

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



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Order Instituting Rulemaking Regarding Policies,
Procedures and Rules for Development of
Distribution Resources Plans Pursuant to Public
Utilities Code Section 769.

Rulemaking 14-08-013
(Filed August 14, 2014)

And Related Matters

Application 15-07-002
Application 15-07-003
Application 15-07-006
(Filed July 1, 2015)

(NOT CONSOLIDATED)

In the Matter of the Application of
PacifiCorp (U901E) Setting Forth its
Distribution Resource Plan Pursuant to
Public Utilities Code Section 769.

Application 15-07-005
(Filed July 1, 2015)

And Related Matters

Application 15-07-007
Application 15-07-008

**MOTION FOR AN ORDER REQUIRING REFINEMENTS TO
THE INTEGRATION CAPACITY ANALYSIS**

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**MOTION AN FOR ORDER REQUIRING REFINEMENTS TO
THE INTEGRATION CAPACITY ANALYSIS**

I. Background

The Interstate Renewable Energy Council, Inc. (IREC) is a 501(c)(3) non-partisan, non-profit organization working nationally to build the foundation for rapid adoption of clean energy and energy efficiency to benefit people, the economy and our planet. In service of our mission, IREC advances scalable solutions to integrate distributed energy resources (DERs), *e.g.*, renewable energy, energy storage, electric vehicles, and smart inverters, onto the grid safely, reliably, and affordably. IREC is an unaffiliated, independent public interest organization whose vision is a 100% clean energy future that is reliable, resilient and equitable.

The California Solar & Storage Association (CALSSA) is a non-profit trade association representing more than 550 member companies and organizations in policy and market development work related to the California solar and storage market. CALSSA's membership is comprised of contractors, manufacturers, distributors, developers, engineers, consultants, researchers and educational organizations.

The California Energy Storage Alliance (CESA) is a 501c(6) membership-based advocacy group committed to advancing the role of energy storage in the electric power sector through policy development, education, outreach, and research.

IREC and CALSSA were members of the working group that developed the Integration Capacity Analysis and the subsequent working group that reported recommendations for long-term refinements (LTRR) to the ICA.¹ Since the Integration Capacity Analysis (ICA) was released in December 2018, IREC has worked with the Investor Owned Utilities (IOUs), stakeholders, and the Commission to ensure that the ICA effectively enables the identification of optimal DER locations and complies with the Commission's orders. Pursuant to the Administrative Law Judge's (ALJ) Ruling Requesting Comments on Refinements to the Integration Capacity Analysis,² IREC and CALSSA filed opening comments on August 1, 2019³

¹ R.14-08-013, Integration Capacity Analysis Working Group Final Report (Mar. 15, 2017); R.14-08-013, Integration Capacity Analysis Working Group Long Term Refinements Final Report (Mar. 12, 2018) (LTRR).

² R.14-08-013, Administrative Law Judge's Ruling Requesting Comments on Refinements to the Integration Capacity Analysis, at 5-7 (July 3, 2019); R.14-08-013, Administrative Law Judge's Ruling Continuing Integration Capacity Analysis Workshop, at 2 (Aug. 9, 2019).

³ R.14-08-013, Comments of the Interstate Renewable Energy Council, Inc. on Refinements to the Integration Capacity Analysis (Aug. 1, 2019) (IREC Aug. 1 Comments); Comments of the California Solar & Storage Association on Refinements to the Integration Capacity Analysis (Aug. 1, 2019).

and attended the workshop on ICA refinements on September 9, 2019.⁴ IREC also submitted reply comments on September 30, 2019,⁵ and since then IREC has continued to work with the IOUs and stakeholders on various refinements to the ICA. On Sept. 30, 2020, the Commission issued D. 20-09-035 which requires the use of ICA in the Rule 21 interconnection process.⁶

II. Motion

These dockets include an extensive record that support the need for immediate action to improve and refine the ICA.

The Commission should be proud that it has developed the ICA, a tool which has radically improved transparency of the distribution grid. By authorizing the use of the ICA in Rule 21, the Commission recognized that its new tool is ready for use in utility decision-making. However, to avoid the undetected presence of problems with ICA results in the future, additional safeguards and transparency are necessary. The Commission should issue an order requiring IOUs to file enhanced data validation plans and reports on data validation efforts, and engage a technical expert to evaluate and suggest improvements to the plans.

