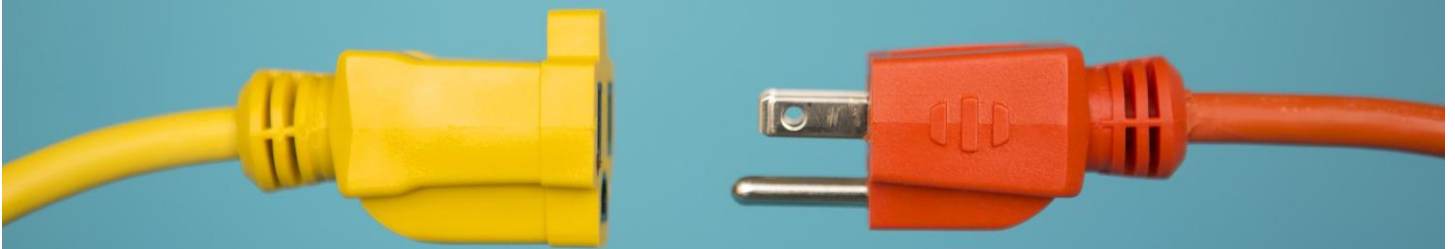


Utility Service Obligations in the Large Load Era

Part of the series *Data Centers and the Next Era of Energy Regulation*

Sarah Freeman, Louisa Eberle and Camille Kadoch



Contents

Introduction	1
Data Centers Push the Limits of Utilities' Ability to Serve New Load	1
Utility Obligations Are Grounded in Policy Priorities	2
Origin and evolution of utility service obligations	3
Limitations on utility service obligations	10
Development of flexible service options	11
Options to Ensure Service Obligations Align with Policy Priorities in the Large Load Era.....	15
Investigate utility service obligations given data center developments	15
Define or clarify limitations on the obligation to extend service	15
Strengthen interruptible service	19
Define conditions for expedited service connections	22
Conclusion	23

Acknowledgments

The authors would like to thank our colleagues Mark LeBel, Mike Hogan, Emily Bosch and Will Fridlund for their support in drafting and editing this report. We would also like to acknowledge and express appreciation to the following people who provided helpful insights into earlier drafts of this paper:

Natalie Mims Frick, Lawrence Berkeley National Laboratory

Frederich Kahrl, 3rd Rail

Helen Li and Mandy DeRocher, Earthjustice

That said, responsibility for the information and views set out herein lies entirely with the authors.

Introduction

Large loads, particularly data centers, are rapidly increasing demand and putting pressure on our grid and current regulatory practices. States have an opportunity to adapt long-standing utility practices to address these modern challenges. As natural monopolies that provide an essential service, electric utilities in the United States have long been subject to more legal obligations than many other types of corporations. This includes the obligation to serve all customers who apply for electric service on equal terms.

Regulators have significant discretion about what utility service obligations mean, and policymakers must adapt them to the age of data centers. This paper guides that assessment. First, we articulate the distinct characteristics of data center customers and how they implicate the utility obligation to serve all customers on equal terms. Next, we explore the origins of the obligation in more detail to understand its rationale and evolution through changing policy contexts. Finally, we present options for decision-makers attempting to align competing policy priorities: connect data centers reasonably quickly while satisfying statutory commitments to existing customers. While the specifics vary by state, some solutions may require legislative action to ensure regulators and utilities can, and do, implement the state's policy priorities.

Data Centers Push the Limits of Utilities' Ability to Serve New Load

Load growth is not a new phenomenon in our nation's history, but several characteristics of data center load growth strain traditional assumptions around a utility's obligation to serve new customers. As a result, policymakers and regulators must answer new, or address long-standing, questions about utility service obligations.

- **Urgency to interconnect:** Time-to-power is crucial for many data center developers. While data centers want to receive electric service with only one to three years' notice, utilities typically require five years or more to plan and build infrastructure necessary to serve them.¹² Can utilities delay data center connection under these circumstances?
- **Demand scale, density and uncertainty:** The combination of well-documented uncertainty in data center demand forecasts³ and the potentially substantial investment required to serve them strains utility planning and operations. Is a utility obligated to accommodate any future large customer, regardless of how speculative, or only to reasonably anticipate verified, well-

¹ Gridlab. (2025, March). *Practical guidance and considerations for large load* [Working draft], pp. 9-10. <https://gridlab.org/wp-content/uploads/2025/03/GridLab-Report-Large-Loads-Interim-Report.pdf>

² Energy Systems Integration Group. (2026, March). *Historical and modern large loads* [White paper]. <https://www.esig.energy/wp-content/uploads/2026/03/ESIG-Historical-vs-Modern-Large-Loads-white-paper-2026.pdf>

³ Smith, S., Hubbard, A., Newkirk, A., Ganeshalingam, M., Holecek, B., Sartor, D., Mills, M., & Shehabi, A. (2026, June). *United States data center energy usage: 2025 update*. <https://eta.lbl.gov/publications/united-states-data-center-energy-2025>

supported requests? Do these distinct characteristics justify different treatment for large load customers?

