Silicon Valley Clean Energy

Utility API Data Hive Report

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Study Overview

Program Summary

In February 2020, Silicon Valley Clean Energy (SVCE) and UtilityAPI launched a new Energy Efficiency and Distributed Energy Resource Engagement Platform known as the Data Hive. As part of the pilot phase of the platform launch, Data Hive services were offered to users free of charge. The purpose of the Data Hive was to provide interval metered data in order for distributed energy resource providers to expand their operations and develop more bids, and governments and large commercial facilities to access data that could strengthen their decarbonization initiatives.

Research Questions

The Data Hive pilot had seven research goals, outlined below:

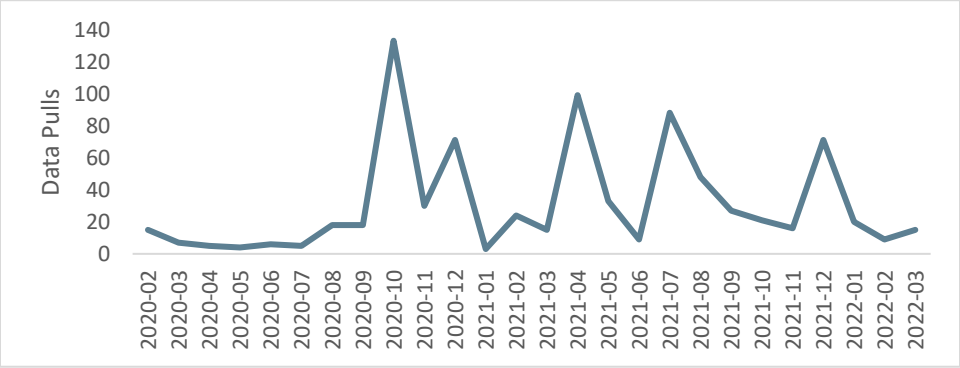
1. Increased project throughput for existing DER service providers;
2. Project throughput of newly-registered DER service providers;
3. Identification of new business models developed as a result of the Pilot;
4. Identification of large entity decarbonization efforts facilitated by data access;
5. Evaluation of job creation and economic development as a result of the Pilot;
6. Service provider feedback on the pilot project; and
7. Identification of lessons-learned or areas for improvement.

Platform Users

UtilityAPI invited targeted users to test the new platform. Targeted users included solar photovoltaic (PV) contractors, demand response (DR) aggregators, energy storage contractors, energy efficiency implementation trade allies, and electric vehicle (EV) or electric vehicle supply equipment (EVSE) service providers.

Silicon Valley Clean Energy and UtilityAPI provided evaluators with platform usage data spanning from February 2020 through March 2022. Based on this data, the platform was used 810 times over the course of the 25-month period. As evident by Figure 1, platform usage peaked in the Fall of 2020. Fifty account holders accessed account level, electricity usage data from the Data Hive platform at least one time; the most frequent platform user (an electric vehicle or electric vehicle supply company) accounted for 490 data pulls, while the second most frequent user accounted for 62 pulls. All other account holders ranged from 1-32 pulls.

