

RULE 21 INTERCONNECTION PROGRAM EVALUATION

WORKSHOP 1

JUNE 27, 2019



NAVIGANT

WORKSHOP AGENDA

- Introduction and Overview – Laura Manz (10 minutes)
- Safety and Emergency Information – Reese Rogers (5 minutes)
- Project and Scope Discussion – Sony Dhaliwal (30 minutes)
 - Rule 21 Interconnection Program Evaluation: Project Overview and Timeline
 - Workshop 1: Objective
 - Navigant Approach: Detailed scope
 - Project Organization
- Questionnaire – Sarah Bilbao (30 minutes)
- Break – 15 minutes
- Questions and Discussion – All (2 hours 15 minutes, includes a 15 minute break)
- Next Steps and Feedback – Sony Dhaliwal (15 minutes)

SAFETY AND EMERGENCY INFORMATION


- In the event of an emergency, please proceed calmly out the exits.
- The evacuation site is the Garden Plaza area between Herbst Theater and the War Memorial Opera House Buildings, on Van Ness
- Exit the building at the Main Entrance at Van Ness and McAllister streets, cross McAllister Street, pass Herbst Theater and enter the plaza.

Evacuation Assembly Location





PROJECT AND SCOPE DISCUSSION



RULE 21
INTERCONNECTION
PROGRAM
EVALUATION

PROJECT
OVERVIEW AND
TIMELINE

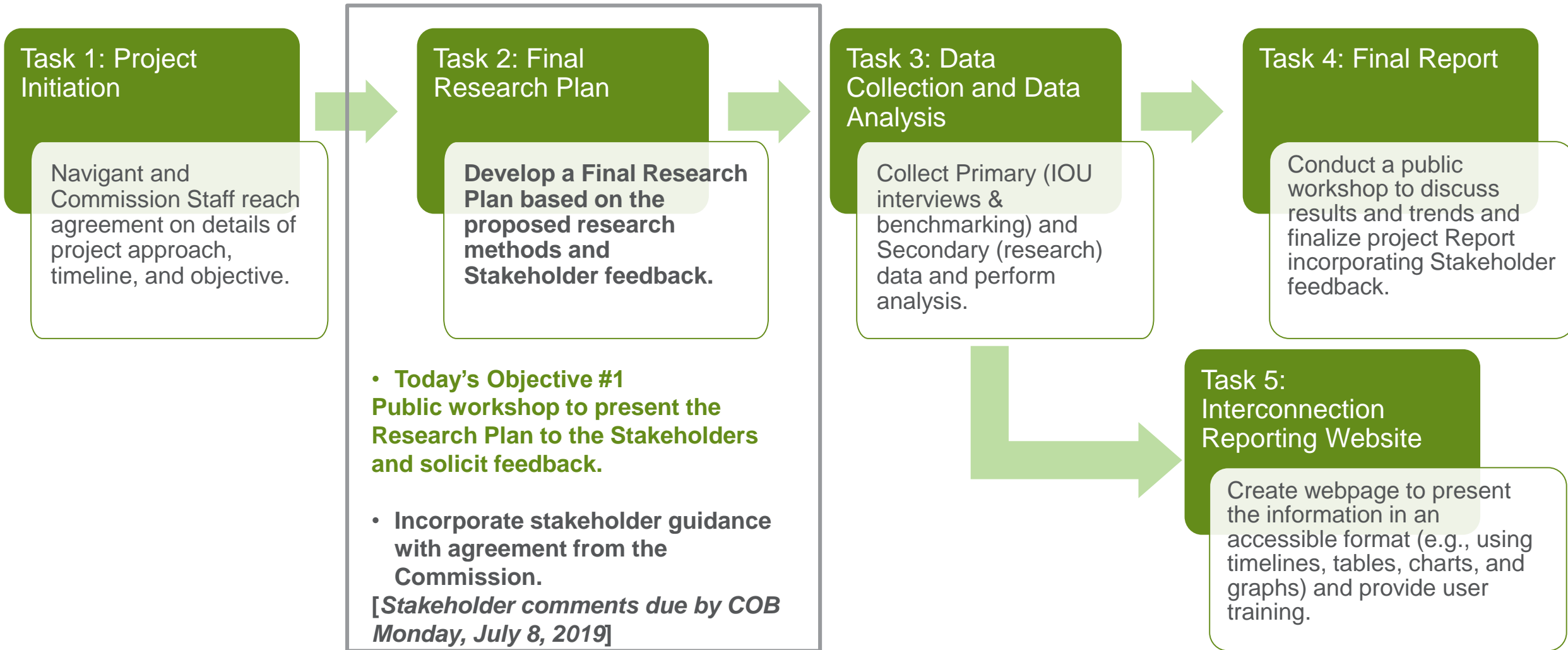
RULE 21 INTERCONNECTION PROGRAM EVALUATION – PROJECT OVERVIEW

To ensure continued success of the California's Rule 21 process, California Public Utilities Commission (CPUC) is undertaking a comprehensive evaluation of utility administration of the Rule 21 tariff to provide data and insight into each utility's administration of the Rule 21 tariff.

The objectives of this project are to:

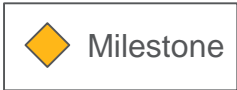
- a) Characterize utility compliance with statutory requirements, Commission-approved Rule 21 tariffs and timelines, and Commission decisions through a structured process
- b) Benchmark utility interconnection business practices to understand the current state of Rule 21 implementation
- c) Identify areas for improvement and propose policy or programmatic changes resulting from this evaluation

PROJECT APPROACH AND TASKS



PROJECT TIMELINE

Task	May 2019 (Month 2)	Jun 2019 (Month 3)	Jul 2019 (Month 4)	Aug 2019 (Month 5)	Sep 2019 (Month 6)	Oct 2019 (Month 7)	Nov 2019 (Month 8)	Dec 2019 (Month 9)	Jan 2020 (Month 10)
Task 1: Conduct Project Initiation Meeting	1								
Task 2: Develop Final Research Plan		2	3						
Task 3: Conduct Data Collection and Data Analysis					4				
Task 4: Prepare Draft Report, Conduct Public Workshop to Report Results, Prepare and Deliver Final Report						5		7	9