- **Outsized risks to affordability:** Expanding the grid quickly, particularly based on load growth that may not materialize, risks raising rates for existing customers and exposing them to stranded asset costs. What safeguards are required to protect a utility's existing customers from experiencing higher rates due to data center demand?
- **Reliability risks:** The varied, dynamic and novel behavior of hyperscale data centers can pose reliability risks to the grid. Efforts are underway to adapt reliability standards to these risks.⁴ In the meantime, are utilities obligated to serve data centers before reliability safeguards are finalized and implemented?
- **Air emissions, water impacts, and noise concerns:** Environmental impacts from data centers fuel public opposition to data center developments. Does this political salience empower policymakers or regulators to enact or enforce limitations on a utility's obligation to serve data center customers?

To better understand how to answer these questions, and what alternatives may combat these challenges, we next examine the foundation of a utility's service obligations and their evolution over time.

Utility Obligations Are Grounded in Policy Priorities

Public utilities that provide essential services, such as electricity, have long been subject to direct regulation at the state and federal levels. The nature, scope and justifications for such regulation have evolved over time, but utility service obligations have remained grounded in policy priorities even as technology and societal expectations have shifted. We present in this section an overview of the origin and evolution of electric utility service obligations, the limitations on those obligations and the development of interruptible service options for customers.⁵

⁴ NERC. (2026, May 4). *NERC issues Level 3 Alert, reliability guidelines focused on large load*. <https://www.nerc.com/newsroom/nerc-issues-level-3-alert-reliability-guideline-focused-on-large-load-challenges>; and Marshal, C., & Tamborrino, K. (2026, July 17). *FERC sets speedy timeline to address data centers' risks to grid reliability*. E&E News, Politico. <https://subscriber.politicopro.com/article/eenews/2026/07/17/ferc-sets-speedy-timeline-to-address-data-centers-risks-to-grid-reliability-ee-01001297>. See also NERC. (n.d.). *Large loads action plan*. <https://www.nerc.com/initiatives/large-loads-action-plan>. Boudreau, C. (2026, July 28). *As more data centers trip off the grid, 'ride-through' rules gain steam*. Latitude Media. <https://www.latitudemedia.com/news/as-more-data-centers-trip-off-the-grid-ride-through-rules-gain-steam/>; and DiGangi, D. (2026, July 13). *Texas PUC approves 'ride-through' rules for data centers*. Dive Brief, Utility Dive. <https://www.utilitydive.com/news/texas-puc-approves-ride-through-rules-data-centers/825051/>

⁵ Utilities providing other services, like gas or water, generally have similar service obligations. This paper focuses more narrowly on the provision of electric service and how obligations on electric utilities have evolved over time. Recent developments have explored changes to gas utility service obligations, but we do not explore them here.

As a first step, we analyze how the utility obligations have evolved over time and into the large load era. We then examine steps policymakers or regulators could take to clarify these obligations. Available options will depend on a few key considerations, such as the jurisdiction, timing and structure under which the large load customer seeks electric service. We have focused most of our analysis on options available to regulators under retail tariffs or for the distribution system because, at present, most large loads are retail customers that will take service from a utility or other load-serving entity through a contract governed by a tariff subject to state regulation. This is not a given, however, as large loads may connect at the distribution, subtransmission or transmission system level, depending on size, site and network availability. In states with retail competition, large loads could be wholesale customers taking transmission service or retail customers taking retail service from a variety of providers, including competitive retail providers, default utility providers, municipal utilities or electric cooperatives. Increasingly, large loads across jurisdictions are also impacting generation and energy storage options in new ways.⁶

Any and all of these options can affect the purview and level of regulatory review. This section analyzes regulatory options that touch on the various obligations to serve primarily at the retail level and within state regulatory purview.

