Multi-user Microgrid Regulatory Trends

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Introduction

In response to climate change impacts like severe power outages caused from storms and wildfires, many communities have embraced multi-user microgrids as alternatives to improve local resiliency. Implementation of these multi-user microgrids can be difficult due to:

- Large costs associated with the microgrid itself,
- Regulatory limitations placed upon both private and utility developers,
- Lack of regulatory mechanisms like multi-user microgrid tariffs,
- Resiliency premiums for islanding services,
- And need of opportunities to sell grid services during normal blue-sky conditions.

While previous papers highlighted strategies for microgrid tariff design and outlined different community microgrid owner and operator models, this paper will focus on the regulatory frameworks that impact privately sponsored and owned multi-user microgrids and how those frameworks differ throughout the United States.

Many regulatory constraints on microgrid development include:

- Operation of the microgrid,
- Ownership of the distribution assets and whether private ownership constitutes a utility,
- Creation of a natural monopoly within the microgrid area and how that relates to customer protections,
- Restructuring of the electricity market and the relationship of private generators with utility owned distribution systems, and
- Legislation mandating investment in multi-user and community microgrids for localized resiliency efforts.

In the United States, issues involving electricity distribution assets are largely determined by the states through their legislative bodies and through their regulatory commissions. Depending on the location of the microgrid and the local state's regulatory framework, each microgrid development experiences different constraints and limitations.

As discussed in previous papers, multi-user microgrids can be entirely behind the meter as in the case of campus microgrids or in front of the meter as in the case of community microgrids. Community microgrids are characterized by set of contiguous loads and energy exporting resources within a defined electrical boundary and connected using the local utility distribution grid[1]. While community microgrids utilize utility distribution lines, the microgrid can be owned and/or operated entirely by private entities, utility entities, or in the most common arrangement, utility-private partnerships[2]. Campus and multi-tenant microgrids are entirely

[1] https://pacificenergyinstitute.org/wp-content/uploads/2020/08/SEPA-PEI-How-to-Design-Multi-User-Microgrid-Tariffs.pdf
[2] https://pacificenergyinstitute.org/wp-content/uploads/2020/12/Community-Microgrid-Ownership-Models-Paper-final.pdf

behind the meter and do not utilize utility distribution assets. Due to the lack of utility distribution assets, many campus and multi-tenant microgrids experience fewer regulatory constraints and do not add additional challenges to the jurisdictional oversight by the local commissions.

While both tenant and campus-style microgrids can be complex in structure and deal with multiple parties, they are less complex in terms of regulation and oversight than community microgrids. Community multi-user microgrids are more like utilities in that they:

- Form natural monopolies for their customers,
- Serve societal needs like improving local resiliency,
- Are required to meet operational and safety standards, and
- Often are involved in pricing mechanisms like master-metering, community generation ownership, etc.

Due to both the social importance of microgrid assets and customer-protection issues, private community multi-user microgrids are of large interest throughout many regulatory bodies in the United States. However, due to the relative novelty of community microgrids, there has been little progress in creating formal frameworks for private community microgrids and many states are still in the process of creating multi-user microgrid tariffs and oversight laws. This paper will examine how the current and proposed regulatory frameworks have influenced the development of private community multi-user microgrids.

Trends in Multi-user Microgrid Regulations

The development of private multi-user microgrids falls into two distinct time periods: pre-regulatory utility-private agreements and formal microgrid regulatory proceedings. The initial forays into private multi-user microgrids have largely been resolved independently of the state commissions through utility-private agreements. Historically, private multi-user microgrids challenged state regulations pertaining to the classification of electricity distribution ownership falling under utility control and thereby under either local government oversight or state commission oversight. The commission-independent resolutions involved the microgrid operator either selling the distribution assets and ceding total control of the microgrid to the utility, and ending the development, or selling the distribution assets to the utility and entering into a master-metering agreement with the utility in order to operate the microgrid.

Many state senates and commissions have sought to formally create new guidelines and rules for multi-user microgrids through working groups to address these issues. Currently, private microgrid development is in this second era of transition and initial adoption of new frameworks. The new frameworks proposed by several state commissions address the issues identified above and have proposed the adoption of new microgrid tariff structures.

