

Third Hawaii Energy Strategy 2007 Stakeholder Meeting
8th Floor HEI Conference Room
December 13, 2006

[*Editor's note:* We apologize for the delay in getting this summary of the discussion on our web site. Staff was fully involved in other matters.

The following represents the best note-taking efforts of the HES staff to capture stakeholder comments. The comments and responses are paraphrased, rather than quoted directly. They are also organized topically rather than in order of discussion.]

Biofuels

Stewart Scott (Suntech Hawaii): You mentioned earlier that biofuels are low in carbon dioxide emissions?

Joel Swisher (Managing Director, Rocky Mountain Institute): In the model, we assumed that carbon dioxide emissions from biofuels production have net zero emissions. In reality, the net emissions are non-zero, but they are low. The low emissions are also contingent upon the land being harvested in a sustainable manner, and that the machinery used is not consuming large amounts of oil. So, it is important to clarify that the biofuels have net low carbon dioxide emissions—that is, not a 100 percent reduction. However, the use of biofuels can yield high carbon dioxide savings.

Pay-As-You-Save ®

Stewart Scott (Suntech Hawaii): In your policy recommendations you mention a program called Pay-As-You-Save (PAYS). What is it?

Joel Swisher (Managing Director, Rocky Mountain Institute): PAYS is a program that was developed in the Northeast and is currently being implemented in New Hampshire and Connecticut. It is like a leasing program between the utility and the customer. However, the lease payment stays with the house or structure and doesn't show up as debt on the customer's financial books. The program is essentially financing energy efficiency through the customer, and allows the customer to have technology without accumulating debt. The program is good for the utility because the lease payment is made from electricity savings, thus increasing lease payment certainty. Also, the program has no payback or amortization. Nevertheless, the customer is contributing to cost.

Rick Reed (Inter-island Solar Supply): What are demographics of PAYS participants?

Kitty Wang (Principal, Rocky Mountain Institute): We are not certain; however, it is an excellent program for renters because payments for the efficient technology investment stay with the building and new tenants can take over the program when they move in. The program is unique in its ability to bridge the gap in energy efficiency policy between

landlords and renters. The classic renter's conundrum is that owners don't have incentive to invest in efficient appliances/technologies because they don't pay the energy bills. The tenants pay the energy bills, but don't have incentive to invest in efficiency given they are renting and it's a temporary engagement. They have no personal interest in improving something they don't own.

Shannon (Citizen): I would like to know if nuclear is being explored as an option? Also, in terms of demographics, 48 percent of Oahu residents are renters. Typically, owners don't receive tax credits, so it is difficult to implement the program unless both the owner and the renter benefit. Also, I would love to buy a new hybrid Prius, or a brand new efficiency vehicle, but I cannot afford it. I own a VW van that is refurbished and when I need to replace a vehicle I usually buy it used. My point is that not everyone can afford new cars or other technologies that are more efficient, and policies that impose taxes or incentives for purchasing these new technologies will not work for all residents.

Joel Swisher (Managing Director, Rocky Mountain Institute): The demographics of high percentages of renters with relatively low incomes suggest PAYS will work for such groups better than other financing mechanisms because it does not require customers to pay for the technology up front, but instead allows these customers to realize returns throughout the program. The PAYS program provides a way to offer assistance to renters through cost-saving technologies that immediately reduce their bill.

[Editor's Note: Shannon also raises an important point regarding policies to encourage purchase of new, more efficient vehicles. We need to consider ways to assist low income vehicle owners with purchases of efficient vehicles; otherwise, those who can least afford it will likely be operating older vehicles with high fuel costs.]

Warren Bollmeier (President HREA): Just to be clear, we still have a State Constitutional provision against having nuclear electricity generation on the islands.

[Editor's note: The Constitutional provision is not an outright ban. Article XI, Section 8, reads as follows:

No nuclear fission power plant shall be constructed or radioactive material disposed of in the State without the prior approval by a two-thirds vote in each house of the legislature.]

A policy option that we may want to consider is an RPS with a requirement on wholesale power. It would be structured so that the utility decides it wants X percent of renewable energy from a wholesale energy provider, so they issue an RFP and put it out to bid. I don't believe that we need to address policy issues regarding whether or not we will meet the RPS. It is not really going to be an issue about achieving the RPS.