Origin and evolution of utility service obligations

The concept of a utility's obligation to provide safe, reliable and nondiscriminatory service to all customers is a long-standing and fundamental underpinning of regulatory law and policy in the United States. Under English common law, businesses were "affected with a public interest" when property was "granted to the public, dedicated to a public use by the owner," and it thus became subject to regulation.⁷ The concept of requiring private businesses offering service to the public to meet certain standards expanded as electricity emerged as a source of energy in the 19th century. Unlike other categories of private property that might be dedicated to public use, public utilities that provide electric service are generally considered natural monopolies. The rationale is both economic and practical: First, economic because a single provider of electricity will be able to serve customers at lower cost than multiple providers, and any market with multiple providers will be unstable, inevitably leading to a single provider winning out and gaining a monopoly over time.⁸ Second, practical because multiple sets of distribution wires or other electric infrastructure in public spaces are often considered unsightly and sometimes unsafe, and a single provider is better able to provide safe and reliable service. Consolidating service into a single electric provider, however, risks exposing customers to monopolistic abuses. As a

⁶ For a more in-depth discussion on the key factors affecting the roles and responsibilities around load growth, see Kahr, F., & Frick, N. M. (2026, June). *Speed to power: Solutions for accelerating large load connections*, p. 6 et seq. Energy Markets & Planning, Lawrence Berkeley National Laboratory, https://eta-publications.lbl.gov/sites/default/files/2026-06/lbnl_large_loads_speed_to_power_final_1.pdf

⁷ J. L. A. (1932). Constitutional law — Due process-business "affected with a public interest," *Michigan Law Review*, 30(8). <https://repository.law.umich.edu/cgi/viewcontent.cgi?article=12339&context=mlr>

⁸ Garfield, P. J., & Lovejoy, W. (1964). *Public utility economics*, p. 15. Prentice-Hall.

result, electric utilities in the United States have been subject to economic regulation, including direct price regulation, since the early 20th century.

Monopoly regulation: Obligations and rights

Utility regulation is conventionally characterized as an unwritten agreement between a utility and the government: The utility accepts certain service obligations in return for certain rights, including the government's promise to approve and allow rates that will compensate the utility fully for prudently incurred costs. This implied agreement is sometimes called the regulatory compact.⁹ Despite this phrasing, there is no binding agreement between a utility and the government that protects utility ownership from financial accountability.¹⁰ There is a legal relationship between utility and regulator, and between utility investment and regulator-set rates, but according to regulatory scholar Scott Hempling, the regulatory compact artificially narrows the analysis. Instead, regulators, in their pursuit of public interest, set performance standards for the utility and then compensate them based on that performance.¹¹

Relevant here, in exchange for a utility's obligation to serve all customers, the state grants exclusive territory so that the utility will be the only provider in a defined service area so long as the utility continues to perform. When a state grants a formal franchise to the utility, it grants the utility the right to be the sole provider of a defined service within a designated service territory, in most cases legally prohibiting others from offering those services in that area.¹² This essentially codifies the utility's status as a monopoly provider. Consequently, utility regulation is necessary primarily because of the monopoly characteristics of the industry. The general objective of regulation, as discussed herein, is to ensure the provision of safe, adequate and reliable service at prices (or revenues) that are sufficient, but no more than sufficient, to compensate the regulated firm for the prudently incurred costs (including returns on investment) that it incurs to fulfill its obligation to serve.¹³

⁹ Lazar, J. (2016, June). *Electricity regulation in the US: A guide* (2nd ed), p. 6. Regulatory Assistance Project. <https://www.raonline.org/wp-content/uploads/2023/09/rap-lazar-electricity-regulation-US-june-2016.pdf>

¹⁰ There is nothing in law that explicitly states that a compact exists. If a regulatory compact exists at all, it is between the polity (the state), not the public utility commission (PUC) and the utility. The notion of such a formal contract existing has been put forward chiefly by the utilities, particularly during the debates on restructuring and stranded costs, often to justify what PUCs considered outrageous demands in protection of their assets and revenues. See Jarvis, H. N. (2012). Keeping the lights on — at all costs? Imporing consistent prudence review and a prudence standard that includes demand response and responsible portfolio management, p. 1037, footnote 4. *Vermont Law Review*, 29(3), 1037-1065. <https://lawreview.vermontlaw.edu/past-issues/volume-29/volume-29-book-4/>

¹¹ Hempling, S. (2015, March). *What "regulatory compact"?* <https://scotthemplinglaw.com/wp-content/uploads/2021/10/What-Regulatory-Compact-March-2015.pdf>

¹² Hempling, S. (2021). *Regulating public utility performance: The law of market structure, pricing and jurisdiction* (2nd ed.), pp. 14, 44-45. American Bar Association. See discussion below for exceptions, including differentiation among rate classes and when a utility must offer service.