Microgrid Regulatory Initiatives

While there have been several advancements by the states to support community microgrids, like New York's NYSERDA NY Prize program[3] and Colorado's 2018 Storage Act[4], addressing the issue of private community microgrid development has mostly occurred only in the last couple of years. Washington DC, Hawaii, Maine, and California have made some progress in addressing non-utility or utility-private multi-user microgrids and are in the process of adopting new regulatory frameworks through new dockets and mandated microgrid working groups. Common themes addressed by the different working groups have been new classification standards for community microgrids, inherent monopolization rights of private microgrid operators, customer protection mandates, safety and operational standards such as microgrid capacity limitations, and market mechanisms to prevent cross-subsidization while also allowing fair returns.

Classification & Regulatory Oversight of Private Community Microgrids

In 2019, Maine approached the issue of multi-user microgrids from a legislative, rather than regulatory, perspective. Instead of changing the regulatory framework through the state commission, Maine attempted to formally lay out the PUC's oversight of private multi-user microgrids in the state bill LD 13. LD 13 would have allowed microgrid operators to have distinct status from public utilities and have reduced levels of regulation under the PUC[5]. Private microgrid operators would be allowed under the new framework but would still be directly regulated. Additionally, LD 13 would have streamlined the PUC approval of microgrids, especially those deemed to be in the public's interest. While the bill passed through the House, the billed died in the Senate at the closure of the 129th session in 2020[6,7]. The bill may be reexamined in the 130th session, but at the moment the regulatory framework continues to encourage utility, not private, development of multi-user microgrids.

In June of 2020, the Public Services Commission of DC (DCPSC) initiated formal working groups to investigate microgrid ownership and operation structures, microgrid structural variances, and value propositions to develop a new regulatory framework for microgrids in DC[8]. Previous recommendations to the DCPSC specified that community multi-user microgrids were unregulated monopolies, that these should be subject to the commission, and that all microgrid operations be subject to all applicable safety and operational standards for distribution assets[9]. Pepco supported the previous recommendations and advocated that microgrid operators should classified as utilities and be subject to the same regulatory rules and limitations placed

[3] https://www.nyserda.ny.gov/All%20Programs/Programs/NY%20Prize
[4] https://microgridknowledge.com/xcel-energy-microgrid-project-settlement/
[5] https://legiscan.com/ME/text/LD13/2019
[6] https://microgridknowledge.com/microgrid-bill-maine-house/
[7] https://legiscan.com/ME/bill/LD13/2019
[8] https://edocket.dcpsc.org/apis/api/filing/download?attachId=105754&guidFileName=ad31abdc-7355-4353-acc8-4717aeb66eae.pdf
[9] https://edocket.dcpsc.org/apis/api/filing/download?attachId=106097&guidFileName=28b71f6e-1b1c-4c7a-89ab-db10d77de1a0.pdf

upon current utilities[10]. In contrast, other participants, namely the District's Department of Energy and Environment (DOEE) and the DC Consumer Utility Board, supported a "light-touch" regulatory framework that would exclude certain multi-user microgrids from regulations like making annual reports, filing rate schedules and tariffs, and keeping records and books while maintaining regulations around safety, customer-protections, operational standards, and even RPS standards[11]. While there is yet to be a formal decision made by the DCPSC or by the working groups, there was significant support for creating a lightened regulatory structure for private multi-user microgrid operators.

The Walter-Reed Parks microgrid in Washington, DC highlights the importance of resolving key issues in new regulatory frameworks. The Walter-Reed Parks microgrid challenged the classification that linking independent customers on a private distribution grid must be registered as a utility. Initially, the multi-use, eco-district at Walter-Reed Parks was designed to have an onsite, privately owned and operated microgrid[12,13]. Pepco challenged the microgrid on the grounds that the Walter-Reed microgrid operator, WGL Energy, was acting in the capacity of a utility and called upon the DCPSC to determine its jurisdictional oversight of the microgrid[14]. The DCPSC determined that it could not rule on its jurisdictional oversight until a study was undertaken to determine the layout of the distribution assets. Before the study could be done, WGL & associates settled the case by selling the distribution assets to Pepco and ceded control of the microgrid area to the utility[15]. New decisions by the DCPSC through its working groups will help resolve future multi-user microgrid development and promote the correct regulatory powers of the commission over microgrid development.