Also, the PAYS docket is just getting started for solar hot water. Under Act 240, the legislature required that the financing program must be implemented by June 30, 2007.

Right now, I am mulling over how to get to that point. Do we want to expand beyond residential? What other areas would be good areas to consider if we did?

Joel Swisher (Managing Director, Rocky Mountain Institute): Energy efficiency in the commercial sector is another way to expand PAYS. I have rented office space for my entire career, and there has never been any incentive to be energy efficient. So that would be another area to explore for expanding the PAYS program. Currently, there is no incentive to capture the low-hanging fruit.

Kitty Wang (Principal, Rocky Mountain Institute): It is also important to design the program properly. Hawaii will be the second state in the country to adopt a PAYS program, so it is crucial that the program be thoughtfully and carefully designed, so that it will succeed.

Todd Scheibert (Scheibert Energy Co.): I wanted to comment on household efficiency. There is the ability to achieve 40 percent savings. I live in an apartment, and I keep trying to get the complex to install solar hot water or PV, but there is no market-driven value to build efficiency. The real estate market does not care. They are there to resell. I recently found out that Donald Trump builds all his new buildings to LEED Platinum standards. And you know why he does that? It is because after the big real estate slump, he was stuck paying all those electricity bills for empty apartments. So now, he is building all of his new buildings to LEED platinum.

Feed-In Tariffs

Eric Kvam (Net Zero Emissions): I wanted to start by saying that you did an outstanding job modeling. I am, however, disappointed that I did not see rebates or feed-in tariffs as incentives for renewable energy in Hawaii. Under the scenarios where we are just meeting the RPS, a feed-in tariff could allow us to exceed the RPS.

Joel Swisher (Managing Director, Rocky Mountain Institute): Judging from our scenarios analyses, it looks like the RPS will be met though a combination of renewable electricity, efficiency, and biofuels substitution. One recommendation option that we are considering is to increase the RPS requirements. As far as feed-in tariffs go, they are quite popular in Europe, but there are pros and cons. I don't want to speak for the [Hawaii's] utilities, but they may not favor it. Another con is that we don't know how well the feed-in tariff would work with the existing RPS. For policies that advance renewable energy, we may prefer to use market forces rather than dictate the costs because feed-in tariffs do not necessarily reduce the cost of renewable energy.

Stewart Scott (Suntech Hawaii): What is a feed-in tariff?

Joel Swisher (Managing Director, Rocky Mountain Institute): A feed-in tariff works by stimulating production volume, but may not be the best way to use market competition to reduce cost. As I mentioned, this type of policy does have some downsides. [*Editor's Note:* A feed-in tariff is a minimum price guaranteed by the government that is paid to

renewable electricity producers per unit of electricity generated, as well as a premium in addition to electricity prices. The level of the tariff is commonly set for a number of years to give investors security on income for a substantial part of the project lifetime. Many different adaptations of the instrument are applied, but it is usually subsidized heavily by the government.]

Warren Bollmeier (President HREA): I just want to note that we already have a feed-in tariff: it is called avoided cost. I like to call it “PURPA with a purpose.” The avoided cost is used to determine the price that the renewable power producers receive in power purchase agreements.

Steve Alber (DBEDT): With regard to Warren’s comment, the 2006 Legislature passed an amendment to require the Public Utility Commission to create a methodology that removes or significantly reduces any linkage between the price of fossil fuel and the price of nonfossil-fuel-generated electricity to potentially enable utility customers to share in the benefits of fuel-costs savings resulting from the use of nonfossil-fuel-generated electricity.

Grid

Todd Schiebert (Schiebert Energy Co.): I have been installing co-generation, photovoltaics, and other energy systems in Hawaii for many years. The problem in keeping these alternative energy sources connected with the grid is voltage and fuel consistency. Hawaii has a unique grid that is dated back to plantation days, where small generators can pull the grid up and down a hertz very easily. How do we address this in the future with more renewables on line? The fuel shipments are also inconsistent from one shipment to the next, the BTUs of the fuel changes significantly. This greatly affects performance and economics of the power production. For example, many PV systems are only getting 70 percent of their rating. Invertors are running at least 25 degrees above what they should be. How do we deal with this?

