

EXECUTIVE SUMMARY

Hawaiian Electric Company's Integrated Resource Planning (IRP) process is designed to develop a comprehensive 20-year plan for meeting Oahu's energy needs, evaluating and integrating both resources that *supply* electricity and resources that reduce or better manage the *demand* for electricity. As part of its IRP process, Hawaiian Electric Company, Inc. (Hawaiian Electric) works with a community-based Advisory Group and the public to ensure the delivery of reliable and reasonably-priced electric power for residential and business customers. From March 2007 through September 2008, Hawaiian Electric conducted its fourth IRP process (IRP-4).

The resulting IRP-4 preferred plan represents an aggressive move towards the use of renewable resources and the reduction of fossil fuel use, including major changes to Hawaiian Electric's infrastructure and policies that will be technically challenging and require significant investment. The successful implementation of the IRP-4 preferred plan will also be dependent on government and public support. This executive summary explains the preferred plan and the complex framework of technology, recent legislation and increasing environmental and consumer impacts in which the IRP-4 preferred plan was developed.

Two Primary Objectives for Hawaiian Electric

As a public utility, Hawaiian Electric is required to serve the public interest. The world is rapidly changing with respect to how it looks to meet its future energy demand, and Hawaii is at the forefront of that effort. Traditional fossil fuel electrical generation must give way to renewable energy and other pathways to control energy use. This is driven by our need to decrease our vulnerability to imported sources of energy, our desire to use clean energy sources, rapidly rising fuel oil prices, and international, national and state-by-state initiatives to reduce greenhouse gas ("GHG") emissions through the increase use of renewable energy and energy efficiency resources. This is evidenced by the Kyoto Protocol, the National Energy Policy Act of 2005, state and possible federal renewable portfolio standards ("RPS"), state GHG regulations, and other policies and regulations. At the same time, Hawaiian Electric has an obligation to serve its customers. The public expects electrical service consistently and with quality. This is Hawaiian Electric's traditional core activity and remains as important as ever.

Hawaiian Electric has two main objectives:

- transition the system to one that focuses on renewable energy, energy efficiency, and energy conservation,
- keep the current system providing reliable power.

Both are critical, both require support, and Hawaiian Electric fully intends to deliver on both.

Transitioning Hawaiian Electric's System for the Future

Hawaiian Electric needs to transition its generation and transmission system to focus on renewable energy, energy efficiency, and energy conservation. The Renewable Portfolio Standard (RPS) law, Global Warming Solutions Act, bioenergy legislation, and Hawaii Clean Energy Initiative all provide policy guidance to Hawaiian Electric in transitioning its system for the future.

Renewable Portfolio Standard

The RPS law (sections 269-91 to 269-95 of the HRS), as amended by Act 162 (2006), provides that each electric utility company that sells electricity for consumption in Hawaii shall establish a renewable portfolio standard of:

- (1) 10% of its net electricity sales by December 31, 2010;
- (2) 15% of its net electricity sales by December 31, 2015; and
- (3) 20% of its net electricity sales by December 31, 2020.

The RPS law defines "renewable portfolio standard" to mean "the percentage of electrical energy sales that is represented by renewable electrical energy." Renewable electrical energy includes both electrical energy generated using renewable energy (including biofuels) and energy savings brought about by energy efficiency and off-set technologies.

Hawaiian Electric, Hawaii Electric Light Company and Maui Electric Company achieved a consolidated Renewable Portfolio Standard (RPS) of 16.1% in 2007, up from the 13.8% achieved in 2006. Hawaiian Electric's percentage was 11.0%, compared to 39.8% for Hawaii Electric Light Company and 24.7% for Maui Electric in 2007. The higher percentage in 2007 was primarily the result of the new neighbor island wind farms and additional demand-side management ("DSM") implemented in 2007 on all islands.

Global Warming

In July 2007, Act 234 of the 2007 Hawaii State Legislature became law requiring a statewide reduction of greenhouse gas (GHG) emissions by January 1, 2020 to levels at or below the statewide GHG emission levels in 1990. It also establishes a task force, comprised of representatives of state government, business (including the electric utilities), the University of Hawaii and environmental groups, charged with preparing a work plan and regulatory approach for "implementing the maximum practically and technically feasible and cost-effective reductions in greenhouse gas emissions from sources or categories of sources of greenhouse gases" to achieve 1990 statewide GHG emission levels. The Director of the Hawaii Department of Health is also required to adopt rules, before December 31, 2011, which establish emission limits for specific sources or categories of sources of emissions and provide for reporting and verification

of statewide emissions and monitoring and compliance. The legislation became law in July 2007. (Act 234, signed June 30, 2007, effective July 1, 2007.)

