



Meetings Comments/Questions

Hawaiian Electric’s responses to comments and questions submitted from virtual and in-person public meetings held in Honolulu, Hilo, Kona, and Maui.

SUBJECT	ISLAND	QUESTION	RESPONSE
Agriculture	Oahu	It seems that we can strike a good balance for land use by having solar farms with vertical farming? What's your position on vert farming	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	since renewables aren't allowed on Class A ag lands, is there really a tension with farming?	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	the vast majority of B and C lands are not used. Is there really a tension with energy?	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	How can you put ag second to renewables-all panelists	Ground-based solar photovoltaic facilities and agricultural production compete for land -- especially on Oahu where the land available for larger projects is diminishing. Typically land use decisions are in the hands of landowners. However, regulations, such as zoning rules and environmental restrictions, can limit land use options and we, like others, must abide by them. Panelists representing agriculture were invited by Hawaiian Electric to have the discussion regarding land usage priorities, generate public awareness, and solicit input regarding appropriate land use issues because we believe that informed land use decisions and public policy that balance energy AND agriculture need to be made considering the interests of both.
Agriculture	Oahu	in most of the US renewables supplement farming income. Why not in Hawaii?	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	What type of "pollinators" or food crops would grow well beneath a PV array / farm? (Panelist from Farm Bureau)	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	What type of plants that would attract pollinators would grow well under PV?	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.
Agriculture	Oahu	why should we prefer GMO seed farming over solar?	Hawaiian Electric does not claim to have expertise in agriculture or farming. As such, the Company is not able to provide a response to this question.

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Avoided energy	Maui	How are avoided energy costs calculated?	"Hawaiian Electric interprets ""avoided energy costs"" in this question to refer to the value of grid services. The value of grid services is determined by calculating the future costs that could be avoided by implementing a solution. For more information on the methodology used, please refer to presentation slides from the Solution Evaluation and Optimization Working Group's April 20, 2020 meeting, available on the Company's website here: https://www.hawaiianelectric.com/documents/clean_energy_hawaii/integrated_grid_planning/stakeholder_engagement/working_groups/solution_evaluation_and_optimization/20200420_wg_seo_meeting_presentation_materials.pdf .
Biomass	Hilo/Kona	Is biomass generation planning/working with the county on using bio-waste (IE; paper, cardboard, garbage)? If not, why not?	Hawaiian Electric is not aware of biomass generation planning in Hawai`i county and therefore is not able to provide a response to this question.
Biomass	Hilo/Kona	Will biomass plant have filtered smokestacks?	According Hu Honua's air permit the biomass plant will have Boiler Electrostatic Precipitator (ESP), Baghouse, and Nalco Rotating Mix (ROTAMIX) Urea Injection System or equivalent (SNCR) for their air emission control.
Biomass	Hilo/Kona	Please explain how clean biomass burning is. What materials will be burned?	Fuel for the Facility shall be biomass, primary fuel for the boiler will be initially eucalyptus or other wood chips from local plantations, with a plan to introduce leucaena or other wood chips from trees sourced by Seller.
Biomass	Hilo/Kona	My question is about the biomass. Burning trees release carbon into the atmosphere. Is there anything being done to reduce the amount of carbon being released back into the environment? I worked at a coal power energy plant and they installed 'scrubbers.' Is there anything like that for biomass?	According Hu Honua's air permit the biomass plant will have Boiler Electrostatic Precipitator (ESP), Baghouse, and Nalco Rotating Mix (ROTAMIX) Urea Injection System or equivalent (SNCR) for their air emission control.
Biomass		One response to mitigating climate chaos is to plant trees. Ho Honua burning of trees is opposite of what needs to be done. Misuse of term "renewable".	Per Hu Honua, for every 100 trees that are burned by the facility, Hu Honua will replant 105 trees to make it carbon neutral.
Building permits	Maui	What's County doing to reduce steps to get bldg permits and incentivize construction companies committed to meet 100% renewal energy goals?	Hawaiian Electric is not able to provide a response to this question. This question would better be answered by the appropriate county permitting agencies.

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CBRE	Hilo/Kona	With tax credits being greatly reduced, how do we plan on contributing to make going solar affordable for residents? What are the alternative options in place for those residents If they are unable to get solar – IE; renters, old roofs, old bad main panels or wiring?	The Public Utilities Commission recently approved a new round of community solar, a program specifically designed so those who cannot or choose not to put solar on a single-family home roof can participate in the solar movement and save money. The new round will include more and larger projects which we are designing to appeal to more residential customers, including those with limited incomes who may not be able to make a large down payment. We hope to see this new round opening to residential subscribers later this year. We have developed a portal that you can preview through our website that should be available in June that will show what projects are available on your island so you can shop for a subscriber organization to belong to.
CBRE	Hilo/Kona	"Please update status of community solar projects. When will customers have an opportunity to buy in? (2) subscriber organizations on Hawaii Island, not yet built o Very dependent on installer's timeline to build and be in service o PUC gave 1 MW capacity on HI Island, fully allocated to developers (phase 1) o We asked PUC for 263 MW for HI island to create more opportunity (phase 2) o Portal will be available in June to see what projects are available on your island, shop for subscriber organization"	The Public Utilities Commission recently approved a new round of community solar, a program specifically designed so those who cannot or choose not to put solar on a single-family home roof can participate in the solar movement and save money. The new round will include more and larger projects which we are designing to appeal to more residential customers, including those with limited incomes who may not be able to make a large down payment. We hope to see this new round opening to residential subscribers later this year. We have developed a portal that you can preview through our website that should be available in June that will show what projects are available on your island so you can shop for a subscriber organization to belong to.
CBRE	Maui	What's the status of community solar in Hawaii?	The Public Utilities Commission recently approved a new round of community solar, a program specifically designed so those who cannot or choose not to put solar on a single-family home roof can participate in the solar movement and save money. The new round will include more and larger projects which we are designing to appeal to more residential customers, including those with limited incomes who may not be able to make a large down payment. We hope to see this new round opening to residential subscribers later this year. We have developed a portal that you can preview through our website that should be available in June that will show what projects are available on your island so you can shop for a subscriber organization to belong to.
CBRE	Oahu	Have there been or will there be community solar projects as part of the smart grid?	Yes, present and future community solar projects, as well as new renewable energy projects being chosen through the grid-scale project procurement process are all part of integrated grid planning and are part of the "smart grid" as they can be "seen" by system operators. Even some newer rooftop solar systems can be seen and controlled by system operators when necessary. Also, through demand response – programs that incentivize customers to shift or reduce their energy use – customers are playing a larger partnership role – what's sometimes called a "prosumer" role in managing the smart grid of the future.
Comment	Hilo/Kona	Thank you for Ron Terry's analysis- very much appreciated!	No response required

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Comment	Oahu	Can you bring back the survey? Didn't get vote in	No response required
Community impacts	Hilo/Kona	How are we enforcing environmental & social justice as we address our goals? (Submitted by Noel Morin)	In regards to renewable energy development, communities want transparency, the opportunity to engage in meaningful dialogue with developers, and to participate in the process. Hawaiian Electric is continuing to update its renewable energy procurement processes to strengthen community engagement requirements and to have community concerns addressed through careful listening, thoughtful responsiveness, and a commitment to respect the environmental and cultural values of Hawai'i.
Community impacts	Maui	What is your advice for addressing NIMBYism?	Demonstrating transparency and a willingness to engage in early and frequent communication with Hawaii's communities is critical. When proposing projects, developers (including Hawaiian Electric) must share information and work with communities to address concerns through careful listening, thoughtful responsiveness, and a commitment to respect the environmental and cultural values of Hawai'i.
Community impacts	Oahu	are communities justified in asking why smaller scale infrastructure is not prioritized over "siting" larger scale projects?	Hawaii needs both smaller scale and larger scale resources to achieve our 100% renewable goals. We are already very close to having reached the 2045 goal on Hawaii, Maui, Lanai and Molokai. On Oahu, we expect that smaller scale renewable projects will become the primary means of achieving our goals as the land available for larger projects is diminishing. In summary, achieving the 100% renewable portfolio standard goal by 2045 will require a combination of utility resources and customer owned distributed resources.
Community impacts	Oahu	will HE decline RE PPAs that are not in favor with community (Kahuku/ AES)?	Each potential site has both a zoning and permitting process which includes opportunities for the community to make their concerns known. We encourage the community to provide input during the zoning and permitting processes in order for the decision-makers to consider all viewpoints when deciding on land use issues. In the end, the important interests of one community must be balanced and weighed against the equally important broader state community interests.
Community impacts	Oahu	Native Hawaiians have a right to access undeveloped land, we must consider alternatives to greenfield development. What r they?	Cynthia Rezentes - I am not sure what you mean by greenfield development but there is some right of access that needs to be determined. Does that mean Native Hawaiians should have a right to access "undeveloped land" for any purpose or traditional purposes? Does a greenfield development mean we should erode or remove undeveloped land which has resources utilized by practitioners of traditional cultural purposes. Does it have to be one or the other? Why can't there be an open discussion over how there should be a sharing of resources so all parties have at least a semblance of respect to provide for their families in a traditional manner versus those that chose differently?
Community impacts	Oahu	how do you fell abt social justice for the impacted communities. On Oahu projects are sent to the poorer and rural areas	The projects often migrate towards areas where the accessible land is available which often results in more rural sites. The panel discussion on this topic was intended to make customers aware of the issue and solicit input from the community. We encourage the community to provide input during the zoning and permitting processes in order for the decision-makers to consider all viewpoints when deciding on land use issues.