¹³ Lazar, 2016, p. 6.

Under common law and statutes passed in the 20th century, public utilities were obligated, largely as conditions of their monopoly franchises, to provide service to all customers within their service territories.¹⁴ Today, these obligations are now generally enshrined in state statutes, utility commission mission statements and commission decisions. The specifics vary by state but typically include the following obligations:¹⁵

1. **Extend service.** A utility must make all reasonable additions to reliably serve customers within its service area.¹⁶
2. **Continue service once started.** A utility must continue providing service once it has commenced.¹⁷
3. **Serve all customers on equal terms.** A utility must serve customers without undue discrimination or unfair preference, in either service or charges.¹⁸
4. **Render safe and adequate service.** A utility must provide safe service 24 hours a day consistent with industry standards.¹⁹
5. **Provide service at a just and reasonable rate.** A utility can only charge rates approved by the appropriate regulatory authority.

Each obligation has a distinct justification, and we provide additional context about how the nature and scope of obligations have developed in the United States. While data center demand implicates all five of these obligations, we focus on the first three. Aside from the implications of interruptible service, the fourth obligation — providing safe and adequate electric service — can largely be addressed using existing authority through existing technical fora. Where action is needed, it will largely fall to federal, regional or technical entities (e.g., North American Electric Reliability Corporation [NERC], Federal Energy Regulatory Commission [FERC] and regional transmission organizations/independent system operators [RTOs/ISOs]), rather than states.²⁰ The rates issues arising from the fifth obligation are complex and important enough that a separate report addressing cost allocation for large loads is forthcoming.

¹⁴ Rossi, J. (1998, October). The common law “duty to serve” and protection of consumers in an age of competitive retail public utility restructuring, pp. 1236, 1246-1251. *Vanderbilt Law Review*, 51(5), 1233-1321. <https://scholarship.law.vanderbilt.edu/cgi/viewcontent.cgi?article=2117&context=vlr>

¹⁵ Jermyn, C., & Zimmerman, M. (2025, November 17). Utilities’ duty to serve in an era of end-use electrification. *Energy Bar Journal*. <https://www.eba-net.org/wp-content/uploads/2025/11/463-7-Jermyn-491-528.pdf>

¹⁶ Rossi, 1998, p. 1253.

¹⁷ Rossi, 1998, p. 1257.

¹⁸ Norton, F., & Spivak, M. (2023, February 21). The wholesale service obligation of electric utilities, p. 181. *Energy Law Journal*, 6(2), 179-208. https://www.eba-net.org/wp-content/uploads/2023/02/21_6EnergyLJ1791985.pdf

¹⁹ Phillips, C. (1993). *The regulation of public utilities: Theory and practice*, p. 118. https://www.oeb.ca/documents/RP44_1_Hydro%20One%20-%20Tab%20D.pdf

²⁰ Like in many things, Texas is an exception because oversight of the state’s grid operator falls to the state rather than FERC. However, NERC jurisdiction does cover ERCOT.

The federal overlay: Obligation to provide transmission service

FERC has jurisdiction over transmission service in interstate commerce and wholesale sales of electricity.²¹ This paper focuses principally on actions available to state decision-makers, but the federal overlay provides important context.

The primary legal basis for the modern obligation to provide transmission service is the Federal Power Act, which regulates interstate sales of electricity. The act does not incorporate the common law obligation to serve; rather, it delineates discrete, statutorily defined circumstances under which a public utility may be obligated to provide service.²² Once an entity engages in providing service, however, FERC must ensure it offers “just and reasonable rates” and avoids “undue discrimination” in interstate transmission service and wholesale electricity sales. This is analogous to aspects of the state-level utility service obligations laid out above.

Notably, FERC recently declined to develop a federal rule regulating requests by data centers to directly connect to the transmission system. Instead, in tailored orders, FERC required each of the federally regulated RTOs/ISOs to demonstrate that their tariffs remain “just and reasonable” in light of data center demand.

