



March 31, 2020

The Honorable Chair and Members of the
Hawai'i Public Utilities Commission
465 South King Street, First Floor
Kekuanaoa Building
Honolulu, Hawai'i 96813

Dear Commissioners:

Subject: Transmittal No. 13-07 – Schedules EV-F and EV-U
Hawaiian Electric's Annual Report

In accordance with Ordering Paragraph 1.C of Decision and Order No. 31338, filed July 1, 2013 in regard to Transmittal Nos. 13-07 and 13-08 (consolidated), as modified by Decision and Order No. 34592, filed June 2, 2017 in Docket No. 2016-0168, Hawaiian Electric respectfully submits its *Annual Report on the Progress and Status of the Commercial Public Electric Vehicle Charging Service Pilot Rates*.¹

Sincerely,

/s/ Kevin M. Katsura

Kevin M. Katsura
Director
Regulatory Non-Rate Proceedings

cc: Division of Consumer Advocacy

¹ Hawaiian Electric Company, Inc., Maui Electric Company, Limited and Hawaii Electric Light Company, Inc. are collectively referred to as "Hawaiian Electric."

Hawaiian Electric's Electric Vehicle Pilot Rates Report

Annual Report on the Progress and Status of the Commercial Public Electric Vehicle Charging Service Pilot Rates

Transmittal No. 13-07

March 31, 2020

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Executive Summary

In 2019, Hawaiian Electric built upon its growing momentum in the electrification of transportation (“EoT”), with the development of programs and actions keeping pace with the growing population of electric vehicle (“EV”) drivers.¹ The Company’s various efforts align with the *Electrification of Transportation Strategic Roadmap* (“Roadmap”),² which provides key near-term steps, benefit and cost analyses, and ten EoT Initiatives. These initiatives will contribute to the State’s clean energy vision and create economic benefits for all customers.

The Company’s public charging efforts discussed herein align with “Initiative # 7 – Expand availability of public charging,” in the Roadmap, which recommends accelerating the buildout of charging infrastructure to provide “a critical backbone of reliable, public utility-owned charge stations as the launching point from which the broader electric transportation and third-party charging market in Hawai‘i can expand and solidify.”³ Hawaiian Electric filed its *Critical Backbone Study: Planning Methodology* (“Backbone Study”) on July 30, 2019, further informing the development of charging infrastructure to support the adoption of EVs.⁴ In accordance with Order No. 36448 issued on July 31, 2019, the Company filed a Workplan on October 29, 2019 describing the near-term actions to evaluate a suite of EV rates and developing make-ready infrastructure pilot programs.⁵

Executing on the Roadmap Initiative #7, key highlights in 2019 include:

- Expanded the Company’s Direct Current Fast Charge (“DCFC”) network by three additional charge stations, two on O‘ahu and one on Hawai‘i Island;
- Overall utilization increased from 2018 to 2019, reflecting a 44 percent increase in number of sessions and a 35 percent increase in amount of energy consumed; and
- Overall 55% of the utilization in 2019 occurs during the mid-day period of 9 AM-5 PM.

¹ Hawaiian Electric Company, Inc., Hawai‘i Electric Light Company, Inc., and Maui Electric Company, Limited are collectively referred to herein as “Hawaiian Electric” or the “Company.”

² Docket No. 2018-0135, Decision & Order No 3452 filed March 29, 2018 and updated November 29, 2018.

³ Docket No. 2018-0135, Electrification of Transportation Strategic Roadmap filed March 29, 2018 at 7.

³ Transmittal No. 18-06 filed December 19, 2018.

⁴ Docket No. 2018-0315, Electrification of Transportation Electric Vehicle Critical Backbone Study: Planning Methodology filed July 30, 2019.

⁵ Docket No. 2018-0315, Electrification of Transportation Strategic Roadmap Companies’ Electrification of Transportation Workplan filed October 29, 2019.

Background

2019 will be the sixth full year of this pilot program,⁶ and this report provides year ending December 31, 2019 information on the status of implementing Schedule EV- U: Commercial Public Electric Vehicle Charging Service and Schedule EV-F: Commercial Public Electric Vehicle Facility Charging Service Pilot.⁷

Initially in 2013, Schedule EV-U was intended to support the EV market by allowing the Company to install and operate public EV charging facilities in strategic locations to address range anxiety, support the rental EV market, and increase EV acceptance by residents in multi-unit dwellings (“MUDs”). Schedule EV-F was intended to support clean energy goals by encouraging “the development of public EV charging facilities by pricing electricity at levels that are lower than Schedule EV-C⁸ and Schedule J at lower energy consumption levels for start-up EV public charging operators.”⁹

In mid-2016, the Company requested to extend the termination date of the pilot program.¹⁰ A year later,¹¹ the Commission approved a five-year extension of the pilot program and request to convert the rate from a fixed fee rate to a volumetric rate on the condition that the Company submit revised rate structures for Schedule EV-U and Schedule EV-F within ninety days and comply with applicable requirements.¹² On December 12, 2017, the Company implemented the revised rate structure for Schedules EV-U and EV-F for all participating accounts.¹³

⁶ On July 3, 2013, in accordance with Decision and Order No. 31338, Hawaiian Electric filed its commercial rates Schedule EV-F and Schedule EV-U to be effective July 4, 2013.

⁷ In accordance with Ordering Paragraph 1.C. of Decision and Order No. 31338, filed July 1, 2013 in Transmittal Nos. 13-07 and 13-08 (consolidated), as explicitly modified by Decision and Order No. 34592 (“D&O 34592”), filed June 2, 2017 in Docket No. 2016-0168.

⁸ By Decision and Order No. 33165 issued on September 25, 2015, the Commission approved “the Companies’ request to terminate Schedule EV-C, as of October 1, 2015” and “suspend[ed] the Companies’ request to establish their proposed Schedules TOU EVD, EV-RD, and EV-CD.”⁸ Therefore, as of October 1, 2015 Schedule EV-F is the only commercial EV rate available for EV charging services.

⁹ Transmittal No. 13-07 at 22.

¹⁰ On June 27, 2016, the Company filed a request to extend the termination date for Schedule EV-F and Schedule EV-U from June 30, 2018 to June 30, 2028. On July 5, 2016, the Commission issued Order No. 33783 and opened Docket No. 2016-0168 for the purpose of reviewing the Company’s request. On September 15, 2016, the Commission issued Order No. 33918, establishing the procedural schedule. On November 18, 2016, the Company filed its Reply Statement of Position thereby completing the procedural schedule.

¹¹ On June 2, 2017, the Commission issued D&O 34592, approving a five-year extension of the pilot.

¹² The Commission provided further guidance that the revised rate structures for Schedule EV-F and Schedule EV-U should (1) align Schedule EV-F and Schedule EV-U to TOU rates developed within Docket No. 2014-0192, (2) “incorporate lessons learned from time of use rates and demand response initiatives”¹² into the revised rate structures, (3) contemplate various business and EV charging models that may be facilitated through various technologies, and (4) be “proactive in proposing revised rate structures and tariffs as research, technology, and market-related changes occur.”¹² The Commission also required the Company to include discussion on efforts to forecast anticipated utilization in subsequent EV charging deployments and how costs for EV charging deployments have been and are anticipated to be recovered from customers.¹² On September 5, 2017, the Company submitted revised rate structures and accompanying tariff sheets for Schedules EV-F and EV-U. On October 13, 2017, the Commission issued Decision and Order No. 34867, approving the Company’s revised tariff sheets for Schedules EV-F and EV-U, to be implemented within 60 days.

¹³ Rate Schedules EV-F and EV-U currently align to the guidance provided by the Commission in D&O 34592 by providing the lower energy cost during the Mid-Day period. The time of use periods are currently: On-Peak: 5:00 p.m.-10:00 p.m., Daily; Mid-Day: 9:00 a.m.-5:00 p.m., Daily; Off-Peak: 10:00 p.m.-9:00 a.m., Daily.

Schedule EV-U is currently a variable rate based on electricity consumption, and includes incremental costs for network fees, non-labor operations and maintenance (“O&M”) and customer surcharges.¹⁴ The intent of the revised rate structure is to charge customers based on their actual electricity consumption, while aligning to a time-of-use (“TOU”) structure that reflects system needs and incorporating additional pilot costs to alleviate some of the cost shift between participating EV customers and the Company’s broader customer base as a whole.

Schedule EV-U Tariff

Adoption of EV-U and status of Schedule EV-U Tariff

Electric vehicle usage continued to grow in 2019, with the adoption of passenger EVs increasing by 13 percent in the Company’s service territory as shown in Figure 1 below.¹⁵ Despite this growth, EVs only represent approximately one percent of the overall passenger vehicles registered in the State. The EV market remains nascent but is anticipated to experience tremendous growth in the next few decades, with the Company forecasting that one in every two vehicles will be electric by 2045.¹⁶

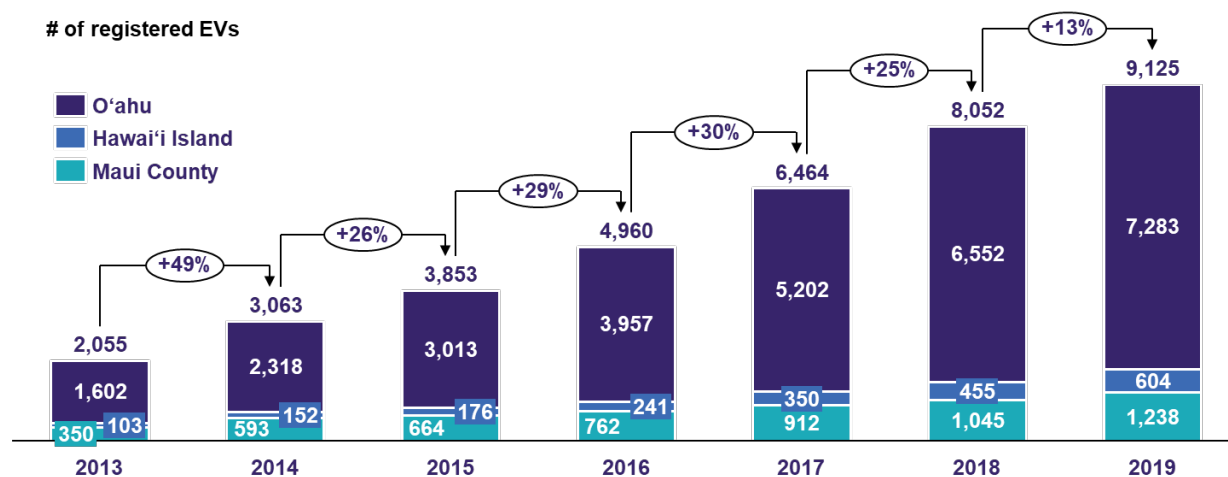


Figure 1 Electric vehicle adoption in the Company’s service territory since the start of the pilot program.

In 2017 the Commission approved the Company’s request to extend the EV-U and EV-F pilot program for an additional five years,¹⁷ allowing the Company additional time to implement the authorized 25 fast charge stations and collect data to evaluate the impact of the program as well as the efficacy of the approved rates. As displayed in Figure 2 below, the Company has installed approximately 68 percent of the charging stations allowed in the pilot program to date, including three new additions in 2019 — two on O’ahu and one on Hawai’i Island. Within the next two years, the Company is targeting to install the

¹⁴ See Revised Rate Structures for Schedules EV-F and EV-U, filed on September 5, 2017 Attachment 1 at 8-9.

¹⁵ Source <http://dbedt.hawaii.gov/economic/energy-trends-2/> showing December 2019 data. There was a drop in the number of electric vehicles in October 2019 due to the use of a data filtering system by county agencies. The data filter system was lifted in January 2020. (<https://www.staradvertiser.com/2020/02/21/breaking-news/electric-vehicles-top-11k-in-hawaii/>)

¹⁶ Docket No. 2018-0135, Decision & Order No. 34592 filed March 29, 2018 at 34.

¹⁷ See id. The original pilot was scheduled to end in 2018.

remaining approved charge stations, thereby allowing time to collect data and analyze proposed changes during the pilot tenure, as shown in Figure 3 below.

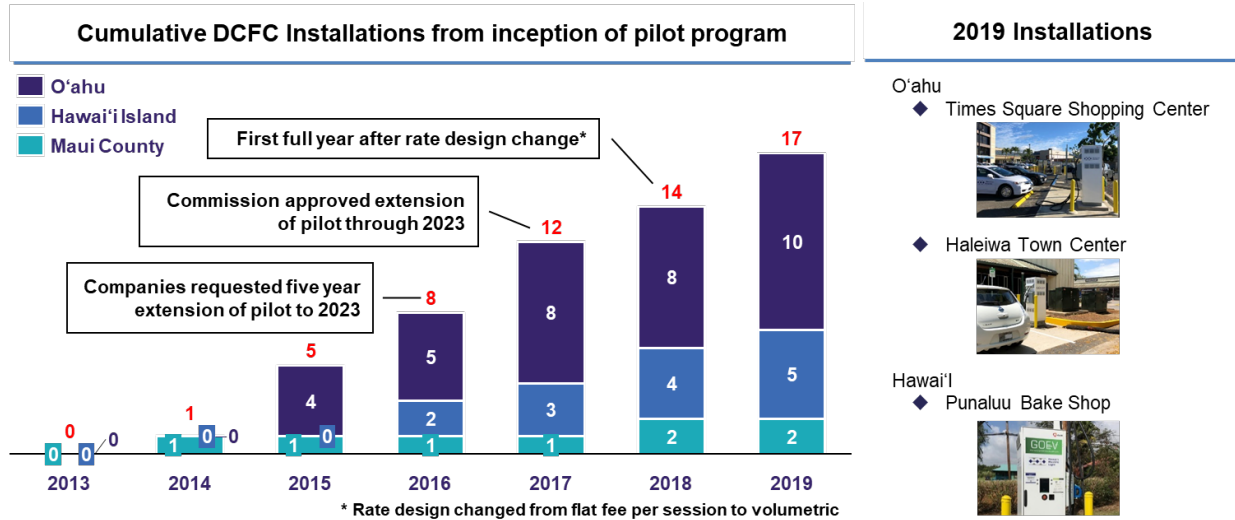


Figure 2 Summary of DCFC stations installed since inception of the pilot program in 2013.

| | Initial approval (5 years) | | | | | | | Extension approved in 2017 (+5 years) | | | |
|-------------------------|----------------------------|------|------|------|------|------|------|---------------------------------------|------|------|------|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| O'ahu | 0 | 0 | 4 | 1 | 3 | 0 | 2 | 3 | 2 | 0 | 0 |
| Hawai'i Island | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| Maui | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Moloka'i | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Lāna'i | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Annual Total | 0 | 1 | 4 | 3 | 4 | 2 | 3 | 4 | 4 | 0 | 0 |
| Cumulative Total | 0 | 1 | 5 | 8 | 12 | 14 | 17 | 21 | 25 | 25 | 25 |

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-----------------------|------|-----------------|---|--------------------------|---------------------------------|------------------------|--|--|------|------|------|
| O'ahu | | | Dole Koolau Kapolei Hawaii-Kai | Ward 1 | Ward 2 Waianae Dillingham | | Waimalu Times Square SC Haleiwa Town Center | Continue to work with site owners to install charge stations as soon as possible, allowing the Companies time to evaluate changes introduced as part of the pilot program | | | |
| Hawai'i Island | | | | HELCO-Hilo HELCO-Kona | Waimea | Shops at Mauna Lani | Punaluu | | | | |
| Maui | | MECO Kahului | | | | | | | | | |
| Moloka'i | | | | | | Kaunakakai | | | | | |
| Lāna'i | | | | | | | | | | | |

Figure 3 Historic and forecasted levels of installation of the twenty-five allowed charge stations.

Utilization across the Company's Service Territory

In 2019, the Company experienced another increase in the overall number of charging sessions (see Figure 4 below) and amount of energy consumed (measured in kilowatt-hours (“kWh”)) across the service territory (see Figure 5 below).

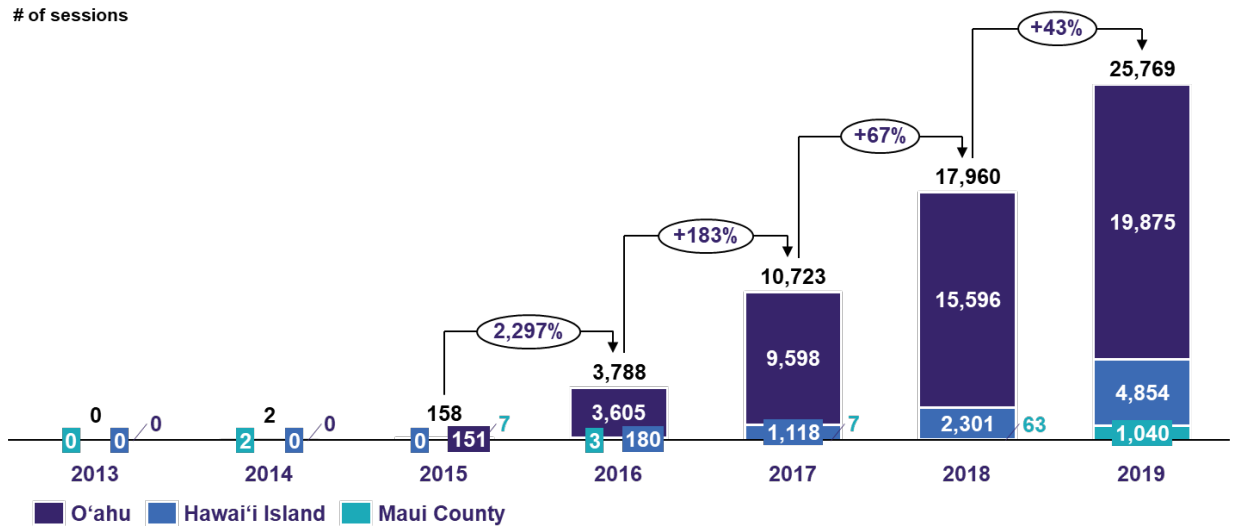


Figure 4 Summary of all three utilities' utilization by number of sessions for 2013 to 2019.

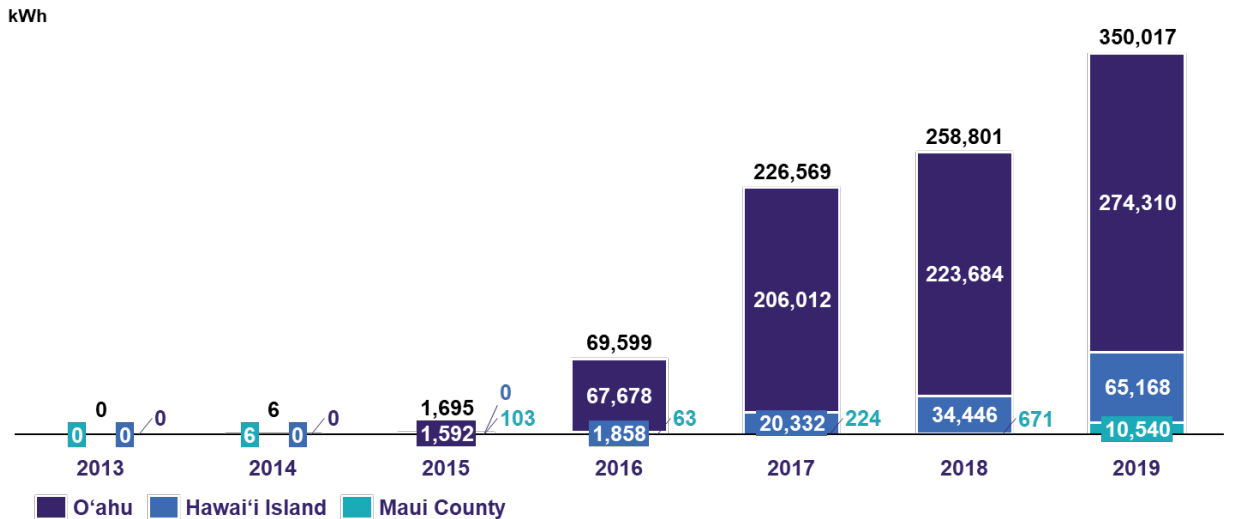


Figure 5 Summary of all three utilities' utilization by energy consumed (kWh) for 2017 and 2018.

On November 1, 2018, the Company launched a partnership with Nissan North America and Greenlots, Inc. to host the No Charge to Charge (“NCTC”) program in its service territory. The NCTC program provides up to two years of complimentary fast charging through the Greenlots charging network, with a qualifying purchase or lease of a new Nissan LEAF on or before July 7, 2019 from LEAF-certified Nissan

dealers in Hawai'i.¹⁸ A summary of the number of NCTC sessions in 2019 by location is illustrated in Figure 6 below and the energy consumption of the NCTC sessions in 2019 by location is shown in Figure 7 below. These charging sessions are included in the Company's reported data that follows.

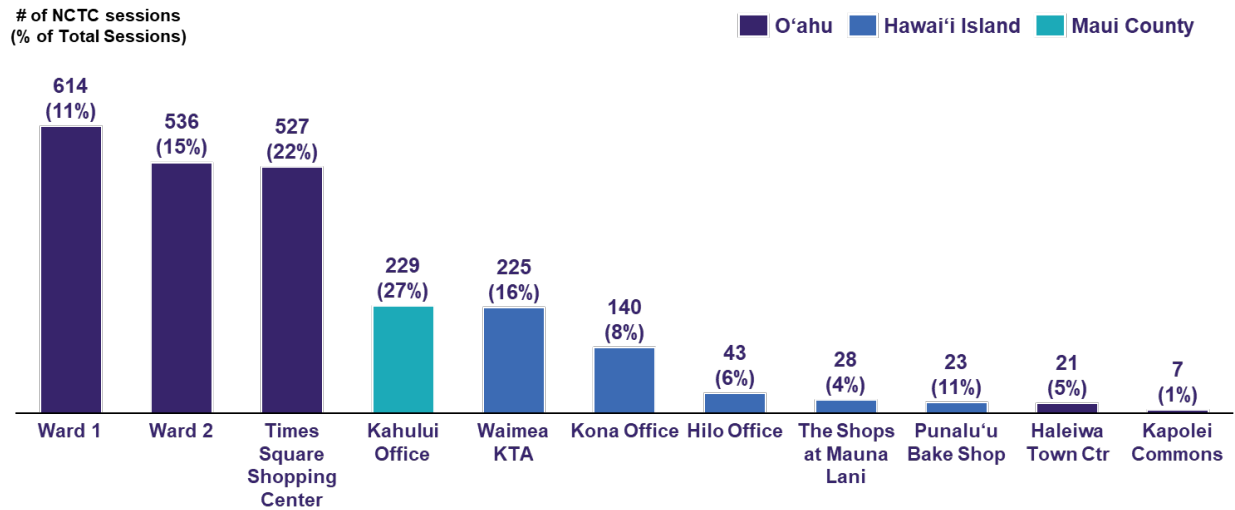


Figure 6 Number of 2019 No Charge to Charge (“NCTC”) Sessions.

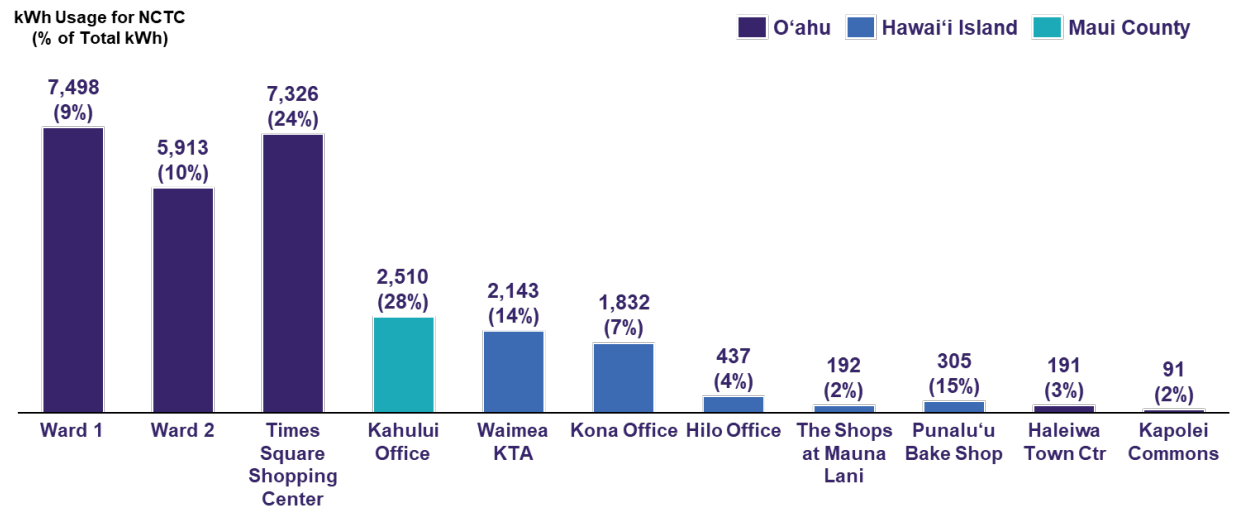


Figure 7 Energy Consumption of 2019 No Charge to Charge (“NCTC”) Sessions.

¹⁸ <https://www.evgo.com/special-offers/nissan-no-charge-charge/>.

Utilization on O’ahu

Two additional charge stations were installed on O’ahu in 2019, which contributed to the increase in overall utilization by 27 percent from 2018 to 2019. The monthly overall utilization for the DCFC sites on O’ahu is shown in Figure 8 below.

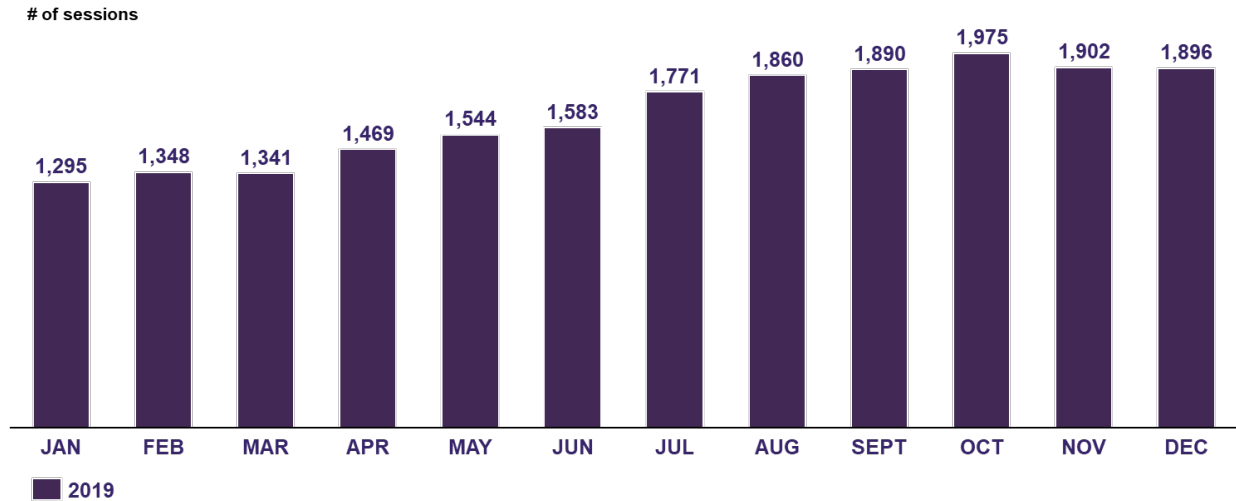


Figure 8 Monthly utilization on O’ahu for 2019 for all ten DCFC sites.

In 2019, the O’ahu fast charging stations accounted for 77 percent of all the charge sessions in the pilot, reflecting the preponderance of EVs in the City and County of Honolulu, which comprises 81 percent of all the EVs registered in the Company’s service territory.

The overall utilization for all but two individual charge stations on O’ahu increased from 2018 to 2019, between 3 and 33 percent, as shown in Figure 9 below. The Kapolei Commons DCFC has been out of service since July 2019 and is no longer supported by the manufacturer. In 2019, the Company installed a DCFC at the Kapolei Shopping Center which became publicly available in January 2020. Although the Ward 2 charge station indicated a decrease in utilization, it is co-located with the Ward 1 charge station such that the total for the Ward site location shows an increase of 8.5% from 2018 to 2019.

of sessions

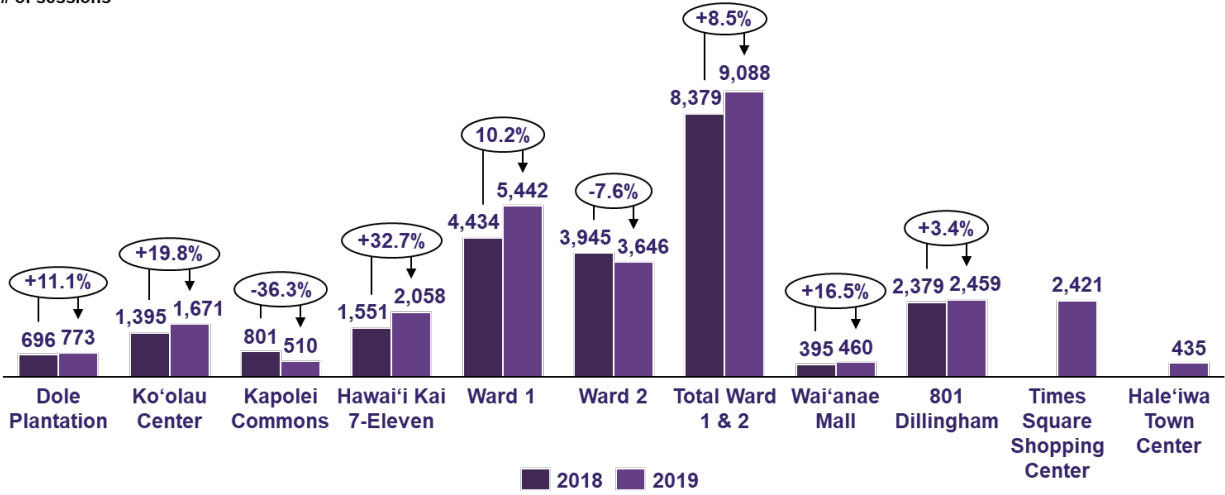


Figure 9 Annual utilization on O'ahu for 2018 and 2019 for all ten DCFC sites.

Similar to the overall utilization, the overall energy consumption for all but the same two locations on O'ahu increased from 2018 to 2019, between 2 and 40 percent, as shown in Figure 10 below.

kWh

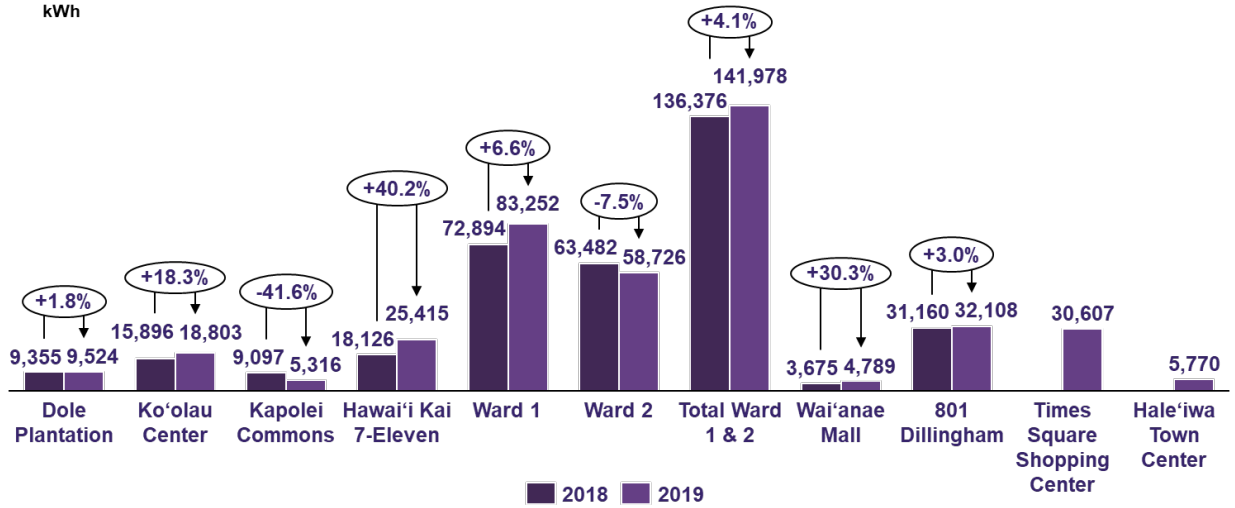


Figure 10 Annual energy consumption on O'ahu for 2018 and 2019 for all ten DCFC sites.