The Commission should also find that San Diego Gas & Electric's (SDG&E's) data redaction practices do not comply with prior Commission orders and require immediate improvements. The record in these proceedings also supports requiring Pacific Gas & Electric (PG&E) and SDG&E to make various refinements to their ICAs, including providing a search function in their online maps and displaying the location of transmission lines, so that users can

⁴ The presentations from the September 9, 2019 workshop are in the record of this docket. R.14-08-013, Reply Comments of The Interstate Renewable Energy Council, Inc. on Refinements to the Integration Capacity Analysis, Attachments 2-5 (Sept. 30, 2019) (IREC Sept. 30 Reply Comments).

⁵ IREC Sept. 30 Reply Comments.

⁶ R.17-07-007, D.20-09-035, Decision Adopting Recommendations from Working Groups Two, Three, and Subgroup (Sept. 30, 2020).

seamlessly access the data they provide. Further, the Commission should require the IOUs use consistent terminology throughout the ICA because currently, users are forced to navigate the confusing use of multiple different names for the same data.

The ICA's Uniform Load results should be useful to guide the placement of new load, *e.g.*, electric vehicle chargers, battery storage, and the electrification of existing natural gas infrastructure, but today they are wholly inadequate for that job and fail to comply with the Commission's orders and intent. The Commission should initiate a process to correct the Uniform Load results so that they are useful and meaningful for customers seeking to electrify their vehicles and buildings, thereby help California meets its decarbonization goals.

We move that the Commission issue an order requiring the IOUs to refine the ICA and continue providing certain functionalities, as described below.

III. The record supports initiating a more concerted data validation effort.

The record in this proceeding supports the Commission requiring IOUs to file enhanced data validation plans and reports on the results of those efforts, and engaging a technical expert to evaluate and suggest improvements to the plans. After the IOUs published the first ICA results in December 2018, parties reviewed the maps and found dramatic and deeply obvious problems with PG&E's results. IREC and others identified that PG&E's results included unreasonably large areas with zero capacity for new generation and that no results at all were displayed for a large portion of PG&E's service territory. After several conversations between IREC and PG&E, in 2019 and early 2020 PG&E undertook a more robust data validation program that improved the quality of its ICA data.

At the Commission's Sept. 9, 2019 workshop, the IOUs provided presentations on their data validation efforts to date, and the IOUs attached cursory data validation plans to their Sept. 30, 2019 reply comments. On May 7, 2020, PG&E filed an update stating that its implementation

of a new system-wide data validation project was complete; it now appears that PG&E's ICA results are reasonably in line with expectations. We are pleased that each utility has developed a data validation plan. As a result, it is reasonable to begin using today's ICA results in Rule 21, as ordered by D.20-09-035.

A. No assurance exists that the ICA results are being validated in accordance with best available practices.

However, the Commission should initiate a more concerted data validation effort because the Commission, utilities, and stakeholders are still learning about different methods for data validation, D. 20-09-035 contemplates using the ICA in more sophisticated ways, and current data validation efforts are neither comprehensive nor consistent. For example, while the IOUs have now implemented measures to proactively identify when large areas of hosting capacity results are zero or where no result is reached, it appears that the IOUs have not made significant efforts to validate that other non-zero results are accurate. In addition, there is no explicit order in place which requires the utilities to continue to validate their results as they are updated and to report on the results of those validation efforts.

Furthermore, at the Sept. 9, 2019 workshop, the IOUs discussed for the first time the automated flags they use to identify ICA results that require validation through additional engineering work. The discussion revealed that each IOU uses a different set of automated flags, that many of those flags have indeed caught potentially problematic results, and that IOUs have not discussed with each other what automated flags they use, or the rationale for selecting those flags. In the limited time available at the workshop, it was not possible to complete a comprehensive review of each IOU's automated flags. Various questions regarding the use of automated flags remain, including: Should the IOUs use similar flags to enable standardization? Are additional or different flags needed? Should there be a flag that selects random circuits to

validate on a regular basis? Have the utilities consulted with data validation experts to determine whether their approach is likely to be effective and is using best available validation means?

The data validation plans filed by the IOUs on September 30, 2019 were cursory. SCE's plan was one page long, SDG&E's plan totaled two pages, and PG&E's plan largely replicated the slides it presented at the workshop.⁷ The IOUs have likely iterated and improved their ICA processes in the year since the cursory plans were filed, yet stakeholders and the Commission have no visibility into the existence or extent of the improvements nor any visibility into what the IOUs may be learning through their application of these plans.

B. The Commission should order refinements to, and increase the transparency of, data validation processes and should require the plans be implemented.

The Commission should order the IOUs to file, within 30 days of issuing its order, refined data validation plans that ensure ICA results for each line segment are useful to determine the need for additional screening in the interconnection process. Such a requirement will ensure that the IOUs' quality assurance/quality control (QA/QC) efforts are transparent and effective at ensuring the validity of ICA results.