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Community impacts	Oahu	what if accelerating large renewables forces unwanted projects on communities? Do you think 100% RE justifies any project?	Ideally, there would be a robust community process before the project is approved by the PUC to address this concern. The reality is that renewable energy projects are sometimes seen as being "disruptive" because they are high-profile or new to the community. But, this is only relative to how "unseen" legacy energy plants are in those communities. For example, if asked whether they'd prefer living next to a coal or diesel plant, versus a solar farm or turbine, the answer may change. We often don't see what has been there for decades. This is true for the decades-long impact that coal or diesel plants have had on the broader community and natural environment, while the benefits of renewables (e.g., cleaner air, lower prices over time, etc.) can seem intangible and somewhere in the future. Likewise, we should acknowledge the very real impacts other communities continue to shoulder while hosting existing coal and diesel plants or other infrastructure. In response to the second part of the question, no. Economic impacts to customers should also be considered, such as whether the renewable energy project will increase or decrease customer bills and over what duration/period of time. It should also be considered that new renewable energy will allow for the eventual shutdown of fossil fuel plants with much larger impacts on the community. In addition, it may be possible for energy generated from a project to directly power the community in which it is located or adjacent. There are some potential inefficiencies to consider if we chose not to have 100% of the generated electricity go to the island grid; however, those may be worth it if it cultivates community acceptance by drawing a more direct link between the project and benefit to the community in the form of "home-grown" electricity.
Community impacts	Oahu	For Cynthia. Do other parts of Oahu owe Nankuli a historical debt, for hosting energy infrastructure since the 60s How can we pay it?	I do not believe that anyone "owes" Nanakuli for hosting energy infrastructure since the 60s (although I am sure other believe that debt is owed). I believe that other communities need to acknowledge that debt and work to not increase that debt by continuing to pursue and support projects which add to that debt and additional health concerns. When we say enough is enough, we mean it. You have never had to pass Waimanalo Gulch Sanitary Landfill in the 90's when to do so meant either putting up all the windows in your car or holding your breath until you passed the area because of the stench coming off the landfill at that time. Without fighting that landfill and essentially forcing the CCH and Waste Mgmt to get their act together and better manage and take care how the trash should be handled, we would probably still be experiencing those issues.
Community impacts	Oahu	what if communities could identify sites and technologies that are acceptable, to inform long range plans and RFPs	I believe all communities should figure out their own role in how to identify how they will take on their own responsibility to provide needed energy development for themselves. One example is all of the high-rise buildings in Kakaako should be developed with solar panels on their roofs or other environmentally friendly and energy reducing activities, perhaps a roof top garden which would allow for watering of the garden leading to a cooler roof and reducing some energy, doing roof top solar water heating rather than the requirement to heat water for unit use, etc. ANYTHING that would contribute to the solution rather than just take more away from those not able to afford those monstrosities.
Community impacts	Oahu	does OEDB supporting the Molokai Half Moon project heal or hurt the community?	I believe that a project doesn't heal a community. It seemed at the night of the community meeting the foundational takeaway is that earning trust and confidence heals and reduces hurt. It's up to a community if they want the project.

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Community impacts	Oahu	what if people don't want a project in their community even after discussing options?	Likewise, we should acknowledge the very real impacts other communities continue to shoulder while hosting existing coal and diesel plants or other infrastructure.
Community impacts	Oahu	some communities view RE as a negative impact and some as a benefit. How to measure this?	<p>Murray Clay - This is often because existing facilities, such as legacy coal and diesel plants, often go "unseen" because they have been in place for decades – with the community somewhat desensitized to their impact. For example, if asked whether they'd prefer living next to a coal or diesel plant, versus a solar farm or wind turbine, the answer may change. Also, we should not dismiss the larger impact that other communities have been dealing with for decades because of their proximity to coal or diesel plants. The community in Hawaii seems very much against the effects of climate change – drought, more frequent and severe storms, coastal homes and beaches eroding into the sea. The desire to avoid climate change aligns directly with the desire for more renewable energy.</p> <p>Cynthia Rezentes - I think renewable energy is not good or bad in it's own right. It really is a matter of how it impacts the surrounding community. E.g. a large solar farm in the middle of the island means farm land taken out of production or at least the potential of production and meaning more goods to continue to be received from elsewhere to feed our people. View planes are affected depending on where it is located. How about putting solar panels on the side of Diamond Head? Good angle...good access to unimpeded sunshine, close to Honolulu needing less transmission lines, gets rid of the homeless on the slopes, nice beacon for anyone looking from the ocean, etc. For me it would be a benefit (no more in my community) but perhaps a negative impact for those who live on the "gold coast" near there. I think if asked, most folks in Honolulu would consider renewable energy a benefit since they don't have to look at it and are deluded into thinking it will reduce their energy costs. But if you ask someone who has to live near it or see it on a regular basis when they are used to seeing vegetation or open areas, not so much. Who's right...depends on your view. Another way to look at this is the age-old question of where to put landfills. We are tired of hosting the landfills for the entire island... but if proposing other locations, those communities, of course, say that that selection is not a good area for a new site (I recommended Koko Crater once and had to make sure to duck when the virtual daggers came my way). A lot is a matter of perspective without consulting the entire community to figure out a balance or how to accommodate all the infrastructure required for today's economy. Again, Honolulu Harbor hosts the larger maritime port for the island (don't forget Kalaeloa though, it is not insignificant either), while the Westside hosts the oil refineries, landfills, Trash-to-power plant, etc. Who owes what to whom? Should there be discussions to decide who hosts what and how everyone can contribute to the entire plus side of the equation instead of various projects/agencies pitting communities against one another by the decisions they make. Is it a tough ask and process? Hell yes! but what is the alternative? Forcing things down communities throats?</p>

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Community impacts	Oahu	residents of urban Honolulu host, for example, the harbor. But rural residents benefit. Should we balance that with hosting RE	We have a harbor also on our side. If that one is not available Honolulu harbor would be even more hard pressed to provide some of the amenities that we all enjoy. Should that balance the need to provide renewable energy????? How many acres are involved and how do we control the where of renewable energy as Honolulu Harbor is contained not spread out over the entire landscape. Can we do solar for all within the same amount of space that Honolulu Harbor takes up and where, on our farmlands to further reduce produce production and more reliability on imported goods? I think a robust discussion is in order to figure out who, what, where things are located for "sharing" the burden of today's living concerns.
Community impacts	Oahu	how to assess the importance of community impacts that are inconsistent with the science - eg EMF sensitivity	Hawaiian Electric understands that some customers may have concerns regarding electric and magnetic fields (EMFs). Safety is our top responsibility, not only for our employees but for our customers and the general public. As a result, Hawaiian Electric continues to monitor the latest research on EMF and provide information to customers at the following link: https://www.hawaiianelectric.com/clean-energy-hawaii/grid-modernization-technologies/understanding-electric-and-magnetic-fields .
Company generation	Hilo/Kona	Since all fuels have impacts, what is HELCO doing to become more energy efficient?	Hawaiian Electric believes the best way to keep our generators operating efficiently is to monitor and maintain our generation facilities to industry standards. Current regulation by the Hawaii PUC have provisions that incentivizes the utility to run its generation system as efficiently as possible. It includes a reward and penalty provision, depending upon performance.
Competing priorities	Oahu	does it help or hurt transpo. decarbonization to frame electrification as a "Tesla" movement?	Who framed the transportation decarbonization as a "Tesla" movement? I recall that my words were an observation that some Tesla Drivers are some of the biggest jerk drivers and this was a statement to bring awareness that we can drive initiatives and simply think that the goal is what our Community needs rather than civility, kindness, and caring. We could get to our 100% goals and be a community so divisive because the goals forgot to address our behaviors with each other.
Competing priorities	Oahu	So we get that there are competing priorities. What is the forum where we equitably come up with a fair plan in an urgent timeframe?	As part of Integrated Grid Planning, Hawaiian Electric is evaluating and implementing new ways to connect with stakeholders and communities to engage in dialogue that enables participants to provide informed input in the planning process. Utilizing tools like virtual open houses and convening panel discussions with different perspectives to provide a holistic view of the challenges, opportunities, and tradeoffs necessary to reach our clean energy goals.
Decarbonization	Maui	You talk about 100% renewable energy. Do you also mean 100% carbon free? If not, why not?	Hawaiian Electric plans to meet the renewable portfolio standard (RPS) requirements as mandated by State law. However, some renewable projects are not 100% carbon free or carbon neutral especially when considering emissions generated over their entire lifecycle. The current state law and policies are focused on renewable energy additions and Hawaiian Electric must comply with current laws as it develops plans to achieve them.

