

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



October 18, 2018

Advice Letter 5277-E

Erik Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177

**SUBJECT: Grid Needs Assessment and Distribution Deferral Opportunity Report
Development and Implementation Work Plan in Response to the Decision
on the Distribution Investment and Deferral Process (D.18-02-004)**

Dear Mr. Jacobson:

Advice Letter 5277-E is effective as of August 23, 2018 per Resolution E-4944
Ordering Paragraphs.

Sincerely,

A handwritten signature in cursive script that reads "Edward Randolph".

Edward Randolph
Director, Energy Division

April 16, 2018

Advice 5277-E

(Pacific Gas and Electric Company ID U39 E)

Public Utilities Commission of the State of California

**Subject: Grid Needs Assessment and Distribution Deferral Opportunity Report
Development and Implementation Work Plan in Response to the Decision on
the Distribution Investment and Deferral Process (D.18-02-004)**

Purpose

Pursuant to Ordering Paragraph 2.k of Decision (D.) 18-02-004, Pacific Gas and Electric Company (PG&E) respectfully submits this advice letter with its work plan to develop and implement the data compilation and reporting capabilities needed to complete the annual Grid Needs Assessment (GNA) and Distribution Deferral Opportunity Report (DDOR) requirements, including a high-level description of the steps necessary to develop such capabilities and estimated timeline, and the formats for the GNA and DDOR datasets based on the requirements laid out in D.18-02-004 (Decision).

Background

On February 15, 2018, the California Public Utilities Commission (Commission or CPUC) issued D.18-02-004, Decision on Track 3 Policy Issues, Sub-Track 1 (Growth Scenarios) and Sub-Track 3 (Distribution Investment Deferral Framework), requiring the IOUs to develop and annually submit a Grid Needs Assessment (GNA), Distribution Deferral Opportunity Reports (DDOR), and publish the GNA and DDOR data in the online Data Access Portal, alongside the Integration Capacity Analysis (ICA) and Locational Net Benefits Analysis (LNBA) data.

The Decision ordered PG&E and the other IOUs to submit advice letters within 60 days of issuance of the Decision that include:

“Work plans by which they will develop and implement the data compilation and reporting capabilities needed to complete the annual GNA and DDOR exercise, including a high level description of the steps necessary to develop such internal capabilities and estimated interim milestones. The Commission further orders the

IOUs to propose formats for the GNA and DDOR datasets based on the requirements laid out in Section 3.4.1 of this decision.”¹

GNA and DDOR Implementation Work Plan and Formats

PG&E’s work plan for completing the annual GNA and DDOR filings, as well as the report formats, are shown in Attachment A.

Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than May 7, 2018, which is 21 days² after the date of this filing. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Eric Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information:

¹ D.18-02-004, pp. 39-40.

² The 20-day protest period concludes on a weekend. PG&E is hereby moving this date to the following business day.

specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Tier Designation

This advice letter is being as classified as Tier 3 pursuant to Decision 18-02-004.

Effective Date

PG&E requests that this Tier 3 advice filing become effective upon Commission approval.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the service list for R.14-08-013. Address changes to the General Order 96-B list and electronic approvals should be directed to PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Advice letter filings can also be accessed electronically at: <http://www.pge.com/tariffs>.

_____/S/

Erik Jacobson
Director – Regulatory Relations

cc: Dina Mackin – Energy Division
Marc Monbouquette – Energy Division
Gabe Petlin – Energy Division
Service List for R.14-08-013

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER SUBMITTAL SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 E)**

Utility type:

ELC GAS
 PLC HEAT WATER

Contact Person: Kingsley Cheng

Phone #: (415) 973-5265

E-mail: k2c0@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas
PLC = Pipeline HEAT = Heat WATER = Water

(Date Submitted/ Received Stamp by CPUC)

Advice Letter (AL) #: **5277-E**

Tier: 3

Subject of AL: **Grid Needs Assessment and Distribution Deferral Opportunity Report Development and Implementation Work Plan in Response to the Decision on the Distribution Investment and Deferral Process (D.18-02-004)**

Keywords (choose from CPUC listing): Compliance

AL submittal type: Monthly Quarterly Annual One-Time Other _____

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.18-02-004

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL: _____

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: _____

Resolution Required? Yes No

Requested effective date: **Upon Commission Approval**

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed: N/A

Pending advice letters that revise the same tariff sheets: N/A

Protests, dispositions, and all other correspondence regarding this AL are due no later than 21 days¹ after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

California Public Utilities Commission
Energy Division
EDTariffUnit
505 Van Ness Ave., 4th Flr.
San Francisco, CA 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company
Attn: Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177
E-mail: PGETariffs@pge.com

¹ The 20-day protest period concludes on a weekend. PG&E is hereby moving this date to the following business day.