Historical evolution of extending service

Utilities have a duty to build sufficient infrastructure to interconnect and provide service to any customer in their service territory and within the limit of their capacity or ability to serve. This duty is a crucial aspect of monopoly utility regulation for two related reasons. First, without such an obligation, a monopoly provider could pick and choose who gets served in ways that are either suboptimal economically or just unfair.²³ It could focus exclusively on maximizing profits by providing service to areas or customers with the highest profit margin, or it could cut off service to customers that oppose rate increases.²⁴ Given the monopolistic nature of electric service, those customers would not be able to receive service from another provider. Second, ensuring universal access to electricity is an important public policy objective because utilities provide essential services for the well-being of society.²⁵

²¹ Parfomak, P. W. (2026, January 27). *The Federal Energy Regulatory Commission (FERC): Authorities and membership*. <https://www.congress.gov/crs-product/R48349>

²² Norton & Spivak, 2023.

²³ Case law on the duty to serve expanded in the late 19th century when abuses by railroads caused particular concern. In *Messenger v. Pennsylvania Railroad Company*, the New Jersey Court of Errors and Appeals addressed the service obligations of railroads, stating “[t]his public good is common, and unequal and unjust favors are entirely inconsistent with the common right.” See Rossi, 1998, p. 1246.

²⁴ Hempling, 2021.

²⁵ Lazar, 2016, p. 3.

While states differ on the exact wording of the requirement, the general principle is that a utility must make all reasonable additions within its service area.²⁶ Overall, adding new customers provides an economic benefit to the utility, over and above recovering the cost of extending distribution lines or making other system upgrades needed to interconnect them. “Reasonable,” in this instance, means extensions where the economic cost to provide service is “not disproportionate to the overall expected return to the utility in accommodating the new customer.”²⁷

In some cases, however, the cost to extend service to a customer, such as building a line extension, may be unreasonably high relative to the revenue that the customer will ultimately provide to the utility. Determining when a utility needs to provide service, even when doing so is uneconomic for the utility, requires careful policy judgment. In *Lukrawka v. Spring Valley Water Co. (1915)*, the California Supreme Court articulated several factors that modern statutes incorporate to determine whether an extension of service is reasonable.²⁸ Factors include the company’s duty to serve, its supply adequacy, the level of burden on facilities impacted by the extension, existing customers’ rights, the necessity of the utility to supply the extension and the effect of the extension on existing customers.²⁹ In this instance, the court found that because the utility had adequate supply, service could be extended to the new community without affecting supply to existing customers.

Case law and statutes drew upon many of the elements articulated in *Lukrawka*. Most states hold that:

1. Extending service to new customers is required if it can produce a fair and reasonable return to the utility without harming existing customers.
2. The utility may require new customers with extraordinary interconnection requests to pay for a portion of line extension costs up front.
3. If extending service to a new customer would adversely affect existing customers or is outside of a utility’s service territory, the utility may refuse to provide service.³⁰

The adverse effects on other customers can be economic (e.g., the new customer will not provide enough revenue to offset the cost to serve them) or practical (e.g., serving the new customer would cause resource scarcity that could affect existing customers).³¹

If a utility lacks capacity to serve the new customer in addition to existing customers, for example, the utility may not have to extend service. Willful ignorance of potential customer

²⁶ Phillips, 1993, p. 118.

²⁷ Rossi, 1998, p. 1253.

²⁸ Rossi, 1998, p. 1254.

²⁹ Rossi, 1998, p. 1254.

³⁰ Rossi, 1998, p. [1263](#).

³¹ See Rossi, 1998, pp. 1254, 1255: “The court found that the water company had enough of a supply of water so that service could be extended to the new community without affecting water supply to current customers.”

demands is unlikely to excuse the utility from its obligation to serve, however; the utility must make reasonable efforts to build capacity ahead of demand growth and provide a reasonable reserve capacity margin that makes the grid more reliable during periods of peak demand and facilitates reasonable load growth without requiring a new build-out.^{32,33}

Obligation to serve in restructured states

The utility obligation to serve does not just apply to vertically integrated utilities; it also applies in restructured states in slightly different forms. Restructured states still apply the traditional utility obligations on all utilities offering service to customers, that is, distribution utilities. In addition, many have adopted minimum customer service and safeguard protections. Finally, many restructured states have also adopted a “provider of last resort”³⁴ requirement wherein the utility must provide default service for customers who do not choose an alternate provider of electricity.³⁵

Historical evolution of obligation to continue service

The obligation to extend service is closely related to, and frequently combined with, the obligation to continue service once started. Like the obligation to extend service, the obligation to continue service is required even when it is uneconomical for the utility so long as (1) a public necessity for such continuance exists and (2) the loss sustained from the operation will not jeopardize or place an undue burden upon the general service rendered by the utility.³⁶

Since utilities provide essential services for the well-being of society, both individuals and businesses,³⁷ stopping utility service to individuals, businesses or specific locations is closely regulated. There are two distinct ways in which a utility may stop service for financial reasons: permanent suspension of service and temporary disconnection of service.³⁸ Permanent suspension of service typically takes the form of cessation of service to a distinct portion of a service area, such as a township or development. In this instance, the utility seeks to surrender or curtail its franchise agreement for specific territory and must petition the regulatory authority

³² Phillips, 1993, p. 118.

