

DISTRIBUTED ENERGY RESOURCE OWNERSHIP

Emerging roles for regulated utilities and third-party providers

A 21st Century Electricity System Issue Brief

By Advanced Energy Economy

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ABOUT ADVANCED ENERGY ECONOMY

Advanced Energy Economy (AEE) is a national association of businesses and business leaders who are making the global energy system more secure, clean and affordable. Advanced energy encompasses a broad range of products and services that constitute the best available technologies for meeting energy needs today and tomorrow. AEE's mission is to transform public policy to enable rapid growth of advanced energy businesses. AEE and its State Partner organizations are active in 26 states across the country, representing roughly 1,000 companies and organizations in the advanced energy industry. Visit www.aee.net for more information.

ABOUT THIS ISSUE BRIEF

The U.S. utility sector has entered a period of foundational change not seen since the restructuring of the late 1990s. Change is being driven by new technologies, evolving customer needs and desires, environmental imperatives, and an increased focus on grid resiliency. With these developments come challenges, but also new opportunities to create an energy system that meets the changing expectations of consumers and society for the coming decades. We call this the *21st Century Electricity System*: a high-performing, customer-focused electricity system that is efficient, flexible, resilient, reliable, affordable, safe, secure, and clean. A successful transition to a 21st Century Electricity System requires careful consideration of a range of interrelated issues that will ultimately redefine the regulatory framework and utility business model while creating new opportunities for third-party providers and customers to contribute to the operation of the electricity system.

To support this transition, Advanced Energy Economy (AEE) has prepared several issue briefs that are intended to be a resource for regulators, policymakers, and other interested parties as they tackle issues arising in the rapidly evolving electric power regulatory and business landscape.¹ This issue brief on [Distributed Energy Resource \(DER\) Ownership](#) lays out the basic issues associated with DER ownership in the context of a changing utility system, addresses potential questions that policymakers and regulators will have to grapple with, and makes recommendations on the path forward.²



SUMMARY

The question of what entities, under what circumstances, can own distributed energy resources (DER) is focused on the appropriate roles for regulated monopoly utilities and their unregulated affiliates, and whether they should be allowed to compete with third-party service providers to own DER and provide DER services. DER ownership is perhaps the most contentious element of the larger question of the role of the regulated utility in the evolving electricity industry. As a general matter, a well-functioning competitive market is preferable to a heavily regulated one. Competitive service providers bring innovation, financial creativity, and increased customer choice, and must compete with each other to continually improve on costs, technology, and service quality in an effort to attract customers. However, where such markets do not exist, and there is a compelling public interest objective, the regulated utility can bring its resources and capabilities to bear. In these specific circumstances, utilities can work in collaboration with competitive providers to offer new services and reduce costs. Utility-sponsored energy efficiency and demand management programs are prime examples.

Where regulated utilities are allowed to own DER and provide DER-related services, a chief concern is mitigating market power and the utility's inherent competitive advantages to prevent the regulated utility from stifling the development of a competitive market. Nevertheless, initial utility involvement can

help meet important policy objectives and lay the foundation for the development of a vibrant competitive market in the future. For example, electric vehicles (EVs) offer significant benefits for individual users and society at large, yet deployment is constrained in part by a lack of charging infrastructure. Since the competitive marketplace has yet to deliver sufficient infrastructure, it is appropriate for regulated utilities to invest in EV charging infrastructure under appropriate rules in order to accelerate EV adoption.

Although these issues arise more often in the context of restructured electricity markets, where the monopoly utilities are generally prohibited from owning generation assets, similar issues also arise in vertically integrated markets where DER – whether connected on the utility side or customer side of the meter – falls outside of traditional utility asset ownership considerations, and can be owned and operated by third-party DER companies as well as directly by utility customers. Solutions and approaches will thus vary across jurisdictions.