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Decarbonization	Oahu	where's IGP, RPS, PBR etc. for The Gas Co.?	This has been actively discussed by legislators in recent years, and we are hopeful it will be worked out to the greatest community benefit over time. But right now, we are focused on larger utilities for the greatest impact and benefit in alignment with state energy goals. We are encouraged by recent progress. On April 29, the PUC surprised many within the industry by issuing an order that demonstrates how serious commissioners are about moving away from the traditional "Cost of Service Regulation" toward the more forward-thinking PBR, a regulatory framework that is more focused on the utility's performance and achievement of public policy goals. Renewable energy advocates celebrated this decision, as it establishes a key element of PBR allowing for cleaner, more sustainable forms of energy generation in alignment with our state's energy goals, and will aid in Hawaii's economic recovery and long-term energy resilience.
Decarbonization	Oahu	Some states are adopting decarbonization policy as opposed to an RPS. Decarbonization provides more flexibility to balance needs. Agree?	A decarbonization policy may provide more flexibility in how the state and the Company reduces its reliance on fossil fuels; however, proven technologies and methods by which to reduce and capture carbon need to be available within the State of Hawaii for a decarbonization policy to provide flexibility.
Decarbonization	Oahu	Comment - disagree that decarbonization policies are more flexible. I have read every state's policy. All constrain eligible resources	A decarbonization policy may provide more flexibility in how the state and the Company reduces its reliance on fossil fuels; however, proven technologies and methods by which to reduce and capture carbon need to be available within the State of Hawaii for a decarbonization policy to provide flexibility.
Demand response	Oahu	if competition is a good thing, why not have open grid access for DR?	If there is unlimited interconnection of DG, then there could be grid reliability/safety issues with backwards power flows from the distribution lines to the substations. Also, if "open access" refers to net energy metering (NEM), then solar exporters essentially could pay nothing for transmission and distribution and would be using the grid for backup (especially at night) without contributing to the costs of running the system (if they were net exporters). This is why NEM was a benefit for early adopters but could not be maintained in perpetuity.
Disposal	Maui	We must start with the end in mind. How, who, and where will the inoperable systems be disposed of? Are there systems that are reusable?	Our contracts with third parties that build, own, and operate powerplants and sell power to us contain a provision requiring the Seller to remove the interconnection facilities once the contract is no longer valid. In addition, there is a requirement for the development of a program to recycle or otherwise properly dispose of the removed infrastructure. Depending on the technology and individual configuration, there may be portions of the facilities that are reusable. Developers are responsible for working with the land owner where non-interconnection equipment is sited and to follow such landowners requirement for removal of such equipment.
Disposal	Maui	Is PV considered to be the lead renewable energy source for the RPS? And if so, how will we eventually dispose of these panels?	The company does not have a lead renewable energy source in mind for reaching RPS. While the Company has procured a significant amount of PV+BESS in recent years, in order to reach 100%, it is anticipated that a diverse mix of renewable resources will be required. Disposal and site restoration at the conclusion of a contract are solely the responsibility of the Seller.

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DOD	Oahu	does HECO's contract with the military subsidize residents? If not, why not?	The Company interprets "HECO's contract" to refer to the partnership between the Army and Hawaiian Electric related to the Schofield Generating Station. Area residents are not subsidized directly as a result of the partnership. However, the cost for this project compared to a similar facility sited off-base is lower and at the same time, provides resilience and emergency support benefits to all residents of the island. In this sense the partnership saves all customers money while providing value to all.
EIS	Hilo/Kona	Please consider completing EIS before doing renewable energy! Why not?	The Company requires developers of renewable energy projects that are selected to comply with all applicable federal, state, and local laws. If an EIS is required by an applicable federal, state, or local law for a specific project, the developer is required to complete an EIS before the project may begin construction.
Energy efficiency	Hilo/Kona	What encouragements will be used to reduce energy use and not just the cost? (Submitted by Jim Klyman and Carey Yost)	<p>"Hawai'i Energy has two full time Energy Advisors on Hawai'i Island who promote and support delivery of its commercial and residential program offerings that are available to HECO customers in Honolulu, Maui, and Hawai'i counties.</p> <p>For the residents of Hawai'i Island, Hawai'i Energy works with Pono Homes to provide residential direct installation of lighting measures, water measures, and advance power strips at no cost to the resident. This includes both single family homes and multifamily properties in disadvantaged, hard-to-reach communities. Hawai'i Energy also offers residential education, including free energy literacy workshops to communities, energy efficiency lessons for K-12 classrooms, and professional development training for teachers to integrate energy curriculum into their classwork.</p> <p>For commercial businesses, Hawai'i Energy provides professional development training and educational workshops, ranging from technical courses for engineers, architects and contractors to a Green Realtor workshop focusing on efficiency in the residential home market, with the most recent one being held at the Hilton Waikoloa in early March 2020.</p> <p>The on-island Energy Advisors meet frequently with various commercial customers of all sizes – from government agencies and hotel engineering teams, to small mom-and-pop retailers – to help them plan for and prioritize efficiency measures. Hawai'i Energy's work with the County's Department of Water Supply (DWS) to address the important Water-Energy Nexus is an ongoing continuous improvement of the DWS leak detection Program. In calendar year 2018, the leak detection system was able to identify numerous leaks and avoid the loss of approximately 2.9 million gallons of water and save approximately 1.48 million kWh.</p> <p>The advisors also communicate regularly with HECO community outreach staff and KAMs to help identify opportunities for customers. Hawai'i Energy and HECO are working together to help reduce energy consumption in cost in North Kohala, which can also provide additional deferral of capital investment in the transmission system. Past efforts include PY18's Rapid Response Program, which saw nearly doubled incentive levels for most of our common rebate offerings for ALL of Hawai'i Island in response to the Puna Geothermal shutdown due to the Kilauea Eruption."</p>
Energy efficiency	Oahu	Increase Demand load conservation and efficiency goals/efforts. Less we use, less we need to build MW Supply.	For Program Year 19 (ending June 30, 2020), Hawaii Energy's EE goal is a first year energy reduction of 100,930 MWh and lifetime energy reduction of 1,149,116 MWh.

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Energy efficiency	Oahu	What's an example of a large energy efficiency project or initiative that crosses public and private sectors?	Board of Water Supply is currently working on a large EE project to update their infrastructure that impacts both private and public sector. Another example where Hawaii Energy provided rebates is Kahauiki Village.
Energy policy	Maui	Why aren't commercial bus. like Target, new Safeway & even the new Kihei high school not required to have both solar water and PV electric?	Legislation is necessary in order to make this renewable implementation a requirement.
Energy policy	Maui	Does this new law require EVERYONE to get on board and use renewable energy?	When Governor Ige signed HB 632 into law, it set a goal of 100 percent renewable energy for public utilities sales by 2045. Electric utilities must increase its Renewable Portfolio Standards over time. Upcoming goals include 40 percent renewables by 2030, 70 percent renewables by 2040, and 100 percent renewables by 2045.
Energy policy	Oahu	how well are we avoiding "regulatory capture" on a local/state level when it comes to energy/environmental policy?	Hawaiian Electric is not able to provide a response to this question. This question would better be answered by the Office of Sustainability and Resiliency.
Energy programs	Hilo/Kona	"Integrated should mean integrating consumers in the equation. More dynamic tariffs are essential. Any ideas? • Didn't ask"	Indeed, customers are integrated into the planning and operations of Hawaii's power system. This is done through various programs to buy distributed energy, enable participation in programs to provided needed grid services and through time varying rates, such as for electric vehicles. These are being explored in the Advanced Rate Design Strategy docket.