Hawaii is currently working on new microgrid tariffs and interconnection and operating agreements to support further private development. If approved by the commission, the new regulatory framework in Hawaii would include community (referred to as "hybrid") and customer multi-user microgrids[16]. Community microgrids would require formal interconnection and operating agreements between microgrid developers and the local utility. The operating agreement is to ensure the microgrid operator operates the microgrid within the same safety and operational standards required under the same regulatory standards as the utility. Through Hawaii's proposed framework, the PUC would have jurisdiction over community multi-user microgrids.

[10] https://edocket.dcpsc.org/apis/api/filing/download?attachId=107648&guidFileName=c7f7c6f3-191d-4246-b0c6-bd5522594d64.pdf
[11] https://edocket.dcpsc.org/apis/api/filing/download?attachId=107635&guidFileName=a355bd26-49b7-44dd-a4ab-bd9d9f91856b.pdf
[12] https://urbaningenuity.com/wp-content/uploads/2017/11/UI-Microgrid-Brochure-11-8-17-final.pdf
[13] https://static1.squarespace.com/static/570b03987c65e49ce6174883/t/59445a751b10e3b144d16249/1497651829615/Murray_6_15_17.pdf
[14] https://edocket.dcpsc.org/apis/api/filing/download?attachId=81108&guidFileName=d11103b7-ec5b-48c7-9ea9-96363ba05ee3.pdf
[15] https://edocket.dcpsc.org/apis/api/filing/download?attachId=86774&guidFileName=b34596b8-1748-4377-bee9-9aaf13b552e3.pdf
[16] https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A21B02B00417E00063

Under California's recent decision[17], the investor-owned utilities (IOUs) will revise Rules 18 & 19 to enable microgrid operators to serve customers on adjacent premises in the event of grid outages. These microgrids will have regulatory oversight but will not be treated as public utilities. Rules 18 & 19 previously adhered to the "over-the-fence rule" that required entities who wished to sell energy to more than two contiguous parcels or across the street to become a regulated electrical corporation subject to CPUC regulation. While the new ruling only pertains to microgrids that would serve a public facility, the ruling is agnostic towards the microgrid ownership and would allow private developers to work with the local utility to develop private multi-user microgrids. Currently these projects are capped at 10 microgrids for each of the three IOUs, with provisions to allow cap increases if appealed by the individual IOUs.

As part of the decision ruling, the CPUC declined to allow private multi-user microgrids that avoided the oversight jurisdiction of the CPUC due to concern over consumer protection, safety compliance, and needlessly duplicative systems. Instead, private multi-user microgrids would be developed under a framework similar to that proposed in Hawaii. This will likely encourage utility-private microgrid developments, which often optimize private financing with utility operational control. Utility-private ventures can lower the financial and operational risk for each entity and encourage better utilization of the expertise and financial interest of each party.

Customer Protection Standards

The DCPSC working groups identified customer protections and monopoly issues related to the creation of localized energy and resilience service providers in the form of community microgrid operators as important regulatory oversight areas. The DC working group identified these issues for the DC commission to address as part of its overall regulatory oversight. DCPSC's Grid2.0 working group has suggested that even under a "light-touch" regulatory treatment that microgrid operators would still be held to customer protection and rights regulations, that microgrid operators must disclose retail choice for blue-sky conditions, and even follow renewable portfolio standards to ensure support of clean-energy mandates[18]. Under the proposed changes, the DCPSC would have a more defined set of monopoly and customer protection regulations specific to community microgrid operations rather than electricity providers as whole.

California commission's recent order[19] addressed several aspects related to regulatory jurisdiction of multi-user microgrids. However, the microgrid framework does not directly address the issue of the creation of a monopoly within the multi-user microgrid and any of the related customer protection concerns. Under the proposed changes to Rules 18 & 19, issues that may arise from monopolization and the microgrid operator's adherence to customer protection standards will presumably remain under CPUC oversight through the microgrid-utility agreements. Thus, customers would be protected under the current utility laws and regulations.

[17] https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M361/K442/361442167.PDF
[18] https://edocket.dcpsc.org/apis/api/filing/download?attachId=107216&guidFileName=ba16a89b-b1a8-4cee-9377-c91e00b86e69.pdf
[19] CPUC. Jan 21, 2021 Rulemaking 19-09-009

Additionally, with the added provision that the multi-user microgrids must serve public facilities, the CPUC assumes that these microgrid developments would inherently be more beneficial for the public than those that serve only private entities.