While we are comfortable with the ICA results being utilized today, future changes could warrant further refinements to ICA processes. To avoid the undetected presence of problems in the future with ICA results, which will be used in the interconnection process going forward, the Commission should require continuous improvements to the IOUs' ICA processes. To allow the Commission and stakeholders to monitor the results of data validation efforts and subsequent

⁷ Joint Reply Comments of Southern California Edison Co., San Diego Gas & Electric Co., and Pacific Gas and Electric Co. On the Administrative Law Judge's Ruling Requesting Comments on Refinements to the Integration Capacity Analysis, Appendices 1-3 (Sept. 30, 2019) (Joint IOU Sept. 30 Reply Comments).

ICA refinements, the Commission should order the IOUs, within 120 days and annually thereafter, to file a report documenting:

1. the results of data validation efforts to date,
2. problems discovered or efficiencies realized in ICA implementation,
3. plans for ICA improvements, and
4. refinements or revisions to the data validation plan.

An independent technical expert should review the IOUs' data validation plans because neither stakeholders in this proceeding nor the Commission have the expertise necessary to create a data validation plan, or to suggest best practices that the plans should follow. Indeed, the LTRR suggests that the Commission hire a consultant to conduct an independent validation of the ICA.⁸ A qualified consultant could engage the IOUs' staff working on data validation, independently evaluate the IOUs' validation methodology, suggest improvements based on best practices, and report to the Commission and parties on its findings.

The Commission should hire a technical expert or engage a national lab to review and suggest improvements to the ICA data validation plans. In order to ensure this consultant's oversight and recommendations are independent and not unduly influenced by the IOUs' current practices, the technical expert should report to and take direction from the Energy Division. In order to ensure transparency regarding the technical expert's efforts and recommendations, the consultant should file a report in these dockets describing its activities, findings, and further recommendations for ICA improvements 90 days after the utilities file their first reports.

The parties in this proceeding helped the Commission accomplish a feat by developing the ICA and readying it for use in the interconnection process. Additional transparency and

⁸ LTRR at 23.

safeguards are now necessary to preserve the integrity of the ICA over time. While we appreciate the efforts PG&E went through to address the issues with their initial ICA results, the fact that those results were initially published by PG&E without any acknowledgement of their overwhelming and obvious problems is a clear sign that the Commission needs a more formal process in place to ensure such errors do not occur again. The Commission should issue an order requiring enhanced data validation plans and reports on the results of data validation efforts, and engage a technical expert to evaluate and suggest improvements to the plans.

IV. The record supports the Commission’s immediate resolution of the following issues in an order.

A. The Commission should order SDG&E and PG&E to cease redacting information that the Commission ordered be available.

1. The only data that IOUs may redact are load profiles and the ICA Operational Flexibility Criteria Violation where they violate the 15/15 Rule.

In the July 24, 2018 and December 17, 2018 Rulings the Commission identified limited categories of information that could be redacted from the ICA Maps.⁹ In order to protect customers’ confidential information, the Rulings authorized the IOUs to redact ICA data in accordance with the 15/15 rule.¹⁰ The 15/15 rule requires the redaction of load data when a data set has less than 15 customers, or a single account constituting more than 15% of the total load.¹¹ The 15/15 threshold was set because it “prevents the re-identification of the [load] data with

⁹ See R.14-08-013, Administrative Law Judge’s Ruling Addressing PG&E, SCE, and SDG&E’s Claims for Confidential Treatment and Redaction of Distribution System Planning Data Ordered by Decisions 17-09-026 and 18-02-004 (July 24, 2018) (ALJ’s July 24, 2018 Ruling on Confidentiality); R.14-08-013, Administrative Law Judge’s Ruling Resolving Confidentiality Claims Raised by PG&E, SCE, and SDG&E as to Distribution System Planning Data Ordered by D.17-09-026 and D.18-12-004, at 13-15 (December 17, 2018) (ALJ’s December 17, 2018 Ruling on Confidentiality).

¹⁰ R.08-12-009, D.14-05-016, Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data, at 26-27 (May 5, 2014).

¹¹ D. 14-05-016 at 26-27.

individuals.”¹² Accordingly, the Commission established that the only data that IOUs can redact from their ICA is *load data* that violates the 15/15 rule.¹³

The ICA includes data that both directly and indirectly meets the 15/15 rule’s requirement to prevent the identification of load data to individuals. The only directly identifiable load data in the ICA map is the load profile. In addition, the Operational Flexibility Criteria Violation value (Op Flex Gen) is directly derived from the load of a line segment.¹⁴ Accordingly, it is appropriate for an IOU to redact the relevant load profile when a substation, circuit, or line segment violates the 15/15 rule, and it is appropriate to redact the Op Flex Gen value for a line segment when it violates the 15/15 rule (the ICA is not calculated at the circuit or substation level). This is the only information that should be redacted. We request that the Commission issue an order detailing the data redaction standards and practices described above. The order should explicitly require IOUs to comply with these standards, and not redact any other data from their maps.