Joel Swisher (Managing Director, Rocky Mountain Institute): I think that working with utilities is the best way to address these technical issues. I mean, the grid is owned by the utility and they are most qualified to evaluate grid impacts from renewables and distributed generation. From a policy standpoint, we can evaluate the remaining distributed generation potential. But Hawaii’s grid is indeed different.

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Policy Recommendations

Stewart Scott (Suntech Hawaii): There is a gap in tax incentives for multi-family residential implementation for solar photovoltaic. Right now, the landlord only receives \$350 per unit! And that is compared to \$5000 for a single-family home. The landlord would have to have at least eight units to make incentives worthwhile. It is very important to fill the multi-family PV renter gap. I sell solar panels, and when I go to people who own rental units, it just is not worth it for them. They do not receive the

electricity savings, and the tax credit is not high enough. Have you made any recommendation about the gap in tax incentives?

Joel Swisher (Managing Director, Rocky Mountain Institute): We have not looked into increasing the multi-family solar photovoltaic credit. We will take note and look into it. Thank you. [*Editor's Note:* There was a proposal to increase the multi-family PV tax credit to \$500 before the 2006 Legislative session, but it did not pass.]

Technology

Todd Schiebert: Have you looked into gasification technology? Right now, GE is buying up gasification patents and they currently own 93 percent of worldwide patents on gasification. Have we been in contact with GE to see if some of their gasification technology can be adopted here? It can be used for heavy oil; instead of achieving 32 percent efficiency, over 60 percent can be achieved with gasification technology.

Joel Swisher (Managing Director, Rocky Mountain Institute): There may be issues of scale. The work that the oil companies are doing on gasification is on a scale of hundreds of megawatts. I have not heard of any proposals of scaling down, although that does not mean that they will not come. It is more likely that gasification will become a proven technology elsewhere, and then be scaled down. Gasification is similar to Integrated Combined Cycle Combustion, in that there is lots of promise for the future, but not for applications in the short term.

Stewart Scott (Suntech Hawaii): What is disruptive technological change?

Joel Swisher (Managing Director, Rocky Mountain Institute): Disruptive technological change is the idea that new technologies make old ones obsolete while the old ones are still in service. I guess the best summary of the idea is that the Stone Age didn't end because people ran out of stones. Basically, you don't want to wait and depreciate yourself out of business.

Modeling

Robert Brewer (Citizen): I haven't been to any other HES meetings and I was wondering about the constrained case. How doomsday is it?

Joel Swisher (Managing Director, Rocky Mountain Institute): It isn't really a doomsday scenario, given that it is based on the U.S. Energy Information Administration's high oil prices projection.

Robert Brewer (Citizen): Have you thought about modeling a real doomsday scenario; for example, one where you would double the current, constrained scenario?

Joel Swisher (Managing Director, Rocky Mountain Institute): We are not really looking into a doomsday scenario. The point of us modeling three different scenarios is to offer a range of potential future states of the world. While this range doesn't include a

renewable hydrogen car scenario, it also doesn't include the double doomsday scenario. We believe that the most realistic scenario will be a cyclic one where oil prices move up and down over time. In our model, we show the cyclic scenario as a smooth curve where prices move nicely up and then gradually transition and move lower. Fuel markets in real life do not move in this way. If you look at actual prices, they are rather erratic and move up and down without any discernible pattern—even over a short period of time, like within a month or so.

Warren Bollmeier (President HREA): It doesn't seem to matter whether prices go as far as the scenarios show because we are moving into the future regardless, plus or minus a few percentages difference in renewable energy. Does the model have the capability to assess 40-50 percent renewables?

Joel Swisher (Managing Director, Rocky Mountain Institute): Yes. We can model what 40-50 percent renewables would look like and a combination of recommendations.

Model Energy Code

Shannon (Citizen): Are there disincentives or incentives for people, not contractors, to build houses more efficiently? My neighbor just built this house where there is a big fence blocking all the breeze that could move through the house, and it is facing the sun. No radiant barriers, no solar hot water, no PV. If it were the 1950s, you would expect that kind of house. But right now? What is being done to keep people from making these mistakes?