Figure 1: Data Hive Usage

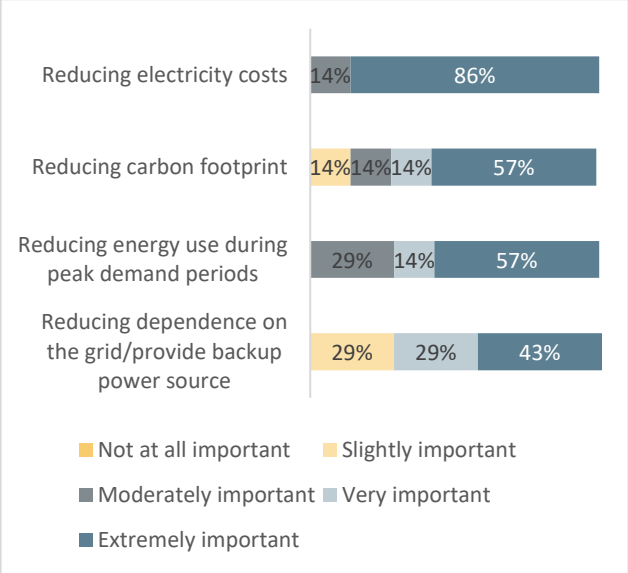


Benefits of Distributed Energy Resource Solutions

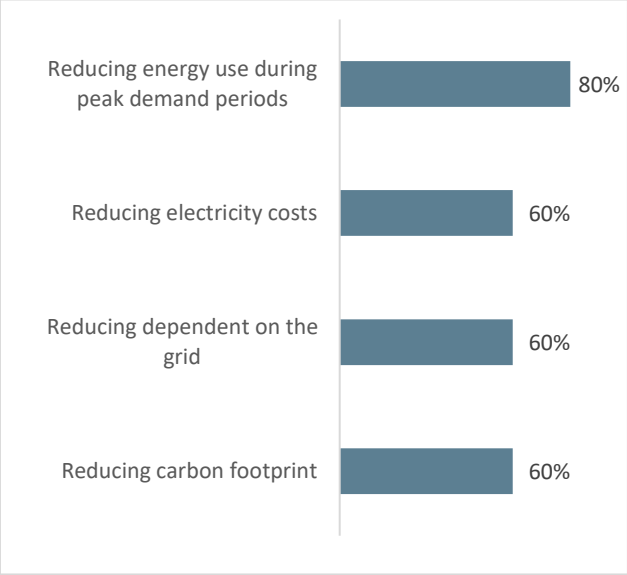
Respondents indicated that distributed energy resource solutions are effective tools for reducing energy use during peak demand periods, electricity costs, grid dependency, and carbon footprint. The Data Hive enabled users to better design energy solutions for themselves and clients, as well as engage customers and grow their base.

"when you bring together storage and solar and properly design it so it works in demand response, you end up getting economic and environmental benefits."
-Respondent

Motivating Factors in Distributed Energy Resource Solutions Design (n=7)



Benefits of Distributed Energy Resource Solutions Tools (n=5)



The platform is fast and affordable

Compared to similar technologies offered by other providers, the Data Hive platform provided data to users quickly. Moreover, users greatly appreciated that the service is free.

"It has maximized efficiency on my end. I'm able to get data pretty much instantly. It makes a big difference in terms of a turnaround time. I'm still waiting on data for projects with utility customers in other territories."
-Respondent

Methods

Evaluators classified account holders based on their company type. Table 1 outlines the company type classifications and number of account holders per company type. In total, there were 219 unique accounts created. Evaluators used online search engines to identify company-type based on the company name listed in the data. Based on these searches, the most frequent company-type was solar photovoltaic contractors (n=50), followed by energy data and software companies. Eighteen accounts were classified as miscellaneous users and 34 accounts appeared to be test accounts; evaluators could not identify 16 accounts.

Account holders from unexpected company types that never used the platform for data retrieval, as well as test accounts and unidentifiable accounts were excluded from the evaluation. In total, evaluators included 131 accounts in the evaluation (Table 1). These 131 accounts were divided into three groups for data collection purposes: 1) interview participants; 2) target group user survey participants; and 3) target group non-user survey participants. Table 2 outlines the criteria, sample size, and data collection methods for each of the three groups.

