

# Electric Grid Education and Outreach Workshop

High Distributed Energy Resources (DER)  
Grid Planning Proceeding

CPUC Energy Division with California Energy Commission  
August 23, 2022



California Public  
Utilities Commission





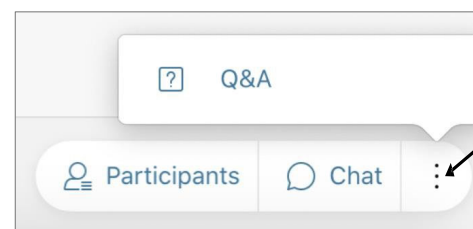
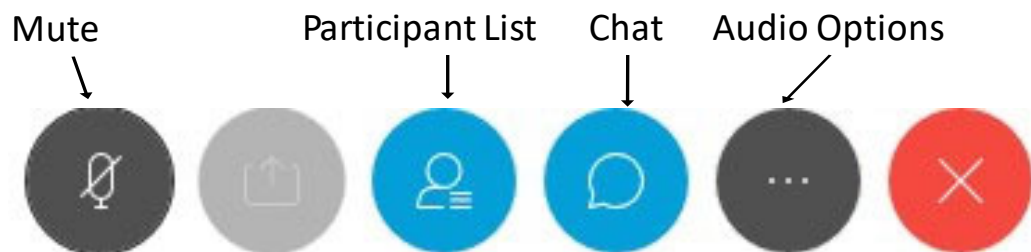
CALIFORNIA  
ENERGY  
COMMISSION



**This Event is Being Recorded**

# Logistics

- All attendees have been muted.
- To ask questions, please "raise your hand"  and a panelist will unmute you so you can ask your question.
- If you would rather type, use the "Q&A" function. Q&A questions will be read aloud by staff; attendees may be unmuted to further discuss the question.
  - \*Reminder: Please press mute when done speaking 
- Use "chat" only for webinar logistics questions and not substantive comments or questions.
- Please use the link to this form to provide feedback and/or comments at the end of the workshop: <https://forms.gle/a9QD4TkWuxhFUedd9>



Click the "3 dots" on the bottom right of screen to open the "Q&A" panel if not already showing.

# Agenda

- Introduction and Opening Remarks 9:00-9:15
- DER Proceedings Overview/Coordination (CPUC & CEC) 9:15-9:45
- Electric Grid Operations, Current Grid (Part 1, Part 2) 9:45-11:40
- Alternative Grid Operations, Future Grid (Part 1) 11:45-12:30
- Lunch 12:30-1:00
- Alternative Grid Operations, Future Grid (Part 2) 1:00-1:45
- Outreach Plan and Ongoing Education 1:45-2:35
- Discussion from Attendee Feedback 2:40-3:20
- Next Steps 3:20-3:30

# Opening Leadership Remarks



Commissioner Darcie Houck, CPUC  
Vice Chair Gunda, CEC

# CPUC Energy Division

Today's Workshop and CPUC High DER Proceeding Context

# Workshop Goals

1. Provide foundational education to stakeholders on distribution planning and Distribution System Operator (DSO) topics to support meaningful engagement and participation in the High DER proceeding.
2. Present new and existing plans for community engagement for proceeding tracks 1 and 2 and CPUC coordination with CEC outreach efforts.



# Workshop Objectives

1. Attendees achieve a foundational understanding of:
  - a. How California's investor-owned utilities operate the electric grid;
  - b. Why alternative DSO models are being investigated in proceeding Track 2; and
  - c. What alternative models for grid operations may be considered in the proceeding's Future Grid Study.
2. Draft Outreach Plan for Future Grid Study presented for feedback and discussion.
3. Updated High DER proceeding schedule explained and discussed, including a preview of a future workshop and staff proposal to develop a scope of work for a Community Engagement Needs Assessment designed to determine what communities want and need from distribution planning.
4. Attendees are empowered to ask questions during and after the workshop.
5. Attendees are motivated to participate in listening sessions planned to follow this workshop.
6. Attendees are informed about opportunities for further engagement and comments (both oral and written).

# DER ACTION PLAN 2.0- GOALS & PURPOSE

## What is the DER Action Plan?

- A 2022 – 2026 roadmap for CPUC decision-makers, staff, and stakeholders to facilitate forward-thinking DER policy.
- Adopted by the CPUC at the April 21, 2022 Voting Meeting

## What does the DER Action Plan do?

- Aligns the CPUC's vision with possible CPUC, utility and stakeholder actions to ensure coordinated policy implementation related to grid planning, affordability, load flexibility, market integration, and customer programs.
- Coordinate with Environmental & Social Justice Action Plan, CEC, and CAISO

## What is the goal of the DER Action Plan?

- Maximize the value of DERs on the electric IOUs systems to support affordable and equitable rates but does **NOT** determine outcomes of individual proceedings.

