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July 16, 2026

VIA E-FILE

The Honorable Public Utilities Commission
of the State of Hawaii
Kekuanao'a Building, First Floor
465 South King Street
Honolulu, Hawaii 96813

Re: JERA Americas Inc. Notice of Intent to File CPCN Application

Dear Commissioners:

On behalf of JERA Americas Inc. ("JERA"), this letter is submitted for informational purposes only to provide notice of JERA's intent to file an application for a Certificate of Public Convenience and Necessity ("CPCN") under Hawaii Revised Statutes ("HRS") § 269-7.5 for the development, ownership, and operation of a new, proposed regulated power generation company ("GenCo") and associated utility-scale generation facilities on O'ahu.

The proposed GenCo is intended to help address Hawai'i's energy challenges, including affordability, reliability, and system resilience, while supporting the State's transition to a more sustainable energy future. JERA's initial CPCN application will seek approval for approximately 500 megawatts ("MW") of new utility-scale generation on O'ahu. JERA intends the proposed 500 MW facility to represent the initial investment of a long-term regulated generation company committed to supporting Hawai'i's evolving energy needs under the Commission's continuing oversight. As described below, JERA proposes that GenCo operate as a regulated utility, subject to full Commission review and ongoing oversight.

Unlike a traditional independent power producer ("IPP") project developed through a negotiated power purchase agreement ("PPA"), the proposed GenCo would be evaluated through a comprehensive CPCN proceeding, with a full evidentiary record, participation by the Consumer Advocate and interested stakeholders, and continuing Commission oversight over rates, operations, financing, and performance. The proposed GenCo would initially represent approximately 500 MW of new utility-scale generation – roughly one-third of O'ahu's existing firm generating capability – and therefore warrants the highest level of public transparency, regulatory scrutiny, and continuing oversight available under Hawai'i law.

JERA's interest in this effort reflects its commitment to work in partnership with the State in advancing Hawai'i's energy transition. As reflected in the Strategic Partnering

Agreement with the Office of the Governor, JERA has committed to support the State's decarbonization goals and advance clean energy initiatives while helping deliver affordable, reliable, and resilient energy infrastructure.

That partnership reflects a shared recognition that Hawai'i's energy system must evolve to reduce reliance on petroleum, improve affordability, and strengthen long-term reliability and resilience. Achieving those objectives requires transformative action. The proposed GenCo is intended to advance that effort by providing a practical, near-term pathway to modernize the State's generation fleet and align with its broader clean energy objectives. JERA further believes that the scale, significance, and long-term public importance of the proposed GenCo warrant direct review under the Commission's CPCN authority, where the proposal may be evaluated on a complete public evidentiary record under the Commission's continuing oversight, rather than solely through a utility-administered procurement process. The Legislature established the CPCN framework to enable the Commission to determine whether new utility infrastructure of this significance serves the public convenience and necessity, and JERA believes that framework is particularly well suited to the proposal described herein.

I. HAWAI'I'S ENERGY NEEDS REQUIRE NEAR-TERM, TRANSFORMATIVE ACTION.

Residents and businesses in Hawai'i face among the highest energy costs in the nation, driven in large part by reliance on imported petroleum and an aging and inefficient generation fleet. These conditions expose the State to fuel price volatility and impose sustained economic pressure on households, businesses, and essential services.

At the same time, much of O'ahu's existing generation capacity has exceeded its intended operating life, contributing to declining reliability and increasing operational risk. Recent planning and procurement proceedings reflect the need for additional firm, dispatchable capacity to address planned retirements, maintain grid stability, and support continued renewable integration.[1]

The Commission's 2024 Inclinations recognize that these conditions are not sustainable and that Hawai'i requires urgent, substantial, and transformative investment in modern energy infrastructure.[2] This includes the "expedited replacement of old, inflexible fossil fuel generation with more efficient and reliable technologies," together with infrastructure

[1] See Decision and Order No. 42411, Docket No. 2025-0211, filed March 23, 2026, at 50-51. In the Decision and Order, the Commission noted that the Stage 3 O'ahu RFP, based on the Grid Needs Assessment in the IGP proceeding, identified a need for approximately 300–500 megawatts ("MW") of firm generation by 2029 and an additional 200 MW by 2033. It further noted that those targets were established to satisfy the utility's Energy Reserve Margin requirements and to meet a 0.1 days/year loss-of-load expectation reliability standard. The Commission also recognized that, absent such firm capacity additions, reliability would materially degrade and retirement of existing units would not be feasible.

[2] *Hawai'i Public Utilities Commission's 2024 Inclinations on the Future of Energy in Hawaii*, filed December 31, 2024 at 1 ("2024 Inclinations").

needed to advance public safety, reliability, resilience, and affordability.[3] The Commission emphasized that "meaningful generation transformation this decade" is important to address reliability concerns and operational risk, strengthen system resilience, and deliver tangible benefits to affected communities and ratepayers.[4] It also called for urgency, creativity, flexibility, and accountability in advancing solutions capable of meeting those objectives.

Consistent with that guidance and the Commission's call for actionable solutions, Hawai'i's energy challenges require modern, flexible infrastructure that can be deployed on a timely basis, reduce dependence on petroleum, and support the State's energy transition. In partnership with the State, JERA seeks to support that effort through the development of new, regulated generation capacity and related infrastructure aligned with Hawai'i's long-term decarbonization goals and policy framework.

II. THE PROPOSED GENCO – A MODERN, REGULATED UTILITY SOLUTION.

JERA proposes the formation of GenCo as a regulated public utility that will develop, own, and operate new, utility-scale generation facilities designed to meet O'ahu's system needs. These resources are intended to provide reliable, dispatchable capacity and support the modernization of the island's generation fleet.

Rather than serving as a traditional IPP project competing to sell power through a negotiated PPA, GenCo is intended to provide a coordinated long-term generation solution responsive to O'ahu's identified system needs and subject to ongoing Commission oversight with respect to rates, operations, financing, and performance. As such, GenCo is intended to function as an integral component of Hawai'i's long-term electric infrastructure rather than as an individual contracted generation resource. The approximately 500 MW generation facility described in this notice would constitute GenCo's initial generation investment. JERA intends GenCo to serve as a long-term regulated generation company supporting Hawai'i's evolving energy needs.

The proposed GenCo reflects ongoing engagement with the State, including coordination with the Office of the Governor and the Hawai'i State Energy Office, and discussions with a broad range of stakeholders and industry participants over the past approximately 14 months to solicit input and inform the development of this proposal. The discussions have included engagement with government agencies, incumbent utilities, independent power producers, renewable developers, fuel suppliers, logistics providers, nonprofit organizations, businesses, trade associations, and community and youth leaders, among others, so that the proposal reflects a broad range of technical, operational, policy, and community perspectives rather than being driven primarily by the interests of any single market participant.

[3] 2024 Inclinations at 1.
[4] 2024 Inclinations at 8.

The proposal was made publicly available through the Hawai‘i State Energy Office and has remained available to facilitate informed review and discussion of the project's potential costs, benefits, risks, and implementation pathway.[5] The underlying analysis addresses Hawai‘i's energy challenges, including affordability, reliability, and emissions, and presents a proposed implementation pathway for new firm, dispatchable capacity that supports the State's clean energy goals while reducing dependence on imported oil.

Traditionally, new generation resources are developed through utility-administered competitive solicitations, under which individual project proposals are submitted confidentially to the utility for evaluation and selection before Commission review. While that procurement model serves an important role in resource acquisition, JERA developed GenCo as a comprehensive regulated utility solution designed to address multiple policy objectives simultaneously, including affordability, reliability, resilience, emissions reductions, renewable integration, and long-term system modernization, rather than as a stand-alone generation project proposed in response to a utility-administered solicitation. Given the scale of the proposed GenCo, its regulated utility structure, and its intended long-term role within Hawai‘i's electric system, JERA believes the proposal is particularly well suited for evaluation through the Commission's CPCN process, where it would be subject to a transparent public process with meaningful public participation, continuing Commission oversight, and a coordinated framework for timely review.

Consistent with this approach, and subject to Commission approval, GenCo's CPCN application will propose to construct and operate approximately 500 MW of modern, flexible generation capacity, using a hybrid combined-cycle and simple-cycle configuration. At approximately 500 MW, the proposed GenCo would represent one of the most significant additions to O‘ahu's electric system in decades and would play a central role in system reliability and generation modernization. These facilities would utilize liquefied natural gas ("LNG") to lower energy costs relative to oil-based generation, improve reliability, and reduce ratepayer exposure to fuel price volatility. In parallel, JERA is evaluating opportunities to incorporate renewable energy integration, storage solutions, and other complementary technologies to maximize system flexibility and further advance Hawai‘i's long-term decarbonization goals.

GenCo's proposed power plant will also drive system-wide efficiency gains. When compared to existing oil-based generation capacity, GenCo's gas turbines will use less fuel per unit of electricity generated, producing an immediate reduction in power-related emissions. Further, GenCo's modern, quick-start capable generators will provide Hawaiian Electric with enhanced operational flexibility and support the accelerated integration of renewable energy resources. Importantly, the proposed GenCo is intended to facilitate – not displace – the continued development of renewable resources by providing the firm, flexible generation necessary to integrate increasing levels of

[5] See *Proposal to the State of Hawai‘i: LNG Infrastructure and Natural Gas-Fired Power Plant Development on O‘ahu*, (Mar. 17, 2026), available at https://energy.hawaii.gov/?s=Jera and attached as Attachment A for reference.

intermittent renewable energy reliably, while displacing continued reliance on higher-cost oil-based generation. Accordingly, the proposed GenCo is intended to serve as an enabler of Hawai‘i’s renewable energy transition, rather than an alternative to it.

GenCo’s proposed facilities are designed to be fuel-flexible, with the ability to incorporate alternative fuels such as hydrogen or other lower-carbon options as those technologies mature and become commercially viable, including pathways toward increasing renewable and low-carbon fuel utilization over time. To be clear, GenCo is not proposed as a permanent fossil-fuel solution. Rather, it is intended to provide a practical transition platform capable of improving affordability and reliability immediately while preserving multiple pathways toward lower-carbon and renewable fuels as those technologies mature. The proposal is therefore intended to preserve and not foreclose future technology choices as Hawai‘i’s energy transition continues to evolve. In addition, key project components are designed to retain long-term value and flexibility. For example, LNG import infrastructure, such as a floating storage and regasification unit, may be relocated or redeployed, while the generation assets are expected to be capable of transitioning to lower-carbon or renewable fuels over time.

The GenCo facility is expected to materially reduce generation costs relative to existing oil-based resources, improve system reliability through enhanced operational flexibility, and reduce emissions on a comparative basis. More broadly, GenCo represents a coordinated and transformative investment in Hawai‘i’s energy infrastructure, designed to accelerate the replacement of aging assets, reduce long-term dependence on oil, and deliver tangible benefits to Hawai‘i residents and businesses, all without locking the State into a fossil fuel future. Its scale, integrated design, fuel flexibility, and system-wide role distinguish it from a conventional project-specific generation proposal. Rather, it represents a long-term regulated utility investment that will operate under continuing Commission oversight and is therefore particularly well suited for evaluation through the Commission’s CPCN process.

III. A REGULATED GENCO STRUCTURE PROVIDES GREATER PROTECTION AND OVERSIGHT.

A central feature of the proposal is that GenCo would operate as a regulated public utility under Commission jurisdiction. This structure ensures that rates, operations, performance, financing, and major capital investments remain subject to ongoing Commission oversight and provides a transparent and accountable framework for ratepayer protection over the life of the asset. Rather than relying principally on contractual protections negotiated at a single point in time, the Commission would retain continuing authority to oversee the prudence of investments, financing, operations, and rates throughout the life of the facilities. This structure reflects JERA’s commitment to operate within a framework that prioritizes the public interest.

The approximately 500 MW generation facility described in this notice represents GenCo's initial utility investment. JERA intends GenCo to operate as a long-term regulated generation company under the Commission's continuing jurisdiction.

In addition, the scale of the proposed GenCo further distinguishes it from traditional IPP resources and supports treatment as a regulated utility. At the initially proposed capacity of approximately 500 MW, GenCo would represent a significant portion of O'ahu's firm capacity (about one-third of the island's existing firm generating capability of 1,516 MW). As such, it would serve as a core component of system reliability and capacity adequacy. A resource of this scale warrants evaluation under a framework broader than a project-specific utility procurement. Accordingly, a purely contractual framework would not provide the same degree of transparency, adaptability, or regulatory control as direct Commission oversight. The scale and system importance of GenCo therefore support its treatment as a regulated public utility subject to ongoing Commission jurisdiction.

By comparison, under a procurement model in which many of the key financial and commercial assumptions are negotiated before Commission review, a regulated GenCo provides the Commission with direct and ongoing authority over rates, operations, performance, and key financial decisions. It enables cost-of-service ratemaking with transparency into capital investment, operating costs, financing structures, and returns, allowing the Commission to ensure that costs are prudently incurred and aligned with the public interest. This structure is particularly important for a resource of this scale, allowing the Commission to oversee outcomes over time, enforce accountability, and ensure that the benefits are delivered to ratepayers.

Importantly, the proposed GenCo is not intended to replace Hawaiian Electric's role as the retail utility or system operator, or to displace Hawaiian Electric's continued ownership and operation of generation resources. Rather, it would provide regulated wholesale generation service within the existing integrated electric system, while preserving Hawaiian Electric's existing retail responsibilities and franchise obligations. GenCo would operate as a regulated generation resource within the integrated electric system, providing additional utility-scale capacity under a framework that strengthens system performance, enhances transparency, and expands regulatory oversight.

GenCo would be dedicated to providing wholesale electric service for the benefit of Hawai'i's residents and businesses through the integrated electric system and would hold itself out to provide such service on a regulated basis under Commission-approved tariffs and conditions of service. GenCo would therefore serve a clear public function within the State's electric system and operate subject to the full regulatory compact. Given its scale and central role in system reliability, it is appropriately developed and operated under continuing Commission jurisdiction, rather than through a purely contractual procurement model.

By comparison, traditional IPP arrangements are principally governed by negotiated contracts, with Commission review generally occurring at discrete approval points and

subsequent oversight focused primarily on implementation of those contractual arrangements. While those arrangements remain an important part of the State's resource mix, the regulated GenCo structure provides continuous Commission oversight throughout the asset lifecycle, including development, financing, ratemaking, operations, and long-term performance. In an IPP arrangement, equity return requirements, debt costs, and other risk-related components are embedded in the contract price and approved at that stage. By contrast, under the regulated GenCo structure proposed here, the Commission would retain continuing oversight over the underlying capital investment, financing, operating costs, and resulting rates, ensuring ongoing transparency and that charges to ratepayers remain reasonable and aligned with the public interest.