Table 1: Data Hive Account Holders

Type	Account Holders	Included in Evaluation
Solar Photovoltaic contractors	50	50
Energy data/software	22	22
Demand response aggregators	17	17
Energy storage contractor	14	14
Consulting	10	0
Utility/Implementer	10	3
Trade allies	9	9
Non-profit/advocacy/university	8	2
Electric vehicle/EV supply equipment	7	7
City/Municipality	4	3
Miscellaneous *	27	4
Test	34	0
Unidentifiable**	12	0
Total	**219**	**131**

*includes companies that do not fit into the above categories

**includes accounts with unidentifiable names or individuals

Table 2: Sample Groups

Group	Criteria	Total	Data Collection
Energy-related company heavy users Non-energy related companies (any level of use)	Energy-related companies who completed 10 or more data pulls Non-energy related companies who completed at least one data pull	19	Interviews
Energy-related company standard users	Solar photovoltaic (PV) contractors, demand response (DR) aggregators, energy storage contractors, energy efficiency implementation trade allies, and electric vehicle (EV) or electric vehicle supply equipment (EVSE) service providers who used the platform 1-9 times for data retrieval	20	Survey
Energy-related company non-users	Solar photovoltaic (PV) contractors, demand response (DR) aggregators, energy storage contractors, energy efficiency implementation trade allies, and electric vehicle (EV) or electric vehicle supply equipment (EVSE) service providers who had an account but never used the platform for data retrieval	92	Survey

Results

In total, evaluators collected data from 13 account holders. Table 3 describes the data collection efforts and responses garnered. Surveys were administered using Qualtrics, while interviews were conducted using Microsoft Teams. All recruitment efforts were made over email; evaluators did not have account holders' phone numbers. Interview participants were contacted up to four times; survey participants were contacted up to three times.

Table 3: Data Collection Efforts

Group	Data Collection	Total	Completions
Heavy/Unique users	Interviews	19	5
Target group users	Survey	20	7
Target group non-users	Survey	92	1

Platform Users: Results from Interviews and Surveys

Data Hive Account holders who accessed data more than ten times or accessed data at least once and represented an unexpected or unique business type, were invited to participate in an interview about their experience with the platform. Target group users who used the platform less than 10 times were invited to complete a survey about their experience with Data Hive. Table 4 describes the types of businesses invited to be interviewed and surveyed.

Interview respondents represented a range of different sectors and service types including electric vehicle related assistance (n=3), solar photovoltaic design and installation (n=2), energy storage solutions (n=2), energy efficiency improvements (n=2), water efficiency (n=1), electrification (n=1), government (n=1), and demand response aggregator (n=1). Additionally, seven of the 20 target group users responded to the survey resulting in a 35% response rate. Six of the respondents represented solar

photovoltaic (PV) companies and one respondent represented an energy storage contracting company (Table 4).

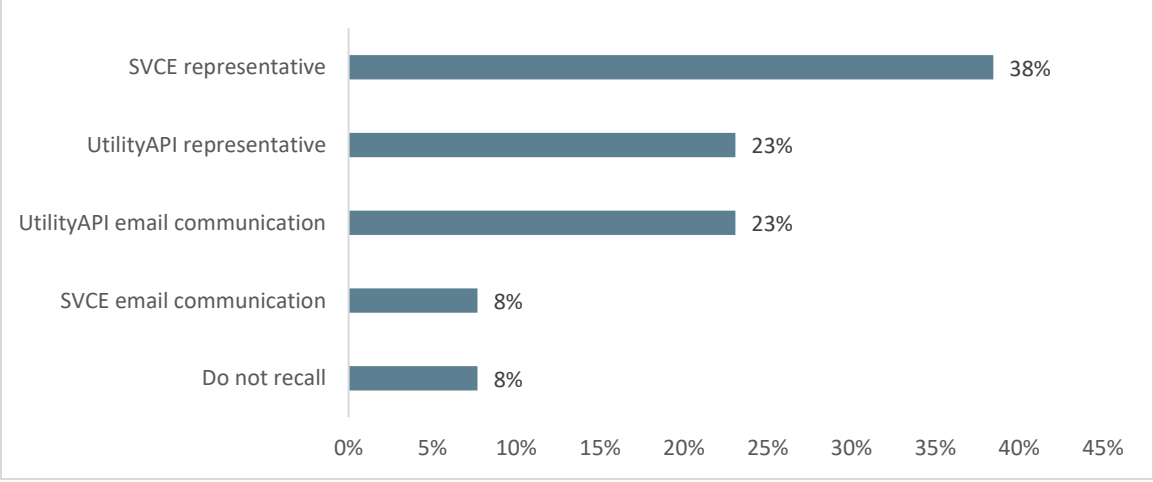
Table 4: Interview and User Survey Participants