The Commission should find that SDG&E is not in compliance with the Commission’s rulings because it redacts more than just the load profile and/or Op Flex Gen criteria violation for line segments violating the 15/15 Rule. SDG&E redacts *all* ICA data when a circuit violates the 15/15 rule. We appreciate that Southern California Edison (SCE) and PG&E’s data redaction processes appear to comply with the Commission’s rulings, nonetheless, the Commission’s order should explicitly require them to comply with this standard.

¹² *Id.* at 27.

¹³ See ALJ’s July 24, 2018 Ruling on Confidentiality (allowing redaction customer load data, rejecting redaction of data on other grounds absent a specific Commission authorization).

¹⁴ See, e.g., IREC Aug. 1 Comments, Attachment 2, Southern California Edison’s response to Data Request Set R.14-08-013 IREC-SCE-004 Question 01.a Regarding Redaction of Operational Flexibility Values (July 19, 2019) (explaining how the ICA Operational Flexibility value is calculated).

2. SDG&E should publish other ICA data when load profiles may be redacted.

The Commission should find that SDG&E's data redaction practices are overbroad and in clear violation of the ALJ's July 24, 2018 Ruling on Confidentiality and ALJ's December 17, 2018 Ruling on Confidentiality. As shown above, only the load profile and Op Flex Gen for a circuit that violates the 15/15 rule, and the load profile and Op Flex Gen of a line segment that violates the 15/15 rule may be redacted. SDG&E is currently redacting all data otherwise provided in the ICA when a circuit violates the 15/15 rule. SDG&E also redacts the existence of the circuit on its map when the circuit violates the 15/15 rule, and provides no indication on its map that information has been redacted. The cumulative impact of SDG&E's unique data redaction practice is that when a circuit violates the 15/15 rule *the map appears completely blank* where it should show the location of the circuit, and not a single piece of data about the redacted circuit is available to customers. This is not the data redaction practice that the IOUs (including SDG&E) agreed to in the LTRR, which states that for "data that cannot be published due to customer confidentiality issues around load profiles, the ICA map should include a [notation] of why that data is unavailable rather than showing a blank."¹⁵

The Commission should find that SDG&E's data redaction practices are in violation its earlier orders and order SDG&E to cease redacting all information except the load profile and Op Flex Gen for a circuit that violates the 15/15 rule, and the load profile and Op Flex Gen of a line segment that violates the 15/15 rule. In addition, the order should note that when SDG&E redacts this data, it must display the location of its line, note that load data is redacted in the map's pop-up box and downloadable spreadsheets, and display all other data. The Commission

¹⁵ LTRR at 30.

should require SDG&E to make any changes necessary to comply with its clarified data redaction policy within 30 days of issuing its order.

The order should also memorialize that these requirements apply to all the IOUs. The Commission should require the IOUs to publish all information except the load profile and Op Flex Gen for a substation, circuit, or line segment that violates the 15/15 rule, and to display the location of its lines when the circuit or line segment violates the 15/15 rule.

3. SDG&E should display the location of its substations.

The exact location of a substation is important information for project developers and SDG&E's map redacts this information. The IOUs challenged the Commission's requirement to display the location of substations, but the Commission rejected these arguments and requires their display.¹⁶ SDG&E's substation display is confusing and not informative. SDG&E's substation layer provides color-coded areas. Clicking a map location provides a polygon outlined in blue that does not exactly correspond to the color-coded areas in the substation layer. Customers cannot identify the actual location of the substation or even determine precisely what area the substation serves using the substation layer on SDG&E's map. The Commission should order SDG&E, within 30 days of issuing its order, to comply with its earlier rulings and display the location of substations on its web-based map, downloadable files, and in its API. The Commission should clarify that this requirement applies to all the IOUs.

4. PG&E and SDG&E should display the location of transmission lines in the ICA.

It is useful to have the location of transmission lines displayed in the ICA because it provides important context regarding interconnection locations. The Commission has long

¹⁶ ALJ's December 17, 2018 Ruling on Confidentiality at 13-15.

agreed with this and required the location of the lines to be available on the Renewable Auction Mechanism (RAM) maps, and has issued multiple orders rejecting IOUs' requests to redact the locations of their transmission lines.¹⁷ While PG&E and SDG&E publish the location of their transmission lines on the RAM maps, they have not included them in the ICA. SCE displays the location of transmission lines in its ICA.¹⁸ Though the Commission did not expressly require the ICA maps to include transmission lines, it should be required so that users do not have to access multiple different maps to get the information they need. In addition, SDG&E and SCE have proposed to retire the RAM maps.¹⁹ We would be supportive of retiring the RAM maps only if all of the information included in the RAM maps is made available in the ICA. This makes sense and would ease the burden for both the IOUs and the users of the distribution system data portals. The Commission should order the IOUs to display transmission lines as a layer in the web-based maps, downloadable files, and the API within 30 days of issuing its order.