The CPCN process also provides a fundamentally different level of transparency. Rather than evaluating competing proposals through a utility-administered procurement in which proposals, evaluations, and negotiations are generally confidential until after project selection, the Commission would evaluate the proposed GenCo on a public evidentiary record. In a utility-administered procurement, where the utility selects the proposal it believes best satisfies its solicitation objectives before seeking Commission approval, the CPCN process places that determination directly before the Commission on a complete public evidentiary record. The Consumer Advocate, intervenors, and other interested stakeholders would have the opportunity to examine the proposal through discovery, testimony, cross-examination, and public participation before the Commission determines whether the project satisfies the statutory public convenience and necessity standard. For a project of this scale and long-term importance to Hawai‘i's electric system, JERA believes this level of transparency and public participation is both appropriate and consistent with the Legislature's intent in establishing the CPCN process.

IV. COMMITMENT TO FULL CPCN REVIEW AND PUBLIC INTEREST DETERMINATION.

JERA intends to pursue GenCo through a CPCN proceeding because it provides the Commission with the comprehensive statutory framework necessary to evaluate a proposal of this magnitude under the public convenience and necessity standard.

Through that proceeding, JERA intends to demonstrate that it is fit, willing, and able to provide the proposed service, that the proposed GenCo is reasonable and in the public interest, and that it will provide net benefits to ratepayers with respect to cost, reliability, and long-term system performance as compared to available alternatives. The CPCN proceeding will permit the Commission to evaluate the proposal comprehensively, including cost, financing, engineering, operations, fuel strategy, system impacts, and long-term policy objectives, through a single integrated regulatory process.

JERA welcomes that level of scrutiny because the proposed GenCo is intended to be evaluated through a transparent public process with participation by the Consumer Advocate, intervenors, and other interested stakeholders, and JERA intends to present

the information and evidence necessary for the Commission to determine whether the proposal satisfies the public convenience and necessity standard.

JERA intends to submit its CPCN application in the first quarter of 2027 and to make the showing necessary for the Commission to determine that the proposed GenCo structure serves the public interest, protects ratepayers, and advances the State's long-term energy objectives. JERA's current development schedule targets the availability of new firm generation capacity by approximately 2030, subject to Commission approval and the timely achievement of key development, procurement, permitting, interconnection, and construction milestones.

V. EARLY ACTION TO SUPPORT TIMELY DEVELOPMENT.

Consistent with the urgency identified by the Commission, JERA is evaluating potential early, at-risk actions to support the timely development of new generation capacity.

This may include entering into binding reservation agreements with original equipment manufacturers for long-lead equipment, including gas turbines, in advance of final regulatory approvals. Whether to make such commitments remains under consideration, but JERA would be prepared to do so if appropriate to help ensure needed equipment remains available to support Hawai'i's energy needs. Securing long-lead equipment in advance would help avoid unnecessary delay while preserving flexibility to deploy such equipment for GenCo or, if appropriate, redirect it to another project. This willingness to commit capital and assume development risk in advance of regulatory approval reflects JERA's long-term commitment to Hawai'i and is supported by JERA's global portfolio, supplier relationships, and significant procurement capabilities across its existing fleet.

VI. EXPERIENCE AND CAPABILITY.

JERA brings substantial global experience in the development, financing, construction, and operation of large-scale generation and energy infrastructure, including in island electric systems and other fuel-constrained or reliability-sensitive systems. JERA has developed and constructed more than 34 gigawatts ("GW") of natural gas-fired power plants globally over the last 25 years, operates more than 55 GW of natural gas-fired generation capacity across more than 50 plants in over 10 countries, and operates 11 LNG receiving terminals and has developed, invested in, and operates a growing 6 GW portfolio of renewable energy and storage projects in over 10 countries.

That experience supports JERA's ability to develop, finance, and deliver utility-scale generation and associated infrastructure in a timely and cost-effective manner, and to manage the complexities associated with coordinated infrastructure development in Hawai'i's unique operating environment. It also supports JERA's ability to advance solutions that complement and enable renewable development, while meeting the Commission's expectations and the State's need for reliable, affordable, and resilient energy resources. Equally important, it provides JERA with the technical, financial, and

operational capabilities necessary to undertake a project of this magnitude within the regulated framework proposed herein.

VII. CONCLUSION.

Hawai‘i’s energy challenges require practical, near-term solutions that can improve affordability, strengthen reliability, and reduce dependence on oil while supporting the State’s broader clean energy transition. In this context, the proposed LNG-supported generation is not intended to displace renewable development, but to enable and accelerate it by providing the firm capacity needed to integrate additional renewable resources reliably, while accelerating the transition away from higher-cost oil generation.

The proposed GenCo is intended to provide such a solution and to help achieve the meaningful generation transformation the Commission has recognized is necessary to modernize the State’s generation fleet and deliver measurable improvements in reliability, resilience, and affordability. It adds significant utility-scale capacity, modernizes critical energy infrastructure, and supports and potentially accelerates renewable integration within a regulated framework that enhances transparency, strengthens oversight, and provides meaningful protection for ratepayers. As importantly, it offers the Commission the opportunity to evaluate a project of this magnitude through the comprehensive public-interest review contemplated by HRS § 269-7.5.

A resource of this scale and importance would be developed, priced, and operated under continuing Commission jurisdiction, with full transparency into costs and performance, and subject to the public interest standards that govern regulated utility service. Rather than relying principally upon contractual protections negotiated at a single point in time, the Commission would retain continuing authority to oversee the project throughout its operational life for the benefit of Hawai‘i’s ratepayers.

JERA, through GenCo, intends to file its CPCN application and demonstrate to the Commission that the proposed GenCo serves the public interest, protects ratepayers, and supports Hawai‘i’s evolving energy system. JERA does not seek to avoid scrutiny; rather, it welcomes review through the CPCN process because that process provides the Commission, the Consumer Advocate, intervenors, and the public with a comprehensive and transparent framework for evaluating a project of this significance and for determining whether the proposal satisfies the public convenience and necessity standard. JERA looks forward to demonstrating, through a complete public evidentiary record, that the proposed GenCo represents an accountable and durable long-term solution to Hawai‘i’s identified energy needs.

This letter does not request any Commission action and is provided solely for informational purposes in recognition of the Commission’s leadership on these and other vital matters affecting Hawai‘i’s energy future. JERA respectfully submits this notice because it believes that a proposal of this scale, significance, and long-term importance

warrants the Commission's direct consideration under the transparent public-interest framework established by the Legislature. Mahalo in advance for your consideration.

Sincerely,

DocuSigned by:
John O'Brien
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John O'Brien, Chief Executive Officer

Enclosure

cc: The Honorable Josh Green, M.D., Governor, State of Hawaii
Mark B. Glick, Chief Energy Officer, Hawaii State Energy Office
Michael S. Angelo, Executive Director, Division of Consumer Advocacy, Department of Commerce and Consumer Affairs
Scott W. H. Seu, Chief Executive Officer, Hawaiian Electric Company, Inc.
Shelee Kimura, President, Hawaiian Electric Company, Inc.

Proposal to the State of Hawai‘i: LNG Infrastructure and Natural Gas-Fired Power Plant Development on O‘ahu

JERA AMERICAS

March 17, 2026

To the State of Hawai‘i

Hawai‘i is defined by its natural beauty, its deep connection to the land and ocean, and its long-standing cultural and economic ties to Japan. As fellow island communities, Hawai‘i and Japan share the realities of geographic isolation, dependence on imported fuels, exposure to global energy shocks, and a responsibility to protect our environment for future generations.

Hawai‘i’s energy challenge: affordability and sustainability

As highlighted in the Hawai‘i State Energy Office’s Alternative Fuel, Repowering and Energy Transition Study, Hawai‘i faces an urgent and unique energy challenge. O‘ahu residents pay some of the highest electricity rates in the United States because the State’s power system still relies heavily on oil. Hawai‘i remains the only U.S. state that burns oil at this scale for electricity generation.

The State’s dependence on oil creates economic and environmental burdens. It places pressure on families, businesses, and public services while exposing the State to volatile global fuel prices.

O’ahu in particular faces a significant sustainability challenge. About 70% of O‘ahu’s electricity is generated from oil, giving the State one of the highest carbon emission intensities in the nation—roughly double the national average. As a result, each kilowatt-hour consumed carries a disproportionately high environmental impact.

Bridging to a 100% renewable future

At the same time, Hawai‘i has set one of the world’s most ambitious energy goals: 100% renewable electricity by 2045.

While deeply respectful of this commitment, experience from island systems around the world—including Japan—shows that renewables alone cannot yet meet demand at all hours without firm, flexible generation to maintain reliability and affordability. Without such a bridge, even the most ambitious energy transition plans risk becoming slower and more costly.

Our proposed partnership for O‘ahu

It is in this context that JERA respectfully proposes a partnership. Building on the Strategic Partnering Agreement between the State of Hawai‘i and JERA, we propose a transformative energy project for O‘ahu: a ~500 MW hybrid combined-cycle and simple-cycle gas turbine facility powered by liquefied natural gas.

By replacing aging oil-fired generation, this facility could reduce electricity generation costs by approximately 20% compared to current oil-based power, providing meaningful relief to residents and businesses.

The project would also reduce greenhouse gas emissions by roughly 20% over the next two decades by displacing oil generation while enabling greater integration of solar and other renewables. Modern combined-cycle technology provides the flexibility needed to support renewable energy on the grid.

Importantly, this technology would not lock Hawai‘i into a fossil fuel future. The facility could transition over time to alternative fuels such as hydrogen and renewable natural gas.

Commitment to Hawai‘i’s long-term future

This project represents an investment in affordability and Hawai‘i’s long-term energy resilience. It would strengthen grid reliability while supporting continued renewable growth.

JERA brings decades of experience delivering world-class liquefied natural gas and combined-cycle power projects, including in island and import-dependent systems such as Japan. We are committed to working closely with the State of Hawai‘i, its regulators, utilities, and communities to advance this project responsibly and transparently.

This proposal offers a practical pathway forward—one that reduces costs today while strengthening the foundation for a fully renewable future.

Thank you for your consideration.

John O’Brien

CEO, JERA Americas

Energy for a New Era

State of Hawai‘i – JERA Strategic Partnering Agreement

- The State of Hawai‘i, JERA Co. Inc., and JERA Americas executed a Strategic Partnering Agreement (“SPA”) on October 6, 2025, which established a framework for collaboration to support the State’s decarbonization goals and advance clean energy initiatives
- The SPA reiterated that Hawai’i State Energy Office’s study estimates ~US$2 billion is required to upgrade the State’s thermal infrastructure, and indicated that JERA is exploring potential equity and additional investments necessary to fulfill the study’s objectives and the State’s renewable and decarbonization policies
- **This proposal addresses part of the key initiatives outlined in the SPA, focusing on O‘ahu**. The other initiatives will be addressed in the future in subsequent phases

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Key Initiatives outlined in the SPA

THIS PROPOSAL’S FOCUS

- **THERMAL GENERATION**: Develop and invest in new and repowered thermal generation
- **LNG INFRASTRUCTURE**: Develop offshore LNG facilities and onshore infrastructure for natural gas distribution
- **COMPETITIVE FINANCING**: Mitigate financing costs and use the most advantageous capital sources
- **RENEWABLES DEVELOPMENT**: Support continued renewable development to balance sustainability with reliability
- **GRID PLANNING**: Upgrade grid modeling to optimize the generation mix and validate recommendations
- **REGULATORY REFORMS**: Streamline power procurement, tariffs, interconnection and electrical dispatch
- **COMMUNITY BENEFITS**: Establish an Energy Center of Excellence for the Pacific, and support workforce training and academic collaboration for community benefits

JERA is a leader in global gas-to-power and renewables, and is ready to advance an ongoing partnership with Hawai‘i

JERA AMERICAS

Global natural gas turbine project delivery

34 GW

thermal projects delivered since 2000

- Constructed 34 GW of gas turbine projects across 8 countries over the last 25 years
- Strong turbine supplier relationships open pathway for 2030 delivery
- Strong track record of financing at a competitive cost of debt, and in an open book and transparent way

Extensive global liquefied natural gas portfolio for competitive supply

#1

largest LNG procurer for self-consumption globally

- Procures ~35 mtpa liquefied natural gas annually from diverse suppliers around the world
- Operates 22 LNG carrier vessels
- Extensive LNG storage and regasification experience with 11 terminals across Asia

Experienced power plant operator

#1

largest fleet of natural gas-fired power plants

- Has the #1 largest portfolio globally with 55+ GW of natural gas-fired power plants
- Operates 50+ thermal generation projects across 10+ countries
- Brings extensive experience with island power systems

Leader in lower-carbon fuels and renewable energy

6 GW

and growing through new investment

- Diverse portfolio of Solar, Wind and Storage
- Operates 20% NH3 co-firing at Hekinan (Japan) and 40% H2 co-firing at Linden (US), aiming for 100% NH3/H2 capability by 2050
- $1.4 Billion investment into blue ammonia production in USA
- JERA is looking to scale renewable energy in Hawai‘i