A summary for each DCFC site is provided below with additional details provided in Appendix A.

Dole Plantation

While the DCFC station at Dole Plantation is not located near residential neighborhoods, this strategic tourist location is one of the major thoroughfares to the North Shore of O’ahu, which has little availability of public EV charging. Dole Plantation experienced an increase of 11 percent in total charge sessions in 2019 from 2018.

Usage period analysis shows that most of the charge sessions at this location continue to be during the Mid-Day period. Like 2018, in 2019, Mid-Day sessions comprised 83 percent of all sessions, which is the highest percentage of the charge stations on O’ahu. This result may be partially attributed to Dole Plantation’s business hours of 9:30 a.m. to 5:30 p.m., although access to this charge station is sometimes extended beyond normal business hours.

Figure 11 below summarizes the key statistics collected for the Dole Plantation site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|-------|
| % utilization | | |
| Off-Peak | 7% | 9.2% |
| Mid-Day | 83% | 83.4% |
| On-Peak | 10% | 7.4% |
| Energy (kWh) per session | | |
| Off-Peak | 14 | 10 |
| Mid-Day | 14 | 13 |
| On-Peak | 11 | 12 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 7.33 | 5.36 |
| Mid-Day | 6.70 | 6.18 |
| On-Peak | 6.47 | 6.89 |
| Minutes (min) per session | | |
| Off-Peak | 27 | 23 |
| Mid-Day | 28 | 28 |
| On-Peak | 21 | 24 |

Figure 11 Comparison of Dole Plantation site statistics for 2018 and 2019.

Ko'olau Center

Similar to Dole Plantation, Ko'olau Center is on a thoroughfare that provides access to the north side of O'ahu where there are limited public charging options. Ko'olau Center experienced an increase of 20 percent in total charge sessions in 2019 from 2018. In 2019, the Mid-Day and On-Peak periods increased in utilization while the Off-Peak periods decreased. Although there are more sessions during the Mid-Day, energy consumption and duration of charge sessions show little variability across all time periods.

Figure 12 below summarizes the key statistics collected for Ko'olau Center site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|------|
| % utilization | | |
| Off-Peak | 26% | 16% |
| Mid-Day | 54% | 60% |
| On-Peak | 20% | 24% |
| Energy (kWh) per session | | |
| Off-Peak | 12 | 10 |
| Mid-Day | 11 | 12 |
| On-Peak | 12 | 11 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 6.25 | 5.27 |
| Mid-Day | 5.38 | 5.76 |
| On-Peak | 7.00 | 6.27 |
| Minutes (min) per session | | |
| Off-Peak | 25 | 24 |
| Mid-Day | 25 | 27 |
| On-Peak | 27 | 26 |

Figure 12 Comparison of Ko'olau Center site statistics for 2018 and 2019.

Kapolei Commons

This CHAdeMO-only charge station is situated in a shopping center in proximity to large residential neighborhoods along a major highway thoroughfare. Unfortunately, this station was out of service for the second half of 2019, which is why the utilization was about 36% less in 2019 compared to 2018 (see Figure 9 above).

Comparing the data from the first half of 2019 to 2018, the utilization results are similar. In 2019, 29 percent of all sessions were initiated during the On-Peak period, with 52 percent occurring during the Mid-Day, and 19 percent during the Off-Peak periods.

Figure 13 below summarizes the key statistics collected for the Kapolei Commons site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|------|
| % utilization | | |
| Off-Peak | 15% | 19% |
| Mid-Day | 54% | 52% |
| On-Peak | 30% | 29% |
| Energy (kWh) per session | | |
| Off-Peak | 11 | 10 |
| Mid-Day | 11 | 10 |
| On-Peak | 12 | 11 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 6.18 | 5.36 |
| Mid-Day | 5.48 | 5.10 |
| On-Peak | 6.63 | 6.14 |
| Minutes (min) per session | | |
| Off-Peak | 26 | 27 |
| Mid-Day | 25 | 29 |
| On-Peak | 34 | 30 |

Figure 13 Comparison of Kapolei Commons site statistics for 2018 and 2019.

Hawai'i Kai 7-Eleven

This charge station is located amongst residential houses and condominiums. Its close proximity to condominiums may have contributed to its continued increase in utilization, which was the highest increase among all the sites on O'ahu at 33 percent higher in 2019 than 2018. EV owners living in condominiums and townhouses without a garage often need to rely on public charging stations, such as this one, for their vehicle charging needs.

Additional evidence supporting this conclusion is the fact that this location recorded higher On-Peak utilization and is among the lowest Mid-Day utilization of any O'ahu DCFC stations. 52 percent of the sessions started during the Mid-Day, 31 percent started during the On-Peak, and 17 percent started during the Off-Peak. This could be influenced by work and commuter patterns of EV drivers in Hawai'i Kai.

Figure 14 below summarizes the key statistics collected for the Hawai'i Kai 7-Eleven site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|------|
| % utilization | | |
| Off-Peak | 18% | 17% |
| Mid-Day | 53% | 52% |
| On-Peak | 29% | 31% |
| Energy (kWh) per session | | |
| Off-Peak | 13 | 12 |
| Mid-Day | 11 | 12 |
| On-Peak | 12 | 14 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 6.80 | 6.74 |
| Mid-Day | 5.60 | 5.68 |
| On-Peak | 6.61 | 7.73 |
| Minutes (min) per session | | |
| Off-Peak | 29 | 27 |
| Mid-Day | 28 | 26 |
| On-Peak | 27 | 28 |

Figure 14 Comparison of Hawai'i Kai 7-Eleven site statistics for 2018 and 2019.

Ward 1

DCFC stations Ward 1 and Ward 2 are co-located at the Hawaiian Electric building on Ward Avenue. It is situated near the growing density of high-rise condominiums and close to many office buildings and the downtown Honolulu district. These two charge stations comprise the only DC fast charging hub on the island of O’ahu, and it is currently the only location that can provide two simultaneous 50 kW DCFC sessions in the State. It is not only the location, but also the reliance on co-located DCFC stations, that accounts for their combined 46 percent of all charge sessions on O’ahu and 35 percent in this DCFC pilot based on 2019 data. In 2019, Ward 1 experienced 10 percent more charge sessions than in 2018. This charge station is the highest utilized charge station in the pilot accounting for 21 percent of all charge sessions in 2019. This slightly eclipses Ward 2 and is likely due to Ward 1 being the first parking stall when entering from Ward Avenue and its 16-foot wide handicap-accessible size.

Ward 1 also has the lowest percentage of Mid-Day utilization of all the stations in the pilot. The Mid-Day utilization was about 49 percent in 2019, while almost 27 percent of all sessions started during the On-Peak period, and 25 percent of all sessions started during the Off-Peak period. This lower Mid-Day utilization may be attributed to work hours and it is the only Hawaiian Electric DCFC station not located at a restaurant or shopping area. Ward 1 and Ward 2 (below) have the highest energy (kWh) per session than all other O’ahu DCFC locations.

Figure 15 below summarizes the key statistics collected for Ward 1 site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|-------|
| % utilization | | |
| Off-Peak | 24% | 24.8% |
| Mid-Day | 48% | 48.6% |
| On-Peak | 28% | 26.6% |
| Energy (kWh) per session | | |
| Off-Peak | 15 | 15 |
| Mid-Day | 17 | 16 |
| On-Peak | 17 | 15 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 8.16 | 8.15 |
| Mid-Day | 8.23 | 7.71 |
| On-Peak | 9.66 | 8.37 |
| Minutes (min) per session | | |
| Off-Peak | 25 | 31 |
| Mid-Day | 27 | 31 |
| On-Peak | 27 | 30 |

Figure 15 Comparison of Ward 1 site statistics for 2018 and 2019.

Ward 2

As noted above, the Ward 2 DCFC station is co-located with Ward 1 at the Hawaiian Electric office on Ward Avenue. Ward 2 is the second most utilized charge station and accounts for 14 percent of all charge sessions in the pilot in 2019 despite the overall utilization decreased almost 8 percent from 2018.

This charge station has the third-lowest percentage Mid-Day utilization of all the stations in the pilot. The Mid-Day utilization was 51 percent in 2019, while 29 percent of all sessions started during the On-Peak, and 20 percent of all sessions started during the Off-Peak. Ward 2 and Ward 1 (above) have the highest energy (kWh) per session than all other O’ahu DCFC locations.

Figure 16 below summarizes the key statistics collected for Ward 2 site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|------|
| % utilization | | |
| Off-Peak | 21% | 20% |
| Mid-Day | 50% | 51% |
| On-Peak | 30% | 29% |
| Energy (kWh) per session | | |
| Off-Peak | 15 | 16 |
| Mid-Day | 17 | 16 |
| On-Peak | 16 | 16 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 8.09 | 8.70 |
| Mid-Day | 8.12 | 7.96 |
| On-Peak | 9.17 | 9.05 |
| Minutes (min) per session | | |
| Off-Peak | 26 | 33 |
| Mid-Day | 28 | 32 |
| On-Peak | 28 | 32 |

Figure 16 Comparison of Ward 2 site statistics for 2018 and 2019.

Wai'anae Mall

This charge station is located at a shopping center amongst restaurants and stores, and near residential neighborhoods along a highway thoroughfare. While it has one of the lowest utilizations of all Hawaiian Electric DCFC stations on O'ahu, it is currently the westernmost public charging station of any type along Farrington Highway on the west side of the island. This location provides EV drivers assurance they can travel to and from the leeward coast and encourages EV adoption in this important area. This charge station recorded almost 17 percent more charge sessions in 2019 than in 2018.

This charge station has relatively high Mid-Day utilization, which may in part be due to its convenient shopping center location. In 2019, 66 percent of its charge sessions started during the Mid-Day, almost 21 percent of all sessions started during the On-Peak, and 14 percent of all sessions started during the Off-Peak.

Figure 17 below summarizes the key statistics collected for Wai'anae Mall site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|-------|
| % utilization | | |
| Off-Peak | 17% | 13.7% |
| Mid-Day | 63% | 65.7% |
| On-Peak | 21% | 20.5% |
| Energy (kWh) per session | | |
| Off-Peak | 9 | 10 |
| Mid-Day | 9 | 11 |
| On-Peak | 10 | 10 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 4.70 | 5.38 |
| Mid-Day | 4.54 | 5.25 |
| On-Peak | 5.63 | 5.54 |
| Minutes (min) per session | | |
| Off-Peak | 24 | 25 |
| Mid-Day | 25 | 29 |
| On-Peak | 24 | 21 |

Figure 17 Comparison of Wai'anae Mall site statistics for 2018 and 2019.

801 Dillingham

This charge station is in a large parking lot near several big-box stores and restaurants, which may have contributed to its slightly lower Off-Peak utilization. In 2019, 12 percent of its charge sessions started during the Off-Peak, 61 percent of all sessions started during the Mid-Day, and 27 percent of all sessions started during the On-Peak. 801 Dillingham experienced an overall increase of about 3 percent in total charge sessions in 2019 from 2018.

Figure 18 below summarizes the key statistics collected for 801 Dillingham site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|------|
| % utilization | | |
| Off-Peak | 15% | 12% |
| Mid-Day | 59% | 61% |
| On-Peak | 26% | 27% |
| Energy (kWh) per session | | |
| Off-Peak | 14 | 15 |
| Mid-Day | 14 | 13 |
| On-Peak | 11 | 12 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 7.57 | 8.32 |
| Mid-Day | 6.65 | 6.37 |
| On-Peak | 6.54 | 6.93 |
| Minutes (min) per session | | |
| Off-Peak | 32 | 34 |
| Mid-Day | 32 | 32 |
| On-Peak | 28 | 29 |

Figure 18 Comparison of 810 Dillingham site statistics for 2018 and 2019.

Times Square Shopping Center

A fast charging station was constructed at Waimalu Times Square Shopping Center and opened to the public in January 2019. While one dual-standard 50 kW DCFC was installed, the underlying electrical infrastructure was designed to support 150 kW. The Company employed this approach to enable future flexibility if/when technology or customer needs change. Extra capacity wiring enables the Company to easily install additional fast charge stations or upgrade to a higher powered DCFC station if deemed appropriate in the future.

The Waimalu Times Square Shopping Center location was selected due to its population density, high penetration of MUDs, resident commuters, jobs, and traffic density. The presence of this new DCFC station could immediately support existing commuters, but more importantly foster EV adoption in the area.

For its first year in operation, this site is the fourth highest utilized on O’ahu, has longer duration per session than most other sites, and energy consumption and gross revenue per session are similar to the other sites.

Figure 19 below summarizes the key statistics collected for Times Square Shopping Center site in 2019.

| | | 2019 |
|---------------------------------------|--|------|
| % utilization | | |
| Off-Peak | | 19% |
| Mid-Day | | 49% |
| On-Peak | | 32% |
| Energy (kWh) per session | | |
| Off-Peak | | 12 |
| Mid-Day | | 13 |
| On-Peak | | 12 |
| Gross Revenue (\$) per session | | |
| Off-Peak | | 6.59 |
| Mid-Day | | 6.56 |
| On-Peak | | 6.71 |
| Minutes (min) per session | | |
| Off-Peak | | 29 |
| Mid-Day | | 29 |
| On-Peak | | 27 |

Figure 19 Times Square Shopping Center site statistics for 2019.

Haleiwa Town Center

A fast charging station was constructed at Haleiwa Town Center and opened to the public in June 2019. This strategic location is expected to alleviate range anxiety and support EV adoption. Currently, there is only one public charging station within a ten-mile drive of this location which is the DCFC at the Dole Plantation. This new DCFC station is expected to support residents and tourists driving to and through the North Shore community.

Considering this site was operational for only half the year, the utilization was similar to the Wai‘anae Mall site, in that it experienced longer duration, greater energy consumption, and higher gross revenue for the Mid-Day period than most other sites.

Figure 20 below summarizes the key statistics collected for Haleiwa Town Center site in 2019.

| | | 2019 |
|---------------------------------------|--|------|
| % utilization | | |
| Off-Peak | | 15% |
| Mid-Day | | 62% |
| On-Peak | | 23% |
| Energy (kWh) per session | | |
| Off-Peak | | 11 |
| Mid-Day | | 15 |
| On-Peak | | 10 |
| Gross Revenue (\$) per session | | |
| Off-Peak | | 5.99 |
| Mid-Day | | 7.40 |
| On-Peak | | 5.52 |
| Minutes (min) per session | | |
| Off-Peak | | 26 |
| Mid-Day | | 32 |
| On-Peak | | 23 |

Figure 20 Haleiwa Town Center site statistics for 2019.

2020 site development

A new DCFC station was constructed at Kapolei Shopping Center in 2019 but was opened to the public in the first week of January 2020. Unlike the DCFC station at Kapolei Commons, this station does not incorporate the use of an integrated battery energy storage system but provides 50 kW grid-provided power to charge EVs. This fast charging station supports both the standard CHAdeMO and Combined Charging System (CCS) fast charging connectors. The Company will target to replace the DCFC at Kapolei Commons this year with a 50 kW, dual-standard charge station.

The Company is continuing final negotiations with two site hosts on O‘ahu. A Memorandum of Understanding (MOU) was executed with both site hosts in 2019 and designs have been provided to the site hosts.

Utilization on Hawai'i Island

One charging station was added on Hawai'i Island as part of the pilot in 2019 at the Punalu'u Bake Shop. This addition further enhanced the network of charge stations, which was evident in a healthy increase in utilization of 111% from 2018 to 2019, as shown in Figure 21 below.

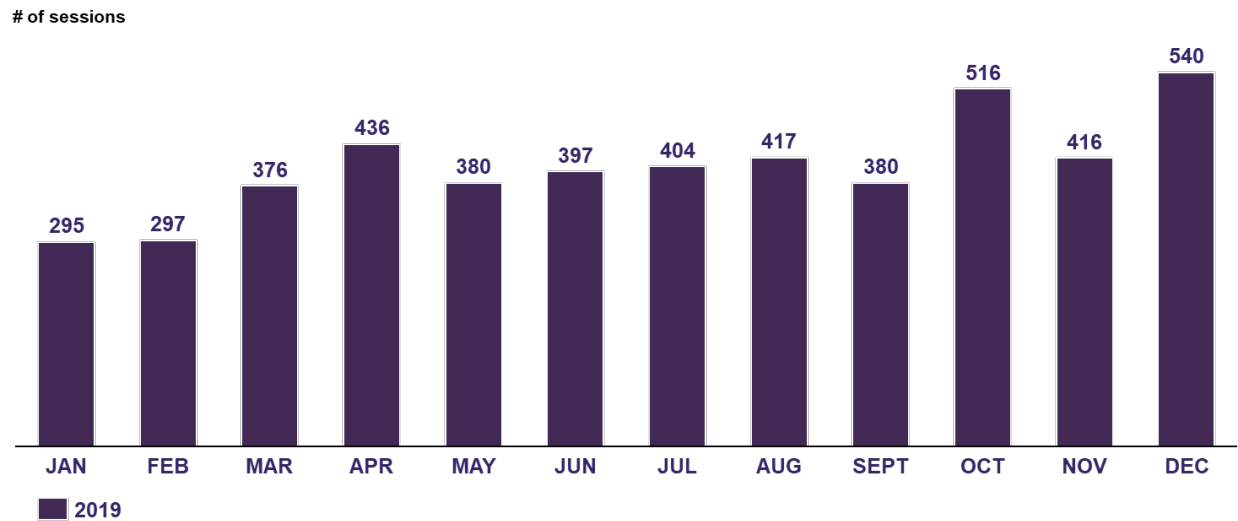


Figure 21 Monthly utilization on Hawai'i Island for 2019 for all five DCFC sites.

The overall utilization for all locations on Hawai'i Island significantly increased from 2018 to 2019, between 44 and 135 percent, as shown in Figure 22 below.

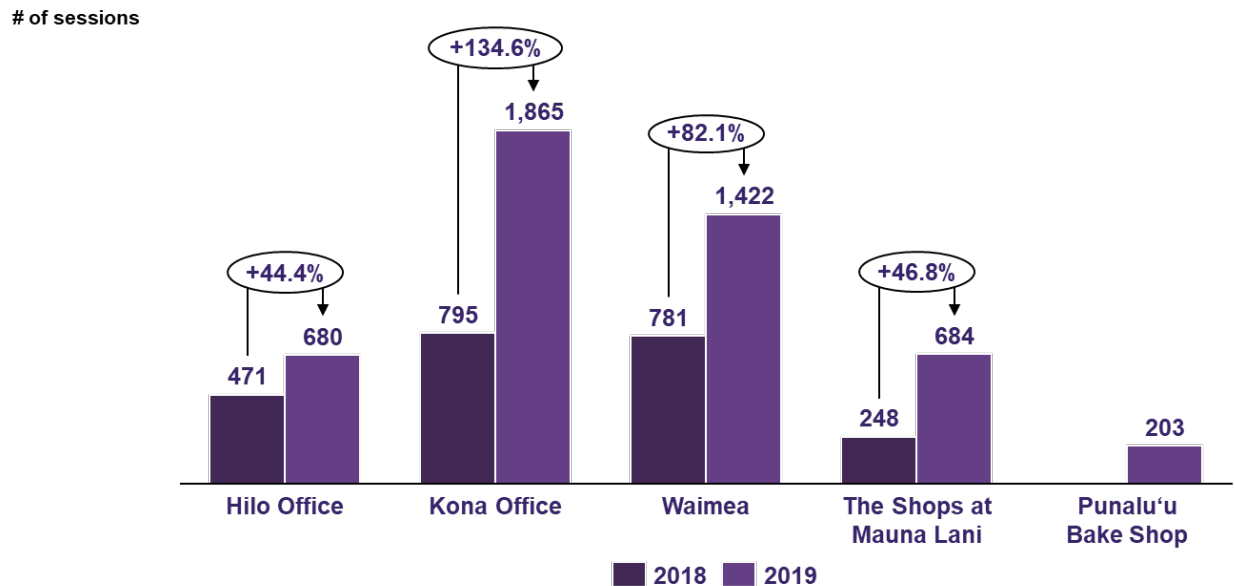


Figure 22 Annual utilization on Hawai'i Island for 2018 and 2019 for all five DCFC sites.

Similar to the overall utilization, the overall energy consumption for all locations on Hawai'i Island increased from 2018 to 2019, between 35 and 104 percent, as shown in Figure 23 below.

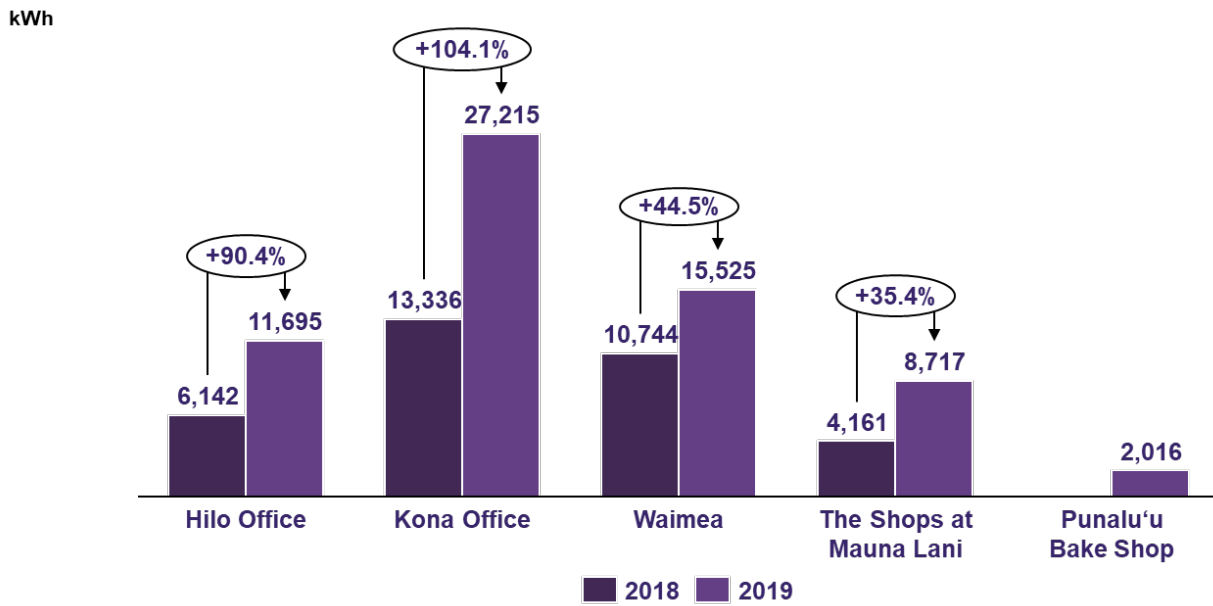


Figure 23 Annual energy consumption on Hawai'i Island for 2018 and 2019 for all five DCFC sites.

In 2019, the DCFC stations on Hawai'i Island accounted for 19 percent of all sessions in the pilot. Hawai'i Island has 7 percent of all the EVs registered in the Company's territory. While there are fewer EVs on Hawai'i Island than O'ahu and Maui, the charge stations provided some of the longest average duration and highest average energy per session. This is likely influenced by the longer driving distances on the island and indicates a need for public DCFCs for these longer commutes.

A summary for each DCFC site is provided below with additional details provided in Appendix B.

Hilo Office

This station is located at Hawaiian Electric’s main Hawai‘i Island office in Hilo. While no retail stores share the parking lot, there are some shops and eateries within a short walking distance. Overall utilization in 2019 increased 44 percent as compared to 2018.

This station continued to be heavily utilized during Mid-Day, compared to a relatively low Off-Peak utilization. In 2019, 69 percent of its charge sessions started during the Mid-Day, 22 percent of all sessions started during the On-Peak, and 10 percent of all session started during the Off-Peak.

Figure 24 below summarizes the key statistics collected for the Hilo Office site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|------|-------|
| % utilization | | |
| Off-Peak | 8% | 9.9% |
| Mid-Day | 73% | 68.5% |
| On-Peak | 19% | 21.6% |
| Energy (kWh) per session | | |
| Off-Peak | 13 | 18 |
| Mid-Day | 14 | 16 |
| On-Peak | 11 | 21 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 8.18 | 10.89 |
| Mid-Day | 6.89 | 8.16 |
| On-Peak | 7.07 | 13.03 |
| Minutes (min) per session | | |
| Off-Peak | 30 | 33 |
| Mid-Day | 31 | 33 |
| On-Peak | 30 | 39 |

Figure 24 Comparison of Hilo Office site statistics for 2018 and 2019.

Kona Office

This station is located at Hawaiian Electric’s office in Kailua-Kona. The area is near many commercial businesses with some markets and restaurants a few blocks away. Fewer charging alternatives in the area may help explain why the Kona location recorded more utilization than the Hilo location. In 2019, the Kona DCFC station utilization increased by 135 percent as compared to 2018 and was the highest of all Hawai’i Island stations.

This station also has one of the highest Off-Peak utilizations, which may be influenced by its location and use by commuters. In 2019, 24 percent of its charge sessions were initiated during the Off-Peak, 57 percent of all sessions began during the Mid-Day, and 19 percent of all sessions started during the On-Peak.

Figure 25 below summarizes the key statistics collected for Kona Office site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|-------|-------|
| % utilization | | |
| Off-Peak | 24% | 24% |
| Mid-Day | 58% | 57% |
| On-Peak | 18% | 19% |
| Energy (kWh) per session | | |
| Off-Peak | 17 | 16 |
| Mid-Day | 17 | 15 |
| On-Peak | 15 | 11 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 10.17 | 10.02 |
| Mid-Day | 8.88 | 7.59 |
| On-Peak | 9.39 | 7.18 |
| Minutes (min) per session | | |
| Off-Peak | 28 | 29 |
| Mid-Day | 34 | 28 |
| On-Peak | 29 | 24 |

Figure 25 Comparison of Kona Office site statistics for 2018 and 2019.

Waimea KTA

This charging station is located at a grocery store in Waimea, near other retail businesses. To date, there is only one other public (Level 2) charging station in the vicinity. Overall utilization at this location increased 82 percent in 2019 compared to 2018.

This charge station continued to be heavily utilized during Mid-Day. In 2019, 62 percent of its charge sessions started during the Mid-Day, 20 percent of all sessions started during the On-Peak, and 18 percent of all sessions started during the Off-Peak. While utilization increased, average energy consumption, gross revenue, and duration decreased in 2019, except that the duration per session for the On-Peak period slightly increased.

Figure 26 below summarizes the key statistics collected for Waimea KTA site in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|-------|------|
| % utilization | | |
| Off-Peak | 18% | 18% |
| Mid-Day | 62% | 62% |
| On-Peak | 20% | 20% |
| Energy (kWh) per session | | |
| Off-Peak | 22 | 15 |
| Mid-Day | 12 | 10 |
| On-Peak | 11 | 10 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 13.19 | 9.18 |
| Mid-Day | 6.33 | 5.08 |
| On-Peak | 6.96 | 6.24 |
| Minutes (min) per session | | |
| Off-Peak | 40 | 30 |
| Mid-Day | 27 | 22 |
| On-Peak | 22 | 23 |

Figure 26 Comparison of Waimea KTA site statistics for 2018 and 2019.

The Shops at Mauna Lani

This station is located in a shopping area in a resort destination along the Kohala coast and continues to support EV drivers. Overall utilization at this location increased 47 percent in 2019 compared to 2018. This charge station was heavily utilized during the Mid-Day period. While the average charge session duration is longer than most stations during all times of the day, like Kona, Waimea KTA, and Punalu'u Bake Shop, the longest average session is during the Off-Peak period. This is likely due to the lack of other available public charging stations in the vicinity, the driving distances, and the types of EVs in this location.

Figure 27 below summarizes the key statistics collected for The Shops at Mauna Lani in 2018 and 2019.

| | 2018 | 2019 |
|---------------------------------------|-------|------|
| % utilization | | |
| Off-Peak | 18% | 13% |
| Mid-Day | 60% | 59% |
| On-Peak | 23% | 28% |
| Energy (kWh) per session | | |
| Off-Peak | 20 | 13 |
| Mid-Day | 17 | 13 |
| On-Peak | 14 | 11 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 12.43 | 8.22 |
| Mid-Day | 8.59 | 6.80 |
| On-Peak | 8.69 | 7.02 |
| Minutes (min) per session | | |
| Off-Peak | 38 | 37 |
| Mid-Day | 37 | 31 |
| On-Peak | 33 | 28 |

Figure 27 Comparison of The Shops at Mauna Lani site statistics for 2018 and 2019.

Punalu'u Bake Shop

A fast charging station was constructed at Punalu'u Bake Shop and Visitor Center in Na'ālehu and opened to the public in March 2019. This location is expected to alleviate range anxiety and support EV adoption. While traffic density is lower in the south side of Hawai'i Island, data indicates there are no public charging stations within ten miles of this location. A fast charging station in this area is important to provide residents and tourists the confidence to travel to destinations within and through the southern side of the island.

This site had the highest utilization during the Mid-Day period of all the sites in the pilot. Like Kona, The Shops at Mauna Lani, and Waimea KTA, the Off-Peak period has a longer duration per session than most other sites.

Figure 28 below summarizes the key statistics collected for Punalu'u Bake Shop site in 2019.

| | 2019 |
|---------------------------------------|------|
| % utilization | |
| Off-Peak | 12% |
| Mid-Day | 86% |
| On-Peak | 2% |
| Energy (kWh) per session | |
| Off-Peak | 14 |
| Mid-Day | 9 |
| On-Peak | 12 |
| Gross Revenue (\$) per session | |
| Off-Peak | 8.30 |
| Mid-Day | 4.77 |
| On-Peak | 7.78 |
| Minutes (min) per session | |
| Off-Peak | 38 |
| Mid-Day | 17 |
| On-Peak | 23 |

Figure 28 Punalu'u Bake Shop site statistics for 2019.

2020 site development

For 2020 a new DCFC unit is being installed at the Puna Kai Shopping Center in Pahoā. Completion of the installation is on schedule for April. The Puna Kai Shopping Center is still under construction with completion and store openings planned for May. Public use of the new charger will happen once the shopping center opens.

Utilization at Maui County

With the one charge station that was added in Maui County on the island of Moloka'i and the charge station at the Kahului Office being repaired there was higher utilization in 2019 (see Figure 29 below).