Group	Possible (interviews)	Completed (interviews)	Possible (user survey)	Completed (user survey)
Target Users				
Solar photovoltaic contractors	3	0	49	6
Energy data and storage contractors	3	2	35	1
Electric vehicle (EV)/Electric vehicle supply equipment (EVSE)	1	0	4	0
Demand response aggregators	0	1	15	0
Trade allies	0	0	8	0
Target User Total	7	3	111	7
Unexpected Users				
City/Municipality	3	1	n/a	n/a
Utility/Implementer	3	1	n/a	n/a
Non-profit/Research institution	2	1	n/a	n/a
Tech companies	3	0	n/a	n/a
Individual	1	0	n/a	n/a
Unexpected User Total	12	3	n/a	n/a
Grand Total	**19**	**6**	**111**	**7**

Platform Awareness

About half of interview and survey respondents (46%, n=6) learned about the Data Hive platform via a UtilityAPI representative or email communication, while 46% (n=6) learned about the platform via an SVCE representative or email communication; one respondent did not remember how they first heard about the program (Figure 2).

Figure 2: Platform Awareness (n=13)

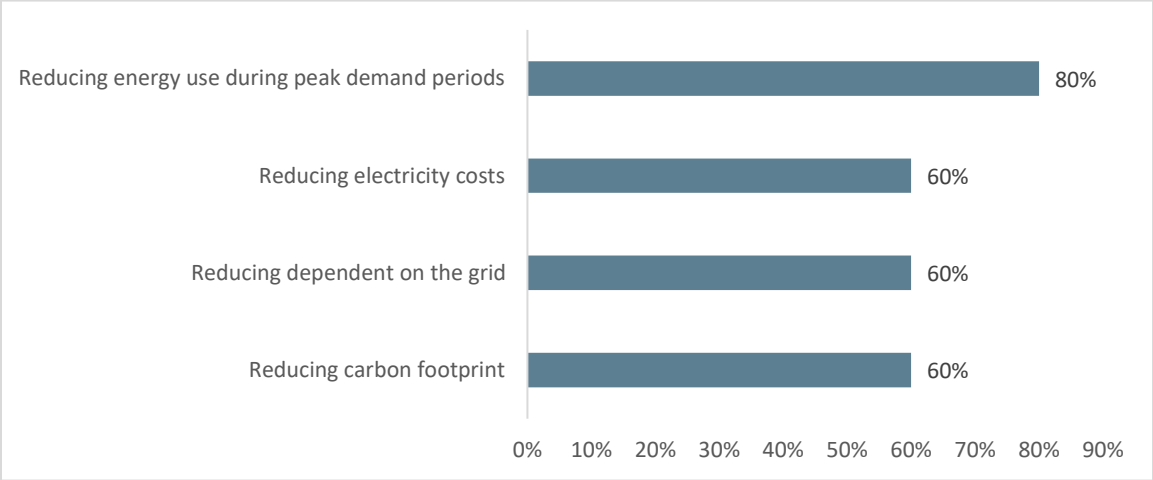


Motivation for Engaging with the Platform

Interview respondents indicated that they considered distributed energy resource solutions as an effective tool for reducing energy use during peak demand periods, electricity costs, grid dependency,

