

May 21, 2018

# **Customer Data Access Committee Whitepaper**

An Informal Solicitation of Feedback for Expanding the Click-Through Solutions Developed for Demand Response, to Distributed Energy Resource and Energy Management Providers.

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*This paper provides a background on the evolution of the click-through authorization and data delivery processes in Demand Response and an informal solicitation of feedback for expanding these processes to DER and energy management providers. The feedback will assist the investor-owned utilities, Pacific Gas & Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company, in developing the November 2018 applications and incorporating input from the Customer Data Access Committee and other interested stakeholders as required by Resolution E-4868.*

## ACKNOWLEDGEMENT

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## DISCLAIMER

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## **1. EXECUTIVE SUMMARY**

The online click-through authorization and data delivery process streamlines, simplifies and automates the process for customers, who begin on a third party's website, to authorize Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) collectively, the investor-owned utilities (IOUs), to release customer-specific energy related data to a third-party demand response (DR) provider(s) of the customer's choosing. This authorization and data delivery process is an essential step in enrolling a customer into a third-party DR program. The technical requirements and the funding to build the hardware and software components of the click-through process were adopted in Resolution E-4868. Additionally, Resolution E-4868 ordered the IOUs to file applications by November 26, 2018 with proposals for expanding the click-through authorization and data delivery processes to third-party distributed energy resource (DERs) and energy management providers.

This whitepaper seeks informal stakeholder feedback to assist the IOUs in developing their respective November 2018 applications so that they are forward-looking and anticipate, to the extent possible, potential DER providers' data delivery needs that are supported by the click-through process and system architecture.

This whitepaper seeks informal comments by June 6, 2018 from interested parties in eight proceedings: (1) the Distributed Generation Rulemaking (R.)12-11-005; (2) the Distribution Resources Plan R.14-08-013; (3) the Integrated Distributed Energy Resources Planning and Evaluation R.14-10-003; (4) the Net Energy Metering Tariffs R.14-07-002; (5) the Storage Procurement and Roadmap R.15-03-011; (6) the Power Charge Indifference Adjustment R.17-06-026; (7) the DR 2018-22 Portfolio Applications (A.) 17-01-012, 17-01-018, and 17-01-019; (8) the Energy Efficiency Business Plans A.17-01-013, A.17-01-014, A.17-01-015, A.17-01-016 and A.17-01-017; and (9) the Transportation Electrification Proposals A.17-01-020, A.17-01-021, and A.17-01-022.

**Please review all of the questions in Section 4 before responding to avoid duplication in your responses, and note any dependencies, if applicable, on the type of customer segment you serve. Responses should be sent by June 6, 2018 to [kjs@cpuc.ca.gov](mailto:kjs@cpuc.ca.gov). Responses will be shared with the IOUs, participants of the CDAC, CPUC staff, and other interested stakeholders. In order to format responses inline, a separate word document with the questions is available in the email notice sent to the service lists described above.**

Please note that the purpose of this whitepaper is not to address or modify existing data access initiatives pending in these other proceedings at the CPUC. For example, the Distribution Resource Plan Rulemaking (R.) 14-08-013 addresses third-party data access needs relating to the distribution system. The click-through authorization process relates only to customer-specific data, not distribution-system, or grid data. Similarly, the click-through authorization

process does not relate to access to aggregated data. The click-through process provides a way for customers to share customer-specific data with a third-party(ies) of their choice, and with the customer's consent.

Section 4 includes a list of questions that third-party DER and energy management providers should answer. Comments from third-parties should consider the information provided in Section 2 & 3 and address:

- the use cases for which customer-specific data access is needed;
- the type of data needed;
- how quickly after customer contact or authorization the data is needed;
- the volume of customers expected to use the click-through authorization process; and
- improvements to the click-through process.

This whitepaper includes:

- Section 2: a brief discussion of customer consent and the CPUC privacy rules;
- Section 3: a description of the current authorization and data delivery processes; and
- Section 4: questions that stakeholders should address in informal comments in order to provide feedback to help the IOUs develop applications that will be filed in November 2018 with proposals for expanding the click-through authorization processes to other DER and energy management providers.

The whitepaper contains appendices that provide background that will help stakeholders understand the regulatory context surrounding the development of the click-through authorization and data delivery process in DR and the expansion to third-party DER and energy management providers. Appendix A explains how the click-through authorization process in DR came to be, including the procedural history of the click-through process, the development of the rules governing third-party DR, and details regarding the November 2018 applications that will be filed by the IOUs. Appendix B shows screen shots of each IOUs implementation of the click-through authorization process. Appendix C provides references for further information on consumer data privacy rules. Finally, Appendix D lists the data elements that make up the Expanded Data Set that is available upon authorization to third-party DR providers under PG&E and SCE Electric Rule 24, and SDG&E Electric Rule 32 (together, Rule 24/32).

## 2. PROTECTING CUSTOMER DATA: CONSENT AND REFERENCES FOR CPUC PRIVACY RULES

In order to protect customers whenever data is stored, transferred, or otherwise released, the CPUC adopted privacy rules in D.11-07-056. These CPUC privacy rules are reflected in IOU Electric Rules 27 (PG&E), 25 (SCE) and 33 (SDG&E). Additionally, the IOUs must operate under multiple state and federal laws and regulations in order to fulfill their obligation to protect personally identifiable customer data. These privacy rules are complex and are the subject of contention among consumer advocates, IOUs, and third-parties who are seeking access to customer data. Appendix C provides a list of references in order to help third-party DERs and energy management providers understand the CPUC privacy rules and other legal obligations of data holders. Understanding these privacy rules is essential whenever the issue of access to data is discussed. Laws and regulations in California are different than those in other states and understanding these differences is key to creating informed public policy.

CPUC privacy rules require the IOU to receive customer consent before releasing, disclosing, or otherwise making accessible to a third-party any personally identifiable data. The CPUC privacy rules require customer consent if the data will be used for a secondary commercial purpose. However, if the data will be used by the IOU or its agents to deliver utility service, customer consent is not needed because this is a primary purpose. Customer consent is therefore not required for: (1) IOU contractors or vendors that are agents of the IOU; (2) third-parties seeking data pursuant to a CPUC order, legal process, or emergency; or (3) government or academic entities, grid planners, or other third-parties seeking aggregated and anonymized data where the customer identity has been removed.<sup>1</sup> The table on the following page provides examples of use cases for recipients of data, and categorization of whether prior customer consent is required before the IOU discloses a customer's data. The scope of this whitepaper includes those secondary purposes for which customer consent is required.

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<sup>1</sup> See *Memorandum Re Legal Considerations for Smart Grid Energy Data Sharing*, filed in R.08-12-009 on April 1, 2013.

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## Customer Consent & the CPUC Privacy Rules

Entity ↓	Category →	Primary or Secondary?	Consent required?	Examples:
(1) the IOU, its Contractors, its Vendors		Primary Purpose	No	<ul style="list-style-type: none"> <li>• The IOU and administrators of IOU Programs</li> <li>• Contractors/vendors working for the IOU</li> <li>• Other agents of the IOU</li> </ul>
(2) third-party: after CPUC order, legal process, emergency		Primary Purpose	No	<ul style="list-style-type: none"> <li>• City or county government reporting greenhouse gas emissions to the state or federal government</li> <li>• Contractor of the CPUC providing DR or energy efficiency</li> <li>• Subpoena or court order</li> <li>• Third-party action to prevent damage to life or property</li> <li>• Building managers, installing energy management technologies for a CPUC or state mandated program.</li> </ul>
(3) all other third-parties: personally identifiable data	<b>Scope of this Whitepaper</b>		Yes	<ul style="list-style-type: none"> <li>• Rule 24/32 participants, aggregators, DRAM Sellers</li> <li>• Storage or solar photovoltaic providers</li> <li>• Electric Vehicle providers</li> <li>• Energy management providers</li> <li>• Thermostat providers</li> </ul>
(4) third-parties: aggregated, system, grid data <sup>2</sup>		Primary Purpose	No	<ul style="list-style-type: none"> <li>• Government entities</li> <li>• Academic or research institutions</li> <li>• Grid planners</li> </ul>

<sup>2</sup> Note: these use cases are out of scope of this whitepaper and the Customer Data Access Committee. These issues should be referred to the Energy Data Access Committee or the Distributed Resource Planning proceeding R.14-08-013.



### **3. CURRENT ONLINE AUTHORIZATION AND DATA DELIVERY PROCESSES**

In order to fully utilize energy consumption data from advanced metering infrastructure (smart meters) and other energy related data that is stored by the IOUs, the IOUs have developed systems and online processes to obtain customer consent for sharing their data with a third-party and to deliver the data to the authorized third-party.

#### **A. The Green Button Standard**

The Green Button standard was created in response to the White House's call-to-action on a vision to provide consumers with easy-to-understand data about their household energy use. Customers can use this data themselves or share this with a third party of their choice. In 2011, CPUC Decision 11-07-056 ordered the IOUs to file an application to provide third-party access to customer energy usage and program-related data via the IOU backhaul delivery system when authorized by the customer.<sup>3</sup> The CPUC further specified that all IOUs should propose a common format and be consistent with ongoing national data delivery standards in their applications. In September 2013, the IOUs received approval from the CPUC to move forward with the proposed implementation plan using the Green Button Connect standard in D.13-09-025. Green Button Connect builds on the Green Button Download concepts and allows customers to provide ongoing, on-demand data delivery to a registered third party of their choice.<sup>4</sup> Customers can share ongoing gas and electric usage data, as well as billing and account information across many Service Accounts. This delivery method also can be used by a large customer, with technical expertise and multiple Service Accounts, to obtain and analyze large data sets over time.