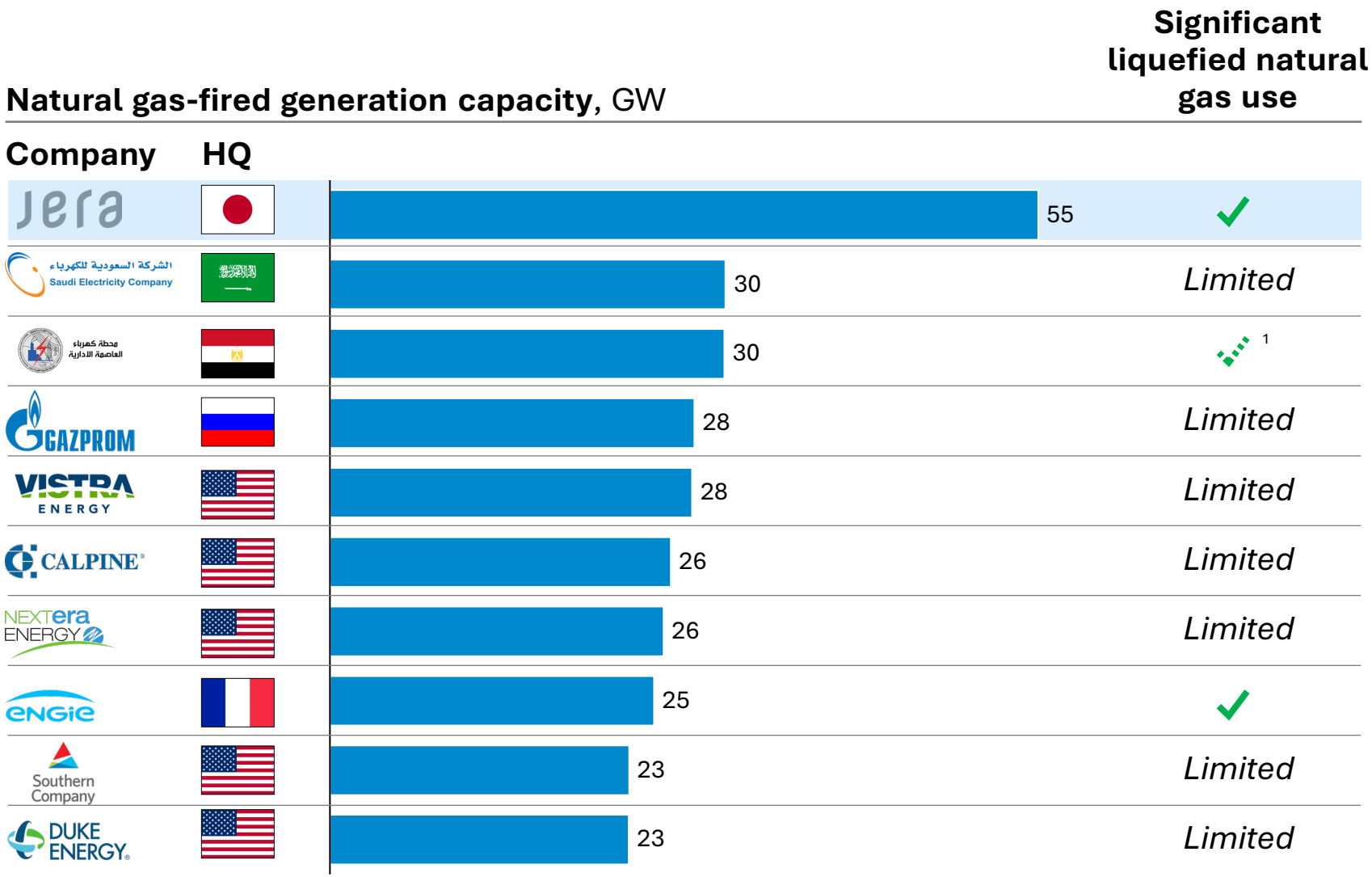
Support Hawai‘i’s Decarbonization Goals

Net Zero

JERA corporate commitment by 2050

- Lower-carbon natural gas to support system reliability during the energy transition
- Modern turbines technology to support greater renewable integration and grid flexibility
- Advance clean hydrogen and ammonia-based fuels to build toward net zero goal

JERA has the world's largest fleet of natural gas-fired generation with significant liquefied natural gas usage



Key insights

- JERA has the largest fleet of natural gas-fired generation, and holds the #1 position for overall operational and committed natural gas-fired generation capacity

1. Egypt has significant natural gas production but also relies on liquefied natural gas import due to demand. Unclear of the EEHC's natural gas supply chain with potential of liquefied natural gas exposure

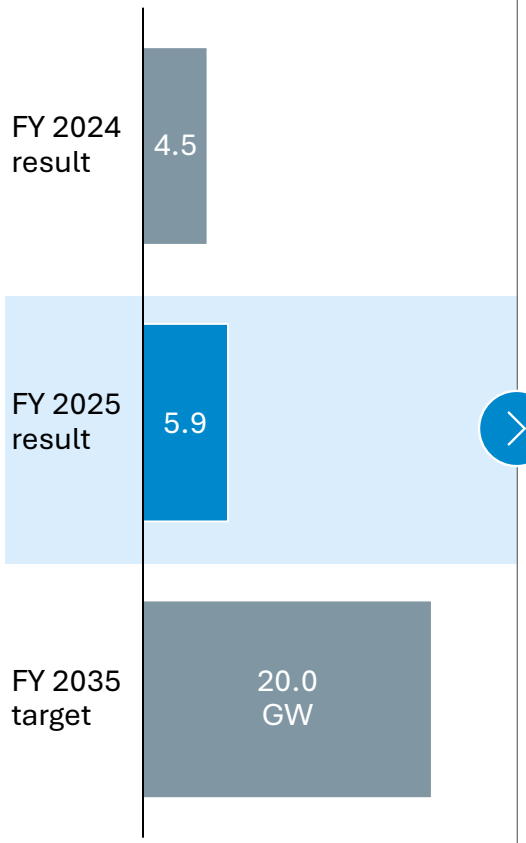
Source: GlobalData

JERA has a significant and growing global renewable energy portfolio and a desire to scale renewables in Hawai'i

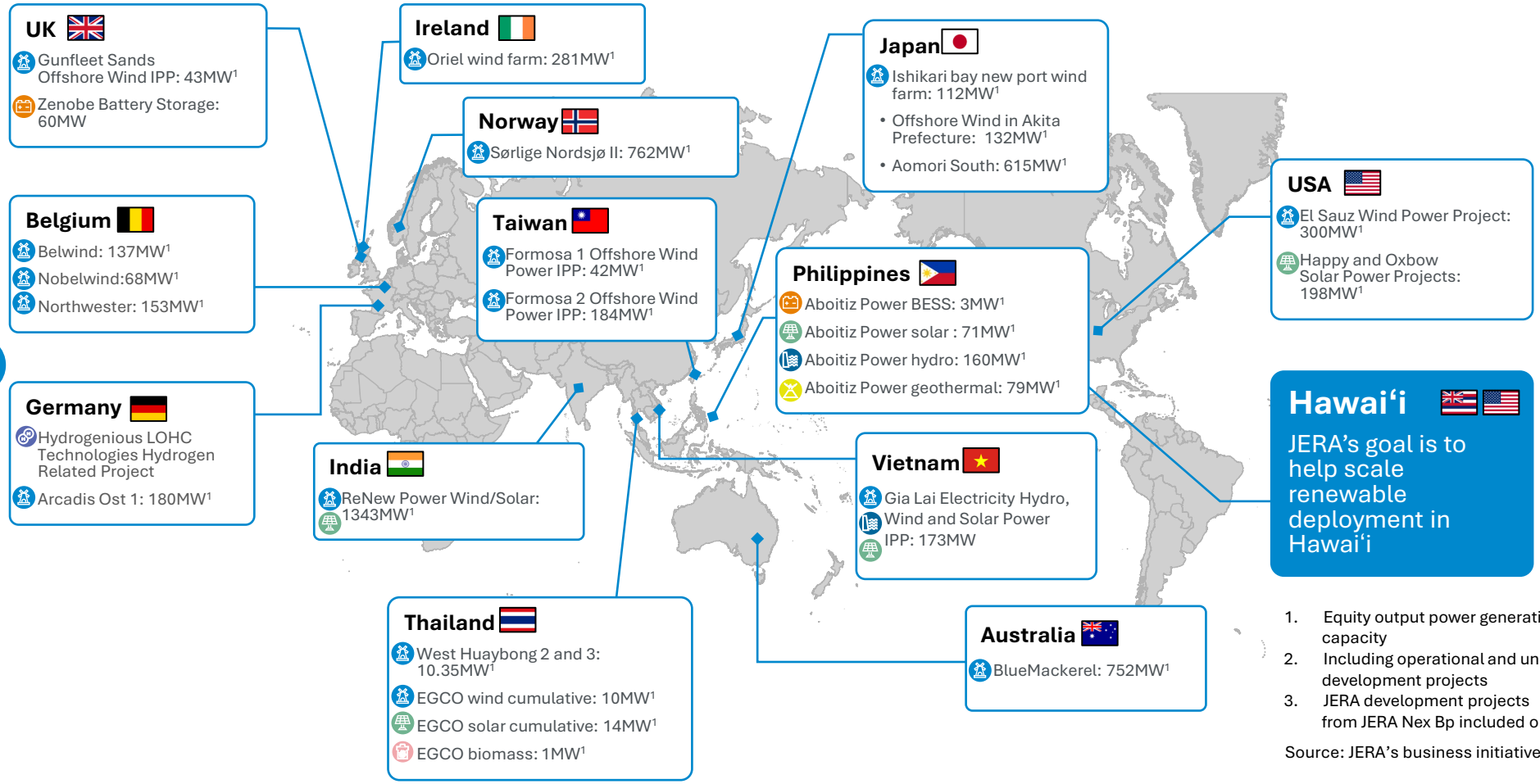
AS OF MARCH 31, 2025

Offshore/onshore wind project | Geothermal project | Solar project | Biomass project | Battery storage project | Hydro project | Hydrogen project

JERA's renewable energy development target, GW



JERA's renewable energy committed project capacity[2,3], MW



1. Equity output power generation capacity
2. Including operational and under development projects
3. JERA development projects from JERA Nex Bp included only

Source: JERA's business initiatives

Challenges facing O'ahu

(as detailed in HSEO's Alternative Fuel, Repowering, and Energy Transition Study)

O'ahu energy challenges

Affordability

#50

O'ahu has the least affordable electricity in the United States

Average retail electricity prices of approximately $0.43/kWh are more than three times the US average

Reliability

>3x

Increase in unplanned outage hours across O'ahu's generation fleet over the past decade

Outages on O'ahu have significantly increased since the closure of the AES coal plant. If no actions are taken and retirements continue as planned, HECO's IGP grid modelling suggests that O'ahu will see outages on 73 days per year (greater than 700x the DoE reliability standard)

Sustainability

~2x

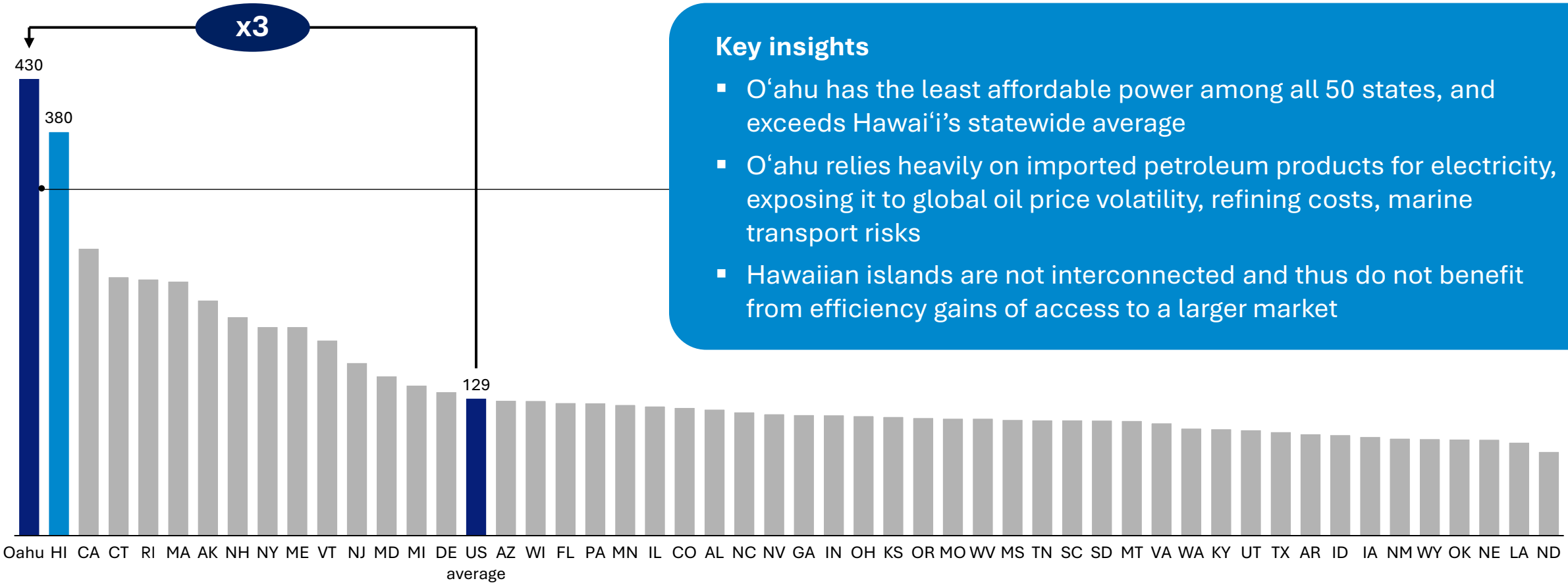
O'ahu has almost double the average US emissions intensity

With 670 kgCO2e/MWh, O'ahu alone ranks 8th among U.S. states, trailing only those states that are heavily dependent on coal-based generation. Without upgrades to O'ahu's aging and inflexible thermal fleet, the ability to integrate additional renewable resources will be constrained by system limitations.

Source: EPA, Ember climate, EIA, Hawaiian Electric Key Performance Metrics – Power supply and generation , HECO IGP 2023

Affordability: Oʻahu has the most expensive power in the nation

Average retail cost of power, $/MWh 2024

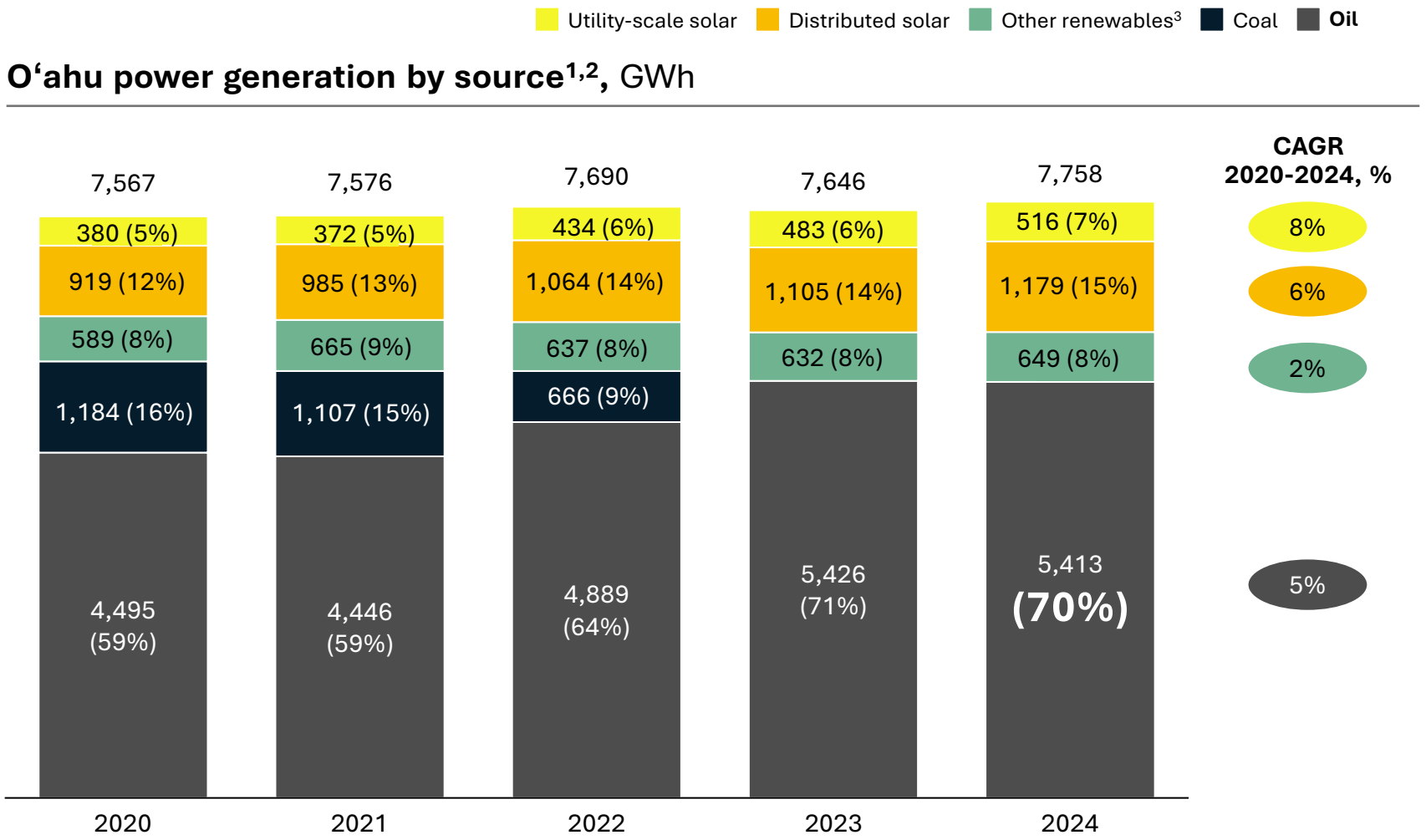


Key insights

- Oʻahu has the least affordable power among all 50 states, and exceeds Hawaiʻi's statewide average
- Oʻahu relies heavily on imported petroleum products for electricity, exposing it to global oil price volatility, refining costs, marine transport risks
- Hawaiian islands are not interconnected and thus do not benefit from efficiency gains of access to a larger market

