



# Rule 21 Working Group 3

IN-PERSON MEETING

FEBRUARY 13, 2019

[HTTPS://WWW.UBERCONFERENCE.COM/GRIDWORKS](https://www.uberconference.com/gridworks)

# Agenda

10:00-10:10 Regulatory updates

10:10-11:20 Issues 12 and D

- Timelines and reporting:
  - PG&E “Timeline Breakdown” (Feb 6 submission);
  - SCE “Framework A” (Jan 21 submission);
  - SDG&E “Framework” (Feb 8 submission)
- NGOMs timelines
- Goals and accountability
- SCE and SDG&E comments on Issue D
- Final discussion

11:20-12:00 Issue 15

- SDG&E proposal and itemized bill (Feb 8 submission)
- SCE additional details on manual process & automation
- PG&E update on fixed-cost option
- Final discussion

12:00-1:00 Lunch

# Agenda

## 1:00-1:30 Issue 16

- Further comments on GPI-Clean Coalition proposal (Feb 2 submission)
- Final clarification of IOU positions on de-energized existing facilities
- Final discussion

## 1:30-1:55 Issues A and B

- Continue discussion from Jan 23 meeting
- Comments on CALSSA-IREC proposal (Jan 16 submission)
- Comments on SCE counter-proposal (Jan 30 submission)

## 1:55-2:55 Issue 23

- Continue discussion from Feb 6 call
- Validation of V2G discharge disabling
- Authorizing V2G DC-EVSE connections
- Consideration of V2G AC pilots
- Workshop and/or continuing venue on mobile inverters/AC case

## 2:55-3:00 Tentative WG3 revised schedule

# Regulatory Updates

# Issue 12

How can the Commission improve certainty around timelines for distribution upgrade planning, cost estimation, and construction? Should the Commission consider adopting enforcement measures with respect to these timelines? If so, what should those measures be?

Sub-issues:

- a) What items should be reported, how frequently, and what projects should be included?
- b) Should specific goals for NGOM installation and/or other particular steps in the process be established? Should they be the same for each utility or unique?
- c) Do you support establishment of goals, and if so, what goals do you support?
- d) Do you support establishing a financial penalty/incentive mechanism, if so when should that be considered. If now, what should that mechanism look like?

# Issue 12 – Timelines and Reporting

CALSSA and IREC Proposals	IOU Comments (SCE Jan 23; SDG&E Jan 24)
<p>CALSSA (Jan 10):</p> <ol style="list-style-type: none"> <li>1. Establish timeline for NGOM installation</li> <li>2. Report timeline data</li> <li>3. Increased notification of timeline exceedances</li> </ol> <p>IREC (Jan 10):</p> <p>What will be reported:</p> <ul style="list-style-type: none"> <li>• Identify timelines that will be tracked               <ul style="list-style-type: none"> <li>• Major steps in process</li> <li>• Include construction timelines</li> <li>• Be clear regarding starting and end point for each increment</li> </ul> </li> <li>• Report anonymized data for each project with aggregated percentages</li> <li>• Determine frequency of reporting (quarterly?)</li> </ul> <p>IREC (Feb 4):</p> <ul style="list-style-type: none"> <li>• Proposes 20 metrics for times to track</li> </ul>	<p>SCE: reporting should demonstrate adherence to process timelines &amp; identify deficiencies</p> <p>SCE: proposes metrics consistent with CALSSA proposal: Intake acknowledgement, IR deemed complete, FastTrack Process, Detailed Study Process, Contract Execution, Project Design, Project Construction, Permission to Operate</p> <p>SCE: proposes to establish tracking mechanism per “Framework A”; requires changes to existing systems; quarterly reporting could start 7/2019</p> <p>SDG&amp;E: proposes customized schedule created and agreed to by developer and the IOU and tracked based on milestones in schedule</p> <p>SDG&amp;E: agree on two-way transparency and establishing baseline data; apply and customize project-by-project</p>

# Issue 12 – NGOMs Timelines

CALSSA and IREC Proposals	IOU Comments (SCE Jan 23; SDG&E Jan 24)
<p>CALSSA for NGOM projects (Jan 10): proposal for 20 days design and 20 days installation for all projects</p>	<p>SCE for NGOM projects: evolve Rule 21 Multi-Tariff processes to apply similar approach to NGOM processing to achieve same 1-2 month average</p>