³³ Norton & Spivak, 2023, p. 180.

³⁴ Also known as default service or standard offer provision. See Reishaus Consulting. (2015, December). *Electric restructuring history whitepaper*. New England States Committee on Electricity. <https://nescoc.com/resource-center/restructuring-dec2015/>

³⁵ American Public Power Association. (2022, May). *Retail electric rates in regulated and deregulated states*, p. 3. <https://www.publicpower.org/system/files/documents/2022%20Retail%20Electric%20Rates%20In%20Regulated%20Utilities%20Report.pdf>. See also state statutes in Bagdanov, K. G. (2024, March 4). *Decarbonizing the obligation to serve*. Building Decarbonization Coalition. <https://buildingdecarb.org/decarbation-obligation-to-serve>. See appendix: *Obligation to serve in every state* [Table]. <https://buildingdecarb.org/wp-content/uploads/OTS-in-every-state-rev-Jul-2024.pdf>

³⁶ Rossi, 1998, p. 1258, citing the Pennsylvania Public Service Commission.

³⁷ Lazar, 2016, p. 3.

³⁸ Routine maintenance or system upgrades may cause temporary disconnection of service and is distinct from disconnection due to nonpayment or service area abandonment.

for permission to do so. Commissions may grant permission to a utility to abandon territory if the utility can show: (1) It no longer has a franchise to serve, (2) public demand is minimal, (3) a shortage of supplies exists, (4) operation is at a substantial economic loss or (5) customers have failed to meet necessary conditions for receiving service.³⁹

A temporary service disconnection, by contrast, is a cessation of service that is typically in reference to a single customer. In most cases, it is a temporary status; however, in extreme cases it can become permanent. Case law and statutes have imposed strict requirements on when a utility can stop service to individuals. Modern policy distinguishes between temporary discontinuation and permanent disconnection. Temporary service shutoff requires a utility to provide notice of planned interruptions, when possible, and to understand a particular customer's needs.⁴⁰ Permanent disconnections require notice and may be allowed in the case of a nonpaying customer.⁴¹

Commissions may prescribe the circumstances under which disconnections are appropriate. While it is common, for example, to allow utilities to discontinue service due to nonpayment, commissions may place equity limitations on shutoff actions. Some states may prohibit utilities from stopping service when doing so would threaten public safety (e.g., during extreme heat or cold); others may require utilities to connect customers facing shutoffs with bill assistance or other support programs. On the other hand, states may also require utilities to stop service when needed to protect public safety (e.g., during periods of extreme wildfire risk).

Historical evolution of nondiscrimination

Utilities must serve all customers equally. While the concept originated in the context of railroads,⁴² it now prevents electric utilities from picking and choosing customers to serve in their service territory.

However, the obligation to serve on equal terms doesn't mean that utilities need to provide all customers with the same type of service. Different types of customers can impact the grid in different ways, so current regulations allow utilities to group customers into different classes that recognize distinct characteristics. For instance, residential customers have different needs and impacts on the grid than commercial and industrial customers. Utilities may treat these distinct classes of customers differently, recognizing their unique characteristics. Within each class,

³⁹ Rossi, 1998, p. 1258, citing various case law.

⁴⁰ Case law around these restrictions revolves around notice of planned interruptions, which are distinct from unplanned emergency interruptions. Case law also distinguishes particular customer needs that make a customer particularly sensitive to utility disruptions, such as damage caused to a fish hatchery, or for medical reasons. See Rossi, 1998, footnote 105.

⁴¹ In many states, utilities may not disconnect if a customer is making some partial payment. See Rossi, 1998, p. 1260.

⁴² When monopolies owe their exclusive franchise to the state "they owe an equal duty to each citizen...such is the common law on the subject." *New England Express Co. v. Maine Cent. R.R.*, 57 Me. 188, pp. 196-197 (1869), quoted in Rossi, 1998, p. 1248.

however, the same rate structure and connection terms must apply to all customers.⁴³ See further discussion below on interruptible tariffs.