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Energy programs	Hilo/Kona	<p>"Green Mountain Power (GMP) in Vermont uses innovative strategies. Will Hawaiian Electric use any of these?</p> <ul style="list-style-type: none"> • For customers going off-grid—GMP does an energy-efficiency audit and gives advice on solar and battery technology • Off-grid and on-grid customers can buy or lease solar systems and batteries from GMP, or use third-party companies and still get GMP support • For peak demand times, GMP draws on some customers' home batteries, so GMP needs less fossil fuel backup. Participating customers get incentive payments. GMP notifies people in advance of peak events, by text or smartphone app. • GMP will let customers with rooftop solar sell power directly to businesses. GMP will get a 5% fee on transactions • GMP provides free level 2 charges to its customers who buy electric vehicles • GMP is also building large battery storage facilities • GMP uses hydro and wind, and may use methane digesters <p><i>(Submitted by Corey Harden)"</i></p>	<p>"Hawaiian Electric follows GMP closely and has adopted some policies similar to that organization, but tailored to Hawaii and our unique, small, island-by-island stand-alone grids. In addition, executives from GMP flew to Hawaii several years ago to learn from our efforts to integrate national-leading levels of DER and other renewables onto our system. We are adding large energy storage facilities to our grids, for example. We recently helped a mainland partner giveaway 300 EV chargers to residents and 50 chargers to businesses. We are always looking for ways to repeat that, if we can do it in a way that is not a burden on other customers who do not get the free deal.</p> <p>We have programs that incentivize customers to shift or reduce electricity use to help us maintain the grid and increase renewable energy. Unfortunately, everything that works in Vermont does not work here. We have very little hydro-electric capacity as we have few running rivers and lately community opposition to wind projects has added risk to those types of projects. We look for new ideas and innovation wherever we can find it and in fact many utilities look to us to learn how we do things here, including adding a nation leading percentage of rooftop solar to our grids and having one of the highest per capita EV use in the nation. "</p>
Energy programs	Maui	<p>Will Time Of Use rates be available, and if so, when?</p>	<p>Time-of-use rate options are currently available to all residential and commercial customers. The Company continues to explore revised time-of-use rate designs that can be used with smart meters in the near future.</p>

SUBJECT	ISLAND	QUESTION	RESPONSE
Energy storage	Hilo/Kona	Resilience is best if an outage is avoided in the first place. Batteries in the right places can accomplish this, and the batteries don't have to be all on the utility side. Would you support the encouragement of consumer side batteries?	Yes. In fact, approximately 80 percent of all new rooftop solar systems have batteries on the consumer side of the meter. Customer-sited batteries are important since they can enable our customers to start providing us grid services for compensation. In August of last year, the Company issued an RFP for grid services from customer-sited distributed energy resources which could include storage to help system operators manage reliability of the grid. The Company sought grid services such as fast frequency response and capacity for Oahu, Maui, and Hawaii islands. This will create an opportunity for customers to play a direct role in modernizing the electric grid and integrating more renewable energy through aggregated customer-sited resources. EVs also function as batteries which can be charged during periods with excess solar power. Our most recent purchase power agreements for renewable energy include and will continue to include solar-with-storage and standalone storage. As storage becomes less expensive it will increasingly be used to boost our renewable generation and make daytime solar available at night.
Energy storage	Maui	Are batteries the only energy storage solution?	Batteries and other energy storage solutions like pumped storage hydro are considered in our long-term planning. Batteries can provide regulating reserve and fast frequency response and several paired PV plus battery projects have been approved thru our Stage 1 procurement. To date, no pumped storage projects have proven to be cost effective. In addition, Hawaiian Electric has a few programs in which thermal storage (mostly hot water heating) are also use to provide a level of energy shifting/energy storage.
Energy storage	Maui	Is the 4x battery capacity for solar expected to be a base requirement for solar PV RFP?	In the recent Stage 2 RFPs, paired storage was not a requirement for all islands. However, if storage was proposed, there was a requirement that the storage "be sized to support the Facility's Allowed Capacity (in MW) for a minimum of four (4) continuous hours throughout the term of the RDG PPA." Going forward, the storage requirements will be driven by the system needs identified for that procurement.
Energy storage	Maui	Storage batteries will replace power plants, what is the life span of those batteries and is there a disposal plan?	Energy storage systems such as batteries can replace some capabilities of power plants, and will be a critical element of our transition to 100% renewable energy. The life span of individual battery units depends upon how they are used. Individual battery units are incorporated into battery systems which are designed to last for the life of the project, which is usually 20 years. The individual owners of battery systems will be responsible for their removal and disposal at the end of each project according to regulations in place at that time. Battery recycling is available for system owners to take advantage of. For those battery systems owned by Hawaiian Electric, we intend to recycle the batteries when they are no longer required.
Energy storage		I didn't hear much about the benefits of storage to issues like frequency regulation and reserves contribution.	Batteries and other energy storage solutions like pumped storage hydro are considered in our long-term planning. Batteries can provide regulating reserve and fast frequency response and several paired PV plus battery projects have been approved thru our Stage 1 procurement. To date, no pumped storage projects have proven to be cost effective. In fact, Hawaiian Electric is currently performing a procurement for grid services and expect bids to the tender to come from distributed energy storage systems.

SUBJECT	ISLAND	QUESTION	RESPONSE
Fuel	Hilo/Kona	I have an account with NextEra/Florida Power and light- My RPL monthly bill keeps decreasing/ KWH FPL converted fossil oil generation to cheap natural gas. Why has HELCO not taken advantage of cheap natural gas as an interim? (Submitted by Bob Erust)	Cheap natural gas is not readily available in Hawaii like it is on the mainland. The Companies looking into a large project using natural gas in 2016, including Keahole on the island of Hawaii. See https://www.hawaiianelectric.com/documents/about_us/news/2016/20160518_he_propose_to_use_lng_for_a_cleaner_less_expensive_transition_to_100_percent_renewables.pdf , but the State wanted the Companies to focus on renewable energy instead.
Fuel	Maui	Where does the fuel come from before it gets refined in Oahu ?	Under our fuel supply agreement with Par, Par is free to source their crude from anywhere in the world. For further information, please contact Par at https://www.parpacific.com/ .
Grid defection	Hilo/Kona	If I can generate all the electricity I need (through solar wind) should I remain connected to the grid or is it better to go off grid? Note: I have 36 hours worth of battery storage	A decision to remain connected to the grid or go off-grid is a personal decision. The benefits of being connected to the grid is the ability to get backup power during adverse weather conditions, such as multiple days of cloudy/rainy weather as well as to provide services back to the grid and be compensated for doing so.
Grid modernization	Hilo/Kona	What are the issues and costs associated with modifying the grid to accommodate extensive distributed production (rooftop solar) and what role will storage play in such modifications? (Submitted by Leslie Hittner)	<p>"At the distribution level, extensive distributed production can result in circuit thermal and high voltage issues. Mitigations include use of advanced inverter functions (volt/var and volt/watt), dynamic var devices, and reconductoring. Energy storage will have a role in mitigation by shifting generation from high distributed production times to low distributed production times.</p> <p>At the bulk system level, extensive distributed production can result in excess generation during the daytime. This will result in cycling existing synchronous generation off during high distributed production. Synchronous generation provide ancillary services such as inertia, fast-frequency response, frequency regulation (droop), and fault current to the grid. Energy storage can provide these ancillary services in addition to shifting generation from high distributed production times to low distributed production times.</p> <p>The cost for these mitigation measures can range significate depending on the specific scope of the remediation."</p>
Grid modernization	Maui	What does grid modernization look like in the next 5 years, 10 years ?	Within the next 5 years, the Companies plan to implement an array of technologies to allow the Companies to safely incorporate more renewables onto the grid, and to also grid operators or more reliably operate the electric system. This includes investments in advance meters, grid sensing devices, a telecommunications network, and management systems. The next 10 years and beyond are a little uncertain as technology is quickly changing. The Companies' Integrated Grid Planning activities, of which stakeholder feedback and involvement are sought, are designed to help inform and provide input into the development of the future needs and technology solutions for the grid.

