

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding
Microgrids Pursuant to Senate Bill 1339 and
Resiliency Strategies.

Rulemaking 19-09-009

**CLEAN COALITION OPENING COMMENTS ON ADMINISTRATIVE LAW JUDGE'S
RULING REQUESTING COMMENT ON THE MICROGRID INCENTIVE PROGRAM
STAFF PROPOSAL**

/s/ BEN SCHWARTZ

Ben Schwartz

Policy Manager

Clean Coalition

1800 Garden Street

Santa Barbara, CA 93101

Phone: 626-232-7573

ben@clean-coalition.org

August 5, 2022

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I. INTRODUCTION

Pursuant to Rule 6.2 of the California Public Utilities Commission (“the Commission”) Rules of Practice and Procedure, the Clean Coalition respectfully submits these opening comments in response to the *Administrative Law Judge’s Ruling Requesting Comment on the Microgrid Incentive Program Staff Proposal*, issued at the Commission on July 6, 2022. The Clean Coalition appreciates that the Commission has resumed work on the Microgrid Incentive Program (“MIP”) and are hopeful that the program can begin on January 1, 2023 with a few key changes. As described in D. 21-01-018, the MIP is meant to inform future microgrid policy in addition to providing communities that would otherwise not be able to afford a resilience solution with a Community Microgrid.¹ Our comments offer a few key changes to ensure that the MIP is successful as soon as it begins, primarily by reducing uncertainty surrounding the application process and scoring methodology. For the developers/Community Based Organizations that want to assist local governments or local governments applying on their own, having a guarantee that a strong application will result in a deployed Community Microgrid is essential. Currently, it is unclear what areas of California are eligible for the MIP (based on all given criteria), how many points an application will need to be approved, if all the funding will be deployed in a timely manner, whether the interconnection process will be fast tracked, and how projects with multiple construction phases will be handled. We support:

- Posting a point threshold at which an application will be approved.
- Posting approved applications to each IOU’s MIP website.
- The IOUs creating a heat map to help communities determine MIP eligibility and potential microgrid effectiveness in time for the start of the program in 2023.
- Fast track interconnection for all resources related to MIP projects.

¹ D. 21-01-018 at p. 64 and 66-67

II. DESCRIPTION OF PARTY

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (“DER”) — such as local renewables, demand response, and energy storage — and we establish market mechanisms that realize the full potential of integrating these solutions for optimized economic, environmental, and resilience benefits. The Clean Coalition also collaborates with utilities, municipalities, property owners, and other stakeholders to create near-term deployment opportunities that prove the unparalleled benefits of local renewables and other DER.

III. COMMENTS

A. **The MIP website should include a point threshold to show applicants what a successful application looks like**

Based on the Commission’s language in the Decision that approved the MIP, the Joint IOUs and stakeholders focused on the importance of creating equitable conditions for all applicants.² This led to the inclusion of consultation, outreach, and pre-application work in the Joint IOU MIP Implementation Plan. While critical, these do not create the certainty necessary to engage many communities. Without the certainty that an application of a certain caliber will receive MIP funds, applying will be too much of a gamble for municipalities without resources and/or experience. We recommend that the Commission provide a target score for an application that would likely be approved. While this “threshold” would only be an average based on a few examples before the program began, the actual number provided to applicants could change based on the score of each subsequent applicant that was awarded funding. Publicly showing this threshold creates another benchmark for potential applicants to verify the value of pursuing MIP funding. In comparison, the basic eligibility criteria do not represent the strength of a Community Microgrid as a MIP program or the likelihood that an application would be approved.

At the onset of the program, the Commission could post a range of percentages (represented by letter grades) for successful applications instead of a specific number, since the scoring system is currently based on a 100-point scale. However, if the Commission chooses to adopt any proposal that would increase the maximum points beyond 100, having a specific number as the threshold for success is even more important due to the shift away from “the clear 50%-30%-20%

² “This approach should put all projects on equal footing, so that the best projects meet resiliency and equity objectives,” D. 21-01-018 at p. 64

balance.”³ Regardless of the method, having the extra certainty about the application process is important, due to the groundbreaking nature of a Commission-sponsored Community Microgrid program. It is also worth noting that the knowledge of what a strong application needs to score will help applicants better design their initial project and create more certainty about a long-term business plan, thereby speeding up the process of selecting projects.

B. Successful applications should become publicly available to assist future applicants

Maximizing the lessons learned from the MIP for all involved parties is the best way to increase the commercialization of Community Microgrids across the state. The deployments that come from this program will inform future tariffs, the grid planning process, 3rd party-owned microgrids, and developer-utility partnerships. Therefore, the Clean Coalition suggests that transparency be the de facto method of operation whenever possible. For example, once an application is approved, the application should be made public, unless the applicant wishes to keep the information confidential. In our experience, most developers do not object to telling their story so that other developers do not have to reinvent the wheel. For any applicant that wishes to remain confidential, an opt-in box should be available, but it shouldn't be the default function.