Task 5: Interconnection Reporting						6	8		



Task	Task Name	Completion Date	Milestone
1.1	Conduct Project Initiation Meeting	Friday, May 17, 2019	1
2.3	Public workshop 1: Proposed Research Plan	Thursday, June 27, 2019	2
2.4	Finalize Research Plan with the comments received	Friday, July 19, 2019	3
3.5	Review results of Data Collection and Analysis with CPUC staff	Wednesday, September 18, 2019	4
4.1	Develop draft report presentation	Friday, October 4, 2019	5
5.3	Publish Webpage	Friday, October 25, 2019	6
4.2	Public Workshop 2: Draft Report Results	Friday, December 6, 2019	7
5.5	Host Training	Tuesday, November 26, 2019	8
4.3	Develop final report	Friday, December 27, 2019	9



WORKSHOP 1 OBJECTIVES

WORKSHOP OBJECTIVES

- Provide overview of the Rule 21 Interconnection Program Evaluation Project, including, scope and schedule.
- Discuss Navigant's approach and key milestones.
- Introduce project team members.
- Solicit Stakeholder feedback for the following:
 1. Primary data collection Questionnaire
 2. Interconnection Reporting website data and its format



DETAILED PROJECT SCOPE

TASK 2: DEVELOP FINAL RESEARCH PLAN



Data Request

- Identify the primary data collection group
- Develop a template to communicate adhering to CPUC requirements

Pre-Fielding Preparation

- Analysis plan to ensure data collected aligns with research needs and answers specific questions
- Confirmation of best interview channel (phone, ride along, on-site)
- Refinement and prioritization of target sample
- Interview guide development based on best practice templates
- Interviewer preparation and training

Fielding

- Scheduling onsite and/or phone meetings with agenda
- Pre-interview preparation (e.g., guide review, background research)
- Detailed note taking of the meetings
- Post-interview follow up

Post-Fielding Analysis

- Summarizing the interview inputs consistently across the matrix for all utilities
- Analysis of the interview inputs and identifying gaps
- Complete the matrix with received inputs and develop recommendations
- Analysis tool training sessions for coding teams
- Analysis using appropriate tool (Excel, NVivo)

TASK 3: CONDUCT DATA COLLECTION AND DATA ANALYSIS

Step 1: Data Collection

Two methods of data collection are described below:

Primary Data Collection

Definition: Data collected by a researcher from first-hand sources, using methods like surveys, interviews, or experiments.

- Follow-up with participants by conducting phone or in-person meetings to fill any gaps in information provided by the survey participants.