# DER Action Plan 2.0 – 4 TRACKS

High DER Proceeding falls under Track II of DER Action Plan

## TRACK ONE

### Load Flexibility & Rates

*Purpose:* Improve demand-side resource management through more effective, integrated demand response (DR) and retail rate structures.

*How:* Promote widespread, scalable, and flexible load strategies enabled by electrification and DER deployment.

- Real-time & dynamic pricing
- Load management technologies
- Universal access pricing platform
- Customized rate marketing and education of all customer segments

## TRACK TWO

### Grid Infrastructure

*Purpose:* Guide utility infrastructure planning and operations to maximize the value to ratepayers of DERs interconnected to the electric grid.

*How:* Modernize the grid and improve distribution planning

- Explore DSO models
- Planning responsive to community and tribal needs
- Improve interconnection performance
- Data communications for grid operator visibility
- Anticipate impact of electrification on grid infrastructure

## TRACK THREE

### Market Integration

*Purpose:* Support renewable integration, GHG reduction, and grid reliability through efficient integration of DERs into wholesale markets.

*How:* Enable market integrated DERs to produce multiple benefits.

- Resource Adequacy
- Reliability
- Efficient wholesale market grid services

## TRACK FOUR

### DER Customer Programs

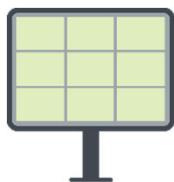
*Purpose:* Improve coordination, planning and developing consistent metrics across DER customer programs to maximize their contributions to GHG reductions and other state energy goals.

*How:* enable all customers to effectively manage energy usage

- equitable participation and distribution of benefits
- alignment with evolving rate design and load flexibility
- alignment with distribution planning & IRP objectives

## High DER Grid Planning Proceeding Context

- The primary objective of the CPUC High DER proceeding is to prepare the electric grid for a high distributed energy resource (DER) future by determining how to integrate millions of DERs within the distribution grid to maximize societal and ratepayer benefits from DERs while ensuring grid reliability and affordable rates.
- What are DERs?
  - Pursuant to State Assembly Bill 327 and Public Utilities Code Section 769(a), DERs include:



**Distributed Renewable  
Generation Resources  
such as solar**



**Energy  
Efficiency**

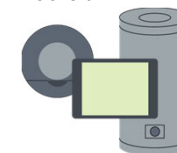


**Energy  
Storage**



**Electric  
Vehicles**

Examples: Thermostats,  
Internet-connected Water  
Heaters



**Demand  
Response  
Technologies**

# We Anticipate a High-Penetration Distributed Energy Resource (DER) Future

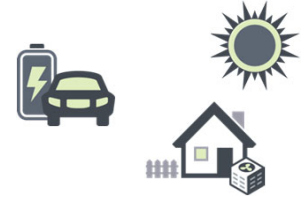
“This OIR anticipates a high-penetration DER future and seeks to determine how to optimize the integration of millions of DERs within the distribution grid while ensuring affordable rates.”

– High DER OIR at p. 9

“This OIR neither seeks to set policy on the overall number of DERs nor does it seek to increase or decrease the desired level of DERs. This OIR focuses on preparing the grid to accommodate what is expected to be a high DER future and capture as much value as possible from DERs as well as mitigate any unintended negative impacts.”

– High DER OIR at p. 10

# Three High DER Proceeding Tracks



1

## Distribution Planning Process and Data Improvements

- Phase 1: Near-Term Actions
- Phase 2: Distribution Planning Process Improvements
- Topics:
  - IOU Distribution Planning Processes
  - Electrification Impacts and Potential Mitigation
  - Data Portals
  - Community Engagement Needs Assessment for Distribution Planning

2

## Distribution System Operator (DSO) Roles and Responsibilities

- Long-term grid vision(s) and associated policy issues
- Investigation of grid operations models
- Future Grid Study development and public outreach
- Future actions identified that could lead to a successor proceeding

3

## Smart Inverter Operationalization and Grid Modernization Planning

- Phase 1: Smart Inverter Operationalization
- Phase 2: Grid Modernization Planning and Cost Recovery
- Topics:
  - Business Use Cases for Smart Inverters
  - DER Dispatchability
  - Smart Grid Investment Planning

# Track 1 Scoping Questions About Engagement

## Track 1, Phase 1

5. What initial analysis is needed for the Commission to determine in Track 1, Phase 2, of this proceeding how best to improve local engagement in utility distribution planning?
  - See also, Scoping Ruling at p. 13, “Energy Division will conduct a workshop on the scope and funding of a potential community engagement needs assessment during the third quarter of 2022 to inform Track 1, Phase 2 of this proceeding.”