C. Proposal 1: Provide Additional Information, Maps, or Tools for Identifying Feasible Microgrid Projects

To create the most robust program possible and facilitate the deployment of Community Microgrids across the state, the Clean Coalition supports providing additional resources that will help organizations determine community eligibility and suitability for the MIP and the feasibility of submitting a full application. As discussed in the initial MIP workshops led by SEPA, a program that focuses on disadvantaged communities and attempts to achieve environmental justice principles requires a greater-than-normal amount of information to be publicly available to lower the high barriers to entry (e.g., high-level technical knowledge about the electrical system and microgrids). We recommend that the Commission adopt Options 1 and 2, both of which are low-cost solutions that can be implemented within a short period of time. Option 1, a technical application guidebook, is similar to materials that the IOUs have published for the CMEP and the NEM 2.0 interconnection process, among others. For communities not intimately familiar with PUC programs, pilots, and grants, having a roadmap during the application process will increase the quality of

³ “...allotted for customer & community benefits, resilience benefits, and environmental benefits respectively.” (Staff Proposal at p. 10)

applications across the board. This is particularly true for inexperienced/understaffed communities.

Similarly, Option 2, a heat map to help determine MIP eligibility and optimal microgrid locations, is a low hanging fruit for the Commission to increase the quality of applications and ensure that the MIP results in projects deployed statewide, rather than only being utilized by governments that have previously participated in Commission-related projects. Without a heat map, applicants will be forced to sift through a significant amount of information just to determine eligibility. From our experience, for any entity besides a utility— which already has access to the relevant information— it can be a challenge to compile all the necessary information on past PSPS events, the worst 1% of performing circuits in a utility service territory, and so on. Rather than creating another potential stumbling block for applicants, it would be prescient, given the Commission’s dedication to equity and environmental justice principles, to approve a solution that increases the accessibility of the MIP without requiring a significant resource allocation to craft.

Importantly, the IOUs already have the necessary information and expertise to create such a map, meaning that Option 2 is a low-cost solution that should not affect the start of the MIP. See Attachment A, a summary by University of California San Diego graduate student Bethany Kwoka on their work mapping the MIP community eligibility criteria and considering how to site Community Microgrids for future programs.⁴ They explain the process of collating the information needed to determine if a location/project is eligible for the MIP— difficult for individuals, but likely trivial for utilities. We encourage the Commission to consider their experience and consider that many potential applicants, particularly from disadvantaged/vulnerable communities, may not be able to persevere if the information is not readily available.

- 1. In addition to the IOU technical consultation, is the documentation described in Option 1 useful or redundant? Please discuss.*

The documentation in Option 1 is useful to applicants, especially those who have not historically participated in Commission proceedings or programs. In addition to the technical consultation, a guidebook will reduce remaining uncertainties surrounding the application process.

- 2. Should the IOUs be instructed to provide educational and informational material like Option 1? Please discuss.*

⁴ Their full report, which maps community eligibility under the MIP and undertakes a state-level suitability analysis of optimal microgrid locations under a range of state goals, will be attached to a future comment.

Yes, see answers above. If providing educational materials for applicants increases the quality of applications during the first application period, the utilities will have a better understanding of the average application score necessary to receive funding, making the program more deterministic each year. Reducing uncertainty is key for a successful program.

3. *In addition to the content proposed in Option 1, is there any other documentation that would be useful to prospective applicants? Please discuss.*

This appears to be a thorough list, although we are open to other suggestions.

4. *Under Option 2, what are the other layers that might be most useful? Please discuss.*

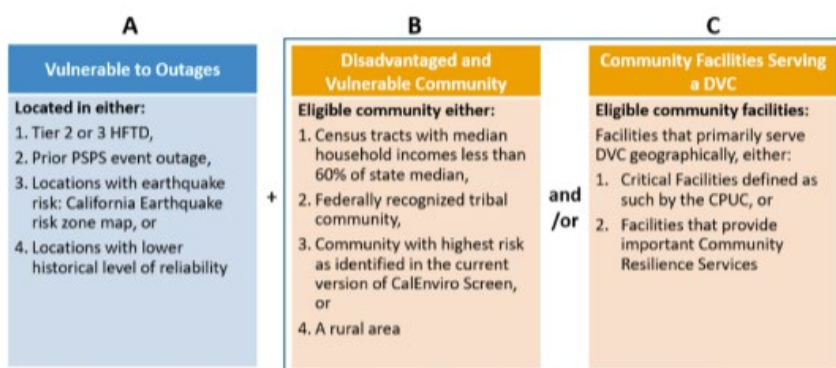
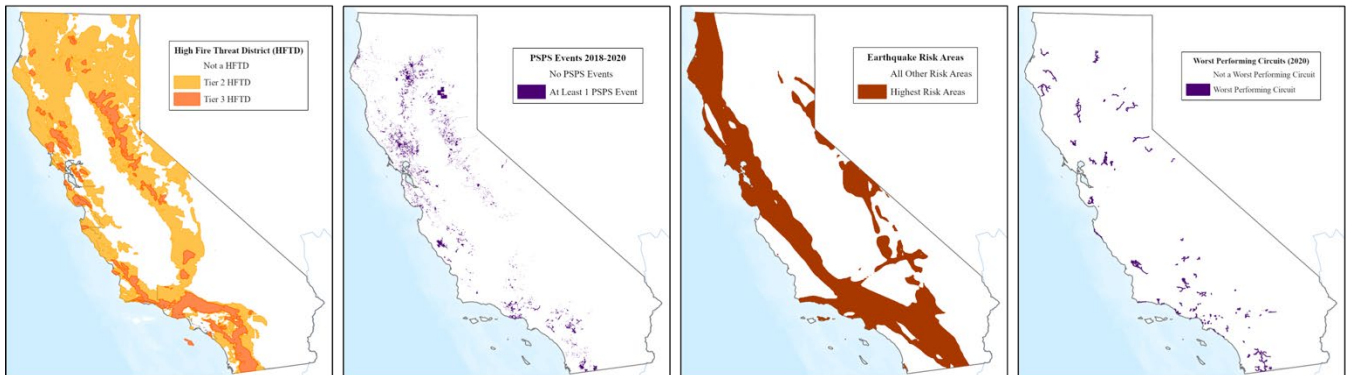


Figure 1. MIP community eligibility structure. From the Proposed MIP Implementation Plan.