Advice 5277-E
April 16, 2018

Attachment A

**Grid Needs Assessment (GNA) and
Distribution Deferral Opportunity Report (DDOR) -
Implementation and Development Work Plan**

Grid Needs Assessment (GNA) and Distribution Deferral Opportunity Report (DDOR) - Implementation and Development Work Plan

PG&E Work Plan for Completing the Annual GNA and DDOR Filings

4/16/2018

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1 Introduction, Objectives and Background

This work plan provides a high-level description of the tasks and interim milestones required to develop and implement the data compilation and reporting capabilities needed to complete the first annual Grid Needs Assessment (GNA) and Distribution Deferral Opportunity Report (DDOR) exercise, as required by Decision 18-02-004.¹ Consistent with that decision, the 2018 GNA will provide information “as available,” while PG&E works toward a more complete GNA in 2019.

PG&E offers this work plan as an opportunity to summarize the effort required to 1) integrate DRP tools and methodologies into the annual electric distribution planning process and 2) identify planned investment deferral opportunities for Non-Wires Alternatives.

1.1 Objectives of the GNA and DDOR Report Filings

The objectives for development and implementation of the GNA and DDOR datasets and reports are the following:

1. Identify, capture, and rank opportunities for DERs to cost-effectively defer or avoid traditional IOU investments that are planned to mitigate forecasted deficiencies of the distribution system.
2. Enable the establishment of a process for utilities to seek authorization and cost recovery for DER sourcing to enable deferral or avoidance of traditional investments.
3. Provide transparency into PG&E’s forecasted distribution grid needs and planned investments, on an annual basis, without violating customer privacy provisions established in Decision 14-05-016 nor creating a physical or cybersecurity risk to the grid.

These objectives are aligned with the following key objectives of the DRP, as established in AB 327:

1. Proposal of “mechanisms for the deployment of cost-effective distributed resources that satisfy distribution planning objectives.”
2. Identification of “optimal locations for the deployment of distributed resources.”

1.2 Background of the GNA and DDOR

Starting from the October 21, 2016 ACR on DRP Track 3 Issues, this section provides a background on the Commission rulings, workshops, and proposals which helped shape D.18-02-004, including the GNA and DDOR requirements. Refer to D.18-02-004 for a fuller historical context predating the October 21, 2016 ACR on Track 3 Issues.

1.2.1 October 21, 2016 Assigned Commissioner Ruling on DRP Track 3 Issues

The October 21, 2016 ACR established the focus of Track 3 to be the Distribution Investment Deferral Framework and defined the specific outcomes of Sub-track 3 to be the following:

- Create a process to identify opportunities for DERs to defer or avoid planned distribution investments.

¹ Page 4, Paragraph k

- Develop a process for IOUs to seek approval and cost recovery for DER sourcing to enable deferral or avoidance of planned distribution investments.
- Consider a process to ensure that the dollar savings from deferrals are reflected in GRC filings.

1.2.2 December 12, 2016 Deferral Framework Workshop

A Deferral Framework workshop on December 12, 2016 was hosted by the Commission for multiple stakeholders. Specifically, workshop discussions were scoped around the following objectives:

- Come to a mutual understanding of how distribution planning and cost recovery occurs presently.
- Discuss how existing processes can be changed to include a framework for analyzing opportunities for DERs to defer planned distribution investments.
- Discuss ideas for a future planning process to inform a Deferral Framework Staff Proposal.

1.2.3 June 30, 2017 Distribution Investment Deferral Framework Staff Proposal

Considering previous workshop discussions as well as previous experience gained in the IDER Incentives Pilot, the Staff Proposal covered the following topics due to their relevance by which stakeholders could consider opportunities for DERs to defer planned distribution investments:

- IDER Incentives Pilot learnings
- Existing distribution planning and investment process
- An annual Distribution Resource Planning process
- Establishment of the Grid Needs Assessment (GNA)
- Initial deferral screening criteria to identify candidate distribution deferral opportunities
- Prioritization metrics used to rank candidate deferral projects based on the likelihood of cost-effective deferrals
- Distribution Planning Advisory Group (DPAG)
- Solicitation process and DER sourcing mechanisms
- Cost Recovery and payment tracking