## Track 1, Phase 2

3. Leveraging the analysis identified in Track 1, Phase 1, are there ways in which utility distribution planning representatives could better engage with local and tribal governments, Environmental and Social Justice communities, and local developers to ensure new planned loads and developments are factored into Utility Distribution Planning Processes and local concerns regarding distribution planning are adequately addressed?

Note: The full list of Track 1 scoping questions are provided in the proceeding's [Scoping Ruling](#).

## Track 2 Scoping Questions and Future Grid Study

1. How do alternative DSO models compare in their ability to plan and operate a high DER grid, unlock economic opportunities for DERs to provide grid services, limit market power, reduce ratepayer costs, increase equity, support grid resiliency, and meet State policy objectives?
  2. Should the Utilities be incentivized to cost-effectively prepare for widespread DER deployments? If so, how?
- The Future Grid Study is the primary deliverable planned for Track 2. It is designed to address these two scoping questions. For further details, see:  
<https://gridworks.org/initiatives/california-future-grid-study>



# California Energy Commission

CEC's DER Informational Proceeding and  
Coordination with CPUC's High DER Proceeding



# Transition to California Energy Commission slides.

# Electric Grid Operations Education

Present-day grid operations



Transition to PG&E, SCE, and  
SDG&E slides.

# Alternative Grid Operations Education

Future grid operations



Transition to slides by Lorenzo Kristov.

# Outreach Plan and Ongoing Education

CPUC Energy Division

# Two Tracks, Two Outreach Work Streams

- Track 1: Develop a Scope of Work to Conduct a Community Engagement Needs Assessment
  - Already identified in the November 2021, High DER [Scoping Ruling](#)
  - Responsive to comments on the June 2021 Order Instituting Rulemaking
  - If approved by CPUC Decision, a new consulting team would be contracted in 2023
  - Findings from the Needs Assessment could inform changes to **distribution planning** via a decision planned for 2024
- Track 2: Outreach Plan
  - New and presented at today's workshop
  - Responsive to comments from our May 3, 2022, Track 2 DSO workshop (**distribution system operations**)
  - Supported by our existing High DER consultant team (hired in 2021)



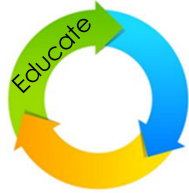
# Track 1 Community Engagement Needs Assessment

- Among the many Track 1 goals are to improve utility distribution planning to be more responsive to the needs and plans of communities.
- An external consultant is anticipated to create and implement a Community Engagement Needs Assessment **to determine what communities want and need from distribution planning.**
- The scope and cost of the needs assessment would be approved by the CPUC via a Decision.
- The scope of work for the needs assessment will be developed in a November stakeholder workshop and released via a staff proposal following the workshop.

## Track 2 Outreach Plan

- In Track 2, we are exploring how alternative Distribution System Operator (DSO) models compare in their ability support a high DER grid, serve ratepayers, and meet State policy objectives (among other issue areas) as listed in the Scoping Ruling.
- We held our first Track 2 workshop on May 3, 2022, to discuss a [white paper](#) developed to spearhead Future Grid Study development and explore alternative DSO models.
- The Draft Track 2 Outreach Plan presented in the following slides describes an updated CPUC outreach approach that:
  - Is responsive to comments and presentations from the May 3<sup>rd</sup> DSO workshop;
  - Seeks to coordinate with CEC staff on outreach; and
  - Is designed to **support development of the Future Grid Study.**

## Draft Track 2 Outreach Plan



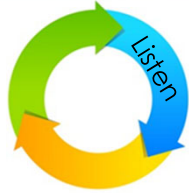
- The Track 2 Outreach Plan is organized according to three main principles: **educate**, **listen**, and **focus**.
- Today's workshop provides foundational grid operations education to stakeholders
  - Public education will be a focus of many proceeding activities
- A listening session series is being planned for September and October this year.
- The **educate-listen-focus cycle** may be repeated as needed during the Future Grid Study development technical workshop series planned to commence in 2023.