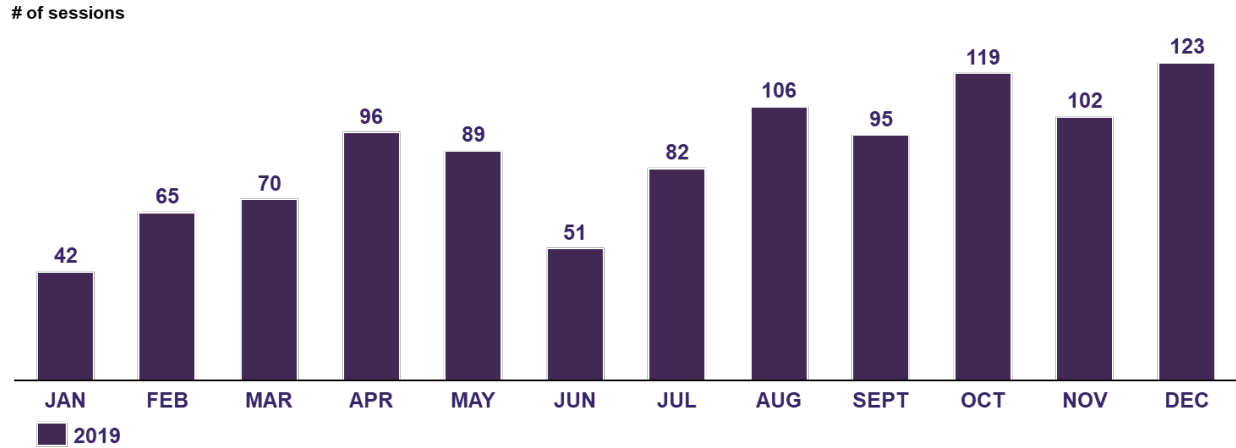


Figure 29 Monthly utilization for Maui County for 2019 for two DCFC sites.

The overall utilization for locations in Maui County increased from 2018 to 2019 as shown in Figure 30 below.

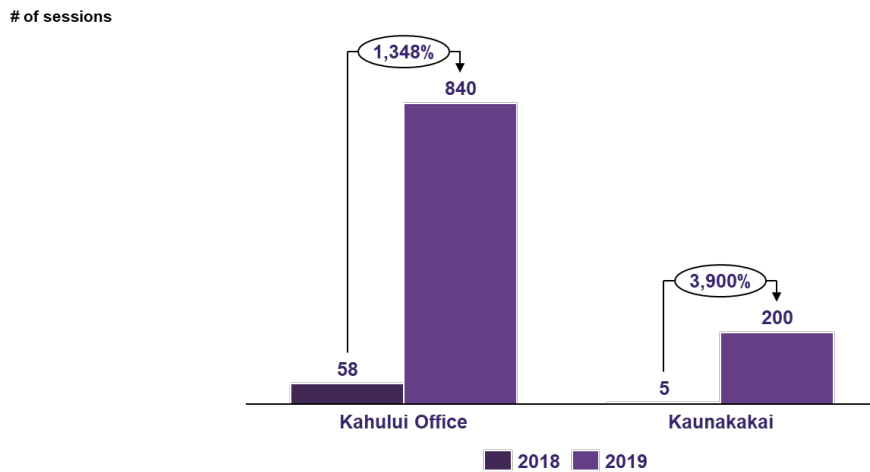


Figure 30 Annual utilization in Maui County for 2018 and 2019 for two DCFC sites.

Similar to the overall utilization, the overall energy consumption for Maui County increased from 2018 to 2019 as shown in Figure 31 below.

kWh

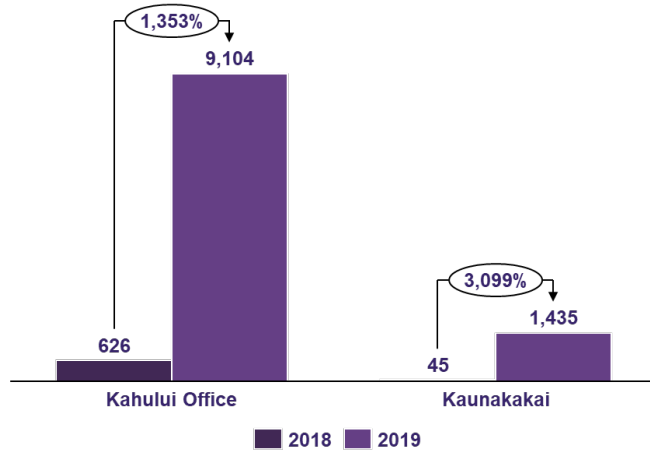


Figure 31 Annual energy consumption in Maui County for 2018 and 2019 for two DCFC sites.

In 2019, the Company DCFC stations in Maui County accounted for 4 percent of all sessions in the pilot. This relatively low percentage may be due to other options existing for Maui Island residents in the EVohana program and other privately owned DCFCs that provided an additional nine DCFC charging sites. Maui County has 13 percent of all the EVs registered in the Company’s territory.

A summary for each DCFC site is provided below with additional details provided in Appendix C.

Kahului Office

While this charging station is not co-located with retail businesses, shopping centers and restaurants are nearby. This charge station supports both CHAdeMO and CCS charging standards, unlike most of the other fast charging stations currently on Maui.

Figure 32 below summarizes the key statistics collected for Kahului Office site in 2018 and 2019.

| | 2018 (four months of data) | 2019 |
|---------------------------------------|----------------------------|-------|
| % utilization | | |
| Off-Peak | 17% | 19.4% |
| Mid-Day | 52% | 55.5% |
| On-Peak | 31% | 25.1% |
| Energy (kWh) per session | | |
| Off-Peak | 12 | 11 |
| Mid-Day | 10 | 12 |
| On-Peak | 11 | 10 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 7.46 | 7.12 |
| Mid-Day | 4.98 | 5.07 |
| On-Peak | 6.78 | 6.91 |
| Minutes (min) per session | | |
| Off-Peak | 22 | 21 |
| Mid-Day | 29 | 24 |
| On-Peak | 27 | 23 |

Figure 32 Comparison of Kahului Office statistics for 2018 and 2019.

Kaunakakai

In 2018, Maui Electric installed a new fast charging station on Ala Malama Avenue in Kaunakakai fronting restaurants and retail shops. When installed, this was the only public charging station on the island of Moloka'i and is centrally located to provide fast charging service to those driving to and from Kaunakakai, the main location of commerce on the island.

In its first full year of operation, almost 81 percent of its charge sessions started during the Mid-Day, 9 percent of all sessions started during the On-Peak, and almost 11 percent of sessions started during the Off-Peak.

Figure 33 below summarizes the key statistics collected for Kaunakakai in 2019.

| | 2018 (one week of data) | 2019 |
|---------------------------------------|-------------------------|-------|
| % utilization | | |
| Off-Peak | 0% | 10.5% |
| Mid-Day | 60% | 80.5% |
| On-Peak | 40% | 9.0% |
| Energy (kWh) per session | | |
| Off-Peak | 0 | 6 |
| Mid-Day | 8 | 7 |
| On-Peak | 11 | 7 |
| Gross Revenue (\$) per session | | |
| Off-Peak | 0.00 | 3.43 |
| Mid-Day | 4.05 | 3.62 |
| On-Peak | 7.38 | 6.93 |
| Minutes (min) per session | | |
| Off-Peak | 0 | 15 |
| Mid-Day | 24 | 15 |
| On-Peak | 17 | 16 |

Figure 33 Kaunakakai statistics for 2019.

2020 site development

The EV-MAUI Tariff was approved on January 10, 2020, which allows for Company to install, own, operate and maintain additional DCFC outside of the EV-U and EV-F pilot program. Under EV-MAUI, four sites are scheduled to have new DCFC installed with both CHAdeMO and CSS charging capability. Currently, site agreements for these four sites are being negotiated with the first charger potentially being installed in the fourth quarter of 2020.

Analysis of EV-U rate

Figure 34 below provides aggregate energy consumption by territory and TOU period. The total energy increased for each island and during each rate period.

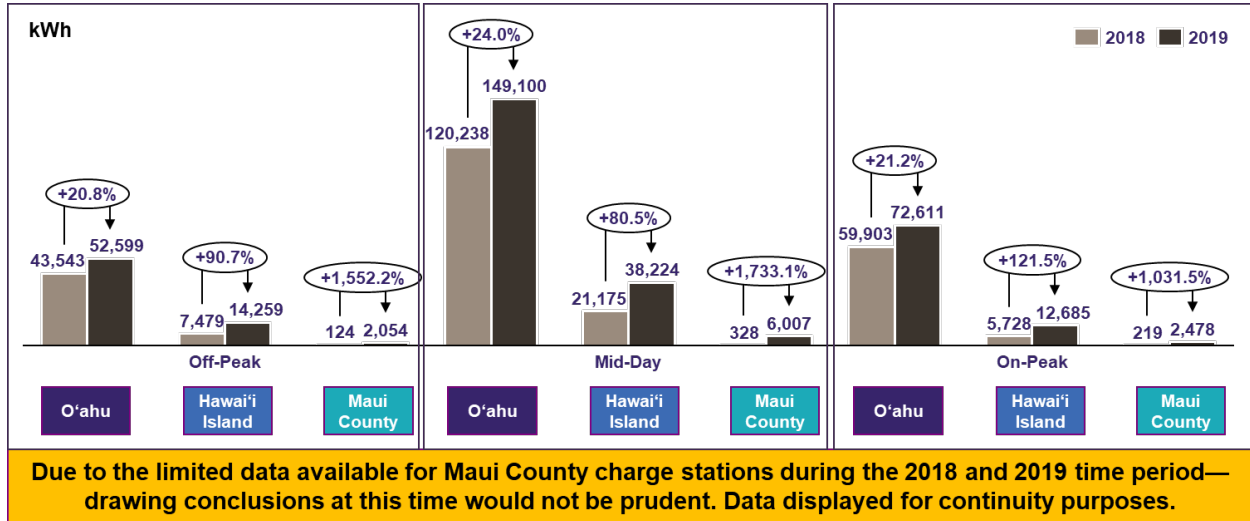


Figure 34 The energy consumed in aggregate increased overall from 2018 to 2019. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

The percent of energy consumption for each utility by time of use period for 2019 is shown in Figure 35 below. The Mid-Day time period is the most utilized by each utility and on aggregate is 55% of all energy consumed in 2019.

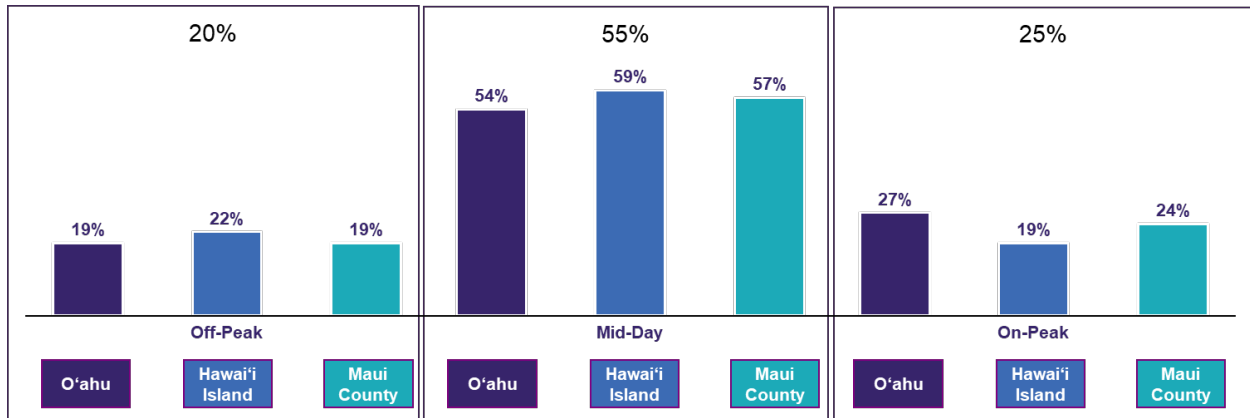


Figure 35 The percent of energy consumed by utility in all time periods for 2019. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

Figure 36 below provides the aggregate number of sessions (utilization data) by island and TOU period. The number of charge sessions increased for each island and during each rate period, with the largest increase for O’ahu and Hawai’i Island occurring during the On-Peak period of 5 p.m. to 10 p.m.

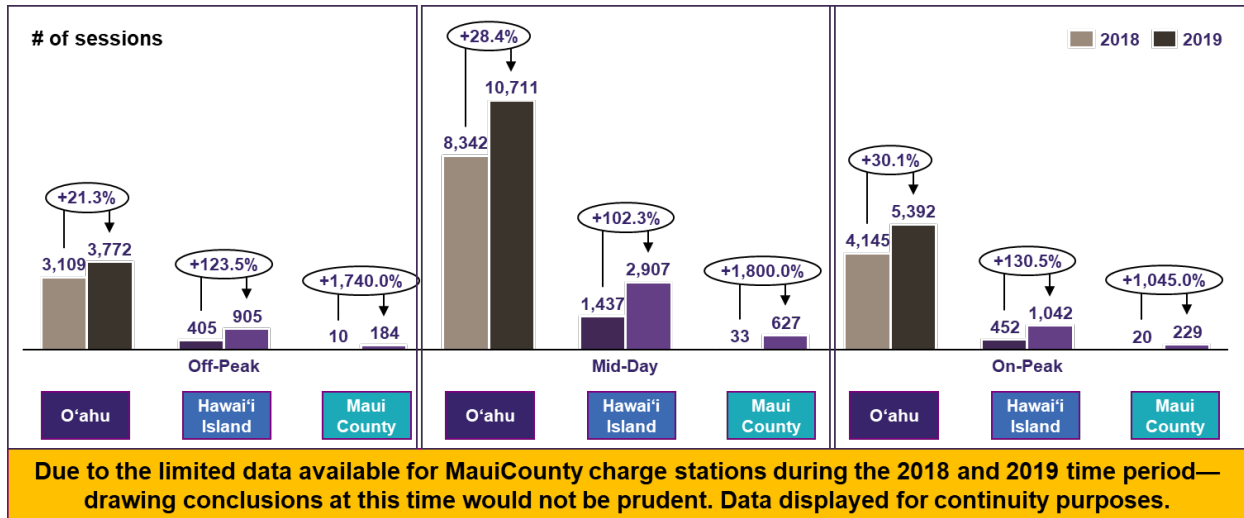


Figure 36 Utilization (number of sessions) increased in aggregate in all time periods from 2018 to 2019. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

The percent of the number of sessions for each utility by time of use period for 2019 is shown in Figure 37 below. The Mid-Day time period is the most utilized by each utility and on aggregate is 55% of all energy consumed in 2019.

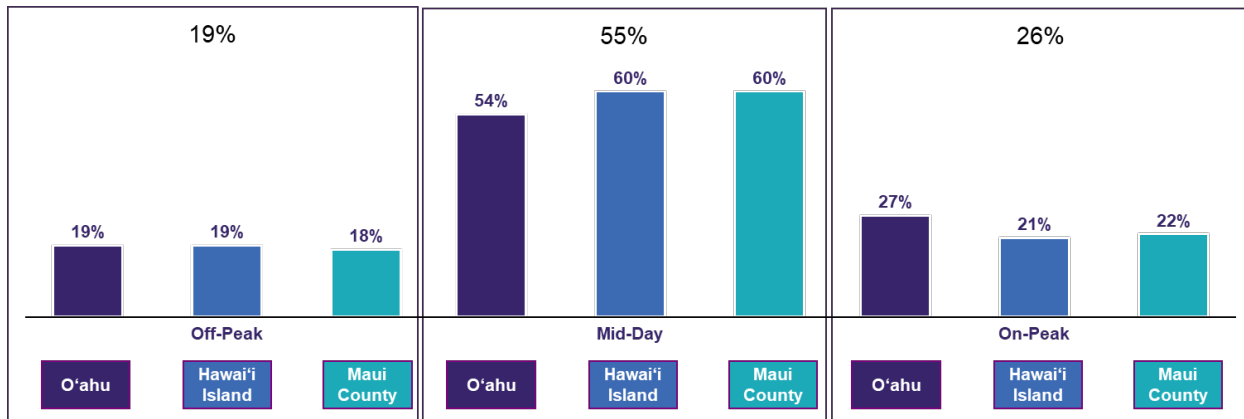


Figure 37 Utilization (number of sessions) by utility in all time periods for 2019. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

Figure 38 below shows that the time duration per session decreased for all time periods for Hawai'i Island, but not O'ahu, from 2018 to 2019.

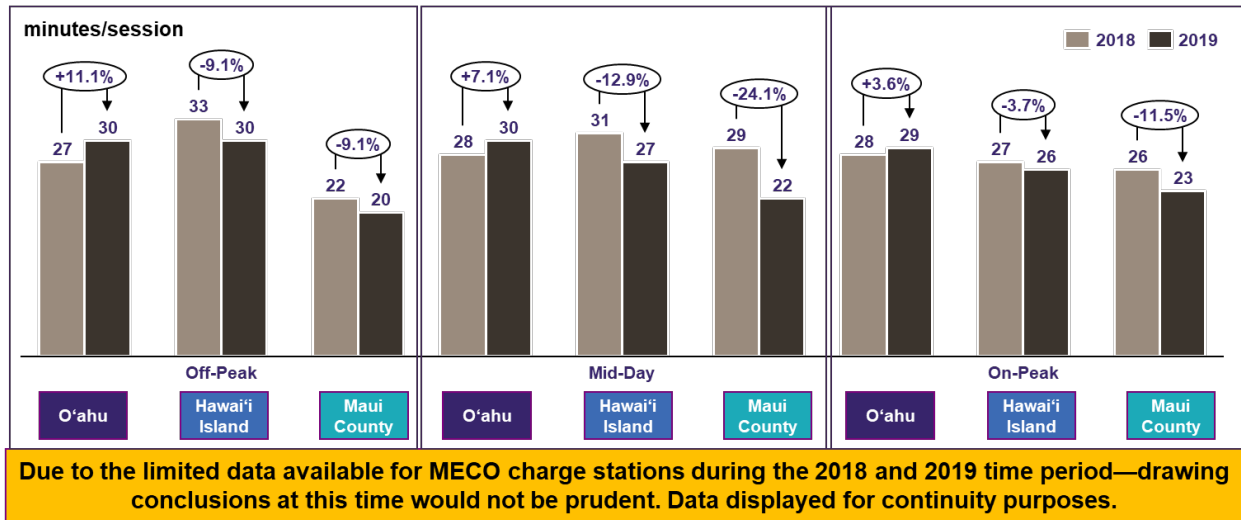


Figure 38 The time duration per session from 2018 to 2019 for each time period. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

Figure 39 below illustrates the average energy consumption per session by time period.

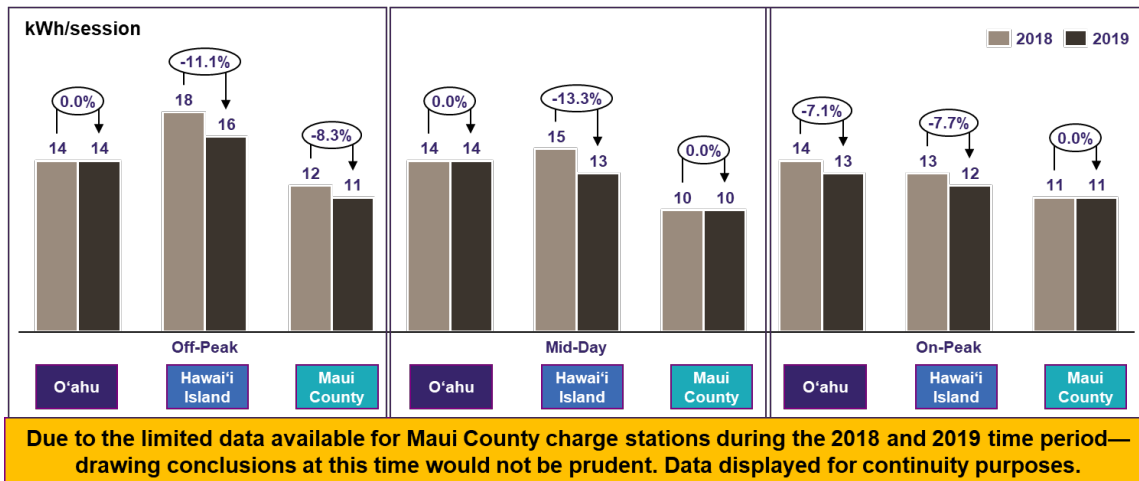


Figure 39 The energy consumed per session decreased for all islands from 2018 to 2019. Off-Peak occurs from 10 PM-9 AM, Mid-Day occurs from 9 AM-5 PM, and On-Peak occurs from 5 PM-10 PM.

Summary of Cost and Revenue¹⁹

In D&O 34592, the Commission ordered the Company to provide “a discussion of how and to what extent the costs for each DCFC facility have been and/or are proposed to be recovered from ratepayers.”²⁰ The recovery of capital and O&M costs for Company-owned and operated DCFC stations are discussed herein.

Revenue and Operating and Maintenance (“O&M”) Expenses

In the early stages of the EV-U/EV-F pilot program development, there were stakeholder concerns regarding the Company’s influence on EV charging market and competitive fairness. As a result, the Company took steps to be transparent when reporting operational costs by reflecting incurred costs in a similar fashion as a third-party charge station operator. Therefore, the cost of electricity associated with charge station use is included in reported O&M costs per site in this section of the Report. In October 2017, the Commission approved the proposed Schedule EV-U rate change “to provide greater alignment with charging session costs (moving Schedule EV-U rates from a fixed charging session rate to volumetric rate), system costs (incorporating certain program costs into Schedule EV-U rates), and system needs by adopting the Schedule TOU-RI time periods and structuring rates so that they are consistent with the availability of photovoltaic generation and difference in generation costs.”²¹ These new rates became effective December 12, 2017. Figure 40, Figure 42, and Figure 44 below summarize the revenue and O&M expense for each DCFC site in 2019 for O’ahu, Hawai’i Island, and Maui County, respectively. In this section of the report, site operating expenses include volumetric transactional fees and the underlying cost of electrical service, in a similar fashion as a third-party charge station operator. While the cost of electrical service is included as a cost of operation in this section, it is not included as a cost to the overall program or as part of the Company’s electrical sales, since the Company cannot report revenue of electric sales to itself. Therefore, a reverse energy charge is applied to the program costs reported in Appendix D.

Figure 41, Figure 43, and Figure 45 summarize the revenue and O&M expense on aggregate in 2019 for O’ahu, Hawai’i Island, and Maui County, respectively.

Figure 40 illustrates the net values (revenue less expenses)²² for 2019 for DCFC sites on O’ahu. The highest utilized charge station in the pilot, Ward 1, and the new charge station at Times Square Shopping Center yielded a net positive effect in 2019. In 2019 there was a net negative result of \$37,800 in aggregate for O’ahu (see Figure 41).

¹⁹ Details of Revenues, Expenses, and Capital from inception of the program can be found in Appendix D.

²⁰ D&O 34592 at 68.

²¹ Order No. 34867, filed Oct 13, 2017, at 11.

²² A net positive effect occurs when revenues exceed O&M. A net negative effect occurs when revenues are less than O&M.

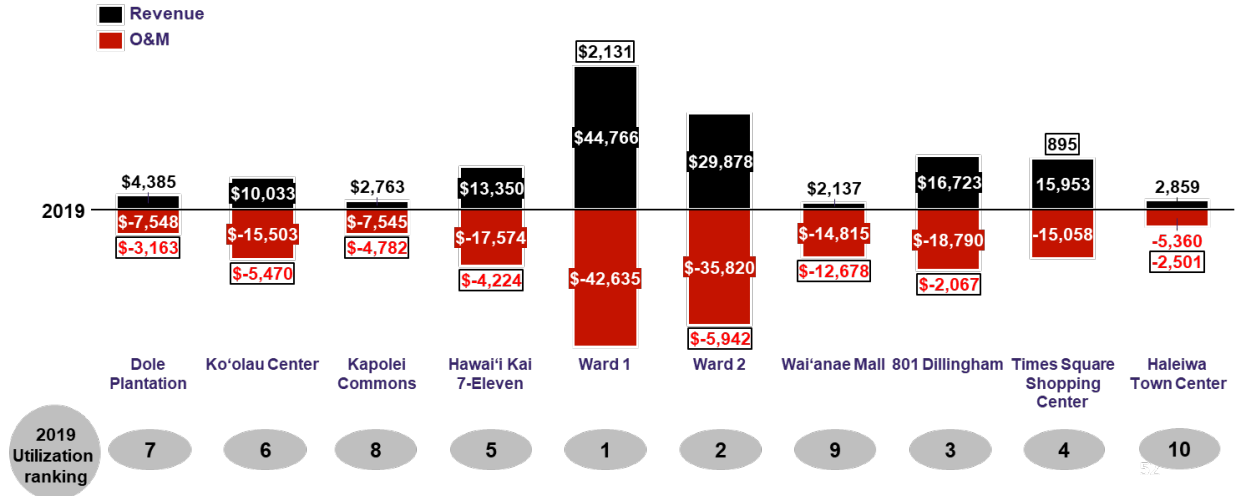


Figure 40 2019 annual revenue, O&M, net values, and utilization rank for O'ahu.

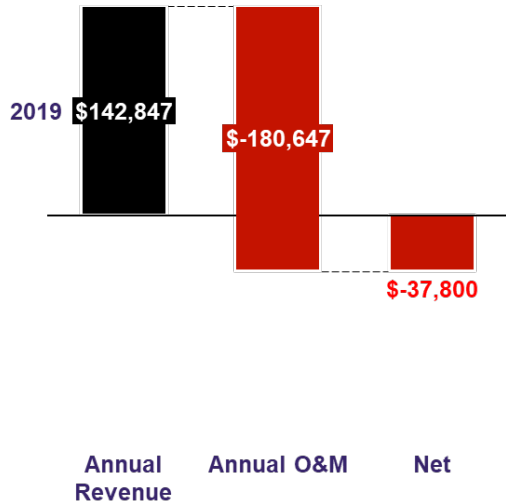


Figure 41 O'ahu aggregate annual results for 2019.

Figure 42 illustrates the net values (revenue less expenses) for 2019 for DCFC sites on Hawai'i Island. The highest utilized charge station on Hawai'i Island, Kona Office, yielded a net positive effect for the first time in 2019. However, in aggregate for Hawai'i Island, there was still a net negative result in 2019 of \$13,149 (see Figure 43).

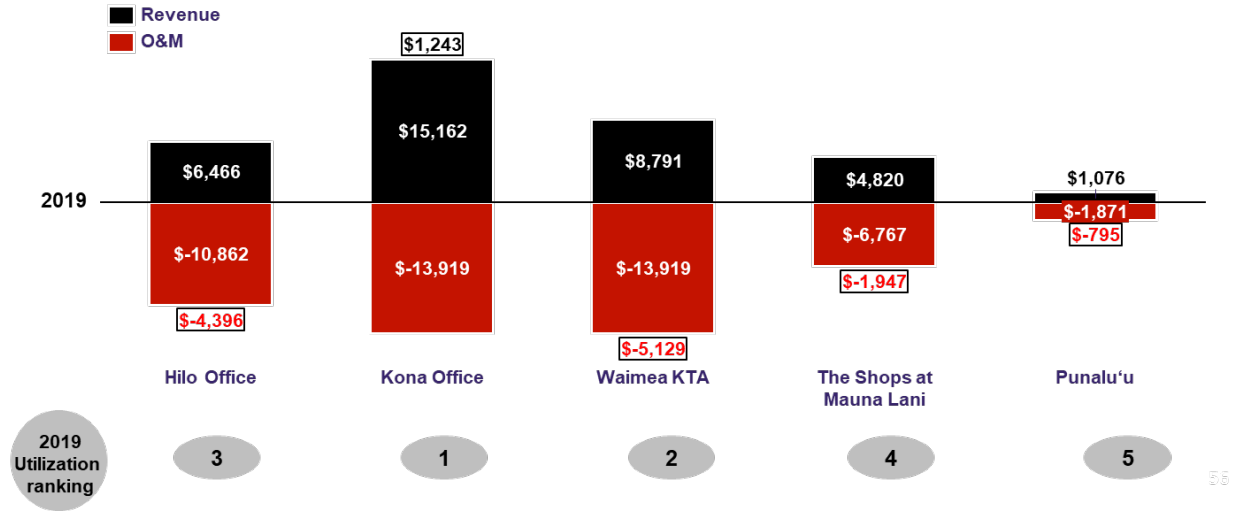


Figure 42 2019 annual revenue, O&M, net values, and utilization rank for Hawai'i Island.

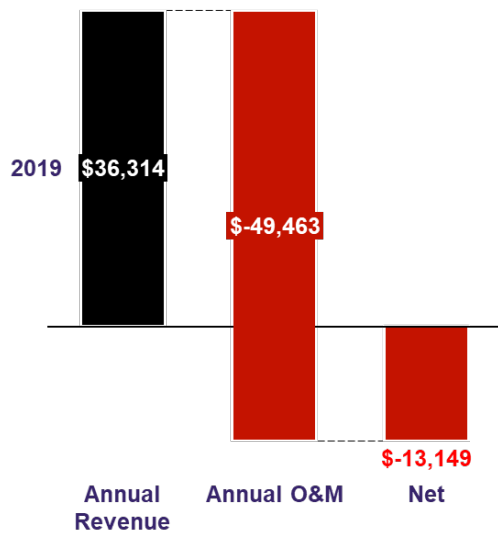


Figure 43 Hawai'i Island aggregate annual results for 2019.

Figure 44 illustrates the net values (revenue less expenses) for 2019 for DCFC sites in Maui County. Due to limited data, this figure is displayed for continuity purposes only. Figure 45 illustrates the net values in aggregate for Maui County.

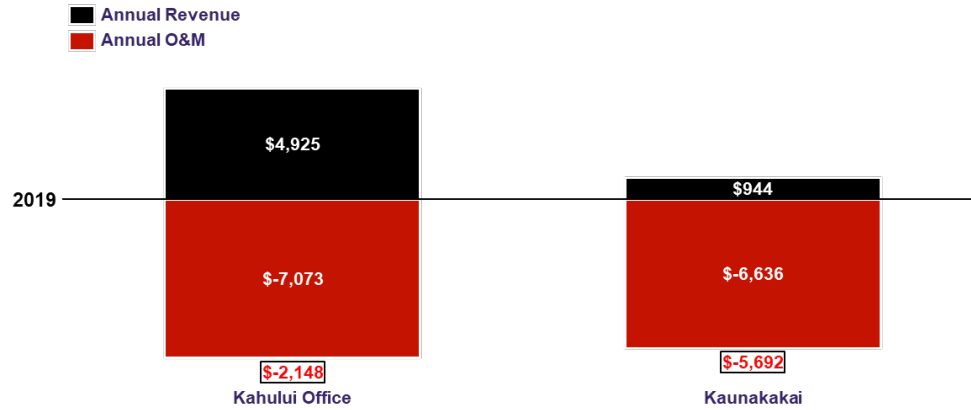


Figure 44 2019 annual revenue, O&M, and net values for Maui County.

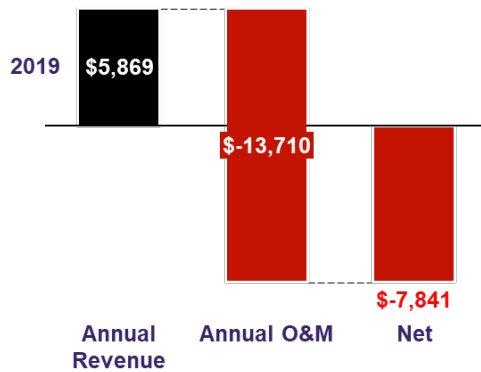


Figure 45 Maui County aggregate annual results for 2019.

For further details regarding costs and revenues for 2019 and the program, see Appendix D.

Capital Costs

Figure 46 below provides the capital costs of each DCFC station as they were chronologically placed in operation. Average capital cost for the Company is \$167,415 per site. While the Company identifies locations at a site to minimize construction costs, the overall development costs largely vary based upon the site’s location, the availability of existing electrical infrastructure, condition of the existing parking space, and site host’s desired location on their property. Also, of note, construction costs generally tend to vary by island as well.