The Green Button standard<sup>5</sup> has undergone a significant development and vetting process over the past six years by various standards organizations,<sup>6</sup> user groups,<sup>7</sup> and government entities.<sup>8</sup> The Green button standard can support use cases as diverse as demand response, solar cost savings estimation, energy management for property managers, electric vehicle fuel cost

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<sup>3</sup> D.11- 07-056, OP 8.

<sup>4</sup> See Appendix B for an example of PG&E's current Green Button Connect (Share My Data) implementation.

<sup>5</sup> The Green Button Standard is published by the North American Energy Standards Board (NAESB), as the Energy Services Provider Interface (ESPI).

<sup>6</sup> These organizations include the Smart Grid Interoperability Panel and NAESB.

<sup>7</sup> User groups include the UCA International Users Group and the Green Button Alliance.

<sup>8</sup> Government Entities include the Department of Energy, the National Institute of Standards and Technology (NIST), the CPUC, and Ontario Ministry of Energy.

savings analysis, energy efficiency analysis, agricultural water pump leak detection, residential Time Of Use rate analysis, and California Proposition 39-related services for schools. Today, many utilities across the U.S. and Canada have adopted the Green Button standard, including over 60 million U.S. customer accounts representing 100 million individuals and over 2.5 million Canadian customer accounts representing 8 million individuals.

Three core pieces of infrastructure developed out of this standard include: (1) leveraging Open Authorization (OAuth) 2.0 technology for authentication and authorization; (2) defining the ATOM XML Schema Definition (XSDs) to capture standardized data models for representing utility customer information in a structure xml file format for exchange; and (3) a set of RESTful Application Program Interfaces (APIs) for data delivery.

*i. Open Authorization (OAuth)*

OAuth is an online third-party authorization standard that allows an end user's account information to be released to third-party services without exposing the user's sensitive authentication credentials such as a username and password. It also gives the customer full transparency into who they are authenticating with or to whom they are providing their login credentials, in addition to what data the customer is authorizing to be released. This system also allows third parties to build to a supported industry standard, which promotes interoperability and quick development and innovation.

OAuth allows customers to use a familiar online experience to authorize the release of their data using a proven and secure system. This is similar to what many website service providers use to allow customers to create an account on a website using credentials from another service, such as Google or Facebook.<sup>9</sup>

*ii. Application Program Interface (API)*

API is a term that is generically used to describe a set of definitions, protocols, and tools for building application software. The Green Button APIs enables data retrieval quickly and at scale, based on requests that a registered third-party makes for specific data items that they have been authorized to receive.<sup>10</sup> From a technical perspective, the Green Button APIs allows

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<sup>9</sup> See example in the text box on page 7.

<sup>10</sup> The IOUs offers "synchronous" API requests, which can be used to obtain customer information quickly (often within 90 seconds) in a fast, on-demand manner. This API approach tends to be less expensive and fastest to support at scale as opposed to push systems, which make all of the data available, not just that which is requested. The IOUs also support asynchronous request for larger data sets (e.g., years of historical interval data), in which the IOU will notify the third-party when the requested data is ready to

third-party data requests and IOU responses using a secure two-way certificate-based TLS1.2 mutual client-server authentication via the HTTPS protocol. Third-party data requestors must utilize trusted certificates for secure inbound and outbound API communication.

**Example: OAuth 2.0 & Open ID**

The New York Times will allow customers to create an online account using their credentials from Facebook. The customer will click on the “Log-In with Facebook” logo and a window will pop up prompting the customer to log in using their Facebook credentials. Once authenticated, the customer will see what information the New York Times would like to receive from Facebook. Typically, this includes the public profile and email address, but could include friends lists, photos, or any other data stored on Facebook. The customer may have the option of un-checking data fields it prefers not to release. If the customer is comfortable with the data being released, then they can accept or authorize. The customer is able to use their credentials from one service (Facebook) and pass certain information on to the other provider (The New York Times). The other provider receives a limited amount of information and does not gain access to customer credentials.

The functionality for “login using Facebook/Google” uses Open Identification (Open ID) technology that is built on top of OAuth. OAuth permits authentication, or sharing your identity, while Open ID permits users to share a limited amount of protected information.

**B. The Click-Through Authorization Process in Demand Response**

Because of the unique data needs of third-party DR providers who directly participate in the California Independent System Operator (CAISO) market, in D.16-06-008 the CPUC authorized the development of a more streamlined authorization process than was available using the IOUs then-current implementation of the Green Button platform.<sup>11</sup> Over a six-month period, the IOUs and stakeholders met to form a consensus proposal. Ultimately, two solutions were pursued. OAuth Solution 3 was approved in Resolution E-4868 and the IOUs have completed the first phase of implementation of that solution.<sup>12</sup> Resolution E-4868 also ordered the IOUs to develop a cost estimate and proposal for API Solution 1 to include in the November 2018 application.

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be retrieved. However, this doesn’t lend to dynamic real-time third-party services and generally is slower to accommodate new uses.

<sup>11</sup> See Sections 5 and 6 for more information on the unique data access needs of third-party DR providers and the procedural history of the click-through authorization and data delivery process.

<sup>12</sup> See Appendix B for screen shots of OAuth 3 implementation.

*i. OAuth Solution 3<sup>13</sup>*

In Solution 3 or “OAuth Solution 3,” the customer starts on the third-party DR Provider’s website, but then the customer is redirected to the IOU website. There the customer enters their credentials – either an IOU login and password or other identifying information to verify or authenticate their identity. Then the customer has the option to accept default selections or modify the authorization to select among several options including how long the third-party will be able to access the data, and which service accounts to include in the authorization. After finalizing the authorization, the customer is re-directed back to the third-party DR Provider’s website. Solution 3 uses the OAuth 2.0 Standard, an API technology, similar to what many website service providers use to allow customers to create an account. See New York Time-Facebook example described on page 5.

*ii. API Solution 1<sup>14</sup>*

Solution 1 or “API Solution 1” allows the customer to stay on the third-party website for the entire process. The customer enters information to verify or authenticate their identity and that is sent to the IOU to be processed by its back-end IT system. If the information is correct, then the IOU returns information to pre-populate the authorization screens on the third-party provider’s website. The customer completes and electronically signs the authorization and allows the IOU to release the customer’s energy related data to the third-party DR provider. The third-party returns an electronic record to the IOU indicating the authorization was completed. Solution 1 uses a type of API technology.

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<sup>13</sup> The technical specifications of the click-through authorization process, OAuth Solution 3, are available at (accessed on May 16, 2018):

- PG&E’s “Third Party Demand Response Provider or Aggregator” page:  
[https://www.pge.com/en\\_US/business/save-energy-money/energy-management-programs/demand-response-programs/rule24/third-party.page](https://www.pge.com/en_US/business/save-energy-money/energy-management-programs/demand-response-programs/rule24/third-party.page)
- SCE’s “Third-Party Demand Response Services” page:  
<https://www.sce.com/wps/portal/home/partners/partnerships/Demand-Response-Service/>
- SDG&E has created an educational package for third parties wishing to explore using the Click Through Process for obtaining SDG&E customer authorization to share their data. Copies can be obtained by emailing [CISR-DRP@semprautilities.com](mailto:CISR-DRP@semprautilities.com)

<sup>14</sup> Please note that API Solution 1 has not been fully developed and has not been approved by the CPUC, but it will be included in the IOUs November 2018 applications as described in Appendix A.

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#### 4. SOLICITATION OF FEEDBACK FOR NOVEMBER APPLICATION

Resolution E-4868 orders the IOUs to file applications by November 26, 2018 with proposals to expand the click-through authorization processes to other DER and energy management providers, and to make other improvements to the click-through and data delivery processes. The IOUs would benefit from receiving feedback from DER and energy management providers, as well as other interested stakeholders, about these issues. This information will be used to inform the development of the IOU's November 2018 applications.

**Please review all of the questions in Section 4 before responding to avoid duplication in your responses, and note any dependencies, if applicable, on the type of customer segment you serve. Responses should be sent by June 6, 2018 to [kjs@cpuc.ca.gov](mailto:kjs@cpuc.ca.gov). Responses will be shared with the IOUs, participants of the CDAC, CPUC staff, and other interested stakeholders. In order to format responses inline, a separate word document with the questions is available in the email notice sent to the service lists in Section 1.**

*NOTE: The November applications will include proposals to expand the click-through authorization process to other (non-demand response) DER providers. Responses should focus on the click-through process that begins and ends on the third-party provider's website and use cases that allow customers to share personally identifiable, energy related data.*

1. Describe use cases for customer-specific energy related data you currently receive:
  - a. What customer segments do you currently serve (residential, etc.)?
  - b. How do you currently use customer-specific, energy related data (energy usage, interval data, billing data, etc.)?
  - c. What is the business need or reason for the data?
2. How could you leverage the click-through authorization and data delivery process to support your customer-specific energy related data needs?
3. What kind of customer data do you need? If your data needs are different for residential versus commercial and industrial customer, please explain in your responses.
  - a. Are there data elements that you need beyond what is included in the "DR provider Expanded Data Set" in Appendix D?
  - b. Do you need fewer data elements than what is included in Appendix D? If so, what data elements do you need that are not provided to you now using the Green Button authorization and data delivery process?