While not specifically addressed by the Hawaii PUC, the Hawaii Consumer Advocate's office has pursued the issue of consumer protections under community microgrids. The proposed Hawaiian microgrid tariff and utility-operator agreement include customer information protections, customer notifications, and agreement requirements. However, the Hawaii commission has not directly addressed these issues, including regulatory oversight of private multi-user microgrids.

Safety & Operational Standards

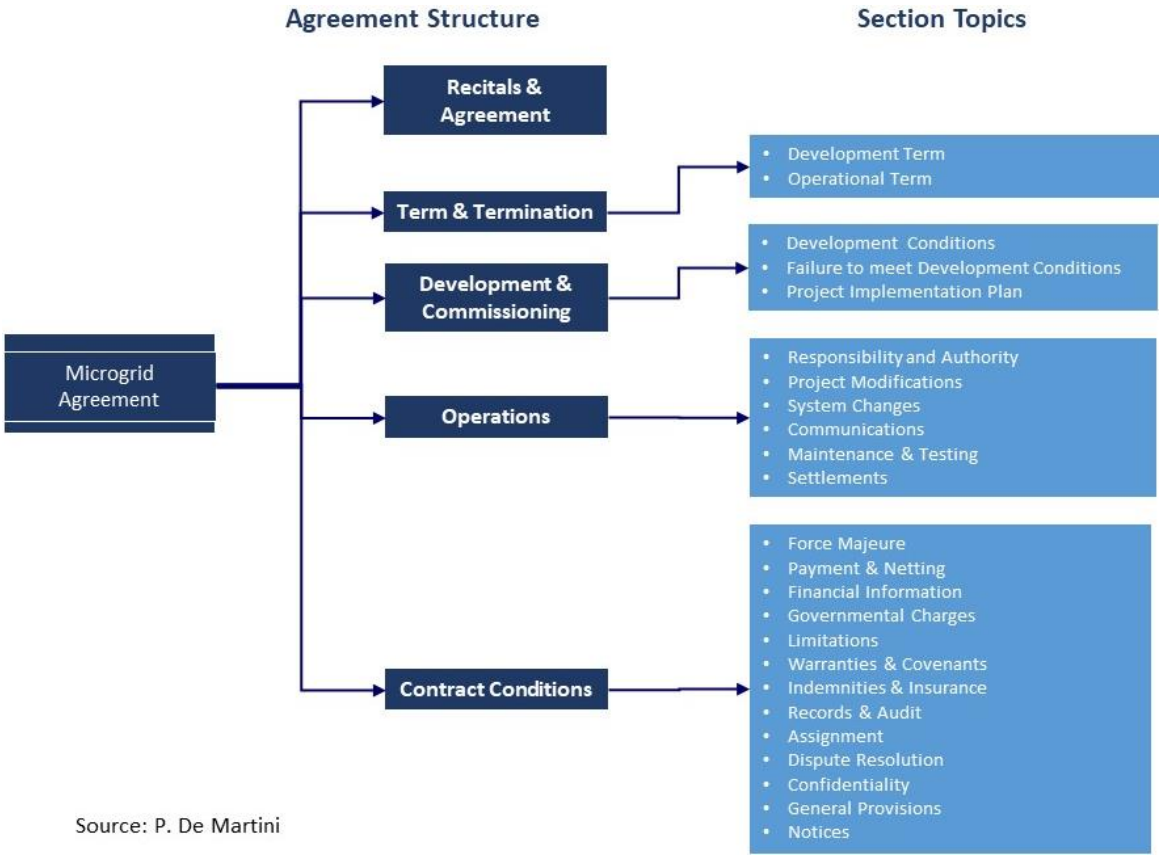
Within the proposed microgrid frameworks, safety and operations standards have largely been addressed through the use of microgrid operating agreements and size limits for microgrids. As proposed in Hawaii and in PG&E's community microgrid enablement program, community multi-user microgrids would be subject to both interconnection and operational agreements with the local utility. Interconnection agreements are typically made for each generation resource connected to the microgrid, and subsequently the utility grid. While interconnection agreements for generator resources include interconnection requirements and any required grid upgrades, the agreements do not focus on what happens after COD. Interconnection agreements are essential for resources within a community microgrid because of their impact on the larger utility grid. Microgrid operating agreements are in addition to interconnection agreements in that they focus on the islanding mode, any related development and testing of the microgrid's capabilities (e.g., controller, protection, communication, et.), and post-commercial operation date (COD) operational requirements and coordination.