AEE recommends that, where viable competitive DER markets can and do exist, non-utility companies should generally be the ones to own DER and provide DER services. But there are specific circumstances where the regulated utility could also be allowed to own DER and provide DER-related services, especially if such ownership supports a transition to more fully animated and competitive DER markets. However, before



regulated utilities are allowed to own DER, there are several concerns that must be alleviated, such as the ability of regulated entities to exercise market power and achieve an unfair competitive advantage. AEE also supports the ability of unregulated affiliates of regulated utilities to own DER just like other

third parties, subject to enforcement of suitable codes of conduct that govern interactions between the regulated utility and the unregulated affiliate, to ensure a level playing field for all providers in the marketplace.

Distributed Energy Resources

AEE defines DER broadly to include distributed generation of all types (e.g., combined heat and power, solar photovoltaics, small wind, fuel cells), energy efficiency, demand response, energy storage, electric vehicles and the associated electric vehicle supply equipment, and microgrids. As such, it includes options for generating electricity, but also for managing how much and when electricity is used.

INTRODUCTION

As DERs become a more integral part of the 21st century electricity system and as utilities look for new revenue and earnings opportunities, the question of what entities should be allowed to own, operate, and control DERs and provide DER services is becoming increasingly important. On the one hand, many utilities see DER ownership as a natural extension of their traditional asset-based business model and view themselves as best suited to provide cost-effective solutions. On the other hand, competitive service providers believe they can provide the most innovative and cost-effective DER solutions and that utilities would exercise market power and achieve an unfair competitive advantage if they are allowed to be in direct competition with non-utility companies. As a result, DER

ownership runs up against the fundamental question of what constitutes a monopoly function, and is therefore within the bounds of regulated utility activities, versus what can be provided by the competitive market, and therefore should fall outside the scope of monopoly utility service.

AEE views the continued and increased adoption of DER as a key element in the evolving electric grid. Particularly, we see DER deployment as critical to development of a more flexible, reliable, resilient, and clean grid that gives consumers greater choices and control over energy use and costs. In many states today, a range of valuable DER products and services are provided to individual customers via the competitive marketplace.



We believe that consumers ultimately will benefit from the innovation and creativity that competitive DER companies can offer, and that greater deployment of DER should be led by these companies.

However, we also believe that regulated utility companies should be allowed to own DER and provide DER services under specific circumstances and with certain provisions to support the development of a robust, modern distributed grid. Regulated utilities also have an emerging role in creating and operating a distribution grid of the future that can support

and benefit from a robust competitive DER market.

There is no single model for DER ownership. Outlined in this Issue Brief is a set of guiding principles that can be used in each regional setting to achieve the desired outcomes. Variations in regulatory structure, socioeconomic conditions, resource availability, technology readiness, and legacy infrastructure are all reasons why approaches to DER ownership will differ from one jurisdiction to the next.

THE PARTIES INVOLVED

Utilities' relationship with DER is not and will not be one dimensional, and in the near future is likely to encompass a range of structures. There will likely be some DER activities, products, and services that the utility or its contracted agents are best positioned to deliver, while others are better delivered by non-utility companies, whether directly to customers, to the utility on behalf of customers, or as independent owners/operators of DER on the distribution system. Before outlining our recommendations, it is important to clearly define the entities that may be involved, as there are at least four that could deliver DER products and services:

1. Regulated utilities are the monopoly distribution companies (in restructured states) or the vertically integrated entities (in traditionally regulated states) who are

the exclusive providers of electric service to customers in a given service territory.

2. Contracted agents are companies that contract with a utility to provide DER products and services to customers on behalf of the utility, or procure DER products and services from customers and provide them to the utility. From the customer perspective, the relationship between the utility and provider may be seamless, in that the customer primarily sees the product as a utility service. In this arrangement, data privacy and other operational requirements are provided for in the contract between the contracted agent and the utility. An example of a contracted agent is a company that implements a utility-sponsored energy efficiency program under the utility brand.

3. Direct-to-consumer competitive service providers, or "third-party providers," are



non-utility companies that contract directly with customers to deliver products and services. Customers of competitive service providers continue to interact with their utility, for example, to receive their energy usage data, as well as with the competitive service provider, which could use the data authorized by the customer to provide a product or service. Competitive service providers may also provide services to utilities using DER, for example, by

aggregating customer-owned DER in response to a utility solicitation for non-wires alternative projects or in a utility demand management program.