On O’ahu, the charge station at Kapolei Commons includes the extra cost of an integrated battery storage system. As part of an Electric Research Power Institute (“EPRI”) project to determine the effect of a DCFC with battery storage, the cost reflected in Figure 46 does not include the offset of a \$163,486 Contribution in Aid of Construction (“CIAC”). The capital cost was higher at 801 Dillingham due to the extra procedures and monitoring required in this area, which is environmentally sensitive. It should also

be noted that the charge stations at Times Square Shopping Center and Haleiwa Town Center included additional infrastructure costs to support 150 kW.

On Hawai'i Island, the stations at the Hilo and Kona offices had higher capital costs because they included the additional cost to support the service for a second 50 kW charging station in the future, if necessary. As the charging industry matures, "charging hub" locations with more than one fast charging station have been found valuable to EV drivers. The value of charging hubs has also been supported by the high utilization of Ward 1 and Ward 2, co-located at the Ward office. The capital cost at the Waimea KTA site was lower than at the Hilo and Kona sites because this site did not accommodate the potential expanded service for a second charging station in the future. The capital cost of the charge station for The Shops at Mauna Lani included the acquisition costs of an existing DC charge station and a one-time service upgrade.

The first charge station was installed at the Kahului office on Maui, which reduced the complexity and development time at this site. This original charge station had several issues and was out of service for most of 2017 and 2018. Under the terms of the original warranty, a replacement charging unit was installed free of charge in August 2018. The capital cost for the project in Kaunakakai does not include the purchase of a charge station, which was provided as a contribution to Maui Electric.

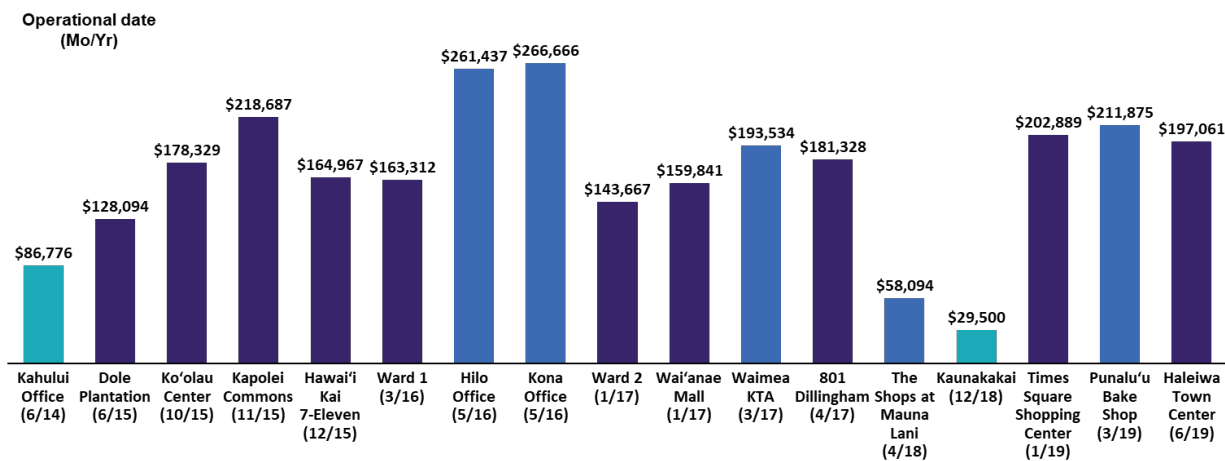


Figure 46 Capital cost associated with each DCFC in chronological order of operational date.

Subsidization by non-participating customers

As indicated herein, two of the charge stations on O'ahu and one on Hawai'i Island have shown net positive (revenues exceed expenses) results in 2019. This result confirms that increased utilization may eventually support the program and eliminate the concerns over subsidization by non-participating customers. Until reaching that point, it is important to note that a key consideration in developing EV rates and programs is to reduce barriers to the adoption of EVs for customers. Because the EV market is still nascent in Hawai'i and EV proliferation is regarded as a State policy goal, it is prudent to provide a rate that will support the development of public EV charging infrastructure. The Company maintains

that EV customers using charge stations in the EV-U pilot should not necessarily be characterized as benefitting from a subsidy in isolation, when that customer’s EV load is incremental discretionary load that needs to be served by the system in general. Therefore, Schedule EV-F and EV-U rates that support this incremental load should not entirely be characterized as being subsidized by other customers. Further, the revenues collected by the incremental discretionary load of EV charging would not contribute to overall Company profits, but instead would constitute contributions to fixed costs and support the State’s transition to cleaner transportation. With continued EV growth, the long-term impact of aggregate growth of EVs in the State will also serve to eliminate any subsidization by non-EV drivers. As identified in the *Roadmap*, the Company anticipates that the electrification of transportation will provide long-term economic benefits for the Company’s customers, as increased energy demanded by EV drivers to charge their vehicles creates net benefits for all the Company’s customers – not just for EV drivers. This is because as EV drivers demand more energy, the utility’s fixed costs for generating and distributing energy are spread across more kWh units, thereby creating net benefits for all customers.

As stated in the Company’s request to revise Schedule EV-U, the proposed rates are intended to “include an incremental amount of operations and maintenance (“O&M”) expenses associated with the DCFC pilot in the composition of Schedule EV-U rates.”²³ As such, the increased rates implemented at the end of 2017 decreased the difference between potential revenues from Schedule J and EV-U by approximately \$45,000 between 2017 and 2018. Figure 47 below summarizes the total annual revenue from Schedule EV-U compared to the potential revenue generated if the charging facility were billed under each Company’s respective Schedule J. This illustrates that the total EV-U revenues is approximately 84 percent of the potential Schedule J²⁴ revenues for 2019.

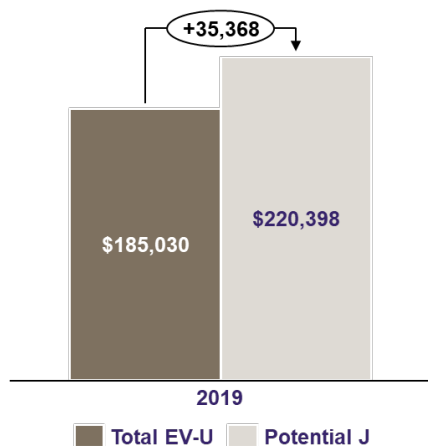


Figure 47 Comparison of the difference between potential schedule J and revenues from EV-U for 2019.

²³ Docket No. 2016-0168, pursuant to D&O No. 34592, filed September 5, 2017, at 8.

²⁴ The potential Schedule J revenues were based upon the reported monthly kWh energy provided to charge EVs under Schedule EV-U and 47.5 kW billing demand.

Recommendation of revisions to rate structures

As indicated in the Workplan, the Company is focusing on a suite of rate designs and plans to submit a filing with the Commission that will evaluate current EV rates and determine whether additional rate designs are suitable for the market. Notably, the Company intends to propose at a minimum, a new high-capacity EV charging rate, which will be designed to address future EV charging hubs that have higher charging capacity and utilization than currently exist in the State. In addition, the Company will evaluate and submit a new commercial EV charging rate, which is intended to underpin the make-ready charging infrastructure pilot program as well as provide additional rate options for fleet operators, and workplace charging. With respect to EV-U and EV MAUI, the Company intends to evaluate those rates as part of the overall rate design filing above to determine the appropriate mechanism for the program's future and whether it is prudent to incorporate the EV MAUI tariff into the overarching rate design for public charging stations. A programmatic request for updates to EV-U and EV-MAUI will likely follow in early 2021.

Schedule EV-F Tariff

Adoption and Status of Schedule EV-F

Schedule EV-F was implemented as an economic development rate whereby “the absence of a demand charge and the inclusion of TOU rates serve to encourage the development of public EV charging facilities by keeping electricity costs low for new, start-up public EV charging facilities.”²⁵ Globally, public EV charging facilities continue to show increasing signs of technological maturity. Companies such as Electrify America are installing DCFC facilities with “charging speeds of up to 150kW” and are now locating “charging power levels up to 350kW”²⁶ on the mainland. However, profit margins are still relatively slim due to the higher installation, equipment, and maintenance costs.

The difficult business prospects discussed above have limited the development of non-utility fast charging facilities in the State, with the notable exception of the JUMPSmart Maui program (branded as the “EVohana” Program as of September 1, 2017), which was funded by the New Energy and Industrial Technology Development Organization (“NEDO”) of Japan.²⁷ The chargers in the EVohana program were operated and maintained by the Hitachi Advanced Clean Energy Corporation (“HIACE”) under an

²⁵ Transmittal No. 12-05 at 23.

²⁶ <https://www.electrifyamerica.com/our-plan>

²⁷ The EVohana Program is currently administered by the Maui Economic Development Board (“MEDB”), which serves as the largest public charging network on Maui. The EVohana Program currently supports approximately 300 of the 1,000 EV owners on the island. MEDB currently owns charging stations at 13 of the 15 DCFC sites on Maui. The remaining two sites are owned individually by Maui Electric and Greenlots. The EVohana DCFC network on Maui is currently operated and maintained by Hitachi Advanced Clean Energy Corporation (“HIACE”) under an agreement between MEDB and HIACE that will expire on March 31, 2019 and will not be extended. Upon discontinuation of HIACE's service, MEDB will have limited options to continue offering EV charging service on Maui – potentially resulting in the charging stations going offline for an extended period, or possibly a permanent dissolution of the program on Maui, leaving many EV drivers without sufficient public charging resources. As the EV community relies on the existing charge stations to meet their transportation needs, removing the charge stations would undermine EV adoption efforts and cause existing EV owners on Maui uncertainty with their existing EV investments.

agreement with the Maui Economic Development Board (“MEDB”). Unfortunately, on March 31, 2019, the agreement with HIACE ended and MEDB reduced the EVohana DCFC network on Maui down to eight sites from the original 13. At the request of a community partnership made up of Ulupono Initiative, the County of Maui, MEDB and Blue Planet Foundation, Maui Electric filed a request to take over the sites and install new DCFCs. The Commission issued Decision and Order No. 36943 on January 10, 2020 in Docket No. 2018-0422 approving the Revised Schedule EV-MAUI Tariff consistent with D&O 36229 for four selected EVohana network sites.²⁸

On O’ahu, no customers were added to Schedule EV-F in 2019. However, the Company has received multiple inquiries from organizations interested in installing charging infrastructure in the State. These organizations have stated an interest in rate designs that can help alleviate demand charges for a period of time in order to facilitate the investment in infrastructure, especially high capacity charging that may be greater than 100 kW service. Figure 48 below illustrates the adoption of the EV-F rate from inception through 2019. Further details of the 2019 statistics for EV-F adoption and comparison to 2018 statistics are provided in Appendix E.

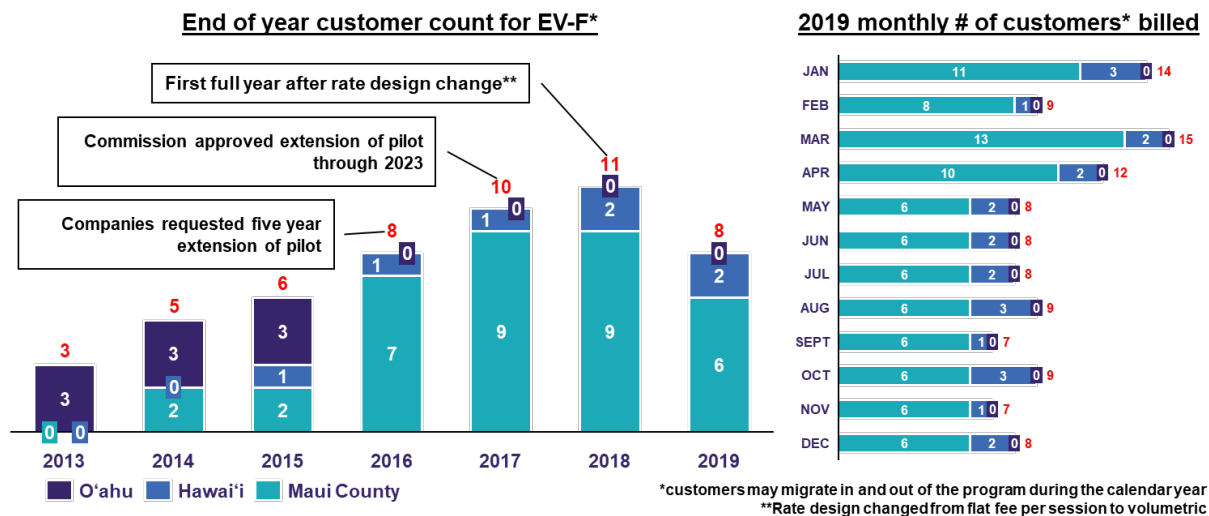


Figure 48 Adoption of EV-F pilot from inception of the program (2013) through 2019.

Summary of Cost and Revenue

In Figure 49 below, the revenue generated each month from Schedule EV-F for Hawaiian Electric’s three operating utilities is illustrated. In 2019, \$72,975 in revenue was generated from customers under the Schedule EV-F program. Incremental costs to support the Schedule EV-F program, including the cost to enroll and bill customers, are minimal.

²⁸ The charging stations selected are located at Queen Kaahumanu Center, Piilani Village Shopping Center, Pukalani Terrace Center, and Lahaina Aquatic Center.

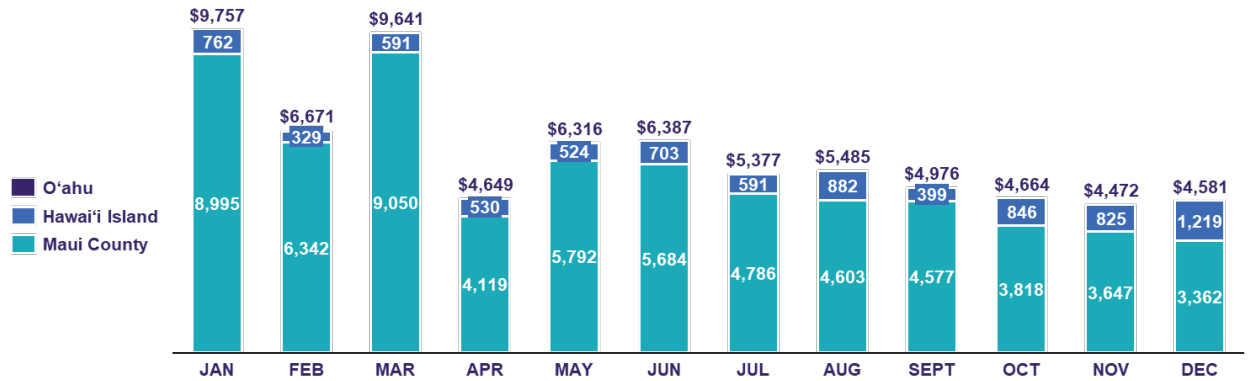


Figure 49 Revenues collected from EV-F customers in 2019.

Subsidization by non-participating customers

Schedule EV-F is an economic development rate intended to reduce the financial risk for startup EV charging providers, which may otherwise be confronted with significant demand charges combined with low utilization. A report prepared by Idaho National Laboratory (“INL”) supports the need to provide an economic development rate for third-party EV charging facilities, stating that “[d]emand charges associated with 50 to 60-kW high power charging . . . can have a significant impact on a business’ monthly electric utility bill.”²⁹ The Company maintains that Schedule EV-F can help to reduce initial cost barriers for prospective third-party infrastructure providers and incentivize greater investment in infrastructure.

Figure 50 below summarizes the total annual revenue from Schedule EV-F compared to the potential revenue generated if the charging facility were billed under each utility’s respective Schedule J.³⁰ The potential revenue under Schedule J³¹ for the year 2019 was \$56,630 higher than revenues from Schedule EV-F.

Schedule EV-F is a TOU rate with the lowest rate during the Mid-Day to incentivize charging during the peak solar generation hours of 9 a.m. to 5 p.m. As this Mid-Day utilization increases in comparison to the On-Peak and Off-Peak hours, the difference between total Schedule EV-F revenue and the potential Schedule EV-U rate will increase. In 2019, almost 67 percent of all energy provided by Schedule EV-F was consumed during the Mid-Day.

²⁹ Idaho National Laboratory, “What is the Impact of Utility Demand Charges on a DCFC Host?” June 2015. Available at <http://avt.inl.gov/pdf/EVProj/EffectOfDemandChargesOnDCFCHosts.pdf>.

³⁰ General Service Demand rate applicable to general light and/or power loads that exceed 5,000 kWh per month or exceed 25 kW three times within a twelve-month period but are less than 300 kW per month and supplied through a single meter.

³¹ The 2019 potential Schedule J revenue provided in Figure 50 is calculated using the maximum monthly billing demand recorded based on new meters that were installed that measure demand. Previous meters did not measure demand. The potential Schedule J revenue provided in 2018 used as assumed monthly billing demand of 47.5 kW. A typical EV will fast charge at power up to 50 kW but will reduce power as the battery state of charge increases.

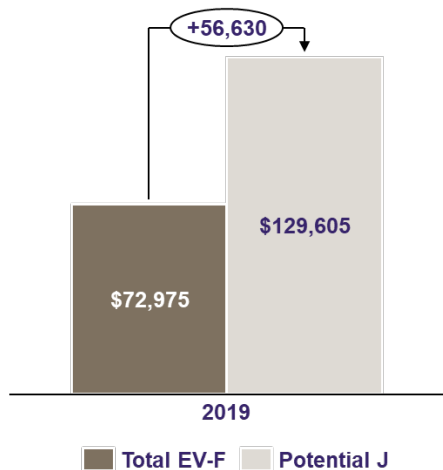


Figure 50 Difference between the total EV revenue collected and potential revenues under Schedule J for 2019.

Recommendation of revisions to rate structures

As indicated in the Workplan and discussed above under the Schedule EV-U Tariff, the Company intends to evaluate EV-F as part of the overall rate design filing.

Customer engagement and outreach (Roadmap Initiative #1)

As part of the Company’s Roadmap, Initiative #1, customer engagement and outreach, is foundational and paramount to the success of the electrification of transportation in Hawai’i. The Company discovered that there is limited awareness, understanding, and enthusiasm for EVs among fleet operators, auto dealerships, and the public.³² By working with partners³³ who share clean transportation objectives and who are willing to contribute their knowledge and expertise, the Company has leveraged the unique abilities of each partner and is hopeful that partners will continue to contribute financial and/or in-kind resources to this effort. Ultimately, the extent of the Company’s action needed on outreach and education will depend on the ability of partners to assist.

In 2019, the Company has contributed to the EV-U and EV-F program education and outreach effort in the following ways:

- Keeping the Company’s website up to date as a go-to resource for many customers seeking information about the Company’s DCFC charge stations, including location, operation status (i.e., in-service or out-of-service), and applicable rates;
- Distributed information at the 2019 First Hawaiian International Auto Show, which included a Ride and Drive in partnership with local dealerships and Drive Electric Hawai’i members;
- Press and social media alerts announcing the opening of new DCFC stations;
- Moloka’i DCFC Grand Opening and Maui Economic Opportunity car and charger donation;

³² Docket No. 2018-0135, Electrification of Transportation Strategic Roadmap filed March 29, 2018 at 69.

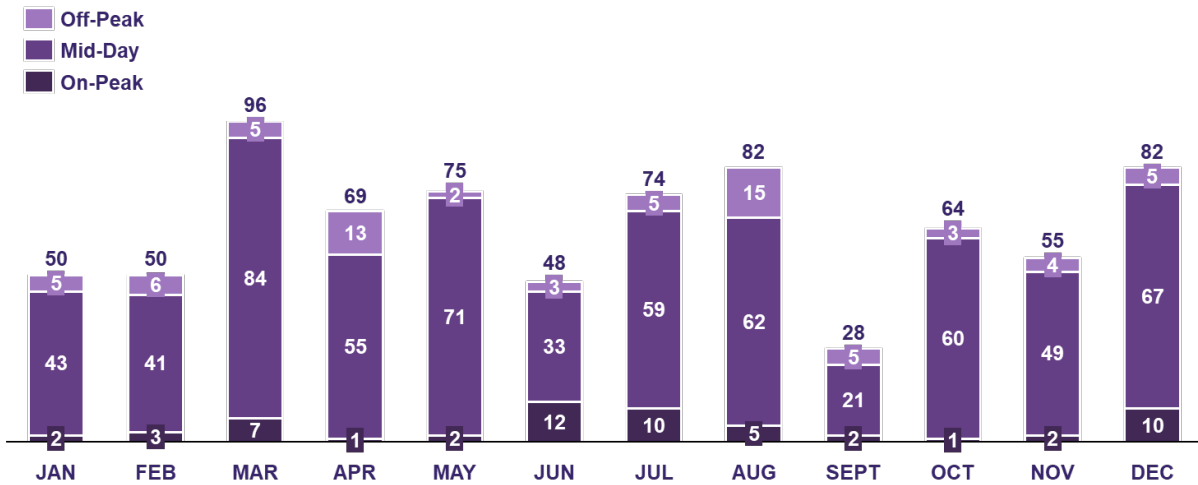
³³ Potential partners identified in the Roadmap: Drive Electric Hawai’i, Hawai’i Energy, NGOs, Automakers, Electrify America, and Dealerships and Hawai’i Automotive Dealer Association.

- Participated with dealerships and Drive Electric Hawai'i members at a Ride and Drive at SALT at the Company's Kaka'ako and the Kapolei Sustainability Fair;
- Promoted 10,000 EVs in Hawaii with Drive Electric Hawai'i members and local car wash businesses;
- Engaged with Transportation Network Companies ("TNCs") and EV car clubs, discussing opportunities to leverage the public fast charging stations as well as other potential strategic initiatives;
- Contributed experiences and lessons learned by employees during Company sponsored community events, which engage and educate the broader public;
- Participated in the National Drive Electric Week events at KTA and Home Depot in Hilo, and Windward Mall in Kaneohe;
- Engaged with the Big Island EV Association on the on-island network and possible future locations;
- Distributed Company brochures and showcased BYD EV at UH Hilo Earth Day Fair;
- Provided EV Salesperson Training with STCH and Blue Planet for various utility programs and existing charging infrastructure;
- Conducted discussions with individual condo association and management on EVSE, existing TOU rates, EV incentives, and charger installation options; and
- Engaged community partners (Ulupono Initiative, County of Maui, Maui Economic Development Board, and Blue Planet) and the public on the EV-MAUI Tariff filing to take over four select EVohana sites of which three are currently on Schedule EV-F.

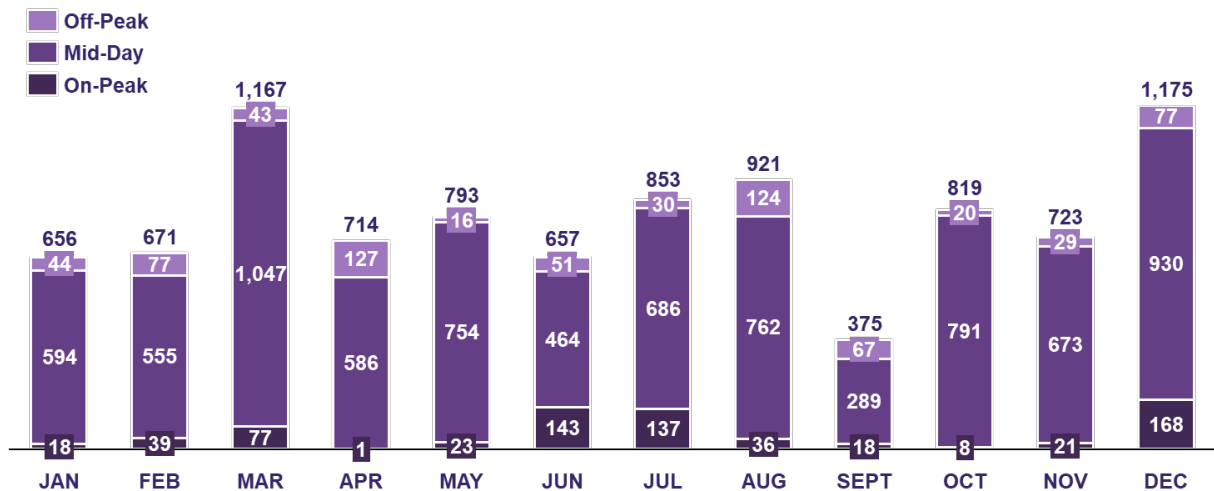
Appendix A – Details of O’ahu Charging Locations by Site

Dole Plantation

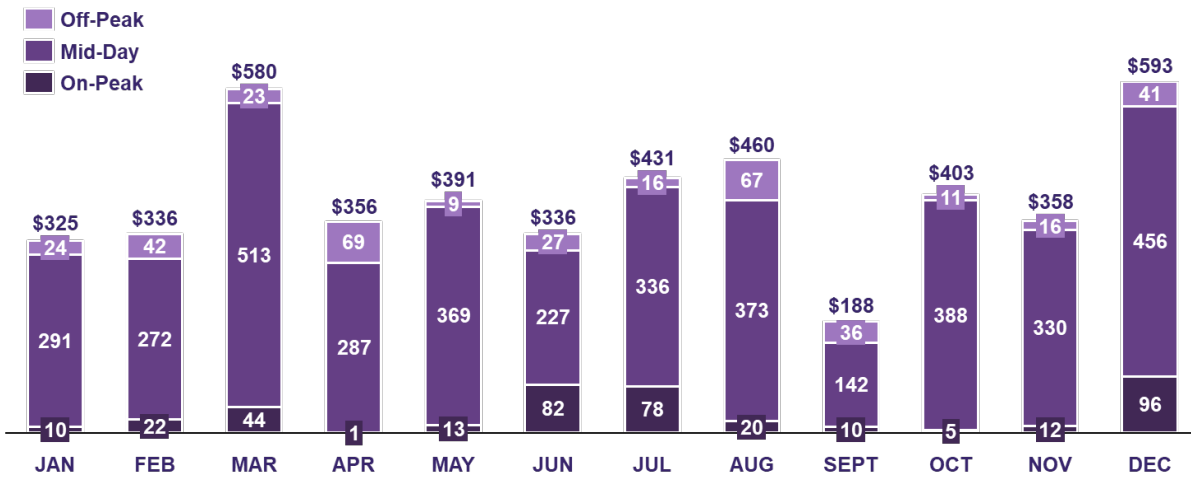
Dole Plantation 2019 - # of Sessions by time of day



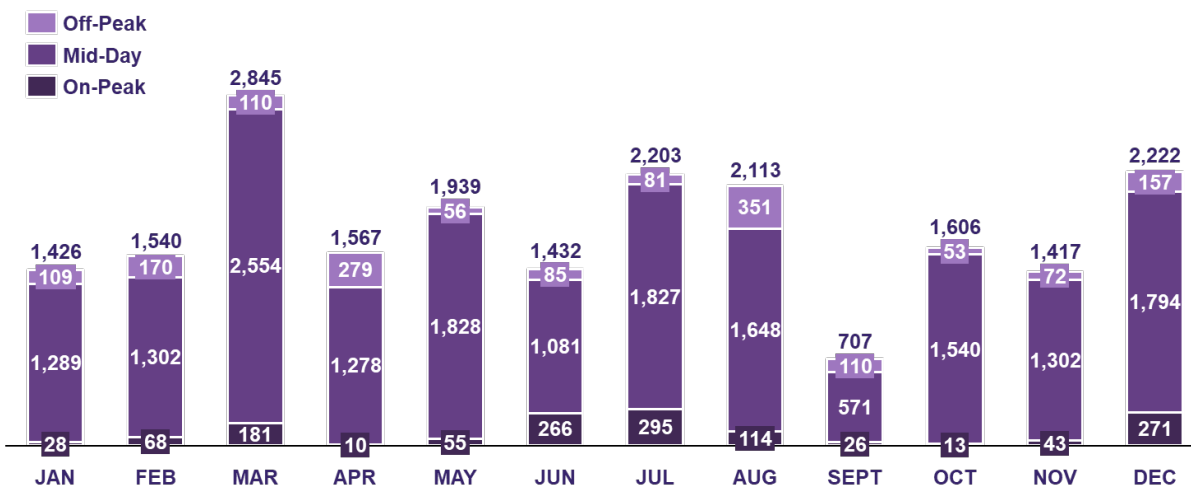
Dole Plantation 2019 - Energy (kWh) by time of day



Dole Plantation 2019 - Gross Revenue (\$) by time of day

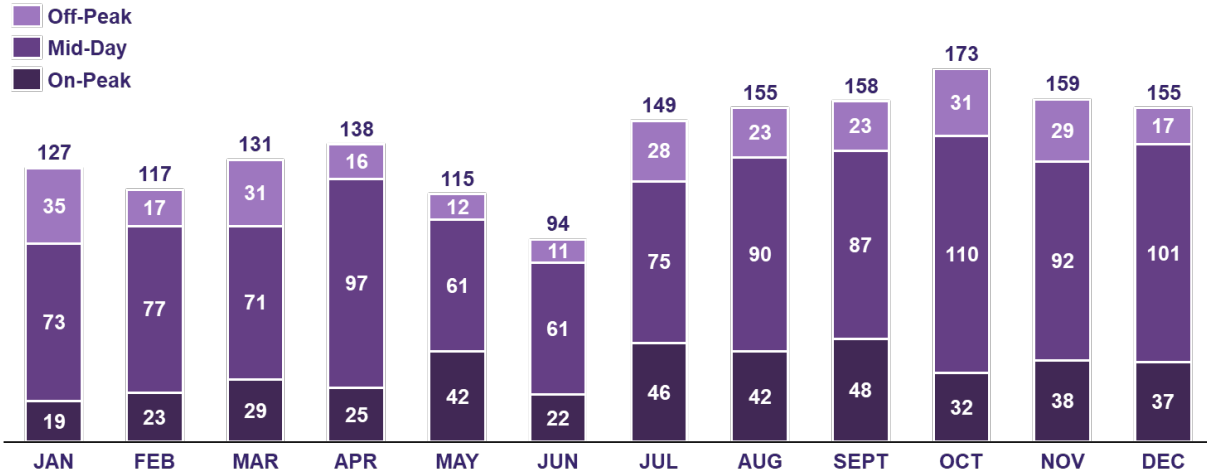


Dole Plantation 2019 - # of Minutes by time of day

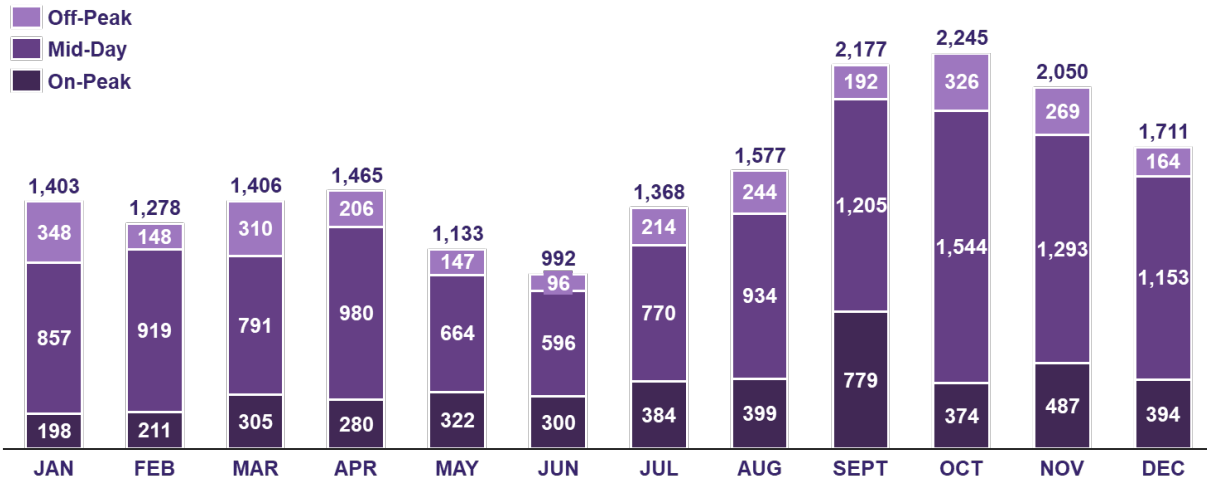


Ko'olau Center

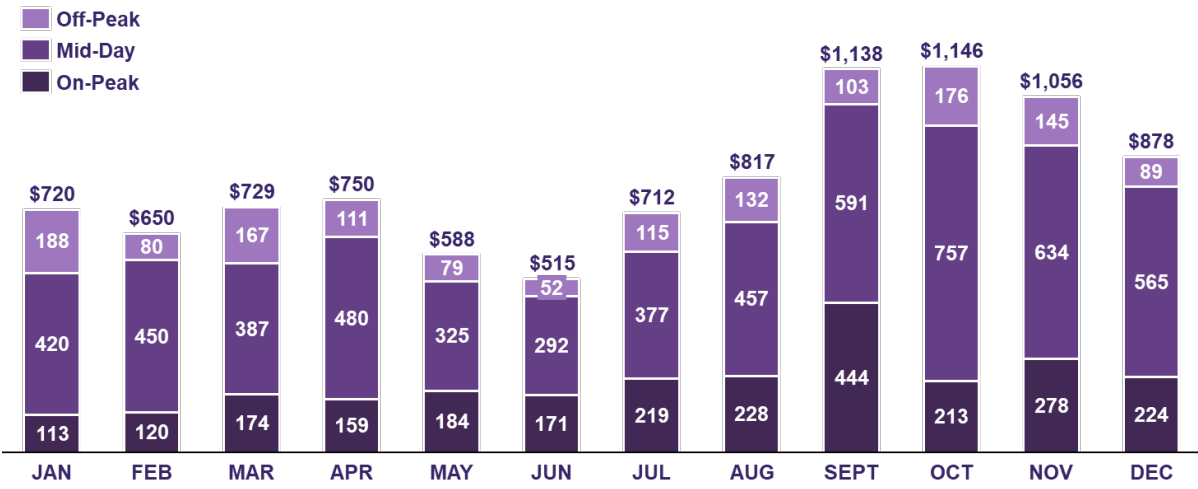
Ko'olau Center 2019 - # of Sessions by time of day