The microgrid operating agreements are made between the microgrid operator and the utility. Under an operating agreement, microgrid developers work collaboratively with the local utility to design, plan, and implement the community microgrid in addition to the interconnection agreement requirements. Under DC, California, and Hawaii's microgrid frameworks, any new multi-user microgrid would be subject to the same level of safety and operational standards as the local utilities, with extra provisions such as microgrid peak capacity limitations and utility grid operational responsibilities.

Hawaii's operating agreement, for example, includes standards for grid protection, synchronization, and islanding controls schemes. Under the microgrid tariff agreement, microgrid operators would be subject to utility inspection of microgrid controllers and protection devices. Additionally, the multi-user microgrid operator would be prohibited from interconnecting, disconnecting, and operating the microgrid in a manner that violates the microgrid agreement. California's PG&E has proposed similar provisions for its Community Microgrid Enablement Tariff (CMET), where any CMET project cannot exceed 20 MW of aggregated generation, must have a clearly defined microgrid distribution system with a single point of common coupling, act as a single, controllable entity, be able to connect to, disconnect

from, and run in parallel with the larger electrical grid, and must be able to maintain electrical supply and service quality when in islanded mode[20]. The general structure for a community operating agreement is illustrated in Figure 1 below.

Figure 1. General Structure of Community Microgrid Operating Agreement



Source: P. De Martini

Both California and Hawaii included project caps and limitations for the microgrid deployments, where both Pacific Gas & Electric (PG&E) and Hawaiian Electric set firm project caps of 20 MW and 3 MW respectively. PG&E capped individual projects to 20 MW to correspond with the thermal limit of its 21kV feeders. Hawaiian Electric (HECO) similarly set a firm project cap of 3 MW which corresponds to the thermal limits of their 12kV feeders and other loading considerations. HECO has uniquely shorter feeders with lower capacity than most utilities. These caps were proposed based on an approach that limited the size of a community microgrid to the equivalent of all the customers being on a single feeder. Larger sizes would necessarily involve a substation and a significantly more complex engineering solution than envisioned for a standard tariff and operating agreement. In the Hawaii case, the proposal is to address larger community microgrids through separate bi-lateral agreements subject to regulatory approval. It is important to remember that private and joint private-utility community microgrids are relatively few, and there is a learning curve for the industry and regulators. The development of generally

[20] https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5918-E.pdf

applicable tariffs and pro-forma operating agreements will necessarily benefit from starting with simpler frameworks and evolving iteratively towards more complex arrangements. As such, overall program caps have been proposed. In Hawaii, there are proposed caps for total multi-user microgrid projects of 6 MW on Oahu, 1 MW on Hawaii Island, and 1 MW on Maui Island for the first 3 years, at such time that an evaluation of learnings will inform any tariff and operating agreement changes. Similarly, California's PUC limited microgrids to a total of 30 community microgrids, which allows for experience with multi-user microgrids to progress before the program is expanded.

Existing Tariffs

Multi-user microgrid tariffs have been developed to streamline both the compensation for net-metered generation resources and for microgrid specific resiliency services. Under both California's and Hawaii's new microgrid frameworks, the multi-user microgrid tariffs are designed to maintain the state's current net-metering and demand-side management tariffs, while allowing purely microgrid services like islanding and resiliency energy services to be compensated. By maintaining the net-metering and demand-side management tariffs, distributed asset owners within a microgrid can still benefit from blue-sky grid service opportunities, many of which are needed to recover the cost of developing the microgrid and onsite generation resources. Hawaii's community-based hybrid microgrid tariff has provisions for all applicable customer tariffs and compensation mechanisms to apply during grid-connected and islanded modes. In California's microgrid ruling, microgrid tariffs are designed to "create a new regulatory identity for microgrids[21]" that will simplify existing tariffs, such as the DER and NEM rates, into one microgrid rate structure. By simplifying the existing tariffs for multi-user microgrids, California aims to streamline implementation of microgrids, incentivize microgrid deployment with a microgrid services compensation provision, and reduce the burden on the IOUs to overhaul their compensation methods to account for microgrid services.