SUBJECT	ISLAND	QUESTION	RESPONSE
Grid modernization	Oahu	Why is Hawaiian Electric pursuing advanced meters as part of Grid Modernization? Like others I know, I'm electro-sensitive to EMFs.	Hawaiian Electric's deployment of advanced meters for Grid Modernization is currently based on an opt-in basis, where customer need to specifically sign for an advanced meter either through participation in a renewable energy program or through request. Thereby, advanced meter with communications are not planned to be deployed to all customer. However, certain renewable programs may require the installation of an advanced meter in order to enable participation.
Grid modernization	Oahu	Can water efficiency and conservation projects be combine with the energy projects within the smart grid?	Grid Modernization aims to provide customers access to their energy usage data to enable them to more effectively make decisions on how to manage their energy usage. This would complement energy savings initiatives. Pairing with water efficiency initiatives, will allow customers to contribute to a greener Hawaii.
Grid modernization	Oahu	Will Biodigestors (food waste, manure) be a possible part of the smart grid projects?	<p>"It is assumed that the biodigestors referenced here refer to the equipment used in anaerobic digestion to convert organic matter, including food waste, animal manure, agriculture waste, and municipal waste and wastewater/sludge, to a biogas using microorganisms in an oxygen-free environment. The resulting biogas is composed of primarily methane, and must be processed to remove carbon dioxide, moisture, and impurities such as hydrogen sulfide before being used as a fuel. The converted methane can be stored and burned to produce process heat and power (e.g., using reciprocating engines).</p> <p>The most common use case is to meet internal process heat and power requirements for waste processing facilities; however, there are other applications for the biogas. For example, here in Hawaii, one City & County of Honolulu wastewater treatment plant produces and sells biogas as a renewable fuel and another plant uses biogas from anaerobic digestors to produce heat to dry the sludge used to make pelletized fertilizer. Anaerobic digestors can be an expensive method of making methane, so the accompanying electricity generating assets typically do not benefit from economies of scale. Although anaerobic digestion is a mature commercial technology, widespread use and large-scale production of electricity in Hawaii has been limited by resource (waste organic matter) availability and associated economies of scale.</p> <p>Anaerobic digestion for electricity production is considered a generation resource and not viewed as a smart grid technology that can modernize the electric grid to support utility and customer needs. In addition, anaerobic digestion processes and power production are not suited for high cycling operation or grid support services due to their operating nature. However, these facilities can provide renewable energy that can help the State of Hawaii meet its Renewable Portfolio Standards goals."</p>

SUBJECT	ISLAND	QUESTION	RESPONSE
Hydrogen	Oahu	Why is HECO not pursuing hydrogen as a renewable firm power fuel.	<p>"Hydrogen, as both a fuel and storage resource, was evaluated in Hawaiian Electric's Power Supply Improvement Plan (PSIP). Utility-scale production of hydrogen from the electrolysis of water using renewable energy and then conversion back to electricity is inefficient and capital-intensive, and therefore, not cost-competitive at this time. Currently, the high costs to produce, handle, store, and transport hydrogen along with an insufficient local demand makes hydrogen more expensive to use for electricity.</p> <p>More development of hydrogen infrastructure and scale-up of manufacturing capacities (domestically and internationally) are needed to reduce costs, increase performance, and improve durability to a level that supports market development and the use of hydrogen as a renewable firm power fuel.</p> <p>Hawaiian Electric continues to monitor hydrogen production and storage technologies and evaluate the viability of hydrogen resources in its IGP process. In addition, Hawaiian Electric continues to engage other entities, including the Hawaii Natural Energy Institute (HNEI) of the University of Hawaii and the Electric Power Research Institute (EPRI), to evaluate the viability of hydrogen and investment horizons."</p>
IGP process	Hilo/Kona	How are you going to reach the people not here tonight and explain to them Integrated Grid Planning and their role in sustainable energy?	Hawaiian Electric's subject matter experts and public meeting panel members will work to address the questions posed by participants at our public meetings. The meeting materials for all of our stakeholder meetings are posted on our website for viewing at https://www.hawaiianelectric.com/clean-energy-hawaii/integrated-grid-planning/stakeholder-engagement .
IGP process	Hilo/Kona	On renewable definition: How critical is the carbon footprint/net green house gas emissions in our execution of solutions? (Submitted by Noel Morin)	Hawaiian Electric plans to meet the renewable portfolio standard (RPS) requirements as mandated by State law. However, some renewable projects are not 100% carbon free or carbon neutral especially when considering emissions generated over their entire lifecycle. New projects must balance the contribution toward our RPS requirements with its bill impact to customers as we plan to achieve our goal of 100% renewable by 2045.
IGP process	Maui	How do renewable energy projects that do not fit in a traditional RFP apply?	Depending on the type of project, a renewable energy project could apply to one of our customer renewable programs. More information can be found here: https://www.hawaiianelectric.com/products-and-services/customer-renewable-programs . As our grid needs change, our requests for future project proposals will also change so a project that does not fit in a traditional RFP today may fulfill a future grid need in a later RFP.
IGP process	Oahu	What follow-up will be taken by the utility on the crucial recommendations, observations and actions items your panelists brought up here?	Hawaiian Electric's subject matter experts and public meeting panel members will work to address the questions posed by participants at our public meetings. The meeting materials for all of our stakeholder meetings are posted on our website for viewing at https://www.hawaiianelectric.com/clean-energy-hawaii/integrated-grid-planning/stakeholder-engagement .
IGP process	Oahu	Good information about IGP in a way that the everyday person can understand. This should be shared throughout all communities.	Hawaiian Electric's subject matter experts and public meeting panel members will work to address the questions posed by participants at our public meetings. The meeting materials for all of our stakeholder meetings are posted on our website for viewing at https://www.hawaiianelectric.com/clean-energy-hawaii/integrated-grid-planning/stakeholder-engagement .

SUBJECT	ISLAND	QUESTION	RESPONSE
Large customers	Hilo/Kona	How much does Hawaiian Electric do to educate large electric users (hotels, government, astronomy, commercial users) to help with conservation, use reduction? What incentives do you offer?	The Commercial Account Managers (CAMs) work closely with the large commercial customers to address their operating needs such as managing their electric bill, executing on the customer's corporate strategies with regards to energy conservation, renewable energy and other challenges. The CAMs perform walks-throughs of the customer's facilities as requested to provide energy conservation ideas. The Commercial Account Managers also work closely with Hawaii Energy. Hawaii Energy is a unaffiliated separate company that has been tasked by the Public Utilities Commission (PUC) to help island families and businesses to reduce energy consumption. Hawaii Energy provides rebates to qualifying situations to encourage energy efficiency.
Maui Pono	Maui	Is Maui Pono involved in this plan? Perhaps including biodiesel or wind,solar on their ag land?	No, Maui Pono is not involved in our IGP plans at this time.
Microgrids	Hilo/Kona	How to support existing subdivision micro-grids?	The Company interprets this question to be: How does Hawaiian Electric (and IGP) support existing subdivisions that choose to implement a microgrid? Hawaiian Electric is currently working with the PUC and stakeholders to develop a Tariff to support non-utility implementation of "hybrid microgrids," while maintaining safety, reliability, and equity among customers. An existing subdivision that intends to develop a microgrid would fall under the definition of a hybrid microgrid, which is a microgrid that utilizes utility infrastructure. In addition, the IGP process may identify specific areas which derive the most value with a microgrid installation, upon which the utility would work to procure and implement a utility or non-utility microgrid.
No grid	Hilo/Kona	There is an interesting prototype project in the South Pacific where the traditional grid was never built; instead, electric vehicles, solar charged during the day, go home at night with full batteries to provide daytime electricity. Time shifting demand and eliminating grid maintenance, as Riley Saito described. What has Hawaiian Electric done in studying this model? Can it work in N. Kohala (particularly)?	Localized energy ecosystem as described is similar to a community microgrid that the Company is pursuing for North Kohala. A key technology for both is energy storage batteries, whether from vehicles or stationery – it is the same lithium-ion technology. In the Company's concept North Kohala would remain connected to the grid so that the local resources may also mutually benefit from being connected to the island's power system during normal conditions.
Nuclear	Oahu	What about nuclear?	Commercial nuclear fission in Hawaii is not permissible under the State Constitution and will require 2/3 vote of the State legislature to overturn it, so it is unlikely that Hawaii law is going to change to allow nuclear reactors.