Source: EIA

O‘ahu generates ~70% of its power from oil, up from ~60% before the closure of the AES coal plant



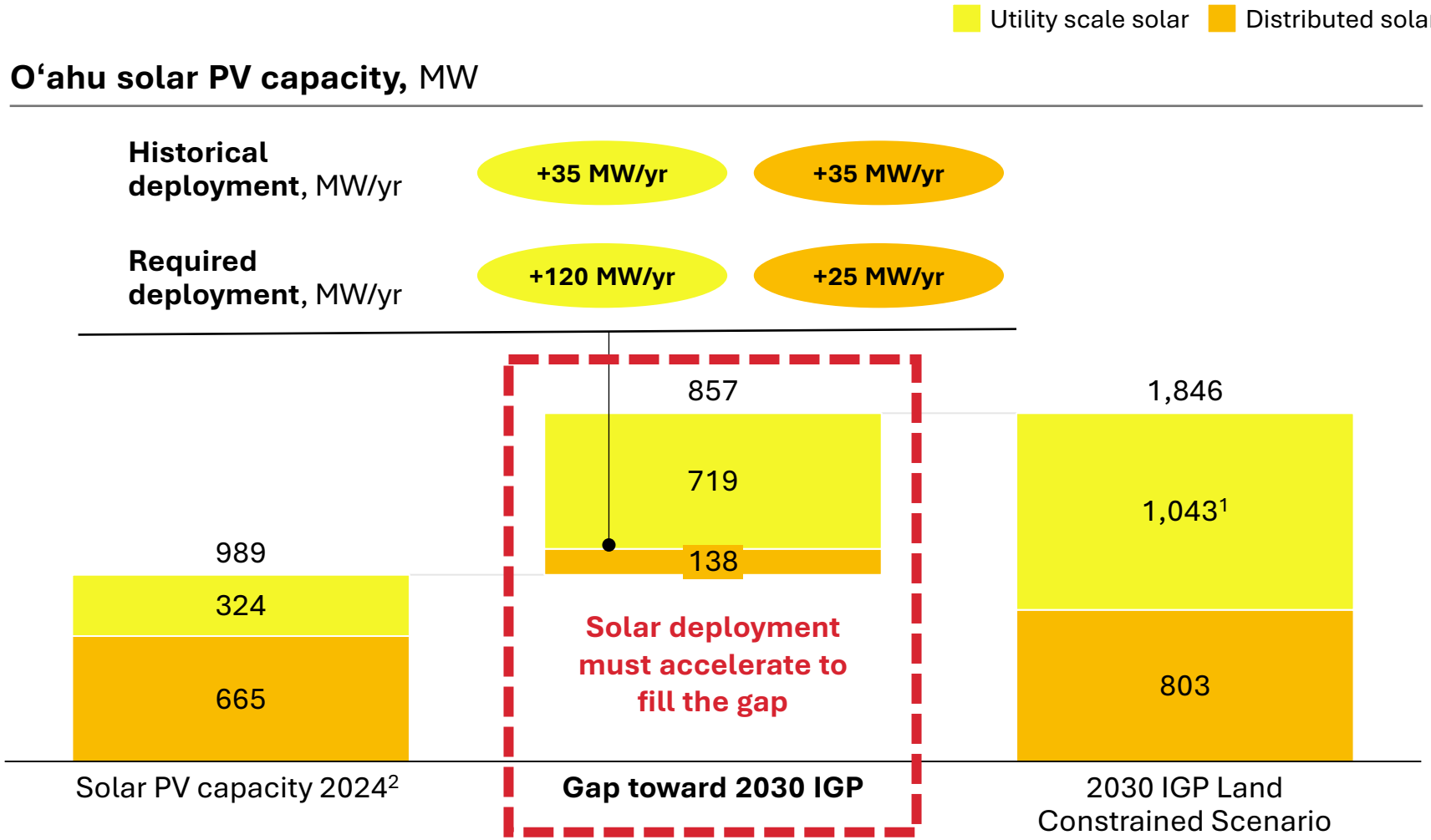
Key insights

- ~70% of power on O‘ahu comes from imported oil; Hawai‘i is the only oil-reliant state for power generation
- The closure of the AES coal plant in 2022 increased the State’s reliance on oil
- Hawai‘i quickly expanded solar which comprises ~15% of total generation
- Expanding solar will require coordinated action to address land, rooftop and grid limitations. New, flexible generation can accelerate renewables

1. Renewable generation reported by HECO from Feed-in Tariff contracts, IPP agreements, known -sited grid-connected technologies, generation records when available, and estimates made for unavailable recorded data based on reasonable performance assumptions for typical systems
2. Coal and oil-fired generation reported from fuel receipts to EIA
3. Including wind, waste, and biomass

Source: 2020-2024 Renewable Portfolio Standard Status Report, 2024 EIA Fuel Receipts and Cost Time Series File (EIA-923 reports)

Solar deployment must accelerate to meet conservative 2030 IGP goals; responsive firm generation can accelerate PV integration



Key insights

- Oʻahu has ~989 MW of solar today and needs ~857 MW more by 2030; rooftop solar is growing quickly, but large-scale solar is lagging. **The State must further prioritize solar deployment to speed up the pace of deployment**
- Because solar is only effective when the sun is shining, the grid **requires firm capacity to supply power when the sun is not shining**

1. Estimated by assuming that ~449MW of planned renewables in IGP will still be completed (Oʻahu added ~136MW of utility-scale solar since the IGP, hence still has 449MW in planning), and an additional 270MW of new hybrid solar will be added bringing the total to 1043 MW (from 324 MW today)
2. End of the year

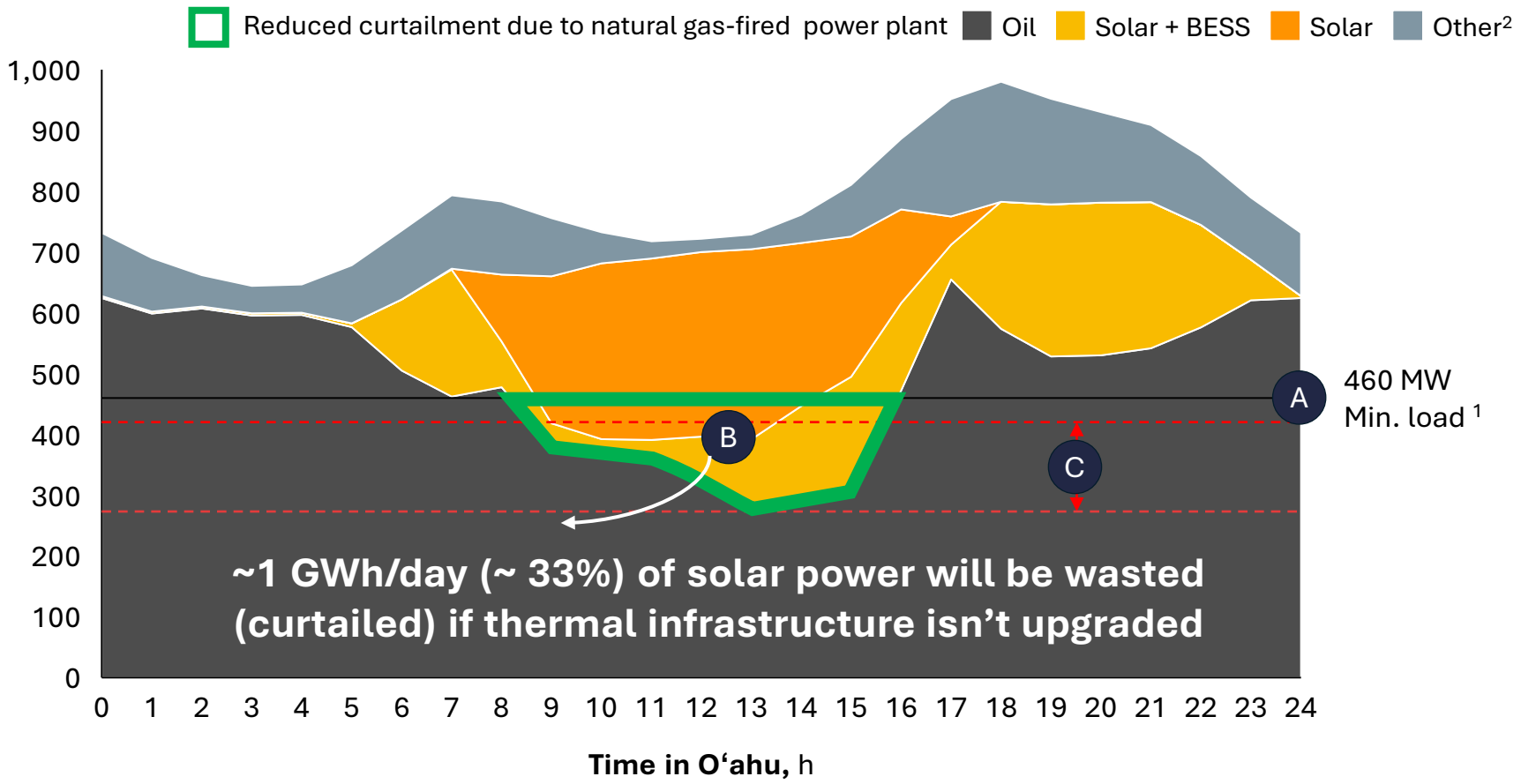
Source: Oʻahu Near-Term Grid Needs Assessment, HECO Power facts, 2020-2025 Hawaiian electric sustainability report and maps

Solar growth will be wasted without thermal modernization

Jera AMERICAS

Indicative

O‘ahu average generation profile for Nov 2025 with illustrative 3x solar capacity (2030 IGP base scenario), MW



Key insights

A **O‘ahu’s oil-fired generators have a minimum load of 460MW.** Below this load level, they would have to shut down, and start-up takes 10+ hours on average.

B If solar capacity were tripled to ~3 GW (as in HECO’s 2030 IGP ambition base case), **~1 GWh/day of solar power would be wasted (curtailed)** as oil-fired power plants cannot run below minimum load.

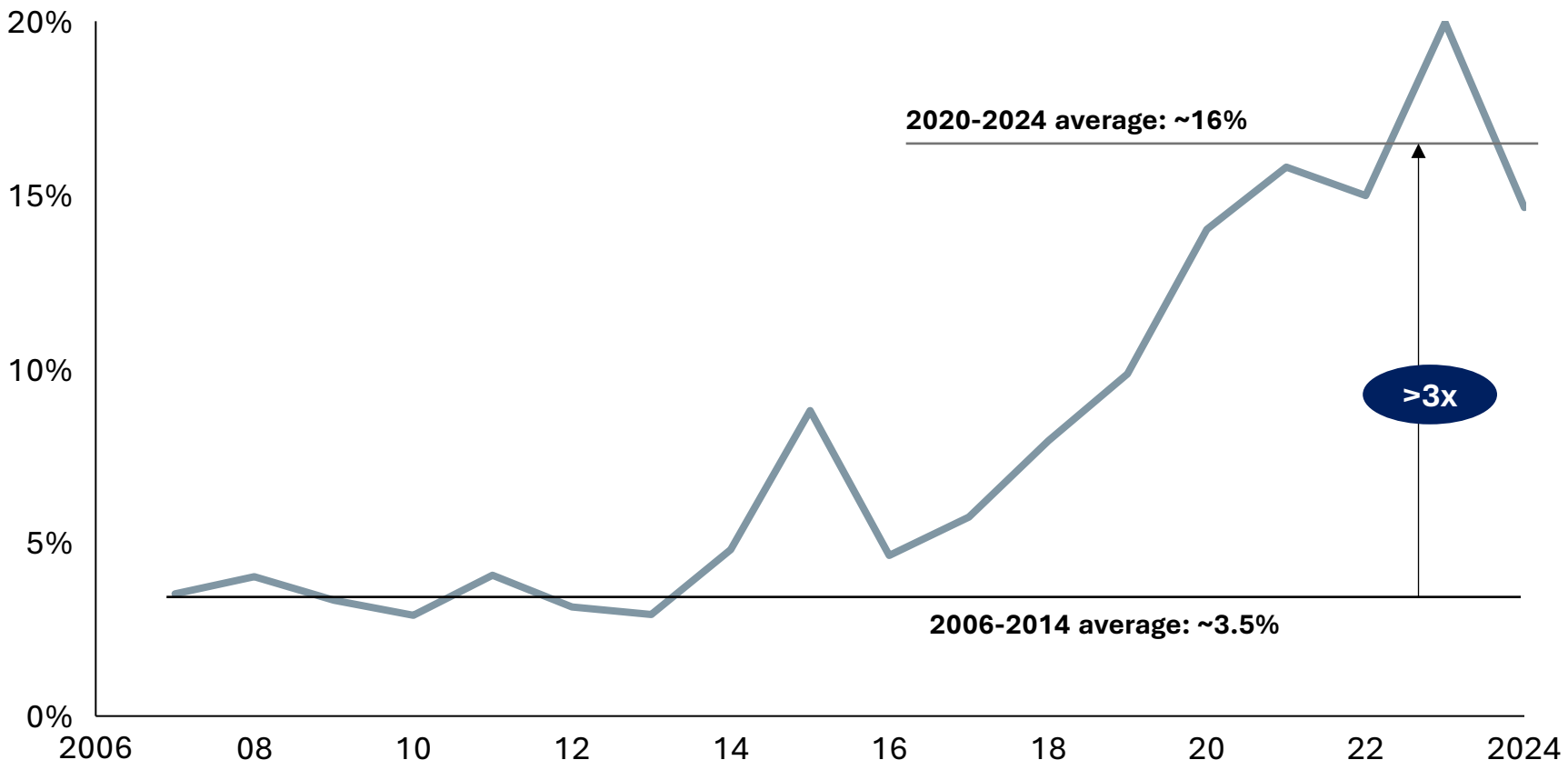
C **A flexible power plant that adjusts output quickly such as a natural gas-fired power plant would eliminate curtailment** as the fast ramp rate would support the intermittent production of renewables and allow further integration of sources like wind and solar.