Another major point of concern is the potential opportunities for microgrid generation, storage and demand resources to provide wholesale market and grid services during blue-sky conditions. This is very important for developers as most of the economic benefit for microgrids actually derive from normal conditions, not from providing resilience service. Resilience benefits involve the value the microgrid customers receive from uninterrupted electric service and potential societal value that the microgrid may also provide. In Hawaii, the commission places the burden on the microgrid developer to make the case for societal value-based compensation. The focus in Hawaii and California has been to avoid the entire customer base from subsidizing microgrid development costs that benefit only a small number of customers served by the microgrid.

Another issue is the application of stand-by rates. California's working groups have addressed this so far by maintaining that all microgrids cannot opt out of standby service tariffs, non-bypassable charges, and departing load charges[22]. The New York PSC has similarly upheld the

[21] Pg 51 of Decision 21-01-018 referenced above
[22] CPUC. Jan 21, 2021 Rulemaking 19-09-009

application of standby tariffs to the multi-user microgrid Hudson Yards in New York City. The Hudson Yards microgrid is compensated under the Offset Tariff & Standby Service Tariff in which it is allowed to provide onsite generation to one or more secondary distribution customers within the microgrid and receive benefits for any excess electricity produced by its on-site combined heat and power (CHP) facility[23]. The Hudson Yards developers contested their classification in the tariff and argued that they should be rated under a coincident peak demand schedule for the whole of Hudson Yards rather than being charged under individual peak demands[24]. The PSC made the final decision on keeping the original agreement between the parties, due in part to the customized secondary distribution system, and enforced the use of individual peak demands for the tariff.

While contested, the Hudson Yards microgrid is an example of the efficacy of using current tariffs to provide compensation to the microgrid operators. Mechanisms already exist for compensating distributed energy generators and the challenge of creating new microgrid tariffs is in streamlining those compensation mechanisms for singular operators without shifting the additional microgrid costs to other ratepayers. Using existing NEM and DER tariffs assists in creating new microgrid tariff structures and utilizes the existing institutional and financial mechanisms used by utilities to fairly compensate customers.

Other Approaches to Community Microgrid Development

Notwithstanding multi-user microgrid tariffs, private developers continue to work with utilities on the development and operation of multi-user microgrids. Various arrangements have been pursued; examples include a utility maintaining ownership and control over the distribution grid and leasing usage to the microgrid operator through agreements like submetering approvals (Hudson Yards), the utility transferring the distribution assets over to the microgrid owner and the multi-user microgrid becoming a fully private, campus-style microgrid (Blue Lake Rancheria), the microgrid developer turning the private distribution assets over to the utility to operate (Walter Reed Hospital redevelopment), and the private developer leasing the assets to the utility and allowing utility operation of the microgrid (Schofield Barracks Army base).

The Hudson Yards microgrid in New York City is an example of the utility and microgrid owner working within a regulatory framework that had no specific legislation or rules allowing for multi-user microgrid development. Throughout the development phase, Hudson Yards worked with Consolidated Edison (Con Ed) to determine the structure of the distribution system and to install customer-owned breaker circuits and an onsite transmission stepdown to allow for islanding capabilities. While Con Ed owned and maintained the distribution grid, the private microgrid operator was permitted control and billing rights over the community microgrid under an operating agreement that utilized the existing sub-metering regulatory framework[25,26]. With this arrangement, Hudson Yards benefits from the added resiliency from microgrid and the

[23] http://documents.dps.ny.gov/search/Home/ViewDoc/Find?id=%7BD6F13C04-3CDB-4D02-ADA6-3A466DCF2611%7D&ext=pdf
[24] http://documents.dps.ny.gov/search/Home/ViewDoc/Find?id=%7BD3A74EB3-4AB6-4044-A09D-A2BD65F2ABAC%7D&ext=pdf
[25] http://documents.dps.ny.gov/search/Home/ViewDoc/Find?id=%7BF883C132-DC85-4A26-8C0C-37C008A8B5F4%7D&ext=pdf
[26] https://www.utilitydive.com/news/coneds-hybrid-service-model-for-large-microgrid-could-become-standard/517413/

onsite generation power benefits from its CHP facility without the added risk associated with maintaining and operating the distribution grid under normal conditions.