# Why Listening Sessions?



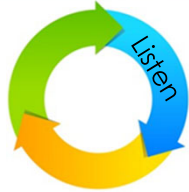
- The primary goal of the listening session is to **engage with tribes, community-based organizations, and local governments** to understand and document their specific needs and perspectives for alternative DSO models prior to conducting the series of highly technical workshops planned for Future Grid Study development.
- The CPUC values the input of **all** stakeholders.
- Listening sessions would **complement** other more traditional proceeding stakeholder feedback methods. Listening sessions would not replace these other feedback methods but would enable more **diverse voices and perspectives** to be heard to support Future Grid Study development.

# Listening Sessions



- In September/October 2022, up to eight listening sessions would be planned, as follows:
  - Up to five sessions with community-based organizations.
  - One session with tribes.
  - One session with rural local governments.
  - One session with urban/suburban local governments.
- CPUC and CEC staff would participate in the sessions.
- Presentations and the recording from today's Electric Grid Education and Outreach Workshop will serve as background information for listening session participants.
- A listening session summary will be prepared by the CPUC, reviewed by session participants, and shared with the High DER proceeding Service List.
- The CPUC Office of the Tribal Advisor may separately provide session comments and details to participants upon request.

# Listening Session Coordination



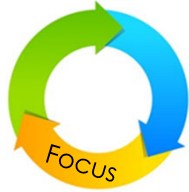
- Outreach to potential participants is being supported by:
  - CPUC Business and Community Outreach staff
  - CEC outreach staff
  - CPUC and CEC Tribal Advisors
  - Verdant and Gridworks consultant teams to the CPUC
- Next Steps:
  1. Identify **by the end of August** potential participants – suggestions from workshop attendees and proceeding stakeholders are very welcome!
    - Gridworks will lead participant engagement, logistical coordination, and facilitation.
    - Details on dates, platform, and agenda to follow.
  2. Please contact Matthew Tisdale at [mtisdale@gridworks.org](mailto:mtisdale@gridworks.org) and copy Kate Griffith at [kgriffith@gridworks.org](mailto:kgriffith@gridworks.org) with interest in listening session participation or to suggest participants.

## Technical Workshop Series: Focus



- Following the listening sessions and summary report, we would return to the more technical aspects of Future Grid Study development in Quarter 1, 2023.
- Where appropriate, additional education and listening sessions would be scheduled as needed to accompany the following, focused technical sessions.
  - Workshop #1 (Q1 2023): Visions and Objectives for a Future Grid
  - Workshop #2 (Q1/Q2 2023): Operations Needed for the Future Grid
  - Workshop #3 (Q2 2023): Gap Assessment: Collect Additional Gap Information
  - Workshop #4 (Q2/Q3 2023): Present and Socialize DSO Model Proposals
  - Workshop #5 (Q3 2023): Identify Barriers, Actions, Trade-Offs
- Workshop summary reports would be prepared for each technical session.

# Draft Future Grid Study



- All presentations and documents developed for each technical workshop would be included in the proceeding record **following each session**, and **formal comments** would be requested.
- The Draft Future Grid Study would be issued in 2023 following the workshop series and formal comments would be requested.
- Pros and cons of alternative DSO models and potential recommendations may be included in the Study. The models evaluated might be prioritized according to likelihood of future implementation or highlighted for additional study. We expect **issues appropriate for a successor proceeding and potential legislative action to be identified** for consideration during the Study review process.

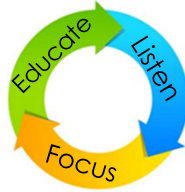


# Robust and Meaningful Draft Future Grid Study Comments



- To ensure robust comments are received on the Draft Future Grid Study, including from stakeholders that have not traditionally participated in CPUC proceedings on energy issues, Staff propose that **outreach already scoped for Track 1 be coordinated with Track 2.**
- This would be accomplished by ensuring that the scope of work to be developed for the Track 1 Community Engagement Needs Assessment includes widespread education and outreach support specific to the Draft Future Grid Study.
  - Support for repeating the educate-listen-focus principles during widespread outreach in the State and among diverse communities would be included.
- Scope of work approval, including funding for consultant support, would be determined in a Track 1 Proposed Decision.

## En Banc and CPUC Decision Adopting or Modifying the Future Grid Study



- As planned in the High DER [Scoping Ruling](#), an En Banc would follow issuance of the Draft Future Grid Study to present study findings and gather additional feedback. The En Banc would seek to achieve each outreach principle (educate, listen, focus).
- A Proposed Decision to adopt the Future Grid Study would follow the En Banc, and the final Future Grid Study would be published as adopted by Decision.
- **Emphasis:** Outstanding issues identified in the Future Grid Study for further exploration are expected to be considered for inclusion in a successor proceeding. A term longer than one proceeding is expected to be required to adequately investigate alternative DSO models.