4. Unregulated utility affiliates are companies owned by the same parent company as the regulated utility, but that provide services similar to those of direct-to-consumer competitive service providers.

QUESTIONS TO CONSIDER

When deciding which entities should be allowed to own, operate, and/or control different DER products and services, there are not always clear-cut delineations. A variety of questions must be considered before policymakers can make a decision in regard to DER ownership.

Should a regulated entity be allowed to provide products or services that are provided, or could be provided, by the competitive market? If yes, under what circumstances should this be allowed and what should be done to mitigate concerns over market power and unfair competition that are bound to exist when a regulated monopoly participates in competitive markets? What limits should be placed on types of products and services that can be offered by the regulated entity, and to whom?

Should a regulated utility be allowed to provide value-added products and services to individual customers? Should a regulated

utility be allowed to own DER on a customer's premises, behind the meter or on the utility side of the meter? Should regulated utility ownership of DER be limited to the provision of basic utility services?

Should an unregulated utility affiliate be allowed to own DER within the service territory of the regulated utility? How can regulators create a level playing field between them and other competitive service providers, where there may be a clear preference for the regulated utility's parent company to favor its unregulated affiliate?

What role should utilities play in the control of DER assets? What integration services are essential for the utility to provide and how should this integration function play out in DER control, for the benefit of customers overall, regardless of who owns the asset?



HOW TO APPROACH DER OWNERSHIP

Although there is no one-size-fits-all policy for DER ownership, certain parameters can be used to help policymakers design and implement policies that best fit their specific needs and circumstances. Here are AEE Institute's recommendations for DER ownership:

BASIC VS. VALUE-ADDED SERVICES

Decisions on utility ownership of DER will depend in part on whether the DER is used to provide basic or value-added services.

Basic services are those that the regulated utility provides as it carries out its monopoly functions, as defined in statute and regulations. These services are provided or available to all customers, with costs recovered from all customers. Historically, the regulated utility has invested in its own infrastructure (power plants, transformers, poles, wires, meters) to meet its basic service obligations. A DER example would be a utility-owned battery at a substation used to meet its basic service obligation for reliability and power quality. Another example would be a utility procuring targeted demand reductions from customers and third parties who invest in DER to avoid a substation upgrade in a constrained area of the grid.

Value-added services are optional, enhanced services, whether provided by regulated utilities or the competitive market. Customers would choose to receive such services as an

addition to basic service, with the costs of those services borne by the user. An example of a DER-related value-added service is the sale, installation, and financing of behind-the-meter distributed generation.

Under the circumstances detailed below, utilities should be allowed to own DER assets for the provision of basic services, but should also be incentivized to procure DER services from the competitive market to meet those basic service needs, especially if they can be procured at lower cost. With respect to value-added services, which are mainly provided today by the competitive market, the regulated utility should be more constrained in its role to avoid direct competition between regulated entities and unregulated competitors.

PROGRAM ADMINISTRATION VS. DELIVERY

The DER ownership question arises most frequently in the context of distributed generation and energy storage. Other DER assets and products, such as energy efficiency and demand response, have traditionally not entailed significant direct asset ownership by utilities. In those cases, assets are generally owned by the customer or a third party (e.g., energy efficient appliances, smart thermostats, energy management systems) and the nature of the relationship between customer and provider is more transactional or service-based. For these DER assets, the utility role has



generally been one of program administration, as exemplified by energy efficiency and demand response programs, whereas the competitive market is generally involved in product and service delivery, such as conducting energy audits and installing energy efficient or distributed generation equipment.

DER OWNERSHIP VS. DER CONTROL

It is also important to distinguish between ownership of DER assets and control of those assets. The utility retains the obligation to maintain an electricity system that is safe, reliable, efficient and that meets the needs of all customers. Integration of DER into this system will largely remain the role of the utility. As a result, utility control of DER, or programs and markets that govern the dispatch of DER, regardless of who owns it, will become increasingly important as DER penetration rises. There must be clarity about how the DER owner gets compensated for allowing utility control, and vice versa, if a utility provides aggregation and dispatch services for the benefit of DER owners, how the utility is compensated for providing that service.