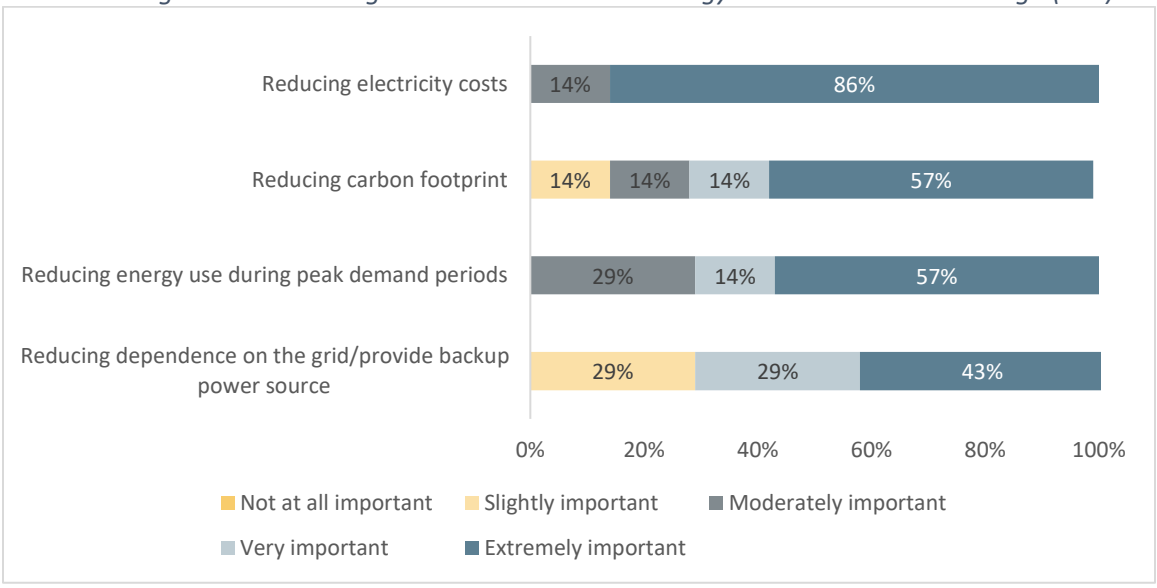
and carbon footprint (Figure 3). One respondent went on to explain that "when you bring together storage and solar and properly design it, so it works in demand response, you end up getting economic and environmental benefits."

Figure 3: Benefits of Distributed Energy Resource Solutions Tools (n=5)



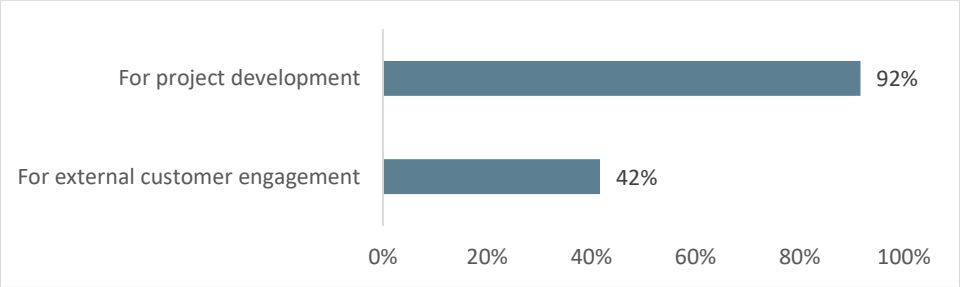
Similarly, all but one survey respondent noted that that reducing electricity costs was "extremely important" to them when designing distributed energy resources solutions; reducing carbon footprint, energy use during peak demand periods, and dependence on the grid were also "very" or "extremely important" to most respondents (Figure 4).

Figure 4: Motivating Factors in Distributed Energy Resource Solutions Design (n=7)



The majority of interview and survey respondents (92%, n=11) indicated they used the platform design energy solutions for themselves or clients; more than a third of respondents (42%, n=5) noted they used the platform for external customer engagement (Figure 5).

Figure 5: Data Hive Uses (n=13)



Platform Performance

Prior to the introduction of the Data Hive interview and survey respondents received electricity usage data through a variety of channels including SVCE, Utility API, and other utilities. Respondents who went through PG&E and other utilities to get their data noted that the Data Hive process was much faster.