The Blue Lake Rancheria microgrid in California is an example of creating a campus-style multi-user microgrid rather than a community microgrid with utility distribution assets. The Blue Lake Rancheria tribe purchased the distribution lines from PG&E in order to create its campus microgrid[27]. The microgrid has a single point of common coupling with PG&E that was upgraded from secondary to primary voltage service. The Blue Lake Rancheria tribe opted for a campus microgrid due to the remote nature of the community, the ability to acquire grant funding from the California Energy Commission, and the desire to prevent blackouts in times of fire and other weather events. The economic impact of taking over the distribution grid and creating a microgrid has saved the tribe approximately $150,000 annually.

Schofield Barracks in Hawaii is an example where the U.S. Army and HECO developed a generator on the base for back-up power, and the Army and utility entered leasing agreements which included HECO operating the microgrid in normal and emergency conditions and extending the scope of the microgrid to the adjacent off-base housing for soldiers and their families served by the utility's grid[28]. This bi-lateral arrangement was approved by the Hawaii commission.

Hudson Yards, Blue Lake Rancheria and Schofield Barracks were successful in mitigating regulatory challenges. Conversely, the Walter-Reed Parks microgrid in Washington DC is an example of how limited regulations on microgrids can be detrimental to project development.

Conclusion

The current U.S. trends suggest that the next era of community multi-user microgrids will include varying degrees of private investment, ownership, and operation of these community microgrids. State commissions will likely continue to assert oversight for multi-user microgrids and continue to support private development through utility tariffs, interconnection and operating agreements. However, consumer protection issues inherent with the formation of monopoly resilience service under multi-user microgrids remain an important issue to resolve.

[27] https://ww2.energy.ca.gov/2019publications/CEC-500-2019-011/CEC-500-2019-011.pdf
[28] https://www.iea-ebc.org/Data/Sites/4/media/events/2020-10/presentations/4.9.f--yamanaka--increasing-resilience-us-army.pdf

Key Regulatory Trends Across State Utility Commissions

Regulatory Issue	California	Hawaii	New York	Washington DC
Regulatory Classification of Multi-user Microgrids	Multi-user microgrids classified as different from customer microgrids	Multi-user microgrids classified as different from customer microgrids	No formal ruling	Working group deciding on final classification; leaning towards extensive list of types of microgrids
State & Commission Oversight of Multi-user Microgrids	Commission has only approved multi-user microgrids that serve the public	Oversight through operational agreement with local utility	No formal ruling	Working group classifies microgrids as under commission oversight due to use of distribution lines
Customer Protection	Many protections assumed under microgrid tariff and utility-microgrid agreements	Many protections assumed under tariff and utility-microgrid agreements	No formal ruling	No formal ruling, may be addressed under light-touch framework
Service Monopolization within the Electrical Boundary	No formal ruling, assumed to be addressed under tariff and utility-microgrid agreements	No formal ruling, assumed to be addressed under tariff and utility-microgrid agreements	Master-metering approvals & utility oversight	No formal ruling, may be addressed under light-touch framework
Customer Service Standards	Proposed under PG&E CMET & microgrid operating agreement	Proposed under Hybrid Microgrid Tariff Agreement	Individual customer accounts & Master metering rules	No formal ruling, may be addressed under light-touch framework
Safety Standards	Same operational rules under PG&E CMET & operating agreement	Same operational rules under tariff & microgrid agreement	Same operational rules utilities function under	Same operational rules utilities function under
Capacity Limits for Multi-user microgrids	PG&E proposed 20 MW per project based on feeder limits	3 MW per project, total dependent on island based on feeder limits	No formal ruling	No formal ruling
Overall Microgrid Tariff	PG&E filed a program tariff. All IOUs to develop general tariff	Hybrid Microgrid Tariff filed	No formal ruling	No formal ruling
Blue Sky Applicable Tariffs, Market Participation, NWA & Demand-side Program Participation	All allowed under PG&E CMET tariff	All allowed under Hybrid Microgrid Tariff	Extension of existing Offset Tariffs & Standby Rates for microgrid operators	To be determined for microgrids by the Working Group
Microgrid Societal Resiliency Benefits	To be determined by the Working Group	Developer required to make case for ratepayer compensation	No formal ruling	To be determined by the Working Group