# Track 2 Outreach Plan Questions for Stakeholder Comment

Comments Due  
August 31, 2022

Reply Comments  
Sept. 9, 2022

1. What additional steps or actions should be added to the Draft Track 2 Outreach Plan?
2. Are there Track 2 Outreach Plan areas that need more emphasis/additions?
3. What unique Track 2 issues should be considered for tribal, rural, or disadvantaged communities?
4. What unique Track 2 issues should be considered for local governments?
5. What information should the CPUC seek from listening session participants? What questions should CPUC pose to participants?

## Final Track 2 Outreach Plan

- The Draft Track 2 Outreach Plan may be revised based on discussion and feedback during today's workshop and the formal comments received on **August 31, 2022, and Reply Comments on September 9.**
- The Final Track 2 Outreach Plan will be released after review of the formal comments and reply comments.

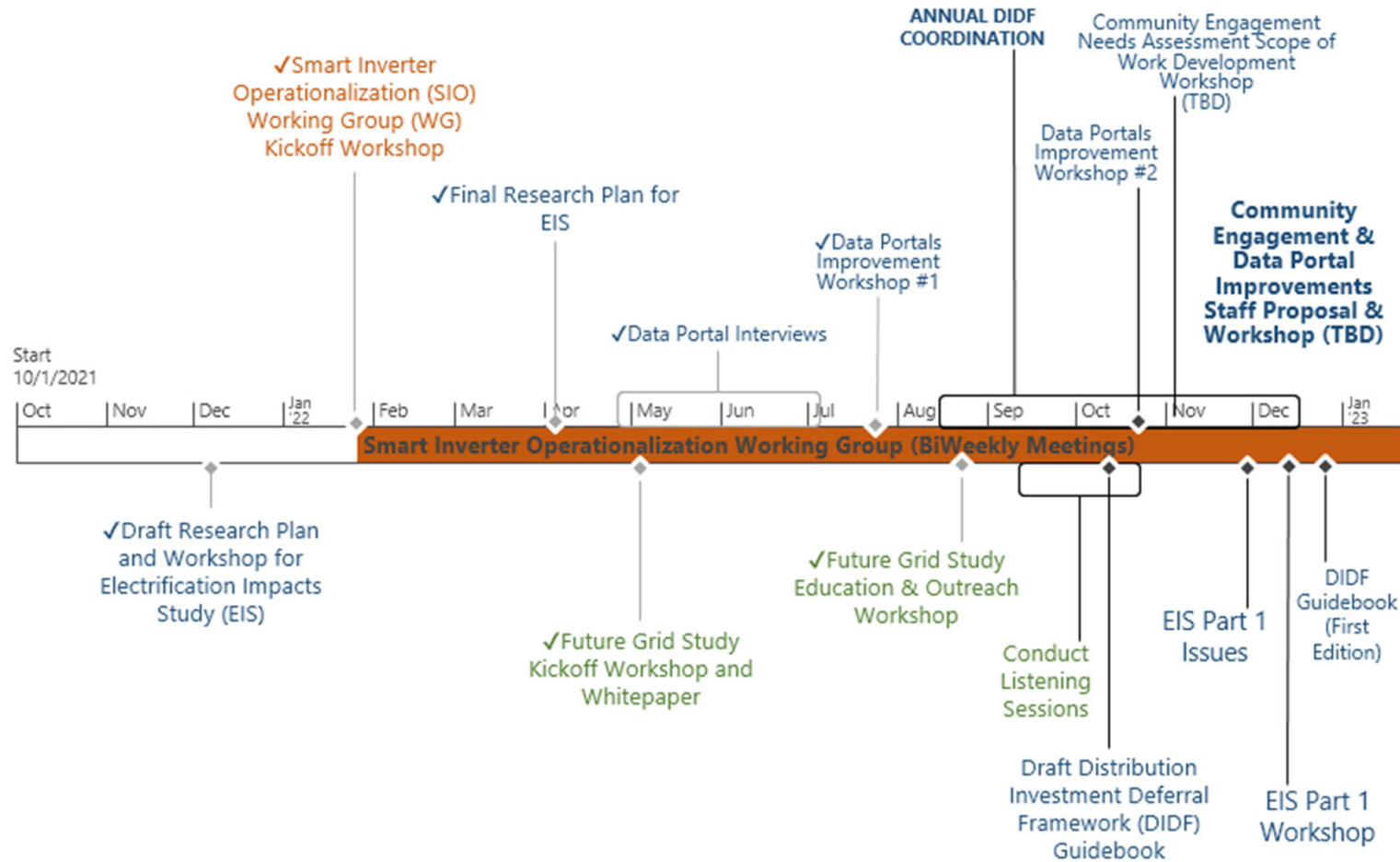
# Updated Proceeding Work Plan

CPUC Energy Division

# Work Plan Timeline (2021-2022)

## Legend

- Bold are staff proposals and Decisions
- Proceeding Track 1
  - Distribution Investment Deferral Framework (DIDF)
  - Distribution Planning Process (DPP)
  - Electrification Impact Study (EIS)