1. Minimum load determined by the primary fossil-based plants’ generation capacity (Kahe, Waiau, Campbell Industrial Park, and Kalaeloa, totaling 460MW)
2. Municipal solid waste/landfill gas, waste oil, biomass liquid, wind, battery

Source: Hawai‘i PUC Docket 2021-0024

Forced outages on Oʻahu have more than tripled over the past decade

Oʻahu forced outage factor of full generation fleet[1], %



Key insights

- ‘Forced outages’ are unplanned shutdowns or reductions in plant output, primarily caused by unexpected equipment failures
- Since 2015, Oʻahu has seen a **>3x increase in hours** when its generation fleet was unexpectedly unavailable
- **Forced outages** have increased from ~3.5% during 2006-2014 to ~16% over the last 5 years
- Oʻahu’s **thermal power plants** are operating well beyond their expected lifetimes, contributing to **higher outage rates**
- Solar intermittency will further challenge grid reliability

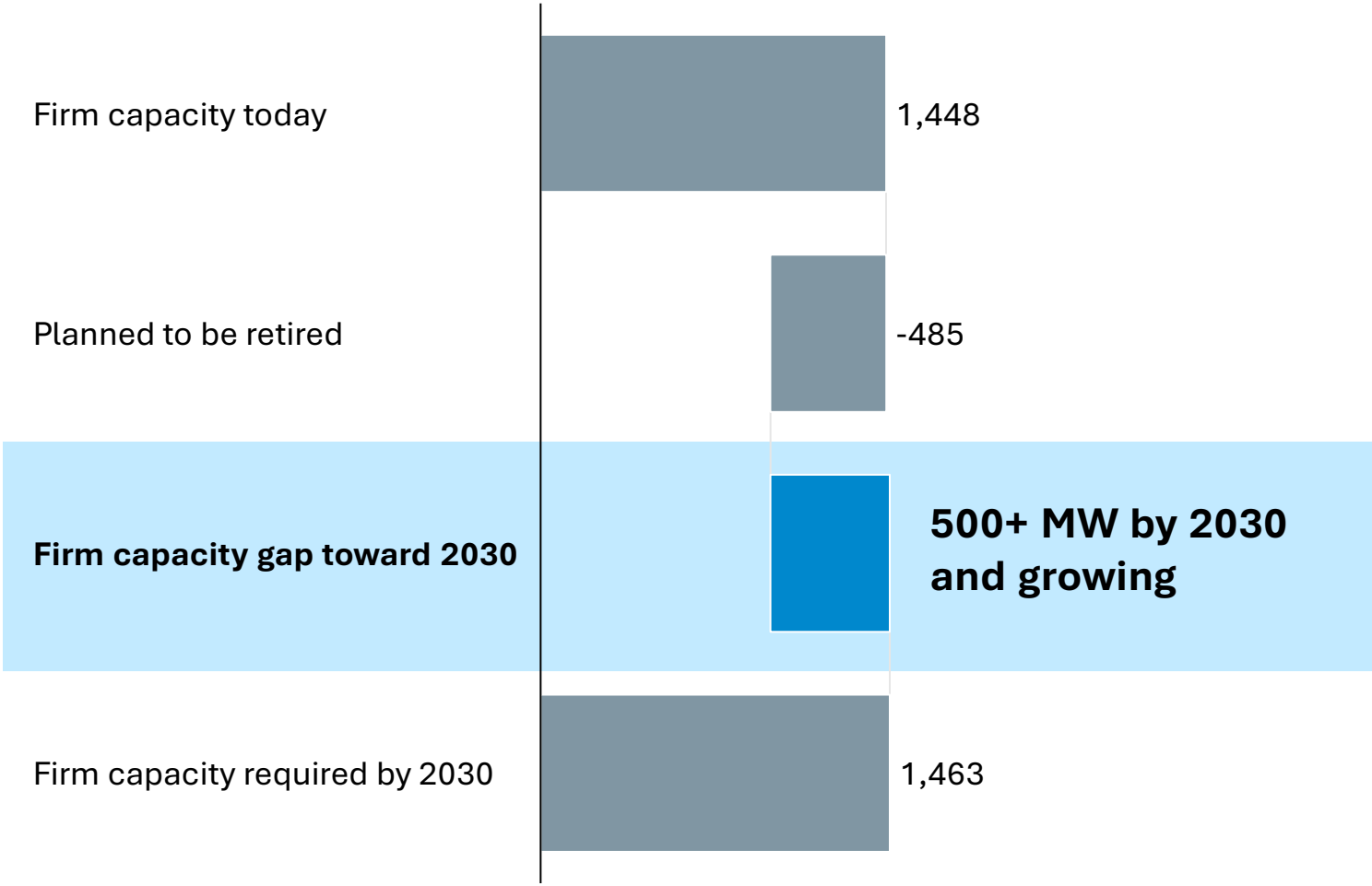
1. WEFOF (weighted average equivalent forced outage factor) is a fraction of a given operating period in which a generating unit is not available due to forced outages and forced deratings

Source: Hawaiian Electric Key Performance Metrics – Power supply and generation

Considerations for firm thermal power to support Hawai'i's Energy Transition

HSEO's Study: O'ahu will need 500+ MW of new firm power capacity by 2030

O'ahu firm capacity forecast for 2030, MW



Source: HECO IGP 2023

KEY QUESTION

What is the best way to fill this gap while meeting the State's decarbonization goals?

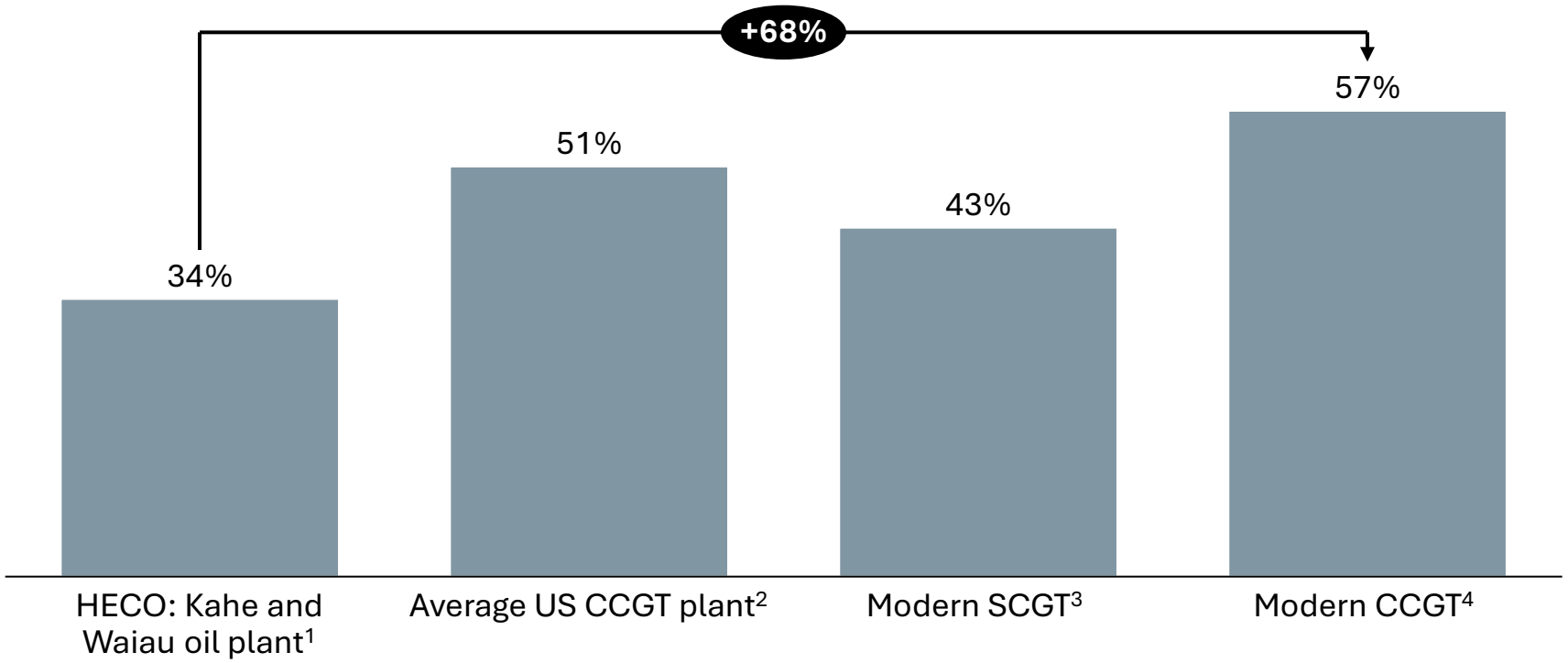
Baseline assumption — **Solar PV and Battery Energy Storage System** ("BESS") **will be maximized in every scenario.**

What type of firm capacity makes the most sense?

1. What technology should it be?
2. How big should a facility be?
3. How should it be configured?
4. What is the optimal fuel choice, now and into the future?

HSEO's Study: Modern CCGT turbines are ~68% more efficient than the current HECO Kahe and Waiau oil-fired plants

Power plant efficiency (LHV), % of energy input converted into power



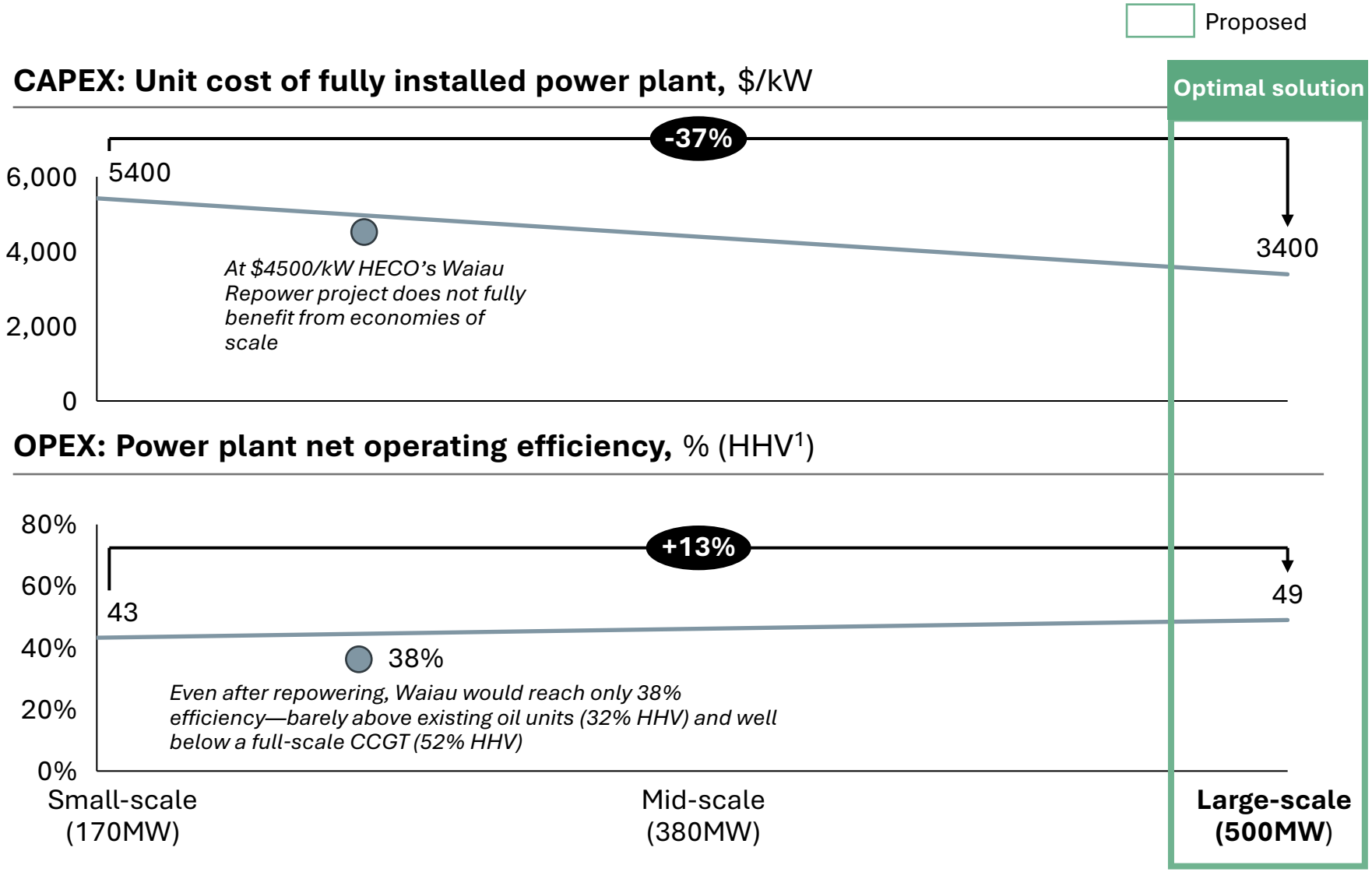
1. Converted to LHV based plant efficiency based on average fuel oil heat content
2. Converted to LHV based plant efficiency based on average natural gas heat content
3. GE LMS100 SC net efficiency based on ISO conditions (standardized reference conditions for rating performance, set at 15°C (59°F) temperature, 60% relative humidity, and sea level pressure (101.325 kPa))
4. 2x1 GE 6F.03 CC net efficiency based on ISO conditions (standardized reference conditions for rating performance, set at 15°C (59°F) temperature, 60% relative humidity, and sea level pressure (101.325 kPa))

Key insights

- Kahe and Waiau plants are on average 58 years old and are inefficient, converting only ~34% of the energy input into power
- Nearly every state uses CCGT plants that are more efficient than Kahe and Waiau. The typical US CCGT (on avg. ~19 years old) converts ~51% of energy input into power
- The latest, most efficient CCGT's can convert ~57% of energy input into power, which is ~68% more efficient than what O'ahu uses today

Source: GE gas turbine fact sheet, HSEO Alternative Fuel, Repowering, and Energy Transition Study

A large-scale (~500 MW) power plant reduces capital costs and improves plant efficiency



Key insights

A large power plant offers distinct advantages over two separate stations:

- Streamlined project execution through a single site
- Achieves economies of scale with approximately ~37% lower plant unit capex costs
- ~13% improvement in power plant net operating efficiency (higher fuel-efficiency)