> *It doesn't help us do more projects, but it saves sooooo much time. It's so much easier than dealing with PGE. This process saves us at least or month or two in development process.*
> *-Respondent*

> *It has maximized efficiency on my end. I'm able to get data pretty much instantly. It makes a big difference in terms of a turnaround time. I'm still waiting on data for projects with utility customers in other territories*
> *-Respondent*

Respondents' opinions regarding the ease of platform use varied. While three interview respondents noted the process was "pretty easy" and "setting up an account was fine and getting access was painless", the two other interview respondents noted that the platform was "not immediately user friendly" and "we had to do some work". None of the seven survey respondents had complaints regarding the enrollment, authentication, or authorization processes.

Five of the twelve interview and survey respondents (42%) had previous experience working with PG&E's ShareMyData portal[1]; there was no consensus regarding whether the enrollment process for ShareMyData was easier, the same, or harder than enrollment for the Data Hive.

Impact of COVID-19

COVID-19 impacted respondents' business in varying degrees. While some experienced an increase in business and projects, others experience a decrease or no change at all (Figure 6). Moreover, half of respondents noted that COVID-19 did not impact their usage of the Data Hive platform (Figure 7). Respondent sample was too small to analyze whether or not COVID-19 impacts varied by company type.

[1] Share MyData Platform: https://www.pge.com/en_US/small-medium-business/energy-alternatives/alternatives-to-pge/third-party-data-access.page

Figure 6: COVID-19's Impact on Business (n=12)

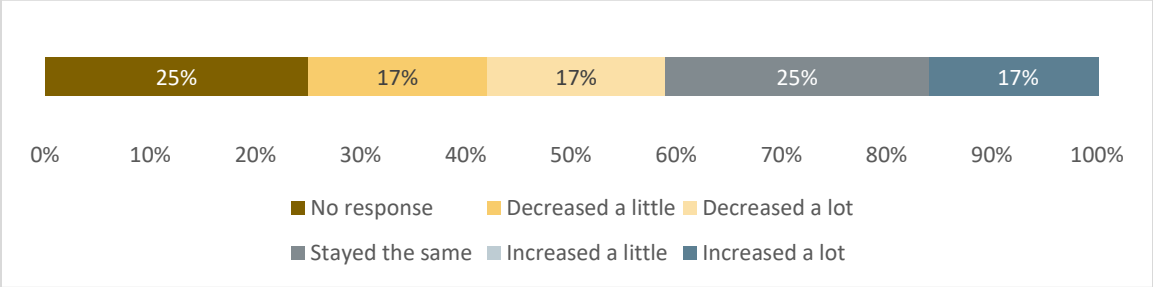
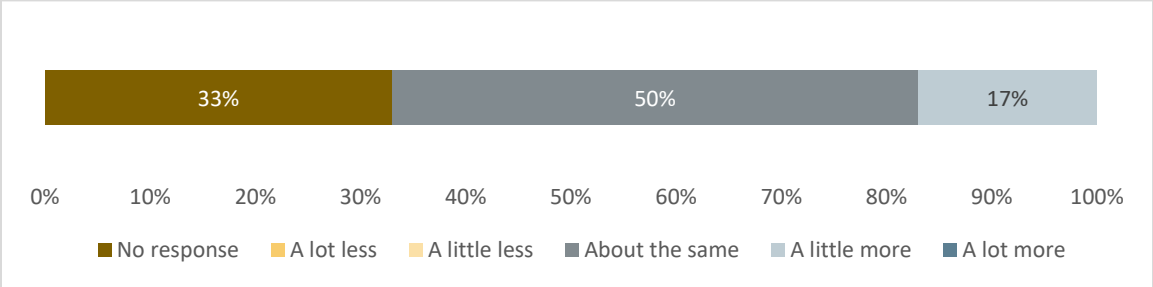


Figure 7: COVID-19's Impact on Data Hive Usage (n=12)



Suggestions for Improvement

Eight of the twelve interview and survey respondents agreed SVCE should continue to provide Data Hive services; two survey respondents did not respond to the question and one interview respondent noted the platform is missing gas usage.[2]

In general, respondents preferred the platform remain free, however some (41%, n=5) were willing to pay between $5-15 per data pull.