- Proceeding Track 2
- Proceeding Track 3
  - Smart Inverter Operationalization (SIO)
  - Working Group (WG)
  - General Rate Case (GRC)



# Listing of Reports, Staff Proposals, and Workshops

2021-2022

	Item	Date	Track	Consultant
✓	Draft Research Plan and Workshop for Electrification Impacts Study (EIS)	12/7/2021	1	Kevala
✓	Smart Inverter Operationalization (SIO) Working Group Kickoff Workshop	1/25/2022	3	Verdant, Xanthus
✓	Final Research Plan for EIS	4/4/2022	1	Kevala
✓	Future Grid Study Kickoff Workshop and Whitepaper	5/3/2022	2	Gridworks
✓	Data Portal Stakeholder Interviews	May/June	1	Verdant
✓	Data Portals Improvement Workshop 1	7/26/2022	1	Verdant, Kevala, Gridworks
✓	Future Grid Study Education and Outreach Workshop	8/23/2022	2	Gridworks
	Listening Sessions	Sept/Oct	2	Gridworks, Verdant
	Evaluate Grid Needs Assessment/Distribution Deferral Opportunity Report (GNA/DDOR) Filings (Big Data Analytics)	Sept/Oct	1	Kevala, Verdant
	Listening Session Summary	Nov-22	2	Verdant, Gridworks
	Data Portals Improvement Workshop 2	Oct-22	1	Verdant, Kevala, Gridworks
	Community Engagement Needs Assessment Scope of Work Development Workshop	Nov-22	1	Verdant

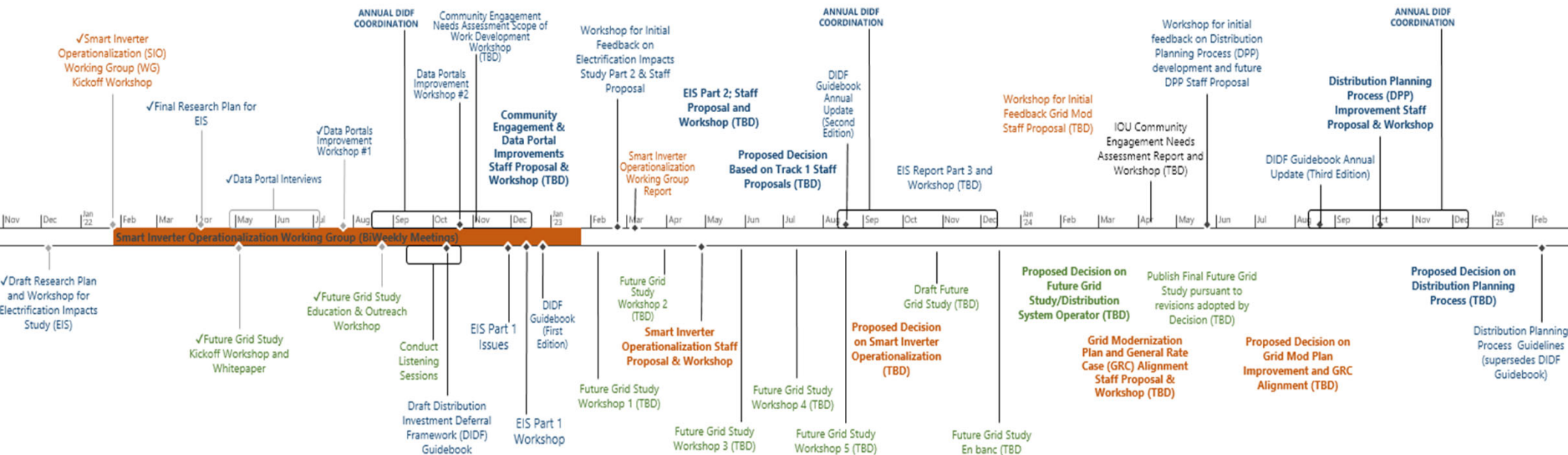
# Listing of Reports, Staff Proposals, and Workshops