4. What level of granularity of data do you need for residential versus commercial and industrial customers (hourly, 15 minute, 5 minute)?
5. Considering your response to Question 3: Describe the use cases for additional data sets that you need.
6. Is the data available from any other sources? Consider the data listed in Question 3 or the data you currently receive using the Green Button authorization process.
7. Considering your responses to Question 3 & 4: What are the proven benefits of access to additional data points or more granular data? Point to studies or industry standards.
8. What level of latency between customer authorization and access to customer data would you recommend be implemented?
  - a. How quickly after initiating contact with a customer, do you need their data?
  - b. How quickly after receiving customer authorization, do you need data (days, hours, minutes)?
  - c. How frequently do you need the data (one-time, ongoing)?
9. Would you be seeking different data sets to support different product offerings and customers, or would registering once for one a data set be sufficient for all of your products and customers?
10. What aspects of the current click-through system design would you need to utilize?<sup>15</sup>

<input type="checkbox"/> Alternative authentication credentials, possibly with two-factor authentication	<input type="checkbox"/> Mobile application support
<input type="checkbox"/> Ability to authorize two collaborating third-parties at once?	<input type="checkbox"/> Customization of length of authorization via a dynamic scope string
<input type="checkbox"/> Design of two pages and four clicks in the best-case scenario	<input type="checkbox"/> Notification after completion of authorization
<input type="checkbox"/> Display of summarized terms and conditions	<input type="checkbox"/> Revocation of authorization

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<sup>15</sup> See Section 3.B.i., describing OAuth Solution 3.

11. The IOUs need to estimate costs to expand the click-through process. The cost may be impacted by the volume of customers using the authorization process.
  - a. Currently, how many customers authorize the IOU to deliver energy related data to your company each month using the existing IOU Green Button platform?
  - b. If the click-through process were available for your customers, would the volume of customer authorizations increase? If so, please estimate how much the volume would increase.
12. What changes to the system design would you propose, and how important is this to being able to utilize click-through?<sup>16</sup>
13. The November application must be approved prior to the expansion of the click-through authorization process to DER and energy management providers. Because the CPUC process for an application can take up to 18 months, are there improvements that could be made to existing data access processes that would be helpful in the interim?
14. Which of the online authorization processes would you prefer to use with your customers: OAuth Solution 3, API Solution 1, and/or the existing Green Button authorization process? Please explain your preference.
  - a. Would you use OAuth Solution 3 that begins and ends on a third-party providers' website and includes 2 screens and 4 clicks for the "quick path"?<sup>17</sup>
  - b. PG&E has improved their implementation of Green Button or Share My Data authorization process so that it mirrors OAuth Solution 3.<sup>18</sup> Would you prefer to use this online authorization solution over OAuth Solution 3?
  - c. Or, would you prefer an API Solution 1-like authorization process that does not rely on OAuth and is located entirely on the third-party provider website?<sup>19</sup>

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<sup>16</sup> See Appendix B for examples of OAuth Solution 3 implementation.

<sup>17</sup> See Section 3.B.i for a discussion of OAuth Solution 3, and Resolution E-4868 which adopts the solution. See also Appendix B for examples of OAuth Solution 3 implementation. Note that OAuth Solution 3 is only available to third-party DR providers at this time.

<sup>18</sup> See Appendix B, showing examples of OAuth Solution 3 of the click-through authorization process for DR providers, as well as PG&E's Share My Data for DER, energy management, and other providers.

<sup>19</sup> See Section 3.B.ii. for a discussion of API Solution 1, and Resolution E-4868 at 57-65, Section 14. Please note that API Solution 1 has not been fully developed and has not been approved by the CPUC.

15. In what other IOU programs or CAISO markets do you participate?
  - a. What role do you play in these programs/markets? Are there restrictions on what type of data you can access as a result of this role?
  - b. What customer-specific data is available through these programs?
16. What customer protections does your company employ to prevent data from being used for unapproved purposes?
17. Are there additional customer protections needed before expanding the click-through authorization process to other DERs?
18. Finally, please indicate whether:
  - ☐ you would like to be added to the Customer Data Access Committee (CDAC) email list to be informed about every meeting;
  - ☐ you prefer only to be notified about special CDAC meetings to discuss the expansion of the click-through process; or
  - ☐ you prefer not to be added to either list.

## **5. NEXT STEPS**

Following the receipt of the informal feedback, the Customer Data Access Committee (CDAC) will hold a special meeting planned for June 2018 to discuss the feedback, and what the IOUs can feasibly include in the proposals and cost estimates for the November application.



## APPENDIX A:

### Rule 24/32, Data Access, Click-Through Process, and November Applications

Understanding the historical and procedural background of the click-through authorization and data delivery processes will help inform DER and energy management providers that participate in the IOU's November 2018 applications.

#### 1. BACKGROUND ON DATA ACCESS AND DIRECT PARTICIPATION DEMAND RESPONSE

Why was the click-through authorization process developed first in the context of DR? This section describes Rule 24/32 that governs direct participation DR and the unique data needs of third-party DR providers participating in the CAISO markets.

##### A. History of Direct Participation Demand Response

Direct participation DR<sup>20</sup> took approximately 8 years to develop at the federal and state level. On February 22, 2008 the Federal Energy Regulatory Commission (FERC) issued the Notice of Proposed Rulemaking of what would later lead to Order 719.<sup>21</sup> FERC Order 719 required Independent System Operators like the California Independent System Operator (CAISO), to create tariffs, allowing retail energy consumers to bid DR into the wholesale energy market, either bidding their own load directly, or through an aggregator.<sup>22</sup>

CAISO began a stakeholder process to develop DR tariffs as required by FERC Order 719. As part of the Market Redesign and Technology Upgrade, CAISO developed the Proxy Demand Resource (PDR) tariff and, later submitted the Reliability Demand Response Resource (RDRR) tariff. These tariffs allow DR to bid into the market, where the curtailed energy is treated like traditional generation. The RDRR tariff is designed for emergency responsive DR, while the PDR tariff is designed for the day-ahead energy, real-time energy, or ancillary service markets.<sup>23</sup>

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<sup>20</sup> Direct Participation DR is the bidding of retail electric customers' load reductions into CAISO wholesale energy markets. Direct participation allows third-party DR providers to participate in CAISO markets independently of the IOUs.

<sup>21</sup> Order 719 was issued on October 17, 2008.

<sup>22</sup> D.12-11-025 at 3-4, Section 2.1.

<sup>23</sup> DRPs, RDRRs, PDRs, Section 4.13, California Independent System Operator Corporation, Fifth Replacement FERC Electric Tariff, November 1, 2017, available at (accessed May 9, 2018): [http://www.caiso.com/Documents/Section4\\_Roles\\_Responsibilities\\_asof\\_Nov1\\_2017.pdf](http://www.caiso.com/Documents/Section4_Roles_Responsibilities_asof_Nov1_2017.pdf)

See also D.12-11-025 at 4-5, Section 2.2.

On November 9, 2009, the CPUC opened Phase IV of Rulemaking (R.) 07-01-041 to develop rules for the retail participation of DR bidding directly into the CAISO wholesale markets. Decision (D.) 10-06-002 established initial conditions under which the CPUC would oversee direct participation DR, and the CPUC's jurisdiction to oversee third-party DR providers.<sup>24</sup> D.10-12-060 re-affirmed the CPUC's jurisdiction, finding oversight over third-party DR providers to be reasonable and necessary due to the potential impacts on resource adequacy, resource procurement planning, reliability, and safety of CPUC regulated services for bundled retail IOU customers. The CPUC also has an interest in protecting customers against market abuse.<sup>25</sup>

Finally, D.12-11-025 created Rule 24/32 to define the roles and responsibilities of the IOUs and third-party DR providers. The CPUC put in place simple registration requirements, customer notification requirements, and the CPUC authority to resolve complaints.<sup>26</sup>

After the extensive stakeholder processes spanning over six years (2007-2014) to develop direct participation DR, Rule 24/32 could not be fully utilized until January 1, 2016, because the IOUs needed funding authorization to implement the necessary systems and back-office support:

- 1) to deliver customer usage and program data to third-party DR providers upon customer authorization;
- 2) to create individual registrations to track the customer data and integrate with the CAISO systems;
- 3) to approve and track paper Customer Information Service Request forms for DR Providers (CISR-DRP Request Forms); and
- 4) to provide other services that allow third-party DR providers to participate in the day-ahead energy, real-time energy, or ancillary service markets.

The IOUs submitted applications in June 2014 to seek cost recovery for providing direct participation DR services. The CPUC took a phased approach and approved funding in March 2015 in D.15-03-042, March 2016 in D.16-03-008, and in June 2016 in D.16-06-008.<sup>27</sup> This phased approach allowed the IOUs to provide some services initially, after D.15-03-042 was implemented. During the first quarter of 2016, third-party DR providers began registering with

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<sup>24</sup> D.10-06-002 at 9-11.

<sup>25</sup> D.10-12-060 at 5-9.

<sup>26</sup> D.12-11-025 at 22-26, and 54-56.

<sup>27</sup> D.15-03-042 approved PG&E an authorized budget of \$2.9 million to support 10,000 Rule 24 registrations, SDG&E an authorized budget of \$1.8 million to support 7,000 Rule 24 registrations, and SCE an authorized budget of \$2.7 million to support 14,000 registrations.

the CPUC and submitting their first CISR-DRP forms to the IOUs.<sup>28</sup> With the approval of D.16-03-008, and D.16-06-008, the IOUs were able to implement the back-office IT support to increase the number of registrations and CISR-DRP Request Forms that could be processed.