State Bioenergy Policy

In addition to Act 196, 162, and 240 of the 2006 Hawaii State Legislature, the 2007 Hawaii State Legislature added two more bioenergy measures. Act 159 has the stated purpose to encourage further production and use of biofuels in Hawaii, establishes that biofuel processing facilities in Hawaii are a permitted use in designated agricultural districts, and establishes a program with the Hawaii Department of Agriculture to encourage the production in Hawaii of energy feedstock (i.e., raw materials for biofuels) in Hawaii. (Act 159, signed June 8, 2007; effective July 1, 2007.)

Act 253 requires the Hawaii Department of Business, Economic Development, and Tourism to develop and prepare a bioenergy master plan that sets the course for the coordination and implementation of policies and procedures to develop a bioenergy industry in Hawaii. The primary objective of the bioenergy master plan is to develop a Hawaii renewable biofuels program to manage the State's transition to energy self-sufficiency based in part on biofuels for power generation and transportation. (Act 253, signed June 5, 2007; effective July 1, 2007.)

Hawaiian Electric is aware of the environmental issues arising out of the use of biofuel feedstock, such as palm oil. In conjunction with its commitment to use 100% biodiesel in its combustion turbine that is currently under construction and scheduled to be in service in 2009, Hawaiian Electric and the Natural Resources Defense Council (NRDC) have developed an environmental policy for sourcing biofuel feedstock. Community meetings were held on Oahu, Big Island and Maui in late June and early July of 2007 to discuss the project's preliminary findings, and receive community feedback on the draft policy. Hawaiian Electric released the final policy on August 21, 2007, which is intended to ensure that Hawaiian Electric, Maui Electric and Hawaii Electric Light Company purchase only biodiesel fuel produced from locally grown sustainable feedstocks and palm oil that complies with international standards established by the Roundtable on Sustainable Palm Oil. The eight components of the policy are: (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) global warming pollution accounting and reporting, (6) establishment of a Biofuels Public Trust Fund, (7) public review and notification, and (8) public progress reporting and contingencies. (See Appendix K for the Environmental Policy for Hawaiian Electric Company's Procurement of Biodiesel from Palm Oil and Locally-Grown Feedstocks.)

The biofuel contract for the 2009 combustion turbine complies with this procurement policy and includes an incentive for locally produced biofuel feedstock.

Hawaii Clean Energy Initiative

In January 2008, the State of Hawaii and United States Department of Energy (USDOE) signed a memorandum of understanding establishing the Hawaii Clean Energy Initiative (HCEI). The stated purpose of the HCEI is to establish a long-term partnership designed to transform Hawaii's energy system to one that uses renewable energy and energy efficient technologies for a significant portion of its energy needs. The partnership aims to put Hawaii on the path to supply 70% of its energy needs using clean energy by 2030. The implementation plan for the HCEI involves the creation of working groups to address, among other things: (1) the use of renewable energy at remote locations not close to existing transmission and distribution infrastructure; (2) transmission and distribution improvements, grid management improvements, and energy storage, to ensure that existing and future infrastructure facilitates optimal use of renewable energy resources and readily incorporates new developments in system planning and transmission technologies while maintaining system reliability; (3) the development of innovative public and private financing vehicles for alternative energy sources and clean technologies at the state and county levels; and (4) design and enactment of comprehensive regulatory mechanisms that provide appropriate incentives for all stakeholders in the energy supply chain to proactively transition to a renewable energy-based future.

In April 2008, the USDOE sponsored Hawaii workshops supporting the initiative for the Commission, Consumer Advocate, DBEDT, Hawaii energy utilities and other invited stakeholders. The workshops addressed topics such as the objectives of the HCEI (which include meeting 70% of Hawaii's "business as usual" energy needs in the ground transportation and energy utility sectors through clean energy resources by 2030), utility incentives and disincentives, and renewable energy and other "clean" resources (such as energy efficiency). At the last workshop, the Commission announced plans to open an "Incentive Alignment" proceeding, and to formulate an alternative regulation "strawman" proposal to be considered in later workshops and proceedings. An additional workshop was held in August 2008 on regulatory issues.