Secondary Data Collection

Definition: Data gathered from studies, surveys, or experiments that have been run by other people or for other research.

- Data resources such as State filings and interconnection process documents posted by each utility.

Step 2: Data Sampling

- **Identify key market sectors and actors** (IOU)s to target for data collection
- Design outreach questionnaire according to Rule 21 interconnection application process.
- Conduct Secondary Data Collection research and develop responses to questionnaire for each IOU as first step and confirm the data with each IOU to maximize response rates.
- As needed, perform additional outreach in person or phone for consistent data collection and to collect approved data from all jurisdictions.

Step 3: Data Analysis

Conduct a thorough analysis of results, including development of analysis matrices, to align with objectives defined in Task 2:

1. **Calibrate the compliance of each California IOU** with Rule 21 tariffs and timelines
2. **Identify state regulations and practices** adopted within each jurisdiction based on achievable RPS targets
3. Compare the matrices developed for Objectives 1 and 2 to **identify key differences and the methodologies or tools which will increase efficiency** of the interconnection process

TASK 4: FINAL REPORT

Step 1: Develop Draft Report (Microsoft PowerPoint presentation)

Develop a draft report describing the methodology and process for surveys and data collection and the results of surveys measuring the experiences and satisfaction of the applicants.

With a focus on reporting the study findings, the draft report will:

1. Provide a summary of key findings for each California IOU
2. Describe research methods and analysis
3. Provide a summary of data using graphs and other pictorial representations; and
4. Provide preliminary recommendations.

Step 2: Hold Public Workshop

- Present draft report and gather Stakeholder feedback.
- Update the draft report presentation with the final findings from the evaluation that provides
 1. A summary of key findings for each California IOU
 2. Describes research methods and analysis
 3. Provides a summary of data using graphs and other visualizations; and
 4. Provides preliminary recommendations

Step 3: Develop Final Report (e.g. Microsoft Word document)

Develop a final written report and an update to the draft presentation based on feedback from the Commission and the workshop participants that will include but not limited to the following sections:

1. Executive Summary
2. Background/ Introduction
3. Research Methods
4. Analysis, Results and Discussion
5. Recommendations
6. Appendices

TASK 5: INTERCONNECTION REPORTING

Today's Objective #2

1. Create a process, reviewed and approved by Commission Staff, to collect, publish, and present information on each IOU's interconnection program.

2. Solicit feedback from workshop participants regarding the interconnection information that needs to be collected and its format.

3. Develop a reporting proposal containing data to be reported and the criteria used to identify what information to report.

4. Solicit written feedback on the reporting proposal from stakeholders to the interconnection proceeding (R.17-07-007) and work with CPUC Energy Division and each IOU to gather the appropriate information.

7. Identify potential challenges and barriers, and make recommendations for establishing an efficient, robust, and cost-effective business process.

6. Identify technical requirements for transferring information between business systems while maintaining data integrity.

5. Create a webpage to present the information in an accessible format (e.g., using timelines, tables, charts, and graphs).

8. Issue a proposal to CPUC Energy Division for the website, modeling to include critical elements of California's DG Statistics and Massachusetts' Interconnection Activity webpages.

9. Publish the webpage with all the CPUC-directed changes and approval from CPUC Energy Division.

10. Provide training to the CPUC Energy Division and IOU staff on maintaining data integrity and publishing information to the webpage. The training will follow a three step approach:

General Approach to In-Person Training



EXAMPLE: DG STATISTICS



- Find a Solar Installer
- Download Data
- Stats & Charts
- CA Programs
- FAQ

Statistics and Charts

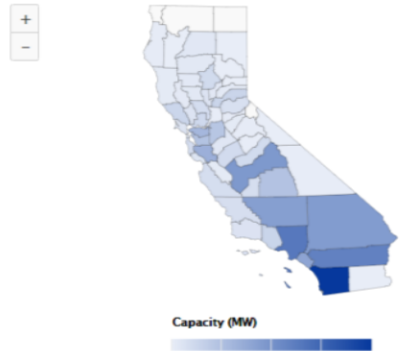
NEM Solar PV | California Solar Initiative | Low-Income Solar PV

Summary: These statistics and charts are created from all interconnected solar PV net energy metering (NEM) applications in PG&E, SCE and SDG&E service territories with one entry per interconnection address/project.