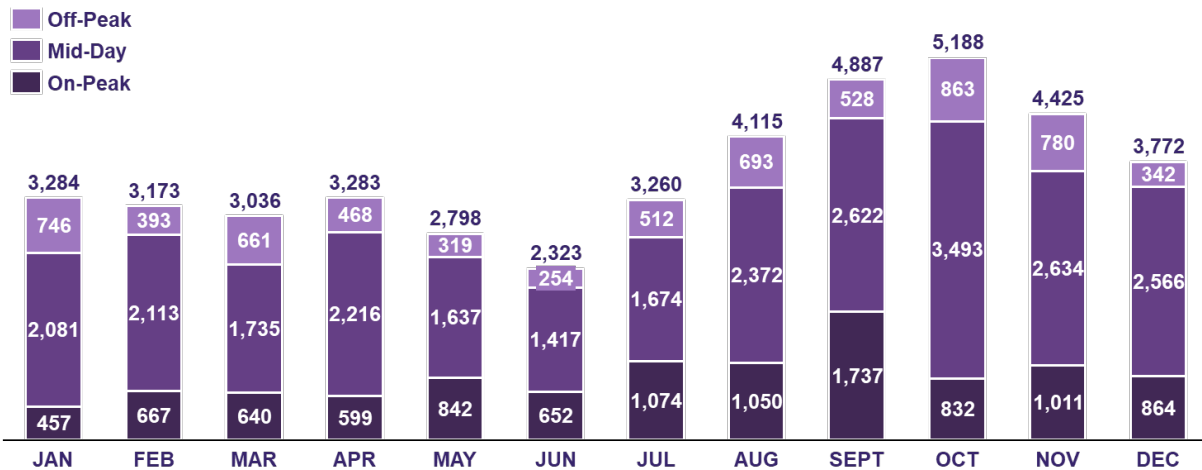
Ko'olau Center 2019 - Energy (kWh) by time of day



Ko'olau Center 2019 - Gross Revenue (\$) by time of day

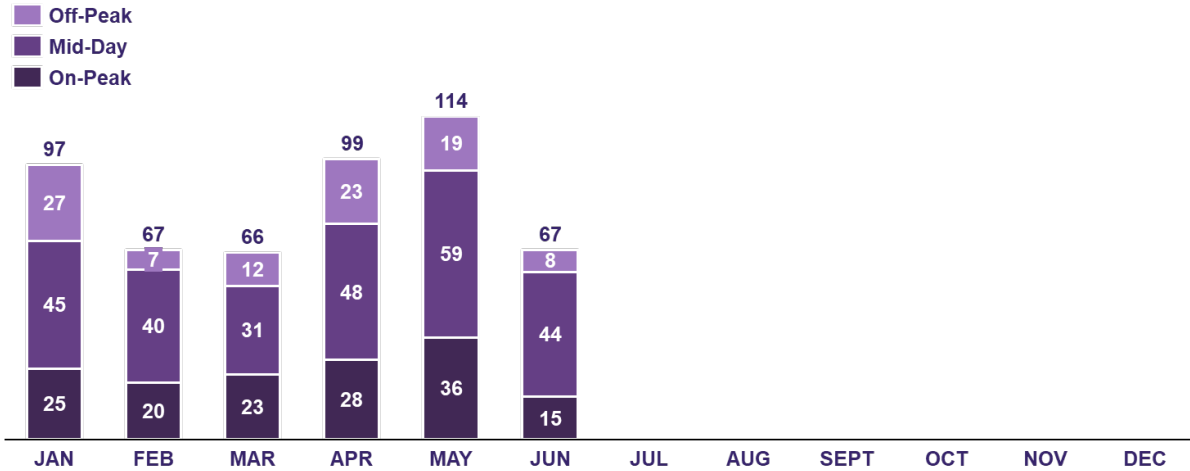


Ko'olau Center 2019 - # of Minutes by time of day

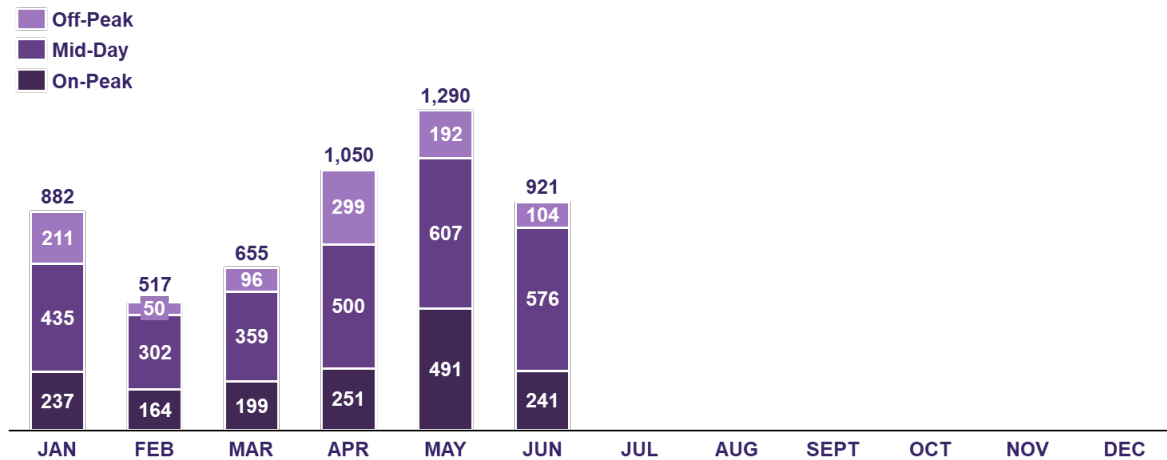


Kapolei Commons

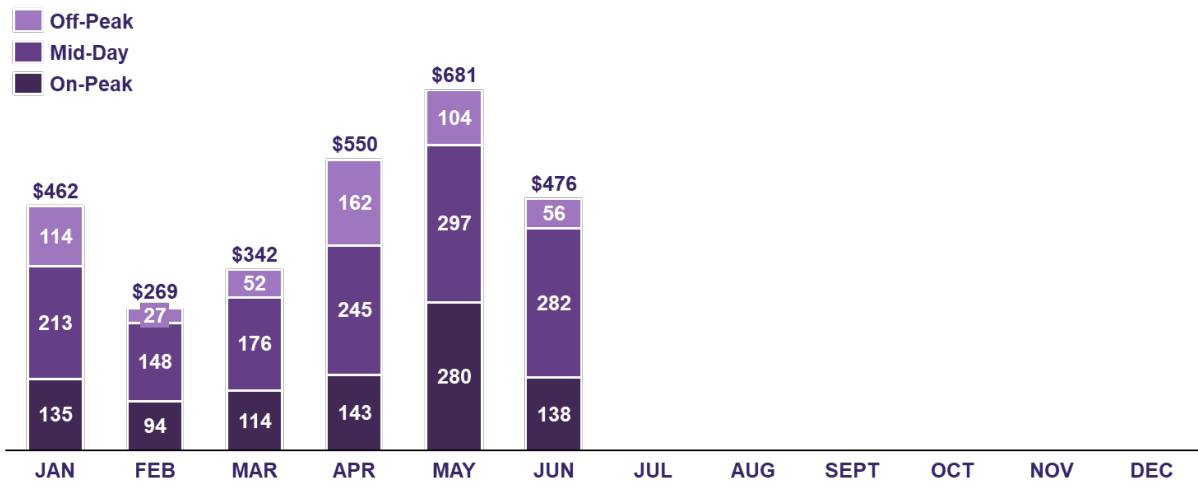
Kapolei Commons 2019 - # of Sessions by time of day



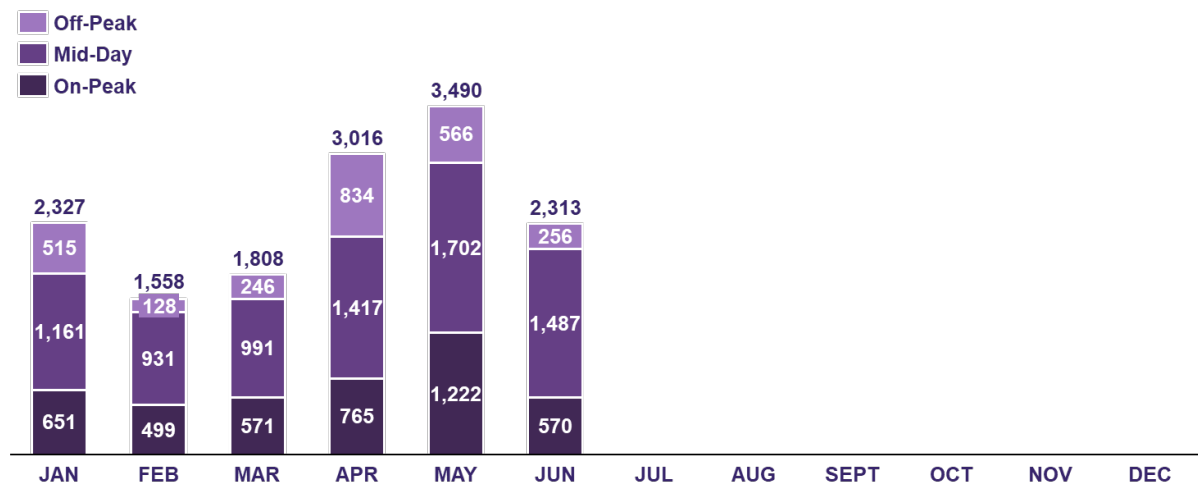
Kapolei Commons 2019 - Energy (kWh) by time of day



Kapolei Commons 2019 - Gross Revenue (\$) by time of day

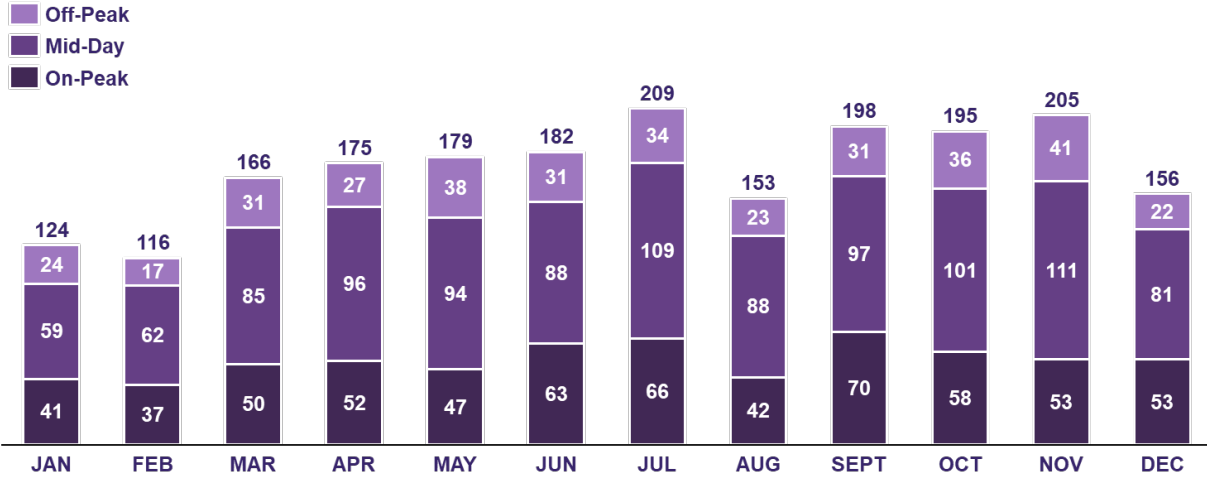


Kapolei Commons 2019 - # of Minutes by time of day

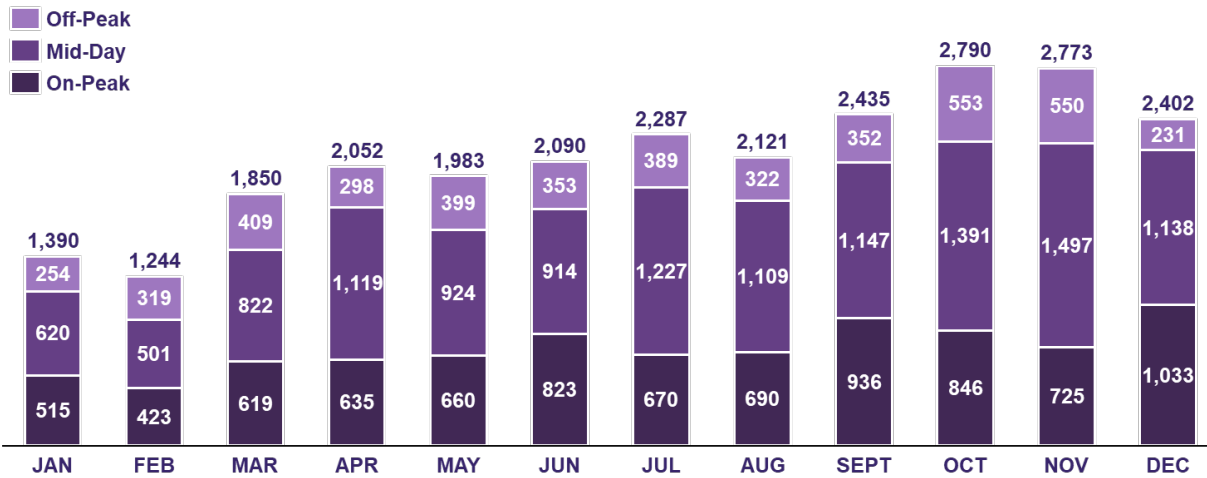


Hawai'i Kai 7-Eleven

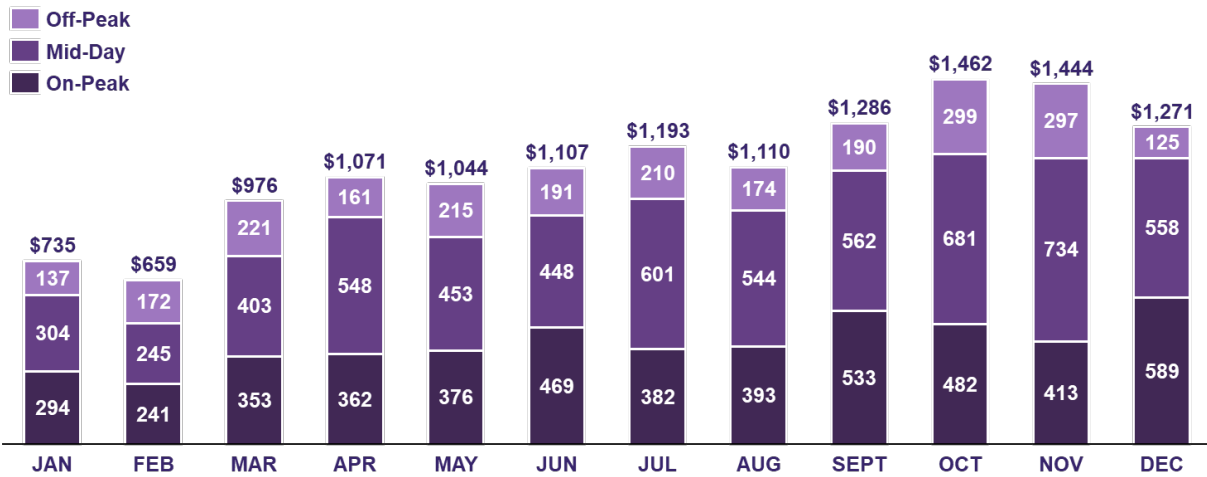
Hawai'i Kai 7-Eleven 2019 - # of Sessions by time of day



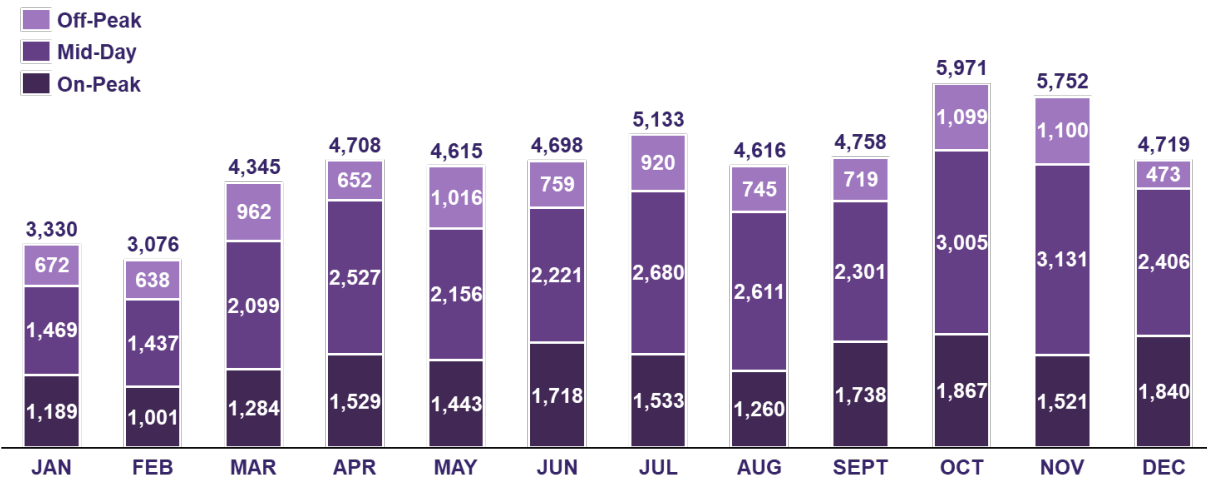
Hawai'i Kai 7-Eleven 2019 - Energy (kWh) by time of day



Hawai'i Kai 7-Eleven 2019 - Gross Revenue (\$) by time of day

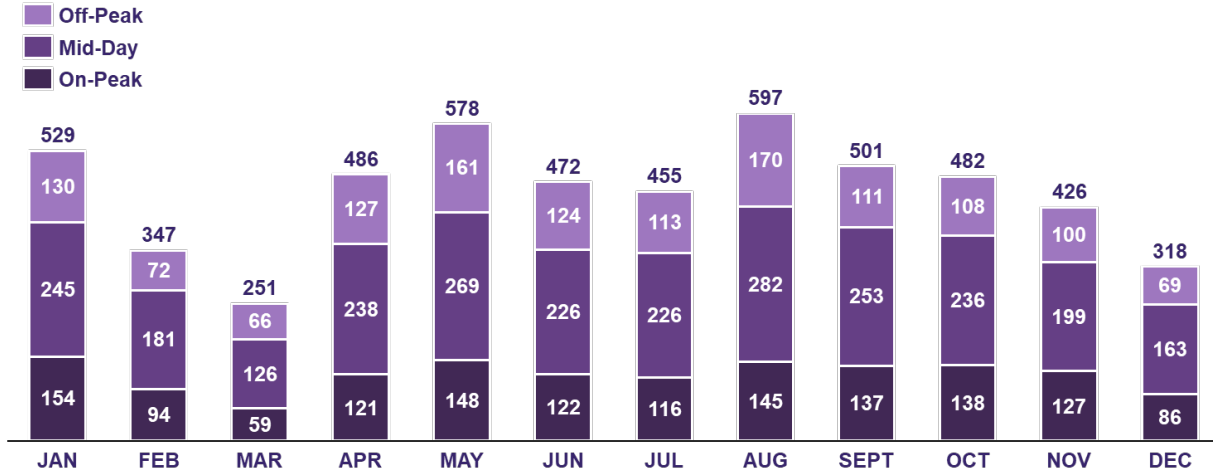


Hawai'i Kai 7-Eleven 2019 - # of Minutes by time of day

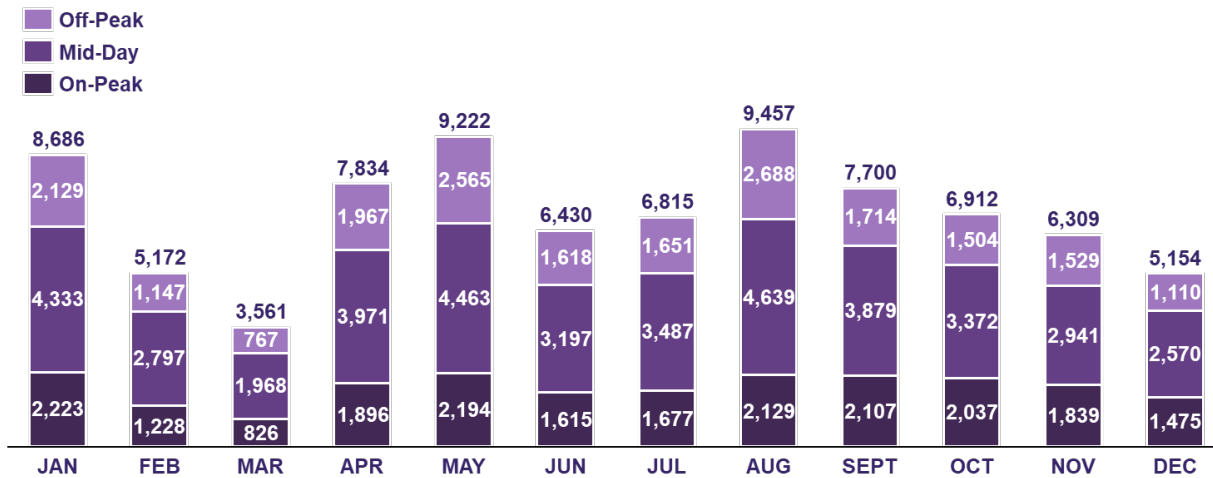


Ward 1

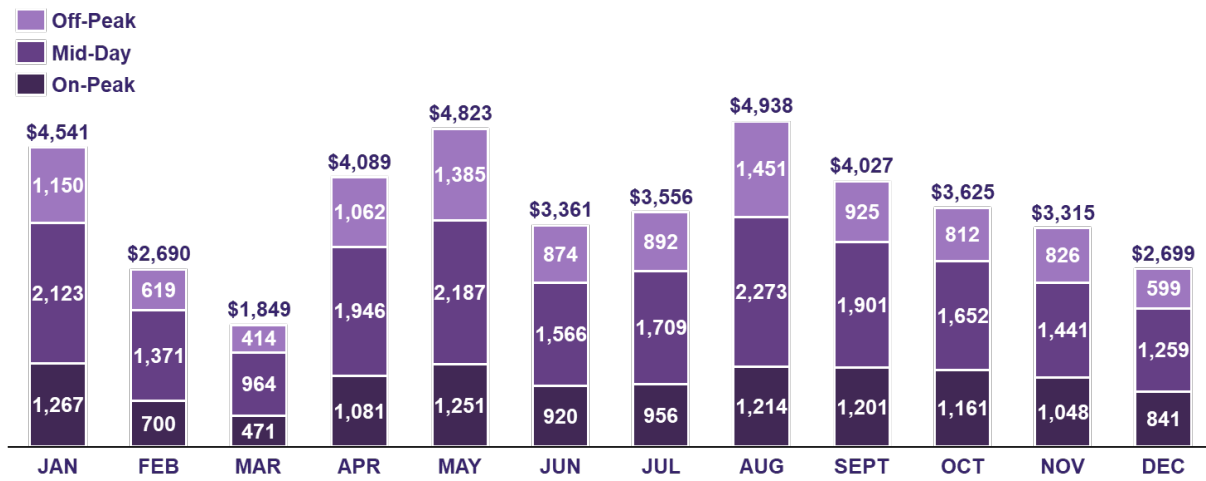
Ward 1 2019 - # of Sessions by time of day



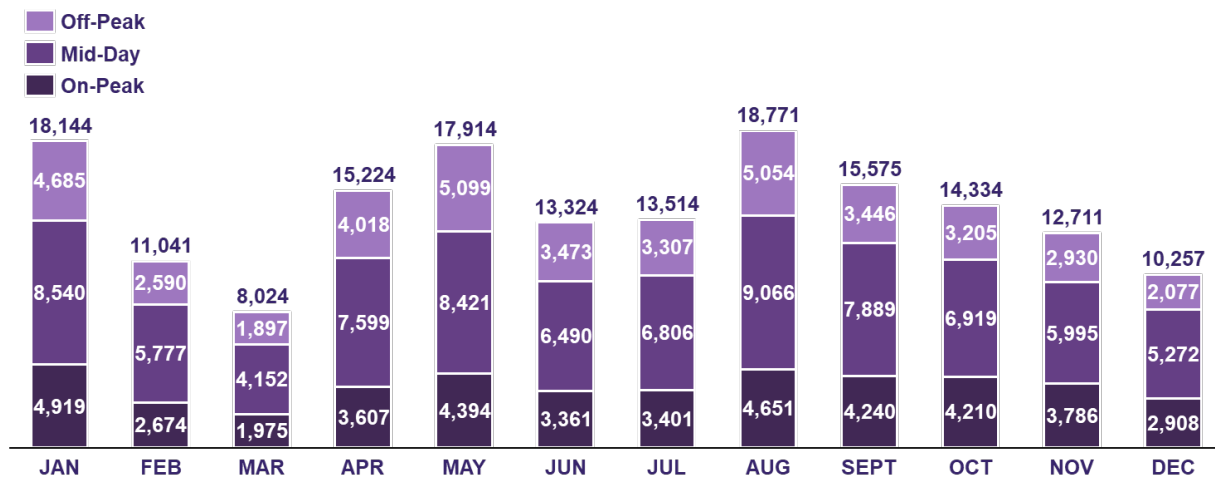
Ward 1 2019 - Energy (kWh) by time of day



Ward 1 2019 - Gross Revenue (\$) by time of day

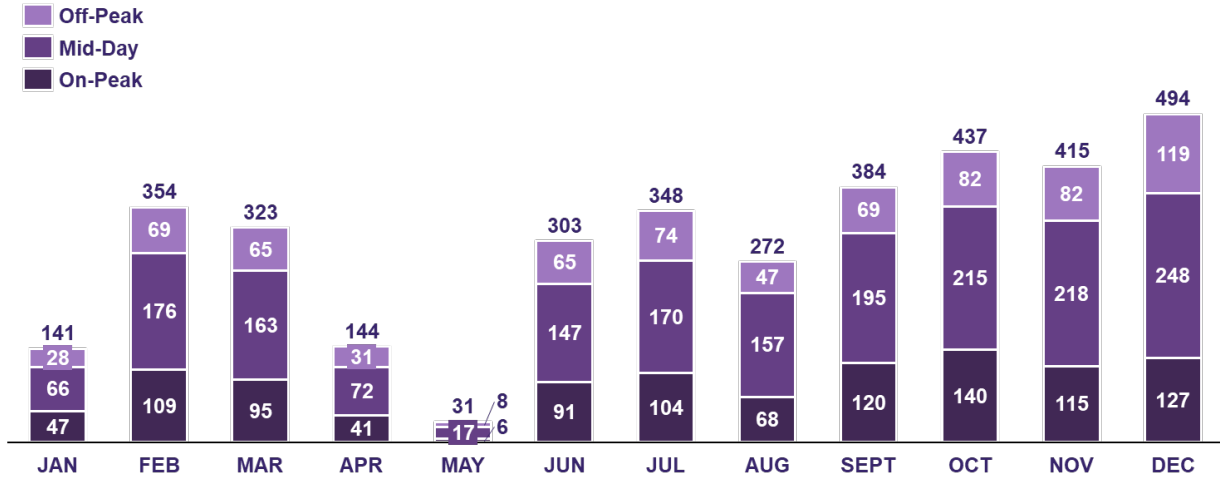


Ward 1 2019 - # of Minutes by time of day

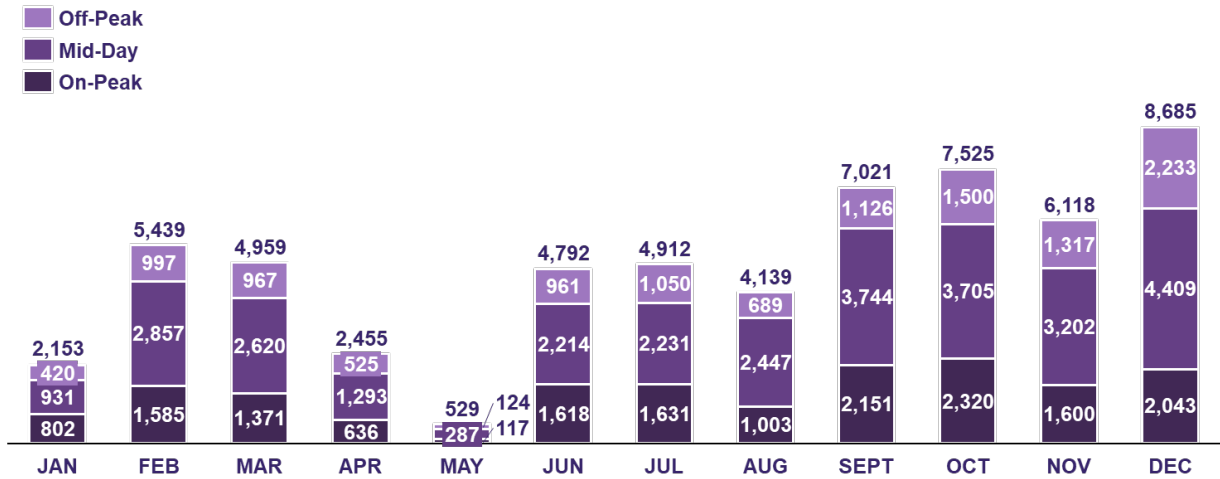


Ward 2

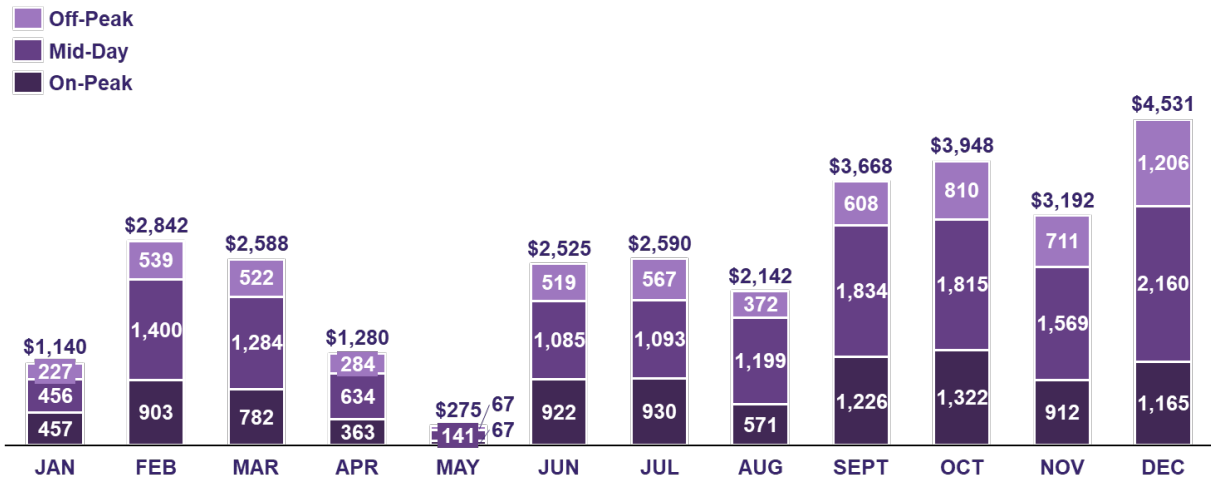
Ward 2 2019 - # of Sessions by time of day