Customers Focused on Energy Efficiency and Conservation

World oil costs have soared recently from \$40/barrel in 2004 to \$80/barrel in May 2007 to over \$130/barrel in May 2008. These increases have driven electricity prices rapidly upwards. Although they have since dropped somewhat as of the date of filing this report, oil costs remain very high relative to just a year ago. As the cost of generating and delivering energy continues to rise and in recognition of the important role energy efficiency and conservation play in all future energy plans, Hawaiian Electric needs to increase options for its customers to help them manage their energy usage and bills. To help customers, Hawaiian Electric has aggressively implemented energy efficiency demand-side management (DSM) programs since 1996. These programs have helped our customers save over 568 GWh of energy annually from measures installed between 1996 through 2007¹. The Company has also engaged in extensive conservation informational advertising. However, more still needs to be done to help customers manage their electricity use and bills.

Challenges to Adding Renewable Energy Resources

In July 2006, a report entitled Siting Renewable Energy Facilities² was issued in Washington, D.C., stating that one of the greatest challenges to the development of renewable energy nationwide is the lack of infrastructure to support it. The fact is that while most fossil fuel facilities are not site dependent and can be located with other fossil fuel facilities or at other desired locations, renewable energy exists at specific locations based on the resource involved and is geographically constrained, often in remote locations away from load centers and existing electric transmission infrastructure. In addition, the intermittent nature of many of these resources requires an infrastructure that can take into account and handle such intermittency. These are challenges that Hawaiian Electric must and will solve.

The challenges faced by developers of renewable energy projects in Hawaii, and by the Hawaiian Electric Companies in facilitating these projects in their respective service areas, can be even greater because of the state's small, isolated, island electrical systems. The current electric infrastructure was not designed or built to interconnect with a variety of renewable electrical energy generation resources developed at remote locations away from the current transmission grid. It was designed to consolidate generation facilities in a few places (as permitted by government regulations) and transmit the power to the major load centers in a reliable and efficient manner. In order for the Hawaiian Electric Companies to be able to take advantage of remote renewable resources, new transmission lines and supporting infrastructure will have to be designed

¹ Assuming that all measures remain in service.

² Shalini P. Vajjhala, *Siting Renewable Energy Facilities*, (Washington, D.C.: Resources for the Future, July 2006)

and built to these remote locations. In addition, building transmission lines and supporting infrastructure to the renewable projects will not completely solve the issues related to placing additional renewable generating resources on electrical transmission grids. Because of the intermittent nature of many of these renewable resources, additional infrastructure may be required to account for and handle the variability of electrical output from such intermittent resources.

Hawaii's current electric infrastructure was designed for "firm power" resources – resources that provide steady flows of energy and, by design, vary their output relatively slowly to provide stable power in concert with the steady and predictable change in customer demand. Renewable resources, on the other hand, are often times not "firm power" and may exhibit wide fluctuations in the amount of electric power generated at any given moment. A good example is wind power. The electrical power generated by wind will fluctuate depending on the changing speed, force and direction of the wind, and appropriate infrastructure must be developed to accommodate increasing amounts of it. Infrastructure such as energy control systems will help to regulate the variability of electrical output from intermittent resources such as wind power.

Small island systems currently have limitations on their ability to integrate intermittent renewable energy resources like wind power. There is a strong need to find solutions for integrating greater amounts. One alternative is energy storage infrastructure to allow the systems to absorb greater levels of intermittent energy and increase the level of dispatchable capacity. Potential examples involve the use of battery energy storage systems or pumped storage hydroelectric systems.

Providing Reliable Power

As the sole provider of electricity for Oahu, Hawaiian Electric has an ongoing commitment and responsibility to invest in and maintain our electric system. Hawaiian Electric's infrastructure is critical to providing the service customers expect and deserve as well as to accommodate future electric load, such as the rail system.

The reliability of Hawaiian Electric's electric system is key to public safety and the ability to respond to emergencies; critical to Oahu's economy; and an integral part of this nation's defense efforts, especially given Hawaii's strategic location. Reliability and stability of Hawaiian Electric's grid are also key to integrating substantial amounts of renewable energy resources such as wind into Hawaiian Electric's system.