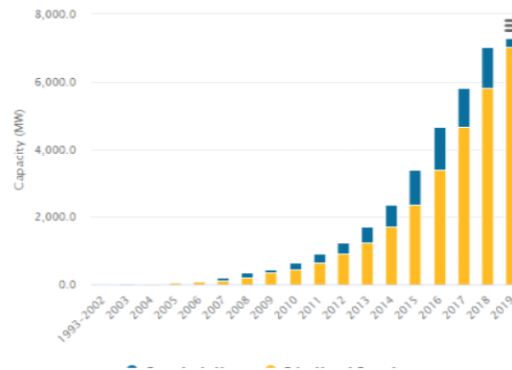
Data Type: Interconnection Applications | **Utilities:** PG&E, SCE and SDG&E | **Technology:** Solar PV | **Data Source:** Currently Interconnected Data Set

Data View: All IOUs | **Data Type:** Capacity (MW) | **Sector:** All | **Time Series:** All Years | **CPW Basis:** Real

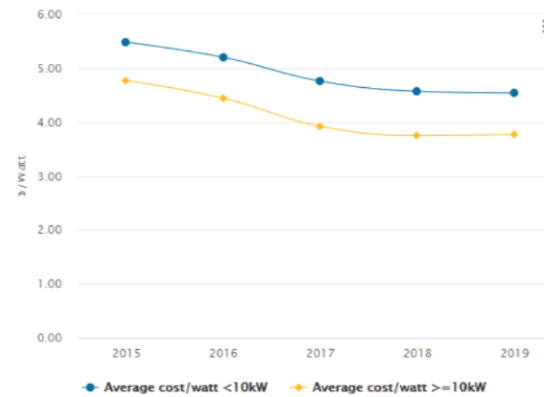
Territory and Location



Capacity¹

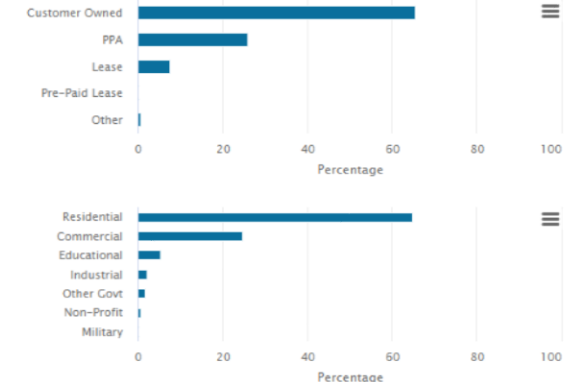


Cost per Watt²



457,173 project(s) were included for the generation of this chart

Ownership and Sector Information³



501,842 project(s) were included for the generation of this chart

Data Current Through 2019-03-31

Notes

¹ Projects are grouped by Application Approved Date (Permission to Operate Date). "Projects" refer to a given interconnection address/project. Note that some projects contain multiple interconnection applications. For more information, see FAQ.

² All cost values are self-reported by applicants, and no additional verification has been performed. To remove erroneous data, the top and bottom 1% of applications have been removed prior to the creation of these charts. Additionally, all cost/watt values are represented using AC capacity, and only applications received after August 1st, 2015 are displayed. For more information, see FAQ.

Source: <https://www.californiadgstats.ca.gov/>

EXAMPLE: MASSACHUSETTS INTERCONNECTION ACTIVITY WEBPAGES

Distributed Generation and Interconnection in Massachusetts Updated null
 Distributed Generation and Interconnection in Massachusetts

Home > MassDGIC: Interconnection in Massachusetts | Net Metering | Frequently Asked Questions

MassDGIC: Interconnection in Massachusetts

Interconnection is the process of connecting a distributed generation system to the electric grid. Prior to connecting, the distributed generation system owner **must** obtain written approval from the local utility in the form of an Interconnection Service Agreement and subsequent Authorization to Connect. While emergency generators are not required to follow this process, customers installing emergency generation should contact their utility.

The interconnection process is necessary to protect the reliability and safety of the electric grid. The Massachusetts Department of Public Utilities (DPU) regulates this process by requiring utilities to have standardized interconnection tariffs (links to the [Interconnection Tariffs in effect as of March 15, 2017](#), are available at the right of the page).