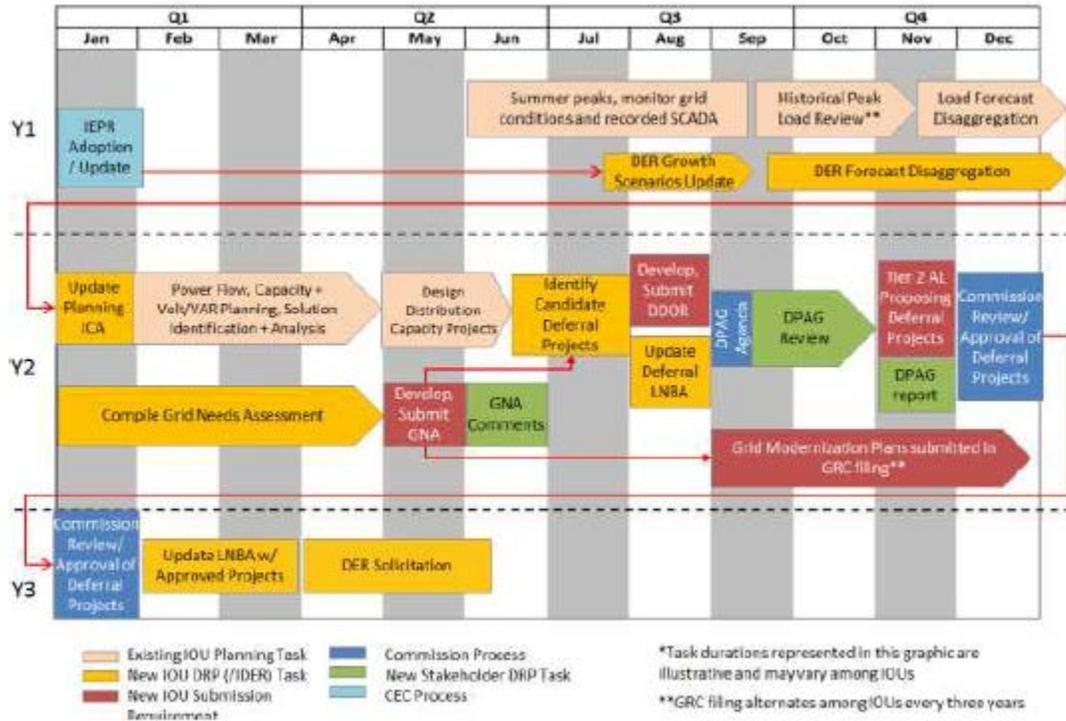
1.2.4 February 15, 2018 Decision on Track 3 Policy Issues - Sub-Track 3 (Distribution Investment and Deferral Process)

This Decision provided Commission Orders requiring the IOUs to:

- Implement DER growth scenarios and ICA for purposes of the existing distribution planning and new DRP processes as visualized in the diagram below
- On an annual basis, submit GNA and DDOR reports due on June 1st and September 1st respectively
- Use the fields and attributes specified in the Decision for the GNA and DDOR reports
- Provide distribution demand and DER growth forecast values as well as ICA values over a 5 year horizon in the GNA
- Create map layers for the GNA and DDOR as well as downloadable datasets for the GNA and DDOR

- Use the Timing and Technical Screens as Initial Deferral Criteria
- Formulate Deferral Criteria metrics: Cost Effectiveness, Market Assessment, and Forecast Certainty

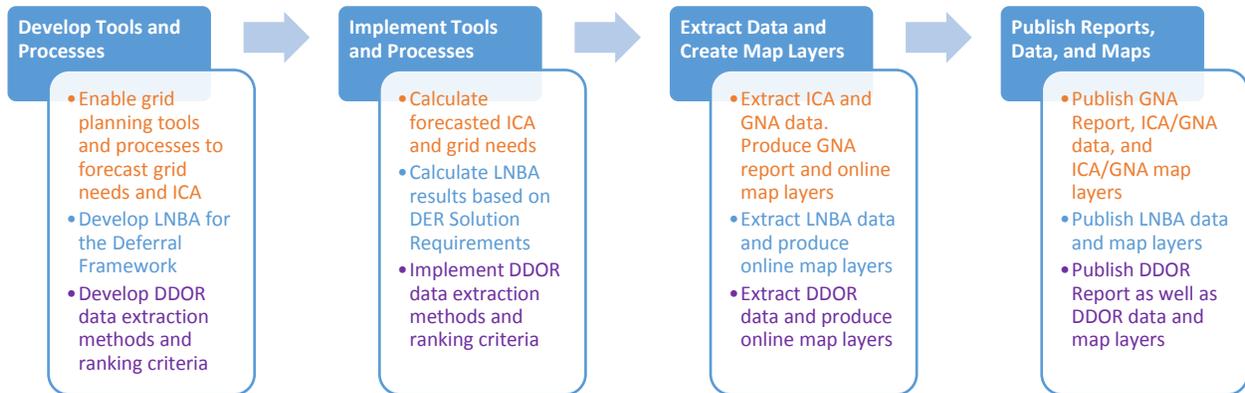
A list of D.18-02-004 Orders related to the GNA and DDOR are provided in Section 4 of this report.