Limitations on utility service obligations

Inherent in the obligations discussed above is the understanding that a utility's service obligations have boundaries. Each obligation is subject to reasonable limitations grounded in common law and codified through modern statutory language and regulatory decisions. As mentioned above, a utility may, for example, require a customer with extraordinary connection costs to pay for a portion of line extension costs up front. Common regulatory practice builds a standard cost allowance into base rates and require the utility to charge the new customer for costs above that base allowance. Some jurisdictions require the new customer to pay an up-front contribution in aid of construction (CIAC), while others allow payments over time in a monthly bill surcharge. The CIAC may or may not be refundable depending on whether additional customers connect to the original line extension. If there's no reasonable expectation that the utility will recover the costs on the line, then the CIAC may be nonrefundable.⁴⁴ The ability to develop and define this limitation is only one example of the statutory discretion granted to many commissions.

Under modern statutes, utility obligations are often defined in broad terms, and statutory language includes sensible limitations on when and how a utility must provide service, as shown in Table 1 below.

⁴³ Phillips, 1993, pp. 118-119.

⁴⁴ See McDermott, K., & Peterson, C. (2024, July 10). *The current state of natural gas utility line extension policies*. American Gas Association, pp. 32-33, https://www.aga.org/wp-content/uploads/2024/07/The-Current-State-of-Natural-Gas-Utility-Line-Extension-Policies_FINAL.pdf; and Scripps, D., Phillips, T., & Peretick, K. (2022, January 15). *Contribution in aid of construction workgroup report: MPSC Case No. U-20697*, p. 2. Michigan Public Service Commission. <https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/0688y000001keFvAAI>

Table 1. Excerpts of select state statutes establishing public utility service obligations

State	Statute	Statutory language
Alabama	ALA. CODE §37-1-49	“Duty of utility to render adequate service and maintain facilities. Every utility shall maintain its plant, facilities and equipment in good operating condition and shall set up and maintain proper reserves for renewals, replacements and reasonable contingencies. Every utility shall render adequate service to the public and shall make such reasonable improvements, extensions and enlargements of its plants, facilities and equipment as may be necessary to meet the growth and demand of the territory which it is under the duty to serve.”
Wisconsin	WIS. STAT. §196.03	“A public utility shall furnish reasonably adequate service and facilities.”
New York	N.Y. PUB. SERV. LAW §65(1)	“Every gas corporation, every electric corporation and every municipality shall furnish and provide such service, instrumentalities and facilities as shall be safe and adequate and in all respects just and reasonable .”
Illinois	220 IL. COMP. STAT. 5/8-101	“A public utility shall, upon reasonable notice, furnish to all persons who may apply therefor and be reasonably entitled thereto, suitable facilities and service, without discrimination and without delay.”
Indiana	IC 8-1-2-4	“Every public utility is required to furnish reasonably adequate service and facilities.”
Georgia	GA Code Ann. § 46-2-20	“Jurisdiction of commission generally; powers and duties of commission generally. (c) The commission may, either by general rules or by special orders in particular cases, require all companies under its supervision to establish and maintain such public services and facilities as may be reasonable and just .”
Idaho	Idaho Code Sec. 61-302	“Every public utility shall furnish, provide and maintain such service, instrumentalities, equipment and facilities as shall promote the safety, health, comfort and convenience of its patrons, employees and the public, and as shall be in all respects adequate, efficient, just and reasonable .”

The limitations discussed above (uneconomical service, nonpayment) are long-standing examples; the statutory language in most states leaves regulators space to adapt utility obligations to current circumstances. Terms like “adequate” and “reasonable” are ubiquitous in modern statutes and leave regulators and the courts with substantial discretion to evaluate utility conduct based on specific contexts. Thus, regulators can and should evaluate whether utility obligations and their limitations remain appropriate in the era of data center expansion.

Development of flexible service options

The obligations above generally contemplate the provision of firm service that intends to be available 24/7, even under adverse conditions.⁴⁵ Providing firm service requires the utility to (1) check whether the system already has sufficient generation, transmission and distribution

⁴⁵ U.S. Energy Information Administration. (n.d.). *Glossary*. <https://www.eia.gov/tools/glossary/index.php?id=Firm%20power>

capacity to reliably meet expected demand during all hours, including during extreme weather or other adverse conditions; (2) if not, determine what network upgrades or additional capacity would be required to serve the customer's load; and (3) if the customer wants to proceed, build any needed capacity or system upgrades before connecting the new customer.⁴⁶

Traditionally, firm service has been the default service option. Over time, however, alternatives that offer different levels of service — depending on customer preferences and system needs — have evolved. This section offers an overview of the types of flexible service options that have or are in the process of being developed at the distribution level.