WHO OWNS WHAT?

With the foregoing in mind, for each of the four main entities that could deliver DER products and services, the following provides high-level recommendations for who should be allowed to own what:

Regulated utilities should be allowed, and indeed encouraged, to procure DER products and services from customers and competitive service providers. Ownership should also be allowed in certain circumstances (see below),

including when DER can be used to meet the utility's obligations for basic service. However, even when utility ownership is permitted, the utility should make use of competitive procurement, whenever possible.

Contracted agents should be allowed to deliver basic and/or value-added services to customers, with appropriate conditions to ensure full and fair competition among all types of providers and to protect against potential subsidy of competitive services by regulated entities. Examples include delivery of utility-sponsored energy efficiency programs and direct load control programs.

Direct-to-consumer competitive service providers should be allowed to provide DER products and services to customers (e.g., energy intelligence software and onsite distributed generation), own and/or operate DER on behalf of customers, or independently own/operate DER connected directly to the utility system (e.g., energy storage and community solar projects). Competitive service providers should also be allowed to provide services to utilities, whether in response to utility solicitations for specific needs or via tariffs designed to encourage DER-based solutions.

Unregulated utility affiliates should generally be allowed to compete with competitive service providers, but there are circumstances under which this may be prohibited. At a minimum, allowing unregulated affiliates to engage in the market requires that regulators establish clear rules that govern interaction between the unregulated affiliate and the regulated utility, to ensure a level playing field in competitive markets. The only time an unregulated affiliate should be able to sell DER



services to the regulated utility should be in an open market opportunity, preferably with the winning bids selected by an independent evaluator.

We further recommend that regulated utility ownership of DER be exercised only in cases where DER is not available through a non-utility option and limited to the following categories:

- ⦿ Sponsorship and management of energy efficiency and demand management programs, with utilities contracting with competitive service providers for the delivery and implementation of such programs, unless no competitive service provider is available.³
- ⦿ Ownership of distributed generation (DG) or energy storage assets on utility-owned property, including substations, for purposes of maintaining reliability, providing balancing and ancillary services, and performing other related grid functions, which constitute elements of basic service. If the ownership and operation of such assets results in revenue not associated with the provision of basic service, such as price arbitrage facilitated by energy storage, such revenues should be returned to ratepayers or be subject to a shared saving mechanism.⁴
- ⦿ Provision of distribution services and interconnection for multi-customer microgrids. This type of microgrid has characteristics that lend themselves to close collaboration between competitive service providers and regulated utilities, such as for dispatch and settlement. Customer-sited DER assets associated with these microgrids would be owned by the customer or a third party, not the utility.

- ⦿ Programs that address underserved segments of the market that could benefit from initial involvement of regulated utilities until a competitive market emerges. The utility role should be targeted to the barriers that impede the development of a robust market serving these specific segments, and such involvement should end once a competitive market exists.
- ⦿ DER demonstration projects as part of a broader research and development effort into innovative solutions for increasing the penetration of such resources on utility distribution circuits without compromising reliability or power quality. Such demonstrations should ideally be carried out in close collaboration with contracted agents and third parties.

If the unregulated utility affiliate is allowed to participate in the competitive marketplace within the regulated utility's service territory, code of conduct rules should be established and enforced to make sure the unregulated affiliate does not enjoy an unfair competitive advantage due to its relationship with the regulated utility or parent company. Examples of what would be included in such a code of conduct are:

1. Unregulated affiliates should not be able to use the regulated utility name and resources, nor should they be able to conduct joint marketing and advertising.
2. Unregulated affiliates should be prevented from having access to the utility's customer or operational data unless the same is available to all other providers under the same terms.
3. Personnel practices should preclude actions that could convey an unfair market



advantage (e.g., revolving door of personnel between regulated and unregulated affiliates or shared personnel, even if through a fee structure)

4. Regulators should be able to audit the financial and accounting records of the affiliate to ensure compliance.

Two examples of rulings on regulated utility ownership of DER

In New York's Reforming the Energy Vision proceeding, the issue of regulated utility DER ownership was addressed in a February 2015 order.⁵ In that order, the Commission limited utility DER ownership to situations where:

1. Procurement of DER has been solicited to meet a system need, and a utility has demonstrated that competitive alternatives proposed by non-utility parties are clearly inadequate or more costly than a traditional utility infrastructure alternative
2. A project consists of energy storage integrated into distribution system architecture
3. A project will enable low or moderate income residential customers to benefit from DER where markets are not likely to satisfy the need
4. A project is being sponsored for demonstration purposes.