When asked what can be done to improve the platform, one respondent noted that one major piece missing from the platform is the ability to easily identify all accounts a customer might have. He explained that some larger customers, such as municipalities, have multiple utility meters and therefore multiple accounts, and it is not always clear to him how to identify all the meters in question and who he needs to request authorization from to access the data.

Target Group Non-Users – Survey

Five of the 92 target group non-users opened the survey, but only one respondent completed the survey. Due to the lack of data, evaluators were not able to analyze survey results from non-users.

[2]Since interviews were conducted, gas data has become available on the platform.

USER SPOTLIGHT: ev.energy

ev.energy is an electric vehicle charging management software company that partners with utilities and CCAs to manage smart EV charging programs. EV owners in SVCE's service territory enroll in ev.energy's program through an app and then ev.energy controls their charging times based on grid signals and usage patterns. SVCE customers receive a $50 incentive for enrolling in the program. Once a customer enrolls, ev.energy controls charging times. In general, ev.energy shifts customers' charging to off-peak hours – which often have lower rates. ev.energy also incentivizes customers to charge during high-renewable energy events.

To date, ev.energy is one of SVCE Data Hive's most frequent users. However, ev.energy's use of the platform varies from the intended use case. Rather than accessing regular interval metered data on customers, ev.energy uses the platform to verify a customer's account and provide up-to-date electricity rate data. This rate data is crucial to ev.energy's program as it enables ev.energy to shift customers' EV charging to lower-rate charging times and ultimately reduce grid demand.

DATA HIVE PROS & CONS

PROS	CONS
✓ Automatically updates customers' rates	× Slow loading times[3]
✓ Verifies customer account information	× Limited authorization duration (customers have to reauthorize every year)[4]
✓ Provides unique customer ID so ev.energy and Data Hive can troubleshoot customer accounts without using PII	

In general ev.energy had a positive experience with Data Hive, but as with most platforms, areas for improvement exist. ev.energy's biggest pain point with the platform is the slow loading times. Not only does the website speed contribute to customer drop-offs during enrollment, but it creates a lengthier data extraction process for ev.energy. Additionally, although the system updates customers' rate data based off of bills, meter data does not update automatically, and therefore ev.energy staff have to reach out to customers receive new meters to ask them to verify and authorize their new meter if they would like to continue participating in the program.

Recommendations

1) Extend authorization period indefinitely so customers do not need to reauthorize access every year.
2) Increase platforms' page-loading speed to minimize enrollment drop-offs.
3) Send automated messages to customers when they move or get a new meter request re-authorization.

[3] This delay is a result of the fact that Data Hive must scan through ev.energy's 1,000+ authorizations every time a new customer signs up for GridShift. Since identifying the issue, SVCE/ev.energy/UAPI have been working together on a solution.

Discussion

Initially, evaluators planned to collect data from Data Hive users in the summer of 2020, about six months after the platform launch. However, due to the unexpected onset of the COVID-19 pandemic, the evaluation was put on hold. Evaluation efforts were resumed in the spring of 2022, a little more than two years after the launch of the Data Hive. The Data Hive pilot had seven research questions (Table 5). Evaluators were unable to answer all of the project's research questions. Evaluation efforts were delayed due to the COVID-19 pandemic, and once efforts resumed it was difficult to recruit users to participate in the surveys and interviews. Some account holders did not remember using or were not familiar with the platform, and many never used the platform despite having an account.

In general, the interviews and surveys focused more on platform feedback and suggestions for improvement moving forward (Q6, Q7). However, the interview with ev.energy provided insight into alternative use cases for the platform. Rather than focusing on detailed meter data, ev.energy used Data Hive to verify customers' SVCE account information and electricity rates. This use-case represents one of many additional business models that might benefit from the services provided by Data Hive (Q3). Evaluators reached out to municipality contacts who had accessed the Data Hive in an attempt to glean insight for Q4, however the contacts who had accessed the platform were no longer in those job positions.