The map should include layers for each of the eligibility criterion from the proposed MIP implementation plan.⁵ In terms of community eligibility, this includes both ‘vulnerable to outages’ and ‘Disadvantaged and Vulnerable Community’ criterion. For ‘vulnerable to outages’ indicators, this includes Tier 2 or 3 HFTD, prior PSPS event outage locations, areas with earthquake risk, and locations with low historical levels of reliability. With the exception of earthquake risk areas, which are publicly available, the IOUs already have this outage vulnerability data. In addition, the IOUs should include projections for each of these layers as to not limit participation by areas that may not be eligible by the current standards but likely will be during the next half decade. The maps below,

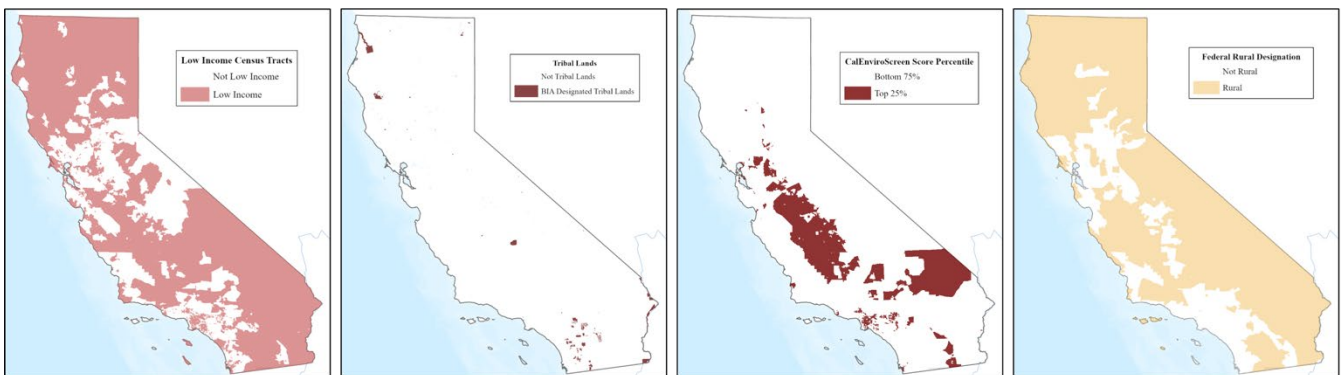
⁵ Original location of the chart

from Mx. Kwoka’s work, represent images of each of the layers from the ‘Vulnerable to Outages’ box that should be included in the map.



Data reflecting vulnerability to outages from ‘Box A,’ to determine community eligibility for the MIP From left: CPUC-designated High Fire Threat Districts, PSPS events 2018-2021, areas at the highest risk for severe earthquakes, and worst performing circuits from 2021 Annual Reliability Reports.

For ‘Disadvantaged and Vulnerable Communities’ indicators, this includes the community economic qualifications/income, a CalEnviro Screen layer, and a rural and tribal area layer. This data is all publicly available. As census tracks might not align well with reliability maps, these layers should be formatted to corresponds with the format for the worst performing circuits.

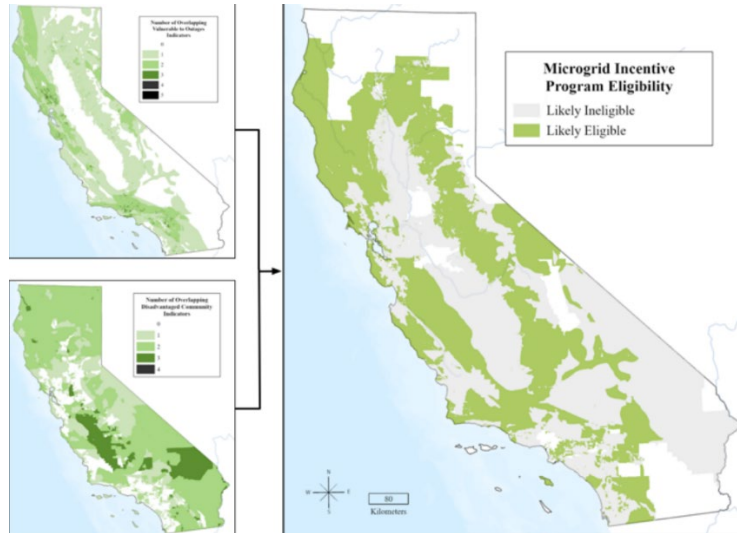


Data reflecting vulnerable communities from ‘Box B,’ in the community eligibility dimension. From left: Low-income census tracts, federally designated tribal communities, census tracts that scored in the highest 25th percentile of CalEnviroScreen 4.0, and rural areas.