**B. Data Access Needs of DR Providers Participating in the CAISO Markets**

*i. DRAM Background Information*

Integrating IOU DR and third-party DR into the CAISO wholesale energy market has been a goal of the CPUC since the issuance of R.07-01-041 in 2007, and continued in 2013 with R.13-09-011. In D.14-03-026, the CPUC initiated a process to develop the Demand Response Auction Mechanism (DRAM) as a capacity procurement mechanism that would increase DR participation in the market.<sup>29</sup>

The DRAM is a pay-as-bid auction for system, local, and/or flexible monthly retail Resource Adequacy (RA) capacity. The RA capacity is associated with DR customer resources located in an IOU's service area. Because winning DRAM participants (third-party DR providers or "DRAM Sellers") have contracted to provide RA capacity, they are obligated to comply with CAISO must-offer obligations. These require Sellers to bid their full resource capacity into both the CAISO day-ahead and real-time energy markets during availability assessment hours on non-holiday weekdays during their contracted delivery months.<sup>30</sup>

*ii. Unique Data Needs for DRAM Participants*

Unlike DER providers that do not participate in the CAISO markets, DRAM Sellers providing capacity to the IOUs need to register their Proxy Demand Resources (PDR) and Reliability Demand Response Resources (RDRR) at the CAISO.<sup>31</sup> An initial step in this process is to input customer location information into the CAISO Demand Response Registration System.<sup>32</sup> CPUC privacy rules require the IOUs to receive customer authorization prior to releasing energy-

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<sup>28</sup> PG&E's Compliance Filing Pursuant to D.15-03-042, Ordering Paragraph 1, Quarterly Report to Track Progress of Rule 24's Implementation, filed April 1, 2016, in A. 14-06-001 et al.

<sup>29</sup> D.14-03-026 at 24.

<sup>30</sup> The IOUs purchase retail RA capacity from the DRAM Sellers. The DRAM Sellers receive retail RA capacity payments from the IOUs in addition to any revenues from the CAISO wholesale energy markets. The IOUs have no claim on revenues from the CAISO energy markets.

<sup>31</sup> Rule 24/32 permits DR providers that meet its requirements to "directly participate" in the CAISO markets, whether or not the provider participates in DRAM.

<sup>32</sup> See the Demand Response User Guide at 28, California Independent System Operator, Version 4.3, May 5, 2017, showing the Demand Response Registration System and the fields needed to register a location, available at (accessed May 9, 2018): <http://www.caiso.com/Documents/DemandResponseUserGuide.pdf>

related data to a third-party provider. DRAM Sellers obtain customer authorization via a CISR-DRP Request Form or click-through authorization process to access historical and ongoing customer-specific information, which is needed for this CAISO registration process, for bidding into the market, and for energy settlements.

## **2. PROCEDURAL BACKGROUND OF THE CLICK-THROUGH AUTHORIZATION PROCESS**

The click-through authorization process was developed first in the DR context because third-party DR providers raised the issue in the proceeding Application 14-06-001 et. al. Understanding the procedural background of the development of the click-through authorization process will help third-party DER and energy management providers to effectively respond to the solicitation of feedback, and participate in the November 2018 application proceeding in a more informed way.

Authorizing data sharing is an essential step for a customer in the process of enrolling in and beginning a third-party program because the provider needs a customer's data in order to deliver DR services. For DR providers, the data is necessary to bid and settle load drop into the CAISO wholesale energy market. For many third-party DR providers, the customer authorization for the IOU to deliver data is the most important step in enrolling in a third-party program.

### **A. Need for a streamlined solution:**

Because data sharing is such an essential step in enrolling in a third-party program, the issue of streamlining the authorization process arose in the proceeding A.14-06-001 et. al. CPUC Decisions 15-03-042, 16-03-008 and 16-06-008 authorized funding for IT infrastructure, paper authorization form processing, and validations and tracking of CAISO registrations. Each time a customer authorizes the IOU to release data to a third-party DR provider, the IOU must track and deliver the customer's data. Once the third-party DR provider receives data from the IOU it can register the customer location in the CAISO Demand Response Registration System (DRRS). For each CAISO DRRS registration, the IOU must validate that the registration information is correct including the Pricing Node, Default Load Aggregation Point (DLAP), and Sub-LAP.

Third-party DR providers that participated in the A.14-06-001 et. al. proceeding found that the authorization processes available in 2016 led to customer fatigue and low customer enrollment.<sup>33</sup> In 2016, customers could authorize data sharing using a paper Customer

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<sup>33</sup> See D.16-06-008 at 20-23, especially footnote 35 describing customer fatigue due to unsuccessful attempts at entering a login and password, and EnergyHub, Inc. whitepaper, "Optimizing the demand

Information Service Request Form (CISR-DRP Request Form), a PDF CISR-DRP Request Form with an electronic signature verified using DocuSign, or, for SCE customers only, the Green Button Connect platform. Each of these methods presents challenges, especially for residential DR providers who need to enroll a large number of customers in order to meet the minimum bid requirements of the CAISO markets, which require resources to be greater than 100 kilowatts.

*i. CISR-DRP Request Form*

The CISR-DRP Request Form presents challenges because it is not comparable in customer convenience or acceptance as provided by current, “state of the art” commercial on-line services in other businesses. Both the third-party DR provider and customer needed to provide information to complete and then sign the form.

Depending on how this form was implemented, the process used to complete and sign the form could range from completely manual to nearly fully automated process. Under the manual or paper process, the third-party DR provider would have to complete its portion and sign the paper form, and then send the partially completed form to the customer. The customer would then complete its portion and sign the paper form and return the form to the provider. The provider would send the form electronically to the IOU. Under the nearly fully automated process, the third-party DR provider would collect the information from the customer using the provider’s website and automatically populate the fields on the customer’s form. The DR provider would then send the completed form and automatically redirect the customer to a third-party for electronic signature, after which the completed form would be electronically sent to the utility. PG&E’s implementation of the form included a fillable pdf, which supported both a manual and nearly fully automated processes for completing, signing, and submitting the form.

Additionally, the IOUs back end processes for form handling were almost fully automated starting with its initial deployment. The only portion that was not automated was on the part of a vendor that read the data from the form. This vendor used technology solutions to read the majority of the data but certain data fields like dates, signatures, and check boxes needed to be read by hand.

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response program enrollment process,” available at: <http://www.energyhub.com/optimizing-demand-response-enrollment> (accessed on January 27, 2018).

*ii. Wet signatures and electronic signatures using DocuSign*

In the initial implementation of the CISR-DRP Request Form, the IOUs accepted wet signatures and electronic signatures provided by third-party identity verification company such as DocuSign. Third-party DR providers found the use the paper CISR-DRP Request Form and DocuSign for electronic signatures lead to customer fatigue.<sup>34</sup> The CPUC agreed and in D.16-06-008 denied the request to continue to require the use of a third-party identity verification company such as DocuSign.<sup>35</sup>

*iii. Existing systems did not meet the third-party DR provider's needs*

The IOUs' initial implementations of the third-party DR authorization process used their existing Green Button systems to various degrees. PG&E used its existing Green Button "Share My Data" platform to deliver energy usage data while using a flat file process to deliver the other data types. Like PG&E, SDG&E used its Green Button "Customer Energy Network" platform to deliver data. SCE however, used its Green Button platform as one method for DR customer authorization, as well data delivery. PG&E and SDG&E used their Green Button platforms initially for customer authorizations, but for other use cases, not for third-party DR providers.

Third-party providers, including the Joint DR Parties, consisting of EnerNOC, CPower, and EnergyHub, voiced concerns that these existing platforms lead to customer fatigue due to multiple screens and clicks required to complete an authorization. The impact of customer fatigue on third-party DR providers is a "cliff drop in enrollment rates."<sup>36</sup> Authorizing data release is not "enrollment" in a third-party program per se, as it is sometimes characterized by DR providers. However, enrollment and data authorization is intertwined because, for many third-party DR providers, it is the most important step in onboarding a customer into a DR program.

**B. The CPUC Ordered Consensus Proposal**

Decision 16-06-008 recognized that "the Direct [P]articipation enrollment process is an evolving process that can and should be improved,"<sup>37</sup> and ordered PG&E, SCE, and SDG&E to meet with the CPUC's Energy Division and interested stakeholders to reach a consensus proposal on the

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<sup>34</sup> Joint Demand Response Parties Opening Brief at 6-9, and OhmConnect Opening Brief at 4-5, filed on April 1, 2016, in A.14-06-001 et. al.

<sup>35</sup> D. 16-06-008 at 12.

<sup>36</sup> Joint Demand Response Parties Reply Comment on Proposed Decision, at 5, filed on May 31, 2016, in A.14-06-001 et. al.