Existing distribution planning process with new DRP tasks

2 High-Level Process Description of GNA and DDOR Implementation

The diagram below depicts the high-level process needed to meet the GNA and DDOR filing requirements provided in section 1.2.4. Specifically, the steps below show what is essential to get to “full GNA” and DDOR filings for 2019. The major components which will undergo the process of Development, Implementation, Extraction, and Publishing are shown in the diagram below and are broken out by color: grid planning tools and processes (orange), LNBA for the Deferral Framework use-case (blue), and DDOR data extraction methods and ranking criteria (purple). These are discussed in more detail below.



2.1 Enable Grid Planning Tools and Processes

As part of the GNA, the IOUs are to publish their planning assumption data over a five-year forecast horizon including ICA planning values based on trajectory case demand and DER growth assumptions. As mentioned in the Final ICA WG Long Term Refinements Report, PG&E will need to build on top of the tool enhancements being done to complete ICA for the interconnection use case. Incremental to that work is determining and executing a DER dispersion methodology, which the ICA WG Long Term Refinements Report also noted as a cause for the unresolved consensus issue of selecting which ICA methodology to use for the planning use case. For these unresolved consensus issues, it is PG&E’s recommendation to give the IOUs the flexibility to choose their own DER dispersion methodology for the 2019 GNA filing. However, it is understood that this decision is ultimately up to the Commission. In order to produce forecasted ICA systemwide, another important task is the development of IT capabilities and processes for consolidating modifications that Distribution Engineers make to their base circuit models to use as inputs for ICA.

For the 2018 GNA filing, it should be noted that planning assumption data will only include the demand and DER growth forecasts since the abovementioned consensus items have not been resolved by the Commission.

2.2 LNBA Deferral Use Case

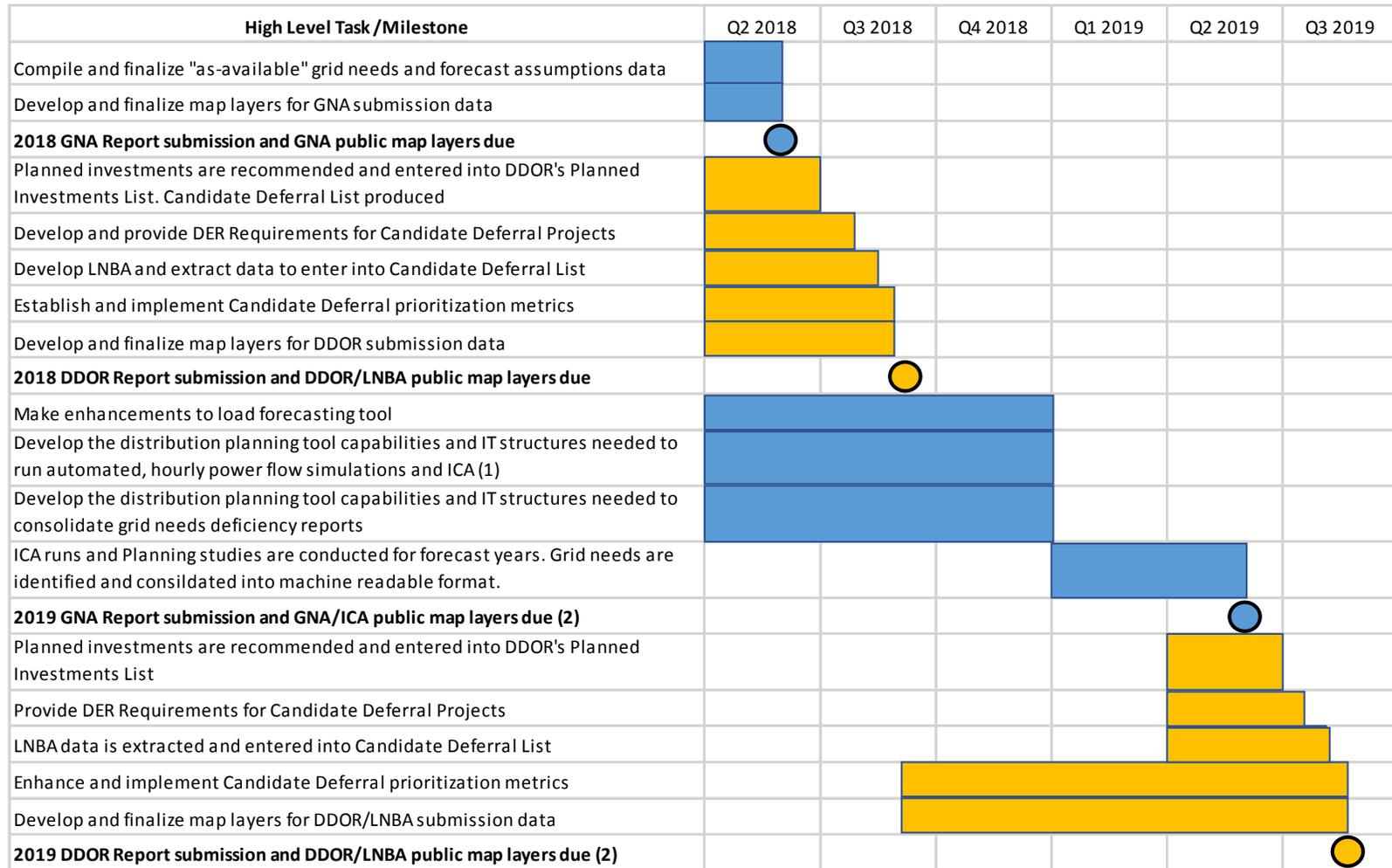
As noted in the “Locational Net Benefits Analysis PG&E Work Plan for Deferral Framework Use Case”, submitted on 11/6/2017, enhancements include developing processes to calculate DER Solution Requirements for flagged distribution candidate deferral projects, incorporating refinements to the LNBA Public Tool, and publishing public heat maps. The DER Solution Requirements being developed are expected to include the following attributes: Service Provision (MW), Months of Need, Duration of Need, and # of Need Events per Year.