A map for Box C, ‘Community Facilities Serving a CVC,’ is especially important. Currently, maps of critical facilities exist based on FEMA definitions, but as far as the Clean Coalition is aware, no such map exists for the Commission-specific definition. However, each utility has the information required to create such a map.

The figure below shows what an example community eligibility map— containing the eligibility criteria from Box A and Box B— would look like. See attachment A for a walkthrough of

how this map was created. A complete heat map created by the IOUs would include interactive detail on which criteria cover each location, information on critical community facilities from Box C, and a searchability function based on area code or address.



Criteria from each community eligibility bucket were combined, and then combined again, to find areas in PG&E, SCE, and SDG&E's service territories that met at least one criterion from each bucket. The final map (far right) illustrates areas that fit the community eligibility dimension of the proposed MIP.⁶

As much as possible, a similar process should be undertaken for the technical eligibility criteria outlined in the proposed MIP implementation plan. For instance, the IOUs should include a map layer that indicates distribution lines at or below 50kV with appropriate levels of integration capacity to interconnection Community Microgrids of different sizes. This layer would be simple for the IOUs to incorporate, as data could be pulled with only slight modification from existing ICA maps.

5. *Would the maps or tools identified in Option 2 assist in identifying communities most impacted by grid outages as well as the communities that would take the longest to recover from grid outages? Please discuss.*

Yes. Given the nature of grid planning and the continuation of PSPS as well as newer short-notice outages, all communities — those with frequent outages, those with long-duration outages, and those that would take the longest to recover from outages— are planning as if the future contains more frequent and longer-duration outages. Maps that can prove these communities are eligible based on

⁶ For a live version of the map, go to, overlaid with municipalities and census designated places from the 2020 census, go to:
<https://ucsdonline.maps.arcgis.com/home/webmap/viewer.html?webmap=f6dcc5f486cc4705aafd8b654636aa19>

the other criteria will be quite useful to all communities that have been searching for a resilience solution. These maps could also facilitate utility outreach to communities that may be the hardest hit by, and least able to bounce back from, grid outages.

- 6. Would maps or tools identified in Option 2 be helpful in identifying where microgrids may be effective mitigations for grid outages? Please discuss.*

Yes, see answers above.

- 7. Are there other maps or tools that parties can identify that could be used in lieu of Option 3, to identify areas are impacted by social burdens of grid outages? Please discuss.*

No comment at this time.

- 8. Should the Commission instruct the IOUs to collaborate with Sandia National Labs in demonstrating the application of the tool described in Option 3, for evaluative and demonstration purposes only? Please explain*

The focus should be on implementing Options 1 and 2 before January 1, 2023.

D. Proposal 2: Specify Applicant Eligibility Criteria and Assess Long-term Project Financial Viability

The effort and time it took to complete the Redwood Coast Airport Microgrid (“RCAM”) demonstrates the type of investment required to deploy a Community Microgrid that is agreeable for all parties involved in the current energy landscape. The true selling point of Community Microgrids— the trifecta of economic, environmental, and resilience benefits — cannot fully be realized without determining the value of resilience, the ability to cycle the microgrid for economic reasons (value stacking), and islanding in non-emergency situations. Given the constraints of the market, any Community Microgrid project that fits the eligibility criteria and receives a high score on the MIP application should be approved. The project should be financially viable **with MIP funding** and any additional grant funding. However, any financial viability requirements are not necessary at this stage, nor is proof of financial need, given the limited existing market. When the Commission approved the MIP, the Decision listed the following goals for the program:

“(1) advancing microgrid technology for climate response resiliency; (2) advancing system benefits of microgrids equitably to disadvantaged and vulnerable populations, for the purpose of public health, safety, and welfare; (3) alleviating the potential that existing inequities would worsen for counties hardest hit by climate and de-energization impacts with already vulnerable populations and too few ratepayers; and (4) lessons learned from these incentive

programs shall inform future regulatory action to the benefit of all ratepayers.”⁷

Each of the projects should be considered case studies for the Commission, producing reports on lessons learned and alternate business models. The roadblocks that the MIP projects encounter on the route to being deployed and after COD will inform the Commission’s Community Microgrid tariff and future resilience programs. Therefore, no extra scoring criteria based on financial need/long-term financial viability (without considering MIP funds) should be added.

1. Should the Commission adopt Option 1? Please discuss.

No, see answer above.

2. Should the Commission direct the joint IOUs to modify their MIP Implementation Plan to require additional information to screen or restrict types of applicants? Please discuss.

See answer above.

3. If the Commission adopts Option 1, what other forms of documents are sufficient for justifying financial need? Please discuss.

See answer above.

4. If the Commission adopts Option 1, should the business plan be mandatory or optional? Please discuss.

See answer above.

5. How should the scoring be modified to accredit the MIP Applicant for an optional business plan? Please discuss.

See answer above.

6. How should the Commission and stakeholders protect ratepayers from risk that funds being appropriated to projects that more likely than not, have no long-term financial viability? In other words, how should ratepayers be protected from exposure to wasteful project expenditure? Please discuss.

The current Joint Implementation Plan has sufficient protections in the way that the money is awarded over a series of multiple steps rather than all at once. Projects that continue to receive funding will have sufficient plans to move forward if there is no uncertainty in the process that could result in a delay (such as a long interconnection timeline for some of the resources within the Community Microgrid).