In California, the utility commission recently ruled that the state's three major investor-owned utilities should be permitted to own electric vehicle supply equipment (EVSEs) on a case-by-case basis and directed them to submit plans for deploying EVSEs to accelerate the development of the EV market. In 2016, the three large IOUs⁶ received approval for direct ownership of EVSEs totaling \$197 million in investment. Two of the proposals include direct ownership of EVSEs by utilities while one calls for private ownership to be facilitated with utility incentives (in this case the utility will own all infrastructure except for the EV charging units themselves). In January 2017, all three large IOUs filed plans⁷ focused on medium and heavy-duty vehicles, calling for a total of \$1.07 billion in investment. These rulings serve as examples of where market conditions support utility DER ownership in that they address a specific situation where a competitive market does not yet exist (especially the fact that third-party EVSE ownership is generally not a viable model yet due in part to low numbers of EVs on the road) and meet a public interest objective to support the state's existing policy goal of deploying 1.5 million EVs by 2025.



ALIGNING UTILITY INCENTIVES IN THE CONTEXT OF THE EVOLVING GRID

To further ensure that regulated entities do not exercise unfair market power to achieve a competitive advantage, regulated utility DER ownership should be contingent on two principles:

1. Establishing a regulatory paradigm and financial incentives such that regulated utilities are indifferent between themselves or non-utility companies owning DER, and they are incentivized to effectively integrate and operate all DER regardless of ownership.
2. Using open competitive procurement of DER solutions by regulated utilities as the first option, but allowing regulated utility DER ownership if such procurement fails to surface a suitable solution.

In order to ensure incentives are properly aligned, policymakers should establish a regulatory framework that incentivizes utilities to invest in solutions that result in the utility distribution and tariff system supporting non-utility owned DER to allow for the greatest system and customer net benefit. Policymakers should explore performance-based incentive mechanisms that compensate utilities based on how well they deliver service and achieve performance requirements and public policy objectives, as opposed to simply rewarding them for increased capital investment.⁸ This can include incentives for maximizing the operational value of all DER. Regulatory

reforms to equalize the value of operating expenses for services with capital investments can also help to address this issue.⁹

California's Regulatory Incentive Proposal

In April 2016, Commissioner Michael Florio introduced a regulatory incentive proposal, which was subsequently approved in December 2016, in CPUC's Integrated Distributed Energy Resources proceeding (R1410003). The regulatory incentive is structured as a pilot program to test the effect of incentives on utility sourcing of services from DER, addressing the potential conflict between the Commission's policy objectives and the utilities' financial objectives. Specifically, it directs the state's IOUs to develop pilot programs offering a shareholder incentive (4% pre-tax of the payments paid to a DER provider) for the deployment of a cost-effective DER solution that displaces or defers a utility expenditure (either capital or operating if the proposed DER plus the shareholder incentive is the cheaper option).

LEVELING THE PLAYING FIELD

It is also essential to ensure that regulated utilities are prevented from using their monopoly status to erect competitive barriers to non-utility providers, which may be able to provide cost-effective products and services or innovative value-added services on their own. If a regulated utility offers a DER solution before soliciting responses in the competitive market, it could have a chilling effect on private sector



investment and deprive customers of significant benefits. As noted above, DER products and services are already provided today by the competitive market. Regulatory and utility decisions should recognize that if products and services can be provided by the competitive marketplace, this should be the preferred option before regulated utility ownership is pursued.