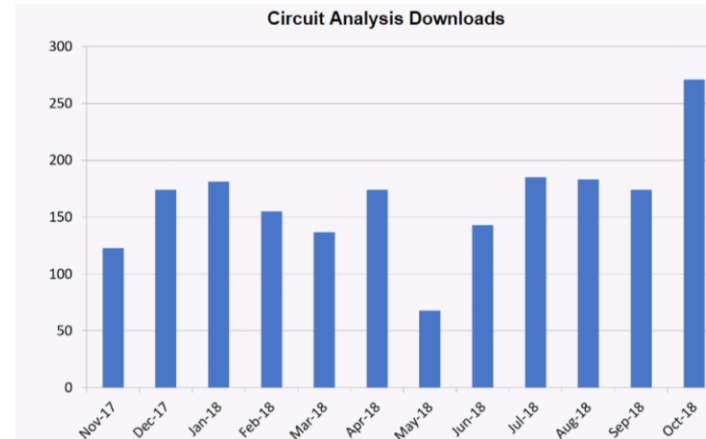
Utility Reporting & Circuit Analysis for Locational Value

In compliance with [DPU Order 11-75-E](#) (see [DPU File Room](#)) and consistent with the DG Working filed in that proceeding, on the 15th of each month the electric utilities provide monthly reporting on following the Expedited and Standard processes (this data does not include projects following the process). The links below take users to a preview screen on Google Drive (choose "file" and "download" the entire file):

- Download the RAW DATA set through April 2019 (posted 5/21/19). We are now releasing as soon as it's produced while the Full Data with circuit analysis is in process.
- Download the FULL DATA set through April 2019 (posted 5/28/19) to see data reported on a project basis, now with circuits named and ability to view by municipality to enable developers seeking high value and low cost locations for solar and storage.

Additional Information

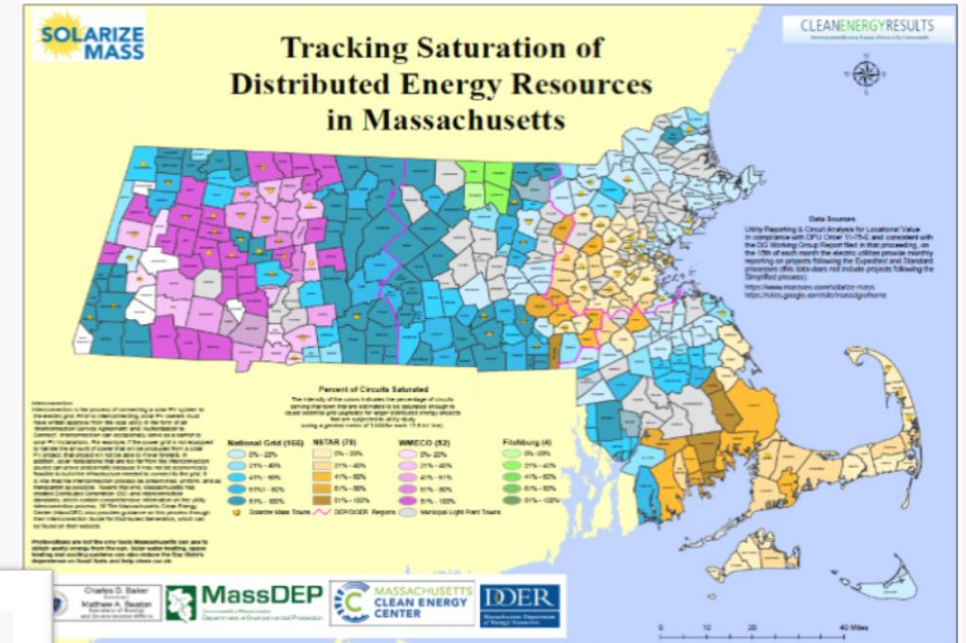
- EAGs
- Assistance
- Workshops
- Technical Standards Review Group
- Distributed Generation Working Group
- Grid Modernization and Integrating DG



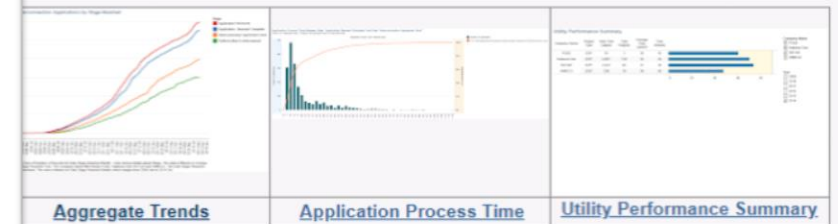
The **Circuit Analysis Downloads** chart, above, depicts how many times the Full Data set of circuit analysis has been downloaded since November 2017 (DOER has tracked download numbers since April 2018). Developers can also find circuit and substation data in the [Resources to Aid Siting of Distributed Generation](#) section of the website.