⁷ D. 21-01-018 at. P.64

7. *If the Commission adopts Option 1, would the MIP Applicant be required to re-pay the grant funding in event of project abandonment? If so, how should the repayment be secured?*

See answers above.

E. Proposal 3: Justify Critical Energy Resilience Need

1. *Should the Commission adopt Option 1? Please discuss.*

The Clean Coalition supports Option 1, given the importance of broader resilience planning as well as the fact that this option should not be a huge lift given that many communities already have one or more of the listed plans. Adding a set number of points for providing the extra resilience documentation, regardless of the type of documentation chosen. We do acknowledge that that some potential applicants may not have a hazard mitigation plan or a climate adaptation plan, option C, a one-to-two-page plan that demonstrates how a Community Microgrid fits into a larger community strategy is certainly doable. Moreover, it gives the applicant the opportunity to identify a multi-phase project, such as an initial Community Microgrid that is later expanded to encapsulate a greater number of critical facilities/ratepayers.

2. *If the Commission adopts Option 1, are there other forms of acceptable documents that will achieve the same goal?*

The existing list appears to be sufficient, although the Clean Coalition is not opposed to adding other forms of documentation to this category, should parties recommend them.

3. *If the Commission adopts Option 1, how many additional points should be added? Please discuss.*

We believe that between 2 and 5 extra points should be added, supplementing other areas of deficiency in the application. Adding a small number of points is enough to give applications a boost, without significantly changing the formula or the type of application that would otherwise be accepted.

F. Proposal 4: Modify the Scoring Criteria

1. *Should the Commission adopt Option 2? Please discuss.*

No comment at this time. We reserve the right to comment during reply comments.

2. *If the Commission adopts Option 1, how should the benefit categories, benefit points, and point caps be re-distributed?*

No comment.

G. Proposal 5: Leverage Other Public and/or Private Funding Partnerships

1. Should the Commission adopt Option 3? Please discuss.

The Clean Coalition supports the idea of connecting MIP applicants with other funding sources. For complex projects such as Community Microgrids, finding multiple sources of capital is beneficial, if not necessary, especially if the microgrid cannot be optimized for economics. RCAM would not have been deployed without the multiple partners including RCEA, the Schatz Energy Research Center, the CEC, the CPUC, and PG&E. Having a public compendium of resilience-related funding opportunities is a great way to help create new partnerships and increase the long-term financial feasibility of the Community Microgrids that are deployed.

2. Should the IOUs or the CPUC provide a clearinghouse of available grant funding sources? Please discuss.

The CPUC should keep a list of available grants, both public and private if possible. The more resources on the list, the greater number of other funding sources to stretch out available MIP funds to as many projects as possible and dovetail with resilience planning at multiple levels of government.

3. Is there a compendium or clearinghouse of available grant funding opportunities maintained by a local jurisdiction, state, or federal agency that could be publicized with the MIP webpage materials? Please discuss.

No comment.

4. Are there additional programs and funding sources the MIP can leverage? Please discuss.
5. Is the documentation defined for demonstrating a goodfaith effort necessary and sufficient? If not, what other recommendations should the Commission consider?

No comment.

6. If the Commission adopts Option 3, should a sliding scale be used to determine how many additional points are needed to modify the scoring criteria for applicants who can demonstrate they leveraged other grant funding sources? Please discuss.

No comment.

7. How many points should the Joint IOU scoring criteria award for the good-faith effort? Please discuss.

No comment.

8. Should the scoring for good-faith effort be a sliding scale based on funding need? Please discuss.

No comment.

9. *If the Commission does not adopt Option 3, what tools can it or the IOUs use to advance leveraging alternative funding? Please discuss.*

No comment.

H. Proposal 6: Engage the Community on Project Selection

1. *Should the Commission adopt Option 1? Please discuss.*

Yes, the DACAG should be consulted. If the DACAG does not feel up to the task, a separate stakeholder working group should be created for the purpose of selecting winning applications.

2. *What authority should the DACAG have in the event there is disagreement in ranking between the DACAG and the utility as program administrator? Please discuss.*

No comment.

3. *If the Commission adopts Option 1, and should any disagreements arise between the DACAG and the program administrators, how should disagreements be reconciled? Please discuss. When describing your recommendation, frame the recommendation so it embodies a theme of consensus building.*

No comment.

I. Proposal 7: Track Disputes

1. *Should the Commission adopt Option 1 or Option 2? Please discuss. When answering, please discuss the benefits and drawbacks for both Option 1 and Option 2.*

The Commission should adopt Option 1 to ensure that there is a final arbiter in situations where the utilities and applicants disagree. The new Rule 21 Interconnection Dispute Resolution process demonstrates that even with projects that have relatively simple configurations (as compared to a Community Microgrid), there is a need to have a fair dispute resolution process. Projects applying for MIP funding will be complex enough that Option 1 is far better than Option 2. However, given the Commission's focus on ensuring that all communities have the opportunity to deploy resilience solutions, the dispute resolution should not be created by each utility individually. The Clean Coalition recommends that the Commission include a specific process in the final Decision approving the MIP.

J. Proposal 8: Address Leftover Funding

1. *Should the Commission adopt Option 1? Please discuss.*

No comment.

IV. CONCLUSION

The Clean Coalition appreciates the opportunity to submit these opening comments and urges the Commission to approve a slightly amended version of the MIP that includes greater resources and certainty for the applicants, which will allow the MIP to start as a very successful program.