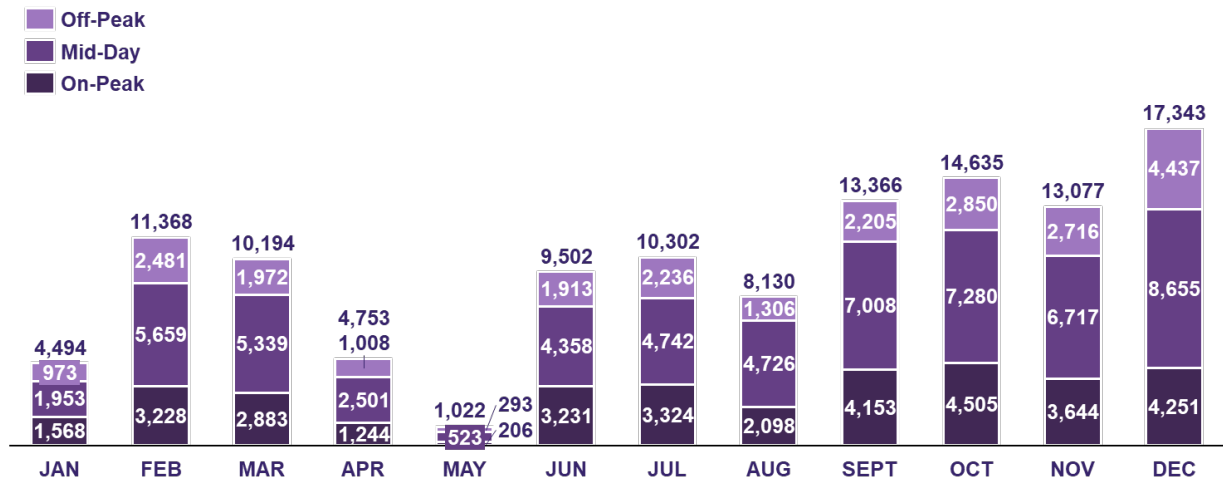
Ward 2 2019 - Energy (kWh) by time of day



Ward 2 2019 - Gross Revenue (\$) by time of day

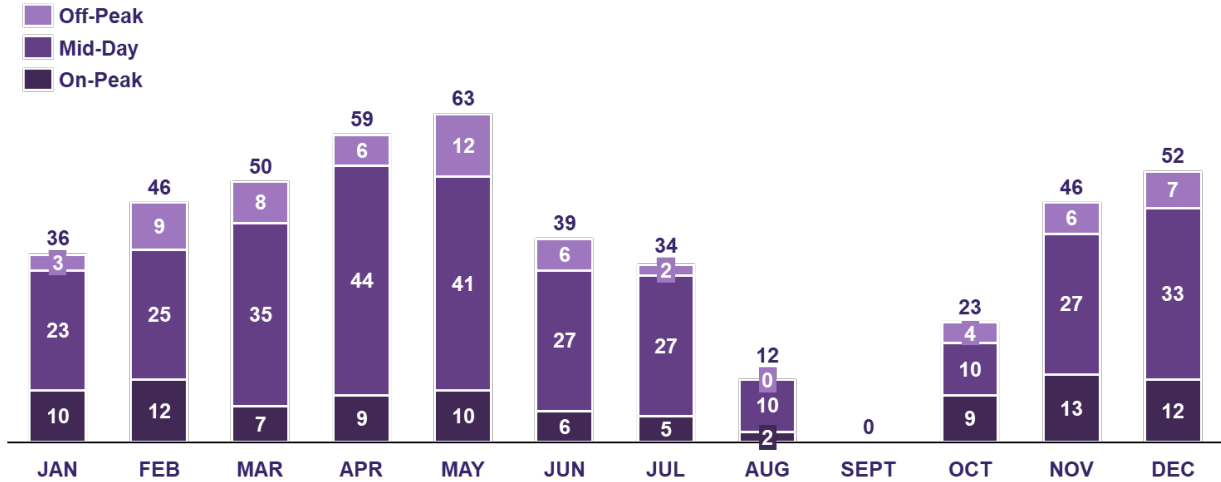


Ward 2 2019 - # of Minutes by time of day

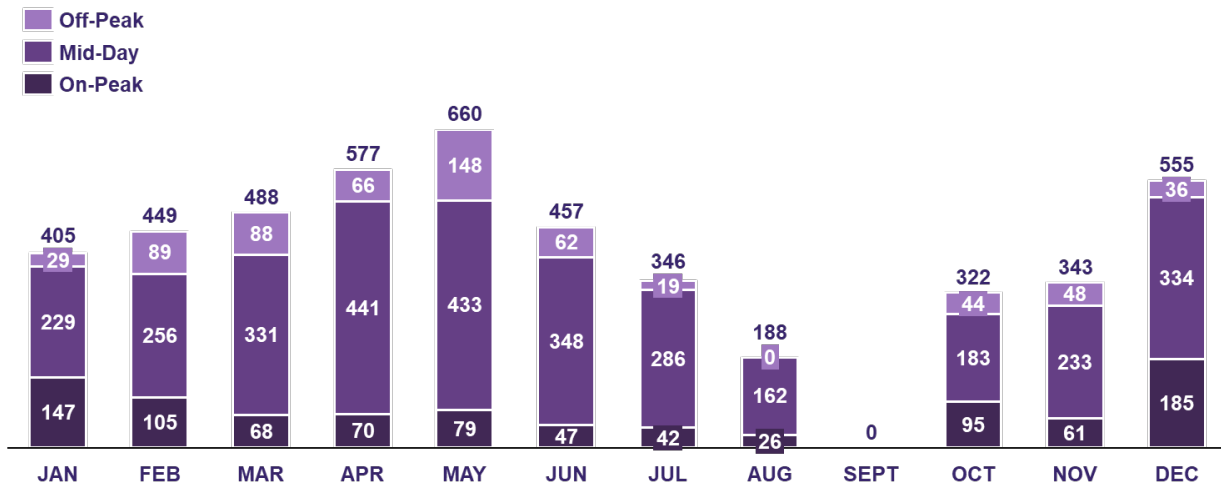


Wai'anae Mall

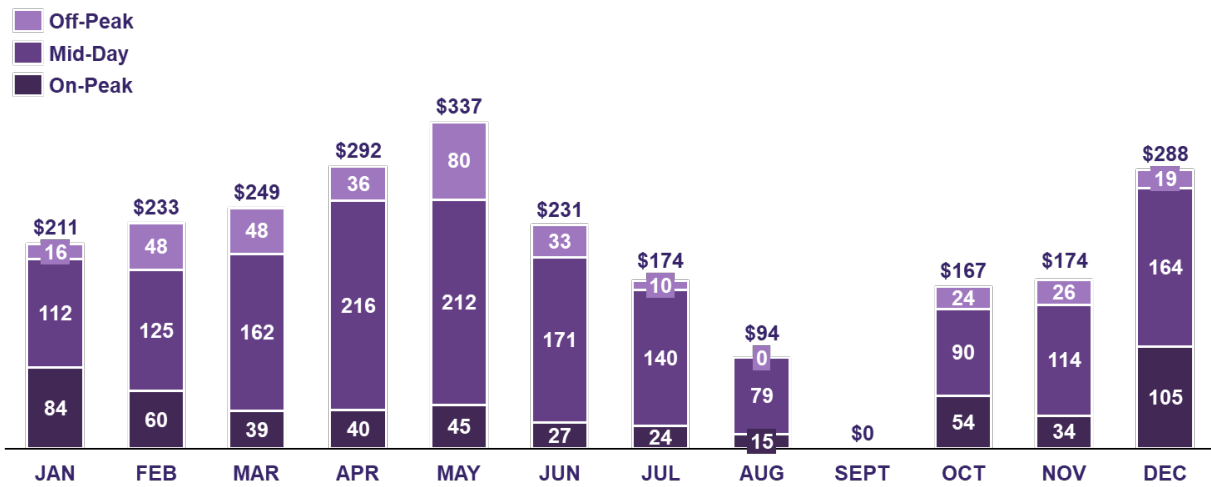
Wai'anae 2019 - # of Sessions by time of day



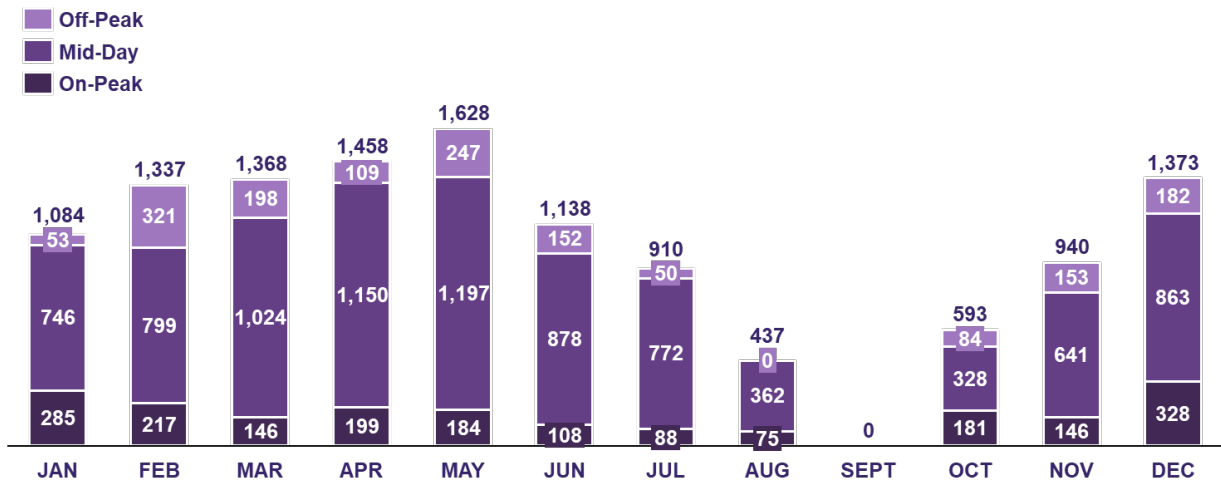
Wai'anae 2019 - Energy (kWh) by time of day



Wai'anae 2019 - Gross Revenue (\$) by time of day

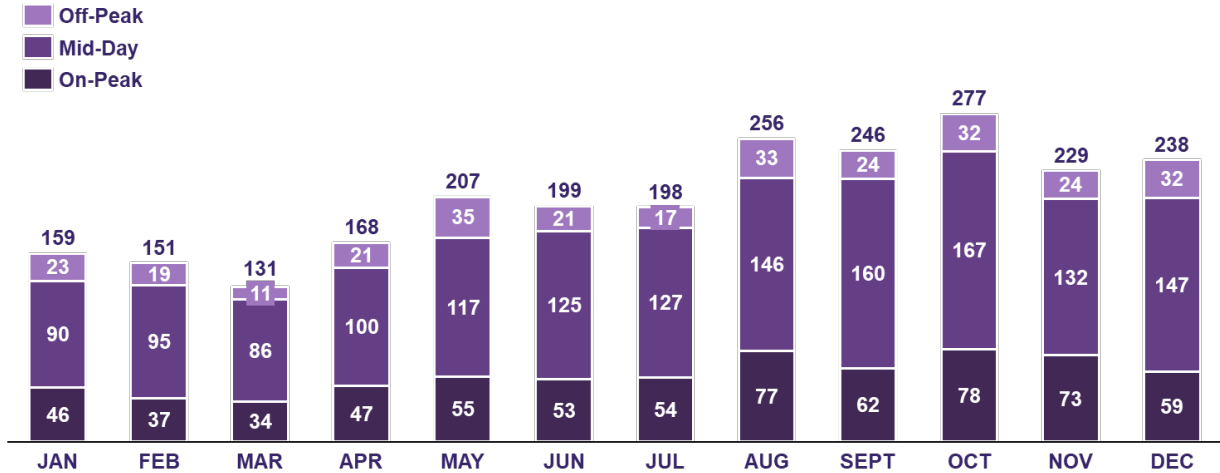


Wai'anae 2019 - # of Minutes by time of day

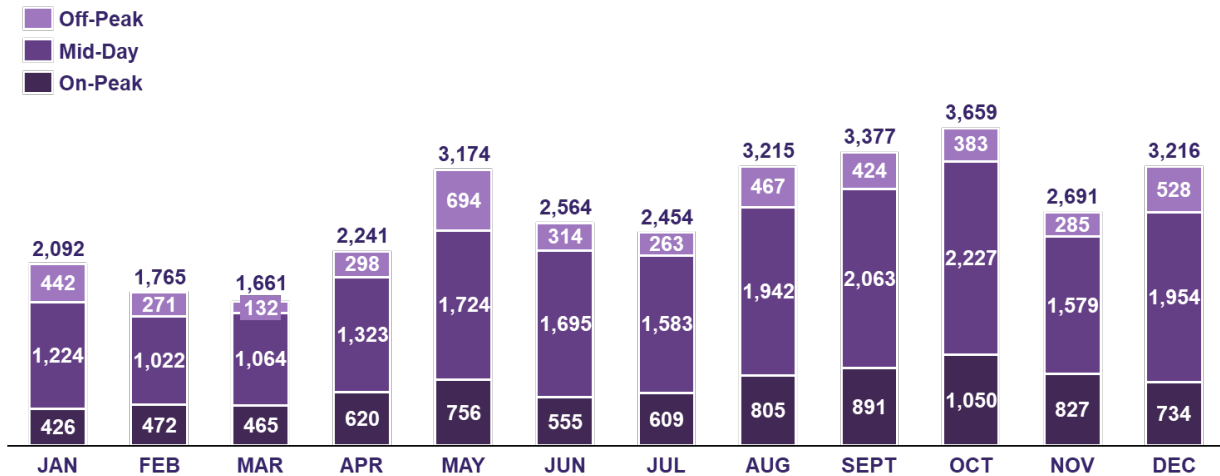


801 Dillingham

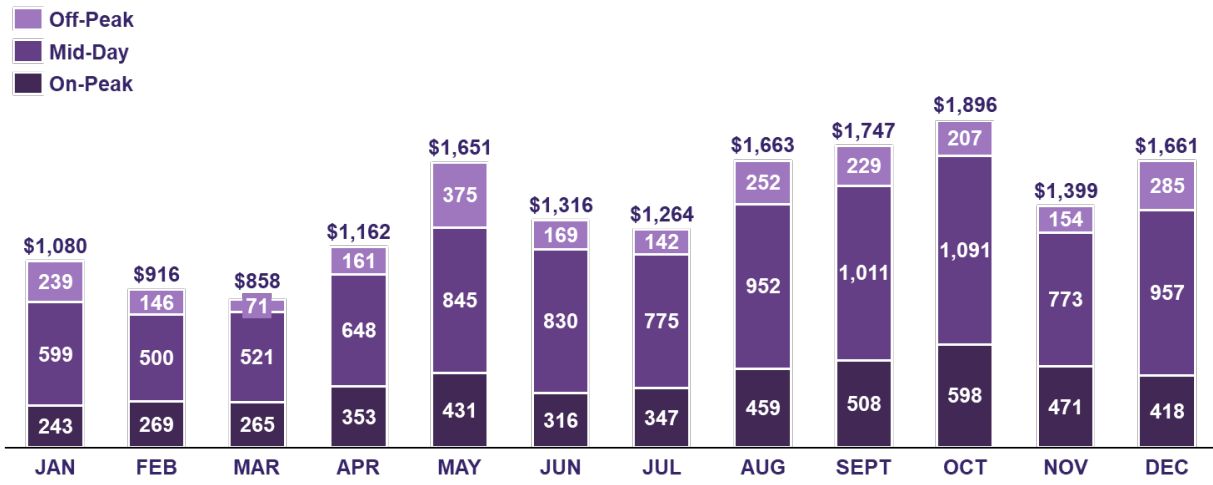
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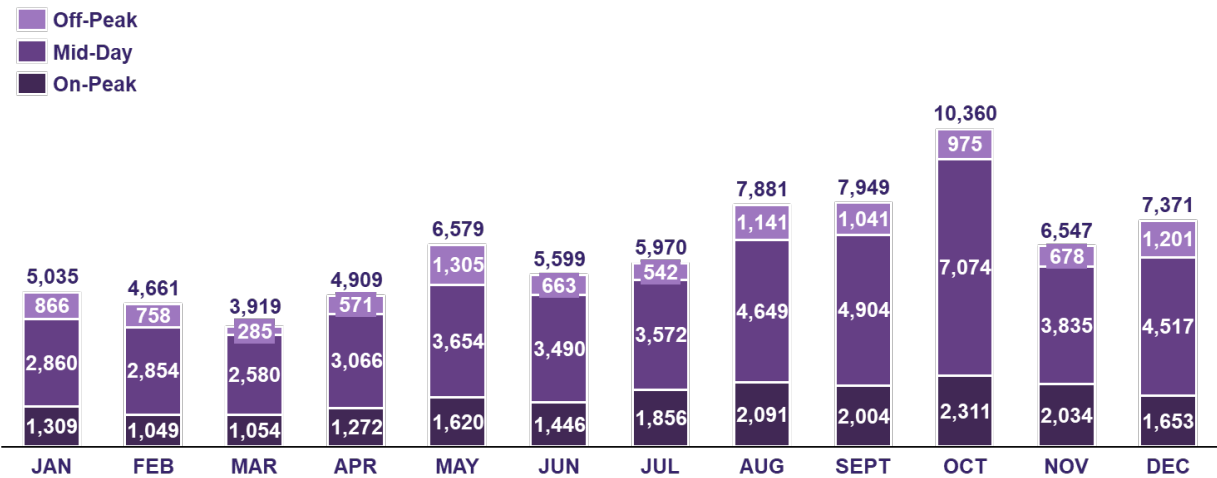
801 Dillingham 2019 - Energy (kWh) by time of day



801 Dillingham 2019 - Gross Revenue (\$) by time of day

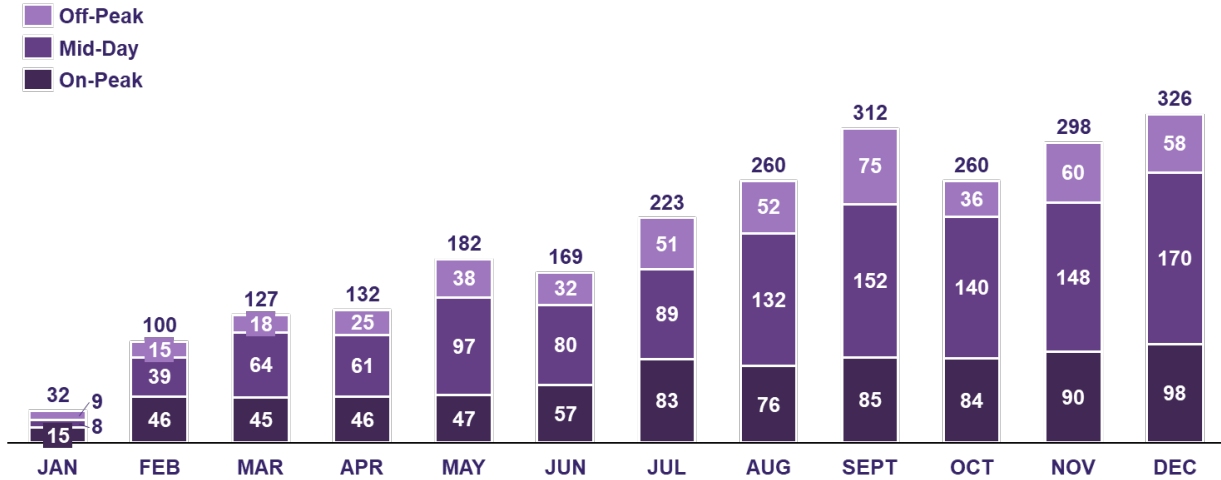


801 Dillingham 2019 - # of Minutes by time of day

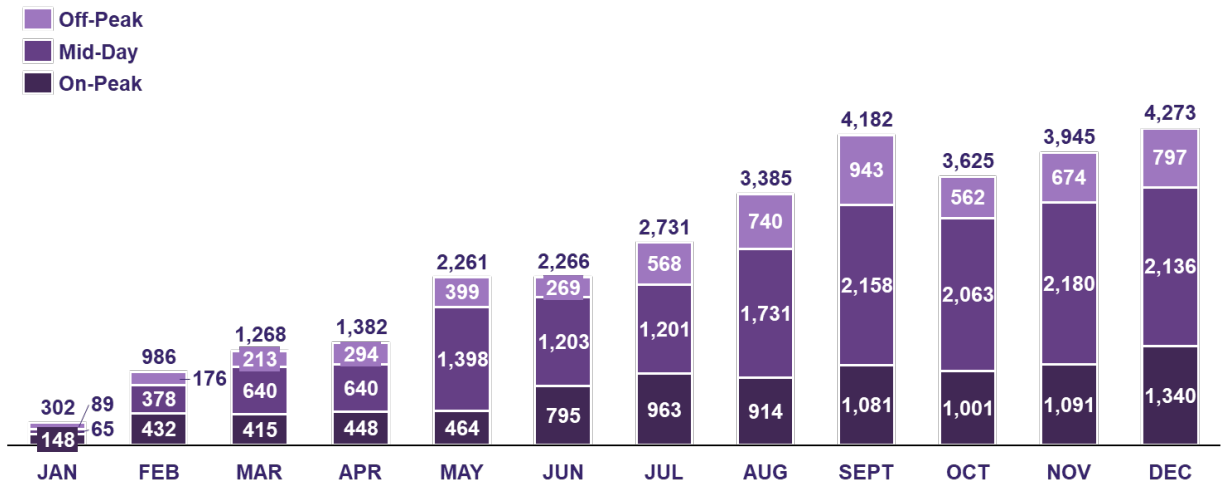


Times Square Shopping Center

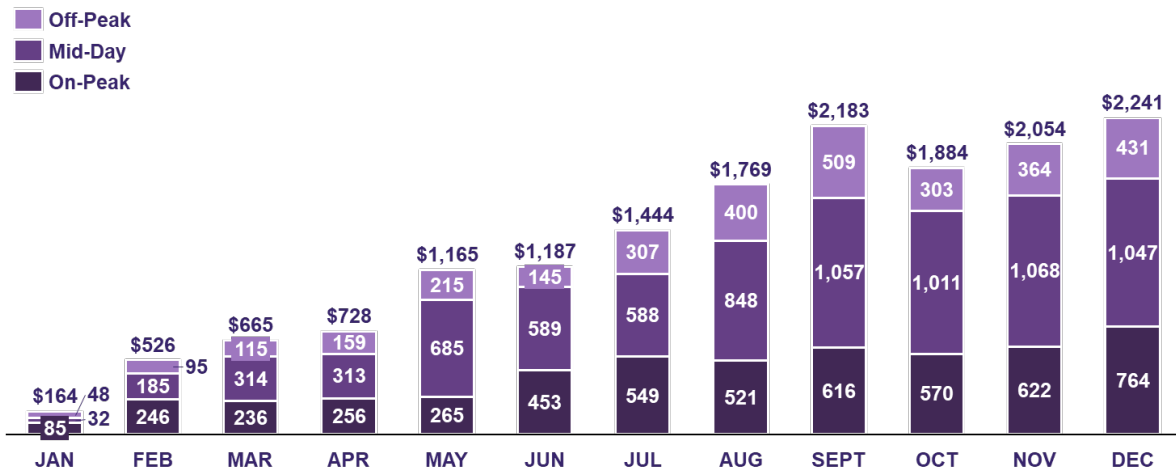
Times Square 2019 - # of Sessions by time of day



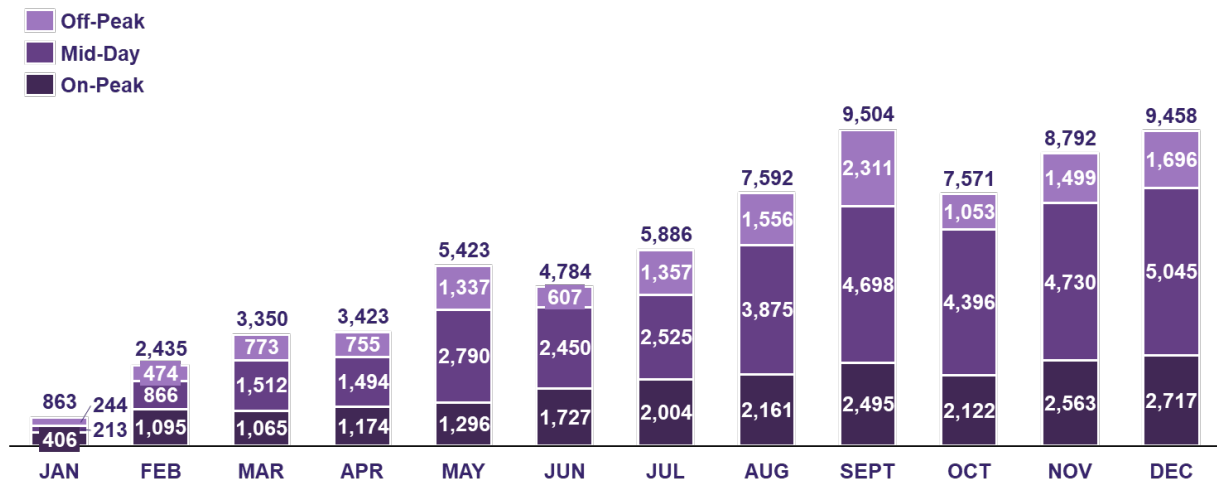
Times Square 2019 - Energy (kWh) by time of day



Times Square 2019 - Gross Revenue (\$) by time of day

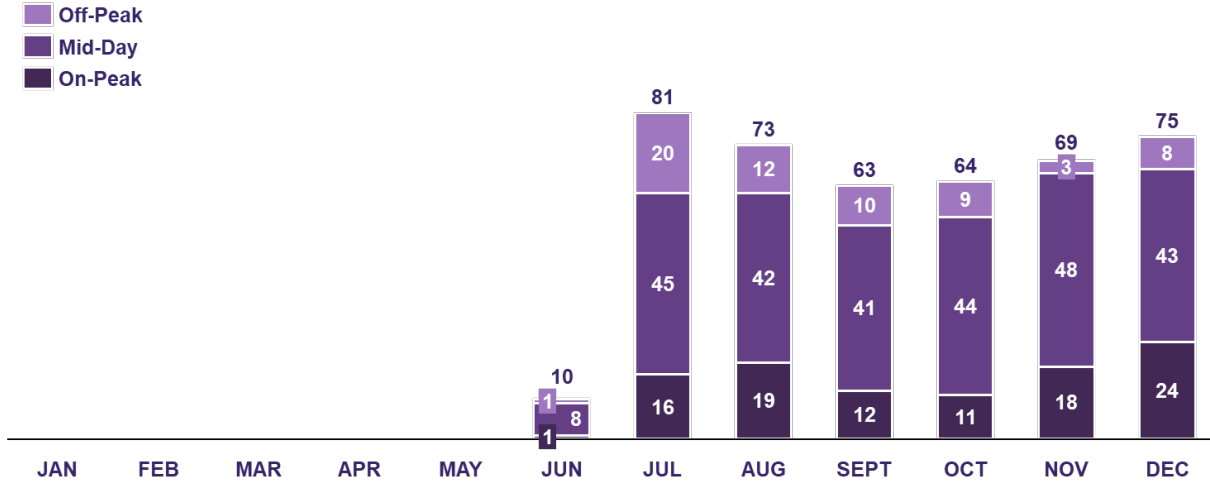


Times Square 2019 - # of Minutes by time of day

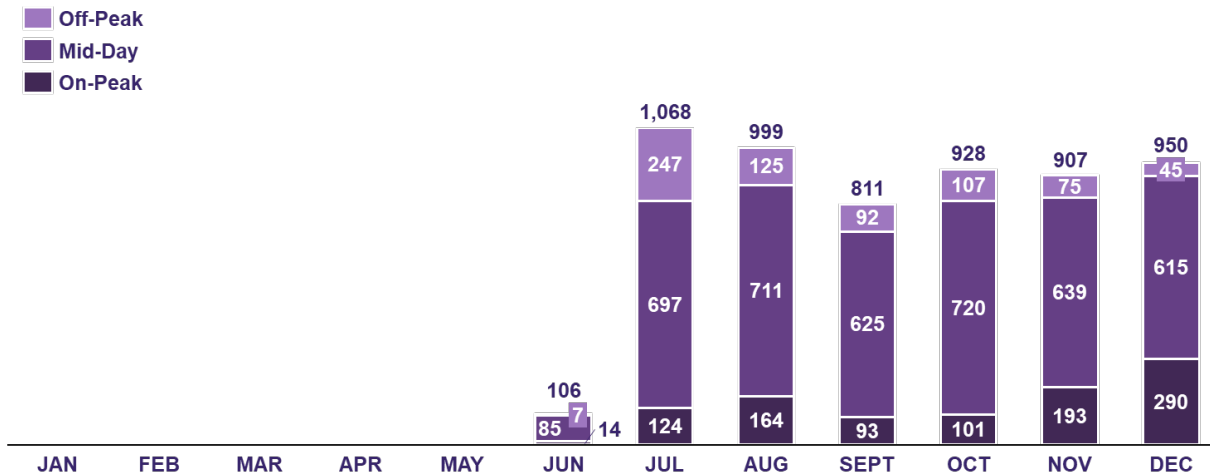


Haleiwa Town Center

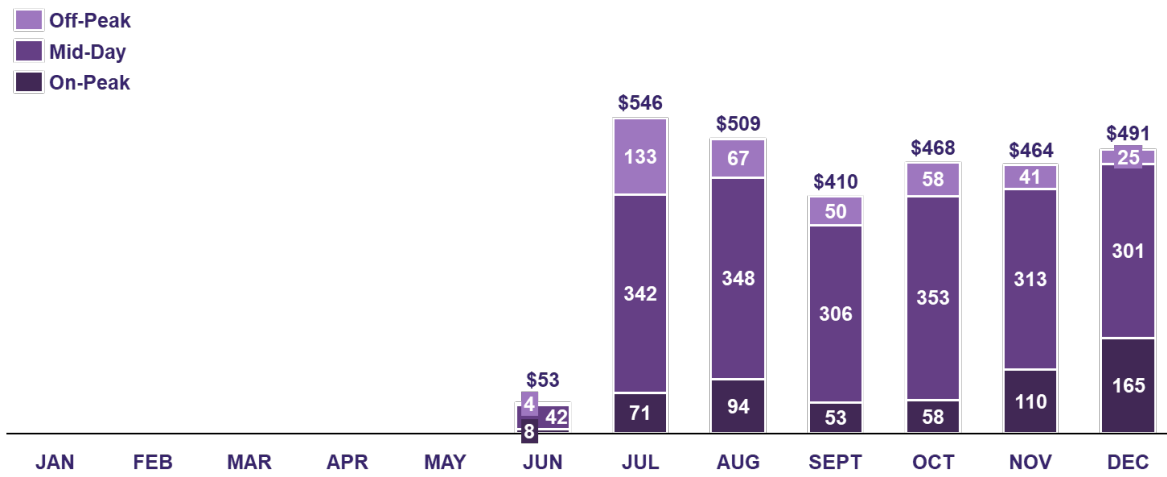
Haleiwa Town 2019 - # of Sessions by time of day