1. Higher heating value

Source: JERA, GE Vernova gas turbine fact sheet, Energy velocity

Hybrid configuration is best suited to tackle O'ahu's energy trilemma

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Combined cycle/Simple cycle hybrid helps the State achieve **affordability**, **reliability** and **sustainability**

		Optimal solution	
Configuration	Simple Cycle (SC)	Hybrid (CC + SC)	Combined Cycle (CC)
Capital Cost	⊗ Low	⊖ Moderate	✓ High
Efficiency	⊗ Lower	✓ Higher	✓ Higher
Operation Flexibility	✓ Very High	✓ Very High	⊖ Moderate
Start up time	✓ Minutes	✓ Minutes	⊗ 1~3 Hours
Emissions (CO_2/MWh)	⊗ High	✓ Moderate to Low	✓ Low
Footprint	✓ Small	⊖ Medium	⊖ Medium

Key insights

- **Combined cycle/simple cycle hybrid configuration helps the State achieve affordability, reliability and sustainability**
- **Hybrid configuration achieves the best of a combined-cycle and simple-cycle natural gas-fired power plant** with fast ramp rate and high operational efficiency while complying with HECO's single point of failure guidance (max. 142 MW)

What is the optimal fuel choice, now and in the future? All may be needed, but LNG clearly the best bridge fuel for thermal generation

Based on HSEO Alternative Fuel, Repowering, and Energy Transition Study

	O'ahu today	Alternatives (Future)		
		Optimal solution		
Element	**Oil (LSFO)**	**LNG**	**Biofuel**	**Hydrogen**
Affordability	⊗ Volatile prices and high cost	✓ Lower prices and less price volatility	⊗ Most Expensive	⊗ Commercially not ready yet
Sustainability	⊗ Highest carbon emissions	✓ Lower carbon choice than oil that aligns with the State's energy goals	✓ Lower carbon choice than oil	✓ Lowest carbon emission
Fuel Reliability	⊗ Imported from high-risk sources	– Mainly imported from low-risk sources	⊗ Limited local production, require high-cost imports	⊗ Limited local production, require high-cost imports
Commercial Viability Score by HSEO (5/5)	N.A.	✓ **5.00**	– 2.85~3.15	– 2.60~3.15

- Commercial Viability Score consists of **Production Scalability** (35%), **Technology Readiness Level (TRL)** 30%, **Fuel Availability** (20%), and **Transportation Logistics** (15%). Its total score is 5.00.

Key insights

- HSEO's Study identified **LNG** as a key component of lowering the State's carbon emissions and promoting additional renewable energy integration onto the grid
- **LNG has both lower prices and less price volatility than oil (LSFO)** making it a potential mechanism to address high energy prices and Hawai'i's affordability challenges
- Combustion using fuels like LNG, biodiesel, RNG, and hydrogen must be considered to balance the further adoption of renewable energy sources

1. Based on HSEO Alternative Fuel, Repowering, and Energy Transition Study, Jan. 2025

Proposed pathway: A larger, hybrid natural gas-fired power plant is the optimal solution

Element	O‘ahu today	Proposed alternative (Optimal solution)
	Oil-fired generator[1]	Natural gas-fired power plant
Stability	Current O‘ahu oil-fired generators (e.g., Kahe, Waiau) are old and less reactive with inertia for grid support	Synchronous generator and modern controls
Firmness	Dispatchable and able to supply firm capacity	Dispatchable and able to supply firm capacity
Fuel reliability	No local production; oil mainly imported from high-risk sources	No local production but gives fuel flexibility; liquefied natural gas mainly imported from low-risk sources
Fast ramping	Oil-fired turbine ramps up slowly	Quick start up and fast ramp rate; exact ramp rate dependent on type of turbine

Key insights

- Natural gas-based power can provide fast-start and fast-ramp capability to integrate more solar power; can also address the high outage rates stemming from aging oil-based generation
- The supply security challenge can be mitigated through stable long-term liquefied natural gas offtake contracts
- Natural gas-fired plant can be built to transition to clean fuels, minimizing the risk of stranded assets and fossil lock-in

1. Based on Hawai‘i's current major fossil-based firm generation (i.e., Kahe, Waiau, Campbell industrial park, Kalaeloa Partners)

Source: EPA, FERC, EIA, USGS

JERA's proposed approach

JERA is committed to Hawai'i for the long run, and envisions a long-term partnership that includes accelerating renewable deployment

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Two pillars of JERA's proposed approach:

1 Deliver and operate natural gas infrastructure and power plant

- **JERA and local partners** will deliver the liquefied natural gas and natural gas-fired power plant project
- LNG (natural gas) can replace oil as the primary generation fuel in the near-term to lower costs, reduce carbon emissions, and strengthen grid reliability while **upgraded thermal infrastructure enables a future transition to clean fuels**

THIS PROPOSAL'S FOCUS

2 Support accelerated renewable deployment

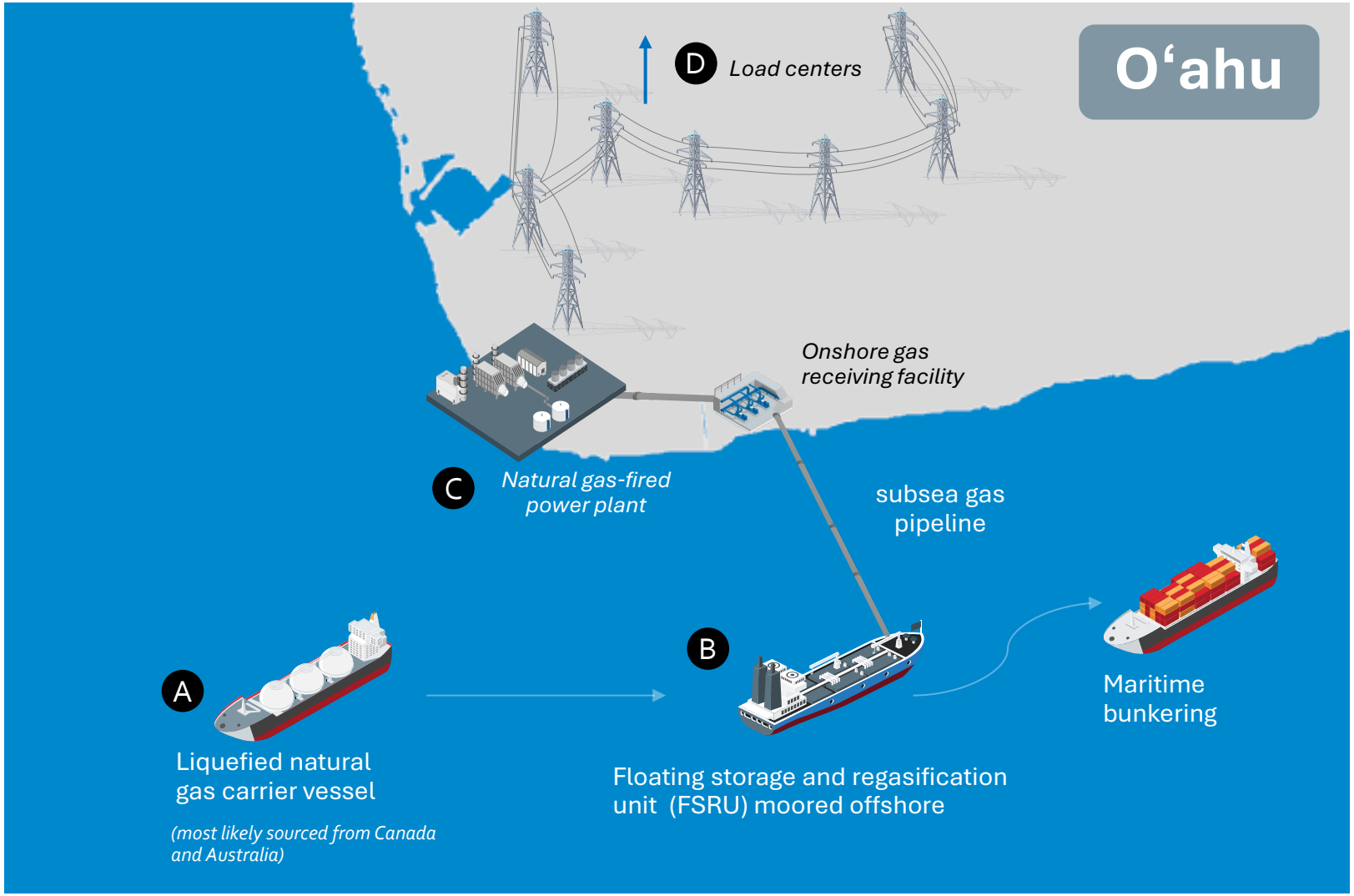
- Beyond this proposal, **JERA is actively looking to invest, support, and enable renewable energy projects through partnering with local companies and developers**
- JERA will seek to bring capabilities developed across its **6GW global renewable portfolio** and engage with and learn from **energy and community leaders in Hawai'i**

FUTURE FOCUS

JERA net zero commitment

- JERA is committed to net zero emissions from domestic and international operations by 2050
- JERA is active on the mandatory Japanese carbon market, which sets a price on carbon to achieve Japan's national net zero commitment
- JERA has established country-specific roadmaps to incorporate more renewables and switch to lower-carbon fuels in thermal power plants

Proposed LNG infrastructure and natural gas-fired power plant project on O‘ahu



LNG infrastructure

A Liquefied natural gas can be procured from the source that offers the best combination of price and sustainability then shipped to Hawai‘i in compliance with Jones Act

B Liquefied natural gas will be transferred from the carrier vessel onto the FSRU to be regasified, then piped toward land and received at the onshore gas receiving facility

The FSRU can also supply the maritime industry with bunkering fuel

Natural gas-fired power plant

C A ~500 MW natural gas-fired power plant would be fed by an onshore gas pipeline

D The produced power would be transmitted to the load centers on O‘ahu

Source: JERA Longboard LNG FSRU Terminal Phase 2 Basis of Cost and Schedule Estimate

A large-scale natural gas-fired power plant is more affordable as it has higher fuel-efficiency and lower unit capital costs vs. sub-scale plants

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Illustrative rendering of the JERA hybrid natural gas plant at a potential site identified in HSEO's study

Produces affordable power through significantly higher fuel efficiency and lower unit capital costs (vs. Waiau repower)

Located in an industrial area, minimizing any need to construct near nature or residential areas

Creates fuel flexibility to run on multiple sources including clean hydrogen and clean ammonia

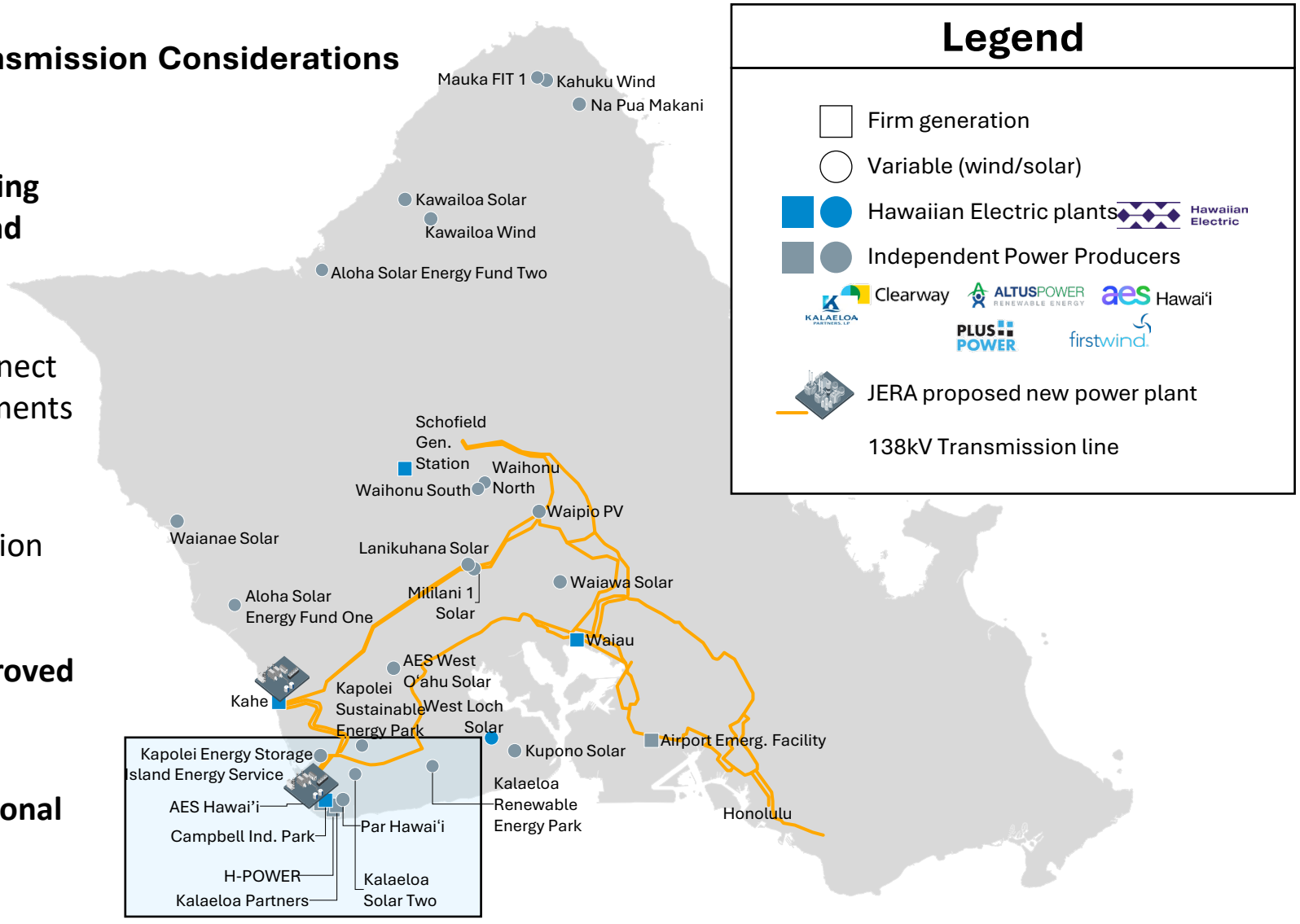
1. Turbine models and combined-cycle configuration are indicative only. Final vendor selection and optimal block configuration will be determined during detailed engineering

Source: JERA

The new natural gas-fired power plant will integrate into O‘ahu’s existing power system

System Planning, Interconnection, and Transmission Considerations

- The proposed generation facility has been developed within the context of **O‘ahu’s existing transmission network, system constraints, and long-term grid planning assumptions**
- Our evaluation recognizes that **transmission upgrades will be required** to reliably interconnect and dispatch the resource, and these requirements have been **incorporated into the overall investment framework**
- Final interconnection configuration, transmission scope will be refined through **applicable interconnection studies and transmission planning processes**, consistent with **PUC-approved process**
- The intent is to deliver a **system-compatible resource that supports reliability and operational flexibility**



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Multiple configurations, technologies, sites and routes were evaluated with experts to develop optimal approach for O'ahu

1. **Designed to optimize cost and efficiency for O'ahu**
   Right-sized and purpose-built for O'ahu to balance scale efficiency with operational performance. A hybrid configuration combines efficient baseload operation with fast-response capability to maximize value for customers.