Policymakers can consider different ways to ensure that the process of soliciting DER solutions from non-utility companies is fair, open, and transparent. This might include an independent entity administering the bidding process and determining cost effectiveness of different solutions. An independent, technically competent administrator will be more likely to appreciate and promote the innovation that will lead to least cost, highest value solutions. The timing of such solicitations is also important. There should be sufficient lead time for competitive DER providers to propose solutions that can be implemented in time for the need to be met.

Maine's Non-Transmission Alternative Coordinator

In April 2016, the Maine Public Utilities Commission opened a proceeding (2016-00049) to develop the framework for selecting a non-transmission alternatives (NTA) coordinator to develop cost-effective alternatives to transmission projects. The Commission is deciding whether the coordinator should be a role for the utility or a third party. Once this is decided, the Commission will develop a RFP for a third-party entity or a rate incentive proposal if the utility acts as the NTA coordinator.

VALUE-ADDED SERVICES

The general principles laid out above are consistent with a limited role for regulated utilities providing value-added services, which, as noted above, are primarily offered by the competitive market today. This recommendation is based on the important regulatory principle of separating activities that can be accomplished via the competitive market versus a regulated monopoly. If the regulated utility is permitted to own DER for the provision of value-added services, any services they offer should be focused on addressing specific conditions that inhibit development of a competitive market and supporting a transition to such a competitive market.

An unregulated utility affiliate, on the other hand, should be permitted to own DER and compete with non-utility companies to provide value-added products and services. But, as described above, the regulatory framework must ensure that they do not have access to and are not able to use the resources of its regulated affiliate or parent company to subsidize its offerings and gain an unfair competitive advantage.

SPECIFIC USE CASES

There may be times when the general principles outlined above may not be applicable and should be tested against specific cases. For this reason, we believe that utilities should have the ability to make filings requesting approval of a certain DER program or customer request that may fall outside the above guidelines. We suggest that regulators develop a process for reviewing these proposals on a case-by-case basis, including periodic review of approved offerings, to determine if the conditions that warranted the initial approval still exist.



CONCLUSION

The electricity sector is changing, and with it comes the need to re-examine the role of the utility, taking into account the contributions that can be made by other parties to the operation of the grid and to providing customers with improved services and greater choices and control over energy use and cost. DER ownership is a complex issue that needs to be addressed as part of this grid evolution. The recommendations herein are based on the important regulatory principle of separating activities that can be accomplished via the competitive market versus a regulated monopoly, while recognizing that there are specific circumstances where regulated utility ownership of DER may be appropriate. The

utility also has an important role to play as the owner and operator of the grid to which DER will connect and interact. This includes making investments in the grid to facilitate DER integration and developing and providing services to DER companies to help maximize the benefits of DER investments.

Regardless of the market structure, having clearly defined roles for regulated utilities and competitive suppliers will lead to better outcomes than if regulated and unregulated entities are in direct competition with one another. It is up to policymakers and regulators to develop a regulatory framework and clear rules for DER ownership that ensure a smooth transition to a 21st century grid.



END NOTES

¹ <http://info.aee.net/21ces-issue-briefs>

² Advanced Energy Economy (AEE) is comprised of a diverse membership. As such, the information contained herein may not represent the position of all AEE members.

³ For example, opt-out behavioral energy efficiency or behavioral demand response programs require both access to customer data and service relationships with all customers. For these reasons, the regulated utility or the designated energy efficiency utility may be uniquely able to provide these services, although the services may be best provided by an outside provider selected by a competitive procurement process.

⁴ A mechanism that allows savings from particular programs to be shared by both the utility and ratepayers, to encourage utilities to pursue opportunities that benefit customers but that may not otherwise yield financial benefits to the utility.

⁵ Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision. Order Adopting Regulatory Policy Framework and Implementation Plan, February 26, 2015.

⁶ California Public Utilities Commission Application A1502009, Decision D1612065; Application A1404014, Decision 1601045; and Application A1410014, Decision D1601023.

⁷ California Public Utilities Commission Application A1701020

⁸ For more information, see our Issue Brief on Performance-Based Regulation, available at <http://info.aee.net/21ces-issue-briefs>

⁹ For more information, see our Issue Brief *Optimizing Capital and Service Expenditures*, available at <http://info.aee.net/21ces-issue-briefs>