As do the State and City & County of Honolulu, Hawaiian Electric faces the continuing challenge of operating, maintaining, and enhancing an aging infrastructure – including aging generating units that generate the bulk of the electricity used by Hawaiian Electric's customers and aging transmission and distribution systems that deliver electricity to Hawaiian Electric's customers. Hawaii's economy and population have grown over the last economic cycle. And as does the government, Hawaiian Electric

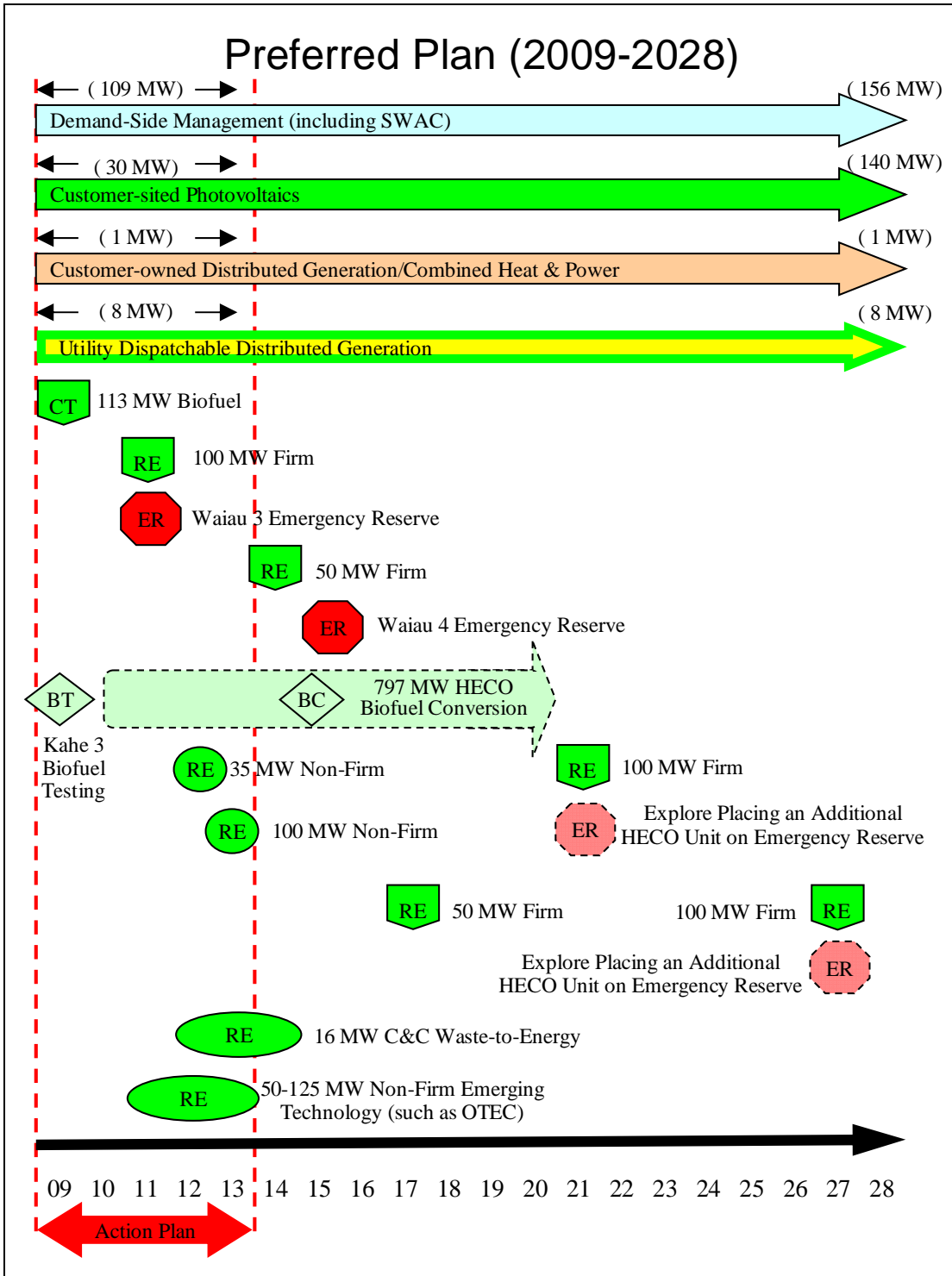
plans not only to ensure the working order of its system, but also plans to add new facilities to serve this growth.