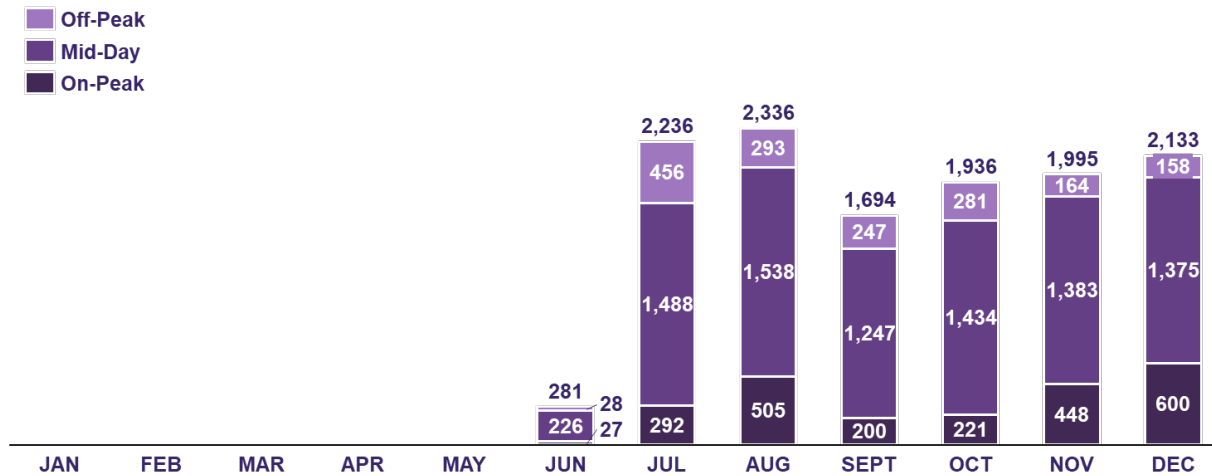
Haleiwa Town 2019 - Energy (kWh) by time of day



Haleiwa Town 2019 - Gross Revenue (\$) by time of day



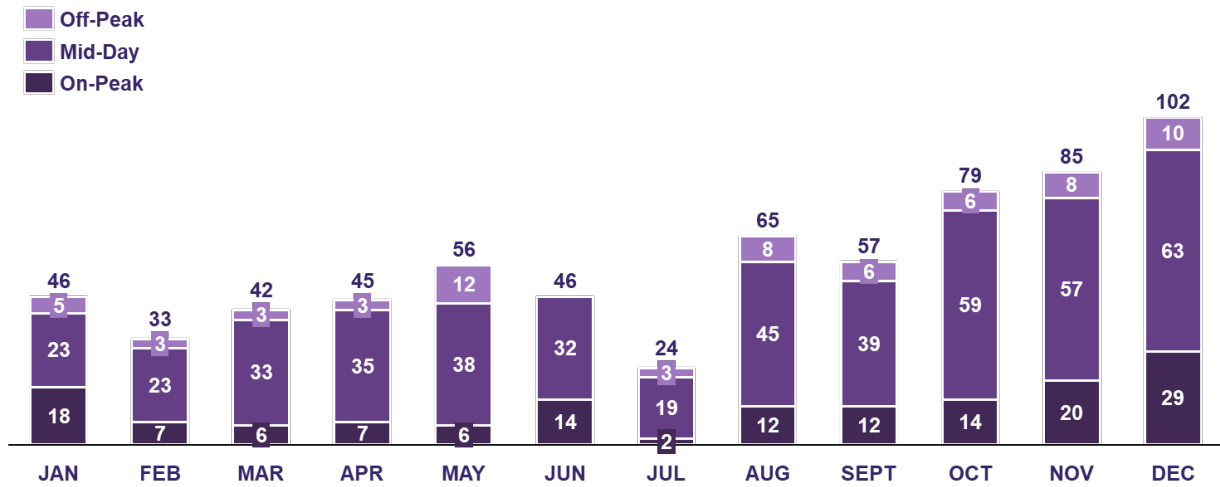
Haleiwa Town 2019 - # of Minutes by time of day



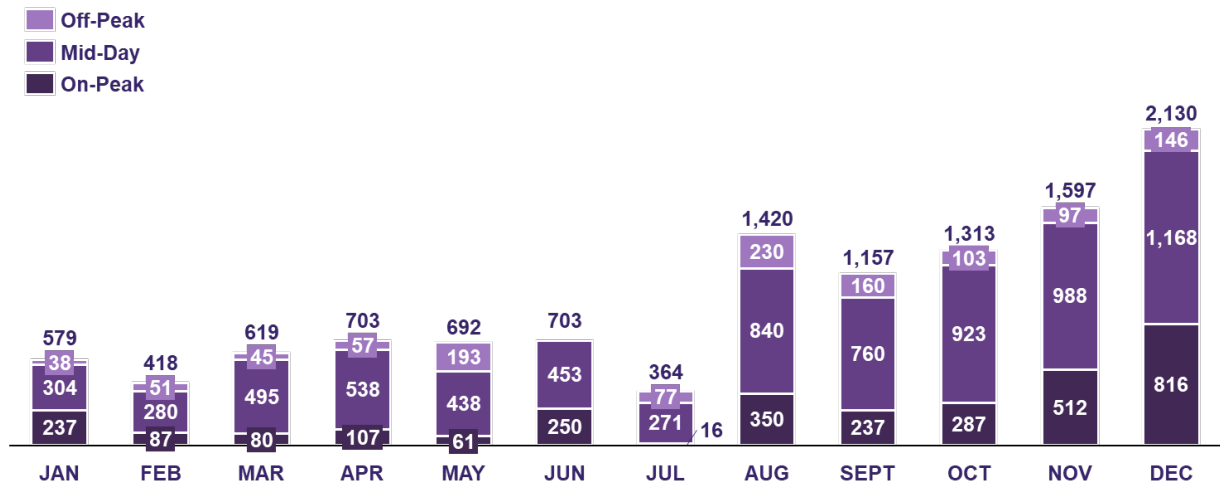
Appendix B – Details of Hawai‘i Island Charging Locations by Site

Hilo Office

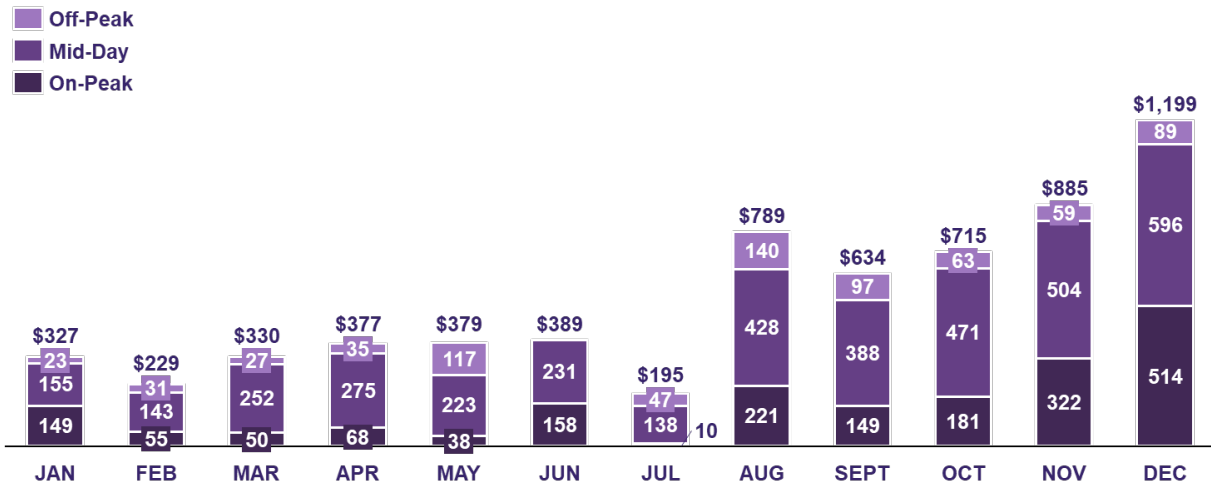
Hilo Office 2019 - # of Sessions by time of day



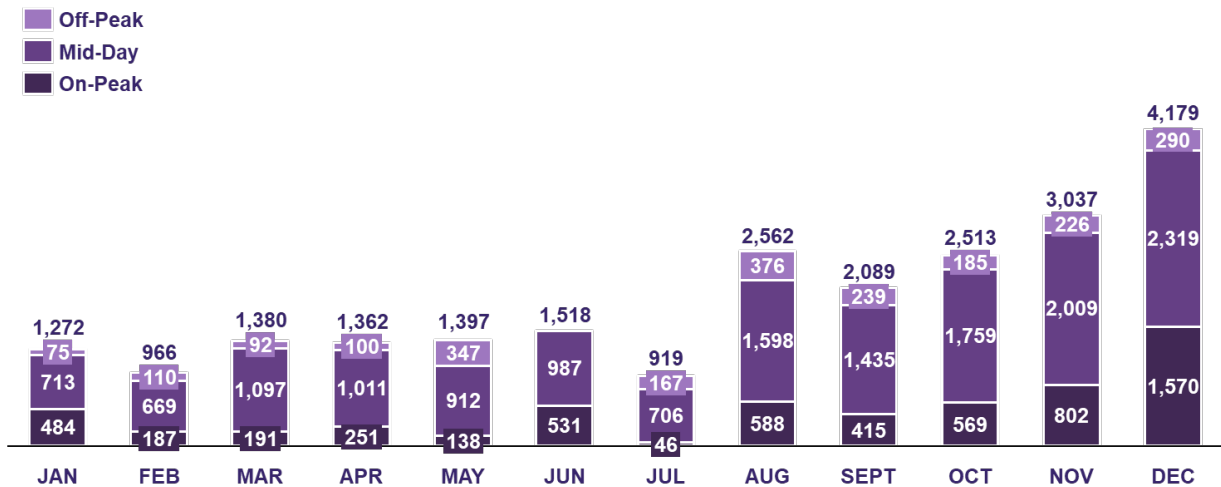
Hilo Office 2019 - Energy (kWh) by time of day



Hilo Office 2019 - Gross Revenue (\$) by time of day

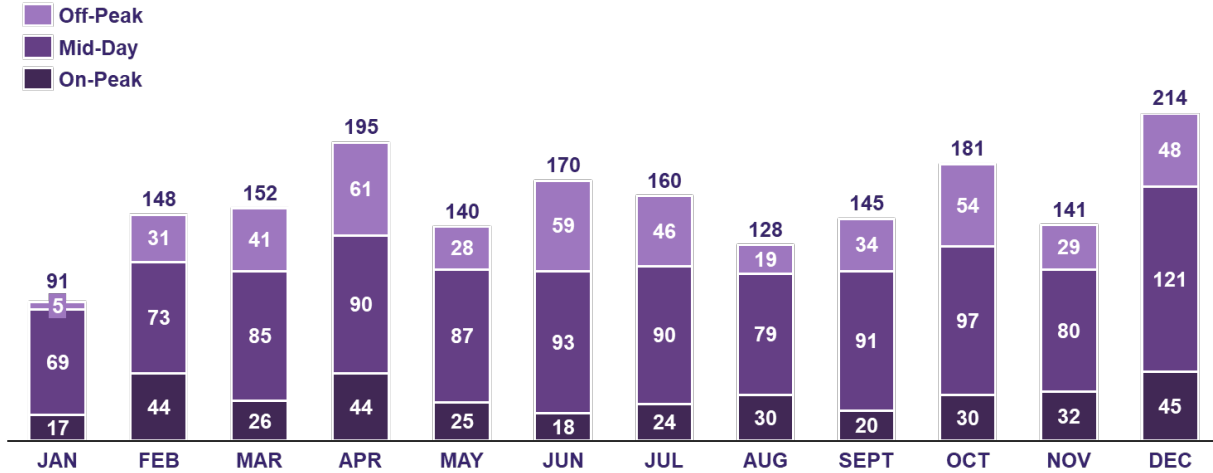


Hilo Office 2019 - # of Minutes by time of day

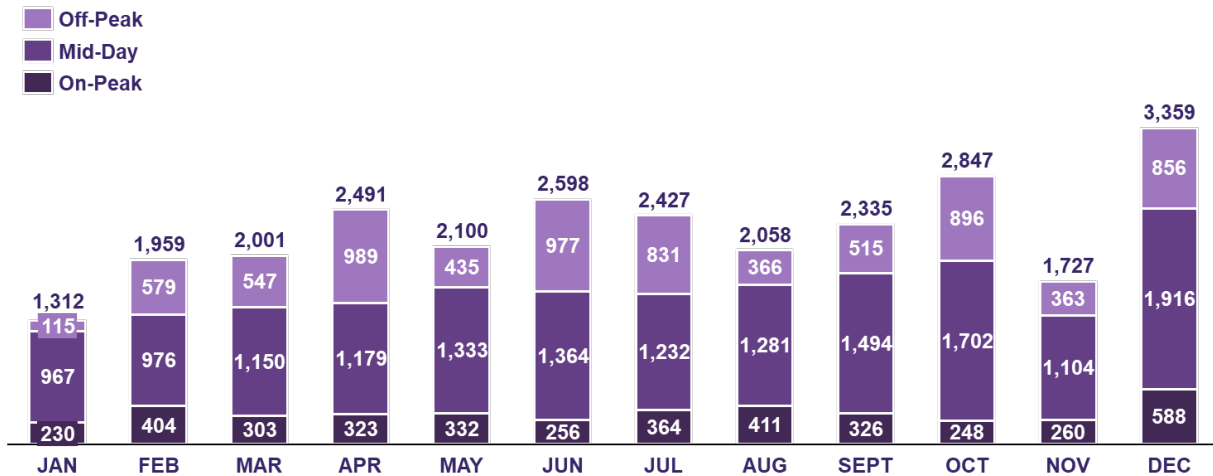


Kona Office

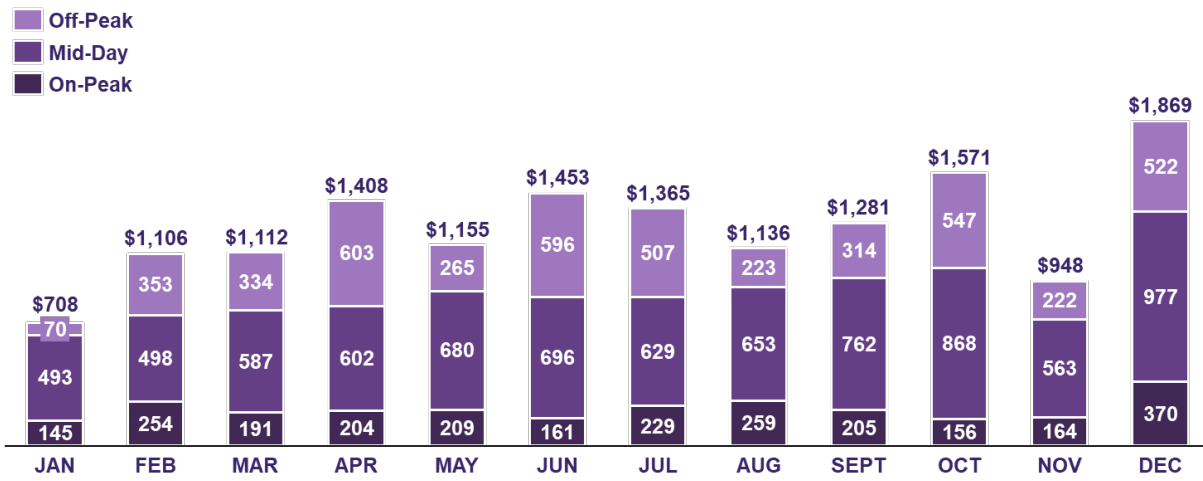
Kona Office 2019 - # of Sessions by time of day



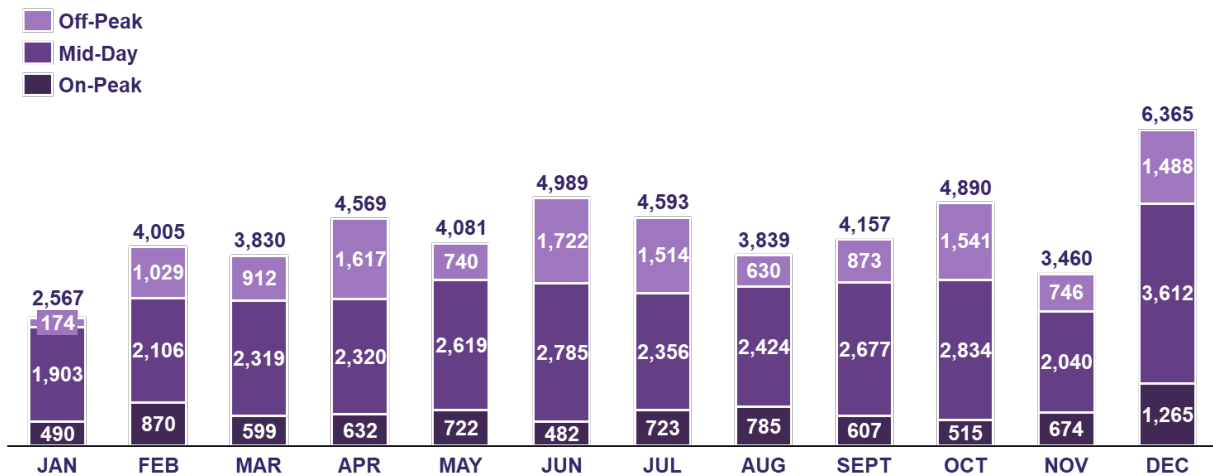
Kona Office 2019 - Energy (kWh) by time of day



Kona Office 2019 - Gross Revenue (\$) by time of day

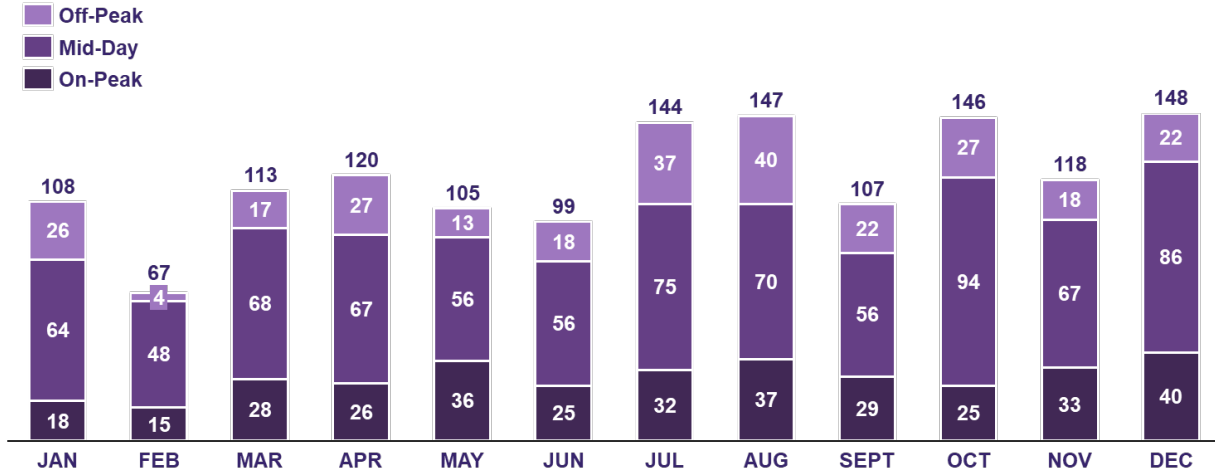


Kona Office 2019 - # of Minutes by time of day

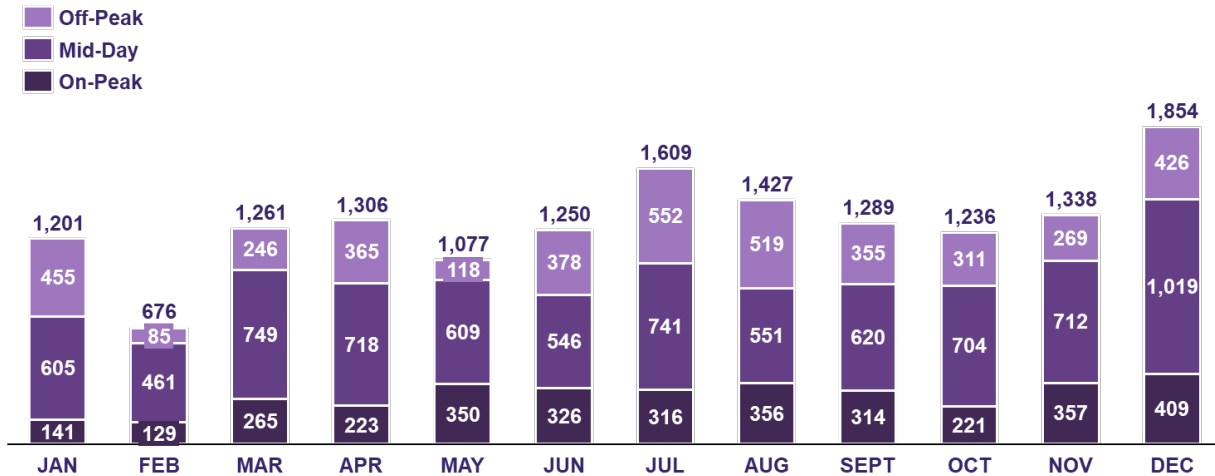


Waimea KTA

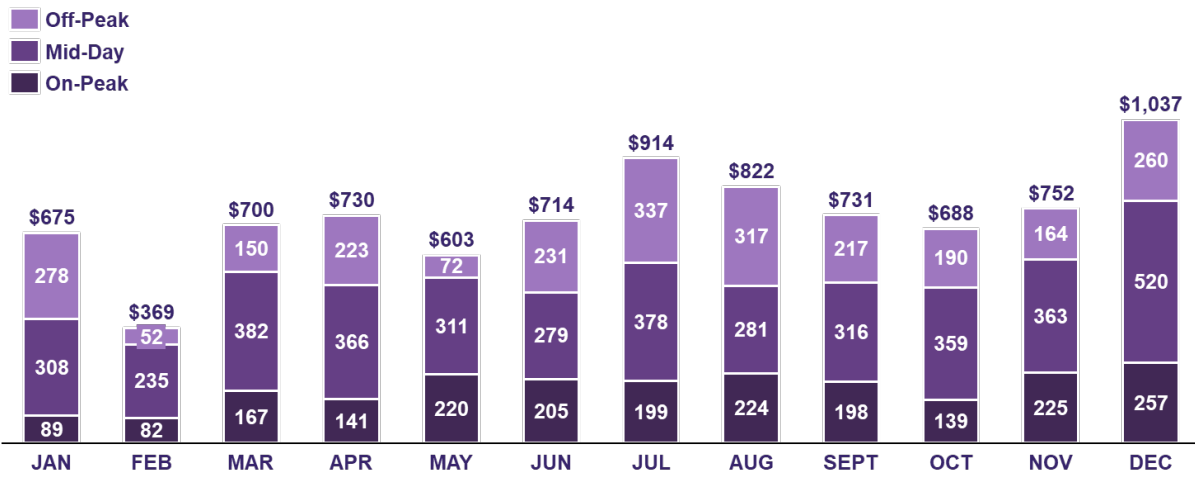
Waimea KTA 2019 - # of Sessions by time of day



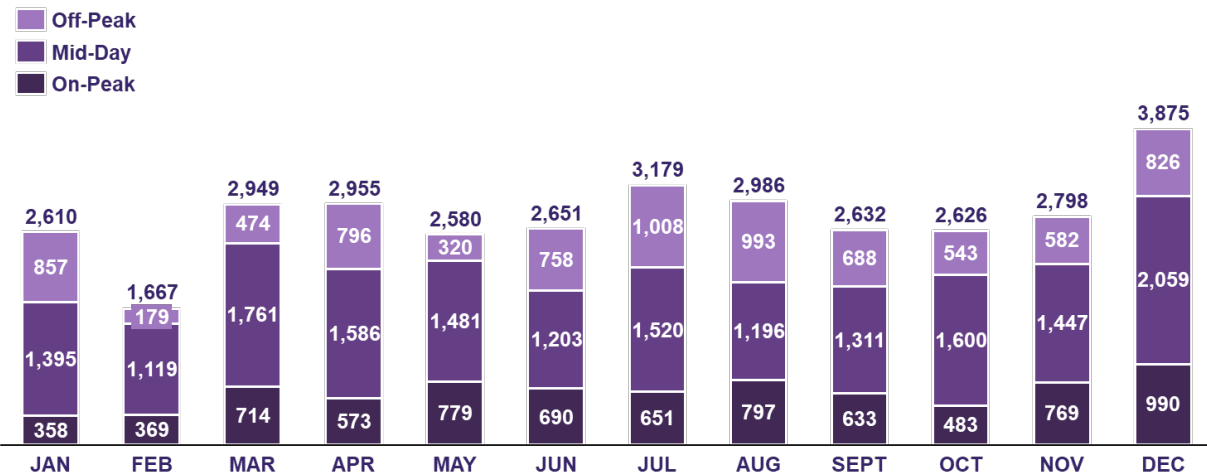
Waimea KTA 2019 - Energy (kWh) by time of day



Waimea KTA 2019 - Gross Revenue (\$) by time of day

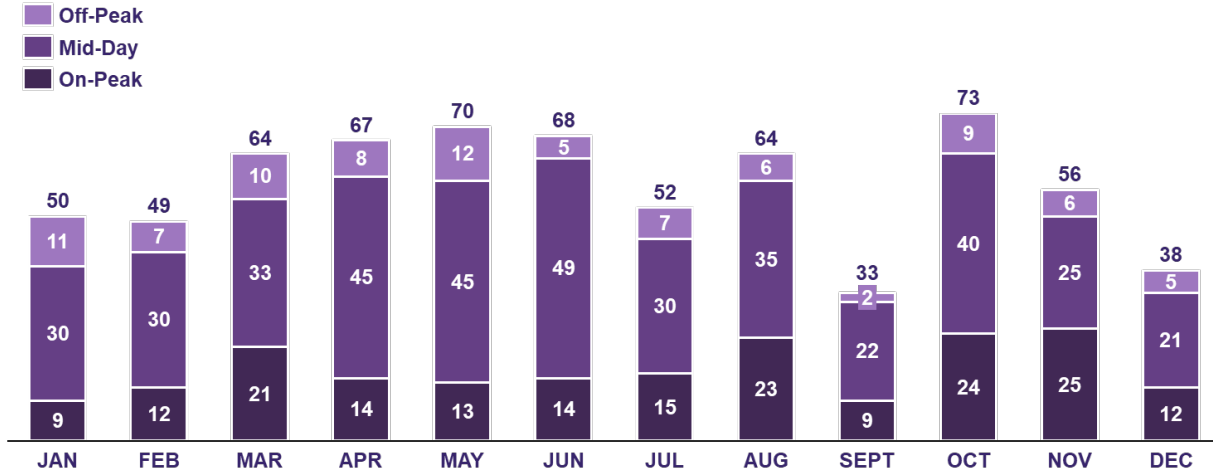


Waimea KTA 2019 - # of Minutes by time of day

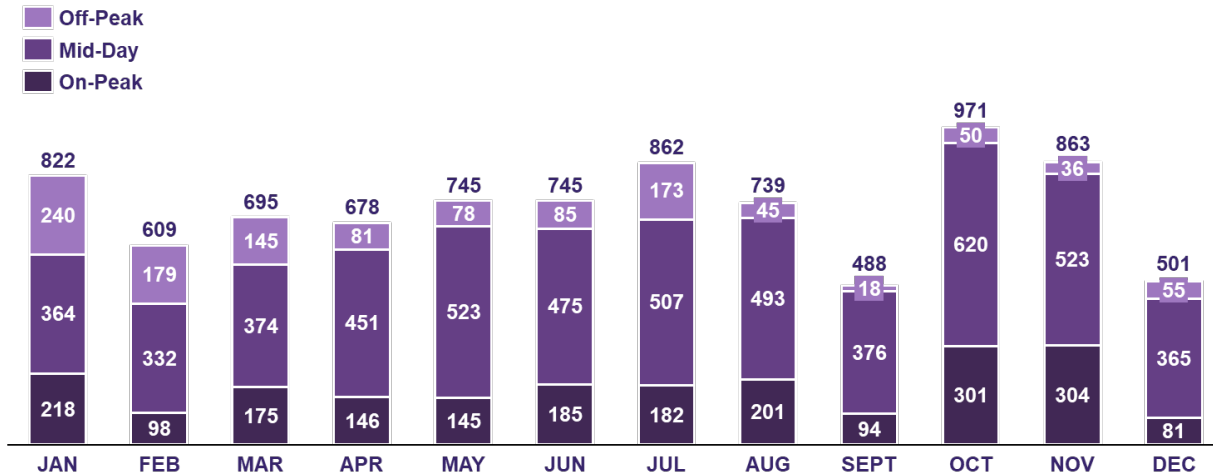


The Shops at Mauna Lani

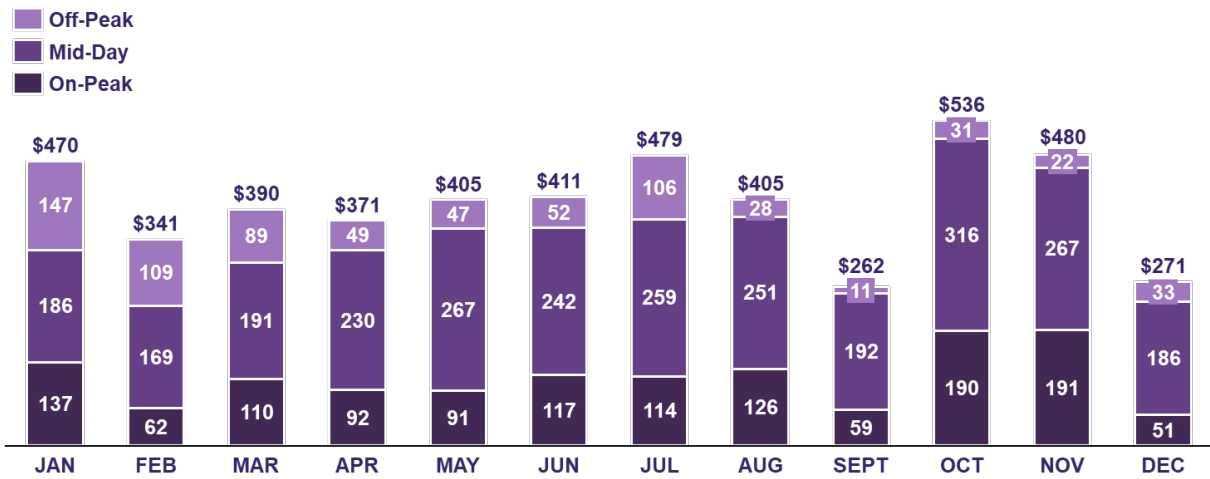
Mauna Lani 2019 - # of Sessions by time of day



