum thresholds
- 5) RFP for current inventory-provide informal input to DBEDT/DOH staff.

b. Policy Committee:

- 1) Examine of market-based compliance mechanisms & suggested rules
- 2) Suggest regulations to control mobile sources
- 3) Identify and Recommend: direct emission reduction measures, alternate compliance mechanisms, market-based compliance mechanisms, and potential incentives (monetary and non-monetary)

c. Outreach Committee:

- 1) Pursue opportunities for emission reduction voluntary measures
- 2) Implement a series of public workshops, at least one in each county
- 3) Consult with state agencies having jurisdiction over sources
- 4) Develop action plan for public outreach and feedback

d. The TF then volunteered for one or more committees. TF members were advised that committees are limited to five members, and quorum requirements remain in effect at 60% but are scaled down appropriately, e.g. a meeting quorum for a committee of five members shall be three persons. All provisions of Chapter 92, Hawaii Revised Statutes (The 'Sunshine Law') and Chapter 92F, Hawaii Revised Statutes (Uniform Information Practices Act) are applicable to these committees, including public notice for all meetings. The following is the final roster of the membership of the three committees.

- 1) Analysis Committee: R. Alm, L. Lau, .M. Coffman, J. Mikulina, L. Magaard
- 2) Policy Committee: R. Alm, M. Fox, G. North, F. Clouse, T. Liu
- 3) Outreach Committee: L. Lau, T. Liu, J. Mikulina, G. Sakakida.

The TF expressed a desire to meet at least once before the next (March 6) full meeting.

- e. Discussion of miscellaneous items.
 - 1) Agenda for March meeting: Co-Chair Lau will to present an update of State activities with The Climate Registry and developments with federal legislation at the next meeting.
 - 2) Member of the public Ms. Pat Tummons asked if there is an update on the status of the Request for Proposals. Mr. Ted Peck said Funding for Act 234, in the amount of \$500,000, has not yet been released. He commented that staff is in discussion about contracting, and will update the TF at the March meeting.
 - 3) Mr. Matt Riel, a member of the public, and President/General Manager of AES Hawaii Inc., offered to brief the Task Force on AES' coal-fired power plant and its sequestration activities at whatever time is appropriate.

- 7. Adjournment
 - a. Mr. Robbie Alm moved to adjourn the meeting at 4:48 pm. Mr. Gary North seconded the motion. Meeting was adjourned.

- 8. Next Meeting
 - a. The next meeting will be held on Thursday, March 6, 2008 from 3:00-5:00 pm.
 - b. **The location will be changed to Room 204 of the State Office Tower, 235 S. Beretania St., Honolulu.**