SUBJECT	ISLAND	QUESTION	RESPONSE
Offshore wind	Oahu	How do you feel about Offshore wind as a source of energy?	If we are going to achieve our renewable energy goals as a state, we need to consider all available options and weigh the pros and cons of what is best for our community. However, a concern with offshore wind facilities has been ensuring there are robust and well-thought-out plans and resources in place for decommissioning or repowering them, regardless of that being several decades away. It is an important and real cost of doing business that must be factored into a responsible, sustainable operations plan. Also, not all offshore wind projects are the same. Those that are further from beaches, for example, will have less visual impact. Those that avoid major sea lanes and/or migratory bird paths would be preferred over those that do not. Consideration will need to be given on the impact such wind farms will have on military training in Hawaii and on how to safely bring high voltage transmission lines from these windfarms to the shoreline and onto the island's electrical system.
Ownership	Oahu	When will HECO be owned by Hawaii communities? Eliminate economic bias of shareholders who only care about financial gain.	The electric investor-owned utilities are regulated by the Hawai'i Public Utilities Commission and monitored by the State of Hawai'i Office of Consumer Advocacy to ensure service is reliable, rates are fair, and projects and plans are in the best interest of all customers. Investor-owned utilities must operate efficiently to attract investors who have choices about where to put their money and to convince banks they are worthy of borrowing and repaying large amounts of money. Utilities are capital intensive, that is, they need a lot of money to maintain and improve service. Investor-owned utilities have a proven record of efficiently raising the significant levels of capital needed to support reliable service at reasonable rates and to upgrade and modernize equipment. Utilities in Hawaii in particular need to invest a lot to achieve the state's ambitious clean energy goals.
Protests	Oahu	How do you feel abt civil disobedience like we saw in Kahuku? For act thia	In regards to renewable energy development, communities want transparency, the opportunity to engage in meaningful dialogue with developers, and to participate in the process. Hawaiian Electric is continuing to update its renewable energy procurement processes to strengthen community engagement requirements and to have community concerns addressed through careful listening, thoughtful responsiveness, and a commitment to respect the environmental and cultural values of Hawai'i.
Rates	Hilo/Kona	Why can't our electrical utility Kamaaina company address our kupuna aging population, that wish to remain in their own homes than in a life care facility with a sliding fee scale based on their income monthly?	Hawaiian Electric understands that many customers, both elderly and others, may face challenges paying electric bills from time to time. We ask that customers contact our customer service representatives for assistance in the payment options that are available. Hawaiian Electric has a rate discount program for customers who qualify under the LIHEAP guidelines.
Rates	Hilo/Kona	The LIHEAP is an annual program. Is there any considerations as you move forward?	Hawaiian Electric offers certain residential rate discounts to customers who participate in LIHEAP programs. However, LIHEAP is a federal government program that is administered in Hawaii through the state's Department of Human Services. Any changes in LIHEAP benefits or in the frequency of LIHEAP benefits will be established by the government and not by Hawaiian Electric.
Rates	Maui	Would the living cost be affected?	Quote from hawaiianelectric.com "Hawaiian Electric works hard to keep costs to our customers as reasonable as possible while still ensuring the reliable service they expect and deserve."

SUBJECT	ISLAND	QUESTION	RESPONSE
Rates	Oahu	Why don't we see the lower utility PPA of \$0.08/kWh reflected on our HECO bill?	The PPA projects that have been announced at \$0.08/kWh as part of the Company's solicitation for renewable energy will not go into service until 2021-2022. At that point they will lower the energy costs for all customers based on the share of energy they contribute to the overall system.
Resiliency	Hilo/Kona	On resilience: How are we preparing for the consequences of climate change? (Submitted by Noel Morin)	The Company is engaged with various government agency working groups regarding climate change. The Company is aware of the forecasted impacts and currently plans future infrastructure development to accommodate 3.2 feet of sea level rise. As needed, the Company has also taken the opportunity to increase the installation height when replacing aging equipment that could be susceptible to flooding from sea level rise. The Company understands there will be even greater needs to plan a "managed retreat" from coastlines and is looking for guidance from state and county agencies to determine the process and timing for such a retreat.
Resiliency	Oahu	Why didn't the state join C+C's fossil fuel lawsuit? Is state climate policy "balanced"?	Hawaiian Electric is not able to provide a response to this question. This question would better be answered by the Office of Sustainability and Resiliency.
Resiliency	Oahu	We tend to think of renewables from an environmental standpoint. How much attention do we pay to the domestic security / resiliency aspect?	This is actually a critical objective of the IGP process to diversify the renewable portfolios on each island, both geographically and the types of technology. This diversity will not only serve the environmental benefit, but will also enhance the grid's resiliency through many more generating stations throughout the island that can then be used to more quickly recover after a severe event causing widespread outages.
Resiliency	Oahu	What does the utility think about Joshua's comment to prioritize energy efficiency as a critical piece of this process?	Without understanding the context of Joshua's comment, energy efficiency continues to be valued in the IGP process. The modeling and forecasting used by the Company takes into account ever-evolving technologies that promote energy efficiency with our customers.
Rooftop PV	Oahu	Lowest cost possible means quick & most simple (so land mount wind or solar) NOT harder like using existing rooftops (new ones)	This question is unclear.
Rooftop PV	Oahu	How abt solar on all houses vs solar farms	To get to 100 percent renewable energy by 2045 will not be an either-or proposition but an all-of-the-above solution. We don't have the land, particularly on Oahu, for enough large, grid-scale solar facilities to fill our needs as we phase out fossil-fuel generation. We have solar on about a third of single-family homes on Oahu (roughly 20 percent statewide) and we need to more than double that to get to 100 percent. So yes, solar on as many rooftops as practical and as much grid-scale solar and other technologies as possible will all be needed.

SUBJECT	ISLAND	QUESTION	RESPONSE
RPS	Maui	Does the utility work with other state depts to coordinate movement to 100% RPS? If so, which depts?	<p>"RFPs are currently underway with the intent to procure large amounts of renewable energy on the islands of O'ahu, Hawai'i, and Maui. Future RFPs are slated for community based renewable energy projects in the near term. In addition to customer adoption of distributed energy resources, all of these initiatives will accelerate Hawaiian Electric's renewable portfolio standard (RPS) achievement and further displace fossil fuel consumption.</p> <p>Hawaiian Electric is planning for long term needs in its IGP process. The IGP, through its stakeholder engagement model, has various working groups tackling parts of the IGP process to be more streamlined. A technical advisory panel provides independent technical review of the working groups' deliverables and a stakeholder council provides strategic input on the IGP process development. The stakeholder council is composed of members of the local county governments as well as the Public Utilities Commission, Division of Consumer Advocacy, and State Energy Office."</p>
RPS	Maui	I missed that, what does RPS mean? It was said it would go down if more people started using renewable electric?	<p>"RFPs are currently underway with the intent to procure large amounts of renewable energy on the islands of O'ahu, Hawai'i, and Maui. Future RFPs are slated for community based renewable energy projects in the near term. In addition to customer adoption of distributed energy resources, all of these initiatives will accelerate Hawaiian Electric's renewable portfolio standard (RPS) achievement and further displace fossil fuel consumption.</p> <p>Hawaiian Electric is planning for long term needs in its IGP process. The IGP, through its stakeholder engagement model, has various working groups tackling parts of the IGP process to be more streamlined. A technical advisory panel provides independent technical review of the working groups' deliverables and a stakeholder council provides strategic input on the IGP process development. The stakeholder council is composed of members of the local county governments as well as the Public Utilities Commission, Division of Consumer Advocacy, and State Energy Office."</p>
RPS	Maui	How does the renewable energy benefit Hawaiian electric, the community and the environment?	<p>"Hawaiian Electric's Response: RFPs are currently underway with the intent to procure large amounts of renewable energy on the islands of O'ahu, Hawai'i, and Maui. Future RFPs are slated for community based renewable energy projects in the near term. In addition to customer adoption of distributed energy resources, all of these initiatives will accelerate Hawaiian Electric's renewable portfolio standard (RPS) achievement and further displace fossil fuel consumption.</p> <p>Hawaiian Electric is planning for long term needs in its IGP process. The IGP, through its stakeholder engagement model, has various working groups tackling parts of the IGP process to be more streamlined. A technical advisory panel provides independent technical review of the working groups' deliverables and a stakeholder council provides strategic input on the IGP process development. The stakeholder council is composed of members of the local county governments as well as the Public Utilities Commission, Division of Consumer Advocacy, and State Energy Office."</p>