<sup>37</sup> D.16-06-008 at 23.

click-through authorization process. This process is a technology architecture which enables a customer to authorize the IOU to deliver the customer's energy related data to a third-party DR provider<sup>38</sup> by completing a consent agreement electronically. The click-through authorization process is distinct from other electronic authorization processes in that the customer begins and ends on a third-party provider's website.<sup>39</sup>

The Decision ordered the IOUs and stakeholders to develop an online process that begins and ends on a third-party website, and verifies the customer's identity.<sup>40</sup> The Decision allows the third-party DR provider to "pre-populate" fields in the authorization process, but clarifies that the customer must complete the click-through process, "not a third party on behalf of the customer."<sup>41</sup>

In developing the click-through process, the CPUC tasked IOUs and stakeholders to:

"streamline and simplify the direct participation enrollment process, including adding more automation, mitigating enrollment fatigue, and resolving any remaining electronic signature issues."<sup>42</sup>

The Decision explained that in order to streamline, simplify, automate, mitigate enrollment fatigue and address electronic signature issues, stakeholders should:

"attempt to identify unnecessary steps in the enrollment process and determine options to eliminate these steps. Parties should also discuss approaches to coordinate the Applicants' enrollment systems with those of the providers and/or aggregators..."<sup>43</sup>

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38 Demand Response Provider refers to a CPUC Demand Response Provider defined in Electric Rule 24 (PG&E, SCE) and 32 (SDG&E) (together, Rule 24/32):

"An entity which is responsible for performing any or all of the functions associated with either a CAISO DRP and/or an Aggregator. DRPs must register with the CPUC and CAISO DRPs must also register with the CAISO. Unless otherwise specifically stated, all references to "DRP" herein shall refer to this definition."

<sup>39</sup> Decision (D.) 16-06-008, at Ordering Paragraph 1.

<sup>40</sup> D.16-06-008 at 12-14.

<sup>41</sup> D.16-06-008 at 13-14.

<sup>42</sup> *Id.* at Ordering Paragraph 9.

<sup>43</sup> *Id.* at 22-23.

Finally, the CPUC ordered the IOUs to develop a consensus proposal in a stakeholder working group process and file it by November 1, 2016.<sup>44</sup>

### C. Working Group Development of Solutions

PG&E, SCE and SDG&E worked with the CPUC's Energy Division and held more than sixteen working group meetings in person and on the phone over a six-month period. In addition to representatives from the IOUs and Energy Division, participants included the following third-party DR providers: Advanced MicroGrid, Chai Energy, CPower, eMotorWerks, EnergyHub, EnerNOC, NRG, OhmConnect, Olivine, SolarCity, Stem, Sunrun, and Earth Networks (formerly WeatherBug). Other interested participants included: Office of Ratepayer Advocates (ORA), the California Efficiency and Demand Management Council (formerly the California Energy Efficiency Industry Council), Mission:data Coalition, UtilityAPI, and others. The Assigned Commissioner's office also attended several meetings.

Over the course of the working group meetings, the third-party stakeholders, led by UtilityAPI, developed three different click-through frameworks for consideration. These frameworks were named Solutions 1, 2, and 3. Solution 2 was determined to be infeasible by the working group early in the process. Solution 3 and Solution 1 are described and compared in an Informal Status Report that the stakeholders served to the service list in Application proceeding 14-06-001 et. al. In the report, stakeholders also state their preference between the two frameworks and justification for their preference.

The IOUs incorporated the feedback from the working group into the Advice Letters that were filed on January 3, 2017.<sup>45</sup> The IOUs submitted plans for developing OAuth Solution 3. The IOUs prefer OAuth Solution 3 because the authentication and authorization occur on the IOU website, using OAuth 2.0, an accepted industry standard. The IOUs expressed concerns about customer privacy and cybersecurity with API Solution 1 because, as described in the working group and understood by the IOUs, the entire authentication and authorization process would occur on the third-party website.

### D. Resolution E-4868

Resolution E-4868 was approved by the CPUC on August 24, 2017. The Resolution dealt primarily with technical implementation issues, but a few issues impact CPUC policy on data access for distributed energy resources and data privacy. The Resolution resolved issues in 19

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<sup>44</sup> The CPUC's Executive Director granted the IOUs' request to file the consensus proposal on January 3, 2017.

<sup>45</sup> PG&E Advice Letter (AL) 4992-E, SCE AL 3541-E, and SDG&E AL 3030-E.



different areas. While there was general consensus on some issues, most issues were contested.

*i. Key Components of the Resolution*

Resolution E-4868 defines the technical specifications that the click-through authorization process must contain. Some of these specifications include:

- Authentication using IOU account username/password or alternative credentials such as Account number and zip code;
- A streamlined design with 2 screens that can be completed in 4 clicks if no other options are changed;
- Dual authorization, allowing a customer to authorize two providers at one time;
- A design that is optimized for mobile devices;
- A length of authorization that comports with the programs that the third-party DR provider offers including minimum end date, preferred end date, or indefinite end date;
- A display of the terms & conditions that incorporates feedback from the Customer Data Access Committee;
- Revocation options for both the customer and the third-party DR provider;
- Automated notification to the customer and the third-party DR provider after an authorization has been completed;
- A shorter data set delivered within an average of 90 seconds after authorization has been completed; and
- An expanded Rule 24/32 data set delivered within 2 business days.

Further, Resolution E-4868 puts in place procedures to ensure the click-through authorization process' continued success. The IOUs are required to create a website that reports statistics on the performance of the click-through authorization processes. Additionally, the IOUs were ordered to form the Customer Data Access Committee (CDAC). Initially, the CDAC provides a forum for stakeholders to resolve implementation issues with the click-through authorization process. After implementation, it will serve as a place to discuss ongoing issues related to customer-specific data access, as well as a forum to informally resolve disputes. Finally, the Resolution ordered the IOUs to file an application for future improvements to the click-through authorization process. Section 6.D.iii. below describes what the application will contain.

*ii. Phasing*

Ordering Paragraph 26 of Resolution E-4868 adopted a phased implementation of the click-through process as shown in Table 1 of the Resolution.<sup>46</sup> The Resolution required Phase 1 completion by February 26, 2018, Phase 2 completion by June 24, and Phase 3 completion by November 26.<sup>47</sup> Different functionality must be completed by the end of each phase. While the phasing differs for each IOU, generally, by the end of Phase 1, a basic click-through authorization process should be completed; Phase 2 requires various features that could not be completed by Phase 1; and Phase 3 includes lower priority features, and some of the more labor intensive and complex features.

*iii. Requirements for the November 2018 Application*

The Resolution ordered the IOUs to file in the November 2018 application, a proposal to expand the click-through authorization solutions to other DER and energy management providers and proposals to improve the click-through authorization and data delivery processes. The application filing is significant because it provides a broader procedural forum to address customer-specific data access issues across existing data delivery programs. These data access programs are integrated with the Green Button standard and allow customers to participate in third-party DER or energy management programs. The potential expansion of the click-through authorization process to other providers could have a broad impact because it could enable customers of distributed energy resource providers to more conveniently share data, facilitating increased customer choice.<sup>48</sup>

The November applications will include proposals to:

- expand the click-through authorization process to DER and energy management providers;
- provide the “DR provider expanded data set” to DER and energy management providers;<sup>49</sup>
- resolve implementation issues related to OAuth Solution 3;

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<sup>46</sup> Resolution E-4868 at 75.

<sup>47</sup> Resolution E-4868 did not list dates for the Phases, but required Phase 1 completion within 6 months from the date of the CPUC approval of the Resolution; Phase 2 completion within 10 months; and Phase 3 completion within 15 months. The Resolution was approved on August 24, 2017.

<sup>48</sup> Resolution E-4868 at 69.

<sup>49</sup> Resolution E-4868 did not specifically require the IOUs to include in the application a cost estimate for providing the “Rule24/32 Expanded Data Set” to other DER and energy management providers. However, the IOUs have agreed to make these cost estimates at the request of Energy Division and participants of the Customer Data Access Committee.

- add other needed functionalities to the click-through authorization processes;
- make improvements to the click-through authorization processes that may have the effect of increasing customer enrollment in third-party programs;
- improve data delivery processes and potentially upgrading IT infrastructure;
- determine whether to create and allow an alternative click-through authorization process, Application Program Interface (API) Solution 1; and
- consider implementing synchronous data delivery of the expanded data set within ninety seconds.

Further, Resolution E-4868 ordered the IOUs to incorporate feedback from participants of the CDAC into the application.<sup>50</sup> Initially, the participants in the CDAC were mostly representatives from the IOUs and third-party DR providers. In order to develop a robust application for expanding the solutions, the Resolution orders the IOUs to hold a special meeting to solicit feedback from DER and energy management providers.<sup>51</sup>

*iv. Progress Update and Impact on Future Green Button Policy*

All three IOUs have implemented the click-through authorization process with Phase 1 functionality. All three IOUs have been very responsive to working with DR providers to fix bugs and help integrate systems. Based on IOU updates in the CDAC, PG&E and SDG&E will be releasing Phase 2 as scheduled by June 24, 2018. SCE is skipping straight to Phase 3 by November 26, 2018 because it has already completed the functionality required in Phase 2.

Given the great deal of work the IOUs and third-party stakeholders put into the development of the click-through authorization process, participants of the CDAC including UtilityAPI set-out to see if the Green Button Standard itself could be optimized by incorporating some of the requirements of the click-through authorization process that were approved in Resolution E-4868. They brought feedback to the Green Button Alliance's Technical Subcommittee: The Open Automated Data Exchange (OpenADE) Task Force. UtilityAPI recommended simplifying customers' abilities to grant third-party vendors' access to data when using the Green Button Connect My Data (CMD) platform. After presenting their case to expand the set of supported data elements to cover the "Rule 24/32 Expanded Data Set" and streamline the customer authorization process, the OpenADE Task Force agreed and has submitted changes to the North American Energy Standards Board (NAESB).<sup>52</sup> The NAESB is the standards body managing the

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<sup>50</sup> Resolution E-4868 at 84, explaining that improvements to the click-through authorization process shall be determined by the CDAC and included in the November 2018 application.