Additionally, due to the delay of the evaluation, evaluators were unable to parse out existing DER service providers from newly registered DER service providers (Q1, Q2). Results reflect responses from all respondents, regardless of when they first registered for their Data Hive account.

Table 5: Research Questions

Research Questions	Evaluated
1. Increased project throughput for existing DER service providers	No
2. Project throughput of newly-registered DER service providers	No
3. Identification of new business models developed as a result of the Pilot	Yes
4. Identification of large entity decarbonization efforts facilitated by data access	No
5. Evaluation of job creation and economic development as a result of the Pilot	No
6. Service provider feedback on the pilot project	Yes
7. Identification of lessons-learned or areas for improvement	Yes

Conclusions & Recommendations

The data collected from this evaluation was limited. In total, evaluators retrieved responses from 13 active Data Hive account holders out of a possible 130 for a 10% response rate. Data from users who participated in the interviews or surveys demonstrated a few key findings:

1. **Key Finding 1: Respondents regard the Data Hive and other distributed energy resource solutions as effective tools for reducing energy use during peak demand periods, electricity costs, grid dependency, and carbon footprint.** Most respondents noted that they used the platform to design energy solutions for themselves or clients.

[4] The duration of the authorization is set by the customer, though the default authorization length is one year. Data Hive third parties can update their default authorization length in their settings. Since identifying this solution, ev.energy has been able update their default authorization length in Data Hive.

2. **Key Finding 2: The Data Hive platform reduces the time it takes to retrieve electricity usage data as compared to similar services.** Although some respondents faced obstacles during the initial enrollment and authorization period, once their account was setup, respondents noted that the platform saved them time and effort.

3. **Key Finding 3: Many respondents depend on the Data Hive as a free service**. Although some respondents noted they would be willing to pay for the platform, more than half noted they would not pay for the platform.

From these findings, evaluators developed some recommendations for how SVCE and UtilityAPI can improve the platform moving forward.

1. **Recommendation 1: Consider relaunching the platform and provide a training on its benefits.** During recruitment efforts, evaluators found that many of the account holders did not know what the Data Hive was and did not remember making an account nor using an account. SVCE and UtilityAPI should consider relaunching the platform and provide targeted parties a training so they better understand the purpose of the platform and how it can help their business.

2. **Recommendation 2: Continue to provide Data Hive services free of charge.** Although some respondents indicated they would be willing to pay for the platform, the majority of respondents noted they would stop using the platform if it cost money. If possible, SVCE and UtilityAPI should continue to offer this service for free to customers. If a free service is not tenable, evaluators recommend SVCE and UtilityAPI charge a small fee, between $1-10 for each data pull. Moreover, in cases in which a customer is pulling data from multiple meters frequently, it may be in everyone's best interest to create a flat fee or monthly payment system to ensure heavy platform users are not paying exorbitant amounts of money for the service.

3. **Recommendation 3: Restructure the platform to allow for parent accounts that include all the individual meters from a large client.** One respondent noted that is difficult to know when you have identified all the meters for a larger client, such as a municipality, and it is not always clear who the primary contact is for those meter accounts. To simplify this process, the platform should have an option for a parent account that houses all the small meters, making it easier for users to confirm they have received all the data they need.

4. **Recommendation 4: Partner with neighboring utilities to provide more robust data.**[5] One respondent noted that the platform would be improved with the addition of gas usage data. Their perspective was that it is difficult to assess how much a customer can save from electrification if there is no data regarding how much they are spending on gas. Although SVCE is an electricity focused organization, partnering with PG&E and other local gas utilities to incorporate gas data may strengthen the platform's capabilities.

[5] Since interviews were completed in Summer 2022, SVCE has added gas usage data to the Data Hive platform.