# Issue 12 – Goals and Accountability

CALSSA and IREC Proposals	IOU Comments (SCE Jan 23; SDG&E Jan 24)
<p>CALSSA (Jan 10):</p> <p>4. Consideration of penalties</p> <p>IREC (Feb 4):</p> <ul style="list-style-type: none"> <li>IREC is open to setting customized goals for each timeline/utility</li> <li>Goal 1: All projects completed on a timely basis: track percent of projects meeting timelines in different steps</li> <li>Goal 2 shortening delays: for specific project delays per criteria, utility should document the unique reasons for the delay and discuss steps taken to address or resolve</li> </ul>	<p>SCE: proposes that only upon identifying baseline data will goals for each process sub-segment be established and tracked; analyze data and determine if need exists by Q4 2019</p> <p>SCE: on enforcement and penalties, cites existing GRC disallowances for failures, Public Utilities Code and basic tenets of ratemaking</p> <p>SDG&amp;E: argues goals not beneficial to SDG&amp;E ratepayers; no clear need for workshop after 2 years; don't agree to enforcement mechanisms</p> <p>SDG&amp;E: Rule 21 applicants greater than 30kW make up less than 0.1% of all applicants</p>



## Issue D

When should the Commission consider results of an initial review or detailed study to be binding? Under what circumstances should the Commission allow the results to be changed?

Sub-issue:

- a) What is an appropriate cut-off time for getting billed actual costs?

# Issue D IOU Comments (Feb 5-8)

- SCE and SDG&E do not support results of an initial review or detailed study being binding. This is because cost estimates performed in the initial review or detailed study are based on desktop evaluations that do not have sufficient technical and physical information to accurately determine cost.
- SCE: exploring “bid-basis” (no true-up to actual costs after construction is completed), which represents a departure from current cost allocation practices plus additional implementation requirements.
- SCE: exploring “bid-basis” requires additional time, and SCE is reviewing whether this can be completed during WG3. SCE notes that changes to current cost allocation practices may impact ratepayers and require consideration during Phase 2.
- SDG&E: binding option conflicts with existing Cost Envelope option (currently five-year pilot). Binding agreements should fall under the Cost Envelope. SDG&E proposes that, if a binding agreement is requested, the developer has the option to choose the Cost Envelope option instead.

# Issue 15

Should the Commission require itemized billing for distribution upgrades to enable customer comparison between estimated and billed costs and verification of the accuracy of billed costs?

Sub-issues:

- a) What does each IOU need to do to provide cost estimates consistent with the level of detail in the Unit Cost Guide?
- b) Can itemizations be standardized across all IOUs?

# Issue 15 SDG&E Proposal and Itemized Bill (Feb 8)

“SDG&E is prepared to provide itemized billing that is consistent with the cost categories set forth in the Unit Cost Guide.”

Type of Improvement	Description	Charges
Interconnection Facilities	Metering CTs and PTs	\$ 1,319.00
	O&M	\$ 10,505.16
	ITCC	\$ 7,702.33
	Total Metering CTs and PTs	\$ 18,526.49
	Telemetry	\$ 7,500.00
	O&M	\$ 7,053.56
	ITCC	\$ 8,257.32
	Total Telemetry	\$ 17,810.88
	Underground	\$ 500,800.00
	450 ft trench/conduit 1,000 ft of 1,000 kcmil CU SCADA switch 25 ft of 1,000 kcmil AI O&M ITCC	\$ 80,678.88 \$ 26,450.62
Total Underground	\$ 607,929.50	
<b>Distribution Upgrades</b>		
Distribution Upgrades	Modification to Substation transformer LTC voltage control	\$ 5,000.00
	O&M	\$ 8,407.50
	ITCC	\$ 5,308.44
	Total Modification to Substation transformer LTC voltage control	\$ 18,715.94
<b>Total Charges for Distribution Interconnection Facilities and Upgrades including ITCC and Cost of Ownership Charges</b>		
		\$ 80,982.81
<b>Amount Paid</b>		
		\$ 80,982.81
<b>Total Amount Due</b>		
		\$

# Issue 15 SCE Comments on Cost-Accounting Option (Feb 5)

- The viable option for SCE is to extract raw data from Design Manager and SAP and manually generate an estimate and final invoice, re-organized into the same level of detail as the Unit Cost Guide.
- This manual process will take additional time and resources.
- SCE will provide additional details regarding the manual process along with any additional developer charges and related timeline impacts to the WG on Feb 13.
- SCE is also reviewing what would be involved in any potential automation option and whether this is an efficient option based on system integration needs.