2.3 DDOR Data Extraction and Candidate Deferral Ranking Criteria

The DDOR data list will be comprised of two main sections: 1) The Planned Investments List and 2) The Candidate Deferral List. While it is expected for most of the fields in the Planned Investment List to be manually entered, the capabilities to extract the DER Solution Requirements and summarize that data should be developed. Another task would be to formulate and develop each of the Candidate Deferral

Metrics: Cost Effectiveness, Forecast Certainty, and Market Assessment. There is also the task of developing weights and filters to determine how these metrics are combined to score Candidate Deferral Projects.

3 High-Level Schedule for GNA and DDOR Implementation



Blue = GNA Task Orange = DDOR Task

- (1) Dependency on Commission guidance for the ICA Planning Use Case
- (2) Goal of mapping in the Data Access Portal. Please refer to that work plan for more detail

4 Risks and Constraints for Meeting Commission Orders

As mentioned in the “ICA High-level Work Plan”, PG&E has also been undergoing changes to source databases which feed distribution planning databases and tools. The electric GIS database has been revamped, the interconnection database has been revamped, and the tools required to accurately load that information to distribution planning models have been reconfigured. As seen with these systemwide rollouts, it is anticipated that there will be a debugging period for other systemwide rollouts of tools for which the completion of GNA and DDOR depend on. An important message to convey is that producing the “full” versions of the GNA and DDOR for the 2019 filings will require outputs from DRP tools that are currently in-development or that still require scoping from the Commission.

Below is a table noting the different risks associated with meeting the Commission Orders from D.18-02-004.

Order	Notes
<p>The Commission directs the Investor-Owned Utilities (IOUs) to implement Distributed Energy Resources (DER) growth scenarios and the Integration Capacity Analysis (ICA) for purposes of the existing distribution planning and new Distribution Resources Planning (DRP) processes as described in Section 3.3 of this decision and as visualized in Figure 2 in this decision.</p>	<ul style="list-style-type: none"> • Risk Level: Medium • Dependent on the completion of ICA for the interconnection use case, which is dependent on the risks highlighted in the “ICA High-Level Work Plan”, such as de-bugging of system-wide tool rollouts and the need to coordinate with multiple external vendors with various IT architectures as well as multiple internal projects with varying end use cases. • Unresolved consensus issues from the “ICA WG Long Term Refinements Report” such as DER allocation methodologies. • Tools/IT capability enhancements and process changes required to incorporate Distribution Engineer modifications and yearly forecasts into base circuit models before running ICA.
<p>The ICA, for the planning use case, is a tool that the IOUs must use alongside traditional planning tools and methods in completing the annual planning exercise.</p>	<ul style="list-style-type: none"> • Risk Level: Medium • Please see above for a description of risks. Ultimately, the goal is to make sure that the same data being used to feed the traditional planning tools is the same data being used to feed ICA.
<p>The Commission orders the IOUs to apply DER growth scenarios to load and operational profiles in traditional planning tools in the same manner as in the ICA.</p>	<ul style="list-style-type: none"> • Risk Level: Low • DER growth scenarios are already applied to distribution load forecasts. As mentioned above, a goal is to make sure that the same forecasts being fed into ICA are the same forecasts being fed into the traditional planning tools.
<p>The IOUs shall file, in reports pursuant to this Decision, a Grid Needs Assessment (GNA) by June 1 of each year, and a Distribution Deferral Opportunity Report (DDOR) by September 1 of</p>	<ul style="list-style-type: none"> • Risk Level: Medium • This is low risk for the 2018 filing, which will only use “as-available” data to file the GNA and DDOR. However, getting to a 2019 filing of the GNA and