2. **Engineered to avoid single-point-of-failure risks**
   Redundant and modular design using proven practices to reduce outage risk and strengthen system reliability during peak demand or stress events.

3. **Built to load-follow and support renewable integration**
   Designed for fast start, rapid ramping, and load-following to respond dynamically to changes in renewable generation.

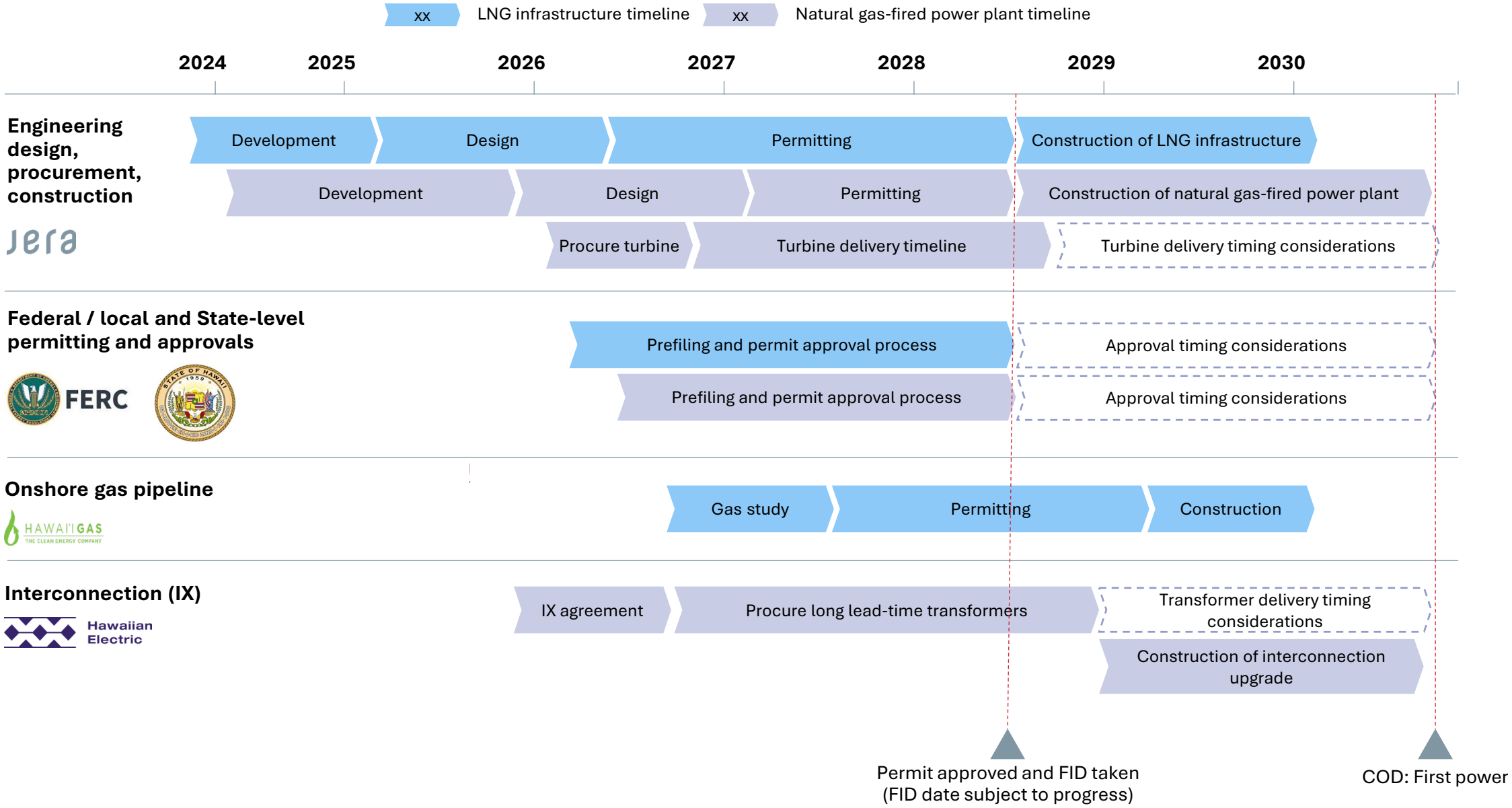
4. **Fuel-flexible into the future**
   Designed for future fuel adaptability, helping avoid long-term fossil lock-in. Most project investments remain usable with clean fuels as Hawai'i's energy mix evolves.

5. **Uses robust, proven equipment**
   Based on commercially proven, globally deployed power generation technologies selected for reliability, performance, and maintainability.

6. **Multiple feasible routing options, stress-tested**
   Routing options assessed for feasibility, constructability, and environmental sensitivity, with alternatives stress-tested to identify and mitigate risks.

7. **Backed by JERA's global power plant experience**
   JERA's global experience in power generation and LNG-to-power systems supports the credibility of the technical and economic analysis.

Optimized project timeline to accelerate benefits for the State of Hawai'i



Benefits for Hawai‘i

The economic case is robust, even under shorter amortization timelines and potential cost overruns

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Baseline Annual Savings vs. Oil

$170M[1]

20% vs. Oil
(Average $500/year per household)

- Including all infrastructure costs
- Assuming LNG goes away at **2045**
- Assuming thermal plants switch to renewable fuel at 2045
- **~$170M**/year vs. oil increases to **~$510M**/year vs. biofuels
- Volume assumption of 0.55 MTPA LNG

Additional Annual Savings

$25M[2]

from Inclusion of Bunkering Volume
(Average $70/year per household)

- Sharing LNG FSRU infrastructure costs with bunkering market further enhances savings for people in Hawai'i
- 0.4 MTPA increase in volume
- Includes the required investment into a Jones Act compliant LNG bunkering vessel

LNG infrastructure is paid back in less than 2 years

Economics remain attractive even in the event of significant delays; For example, a 3-year delay still results in ~$130M[3] annual savings

Economics remain attractive even in the event of Capex overruns; For example, a 20% increase in CAPEX still results in ~$140M[4] annual savings

1. Key Financial Model Assumptions for natural gas project: 40-year project life, estimated 2.8 TWh of annual generation, 50/50 debt-to-equity financing
2. Average reduction in estimated total revenue requirement over 40-year life of power plant
3. Assumes ~9% increase in delivered fuel cost due to 3-year COD delay for LNG infrastructure
4. Assumes 20% increase in upfront capital costs for both LNG infrastructure and power plant

Fuel flexibility: ~90% long-term infrastructure value with no fossil lock-in

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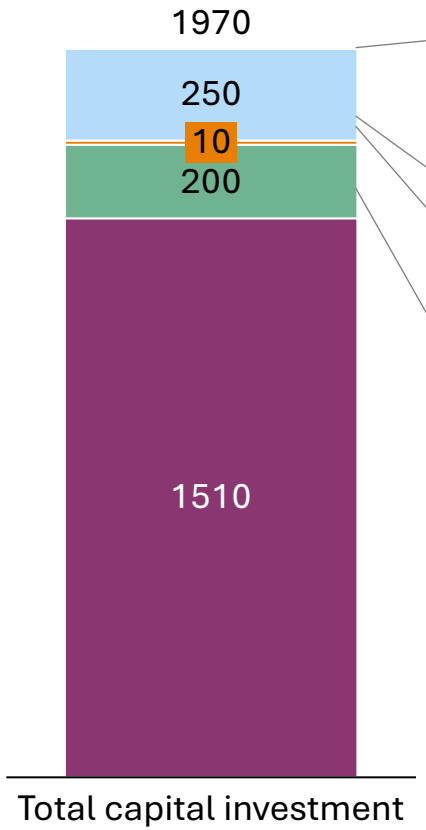
Fixed infrastructure | FSRU | Onshore pipeline | CCGT & SCGT

✓ Redeployment ready ⋯ Potential to redeploy ✗ No redeployment potential

Total capital investment, $M



Capital cost[1]	Component	Potential for redeployment
250	**Subsea pipeline, Mooring system, and ORF**	⋯ ▪ Repurposed to receive clean fuel if a new clean fuel FSRU is developed ✗ ▪ Decommissioned post-2045 if no alternative fuel imported with the re-deployment of the FSRU
10	**Onshore pipeline**	⋯ Repurposed to deliver clean fuel with modification
200	**FSRU**	✓ Stay on location and continue to supply liquefied natural gas for marine bunkering (e.g., act as a floating gas station); sell or redeploy the FSRU to other location(s)
1510	**Natural gas-fired power plant (SCGT and CCGT)**	✓ • GE F class combined cycle is ready to be adapted to renewable natural gas and potential clean hydrogen or clean ammonia operation with limited upgrades • GE LMS aeroderivative turbines able to be retrofitted for hydrogen operation

~90% of capital still productive post-2045

Key insights

- ~90% of capital investments are directed toward components with redeployment potential, such as CCGT and SCGT, onshore pipelines, and FSRU to minimize the risk of stranded assets
- Stranded investments are minimal; most LNG terminal equipment is recoverable upon FSRU redeployment

1. Including EPC, Procurement, Construction, Installation, Capital Spares and, Freight; Excluding Custom and duties, Insurance, design allowance and contingency

Source: 200452-042-0100-KBR-ENG-EST-00001 Phase 2 Cost Estimate Revision 0

A natural gas-fired power plant will advance the O'ahu power system toward all 3 core objectives

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Comparison of firm capacity options for O'ahu

O'ahu power system objectives	JERA (Natural gas)	Waiau repower (biofuel)	Waiau repower (biofuel + oil)	Kahe (Oil)
Affordability: pre-tax LCOE, $/MWh *Note: Generation is only part of the power bill*	185	362-414[1] 52 362	295-344[1] 49 295	237-243[2]
Sustainability: Cumulative greenhouse gas emissions from now to 2045, million metric ton CO2e	97	123	145	150
Reliability: Flexible capability and energy security	✓ Natural gas-based power using simple cycle or combined cycle gas turbines is fast ramping ✓ Natural gas-fired power plant enables fuel flexibility ✓ Natural gas can provide long-term offtake certainty	✓ Biofuel-based power using simple cycle or combined cycle gas turbines is fast-ramping with either biofuel or oil ✓ Biofuel-fired power plant enables fuel flexibility for dual fuel operation ✗ Large reliance on foreign oil remains due to delay in biofuels implementation (2045 operation with biofuel claimed by Waiau repower)	✗ Existing oil-based power using steam turbines is slow-ramping ✗ Oil-fired generators are ~60 years old and inflexible ✗ Large reliance on foreign oil remains	

Key insights

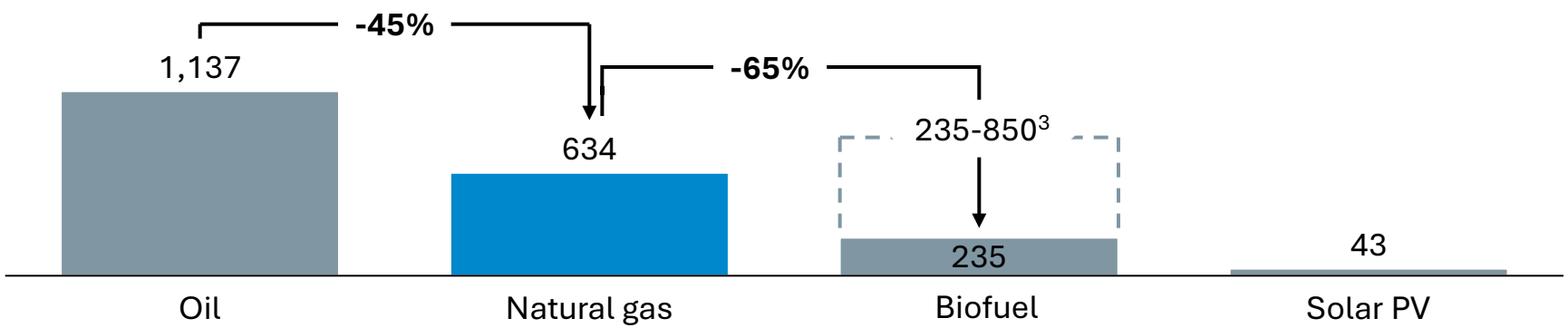
- **More affordable:** Natural gas-based power is less expensive than fully depreciated oil-based power (~20%), and imported biofuels (~50%)
- **More sustainable:** Lower cost natural gas replaces oil faster versus biofuel scenario where expensive fuel is implemented slower. This reduces cumulative CO_2 emissions through 2045 by 20%
- **More reliable:** Fast-start, fast-ramp natural gas generation stabilizes the grid and enables greater renewable integration

1. Range depends on capacity factor of Waiau repower. Lower end of range is a capacity factor of 74% (similar to natural gas-fired power plant), and higher end of range is a capacity factor of 40% (based on typical simple cycle combustion turbine capacity factor as baseload), assuming 40 years of operation; 2. Range depends on the level of maintenance capex required

Source: Alternative Fuel, Repowering, and Energy Transition Study, NREL, Hawai'i PUC Docket 2021-0024, JERA, Hawai'i PUC Docket 2025-0211 2025-03-28 HECO Waiau Repower Application

Natural gas–fired generation delivers ~45% lower emissions than oil and ~20% lower than biofuels

Lifecycle greenhouse gas emissions[2] by source, kg CO2e/MWh



Key assumptions

- Oil is imported
- Based on current EPA's Hawai'i (HICC) power plant efficiency of 32%
- Liquefied natural gas is imported from a low-methane leakage source
- Per HSEO's study and modeled natural gas-fired power plant efficiency of 46%
- Based on modeled biofuel efficiency of 32.3% from EPA in Hawai'i (HICC)
- Emissions intensity based on Pacific Biodiesel Technologies local production using imported tallow[1] (235, used for emission model) and EPA approved palm oil-based biodiesel (850)
- Solar PV module is imported from outside of Hawai'i
- Lifecycle emission factor based on photovoltaic, including one-time upstream, ongoing non-combustion, and one-time downstream, as outlined in NREL analysis

Key insights

- Natural gas–based power reduces emissions nearly in half compared to oil
- While tallow-based biofuels are ~65% less emissive, the faster scalability of natural gas leads to ~20% lower total emissions through 2045
- The natural gas lifecycle emissions profile covers the full lifecycle greenhouse gas of liquefied natural gas from production to regasification and combustion
- The 634 kg CO2e/MWh number assumes liquefied natural gas is sourced from a low methane leakage source (e.g., Canada, Australia)