# Issue 15 PG&E “Fixed Cost” Option (Jan 23) – Status and Update

## Recap of Prior Brainstorming

- Phase I (IT) – for projects using Special Facilities (bill on estimate) process, provide Job Estimate with cost by upgrade (itemized like Unit Cost Guide)
  - Requires IT funding to adjust estimating tool functionality
- Phase II (Tariff) - All projects billed on Job Estimate cost (affects Rule 21 Export and NEM2 > 1 MW)
  - Would like Working Group stakeholder pulse prior to evaluating further
  - Potential timeline for approval:
    - 1/31: Stakeholder feedback
    - by 2/8: Meet with PG&E management
    - 2/13: Update Working Group

## Discussion

- Phase II (all projects bill on estimate) feedback
  - By 1/31, can industry groups poll members? Other stakeholders weigh in as well
- Discussion points
  - Restrictions or exceptions for expanding to Rule 21 Export and NEM > 1 MW
    - MW or \$ threshold?
    - Upfront funding will remain required via bill on estimate or Financial Security
  - Increase Interconnection Request fee to create improvement funding bucket?

# Issue 16

Should the Commission encourage third party construction of upgrades to support more timely and cost-effective interconnection and, if so, how?

Sub-issues:

- a) Are parties ok with incorporating by reference Rule 15 eligibility rules and the "competitive bidding" framework in Rule 21?
- b) Are parties ok with removing the discretion language with respect to 3rd party upgrades in Rule 21?
- c) In what circumstances will PG&E and SCE allow energized facilities to be de-energized and become eligible for 3rd party work?

# Issue 16 IOU Responses

	PG&E	SCE	SDG&E
a) Reference Rule 15 competitive bidding framework (*)	yes	yes	yes
b) Strike “discretion” language	yes	???	???
c) Circumstances in which third-parties can work on existing de-energized facilities	None (only existing facilities as provided in Rule 15)	None (only existing facilities as provided in Rule 15)	None (only existing facilities as provided in Rule 15)

(\*) PG&E: “Only duly authorized employees of PG&E [SCE, SDG&E] are allowed to connect to, disconnect from, or perform any work upon PG&E's [SCE’s, SDG&E’s] facilities.” And Rule 21 should refer to:

- **R15.G.2** MINIMUM CONTRACTOR QUALIFICATIONS
- **R15.G.3** OTHER CONTRACTOR QUALIFICATIONS
- **R15.I.1** FACILITY RELOCATION OR REARRANGEMENT



# Issue 16 GPI-Clean Coalition Written Proposal (Feb 2)

Propose tariff changes as follows:

1. Refer to and incorporate Rule 15 rules for 3<sup>rd</sup> party “competitive bidding” eligibility requirements and bidding framework
2. Strike language providing IOU discretion to disallow third parties
3. Extend Rule 15 to de-energized existing facilities, and describe scenarios where existing facilities can be safely and practically de-energized

# What is the problem?

This is the language that has led to a blanket policy by each IOU to disallow third party installations

Rule 21 PG&E 2017 Sheet 201, 2. THIRD-PARTY INSTALLATIONS

Subject to the approval of Distribution Provider, a Producer may, at its option, employ a qualified contractor to provide and install Interconnection Facilities or Distribution Upgrades, to be owned and operated by Distribution Provider, on Distribution Provider's side of the PCC. Such Interconnection Facilities and Distribution Upgrades shall be installed in accordance with Distribution Provider's design and specifications. Upon final inspection and acceptance by Distribution Provider, Producer shall transfer ownership of such Producer installed Interconnection Facilities or Distribution Upgrades to Distribution Provider and such facilities shall thereafter be owned and maintained by Distribution Provider at Producer's expense. Producer shall pay Distribution Provider's reasonable cost of design, administration, and monitoring of the installation for such facilities to ensure compliance with Distribution Provider's requirements. Producer shall also be responsible for all costs, including any income tax liability, associated with the transfer of Producer installed Interconnection Facilities and Distribution Upgrades to Distribution Provider.

# Issues A & B

Issue A: What changes are needed to clarify the parameters for approval of system design to achieve non-export and limited export?

Issue B: How should utilities treat generating capacity for behind the meter paired solar and storage systems that are not certified non-export?