<sup>51</sup> Resolution E-4868 at 65-69.

<sup>52</sup> OpenADE Task Force meeting notes 3-7-2017, available at (accessed May 15, 2018): <http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Testing%20and%20Certification/Gr>

Energy Service Provider Interface (ESPI) (a.k.a., Green Button)—strengthening the overall framework for current and forward-looking use cases. Due to the leadership of the CPUC Energy Division and the Customer Data Access Committee, future users of Green Button, in the U.S. and elsewhere, will benefit from the work done here in California.

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[eenButtonTestPlan/OpenADE%20Task%20Force%20Meeting%20Notes/Notes20170307.pptx](#) See also a diagram that was presented to the Green Button Alliance showing the click-through, OAuth Solution 3 process available at (accessed May 17, 2018): <http://files.greenbuttonalliance.org/click-through-process>

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## APPENDIX B:

### Examples of Green Button and Click-Through Authorization Processes

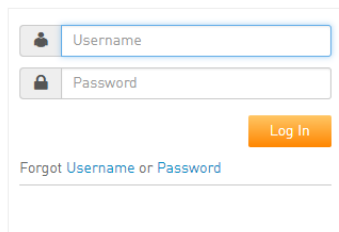
#### A. PG&E CLICK-THROUGH AND SHARE MY DATA AUTHORIZATION PROCESSES

##### PG&E Click-Through Process OAuth Solution 3 for Third-Party DR Provider

Authentication Page: Desktop



#### Log In Share My Data


A login form with a light gray border. It contains two input fields: 'Username' with a person icon and 'Password' with a lock icon. An orange 'Log In' button is to the right of the password field. Below the fields is a link 'Forgot Username or Password'.

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[Contact Us](#) | [Privacy](#)  
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PG&E Click-Through Process OAuth Solution 3 for Third-Party DR Provider  
Authorization Page: Desktop



Share My Data

Logged in as example-customer | [Contact Us](#)

Powered By 

DRP Company request data access and actions as follows:

Name: example customer    Email: example@pge1.com

Quickly authorize access to your data and allow necessary changes to your services as described in the details below.

<b>Basic Information</b> Includes name and service address	<b>Billing Information</b> Includes billing records, billing history, billing and meter read dates, rate schedule, and voltage class	<b>Account Information</b> Includes account number(s), service agreement number(s), and service start date.	<b>Usage Information</b> Includes Electric and/or Gas usage data used for bill calculations, interval usage, and interval time-of-use indicators
<b>Program Enrollment</b> Includes PG&E DR program name/status and CAISO information	<b>Meter Reprogram</b> Electric meters being authorized may need reprogramming to record energy usage more precisely	<b>PDP Disenroll</b> Service agreements that you authorize need to be disenrolled from the Peak Day Pricing program (if applicable)	

Shared Accounts and Service IDs

Select all Service IDs for all Accounts

PACIFIC GAS & ELECTRIC COMPANY - Account # [REDACTED] - 77 Beale Account UUID: [REDACTED]

**Access duration:** Indefinite  
Includes data required by Rule 24, and up to 24 months of historical data prior to today's date.  
**Note:** You can revoke this authorization any time.  
**Terms and Conditions:** by submitting I agree to the [Terms and Conditions](#).


[Cancel](#) [SUBMIT](#)


## PG&E Click-Through Process OAuth Solution 3 for Third-Party DR Provider

Authentication Page: Mobile Devices



### Log In Share My Data





Log In

Forgot [Username](#) or [Password](#)



[Contact Us](#) | [Privacy](#)  
© Pacific Gas and Electric Company

**PG&E Click-Through Process OAuth Solution 3 for Third-Party DR Provider**

Authentication Page: Mobile Device, Note: Privacy link cropped out

**Share My Data**

DRP Company request data access and actions as follows:

- Basic
- Usage
- Meter Reprogram
- Billing
- Program
- PDP Disenroll Enrollment
- Account

**Select all Service IDs for all Accounts**

PACIFIC GAS & ELECTRIC  
COMPANY - Account # : 6762202003  
- 77 Beale Account UUID:  
3178515683

**► Show data sharing and Service ID details**

**Access duration:** Indefinite

Includes data required by Rule 24, and up to 24 months of historical data prior to today's date.

**Note:** You can revoke this authorization any time.

**Terms and Conditions:** by submitting I agree to the [Terms and Conditions](#).

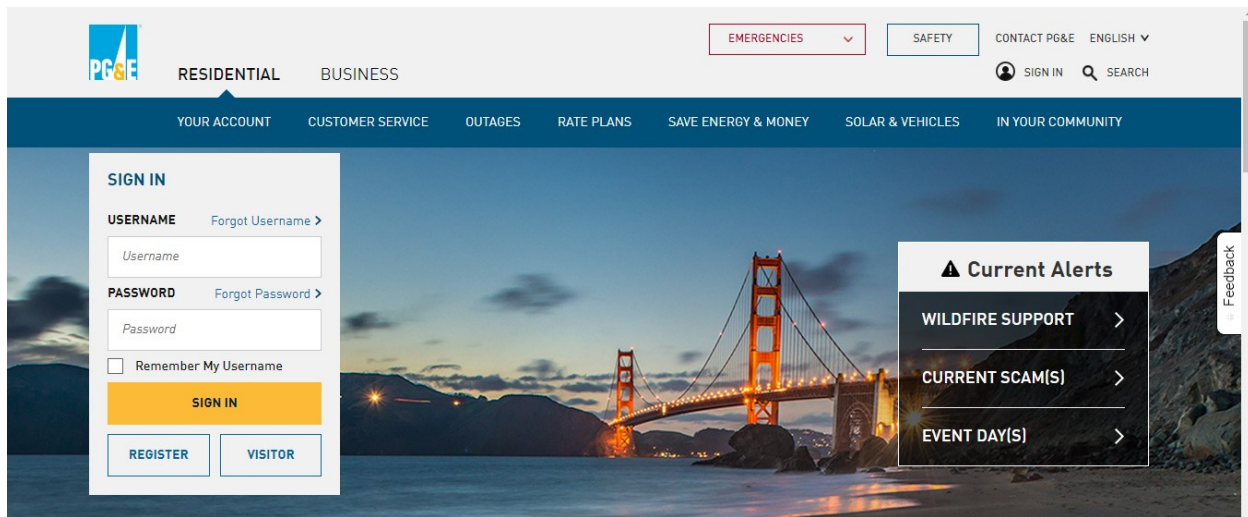
[Cancel](#)**SUBMIT**

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## PG&E Green Button or Share My Data for Third-Party DR Provider

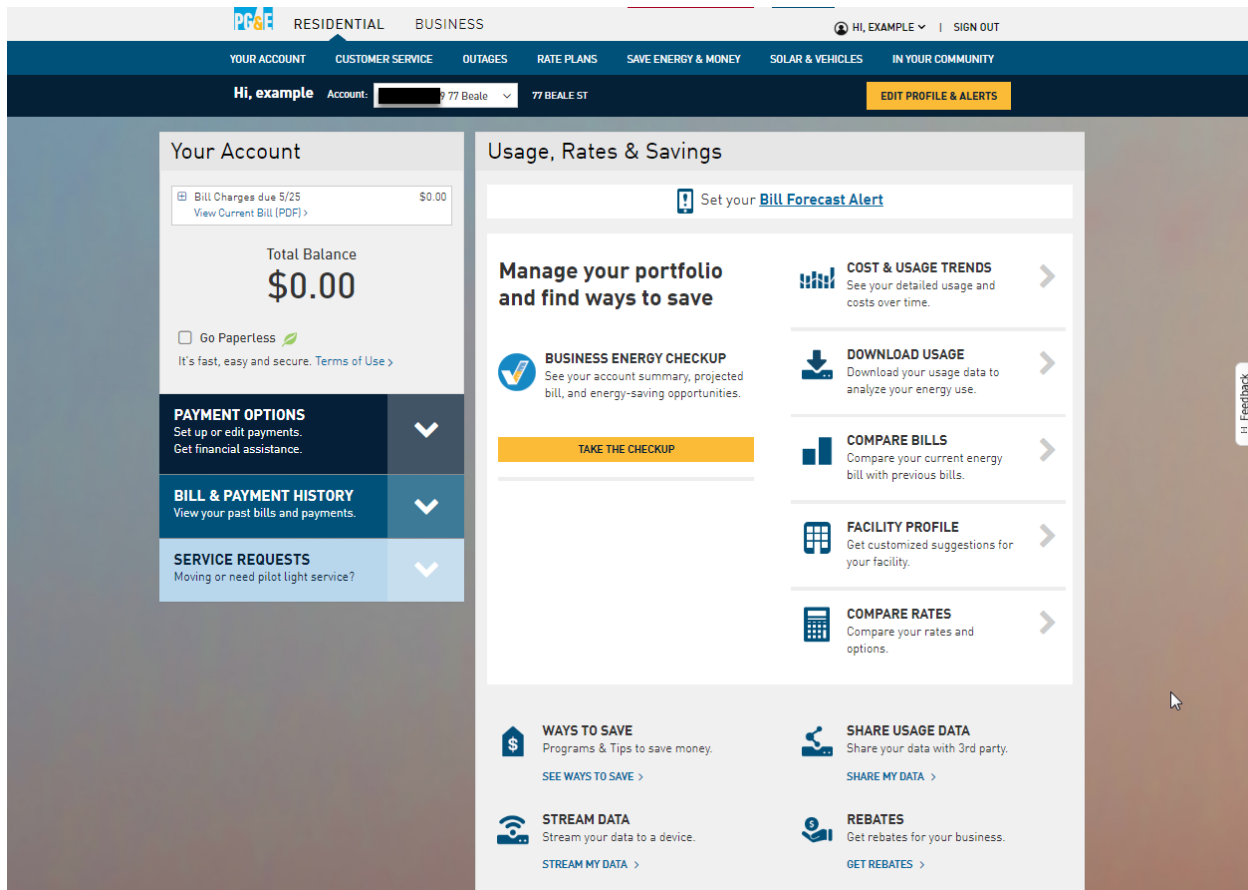
Customer Flow Starting at PGE.com: Authentication Page