B. PG&E and SDG&E should include a search functionality that allows a user to query and sort by available hosting capacity.

The Commission ordered the IOUs to develop a data access portal that includes the ability to “query and export data in tabular form based on a geographic search or keyword search.”²⁰ While all the web-based maps enable a user to search by address, only SCE's map gives users the ability to search across the utility's entire service area for locations with specific characteristics, such as hosting capacity above a certain size threshold, and to download the

¹⁷ Resolution E-4414 at 21-22 (August 22, 2011) (ordering the publication of Renewable Auction Mechanism maps including transmission lines); ALJ's December 17, 2018 Ruling on Confidentiality at 13-15.

¹⁸ Southern California Edison DRPEP Interactive User Guide, at 7, <https://ltmdrpep.sce.com/drpep/downloads/DRPEPUserGuide.pdf> (accessed July 28, 2019).

¹⁹ LTRR at 30.

²⁰ R.14-08-013, D. 18-02-004, Decision on Track 3 Policy Issues, Sub-Track 1 (Growth Scenarios) and Sub-Track 3 (Distribution Investment and Deferral Process), at 5 (Feb. 15, 2018).

results. SCE's map displays this information in an attributes table, and allows a user to download the table in tabular format.

The query and search functionality is essential if the Commission wants parties to be able to use the maps effectively to locate optimal interconnection locations. SDG&E and PG&E's ICAs do not allow users to conduct a web-based search for, and identify, line segments based on available hosting capacity and other criteria. For example, developers currently cannot use SDG&E or PG&E's web-based map to locate sites that could accommodate projects of a certain size across the utility's entire service territory. We anticipate that only more sophisticated users and/or those with more resources will have the capability to use the application programming interface (API). As such, the ability to search within the map or otherwise query the ICA data is essential. This functionality will also be crucial to enabling the Commission and public interest stakeholders to use the data for policy purposes. In particular this functionality will be the easiest way for stakeholders to pull aggregate data that shows, for example, how many circuits have no or very little available hosting capacity. The Commission should order SDG&E and PG&E to implement a system-wide search and sort functionality on their web-based maps so that customers can query where there is capacity for the type of project they seek to develop. While SCE already provides this functionality, the order should memorialize that this requirement applies to all utilities.

C. PG&E's substation pop-up boxes should include relevant data.

The Commission should order PG&E to display existing generation, queued generation, total generation, and relevant notes in the substation pop-up box for every substation. SCE and SDG&E consistently provide this information in the substation pop-up boxes; it would improve the maps' functionality and usability if the Commission specified that all IOUs must do the same within 30 days of issuing the order.

D. The Commission should order the IOUs to use consistent terminology in the maps and downloadable data.

In D. 17-09-026, the Commission required the IOUs to standardize certain map features and functionality.²¹ In practice, the maps include different features, functionality, and naming conventions. Users would benefit if the IOUs used the same names for the ICA data fields. After IREC requested utilities use the same names, the IOUs added to their user guides a table that cross-references the names of the data fields available on the maps.

While publishing the table is a welcome first step, it does not include all of the naming conventions available in the ICA. For example, in IOUs' shapefiles,²² the data fields use different names than in the table and on the map. We suspect this is also true for the data fields available through the API. Moreover, PG&E's shapefile includes data fields with the names "GenCapacity_no_OpFlex" and "GenericCapacity_no_OpFlex;" these names are so similar that they are likely to cause confusion for users.

The Commission should order all the IOUs to use the same names for the same data fields in the online maps, downloadable files, and APIs. SCE suggests that developing common naming conventions is not an onerous effort.²³ What effort is required is worthwhile to avoid confusion for users and facilitate the automated use of ICA data by third parties. Attachment 1 to this motion includes our proposed uniform naming convention for the ICA.²⁴ The Commission

²¹ D. 17-09-026 at 60 ("The IOUs shall continue to standardize a common mapping structure and mapping functionality"); Integration Capacity Analysis Working Group Final Report at 31 (Mar. 15, 2017) (Working Group, including IOUs, agreed to standardize mapping structure and functionality.).

²² PG&E labels its shapefile "spatial data," while SDG&E and SCE use the term "shapefile."