SUBJECT	ISLAND	QUESTION	RESPONSE
RPS	Oahu	How fast do you think we can get to 80%?	<p>"RFPs are currently underway with the intent to procure large amounts of renewable energy on the islands of O'ahu, Hawai'i, and Maui. We expect these current RFPs to result in neighbor islands achieving about 80% RPS or higher by 2025. Future RFPs are slated for community based renewable energy projects in the near term. In addition to customer adoption of distributed energy resources, all of these initiatives will accelerate Hawaiian Electric's renewable portfolio standard (RPS) achievement and further displace fossil fuel consumption.</p> <p>Hawaiian Electric is planning for long term needs in its IGP process. The IGP, through its stakeholder engagement model, has various working groups tackling parts of the IGP process to be more streamlined. A technical advisory panel provides independent technical review of the working groups' deliverables and a stakeholder council provides strategic input on the IGP process development. The stakeholder council is composed of members of the local county governments as well as the Public Utilities Commission, Division of Consumer Advocacy, and State Energy Office."</p>
RPS	Oahu	Is there opportunity to make a few counties 100% to boost morale?	<p>"RFPs are currently underway with the intent to procure large amounts of renewable energy on the islands of O'ahu, Hawai'i, and Maui. Future RFPs are slated for community based renewable energy projects in the near term. In addition to customer adoption of distributed energy resources, all of these initiatives will accelerate Hawaiian Electric's renewable portfolio standard (RPS) achievement and further displace fossil fuel consumption.</p> <p>Hawaiian Electric is planning for long term needs in its IGP process. The IGP, through its stakeholder engagement model, has various working groups tackling parts of the IGP process to be more streamlined. A technical advisory panel provides independent technical review of the working groups' deliverables and a stakeholder council provides strategic input on the IGP process development. The stakeholder council is composed of members of the local county governments as well as the Public Utilities Commission, Division of Consumer Advocacy, and State Energy Office."</p>
System planning	Hilo/Kona	<p>"• How will Hawaiian Electric use these approaches?</p> <ul style="list-style-type: none"> o Distributed generation o Energy storage o Energy efficiency demand response o Grid software and controls <p>(Submitted by Corey Harden)"</p>	<p>"In the IGP, Hawaiian Electric will be considering a portfolio of resource options including customer sited distributed energy resources, energy efficiency and demand response as well as grid-scale PV, wind and energy storage. Future PV and other grid-scale renewable projects will need some length of transmission line to interconnect. As the resource potential for renewable resources is developed on island, future cost effective projects may be located farther from existing transmission infrastructure and require longer transmission lines. As we've seen in our recent renewable project procurements, the Public Utilities Commission approved projects that paired PV with energy storage. The storage component to these projects provide flexibility to shift the PV energy to other parts of the day.</p> <p>The IGP will also consider both distributed and grid-scale resources to serve as non-wires alternatives to traditional wire solutions. A non-wires alternative effectively locates the generation at the load center to defer, for example, the construction of a new substation to serve load growth."</p>

SUBJECT	ISLAND	QUESTION	RESPONSE
System planning	Hilo/Kona	Have you considered a DC backbone grid to decrease radiation losses and RF noise?	While there are advantages to using DC transmission such as decreased losses, DC installations are very expensive and a DC substation requires much more equipment to convert the power back to AC for use in our homes and businesses. Because of this DC transmission is only economical at very high voltages and long distances which do not exist in Hawai`i.
System planning	Hilo/Kona	What is the ideal percent of eco-thermal supply? *(Submitted by Richard An)	The Company interprets "eco-thermal supply" to refer to geothermal energy such as the Puna Geothermal Venture (PGV) facility located in Puna on the island of Hawai`i. The optimal output of all dispatchable generation facilities is the combination that meets the system load, at the lowest cost, subject to transmission and operational constraints. Therefore there is no "ideal" percent of geothermal supply.
System planning	Hilo/Kona	Will Hawaiian Electric avoid cross-island power delivery, to reduce line losses, risks of damage to lines, and expensive maintenance? (Submitted by Corey Harden)	"In the IGP, Hawaiian Electric will be considering a portfolio of resource options including customer sited distributed energy resources, energy efficiency and demand response as well as grid-scale PV, wind and energy storage. Future PV and other grid-scale renewable projects will need some length of transmission line to interconnect. As the resource potential for renewable resources is developed on island, future cost effective projects may be located farther from existing transmission infrastructure and require longer transmission lines. As we've seen in our recent renewable project procurements, the Public Utilities Commission approved projects that paired PV with energy storage. The storage component to these projects provide flexibility to shift the PV energy to other parts of the day. The IGP will also consider both distributed and grid-scale resources to serve as non-wires alternatives to traditional wire solutions. A non-wires alternative effectively locates the generation at the load center to defer, for example, the construction of a new substation to serve load growth."
System planning	Hilo/Kona	Capacity factor means that you just need to overbuild and have storage. Is this recognized?	The capacity factor, or potential generation of variable renewable resources, needs to be considered in order to plan for an adequate supply of generation. The capacity factors and the ability of storage to be used for energy arbitrage is accommodated within the analysis to be performed in IGP.
System planning	Maui	Will the new IGS allow for grid-scale Solar projects to connect to the grid at their location or will trans lines to MECO be needed?	"In the IGP, Hawaiian Electric will be considering a portfolio of resource options including customer sited distributed energy resources, energy efficiency and demand response as well as grid-scale PV, wind and energy storage. Future PV and other grid-scale renewable projects will need some length of transmission line to interconnect. As the resource potential for renewable resources is developed on island, future cost effective projects may be located farther from existing transmission infrastructure and require longer transmission lines. As we've seen in our recent renewable project procurements, the Public Utilities Commission approved projects that paired PV with energy storage. The storage component to these projects provide flexibility to shift the PV energy to other parts of the day. The IGP will also consider both distributed and grid-scale resources to serve as non-wires alternatives to traditional wire solutions. A non-wires alternative effectively locates the generation at the load center to defer, for example, the construction of a new substation to serve load growth."

SUBJECT	ISLAND	QUESTION	RESPONSE
System planning	Maui	Is there a point when Solar PV will no longer be allowed to be installed on the grid due to oversaturation?	<p>"In the IGP, Hawaiian Electric will be considering a portfolio of resource options including customer sited distributed energy resources, energy efficiency and demand response as well as grid-scale PV, wind and energy storage. Future PV and other grid-scale renewable projects will need some length of transmission line to interconnect. As the resource potential for renewable resources is developed on island, future cost effective projects may be located farther from existing transmission infrastructure and require longer transmission lines. As we've seen in our recent renewable project procurements, the Public Utilities Commission approved projects that paired PV with energy storage. The storage component to these projects provide flexibility to shift the PV energy to other parts of the day.</p> <p>The IGP will also consider both distributed and grid-scale resources to serve as non-wires alternatives to traditional wire solutions. A non-wires alternative effectively locates the generation at the load center to defer, for example, the construction of a new substation to serve load growth."</p>
System planning	Maui	I know that most of our energy is coming from outsourced fossil fuels. Do we have any renewable energy set up here on Maui already?	As reported in Hawaiian Electric's 2019 to 2020 Sustainability Report, nearly 41% of the energy generated in Maui county comes from renewable sources. The renewable mix consists of 21% wind, 18% customer-cites solar, 1.7% grid-scale solar and 0.1% biofuels.
System planning	Maui	When is the Stage 2 RFP expected to be released?	The Final Award Group was notified on May 8, 2020.
System planning	Maui	What are you building in N Kihe along the highway and across from Maui Lani on the highway?	With continued growth and development anticipated for Central and South Maui that will require more reliable and clean energy, these are our newest substations that enable electricity to be reliably distributed to homes, schools, and businesses. Ka'ono'ulu Substation is on the mauka side of Pi'ilani Highway in South Maui and the Kuihelani Substation is near the intersection of Kuihelani Highway and Maui Lani Parkway. See our related news releases on the Kuihelani Substation and Ka'ono'ulu Substation.
System planning	Oahu	All panel - what does 100% RPS look like to you? What types of renewable resources and energy efficiency programs are part of your vision?	Hawaiian Electric is forging a path forward to 100% renewable energy that is being watched across the World and we are on track to meet our year-end 2020 goal of 30% RPS. Getting there will require a diverse set of resources as well as a modern grid and other utility systems needed to manage variable generation while safely and reliably meeting customer's electricity needs. The solution will combine utility resources with customer owned distributed resources including distributed generation, storage, and demand response. The panel discussions illustrated that renewable resources are desirable, but also introduce challenges including community citing concerns, other societal considerations, and cost. All these issues will need to be balanced in order to achieve 100% RPS in a way that is beneficial to all.
System planning	Oahu	Re-phrasing Cynthia's good question. Why haven't we explored community-scale and distributed infrastructure, at SCALE	In the coming years, we will be adding a lot of grid-scale renewable energy as well as a lot more private customer-sited (rooftop) solar. Distributed customer-sited solar already represents the single largest generation component on our system and we are planning on more than doubling that to reach our renewable goals. Another possibility we are exploring is called "non-wires-alternatives" (NWAs) which means locating solar and other renewable energy facilities in such a way that more expensive substations and wires are not needed. We are committed to exploring NWAs whenever possible to see if they can be equal to or less expensive and as or more reliable than traditional utility infrastructure.