The image shows the PG&E website's authentication page. The header includes the PG&E logo, navigation links for RESIDENTIAL and BUSINESS, and a top bar with EMERGENCIES, SAFETY, CONTACT PG&E, and ENGLISH. Below the header is a dark blue navigation bar with links: YOUR ACCOUNT, CUSTOMER SERVICE, OUTAGES, RATE PLANS, SAVE ENERGY & MONEY, SOLAR & VEHICLES, and IN YOUR COMMUNITY. The main content area features a large background image of the Golden Gate Bridge at night. On the left, there is a 'SIGN IN' form with fields for USERNAME and PASSWORD, each with a 'Forgot' link. Below the fields are checkboxes for 'Remember My Username' and a 'SIGN IN' button, along with 'REGISTER' and 'VISITOR' buttons. On the right, there is a 'Current Alerts' section with a warning icon and three expandable categories: WILDFIRE SUPPORT, CURRENT SCAM(S), and EVENT DAY(S). A 'Feedback' button is visible on the far right edge.

## PG&E Green Button or Share My Data for Third-Party DR Provider

Customer Flow Starting at PGE.com: Account Page



The image shows the PG&E website's account page. The header is similar to the authentication page, but includes a user profile section with 'Hi, example', a dropdown menu, and a 'SIGN OUT' link. Below the header is a dark blue navigation bar with the same links as the authentication page. The main content area is divided into two columns. The left column, titled 'Your Account', displays 'Bill Charges due 5/25' for '\$0.00' with a 'View Current Bill (PDF)' link, a 'Total Balance' of '\$0.00', and a 'Go Paperless' option. Below this are three expandable sections: 'PAYMENT OPTIONS', 'BILL & PAYMENT HISTORY', and 'SERVICE REQUESTS'. The right column, titled 'Usage, Rates & Savings', features a 'Set your Bill Forecast Alert' button. Below this is a 'Manage your portfolio and find ways to save' section with a 'BUSINESS ENERGY CHECKUP' button. To the right of this are several expandable sections: 'COST & USAGE TRENDS', 'DOWNLOAD USAGE', 'COMPARE BILLS', 'FACILITY PROFILE', and 'COMPARE RATES'. At the bottom of the right column are two more expandable sections: 'WAYS TO SAVE' and 'STREAM DATA'. A 'Feedback' button is visible on the far right edge.

## PG&E Green Button or Share My Data for Third-Party DR Provider

### Customer Flow Starting at PGE.com: Choose Provider Page



## Share My Data

[Return to Your Account](#) | [Logged in as example-customer](#) | [Contact Us](#) | [Sign Out](#)

Powered By Green Button Connect My Data

### Authorize Access to Your Data

You can authorize a company access to your data. Read the [Terms & Conditions](#) carefully before authorizing access to your data.

**Please note:** PG&E has not conducted security reviews on the companies participating in this program.

#### Add new authorization

Select from list

Pulse Technologies, Inc

Pumpsight

QuEST, Inc.

R25 Click Thru Test

Rain Bird

REC Solar

Reverse Current

RHA Inc



Pacific Gas and Electric Company

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## PG&E Green Button or Share My Data for Third-Party DR Provider

### Customer Flow Starting at PGE.com: Authorization Page



## Share My Data

[Return to Your Account](#) | [Logged in as example-customer](#) | [Contact Us](#) | [Sign Out](#)

Powered By Green Button Connect My Data

### DRP Company request data access and actions as follows:

**Name:** example customer **Email:** example@pge1.com

Quickly authorize access to your data and allow necessary changes to your services as described in the details below.

Basic Information	Billing Information	Account Information	Usage Information
Includes name and service address	Includes billing records, billing history, billing and meter read dates, rate schedule, and voltage class	Includes account number(s), service agreement number(s), and service start date.	Includes Electric and/or Gas usage data used for bill calculations, interval usage, and interval time-of-use indicators
Program Enrollment	Meter Reprogram	PDP Disenroll	
Includes PG&E DR program name/status and CAISO information	Electric meters being authorized may need reprogramming to record energy usage more precisely	Service agreements that you authorize need to be disenrolled from the Peak Day Pricing program (if applicable)	

### Shared Accounts and Service IDs

Filter

#### Select all Service IDs for all Accounts

▶ PACIFIC GAS & ELECTRIC COMPANY - Account # : [REDACTED] - 77 Beale Account UUID: [REDACTED]

#### Access duration: Indefinite

Includes data required by Rule 24, and up to 24 months of historical data prior to today's date.

**Note:** You can revoke this authorization any time.

**Terms and Conditions:** by submitting I agree to the [Terms and Conditions](#).

[Cancel](#)

**SUBMIT**

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**APPENDIX B****Examples of Green Button and Click-Through Authorization Processes (Continued)****B. SDG&E CLICK-THROUGH AUTHORIZATION PROCESS****SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers**

Authentication Page: My Account Credentials, Desktop

**SDG&E**  
A Sempra Energy utility

**Authorize to receive my SDG&E Energy Usage Data**

\* Required fields

Verify with My Account    Verify with Account Number

\* My Account User ID:

\* Password:

Password is case sensitive

✚ [Forgot User ID or Password?](#)

✚ [Don't have My Account? Register Today](#)

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**SDG&E**  
A Sempra Energy utility

## SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authentication Page: My Account Credentials, Mobile Device



### Authorize to receive my SDG&E Energy Usage Data

\* Required fields

Verify with My  
Account

Verify with Account  
Number

\* My Account User ID:

\* Password:

Password is case sensitive

✚ [Forgot User ID or Password?](#)

✚ [Don't have My Account? Register Today](#)

Cancel

Next ➤

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## SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

### Authentication Page: Alternate Authentication, Desktop



#### Authorize to receive my SDG&E Energy Usage Data

**\* Required fields**

[Verify with My Account](#)
[Verify with Account Number](#)

**\* SDG&E Account Number:**

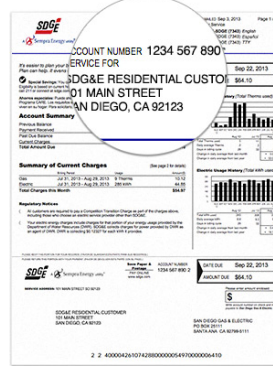
First 10 digits found at the top of your bill.

**\* Phone Number:**

Phone number associated with account on file.


[Cancel](#)
[Next >](#)

**Account Number**  
Use your bill to find your account number.



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## SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authentication Page: Alternate Authentication, Mobile Device



### Authorize to receive my SDG&E Energy Usage Data

\* Required fields

Verify with My  
Account

Verify with Account  
Number

\* SDG&E Account Number:

First 10 digits found at the top of your bill.

\* Password:

Phone number associated with account on file.

Cancel

Next ➔

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## SDG&amp;E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authorization Page: Single Account, Desktop

**SDG&E**  
A Sempra Energy company

### Set Up Your Data Sharing Preferences With [DRP Name Which Might Be Long]

\* Required fields

**Account Information** John E. Doe

**Duration**

\* How long do you want share data?: ☐ Ongoing ☒ Choose End Date

**End By:** 12/17/2020

MM/DD/YYYY

**Terms & Conditions**

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**Cancel** **Authorize >**


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**SDG&E**  
A Sempra Energy company

## SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authorization Page: Single Account, Mobile Device




---

### Set Up Your Data Sharing Preferences With [DRP Name Which Might Be Long]

\* Required fields

---


#### Account Information


John E. Doe  


#### Duration

\* How long do you want share data with?:

☐ Ongoing
 ☒ Choose End Date

 Requires you to share your data for at least [duration in words - two years] until [DRP minimum end date - format: mm/dd/yyyy]. Data sharing will begin once authorization has been successfully submitted.

\* End By:    
 MM/DD/YYYY

#### Terms & Conditions

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☐ \* By lorem ipsum dolor sit amet, his an doming oblique fabellas, duo quem tractatos dignissim et, at molestiae tincidunt vim. His at qubergren soban signiferumque. Sea cetero dolorum te, no mei labore assentior. Perpetua definitionem ut nam. Eu ius veniam reformidans.