²³ Opening Comments of Southern California Edison Co. on the Administrative Law Judge's Ruling Requesting Comments on Refinements to the Integration Capacity Analysis, at 8 (Aug. 1, 2019) (Opening Comments of SCE).

²⁴ SCE and SD&E provide more detailed results than PG&E for voltage, and SDG&E provides more detailed results for protection. *See* Attachment 1. IREC does not propose requiring PG&E to provide

should order the IOUs to use the naming conventions found in Attachment 1 for the data fields in the ICA’s online maps, downloadable files, and APIs.

E. SDG&E should include an image layer on its web-based map.

Satellite image layers assist developers with site assessment, and therefore make the map more useful for interconnection customers. SCE and PG&E have image layers on their maps.²⁵ Despite using the same underlying mapping software, SDG&E has not enabled the image layer. The Commission should specify that inclusion of an image layer on web-based maps is a requirement for all IOUs within 30 days of issuing its order.

V. The record supports ordering the IOUs to refine Uniform Load results so they are useful to guide the placement of new load.

The ICA’s Uniform Load results should be useful to guide the placement of new load, *e.g.*, electric vehicle chargers, battery storage, and the electrification of existing natural gas infrastructure, on the IOUs’ distribution systems. Meeting the challenge of climate change and California’s goal of carbon neutrality by 2045 will require the extensive electrification of transportation and buildings. State policy supports the decarbonization and electrification of the transportation sector. Last month Governor Newsom issued an executive order requiring that all sales of new passenger cars and trucks be zero-emission by 2035, and all medium- and heavy-duty vehicles by 2045.²⁶ The executive order requires the Commission to work with other state agencies to achieve these goals, and to “accelerate deployment of affordable fueling and

more detailed results for voltage, or to require SCE and PG&E to provide more detailed results for protection. Where the results provided are different, it is appropriate to use different names.

²⁵ Southern California Edison DRPEP Interactive User Guide, at 28, <https://ltmdrpep.sce.com/drpep/downloads/DRPEPUserGuide.pdf> (accessed Sept. 21, 2020); PG&E Integration Capacity Analysis (ICA) Map User Guide, at 7 (Dec. 31, 2019).

²⁶ California Executive Order N-79-20 (Sept. 23, 2020)

charging options for zero-emission vehicles.”²⁷ The Uniform Load results should help the Commission achieve this goal by enabling customers to more efficiently site and design electric vehicle charging stations without incurring the cost and delays associated with grid upgrades.

In examining the initial ICA results, IREC noticed that vast swaths of the IOUs’ systems show zero capacity for new load.²⁸ At the Sept. 9 workshop, the IOUs presented data that shows that 60% to 70% of the three-phase electrical nodes on their distribution systems have a Uniform Load value of zero.²⁹ As IREC explained in its initial comments, these results are widely divergent from the results of the IOUs’ Grid Needs Assessments.³⁰ While the methodologies of the two studies were not designed for comparison, the widely divergent results nevertheless highlights the need to investigate whether the Uniform Load results accurately reflect the available capacity for new load.

The discussion at the Sept. 9, 2019 workshop revealed that the IOUs are not confident that their current Uniform Load results are suitable to guide the placement of new loads like electric vehicle chargers, and that the IOUs have no plans for validation or refinement of the Uniform Load results. A consensus emerged at the workshop that further thought and discussion regarding Uniform Load methodology and results is necessary because the results provided today are not useful. In comments, the IOUs acknowledged that “having over 50% of nodes showing zero Uniform Load will need further investigation and refinement.”³¹ We suspect that the

²⁷ *Id.*

²⁸ IREC Aug. 1 Comments at 4-5.

²⁹ See IREC Sept. 30 Reply Comments, Attachment 5, Joint IOU Presentation on Load ICA Methodology and Process, at 5 (Sept. 9, 2019).

³⁰ IREC Aug. 1 Comments at 4-5.

³¹ Joint IOU Sept. 30 Reply Comments at 3.

surprising Uniform Load values may be the result of overly conservative assumptions in the methodology and/or inaccurate results from the models.

Accordingly, the Commission should find that the Uniform Load results provided today do not comply with the Commission's requirement to provide operational and reliable ICA results for Uniform Load. In D. 17-09-026, the Commission expressly required the use of the iterative method because it expected "ICA values should be adequately representative to inform a DER developer's project design and siting."³² The questionable Uniform Load results provided by the IOUs violate the intent of D. 17-09-026 because they are not adequately representative of the hosting capacity for new load, and are not useful to inform a DER developer's project design and siting. To remedy this problem, an order should require the IOUs to file opening comments within 60 days addressing:

1. a description of the Uniform Load methodology, inputs, and assumptions;
2. how the Uniform Load results provided today can be used by customers and the utility, *i.e.*, what the results provided today mean;
3. what modifications are necessary in order to refine the Uniform Load analysis to provide results that are useful for customers evaluating locations to interconnect new load, *e.g.*, electric vehicle chargers, battery storage, and the electrification of buildings.