Some questions or sub-issues:

- a) Timing of our process: wait for CRD standard, or not, before developing WG3 proposal?
- b) Scope of CRD: will CRD Phase 1 address NEM, non-export, and inadvertent export? Does Issue B require CRD Phase 2?
- c) End-to-end process: what is it, can we specify during WG3?
- d) Dependency on WG2: do Issues A & B depend on resolution of WG2 Issues 8 and 9?

## Issue A Brief (CALSSA & IREC Jan 16)

Proposal:

CALSSA and IREC propose that Rule 21 recognize the new standard.

1. If a system is certified to the standard as non-export with a response time within the defined boundaries of Rule 21, it should be eligible for inadvertent export.
2. If a system is certified to the standard with a fixed maximum export higher than zero, it should qualify as limited export.

## Issue B Brief (CALSSA & IREC Jan 16)

Proposal:

1. Amend Rule 21 to accept a maximum export value (or limited export) for systems using equipment that is certified to the Power Control Systems CRD.
2. Within 60 calendar days of completion of Phase 2 of the Power Control Systems CRD, utilities must issue an advice letter incorporating scheduled changes to maximum export values for solar and storage systems.
3. Expressly identify that certified limited export projects will be studied according to the maximum export value for specified technical issues (i.e. not at nameplate value except for in cases of short-circuit duty contribution).

# Issue 23

Should the Commission consider issues related to the interconnection of electric vehicles and related charging infrastructure and devices and, if so, how?

Sub-issues:

- a) Applicability of Rule 21 to V1G?
- b) V2G-capable with V2G de-activated:
  - How to test, certify, verify? Requires a technical working group?
  - Should Rule 21 still apply?
- c) Does V2G-DC require Rule 21 language changes, or just interconnection portal upgrades?
- d) How to develop V2G-AC standards? By what process? What are the key elements/questions of that process?
- e) V2G-AC pilots:
  - Should the process for granting interconnection approvals to pilots projects involving AC-coupled EVs be streamlined?
  - Should specific eligibility criteria for such a streamlined process be developed?



# Issue 23 Scoping Thoughts

- Stakeholders requested more procedural clarity
- ED staff met to discuss which elements of the initial discussions on Issue 23 should be handled in WG3
- Based on both procedural and practical considerations, the following three items were identified:
  1. Rule 21 process streamlining for DC-coupled EVs
  2. Process for pilot projects involving AC-coupled EVs
  3. Standards for AC-coupled inverters



# Issue 23

CESA-Nuvve-Honda Proposal (Jan 24)	IOU Comments (Feb 5; SDG&E Feb 10 added)
<p>1. Establish applicability of Rule 21 only when bi-directional capabilities are activated and utilized</p>	<p>PG&amp;E and SDG&amp;E: V1G must comply w/Rules 2, 15, 16. SCE: clarify that Rule 21 does not apply to V1G.</p> <p>PG&amp;E: V2G-capable with V2G turned off;            (a) need to verify and guarantee turned off;            (b) safeguards to avoid unapproved activation;            (c) customer awareness--submit interconnection request and obtain approval prior to V2G use</p> <p>SCE: V2G-capable with V2G turned off;            (a) Rule 21 should still apply            (b) agree to streamlined interconnection process equivalent to section N &amp; O            (c) need certification to ensure V2G not enabled</p> <p>SDG&amp;E: V2G-capable with V2G turned off;            (a) Rule 21 should still apply            (b) Need assurance against accidental discharge            (c) Technical discussions needed and should take place outside of WG3</p> <p><a href="https://gridworks.org/initiatives/rule-21-working-group-3/">https://gridworks.org/initiatives/rule-21-working-group-3/</a></p>



# Issue 23

CESA-Nuvve-Honda Proposal (Jan 24)	IOU Comments (Feb 5)
<p>2. Authorize V2G DC interconnections and make the appropriate modifications to the Rule 21 tariff and portal</p>	<p>PG&amp;E: V2G DC with off-board EVSE certified Rule 21 compliant acceptable for interconnection. Still need to be reviewed &amp; approved for local facility impact, voltage, loading, similar to any other interconnection.</p> <p>SCE: V2G DC with off-board EVSE should follow existing Rule 21 and UL1741/SA certification process, and may use section N.</p> <p>SCE: “does not support determining the technical requirements, implementation mechanisms, and specific changes to tariff language within this proceeding”; consider other venues such as IC Discussion Forum</p>

CPUC: Would updates to interconnection paperwork and portals be beneficial? What updates? An option to select EVs as the interconnecting resource has been mentioned. How does this topic tie into Issue 22? Are tariff changes required?