Joel Swisher (Managing Director, Rocky Mountain Institute): One solution is to keep the model energy code as up to date as possible. Using codes and regulations as tools to promote efficiency have been around for a long time, and are sometimes overlooked. They can be quite effective when enforced. Hawaii is a home-rule state, so it is difficult to impose requirements, and right now Hawaii has a limited tool kit. We can promote a new energy code at the County level, but cannot mandate it.

Carbon Tax / Trading System

Curtis Beck (HECO): You mentioned that a carbon tax is going to become a reality in the next ten years?

Joel Swisher (Managing Director, Rocky Mountain Institute): Yes, we anticipate that the next administration will institute national GHG emissions regulations in 2009, regardless of which party is in power. We anticipate that a cap-and-trade system will be put in place as opposed to a carbon tax, which tends to be less politically palatable.

Curtis Beck (HECO): So if a cap-and-trade system were in place nationally would that mean Hawaii would need to purchase credits?

Joel Swisher (Managing Director, Rocky Mountain Institute): The key to whether Hawaii would be a net buyer or seller is in the allocation of the GHG emissions. It may not be the best way, but many programs allocate emissions based on the grandfathering of historic emissions, which makes past emissions an asset even as they seek to make future emissions a liability—essentially rewarding past bad behavior. Other programs allow for the auctioning of credits or combine a system of auctions and allocations. Such allocation schemes have not been used to date, but auctioning is being considered for the Northeast Regional Greenhouse Gas Initiative (RGGI). Both RGGI and the emerging California GHG scheme will likely provide for the purchase of GHG offsets, which could become an opportunity for Hawaii to make money while reducing emissions.

Although most utility executives around the country expect GHG regulation in the next five to ten years, they seem to be divided in terms of their response. Some utilities are ramping up efficiency programs and working to expand renewable generation, in order to reduce the potential financial risks imposed by GHG limits and costs. Other utilities, however, are racing to site and build coal-fired plants in advance of GHG regulation, assuming that such plants, once built, will be able to keep generating even under GHG limits. When the costs of these plants under GHG regulation penalize these utilities' customers, their executives seem complacent about simply crying "force majeure," and hope that shareholders don't get stuck with the bill.

Curtis Beck (HECO): I would encourage in next iterations of Hawaii Energy Strategy to not only consider state policies, but national policies that would affect Hawaii. For example, examine carbon emissions trading and carbon taxes and how much they would cost.

Additional Questions

Stewart Scott (Suntech Hawaii): What is the outcome of this process? Is there going to be a document that we can review, or something that will be posted online?

Joel Swisher (Managing Director, Rocky Mountain Institute): The HES is still a work in progress, but the past stakeholder meeting presentations are available online. [*Editor's Note:* The website address is <http://www.hawaii.gov/dbedt/info/energy/planning/hes>] The final draft document will come out after DBEDT reviews and approves the report. There will be an opportunity to discuss the draft at a final stakeholder meeting tentatively scheduled for early April. Stakeholders will also have an opportunity to make written comments for inclusion in an appendix to the report.]

Alan Konan (Department of Agriculture): You note that we have a capital stock that can be slow to change, which is a good point. We can't just transition to all new stock. However, there are interim technologies that you can use to transition such as, those curly lights and solar panels. Whenever I see the curly lights in the store I purchase them.

Joel Swisher (Managing Director, Rocky Mountain Institute): Yes, they are also known as CFLs, which stands for “curly florescent lights!” [*Editor’s Note:* CFL is short for compact fluorescent lamp.]

Dean Little (Citizen): Could the fee on feebates be tied to kilowatt-hours? For example, could there be some type of financial help for those who are innovative, where one pays less up to a certain kilowatt-hour and then pays more?

Joel Swisher (Managing Director, Rocky Mountain Institute): When you talk about paying a certain rate for less usage, it sounds like you are talking about a tiered-rate structure. That type of rate structure is being proposed by HELCO right now in their current rate case. The feebate being tied to kilowatt-hours is not something that we have considered yet, but we will think about it. Thank you.