each year.	DDOR will depend on the progress of DRP tools currently in development or that still require scoping from the Commission.
The GNA and DDOR shall provide a characterization of all circuits according to the data types and attributes described in Section 3.4.1. of this decision. GNA and DDOR data shall be made available in map form, as a pop-up layer atop the circuit models being developed for the ICA, and in downloadable, machine-readable datasets.	<ul style="list-style-type: none"> • Risk Level: Low • The data types and attributes described in Section 3.4.1 seem reasonable to provide. Until the Data Access Portal is ready, the different map layers and downloadable, machine-readable datasets could be provided atop of the map being developed for ICA.
The information each IOU presents in its GRC testimony shall be consistent with that which the IOU presents in that year’s GNA and DDOR reports, while affirming the IOU’s ability to update any aspect of its GRC testimony due to emergent needs or changing forecasts that arise following that year’s GNA and DDOR filings. The IOUs must explain any discrepancies between the GNA and DDOR reports and GRC testimony within the GRC testimony.	<ul style="list-style-type: none"> • Risk Level: Low • The data being provided in the GNA and DDOR will be consistent with the GRC. It should be noted that the Decision required each grid need to provide the “anticipated season or date by which distribution upgrade must be installed”. In response to this requirement and in order to show explicit alignment between the GNA, DDOR, and the GRC, the distribution upgrade install date in the GNA will be asset based rather than need based. This means the GNA will have the potential to show the absence of a forecasted grid need for a distribution asset as well as show an upgrade install date for the same asset. While not intuitive, the reason for this apparent discrepancy is that PG&E tries to utilize planned load transfers with existing switching capability to the extent possible before recommending a capital upgrade. For transparency, the grid needs being provided in the GNA is currently planned to be a snapshot of a 5 year forecast of grid needs before any load transfers and capital projects are accounted for. Meanwhile, a planned investment in a later forecast year may be dependent on an earlier forecast year’s load transfers and projects.
The Commission orders DDF reporting requirements to be implemented for each year going forward: 1. GNA due June 1. In 2018 IOUs shall provide data available, and provide full GNA in 2019; 2. DDOR due September 1.	<ul style="list-style-type: none"> • Risk Level: Medium • This is low risk for the 2018 filing, which will only use “as-available” data to file the GNA and DDOR. However, getting to a 2019 filing of the GNA and DDOR will depend on the progress of DRP tools currently in development or that still require scoping from the Commission.
The Commission adopts Timing and Technical screens for use in the initial deferral screening process.	<ul style="list-style-type: none"> • Risk Level: Low
The Commission adopts Cost-Effectiveness, Forecast Certainty, and Market Assessment metrics	<ul style="list-style-type: none"> • Risk Level: Low

<p>to characterize and help prioritize projects on the candidate deferral shortlist. We decline to prescribe specific methodologies by which these metrics should be implemented in the initial roll-out of the DIDF, and instead direct the IOUs to apply these metrics according to their own approaches. We do emphasize that the overarching goal of DIDF is that any candidate deferral project that can be cost-effectively deferred through DERs should be deferred.</p>	
<p>The Commission orders the actual cost of distribution system upgrades to be considered public information as part of the ongoing DIDF, and in associated DRP tools such as the LNBA. We distinguish this conclusion from the conclusions reached in D.16-12-036 based on a closer examination of the applicability of the confidentiality provisions adopted in D.06-06-066 to the types of information at issue in the ongoing DIDF. We affirm that the IOUs may update the avoided cost value in their Tier 2 advice letter requesting approval to launch an RFO, described in Section 3.7.3, based on the most up-to-date cost assumptions. The IOUs shall explain the drivers of such a change in the advice letter.</p>	<ul style="list-style-type: none"> • Risk Level: High • PG&E cannot provide “actual” costs for any project that isn’t already completed. There’s a significant difference between actual costs and a cost analysis based on unit costs. And we need to stress the difference. We can provide a unit cost analysis for our future projects, which are based on the historical cost of doing similar work – generally we say these costs are in the +/- 50% range. On page 36, the PD says: “Unit Costs of traditional mitigation”.
<p>The Commission orders that the IOUs, in their annual DDOR filing, shall include a proposed DPAG work plan and agenda for the DPAG process. Parties may then provide comments on the proposed agenda within one week, followed by a letter from the Director of the Commission’s Energy Division establishing the final agenda within two weeks.</p>	<ul style="list-style-type: none"> • Risk: Low
<p>The IOUs’ proposed DPAG agendas shall, at a minimum, encompass a review of: 1) planning assumptions and grid needs reported in the GNA; 2) planned investments and candidate deferral opportunities reported in the DDOR; and 3) candidate deferral prioritization. Importantly, as part of the discussion on candidate deferral opportunities, the IOUs shall present the underlying technical and operational requirements that a given DER alternative must provide in order to successfully meet the underlying grid need.</p>	<ul style="list-style-type: none"> • Risk: Low
<p>The Commission orders the establishment of a distribution capital per customer metric, which shall be calculated in each IOUs’ GRC filing year and submitted as part of the DDOR.</p>	<ul style="list-style-type: none"> • Risk: Medium • Additional clarification is needed to determine which costs and which customers to include