1. Lifecycle emission based on PBT's historical sourced tallow from the continental US
2. Lifecycle emissions for upstream production, transportation to Hawai'i, midstream refining or conversion and downstream combustion are all included
3. Upper range sourced from Palm Oil assuming EPA approved pathway using HICC efficiency

Source: HSEO Alternative Fuel, Repowering, and Energy Transition Study, NREL, Pacific Biodiesel Technologies (PBT) Biodiesel Contract GHG Analysis. January 2022. Hawaiian Electric submission to PUC Docket 2022-0014

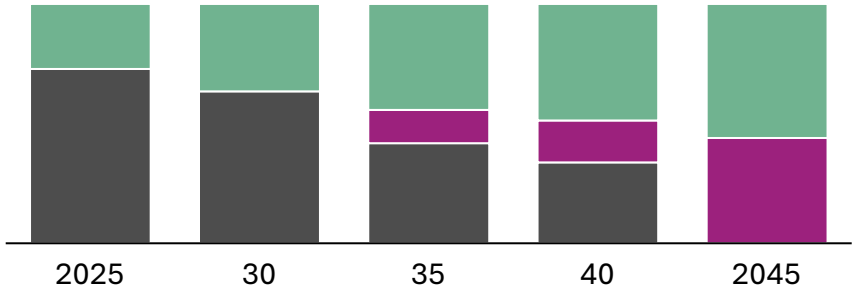
Lower cost natural gas replaces oil faster— vs biofuel scenario where expensive fuel is implemented slower

Oʻahu modeled generation mix

Renewable | Biofuel | Natural gas | Clean fuel | Oil

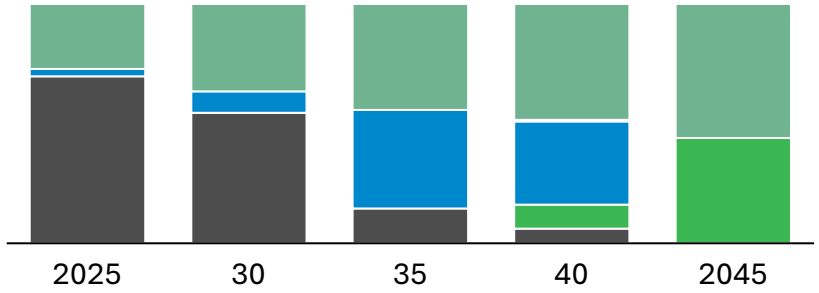
Biofuel scenario

Due to scalability constraints, biofuels (from tallow) replace oil narrowly only to meet the State's decarbonization goals targets. Until 2045, oil remains a significant source



Natural gas scenario

Natural gas can rapidly replace oil post-2030 as it is more economical. Clean fuels are blended in to meet the State's decarbonization goals



Assumptions

- All biodiesel is produced by Par Biodiesel Technologies; local production uses imported tallow with lifecycle emission of 235 kgCO2e/MWh
- Clean fuel; imported hydrogen via ammonia carriers with lifecycle emissions of 350 kgCO2e/MWh and liquefied natural gas imports at 634 kgCO2e/MWh

- Net zero for Oʻahu by 2045; 100% light-duty vehicle fleet and 50% freight vehicles are electric by 2045; 13.5 TWh load required
- All oil-fired generation replaced by clean fuels to meet the State's decarbonization goals by 2045

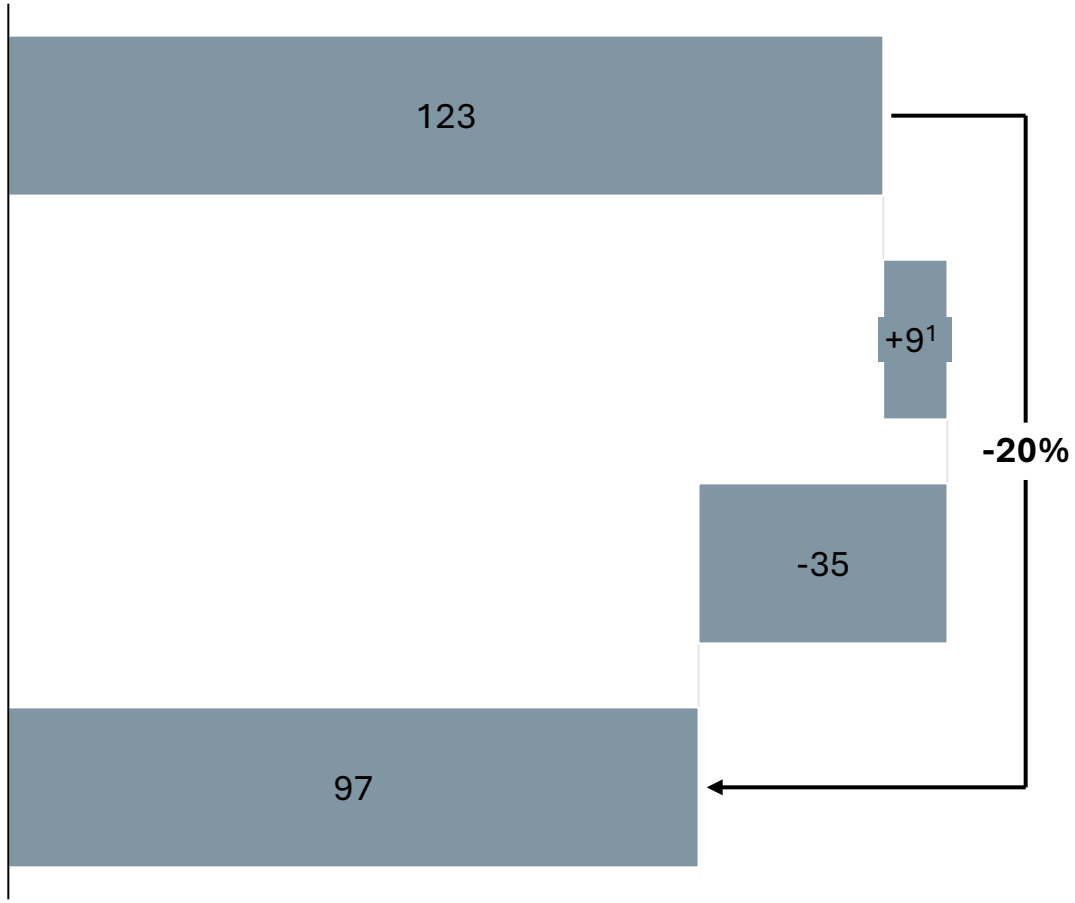
Key insights

- While biofuels have lower emissions per MWh, their slower adoption delays oil replacement, resulting in higher cumulative emissions through 2045 compared to natural gas
- Lower cost natural gas enables fast, large-scale replacement of oil post-2030, with clean fuels blended over time to meet the State's decarbonization goals
- A gas-led transition achieves earlier emissions reductions reliably while supporting renewable growth

Source: HSEO Alternative Fuel, Repowering, and Energy Transition Study, NREL

Using natural gas would lead to ~20% lower cumulative emissions through 2045 vs. relying on biofuels

Cumulative greenhouse gas emissions from 2025-2045, million metric tonnes CO2e



Key insights

- **Natural gas leads to ~20% lower emissions overall;** it can economically replace oil at scale. Biofuels cannot displace oil as quickly; a biofuels scenario would cumulatively emit more until 2045
- Replacing biofuels with natural gas would initially result in higher emissions because natural gas is more emissive per MWh than using biofuels from tallow (~634 kg CO2e/MWh vs. ~235). This conservative projection assumes tallow-based biofuel will meet power generation needs by 2045, with additional biofuel imports from other sources further widening the emissions gap

1. Based on ~30 TWh of biofuel-based generation between 2025 and 2045

Source: HSEO Alternative Fuel, Repowering, and Energy Transition Study, NREL, JERA report on Hawaiian power system

The ~$2B investment will increase GDP by ~$150M/yr, and create >1.1k high-quality jobs to O'ahu during the ~5 years of construction

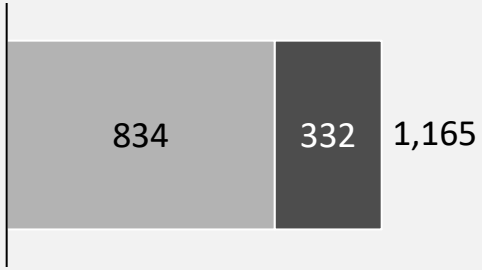
LNG infrastructure Power plant

Total investment, $M over 5 years

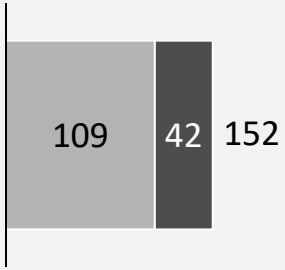
During construction (5 years)[1]

Total $1,970M

Annual jobs created during construction, number of jobs



Annual GDP added to O'ahu, $M/yr

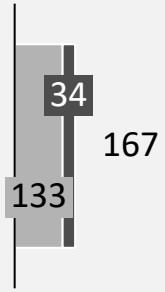


Total annual cost of service, $M/yr

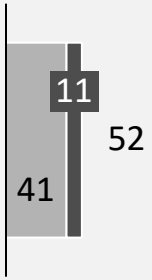
During operation (20-40 years)[2,3]

Total $670M

Permanent jobs created during operation, number of jobs



Annual GDP added to O'ahu, $M/yr



Key insights

- The project will attract ~$2B in investment, and drive ~$150M annually in GDP growth during its 5-year construction; more than 1,100 high-skill temporary jobs created for 3-5 years
- ~170 jobs created and ~$50M GDP annually to operate the power plant for 40 years

1. Exclude imported equipment, tax estimates, project contingency and design allowance, and insurance; FSRU constructed in 3 years and power plant constructed in 5 years
2. Exclude fuel-related operating costs (reliance on imports), depreciation, tax estimates, and grid upgrade (pass-through payments)
3. FSRU operation of 20 years and CCGT operation of 40 years

Source: JERA, U.S. Bureau of Labor Statistics, Lightcast

Proposal summary

- The State of Hawai‘i is facing an energy crisis with rising prices, declining reliability, and high CO_2 emissions
- With a mandate to address these challenges, HSEO studied available fuel and generation technologies, and laid out a bold plan to upgrade the existing thermal infrastructure
- Inspired by the vision of the HSEO study, JERA entered into a strategic partnering agreement (SPA) with the State aimed at addressing O‘ahu’s energy trilemma: affordability, sustainability, and reliability
- Today, JERA working with local partners, is proposing to invest ~$2B to develop a ~500MW natural gas-fired power plant and offshore LNG import infrastructure
- Through the proposed project, JERA estimates that Hawai‘i residents and businesses can save $170M a year compared to the cost of existing oil-fired generation, while reducing carbon emissions by approximately 20%
- Despite high renewable adoption statewide, the historic pace of solar development will not achieve the State’s decarbonization goals. A modern, efficient generating facility, powered by natural gas will help close the gap by strengthening grid reliability and enabling greater renewable integration
- Up to 90% of the proposed total investment is in fuel-flexible and re-deployable infrastructure, which eliminates the risk of stranded assets and prevents long-term fossil fuel lock-in

Energy for a New Era

Glossary (1/2)

	Term	Explanation
Technical terms	**SCGT (Simple-cycle gas turbine)**	A power plant that produces electricity using only a gas turbine, typically used for peaking due to fast start-up
	CCGT (Combined-cycle gas turbine)	A power plant that generates electricity using a gas turbine and a steam turbine in sequence to maximize efficiency
	LNG (Liquefied Natural Gas)	Natural gas cooled to a liquid state for efficient storage and long-distance transportation
	LSFO (Low-Sulfur Fuel Oil)	A type of fuel oil with a sulfur content of 0.5% or lower, commonly used in maritime and industrial applications to comply with environmental regulations
	FSRU (Floating Storage and Regasification Unit)	A floating facility that stores liquefied natural gas and converts it back into gas for delivery to onshore pipelines
	ORF (Onshore Receiving Facility)	A land-based LNG terminal that receives liquefied natural gas, stores it, regasifies it, and delivers natural gas into the pipeline system
	LCOE (Levelized Cost of Energy)	The average total cost of generating electricity over a plant's lifetime per unit of energy produced
	COD (Commercial Operation Date)	The date on which a facility has completed testing and is officially declared fully operational for commercial service
	BESS (Battery Energy Storage System)	A system of batteries and associated equipment used to store electricity and discharge it later to provide energy, capacity, or grid services
	FEED (Front-End Engineering Design)	The detailed engineering phase that defines a project's technical scope, cost estimate, and execution plan prior to final investment approval
	FID (Final Investment Decision)	The formal decision by project sponsors to commit capital and proceed with project execution based on finalized technical, commercial, and financial terms
Units	**MWh (Megawatt-hour)**	A unit of energy equal to one megawatt (10^6) of power supplied for one hour
	TWh (Terawatt-hour)	A unit of energy equal to one terawatt (10^9) of power supplied for one hour
	MMBtu (Million British Thermal Units)	A standard unit of energy commonly used to measure natural gas volumes
	GW (Gigawatt)/MW (Megawatt)	A unit of power commonly used to express large-scale generation capacity
	MTPA (Million Tonnes Per Annum)	A unit of capacity used to measure annual fuel production, export, or import volumes

Glossary (2/2)

	Term	Explanation
Stake-holders	**HSEO (Hawai‘i State Energy office)**	State agency dedicated to leading Hawai‘i's transition to a 100% clean energy economy by developing policies and programs that promote energy efficiency, renewable energy, and grid resiliency
	PUC (Public Utilities Commission)	A government regulatory body that oversees utilities to ensure safe, reliable service and fair rates; In Hawai‘i, PUC oversees Hawai‘i’s electric, gas, water, and telecommunications utilities
	HECO (Hawaiian Electric Company)	The vertically integrated electric utility serving the island of O‘ahu, responsible for generation, transmission, and dispatch of electricity
	IPP (Independent Power Producer)	A non-utility company that develops, owns, and operates power generation assets and sells electricity under contract or into the market, without owning transmission or distribution networks
Regulatory terms	**IGP (Integrated Grid Planning)**	A long-term planning document outlining how a utility will develop generation, transmission, and resources to meet future demand reliably and cost-effectively
	SPA (Strategic Partnering Agreement)	The SPA is an agreement between JERA and the State of Hawai‘i to support Hawai‘i’s decarbonization goals and energy transition

State of Hawaii
Public Utilities Commission
(https://puc.hawaii.gov/)

Kendrick Chang

E-Filing Submission Confirmation

(/cdms/s/tile/e-filing-submission-confirmation-MC5JXXAWSR3JGJDIZAZMXMGMSJSY)

Your electronic filing to the Hawaii Public Utilities Commission has been **SUBMITTED**. You will receive an email when the filing has been filed and when it is public.

Please note filings received after normal Commission business hours, i.e., 7:45 a.m. to 4:30 p.m. except Saturdays, Sundays, and State of Hawaii holidays, shall not be deemed "FILED" until the start of the next PUC business day.

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Kendrick Chang

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