*staff thoughts only, not an official stance of the CPUC*

# Issue 23

CESA-Nuvve-Honda Proposal (Jan 24)	IOU Comments (Feb 5; SDG&E added Feb 10)
<p>3. Broaden the definition of “smart inverter” to include a system of components and allow certification to IEEE 1547 standards to enable V2G AC interconnections</p> <p>4. Direct a sub-group in this proceeding to consider SAE J3072 applicability or changes needed for certain V2G AC systems to meet smart inverter requirements</p>	<p>PG&amp;E: V2G AC on-board inverter must be certified Rule 21 compliant. May be UL-1741 SA or a new SAE standard compliant with 1547.1. Need certification by a NRTL, could update Rule 21 to accept an equivalent SAE standard once reviewed and accepted by California IOUs.</p> <p>SCE and SDG&amp;E: need a working group for <u>all</u> V2G (technical) issues; WG3 should (only) discuss venue and scoping</p>

CPUC: Should CPUC encourage the development of standards for inverters for AC-coupled EVs that will facilitate their interconnection in the future? If so, how?

- Would a workshop be an appropriate discussion venue for this topic?
- Does J3072 test all functionality that is important for grid safety and reliability? If not, can it be updated to do so?
- Do other standards or standards-making bodies better meet the needs of consumers and of the CA grid?
- Is there a stakeholder who is familiar with both UL 1741SA and with J3072 who would be willing to present a comparison?

*staff thoughts only, not an official stance of the CPUC*

<https://gridworks.org/initiatives/rule-21-working-group-3/>

# Issue 23

## Honda Proposal on V2G-AC (added Feb 12)

The system would conform to IEEE 1547.1, provided that the point of interconnection (or EVSE) is UL-listed. This would clarify that there is always a UL-listed 'gatekeeper' for the system somewhere between the system and the grid.

The wording is flexible, but the key concepts are that (a) the system would conform to IEEE 1547.1, and (b) UL has certified that it is safe to allow a connection between the system and the grid.

# Issue 23

CESA-Nuvve-Honda Proposal (Jan 24)	IOU Comments (Feb 5; SDG&E Feb 10 added)
5. Clarify a pathway for parties to interconnect V2G AC systems on a timely basis for experimental and/or temporary use until the appropriate rules are updated in the future, consistent with any recommendations resulting from R.18-12-006, the VGI Roadmap, or other transportation electrification proceedings	PG&E: no specific comments  SCE: same comment as for #4  SDG&E: V2G systems should not deviate from Rule 21 requirements even on a temporary or pilot basis.

## CPUC:

- Should the process for granting interconnection approvals to pilots projects involving AC-coupled EVs be streamlined?
- What existing pilots are seeking this type of interconnection and what is their current status?
- Should specific eligibility criteria for such a streamlined process be developed?
- Should the Commission establish a target number of pilots or a limit on how many pilots may qualify for the streamlined process? Should only pilots be eligible for this streamlined process?

*staff thoughts only, not an official stance of the CPUC*

# Issue 23

CESA-Nuvve-Honda Proposal (Jan 24)

IOU Comments (Feb 5; SDG&E added Feb 10)

## OTHER GENERAL COMMENTS

PG&E: coordinate with CEC VGI Roadmap Update, CPUC TE, other inter-agency efforts

PG&E: WG3 findings should be consistent with joint IOU SI white paper and approaches

PG&E: address aggregation and sub-metering in other venues and coordinate w/Rule 21, because scope extends beyond interconnection

SCE: concerned about other aspects of V2G in this proceeding not directly related to interconnection, take on in other proceedings

SDG&E: Detailed technical discussions whether and how Rule 21 should be revised to support the integration of electric vehicles should be done by a technical work group such as the SIWG.

# Tentative Revised Schedule

Date	Meeting	Initial discussion	Final discussion	Location
Feb 13	In person		12 & 15 & 16	CPUC – Golden Gate Room
Feb 27	Call			
Mar 6	In person	20 & 22	23 & A & B	CPUC–Golden Gate Room
Mar 20	Call			
Mar 27	In person	24	22 & 24	CPUC – Courtyard Room
Apr 10	Call			
Apr 17	In person		20 & 27 & 28	CPUC – Courtyard Room
May 1	Call			
May 8	In person	Final report		CPUC – Golden Gate Room
May 22	Call			
May 29	In person		Final report	CPUC – Courtyard Room
Jun 12	Call			
Jun 24	Report due			