5 Proposed Data Formats for the GNA and DDOR Datasets

Demand Forecast:

Asset Type	Asset Name	Peak Load 2018 [MW]	Peak Load 2019 [MW]	Peak Load 2020 [MW]	Peak Load 2021 [MW]	Peak Load 2022 [MW]
HATTON						
Bank	BANK 1	10.56	11.09	11.64	12.22	12.84
Bank	OTTER BANK 1	6.05	6.35	6.67	7.00	7.35
GONZALES						
Bank	BANK 3	6.13	6.44	6.76	7.10	7.45
Feeder	HATTON 1101	6.05	6.35	6.67	7.00	7.35
Feeder	HATTON 1102	6.06	6.36	6.68	7.02	7.37
Feeder	OTTER 1101	1.72	1.81	1.90	1.99	2.09

DER Growth Forecast:

Asset Type	Asset Name	PV Growth 2018 [MW]	PV Growth 2019 [MW]	PV Growth 2020 [MW]	PV Growth 2021 [MW]	PV Growth 2022 [MW]	EE Growth 2018 [MW]	EE Growth 2019 [MW]	EE Growth 2020 [MW]	EE Growth 2021 [MW]	EE Growth 2022 [MW]
HATTON											
Bank	BANK 1	1.00	1.05	1.10	1.16	1.22	0.00	0.00	0.00	0.00	0.00
Bank	OTTER BANK 1	0.00	0.00	0.00	0.00	0.00	1.00	1.05	1.10	1.16	1.22
GONZALES											
Bank	BANK 3	2.00	2.02	2.04	2.06	2.08	6.13	6.44	6.76	7.10	7.45
Feeder	HATTON 1101	0.25	0.26	0.28	0.29	0.30	0.50	0.53	0.55	0.58	0.61
Feeder	HATTON 1102	0.75	0.79	0.83	0.87	0.91	0.50	0.53	0.55	0.58	0.61
Feeder	OTTER 1101	0.00	1.81	1.90	1.99	2.09	1.72	1.81	1.90	1.99	2.09

GNA Format:

Facility ID	Facility Type	Primary Driver	Distribution Service Required	Anticipated Upgrade Date	Equipment Rating	Equipment Units	Deficiency 2018	Deficiency 2019	Deficiency 2020	Deficiency 2021	Deficiency 2022	
Huron Bank 1	Substation	Demand Growth	Capacity	4/1/2022		20 MW					3.00%	
Huron Bank 1	Substation	Demand Growth	Capacity	4/1/2021		20 MW				2.80%	3.20%	
Occidental 1102	Substation	Demand Growth	Capacity	6/1/2021		570 Amps				1.00%	1.50%	
Occidental 1102_PRIOH 2343	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2344	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2345	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2346	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2347	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2348	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Occidental 1102_PRIOH 2349	Line	Demand Growth	Capacity	6/1/2020		200 Amps			3.10%	3.20%	3.30%	
Tupman 1101_PRIOH 5342	Line	Demand Growth	Voltage Support	5/1/2020	±0.05	Vpu				-1.00%	-1.50%	-2.00%
Tupman 1101_PRIOH 5343	Line	Demand Growth	Voltage Support	5/1/2020	±0.05	Vpu				-1.10%	-1.60%	-2.10%
Tupman 1101_PRIOH 5344	Line	Demand Growth	Voltage Support	5/1/2020	±0.05	Vpu				-1.20%	-1.70%	-2.20%
Tupman 1101_PRIOH 5345	Line	Demand Growth	Voltage Support	5/1/2020	±0.05	Vpu				-1.40%	-1.80%	-2.30%
Alto 1124_UG 8324	Line	Age of Infrastructure	Resiliency	2/1/2019					100.00%	100.00%	100.00%	100.00%
Alto 1124_UG 8325	Line	Age of Infrastructure	Resiliency	2/1/2019					100.00%	100.00%	100.00%	100.00%