Thirty days after receiving opening comments, the Energy Division should host a workshop where stakeholders and the IOUs can discuss potential Uniform Load refinements. Sixty days after receiving opening comments, the Commission should accept reply comments from parties identifying proposals for Uniform Load refinements. Shortly thereafter, the Commission should issue an order requiring specific refinements so that the ICA can be used to accelerate the deployment of charging stations for electric vehicles and other new load.

³² R.14-08-013, D. 17-09-026, Decision on Track 1 Demonstration Projects A (Integration Capacity Analysis) and B (Locational Net Benefits Analysis), at 30 (Oct. 6, 2017).

VI. The record supports requiring the IOUs' to continue providing the following functionality in the ICA.

A. The Commission should order the IOUs to continue identifying three-phase feeder names and line segment numbers.

In lieu of requiring the IOUs to calculate the hosting capacity for single-phase lines in the near term, the ICA Working Group agreed that the location of the single-phase lines and their points of interconnection with the three-phase feeders should be displayed within the first system-wide rollout of the ICA.³³ To accomplish this, the IOUs currently publish in the online map's pop-up boxes:

- each three-phase Feeder Name,
- each three-phase Line Segment Number, and
- the Feeder Name of the three-phase feeder that each single-phase line connects to.

In addition, the online maps allow a user to input into the search box the three-phase feeder's name, and then the map displays the feeder. While this functionality is not exactly what was envisioned in by the ICA Working Group, it is sufficient in the interim. The Commission should order the IOUs to continue providing this functionality.

B. The Commission should order the IOUs to continue publishing shapefiles with ICA data.

The IOUs voluntarily began publishing downloadable shapefiles with ICA data. These shapefiles allow users to load ICA data into their own mapping applications including ArcGIS, ArcMap, and QGIS. This functionality is useful for parties like IREC that wish to use ICA data on their own computers, but do not have the technical ability to access APIs. The Commission should order the IOUs to continue publishing shapefiles with ICA data.

³³ LTRR at 23-25.

C. The Commission should memorialize a requirement for the IOUs to update user guides when map functionality changes.

User guides are not required to be updated when the functionality of a map changes. Keeping user guides up to date ensures that they are relevant and helpful to users. At the Sept. 9 workshop, the IOUs agreed to providing regular updates to the user guides. The Commission should memorialize this commitment by ordering the IOUs to publish revised user guides, including a date of publication, every time the functionality of a their ICA map changes.

VII. The Commission Should Continue To Pursue Long-Term Refinements, Including the Use Of the ICA in the Policy and Planning Context.

Our first priority at this time is ensuring complete, accurate, and functional ICAs exist for the interconnection use case. We have focused our attention in this motion on those near-term issues, however, we strongly believe the ICA policy and planning use cases have great potential. Accordingly, after issuing an order addressing this motion for near-term ICA refinements, the Commission should move on to addressing the recommendations for long-term refinements in the LTRR and providing guidance on use of the policy and planning use cases.

VIII. Conclusion

To avoid the undetected presence of problems with ICA results in the future, we move that the Commission issue an order requiring IOUs to file enhanced data validation plans and reports on data validation efforts, and engage a technical expert to evaluate and suggest improvements to the plans.

We also move that the Commission order IOUs to take immediate action to resolve the outstanding data redaction issues, which primarily result from SDG&E's unwillingness to comply with prior Commission orders or make necessary incremental improvements to its ICA. The time has come for the Commission to set a clear deadline for compliance and ensure that outstanding data redaction issues are resolved.

Finally, we move that the Commission issue an order requiring refinements to the ICA to ensure that users can easily put ICA data to good use. We urge the Commission to move forward swiftly to implement refinements to the ICA.