IRP-4 Preferred Plan: All Future Renewable Generation

Based on the IRP-4 process conducted from March 2007 to September 2008, Hawaiian Electric has put forth a proposed 20-year IRP plan (i.e. IRP preferred plan) with bold initiatives to transition and transform its system for the future, while maintaining reliable electric power. The IRP preferred plan calls for all future generation to be renewable. In addition, it calls for conversion of the existing Hawaiian Electric-owned generating units to co-fire biofuel, continued aggressive demand-side management programs, and anticipates significant amounts of customer-sited renewable generation (see Figures ES-1). The IRP preferred plan is briefly explained below and is explained in detail in Section 9.1 of the IRP-4 report.

Due to the requirement to use competitive bidding to procure future generation unless granted a waiver by the PUC, the IRP preferred plan indicates future resource blocks, rather than specific resources.

Figure ES- 1 IRP Preferred Plan for the period 2009-2028



The main features of this ambitious IRP preferred plan are:

- Reducing the peak load through demand-side management programs by 156 MWs over the 20-year planning period.
- 149 MWs of distributed resources, the majority of which would be customer-sited photovoltaic systems.
- All future generation (711 MWs) to be renewable with 510 MWs of firm generation and 201 MWs of non-firm generation.
- 93 to 200 MWs of existing fossil fuel generation to be retired or placed in emergency reserve status.
- Conversion of 797 MWs of existing fossil fuel generation to renewable biofuel.

The specific resources in the IRP preferred plan are:

Demand-side Management – utility and third party programs resulting in 156 MW of reduction to the system peak load over the 20-year planning period using energy efficiency and load control measures including seawater air conditioning.

Customer-sited Photovoltaic – 140 MW of customer-sited photovoltaic systems is anticipated to be installed over the 20-year planning period. These photovoltaic systems could be net-metered or non-net-metered systems. The utility will also pursue a program to provide customers with a utility-facilitated third party-owned option.

Customer-owned Distributed Generation/Combined Heat and Power – 1 MW of Customer-owned DG/CHP generation is anticipated to be installed over the 20-year planning period. Activity in this area has slowed in recent years and is not expected to be significant in large part because of its reliance on high cost diesel fuel.

Utility Dispatchable Distributed Generation – 8 MW of utility dispatchable customer-owned DG over the 20-year period.

113 MW Biofuel Combustion Turbine in 2009 – This utility project is currently under construction in Campbell Industrial Park and is expected to be completed in 2009.

100 MW Firm Renewable Energy Generation in 2011 and Waiiau 3 Retirement or Emergency Reserve – Given HECO's desire to accelerate the transition to using more renewable energy generation and the system's current need for additional dispatchable firm capacity, HECO intends to submit a request for a waiver from competitive bidding in the fourth quarter of 2008 for this resource and plans to

submit an application for approval to expend funds to install a second biofueled combustion turbine at CIP. Once the additional capacity is operational, HECO intends to take Waiau 3 generating unit off the HECO system and either retire Waiau 3 or place Waiau 3 into emergency reserve status.

50 MW Firm Renewable Energy Generation in 2014 and Waiau 4 Retirement or Emergency Reserve – This resource block is firm capacity needed to maintain the generation planning criteria and will also allow, once operational, the placement of Waiau 4 generating unit into a status similar to Waiau 3. Hawaiian Electric plans to acquire this block through a competitive bidding process. The proposal to meet this capacity might also be met by a Hawaiian Electric response to a military RFP for distributed generation, depending on the requirements of the military RFP and whether Hawaiian Electric's response is the winning bid. In the case of the military RFP, it is anticipated that Hawaiian Electric would need to seek a waiver from competitive bidding in order to submit a bid to the military. In addition, Hawaiian Electric's other options may be a combine-cycle conversion of a biofuel CT as the utility proposal in a competitive bidding process.

100 MW Non-firm Renewable Energy Generation in 2012-2014 – This resource block would be filled by the result of the renewable energy RFP currently being conducted by Hawaiian Electric, which includes a process for evaluating non-conforming proposals, if any.

35 MW Non-firm Renewable Energy Generation in 2012 - 2014 – This resource block is anticipated to be filled by a waste-to-energy project by Honua and a wind project in Kahuku by First Wind. Both projects are “grandfathered” from the PUC's competitive bidding requirement.

50 MW Firm Renewable Energy Generation in 2017 – This resource block is firm capacity needed to serve future load growth and the capacity will be acquired through a competitive bidding process.