Planned Investments (DDOR) Format:

Substation	Bank/ Feeder	Description	Equipment Involved	Additional Information	In-Service Date	Deficiency Need	Deficiency %	Deficiency Units	Distribution Service (1)	Distribution Service (2)	DER Service Eligible?	Estimated LNBA Range
Huron	Bank 1	Replace Huron Bank 1	Huron Bank 1	DRP Demo project scoped to meet need	4/1/2021	0.64	3.20%	MW	Capacity		Y	\$\$
Occidental	Occidental 1102	Occidental 1102 Reconductoring	Overloads on section of 397Al. Reconductor approx 1000ft of 397Al with 715Al		6/1/2021	206.2	3.10%	Amps	Capacity		Y	\$\$
Occidental	Occidental 1102	Occidental 1102 Reconductoring	Overloads on section of 3/0Al. Reconductor approx 1 mile of 3/0Al with 397Al	May need to be moved to 2021	6/1/2020	8.55	1.50%	Amps	Capacity			\$
Tupman	Tupman 1101	Tupman 1101 Voltage	Install 300A reg		5/1/2020	1.054	-0.40%	Vpu	Voltage Support			\$
Alto	Alto 1124	Alto 1124 Aging Cable	Reconductor 2 miles of 1/0Al XLPE cable		2/1/2019		100.00%		Resiliency			\$

Candidate Deferral Projects (DDOR) Format:

Substation	Bank/ Feeder	In-Service Date	Service Required (1)	Months of Need (1)	Duration of Need (1)	# of Need Events/Year (1)	Service Provision [MW] (1)	Distribution Service Required (2)	Months of Need (2)	Duration of Need (2)	# of Need Events/Year (2)	Service Provision [MW] (2)	Estimated LNBA Range	Unit Cost of Traditional Mitigation
Huron	Bank 1	4/1/2021	Capacity	Jan-Dec	8:00 AM - 4:00 PM	100	1	Capacity	Jun-Sep	9:00 PM - 5:00 PM	10	1	1 \$	\$5M
Occidental	Occidental 1102	6/1/2021	Capacity	Jun-Sep	12:00 AM - 12:00 AM	50	0.5						\$	\$2M

**PG&E Gas and Electric
Advice Filing List
General Order 96-B, Section IV**

AT&T	Downey & Brand	Pioneer Community Energy
Albion Power Company	Ellison Schneider & Harris LLP	Praxair
Alcantar & Kahl LLP	Energy Management Service	Regulatory & Cogeneration Service, Inc.
Anderson & Poole	Evaluation + Strategy for Social Innovation	SCD Energy Solutions
Atlas ReFuel	GenOn Energy, Inc.	SCE
BART	Goodin, MacBride, Squeri, Schlotz & Ritchie	SDG&E and SoCalGas
Barkovich & Yap, Inc.	Green Charge Networks	SPURR
Braun Blaising Smith Wynne P.C.	Green Power Institute	San Francisco Water Power and Sewer
CalCom Solar	Hanna & Morton	Seattle City Light
California Cotton Ginners & Growers Assn	ICF	Sempra Utilities
California Energy Commission	International Power Technology	Southern California Edison Company
California Public Utilities Commission	Intestate Gas Services, Inc.	Southern California Gas Company
California State Association of Counties	Kelly Group	Spark Energy
Calpine	Ken Bohn Consulting	Sun Light & Power
Casner, Steve	Keyes & Fox LLP	Sunshine Design
Cenergy Power	Leviton Manufacturing Co., Inc.	Tecogen, Inc.
Center for Biological Diversity	Linde	TerraVerde Renewable Partners
City of Palo Alto	Los Angeles County Integrated Waste Management Task Force	Tiger Natural Gas, Inc.
City of San Jose	Los Angeles Dept of Water & Power	TransCanada
Clean Power Research	MRW & Associates	Troutman Sanders LLP
Coast Economic Consulting	Manatt Phelps Phillips	Utility Cost Management
Commercial Energy	Marin Energy Authority	Utility Power Solutions
County of Tehama - Department of Public Works	McKenzie & Associates	Utility Specialists
Crossborder Energy	Modesto Irrigation District	Verizon
Crown Road Energy, LLC	Morgan Stanley	Water and Energy Consulting
Davis Wright Tremaine LLP	NLine Energy, Inc.	Wellhead Electric Company
Day Carter Murphy	NRG Solar	Western Manufactured Housing Communities Association (WMA)
Dept of General Services	Office of Ratepayer Advocates	Yep Energy
Don Pickett & Associates, Inc.	OnGrid Solar	
Douglass & Liddell	Pacific Gas and Electric Company	