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## SDG&amp;E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authorization Page: Multiple Accounts, Desktop

**SDG&E**  
San Diego Gas & Electric

### Set Up Your Data Sharing Preferences With [DRP Primary Name] and [DRP Secondary Name]

\* Required fields

**Account Information** John E. Doe

\* Which accounts do you want to share data?:

☒ [Account Name]

☒ [Account Name]

▼ View 2 already authorized accounts

Account	Expires
[Account Name]	10/10/2022
[Account Name]	Ongoing
[Account Name]	10/09/2022

**Duration**

\* How long do you want share data?: ☒ Ongoing ☐ Choose End Date

**Terms & Conditions**

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[Cancel](#) [Authorize >](#)


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**SDG&E**  
San Diego Gas & Electric

## SDG&E Click-Through Process OAuth Solution 3 for Third-Party DR Providers

### Authorization Page: Multiple Accounts, Mobile Device



---

**Set Up Your Data Sharing Preferences With [DRP Name Which Might Be Long]**

\* Required fields

**Account Information**

John E. Doe

\* Which accounts do you want to share data?:

Your entered:

☒ [Redacted]

Other eligible accounts:

☒ Select all

☒ [Redacted]

☒ [Redacted]

☒ [Redacted]

[View 2 already authorized accounts](#)

**Duration**

\* How long do you want share data?:

☒ Ongoing ☐ Choose End Date

**Email Address**

This email address will receive notifications confirming authorization.

\* Email Address:

\* Confirm Email Address:

**Terms & Conditions**

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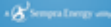
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APPENDIX B

Examples of Green Button and Click-Through Authorization Processes (Continued)

C. SCE CLICK-THROUGH AUTHORIZATION PROCESS

SCE Click-Through Process OAuth Solution 3 for Third-Party DR Providers

Authentication Page: Desktop or Mobile Device



Search

Log In / Register

Site Maintenance Alert

10 p.m. Thurs 5/17 - 7 a.m. Fri 5/18. You won't be able to complete transactions or view pages during ...

More

Authorization Login

Log in with SCE.com User ID and Password

User ID / Email

New to SCE? Register Now

Password

Show

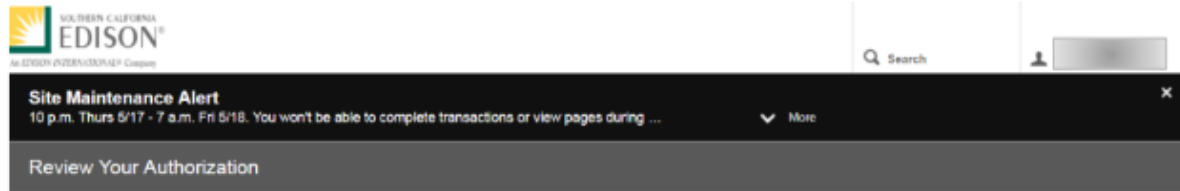
Forgot your password? Reset Password

☐ Remember Me

Log In >

## SCE Click-Through Process OAuth Solution 3 for Third-Party DR Providers

### Authorization Page: Desktop or Mobile Device



Please review the information below before authorizing:

You are choosing to share your SCE data with:

**Inc.**

Service account : **DR** 3- **8**

You will **START** sharing your data on: **May 17, 2018**  
 Data sharing end date: **Indefinite**

You are authorizing SCE to share the following data:

Billing Information	?
Meter Information	?
Interval Usage Data	?
Program Participation Information	?
Customer Information	?

**Your Email**

We can send you an email confirming this authorization.

**@gmail.com**

By selecting "I agree to authorize", you agree to the following:

- You are authorizing the release of your data to **Inc.**
- By releasing your data to **Inc.**, you are releasing SCE of any liability for misuse of your data
- Although you may authorize release of your data to **Inc.**, you have the right to revoke this authorization at any time. Please visit SCE.com for more information.
- You are granting **Inc.**, authority to perform the following actions as allowed per Tariff Rule 24: (1) Request that SCE shorten the interval length of your electric meter(s), and (2) Revoke this Authorization on your behalf.
- If you are on Critical Peak Pricing (CPP), you will be automatically de-enrolled from CPP when your service account has been successfully registered by the DRP in the CAISO's Relevant Systems and you agree to bear any resulting financial consequences.
- By releasing your data to **Inc.**, you are agreeing to Terms & Conditions.

[View Terms & Conditions >](#)

Cancel x **I agree to authorize**

## APPENDIX C:

### References for Further Information on Privacy Rules

#### (1) CPUC Privacy Rules:

- a. D.11-07-056, establishing the CPUC privacy rules.
- b. Working Group Report Pursuant to February 27, 2013 Administrative Law Judge Ruling, filed in R.08-12-009 on July 10, 2013, available at (accessed on May 8, 2018):  
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M076/K995/769959999.PDF>
- c. Memorandum on Legal Considerations for Smart Grid Energy Data Sharing, Electronic Frontier Foundation et. al., attached to a May 13, 2013 Administrative Law Judge Scoping Ruling in R.08-12-009, available at (accessed on May 8, 2018):  
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M064/K670/64670678.PDF>

#### (2) Other data privacy obligations of data holders:

- a. D.11-07-056, Attachment B, “List of Current Statutes, Regulations, Decisions and Protocols Related to Customer Privacy Applicable to California Energy Utilities.” The list is current as of October 2010.
- b. Appendix F: Applicable Data Privacy and Confidentiality Laws and Rules, starting at 33, A.15-07-002 for SCE Distribution Resources Plan, submitted with the application on July 1, 2015, available at (accessed on May 8, 2018):  
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M152/K917/152917116.PDF>

#### (3) Data Privacy Rules Across the United States

- a. A Regulator’s Privacy Guide to Third-Party Data Access for Energy Efficiency, the State & Local Energy Efficiency Action Network, December 18, 2012, available at (accessed on May 8, 2018): <https://www4.eere.energy.gov/seeaction/publication/regulators-privacy-guide-third-party-data-access-energy-efficiency>
- b. GOT DATA? The Value of Energy Data Access to Consumers, Mission:data Coalition and GridWorks (formerly More Than Smart), January 2016, describing data access landscape in California, Texas, Colorado and Illinois, as well as privacy concerns such as screen scraping, available at (accessed on May 8, 2018): <http://www.missiondata.org/s/Got-Data-value-of-energy-data-access-to-consumers.pdf>
- c. Energy Data: Unlocking Innovation With Smart Policy, Mission:data Coalition and Advanced Energy Management Alliance, December 2017, providing a policy recommendation for Public Utilities Commissions across the country as data access policies are being developed, available at (accessed on May 8, 2018):  
[www.missiondata.org/s/Energy-data-unlocking-innovation-with-smart-policy.pdf](http://www.missiondata.org/s/Energy-data-unlocking-innovation-with-smart-policy.pdf)

**APPENDIX D:****Rule 24/32 Expanded Data Set**

<b>EXPANDED RULE 24/32 DATA ELEMENTS</b>	
<b>Account Elements</b>	<b>Bill tier breakdown (if any)</b>
Account name (ACME INC. or JOE SMITH)	Name (Over Baseline 1%-30%)
Account address (123 OFFICE ST...)	Volume (1234.2)
Account ID (2-xxx...)	Cost (\$100.23)
<b>Outage block (A000)</b>	<b>Bill TOU kwh breakdown (if any)</b>
<b>Service Elements</b>	Name (Summer Off Peak)
Utility Unique Identifier	Volume (1234.2)
Service ID (3-xxx...)	Cost (\$100.23)
Service address (123 MAIN ST #100...)	<b>Bill demand breakdown (if any)</b>
Service tariff (D-TOU)	Name (Summer Max Demand)
Service voltage (if relevant)	Volume (1234.2)
Service meter number (if any)	Cost (\$100.23)
# of Service meters	<b>Bill line items (sum should equal bill total charges above)</b>
Meter Read Cycle	
Sub-Load Aggregation Point (Sub-LAP)	Charge name (DWR Bond Charge)
Pricing Node (PNode)	Volume (1234.2)
Known future changes Status of Service	Unit (kWh)
Service tariff options (CARE, FERA, etc.)	Rate (\$0.032/kWh)
Known future changes to Sub-LAP	Cost (\$100.23)
Known future changes to PNode	<b>Tracked line items</b>
Local Capacity Area	Charge name (e.g. Net In/Net Out)
Known future changes Local Capacity Area	Volume (1234.2 in kWh)
Standby Rate Option if On-Site Generation	Unit (kWh)
Customer Class Indicator	Rate (\$0.032/kWh, if any)
<b>Billing Elements</b>	Cost (\$100.23, if any)
Bill start date	<b>Historical Intervals</b>
Bill end date	Start
Bill total charges (\$)	Duration
Bill total kWh	Volume (1234.2)
	Unit (kWh)

<b>EXPANDED RULE 24/32 DATA ELEMENTS (CONTINUED)</b>	
<b>Utility Demand Response Programs</b>	<b>Service Providers</b>
Program Name	LSE
Earliest End Date w/o penalty	MDMA
Earliest End Date regardless penalty	MSP
Capacity Reservation Level (CRL) for CPP/PDP customers	Known future changes to LSE
DR Program Nomination if fixed	Contact Information for LSE, MDMA, MSP
<b>DATA ELEMENTS NOT REQUIRED IN EXPANDED DATA SET (ALL 3 IOUs)</b>	<b>Historical Bills (PDF)</b>
	<b>Payment Information</b>
<b>DATA ELEMENTS NOT REQUIRED IN EXPANDED DATA SET (SCE ONLY)</b>	<b>Service Elements</b>
	<i># of Service Meters</i>
	<i>Standby Rate Option if On-Site Generation (but "S" indicated in rate schedule)</i>