2022-2023

Item	Date	Track	Consultant
Electrification Impacts Study (EIS) Part 1	Nov-22	1	Kevala
EIS Part 1 Workshop	Dec-22	1	Kevala, Gridworks
Final DIDF Guidebook (1st annual version)	Dec-22	1	Verdant
Staff Proposal on Community Engagement Needs Assessment Scope and Near-Term Data Portal Improvements (also Workshop)	TBD	1	Verdant
Future Grid Study Workshop 1	Feb-23	2	Gridworks, Verdant
Workshop for Electrification Impacts Staff Proposal Development (EIS Part 2)	Feb-22	1	Gridworks, Verdant, Kevala
Smart Inverter Operationalization (SIO) Working Group Report	Mar-23	3	Verdant, Xanthus
EIS Part 2 (Electrification Impacts Staff Proposal)	2023	1	Kevala, Verdant
Future Grid Study Workshop 2	Mar/Apr	2	Gridworks, Verdant, Xanthus
EIS Part 2 (Electrification Impacts Staff Proposal) Workshop	2023	1	Gridworks, Kevala, Verdant
SIO Staff Proposal	Apr/May	3	Verdant, Xanthus



# Work Plan Timeline (2021-2025)



# Listing of Reports, Staff Proposals, and Workshops

## 2023

Item	Date	Track	Consultant
SIO Staff Proposal Workshop	May-23	3	Verdant, Xanthus
<b>Proposed Decision (Near-Term Actions)</b>	2023	1	Kevala, Verdant
Future Grid Study Workshop 3	May/Jun	2	Gridworks, Verdant, Xanthus
Future Grid Study Workshop 4	May/Jun	2	Gridworks, Kevala, Xanthus
Future Grid Study Workshop 5	Aug-23	2	Gridworks, Kevala, Xanthus
DIDF Guidebook Annual Update (2nd annual)	Aug-23	1	Verdant
<b>Proposed Decision (SIO)</b>	2023	3	Verdant, Xanthus
Evaluate GNA/DDOR Filings (Big Data Analytics)	Sept-23	1	Kevala, Verdant
Draft Future Grid Study	2023	2	Gridworks
EIS Part 3 and Workshop	2023	1	Kevala, Verdant, Gridworks
Future Grid Study En banc	2023	2	Gridworks

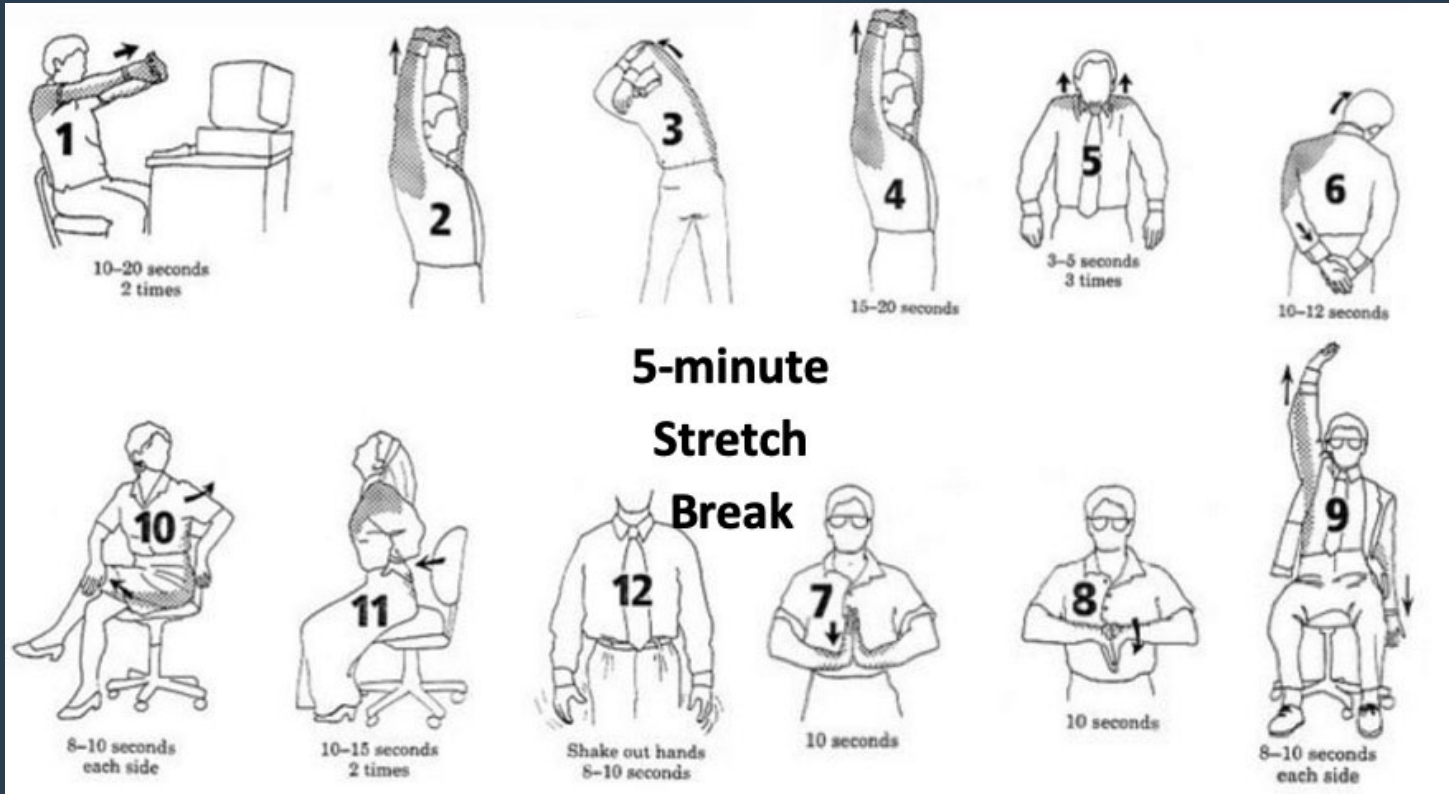
# Listing of Reports, Staff Proposals, and Workshops