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Attachment 1: Naming Conventions for ICA Data Fields

Current Name in Online Map			Proposed Name for Online Maps, Downloadable Data, and APIs.	Definition
SCE	PG&E	SDG&E		
Substation Name	Substation Name	Substation Name	Substation Name	Unique ID of substation
Substation ID	Substation ID	Facility ID	Substation ID	
Circuit Name	Feeder Name	Feeder ID	Feeder Name	Unique ID of circuit / feeder. PG&E uses both a Feeder Name and a Feder ID, while the SCE and SDG&E only use one, which we propose to call the feeder name.
	Feeder ID		For PG&E, also Feeder ID.	
Line Section ID	CSV Line Section	Line Segment Number	Line Section Number	Unique ID of feeder / circuit segment
Node ID	Node ID	Node ID	Node ID	Unique ID where the integration capacity analysis is conducted
Circuit Voltage (kV)	Nominal Voltage (kV)	Voltage (kV)	Nominal Voltage	Nominal voltage of feeder or substation
Existing Generation (MW)	Existing DG (kW)	Existing Generation (MW)	Existing Generation (MW)	Amount of installed generation in MW.
Queued Generation (MW)	Queued DG (kW)	Queued Generation (MW)	Queued Generation (MW)	Amount of queued generation in MW.
Total Generation (MW)	Total DG (kW)	Total Generation (MW)	Total Generation (MW)	Amount of total (installed and queued) generation in MW.
Residential, Commercial, Industrial, Agricultural, Other (%)	Residential, Commercial, Industrial, Agricultural, Other (Count)	Residential, Commercial, Industrial, Agricultural (%)	Residential, Commercial, Industrial, Agricultural (% or Count)	Customer class designation
Month	Month	Month	Month	Month used in calculating the ICA value
Hour	Hour	Hour of Day	Hour	Hour used in calculating the ICA value
Load Profile Type	Load Profile	Day Type	Load Profile	Typical minimum and maximum load profile / day type

Current Name in Online Map			Proposed Name for Online Maps, Downloadable Data, and APIs.	Definition
SCE	PG&E	SDG&E		
ICA Results, i.e., the most limiting Technical Criteria Violation Value				
Uniform Generation Op Flex	Generation IC	ICA Uniform Gen	Uniform Gen Op Flex	Amount of generation (fixed output) that can be installed at that location without any thermal, voltage, distribution protection, <u>or operational flexibility violations</u> at the time the integration capacity analysis was performed
Uniform Generation	Generation IC w/out Op Flex	ICA Uniform Gen NOF	Uniform Gen Static Grid	Amount of generation (fixed output) that can be installed at that location without any thermal, voltage, or distribution protection violations (<u>NOT considering operational flexibility</u>) at the time the integration capacity analysis was performed
Solar PV Op Flex	Generic PV IC	Solar PV	Solar PV Op Flex	Amount of PV generation that can be installed at that location without any thermal, voltage, distribution protection, <u>or operational flexibility violations</u> at the time the integration capacity analysis was performed
Solar PV	Generic PV IC w/out Op Flex	Solar PV NOF	Solar PV Static Grid	Amount of PV generation that can be installed at that location without any thermal, voltage, or distribution protection violations (<u>NOT considering operational flexibility</u>) at the time the integration capacity analysis was performed
Uniform Load	Load IC	Load Uniform	Uniform Load	Amount of load that can be installed at that location without any thermal or voltage violations at the time the integration capacity analysis was performed

Current Name in Online Map			Proposed Name for Online Maps, Downloadable Data, and APIs.	Definition
SCE	PG&E	SDG&E		
Technical Criteria Violation Values				
Thermal	IC Thermal	ICA Thermal	Thermal Gen	Amount of generation that can be installed without causing thermal violations at the time the integration capacity analysis was performed
SSV	IC Voltage	ICA Voltage	SSV Gen (for PG&E, Voltage Gen)	Amount of generation that can be installed without causing steady state voltage violations at the time the integration capacity analysis was performed
Voltage Fluctuation		ICA Voltage Delta	Voltage Fluctuation Gen (for PG&E, Voltage Gen)	Amount of generation that can be installed without causing voltage variation violation at the time the integration capacity analysis was performed
Protection	IC Protection	ICA Protection;	Protection Gen	Amount of generation that can be installed without causing protection violations at the time the integration capacity analysis was performed (for SDG&E, excludes reduction)
		ICA Reduction	For SDG&E, Reduction Gen (N/A for SCE and PG&E).	How much generation can be installed just by looking at limitations on the Breaker reduction of reach screening.
ICA Operational Flexibility	IC Safety	ICA Operation Flex	Op Flex Gen	Amount of generation that can be installed without causing reverse power flow at SCADA devices at the time the integration capacity analysis was performed
Thermal Load	IC Thermal	Load Thermal	Thermal Load	Amount of load that can be installed without causing thermal violations at the time the integration capacity analysis was performed
Volt Variation Load	IC Voltage	Load Voltage	Voltage Load (for SCE, Volt Variation Load)	Amount of load that can be installed without causing steady state voltage violations at the time the integration capacity analysis was performed
SSV Load			Voltage Load (for SCE, SSV Load)	Amount of load that can be installed without causing voltage variation violation at the time the integration capacity analysis was performed