Source: <https://sites.google.com/site/massdgic/home/interconnection>

Tracking Saturation of Circuits (PDF) using utility reporting through October 2018:



Interconnection Activity in Massachusetts utilities provide monthly reporting on the status of all interconnection applications submitted since January 2009 that follow the expedited or standard review process. The charts below provide an overview of the trend and quantity of distributed generation projects that have entered or completed the interconnection process through 2016.

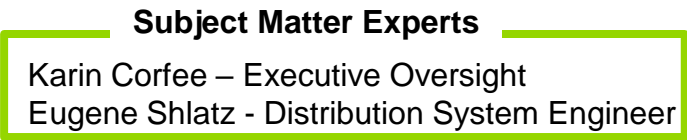


The graphs and full data set provided below cover only applications that follow the expedited or standard review processes. They do not include those applications that follow the simplified review process for smaller projects.

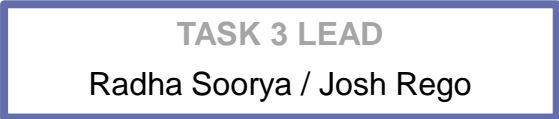
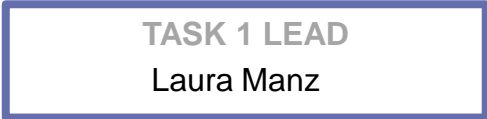


PROJECT ORGANIZATION

PROJECT TEAM – ORG CHART



SECTOR LEADS



SUPPORT STAFF

Data Collection
Sarah Bilbao
Sagar Deo
Harsha Chandavarapu
Kathryn Collins

Data Collection
JJ Mitchell (sub)*
*John Mitchell
*H. Gil Peach
*Mark Thompson

Website Development
Jordan Mann
Greg Belogolovsky
Scott Robinson
Ariana Trabucco



QUESTIONNAIRE FOR PRIMARY DATA COLLECTION

QUESTIONNAIRE

The questions are intentionally categorized to encourage transparent discussion surrounding best practices, utility performance, and unforeseen barriers within interconnection processes.



Objective 1: Rule 21 Compliance

Timelines

- Interconnection track overviews
- Delays within interconnection tracks and how those occur
- Frequent missed milestones on the utility or Interconnecting Customer side

Cost Responsibility and Tracking

- Cost responsibility for system upgrades
- Planned versus unplanned
- Drivers for projects coming over cost envelope



Objective 2: Benchmarking

Expected and Actual Timelines

- Utility timelines based upon Fast Track and Detailed Studies
- Benchmark for design, construction, and commissioning timelines

Utility and Project Cost (Estimated and Actual)

- Cost breakdown (utility and customer)
- Project cost margins and unanticipated upgrade comparison

Customer Service and Communication

- Response times and inquiry service between the utility, Interconnecting Customer, and developers

Coordination between Departments / Offices

- Point of contacts and queued project responsibilities
- Service territory and decentralized office impact to coordination