2024-2025

Item	Date	Track	Consultant
<b>Proposed Decision (Future Grid Study/Distribution System Operator)</b>	2024	2	Gridworks
Workshop for Grid Modernization Plan and General Rate Case (GRC) Alignment Staff Proposal Development	2024	3	Verdant, Xanthus
Grid Modernization Plan and GRC Alignment Staff Proposal and Workshop	2024	3	Verdant, Kevala
Community Engagement Needs Assessment Report and Workshop	2024	1	Verdant
Distribution Planning Process (DPP) Improvement Workshop	2024	1	Gridworks, Verdant
Data Portals Improvement Report and Workshop	2024	1	Verdant
<b>Proposed Decision (Grid Modernization Plan and GRC Alignment)</b>	2024	3	Verdant, Kevala
Distribution Planning Process (DPP) Improvement Staff Proposal and Workshop	2024	1	Verdant
DIDF Guidebook Annual Update (3rd annual)	Aug-24	1	Verdant
DPP Improvement Staff Proposal Workshop	2024	1	Gridworks, Verdant
Evaluate GNA/DDOR Filings (Big Data Analytics)	Sept-24	1	Kevala, Verdant
<b>Proposed Decision (DPP)</b>	2024	1	Verdant
DPP Guidelines (supersedes DIDF Guidebook)	2025	1	Verdant

# Questions, Comments?

1. Draft, Track 2 Outreach Plan
2. Updated Proceeding Work Plan



# Discussion and Attendee Feedback

CPUC Energy Division and Gridworks

## What do you think?

What is **one new thing you learned** at today's workshop?

What is **one suggestion you would offer** your colleagues?

What is **one question you'll take with you** following today's workshop?

# How to participate

1. Navigate to <https://app.sli.do/event/dHjJLBkzH73HEnkX6bMXkr>
2. Share your thoughts through Slido
3. Open discussion
4. File comments per above



# Next Steps

Commissioner Houck

## Next Steps

- Comments on Track 2 Outreach Plan are due August 31, 2022, and Reply Comments are due September 9
- Ruling to adopt Final Track 2 Outreach Plan to follow in September
- Listening Sessions (September/October)
  - Please contact Matthew Tisdale at [mtisdale@gridworks.org](mailto:mtisdale@gridworks.org) and copy Kate Griffith at [kgriffith@gridworks.org](mailto:kgriffith@gridworks.org) by the end of August (or as soon as possible) with interest in listening session participation or to suggest participants.
- Listening Session Summary (November)
- Community Engagement Needs Assessment Scope of Work Development Workshop (November)



# Thank You!

Please use the link to this form to provide workshop feedback: <https://forms.gle/a9QD4TkWuxhFUedd9>

# Contact Information

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