/s/ BEN SCHWARTZ

Ben Schwartz

Policy Manager

Clean Coalition

1800 Garden Street

Santa Barbara, CA 93101

Phone: 626-232-7573

ben@clean-coalition.org

Dated: August 5, 2022

Attachment A

Determining Community Eligibility for the Microgrid Incentive Program

As part of a Scripps Institution of Oceanography at UC San Diego master’s capstone project, locations eligible under the Proposed Microgrid Incentive Program Implementation Plan’s ‘Community Eligibility’ dimension were mapped using ArcGIS—a geographic information system software. The process for mapping these locations and determining which communities fall within them is outlined below. The full report draft, entitled ‘The Promise of Power & Resilience: Mapping Optimal Locations for Microgrids Across a Range of Grid Modernization Goals in California’ is attached to this comment.

As outlined in the Proposed Microgrid Incentive Program Implementation Plan, community eligibility for the Microgrid Incentive Program (MIP) requires meeting at least one criterion from two discrete buckets. The first bucket (*A in Figure 1*) indicates whether customers are receiving electric service that is below historic norms. The second bucket (*B and C in Figure 1*) indicates whether customers live in and/or projects will serve disadvantaged and vulnerable communities.

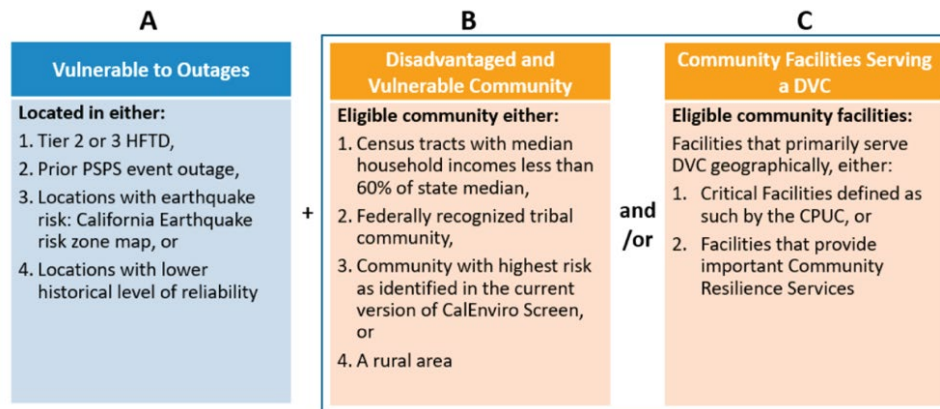


Figure 1. MIP community eligibility structure. From the Proposed MIP Implementation Plan.

To determine eligible areas, data corresponding to the criteria in buckets A and B was collected and brought into ArcGIS. As buckets B and C are directly linked, data reflecting eligible facilities was set aside until after eligible areas were identified. (See “Bucket C” section below.) Data sets were then cleaned, transformed, and categorized by their place in the eligibility structure before being fed into an eligibility model, which superimposed and combined them to show which areas would be eligible.

Data and Data Processing

The data’s source and the form it took directed how it was transformed before being used in the model. Data from government sources generally required few changes. Utility data often necessitated intermediate steps, which are outlined below. All data was ultimately reclassified to binary values—1 for eligible areas and 0 for ineligible areas—based on the given eligibility criteria.

While it would not need to be done in an analysis covering only a single utility service territory, for this project, data specific to different utility service territories—e.g. worst performing circuits from each utility—was stitched together to cover the full analysis area. To clarify that results only cover the three major utility service territories, California Energy Commission data on electric load serving entities was used to illustrate the final study area.

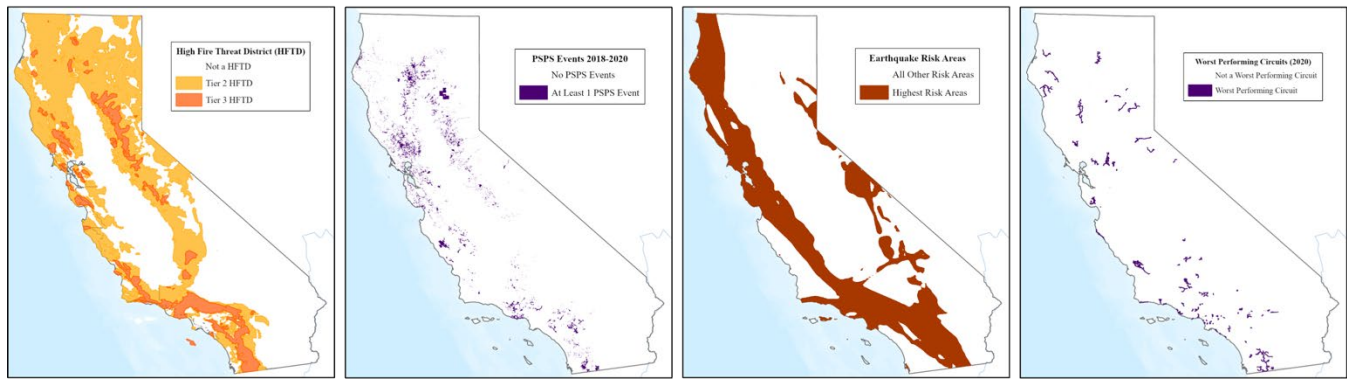


Figure 2. Data reflecting vulnerability to outages from 'bucket A.' From left: CPUC-designated High Fire Threat Districts, PSPS events 2018-2021, areas at the highest risk for severe earthquakes, and worst performing circuits from 2021 Annual Reliability Reports.