Boiler Biofuel Assessment and Conversion of Existing Steam Generating Units – This represents the testing of boiler biofuel in Kahe 3 generating unit, and if successful, the co-firing or conversion of all baseload generating units (Kahe units 1 through 6, Waiau 7 and 8) to boiler biofuel. Currently, Hawaiian Electric's other units that use low sulfur fuel oil are not candidates for co-firing or conversion due to their lower system energy contribution compared to the anticipated conversion cost. The conversion of 797 MW of Hawaiian Electric-owned generation represents a conversion of 66% of the Hawaiian Electric-owned generating capacity to boiler biofuel.

16 MW Waste-To-Energy Generation – This is a placeholder for future action by the City and County of Honolulu on increasing its municipal solid waste handling

capability. The timing and implementation of such a resource is inherently dependent on the City and County's actions to meet its waste disposal needs, therefore a waiver from the competitive bidding process may be appropriate and such a waiver may be requested when plans for the waste-to-energy facility are more definite.

50 - 125 MW Non-firm Emerging Renewable Energy Technology – This resource block is anticipated to be met by emerging technologies such as the ocean thermal energy conversion (OTEC) project proposed by SeaSolar Power International which is “grandfathered” from competitive bidding, the OTEC project proposed by Lockheed, or by any emerging technology that may come forward.

100 MW Firm Renewable Energy Generation in 2021 and 2027 – These resource blocks are needed to serve future load growth and is planned to be procured through competitive bidding.

Explore Additional Units in Emergency Reserve Status in 2021 and 2027 – The addition of firm capacity in 2021 and 2027 would allow, once they are operational, the consideration of placing additional existing fossil-fuel generating units into emergency reserve status similar to Waiiau 3 and 4.

Some aspects of the preferred plan such as the need for supporting transmission infrastructure, potential bid for military DG, rate design, and advanced metering infrastructure (AMI) are not depicted in Figure ES-1 and ES-2, but are explained in the action plan in Chapter 10 of the IRP report.

The IRP preferred plan charts a course to reliable electricity that is sustainable and secure. In doing so, the plan lays the foundation for complying with Act 234 whereby the estimated carbon dioxide (CO₂) emissions for the total system (including IPPs) would be reduced to below 1990 levels by 2020. The plan would also greatly exceed the amount of renewable energy required by the RPS law of 20% in 2020.

To achieve the significant amount of renewable energy and reduction in GHG emissions, the IRP preferred plan calls for all future generation and a majority of the existing generation to be from renewable energy. Efforts will be made for all new resources to tap into a myriad of potential sources of renewable energy (sea water air-conditioning, OTEC, solar, wind, biofuel, municipal solid waste).

For existing generation, biofuel is a critical component of the IRP preferred plan because it can be used in conventional generators allowing transition to renewable energy while avoiding costly replacement of existing generating units. It also creates a local market for biofuels to facilitate local production of bioenergy crops leading to increased energy security and sustainability. Conventional generators using biofuels can provide essential characteristics that the system fundamentally needs for reliable operation and

play a key role in facilitating the integration of as-available renewable generation such as wind and photovoltaics. These characteristics include adequate firm generating capacity, frequency regulation, load following, operating and spinning reserves, voltage control, and sufficient rotational inertia to maintain system stability.

The use of biofuels also extracts additional value to ratepayers from existing generation infrastructure. Although higher levels of operating and maintenance cost are anticipated for these units, they reduce costly investment in new generating units and these generating units continue to operate with a high degree of reliability. Maintaining a portion of Hawaiian Electric's existing units remains the least-cost option even though they have significant operating and maintenance expense. The IRP preferred plan does include removing the oldest generating units (Waiiau 3 and 4) from day-to-day operation and to explore similar actions for other units later in the plan as new firm renewable energy generation is brought onto the system.

To help customer manage their bills, the IRP preferred plan continues aggressive DSM programs and calls for the implementation of AMI. AMI refers to systems that measure, collect and analyze energy usage, from advanced electricity meters through various communication media on request or on a pre-defined schedule. This infrastructure includes hardware, software, communications, customer associated systems and a meter data management system. AMI provides customers with information about their electricity usage and also provides communication and control technologies that facilitates the implementation of time-of-use pricing, demand response, and dynamic pricing programs

IRP-4 Action Plan

The action plan identifies the steps to be undertaken in the next five years to implement the IRP preferred plan. The details of each item in the action plan are provided in Chapter 10 of the IRP report. The following is a list of the action plan items.