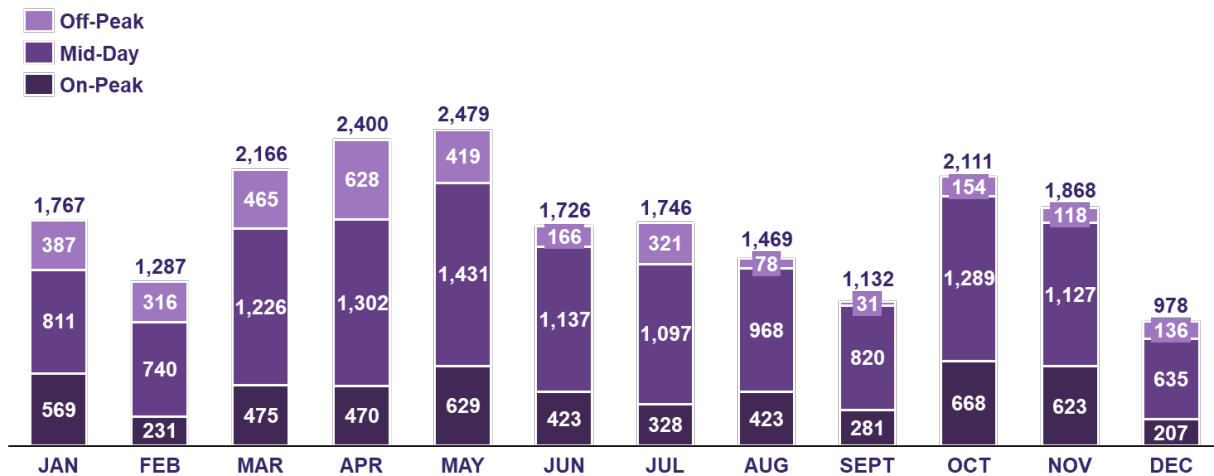
Mauna Lani 2019 - Energy (kWh) by time of day



Mauna Lani 2019 - Gross Revenue (\$) by time of day

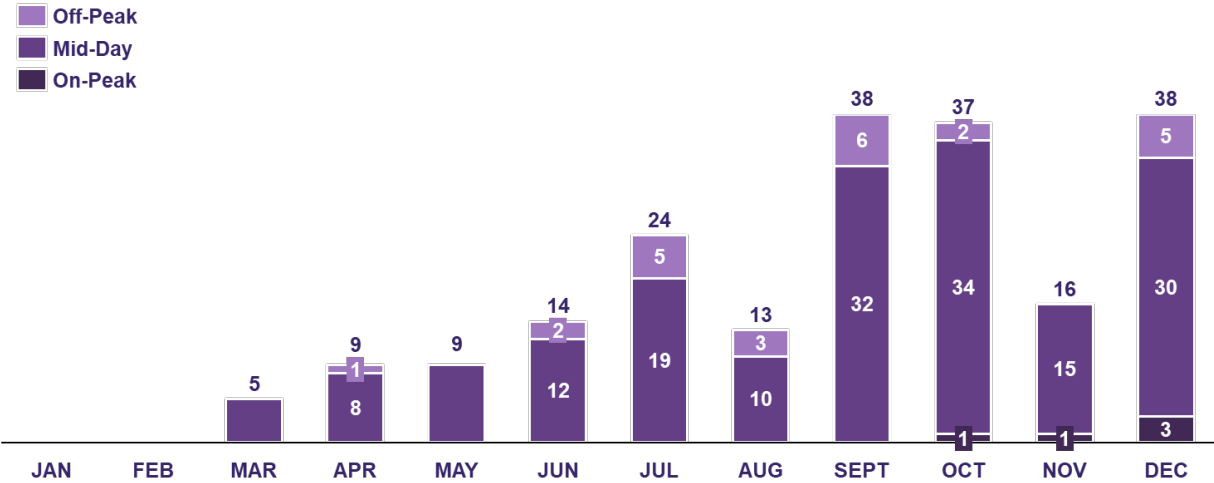


Mauna Lani 2019 - # of Minutes by time of day

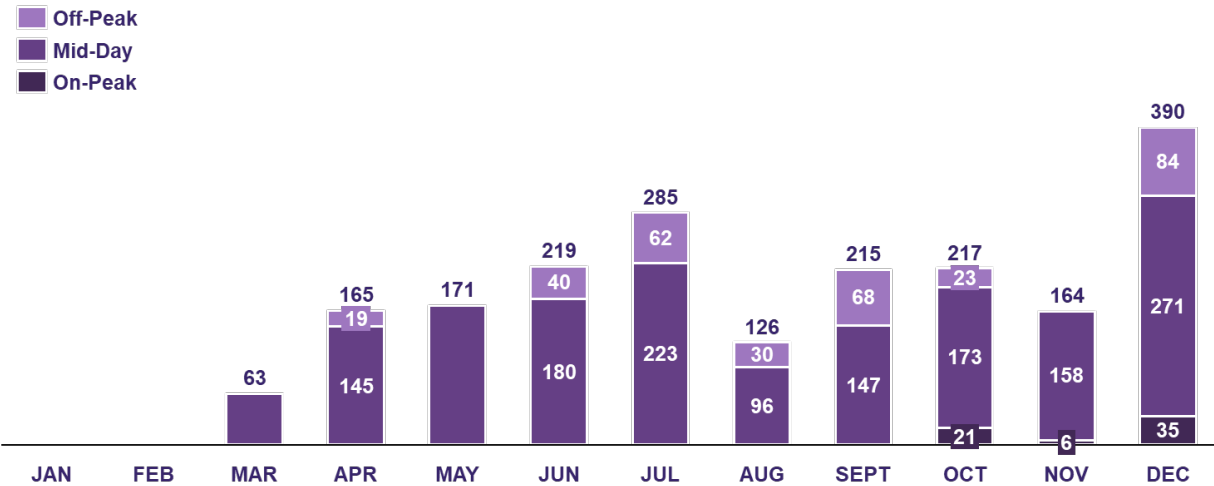


Punalu'u Bake Shop

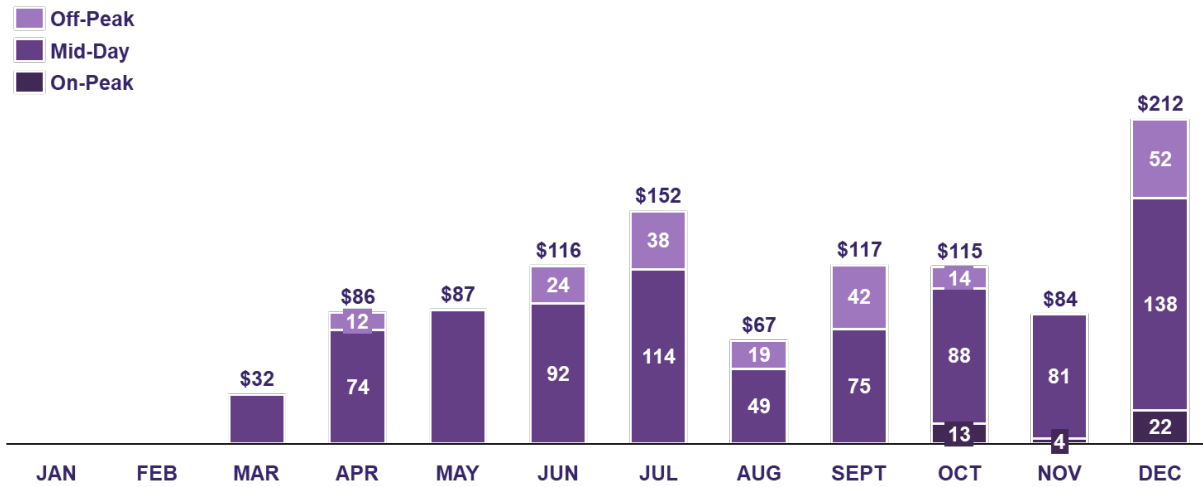
Punalu'u Bake Shop 2019 - # of Sessions by time of day



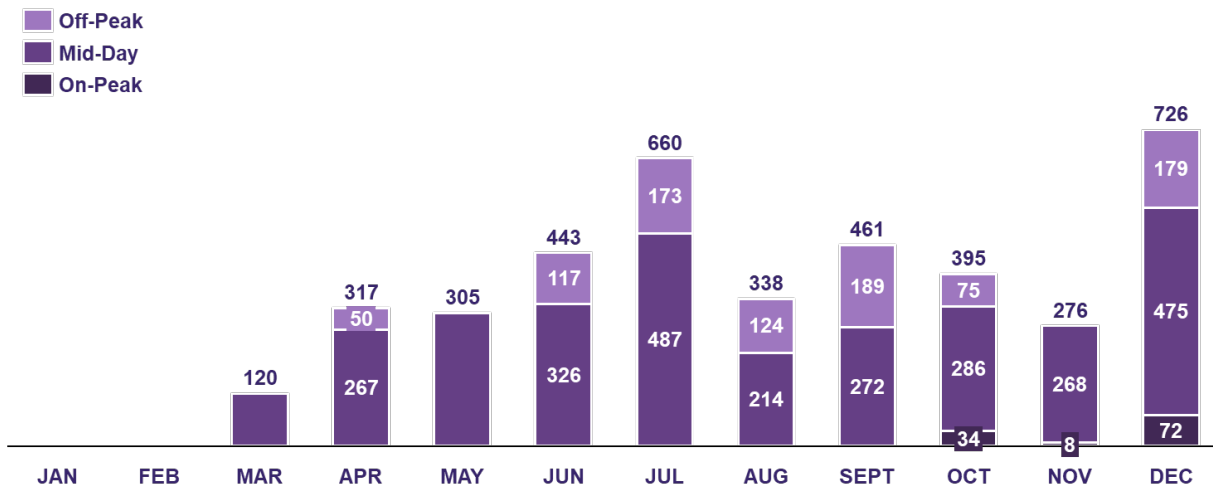
Punalu'u Bake Shop 2019 – Energy (kWh) by time of day



Punalu'u Bake Shop 2019 – Gross Revenue (\$) by time of day



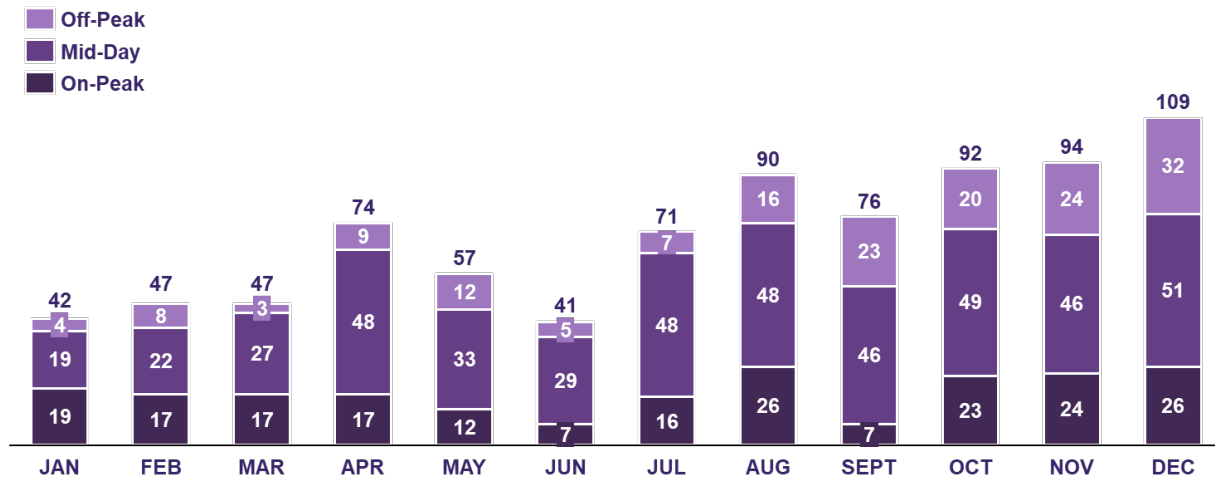
Punalu'u Bake Shop 2019 – # of Minutes by time of day



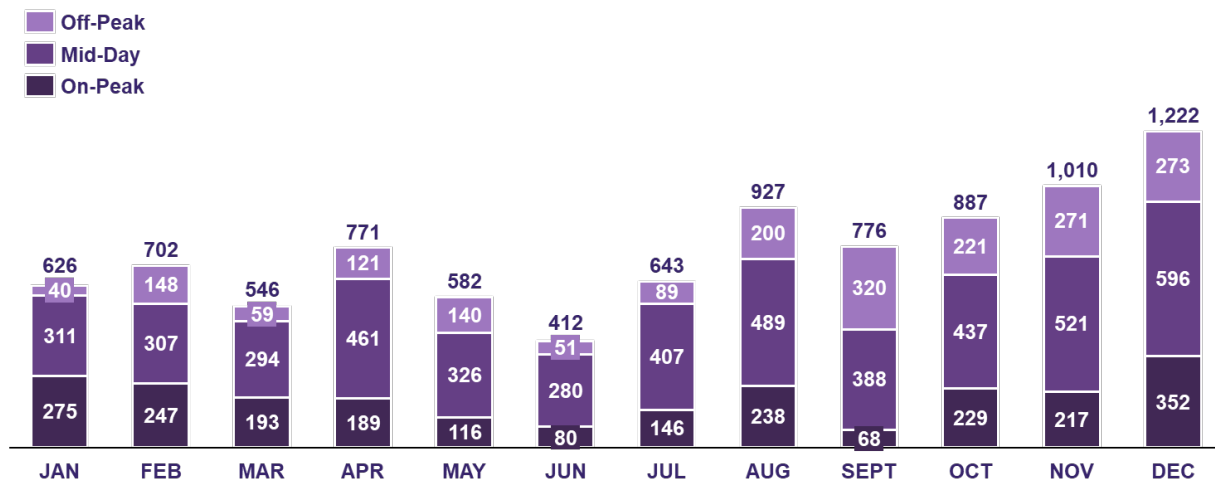
Appendix C -Details of Maui County Charging Locations by Site

Kahului Office

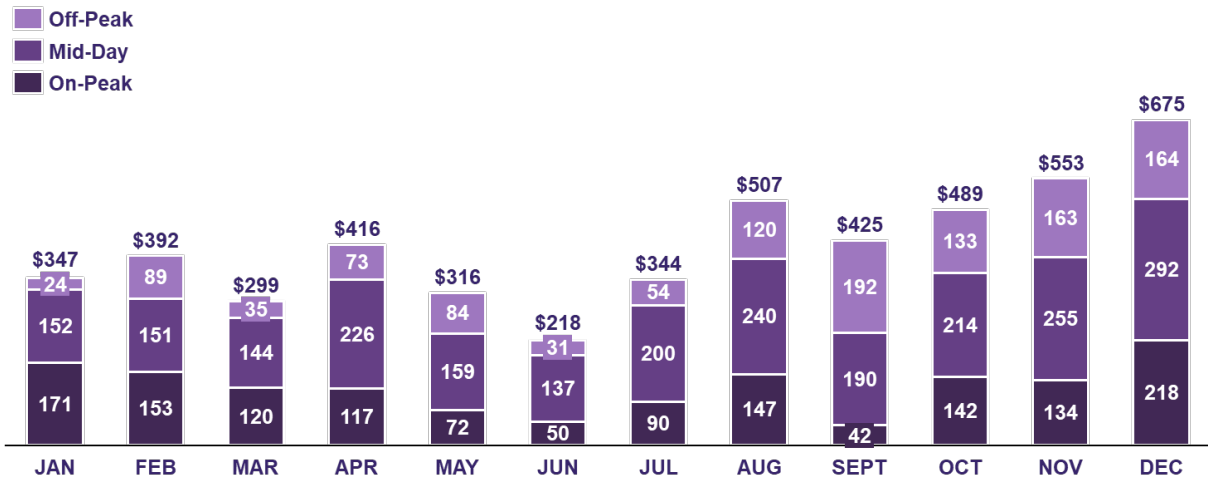
Kahului Office 2019 - # of Sessions by time of day



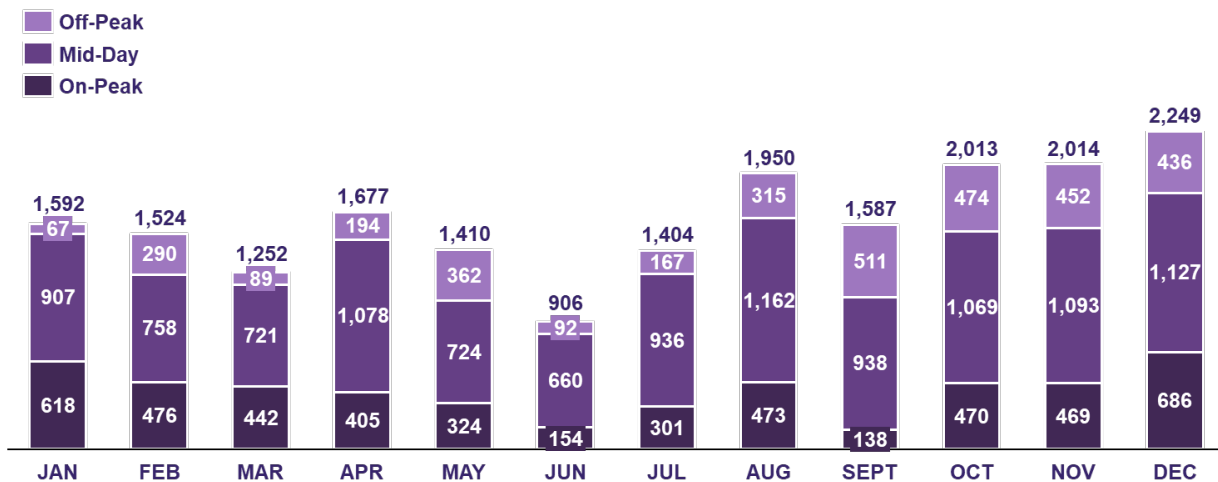
Kahului Office 2019 - Energy (kWh) by time of day



Kahului Office 2019 - Gross Revenue (\$) by time of day

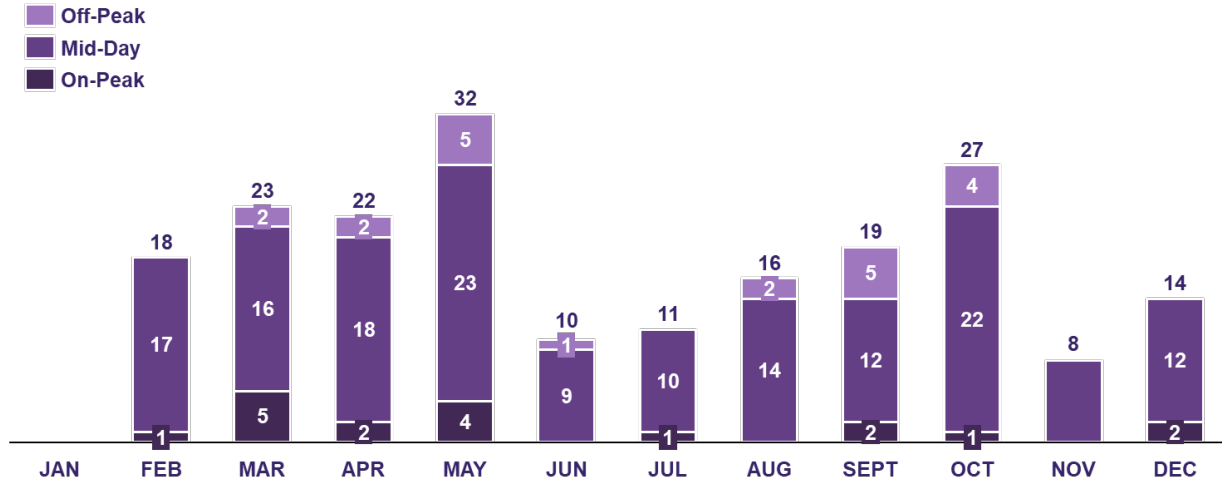


Kahului Office 2019 - # of Minutes by time of day

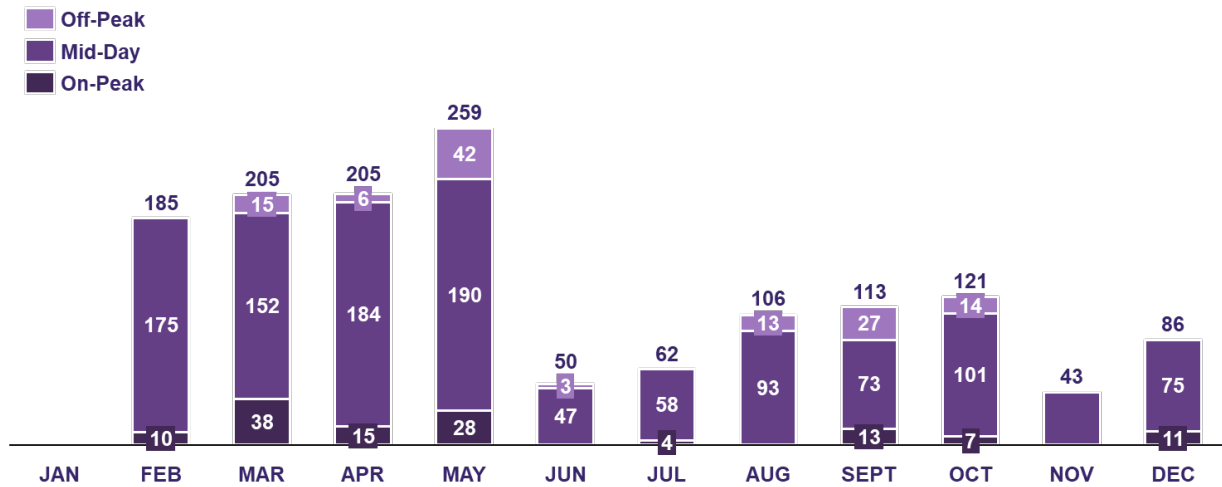


Kaunakakai

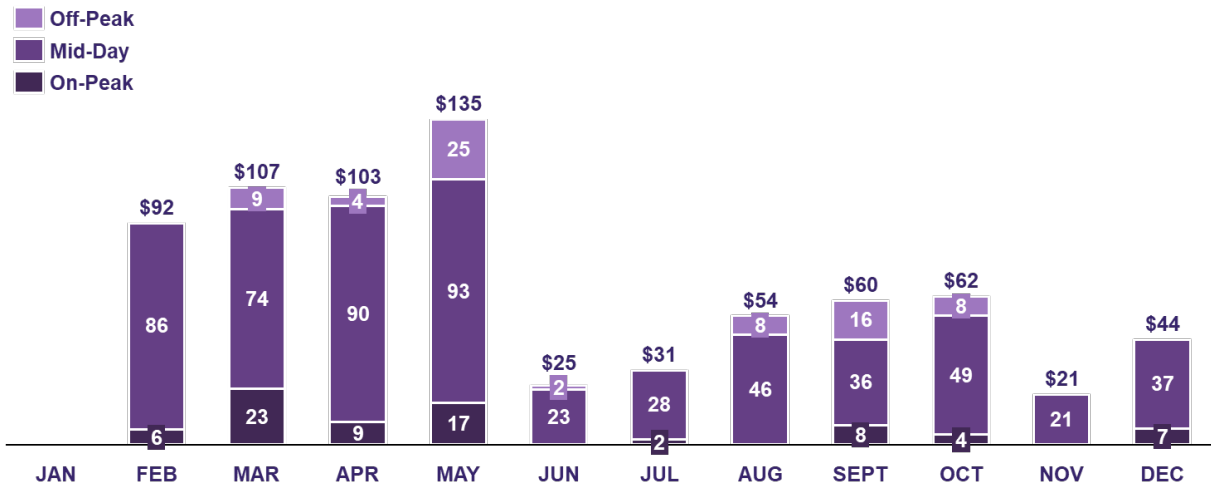
Kaunakakai 2019 - # of Sessions by time of day



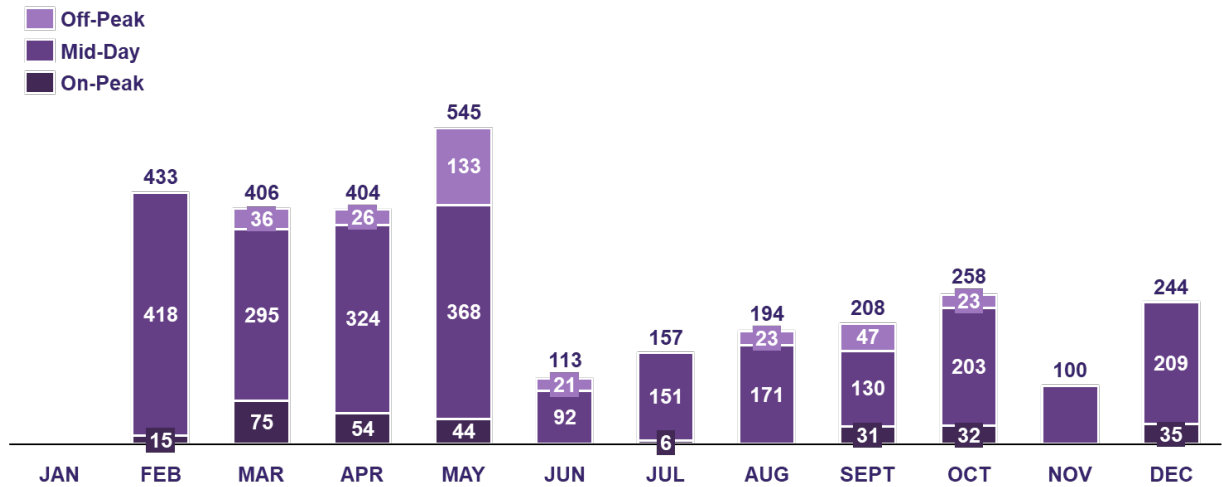
Kaunakakai 2019 - Energy (kWh) by time of day



Kaunakakai 2019 - Gross Revenue (\$) by time of day



Kaunakakai 2019 - # of Minutes by time of day



Appendix D – Details for Schedule EV-U for 2019

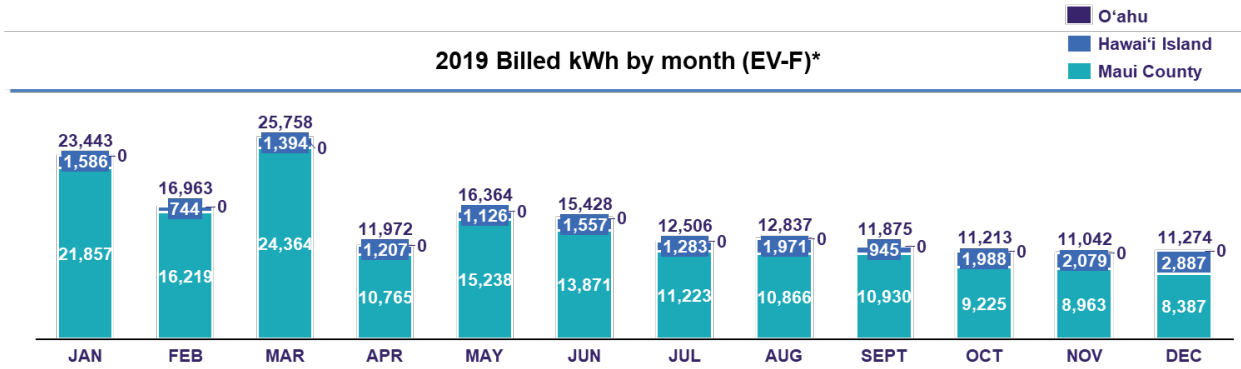
Details of Revenues, Expenses, and Capital for EV-U for 2019 and from inception of pilot program.

| 2019 Actuals: | Program Costs, January - December 2019 | | | |
|----------------------------|--|-------------|-------------|--------------|
| | O'ahu | Hawai'i | Maui County | Totals |
| Revenue | \$ (142,847) | \$ (36,314) | \$ (5,869) | \$ (185,030) |
| Expenses | | | | |
| Energy charge | \$ 111,571 | \$ 30,959 | \$ 8,158 | \$ 150,688 |
| Reverse energy charge | \$ (111,571) | \$ (30,959) | \$ (8,158) | \$ (150,688) |
| O&M | | | | |
| Labor | \$ 138,301 | \$ - | \$ - | \$ 138,301 |
| Non-labor | \$ 36,608 | \$ 18,504 | \$ 5,552 | \$ 60,664 |
| Total Expenses | \$ 174,910 | \$ 18,504 | \$ 5,552 | \$ 198,965 |
| Capital costs, net of CIAC | \$ 390,456 | \$ 172,956 | \$ - | \$ 563,412 |
| | | | | |
| 2019 PTD: | Program Costs, Pilot Inception Through December 2019 | | | |
| | O'ahu | Hawai'i | Maui County | Totals |
| Revenue | \$ (347,551) | \$ (65,203) | \$ (471) | \$ (413,226) |
| Expenses | | | | |
| Energy charge | \$ 257,863 | \$ 59,886 | \$ 10,304 | \$ 328,052 |
| Reverse energy charge | \$ (284,674) | \$ (59,886) | \$ (10,304) | \$ (354,864) |
| O&M | | | | |
| Labor | \$ 723,785 | \$ 6,366 | \$ 43,385 | \$ 773,535 |
| Non-labor | \$ 158,545 | \$ 22,174 | \$ 42,022 | \$ 222,741 |
| Total Expenses | \$ 855,517 | \$ 28,540 | \$ 85,407 | \$ 969,464 |

2019 Monthly Utilization and Recorded Revenues

| | Jan-19 | Feb-19 | Mar-19 | Apr-19 | May 19 | Jun-19 | Jul-19 | Aug-19 | Sep-19 | Oct-19 | Nov-19 | Dec-19 |
|--------------------------------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
| O ahu | | | | | | | | | | | | |
| Transaction Volumes (sessions) | 1,295 | 1,348 | 1,341 | 1,470 | 1,544 | 1,583 | 1,771 | 1,860 | 1,890 | 1,975 | 1,902 | 1,896 |
| Total Revenues | \$9,378 | \$9,340 | \$9,130 | \$8,322 | \$10,270 | \$10,955 | \$13,402 | \$11,910 | \$13,504 | \$18,177 | \$15,000 | \$13,458 |
| Hawai'i Island | | | | | | | | | | | | |
| Transaction Volumes (sessions) | 295 | 297 | 376 | 436 | 380 | 397 | 404 | 417 | 380 | 516 | 416 | 540 |
| Total Revenues | \$2,180 | \$2,044 | \$2,563 | \$2,972 | \$2,630 | \$3,083 | \$3,105 | \$3,350 | \$3,025 | \$3,626 | \$3,150 | \$4,588 |
| Maui County | | | | | | | | | | | | |
| Transaction Volumes (sessions) | 42 | 65 | 70 | 96 | 89 | 51 | 82 | 106 | 95 | 119 | 102 | 123 |
| Total Revenues | \$466 | \$439 | \$416 | \$529 | \$463 | \$267 | \$378 | \$566 | \$490 | \$556 | \$576 | \$722 |

Appendix E – Details of Schedule EV-F for 2019



*customers may migrate in and out of the program during the calendar year