Bucket A: Vulnerable to Outages. Half of the criteria from bucket A, representing a community's vulnerability to outages, was from the utilities while half was from government agencies. Notes on each dataset used to represent the criteria from this bucket are below.

- (1) **Tier 2 or 3 HFTD.** The CPUC High Fire Threat District Map is available online for download in an easy-to-use geospatial format. To denote eligibility, Tier 2 and 3 areas were both assigned a 1 while all other areas were assigned a 0.
- (2) **Prior PSPS event outage.** Each utility files a post-event report for each PSPS event, which includes the names of impacted circuits, when they were de-energized, and when they regained power. Prior to mid-2021 this data is only listed as circuit names, without a geospatial component. To determine the physical location of impacted circuits, circuit names from post-event reports dating back through 2018 were matched with the corresponding circuit in the relevant utility's Integration Capacity Analysis data. Circuits were then buffered to roughly 45 meters to represent areas that would likely be served by those circuits. As of mid-2021, post-event reports have included a geospatial file that shows what areas were impacted by each PSPS event.¹ These files were pulled from each relevant post-event report and used instead of the buffered circuits whenever available.
- (3) **Locations with earthquake risk.** The MIP calls out the U.S. Geological Survey 2018 United States (Lower 48) Seismic Hazard Long-term Model, which designates 7 hazard zones. The data was clipped to California and the highest hazard zone assigned a 1 while the rest of California was assigned a 0.
- (4) **Locations with lower historical levels of reliability.** The MIP defines this criterion as areas served by one of the top 1% worst performing circuits on a utility's system in either of the prior 2 years' Public Utility Annual Electric Reliability Reports. (This analysis only used 2020 data, as the 2021 report was not yet released.) The relevant data—specifically, the names of the top 1% worst performing circuits—was embedded within those report PDFs, which were available either on the utility's website or via the CPUC. Each utility had slightly different presentations styles, metrics, and naming conventions. Once transcribed into excel and cleaned such that each utility dataset matched, data was transferred into ArcGIS as a table and joined with each utility's Integration Capacity Analysis data to create a map that showed the locations of these circuits. Finally, circuits were buffered out to 60 meters. This represented areas that would potentially draw power from that circuit and ensured that the circuits could be seen clearly within the model.

¹ For 2021, the utilities also provide a shapefile that depicts PSPS events by census tract for the full year. While very helpful to have the full year's PSPS data in one file, this data was ultimately not used for the eligibility model as it seemed unlikely that a full census tract would be considered eligible under the 'prior PSPS event' criteria.

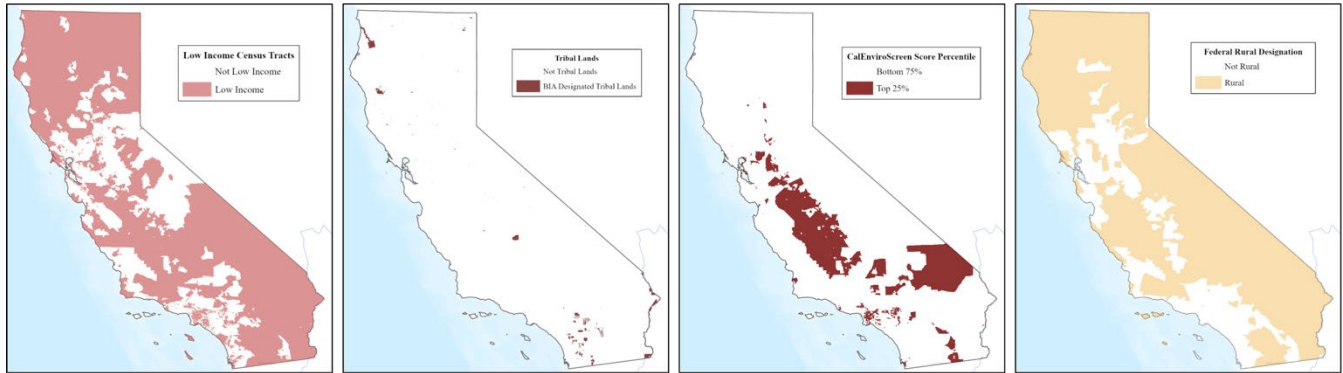


Figure 3. Data reflecting vulnerable communities from ‘bucket B.’ From left: Low-income census tracts, federally designated tribal communities, census tracts that scored in the highest 25th percentile of CalEnviroScreen 4.0, and rural areas.

Bucket B: Disadvantaged and Vulnerable Community. All data reflecting the criteria in bucket B, representing a community’s disadvantaged or vulnerable status, is accessible via government agencies. Notes on each dataset used for this bucket are below.