Demand-side Action Items:

1. Transition energy efficiency DSM programs to Public Benefit Fund Administrator
2. Continue Residential Customer Energy Awareness (RCEA)/energy awareness
3. Continue SolarSavers pilot program

Customer-choice Action Items:

1. Implement Advanced Meter Infrastructure (AMI) initiative
2. Implement residential TOU pricing (enabled or enhanced by AMI)
3. Implement demand response (enabled or enhanced by AMI)
4. Evaluate green pricing tariff options

Customer-sited Distributed Generation Action Items:

1. Facilitate photovoltaic
2. Dispatchable standby generation
3. Monitor CHP

Supply-side Action Items:

1. Install 113 MW biofuel CT in 2009
2. Pursue projects “grandfathered” from competitive bidding
3. Continue 100 MW Renewable Energy RFP
4. Install 100 MW Firm Renewable Energy Generation in 2011-2012
5. Determine whether to place W3 in emergency reserve or retire the unit
6. 50 - 125 MW non-firm emerging technology (such as OTEC)
7. 50 MW firm capacity generation in 2014
8. Potential utility bid for military distributed generation projects RFP
9. 50 MW firm generation in 2017
10. Determine whether to place W4 in emergency reserve or retire the unit
11. Conduct biofuel assessment in 2009 on Kahe 3 using LSFO/biofuel blend
12. Conduct biofuel assessment for substation DG
13. Conversion of existing generating units to biofuel
14. Explore additional utility-sited PV projects

Transmission and Distribution Action Items:

1. Complete the East Oahu Transmission Project
2. Install interconnection facility for all central station generating facilities in the plan
3. Investigate integration of additional as-available resources on Oahu grid including need for transmission infrastructure, energy storage, variability mitigation, operational impacts, and wind farm control features
4. Honolulu—School-Iwilei 46 kV study
5. Waiau 46 kV study
6. Halawa-School, Halawa-Iwilei, Makalapa-Airport-Iwilei 138 kV study

Research and Development (R&D) Action Items:

1. Investigate Hawaii-based bioenergy crop production
2. Investigate plug-in hybrid/electric vehicles
3. Investigate potential energy storage projects
4. Other miscellaneous R&D projects

Other Action Items:

1. Implement Renewable Energy Infrastructure Program
2. Participate in the Hawaii Clean Energy Initiative
3. Delink Schedule Q (avoided energy cost) from fossil fuel price
4. Explore decoupling utility revenues from electricity sales

Overview of IRP-4 Process

Hawaiian Electric initiated the process of developing its IRP preferred plan in March 2007 with a kick-off meeting of its Advisory Group. The Advisory Group is comprised of a broad cross-section of the community including members from business, government, industry, and community groups. Between March 2007 and August 2008, a total of 16 meetings were held with the Advisory Group. Hawaiian Electric also maintained an internet web site (www.hecoirp.com) to make meeting material available to the Advisory Group and the general public. In addition to input from its Advisory Group, Hawaiian Electric also sought input from the general public through two public information

meetings. The first meeting was held in July 2007 at the beginning of the IRP-4 process. The second meeting was held in June 2008 to seek input in the development of the draft IRP preferred plan.

The plan development phase of the IRP-4 process culminates with the submission to the PUC in September 2008 of this IRP-4 report explaining the IRP preferred plan and action plan. The IRP process then enters the regulatory review phase in which the PUC conducts its process to determine whether the IRP preferred plan and action plan should be approved.

Conclusion

The IRP preferred plan and action plan charts a very bold course to transition Hawaiian Electric's system to renewable energy and pathways of controlling energy use while maintaining the delivery of reliable electricity from the current system. The key components of the plan are energy efficiency programs, new generation from renewable energy sources, distributed generation, converting existing generating units to biofuels, and customer-choice options. The plan will use clean energy sources, decrease our vulnerability to imported sources of energy, guard against rapidly rising fuel oil prices, and comply with initiatives to reduce greenhouse gas emissions.

The management and staff of Hawaiian Electric greatly appreciate and would like to sincerely thank the members of its Advisory Group for their advice and input into the development of the IRP preferred plan. Their commitment of time and effort, along with their passion for improving the future of Hawaii were invaluable. Such a far reaching and aggressive long-range plan would not be possible without the support of Hawaiian Electric's Advisory Group.