Recordkeeping

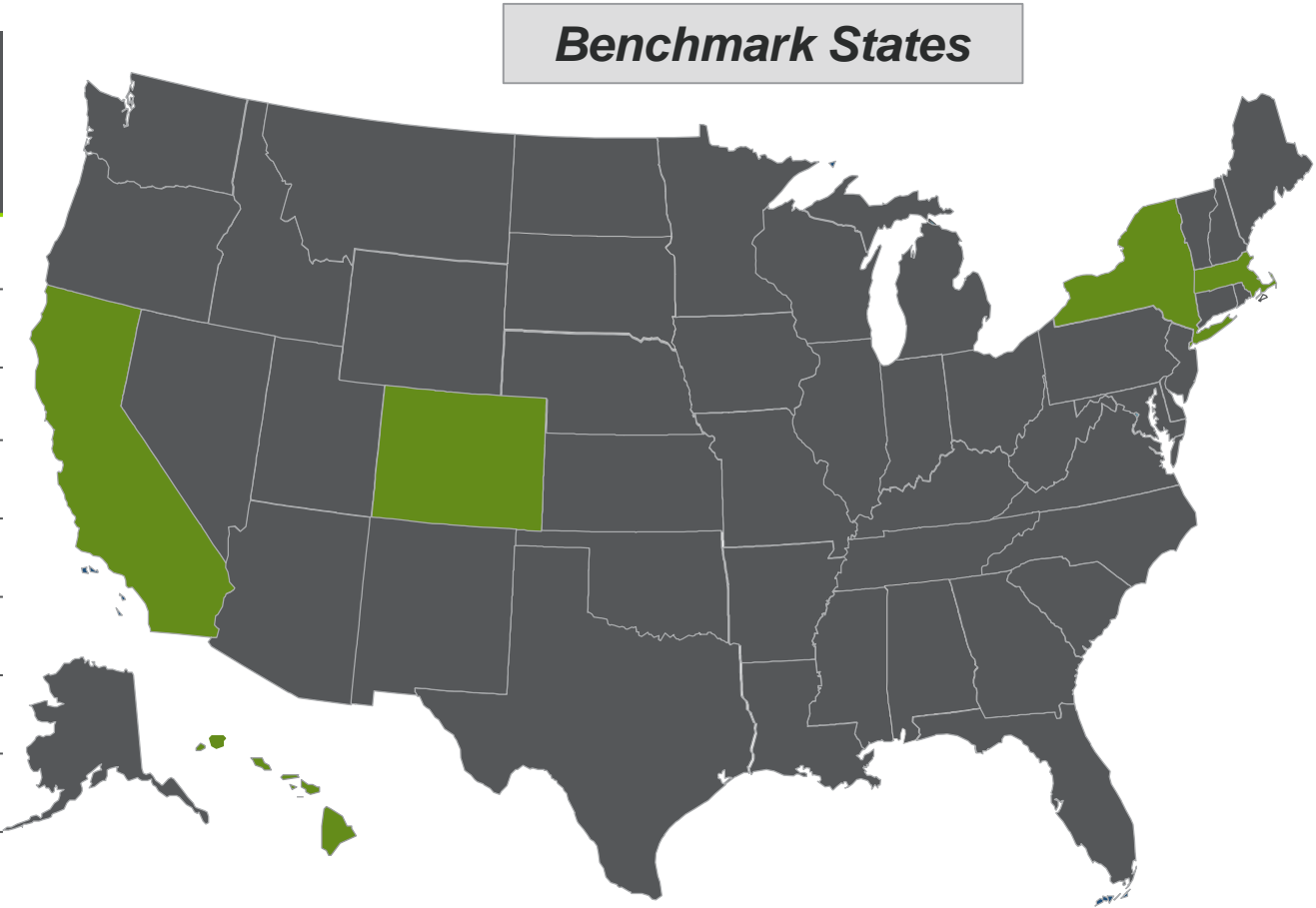
- Handling customer information
- Interconnection data utilization to mitigate issues

Workload Planning

- Budgets allocated to administration and staff
- Resource planning for potential interconnection growth


PRELIMINARY LIST OF BENCHMARKING UTILITIES

Capability Area	HECO (HI)	National Grid (MA)	Xcel Energy (CO)	ConEdison (NY)
Application Processing timeline				
Study Processing Timeline				
Customer Costs				
Customer Service / Communication				
Coordination between Departments				
Recordkeeping				
Workload Planning				
Customer Satisfaction Survey				





QUESTIONS
AND
DISCUSSION



NEXT STEPS AND FEEDBACK

NEXT STEPS

- Stakeholder comments on the Questionnaire and feedback on the Workshop 1 are due by COB Monday, July 8, 2019.
- Stakeholder feedback regarding the interconnection information that needs to be collected and its format for website due by COB Friday, July 19, 2019.
- Navigant will review the comments and feedback and update the Research Plan and Questionnaire as per approval from the Commission by COB Friday, July 19, 2019.
- Navigant will reach out to California IOU representatives to schedule in-person or phone interviews.

STAKEHOLDER FEEDBACK

Topic	Stakeholder	Comments	Proposals

NAVIGANT CONTACTS

LAURA MANZ

Director
858.354.8333
Laura.Manz@Navigant.com

SONY DHALIWAL

Associate Director
512.493.5401
Sukhjit.dhaliwal@Navigant.com

RADHA SOORYA

Associate Director
317.417.7542
Radha.Soorya@Navigant.com

SARAH BILBAO

Senior Consultant
916.631.3281
Sarah.bilbao@Navigant.com

JOSHUA REGO

Managing Consultant
415.356.7103
Joshua.rego@Navigant.com

SAGAR DEO

Senior Consultant
312.683.5804
Sagar.deo@Navigant.com