- (1) **Low-income communities.** The MIP calls out census tracts with median household incomes less than 60% of state median income. However, this analysis used low-income census tracts from CalEPA’s 2022 priority populations data, which uses median household income less than 80% of state median income. This was done because the priority populations data reflects California’s current method for designating communities for climate investments and matched other aspects of the total project’s analysis beyond community eligibility mapping under the MIP framework.
- (2) **Federally recognized tribal communities.** The Bureau of Indian Affairs provides a downloadable shapefile indicating tribal lands throughout the U.S. This data was clipped to cover only California.
- (3) **Communities with highest risk as identified in the current version of CalEnviroScreen.** The latest CalEnviroScreen (CalEnviroScreen 4.0) data is available online from CalEPA. Once downloaded, the data was filtered to assign census tracts in the top 25% of CalEnviroScreen scores a 1 and all other census tracts a 0.
- (4) **Rural communities.** Data from the Federal Office of Rural Health Policy (FORHP) was an Excel sheet listing a combination of counties where all census tracts are fully rural and census tracts within counties that are not fully rural. The census tracts within fully rural counties were pulled from U.S. Census Bureau data, and all rural census tracts were then joined with their corresponding geospatial coordinates to create a map of rural areas.

Bucket C: Community Facilities Serving a Disadvantaged/Vulnerable Community. As critical facilities primarily serving disadvantaged / vulnerable communities would presumably be located within or very close to these communities, determining the locations of eligible critical community facilities was left to a later analysis. That said, including them would be simple for a utility-led project, as utilities keep updated lists of CPUC-defined critical facilities in their service territories to help these facilities to mitigate the impacts of PSPS events. This information could be quickly ported into a GIS-based software and overlaid with the community eligibility results.

Additionally, locating clusters of critical facilities on the same eligible electrical feeder would highlight hotspots of community services that could serve as the basis for a resilience hub power by a microgrid. This would offer further benefits and work towards multiple state adaptation and resilience goals.

Setting Up and Running the Model

The eligibility model was run at a 10-meter resolution and used binary 1 or 0 values to designate areas as either “eligible” or “ineligible” based on the criteria and data outlined above. For example, areas in a Tier 2 or 3 HFTDs were given a 1 and areas not in those districts were given a 0.

Criteria from each eligibility bucket—vulnerable to outages and disadvantaged and vulnerable communities—was then combined. Once all criteria from each bucket was represented on a single map, the data was reclassified back to that binary scale. This illustrated all areas that were eligible within each bucket. The results of these combined and reclassified buckets were then combined again.

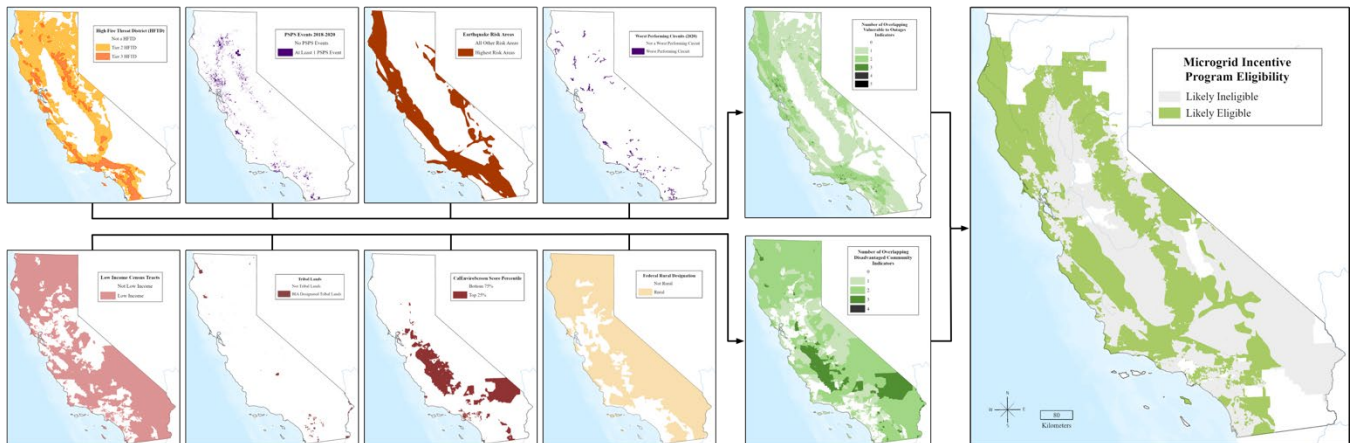


Figure 4. Criteria from each bucket were combined, and then combined again, to find areas in PG&E, SCE, and SDG&E's service territories that met at least one criterion from each bucket. The final map (far right) illustrates areas that fit the community eligibility dimension of the proposed MIP.

This result included values ranging from 0-3, indicating areas meeting no criteria, areas meeting just one criterion, and areas meeting both criteria. So, this map was once again reclassified to only highlight areas that include at least one criterion from each bucket.

The final community eligibility map was then clipped to the major IOU service territories and results were shown with said service territories in grey (as illustrated in Figure 4 above).

Communities Eligible for the Microgrid Incentive Program

The eligibility model determines which geographic areas in PG&E, SCE, and SDG&E's service territories are potentially eligible for the Microgrid Incentive Program under the community eligibility designation.² Overlaying this result with incorporated and census designated places from the U.S. Census Bureau showed which communities are eligible and enabled further analysis.

You can see a version of this overlay here:

<https://ucsdonline.maps.arcgis.com/home/webmap/viewer.html?webmap=f6dcc5f486cc4705aafd8b654636aa19>

² This only applies to the community eligible piece of MIP eligibility, as a corresponding evaluation of the technical eligibility requirements was beyond the scope of this project. It also does not indicate that these areas will have eligible projects, as there may not be critical facilities or other suitable locations for microgrids within them.