SUBJECT	ISLAND	QUESTION	RESPONSE
Transportation	Hilo/Kona	What specific plans you propose to help electrify transportation?	Hawaiian Electric is not able to provide a response to this question. This question would better be answered by the appropriate county transportation departments.
Transportation	Hilo/Kona	If I were to purchase an electric vehicle, how much would my bill increase if I charge exclusively at home? \$110/month	The increase in electrical consumption would be largely dependent upon how many miles you drive. While your electric will increase, the estimated costs is about 1/3 less than the cost to fuel a typical gasoline vehicle.
Transportation	Hilo/Kona	On EVS: Is vehicle-to-grid technology part of our IGP? If so, what roles does it play? (Submitted by Noel Morin)	Vehicle-to-grid technology could play a role as a resource in the future to provide grid services. While there is technology for vehicles to provide energy to the grid, the market is still developing.
Transportation	Hilo/Kona	"Can HELCO please make all future rapid level 3 public charging stations available 24/7? (i.e., Ungated) o Pahala Gym & Punaluu Bake Shop both gated"	While the charge station at the Pahala Gym is not owned by Hawaiian Electric, the DC fast charging station at Punaluu Bake Shop is. Hawaiian Electric has not only been siting locations which may be highly utilized, but also geographically spread out to alleviate range anxiety. It is the Company's goal to install on properties which are accessible 24/7. It is unfortunate that Punaluu Bake Shop is not accessible 24/7, but it was targeted to support the south side of Hawaii Island.
Transportation	Hilo/Kona	How will HELCO quickly increase electricity supply to provide power for the fast growing number of electric vehicles?	The IGP process is designed to identify the needs of the system, such as when additional electricity supply must be added. The growth of electric vehicles are considered when evaluating the needs of the system and if resources must be added, the company will procure the necessary resources to meet the defined needs.
Transportation	Hilo/Kona	Transit: As the only DOT up on the board that uses our county transit, how does the county plan to deal with the almost daily cancellations and use of contract buses that have drastically impacted the transit reliability? (Submitted by Jim Klyman and Carey Yost)	Hawaiian Electric has and is continuing to work with the counties to propose programs which can lower the cost of electricity to charge buses. Last year, an electric bus pilot rate was introduced to lower the cost of electricity to charge buses during strategic hours of the day. Hawaiian Electric will request approval for a bus "make-ready" pilot which will help lower the cost of construction and installation of electrical infrastructure for bus charging stations.
Transportation	Maui	Is it possible to require car dealerships and rental companies to offer more ev vehicles?	Without a change in the state law, it is not possible to require car dealerships and rental companies to offer more EVs. In the last legislative sessions a bill was introduced to require state and county employees to rent EVs for official government business. This bill did not pass.
Transportation	Maui	Is Hawaiian Elec planning to change its vehicle fleet to EVs?	Hawaiian Electric has had electric vehicle in their fleet for over a decade. Early EVs were converted gasoline vehicles. Currently, approximate 20% of our passenger fleet are electric. Although the heavy-duty vehicle market is still maturing, some of our heavy duty trucks are partially electrified.
Transportation	Maui	Can the utility do more to incentivize government departments to purchase more EVa?	Yes, the Company is currently developing a Make Ready infrastructure program, designed to build, own, and operate charging infrastructure behind the meter. This "make ready" work is typically one of the largest cost components of electrification, besides the purchase of the vehicles themselves. This should help incentivize government departments to electrify. In addition, the Company is developing new rates which incentivize daytime charging when electricity is cheaper, which should help to address the cost of electricity for government agencies assuming the fleets can charge during those times.

SUBJECT	ISLAND	QUESTION	RESPONSE
Transportation	Maui	What is the utility doing to accelerate electrification of transportation?	Hawaiian Electric's Electrification of Transportation Strategic Roadmap, available online, outlines 10 areas in which the utility can accelerate the state's transition to electrify transportation. Some of these areas are to expand the availability of charging infrastructure, work with partners in education of EVs and programs to lower EV purchase costs, provide programs to lower customer bills in return for "smart charging", and to encourage medium and heavy-duty fleets. As a result, the Company is currently developing new electric rates and "make-ready" infrastructure programs which will provide electrical infrastructure to parking spaces for commercial, condominiums, and transit properties.
Transportation	Oahu	What role does transportation play in achieving our energy goals?	As EV adoption increases and as batteries capacity increases, these vehicle batteries can be used as flexible energy storage. This flexibility will allow the utility to provide programs which will allow vehicles to be charged during times which best utilize renewable energy and efficiently support the grid.
Wave energy	Maui	Whatever happened to wave energy?	Wave energy is not yet a commercially mature energy resource. Open sea testing facilities encourage ocean energy development through practical experience of installation, operation, maintenance and decommissioning activities for prototype technologies to advance its commercial viability. Research and demonstration activities continue to occur throughout the world, primarily in the United Kingdom, Australia, and the United States. In Hawaii, ongoing research and testing to assess the performance and durability of wave energy devices continues at the U.S. Navy's Wave Energy Test Site (WETS) offshore at Marine Corps Base Hawaii in Kaneohe. Several wave energy devices have been tested at this multiple-berth test site with more devices either being tested or planned. In December 2019, a 500 kW Ocean Energy buoy arrived in Hawaii for open sea testing at the WETS facility.
Wheeling	Hilo/Kona	How to allow wheeling between tanks?	Hawaiian Electric interprets this question to be: How is it possible to wheel electricity between different non-utility entities? The implementation of wheeling on island electrical systems where energy on the island needs to be balanced within the island poses implementation challenges, as the electric system will be less optimized in order to accommodate a generator that is operated to "wheel" power to a specific customer to meet the specific demands of that customer. In addition, there is currently no Tariff or Regulatory mechanism in place that allows the transmission of energy from one facility to another, while utilizing utility lines. Hawaiian Electric is currently working with the PUC and stakeholders to develop a Tariff to support non-utility implementation of "hybrid microgrids," while maintaining safety, reliability, and equity among customers. Hybrid microgrids are microgrids which utilize utility lines, and under specific situations allows the transmission of energy from one entity to another.
Wind	Oahu	Does the Office of Sustainability and Resiliency support the windmills in Kahuku?	Hawaiian Electric is not able to provide a response to this question. This question would better be answered by the Office of Sustainability and Resiliency.

SUBJECT	ISLAND	QUESTION	RESPONSE
Workforce	Hilo/Kona	<p>"What is Hawaiian Electric doing to recent skilled employees to assure there is a skilled worker pool here in Hawaii to hire from?</p> <ul style="list-style-type: none"> o Didn't ask, no time <p>"</p>	<p>In order to recruit skilled workers, the Company participates in career fairs, engages in pre-employment screening and specialized EEI testing, coordinates with local community colleges (i.e. Hawaii Community college) to recruit electrician/linemen pools, fosters an internship program(s) (i.e. Engineering Division) and develops relationships with linkage agencies such as LinkedIn to broaden recruitment outreach. Presently, we are coordinating job postings among all three islands to attract a larger pool of skilled labor. Lastly, the Company will be considering more expansive online recruitment efforts utilizing job specific online sites (i.e. lineman sites), newspaper and radio.</p>