Interruptible tariffs and programs

Many utilities offer voluntary economic tariffs or programs to encourage large commercial and industrial customers to reduce their demand during periods of grid stress. These options, broadly referred to as interruptible service, date back to the 1970s, when the energy crisis and increasing energy costs caused industry along with academic institutions and governmental agencies to consider rate design methods as a means to shift customer energy usage.⁴⁷ The Public Utility Regulatory Policies Act (PURPA) of 1978⁴⁸ required state public utility commissions and nonregulated electric utilities to consider and determine whether to adopt six rate-making standards, including interruptible rates.⁴⁹ Traditionally, interruptible service involved manual curtailment of large industrial loads, which required several hours' or days' of notice to activate. Programs also focused on addressing grid-wide capacity constraints rather than local or transmission issues.

Since the 1970s, the concept evolved to include a range of demand response programs with varying levels of sophistication. Today, demand response generally falls into two main categories: (1) price-based options, which can include interruptible tariff options, and (2) incentive-based programs.⁵⁰ The first category, which includes price-based interruptible tariffs, may be deployed to provide capacity, energy or reliability to the grid.⁵¹ Other price-based options

⁴⁶ Davis, C., Odom, C., Pandey, S., Mooney, M., & Walmsley, A. (2026, January). *Flexible grid connections implementation guide*, p. 5. Charged. <https://chargedinitiative.org/wp-content/uploads/2026/01/CHARGED-Flexible-Grid-Connections-Implementation-Guide.pdf>; and Kahrl & Frick, 2026.

⁴⁷ Revesz, R., & Unel, B. (2020). Managing the future of the electricity grid: Modernizing rate design, p. 73. *Harvard Environmental Law Review*, 44, 43-115. https://policyintegrity.org/files/publications/Managing_the_Future_of_the_Electricity_Grid_Modernizing_Rate_Design.pdf. See also Cappers, P., Goldman, C., & Kathan, D. (2009, June). *Demand response in U.S. electricity markets: Empirical evidence*, p. 7. Ernest Orlando Lawrence Berkeley National Laboratory. <https://www.energy.gov/oe/articles/demand-response-us-electricity-markets-empirical-evidence>

⁴⁸ See Federal Energy Regulatory Commission (FERC). (n.d.) *PURPA qualifying facilities*. <https://www.ferc.gov/qf>

⁴⁹ FERC, n.d. See also 16 U.S.C. § 2621(d)(5): Each electric utility shall offer each industrial and commercial electric consumer an interruptible rate which reflects the cost of providing interruptible service to the class of which such consumer is a member. Legal Information Institute (LII). (n.d.). 16 U.S.C. § 2621(d)(5) — *Consideration and determination respecting certain ratemaking standards*. Cornell Law School. <https://www.law.cornell.edu/uscode/text/16/2621>

⁵⁰ Hurley, D., Peterson, P., & Whited, M. (2013, March). *Demand response as a power system resource*, p. 5. Synapse. https://www.synapse-energy.com/sites/default/files/SynapseReport.2013-03.RAP_US-Demand-Response.12-080.pdf

⁵¹ Hopkins, A. S., & Whited, M. (2017, March 31). *Best practices in utility demand response programs*. Synapse. <https://www.synapse-energy.com/sites/default/files/Utility-DR-17-010.pdf>

include time-of-use rates and other price signals aimed at influencing customer consumption patterns.

The second category, incentive-based programs, includes direct load control, interruptible or curtailable service, demand bidding and emergency demand response programs and other market-based programs. Interruptible/curtailable (I/C) service programs are integrated with the customer tariff and generally provide either a rate discount or bill credit in exchange for being available to reduce load. These programs can either be dispatchable, in which the utility (or other system operator) directly dispatches the resources, or nondispatchable, in which customers voluntarily elect to adjust their consumption in response to price signals. Customers with dispatchable load typically enter into contracts to receive payments for demand reductions and may face penalties for nonperformance.⁵²

Interruptible service options are generally consistent with utility service obligations for several reasons. First, as noted above, the obligation to serve all customers on equal terms contemplates different offerings to different classes of customers, so long as there is consistency across customers in the same class. Thus, although interruptible service typically focuses on large commercial and industrial customers, this obligation is met, provided that similar customers receive the same offerings. Second, interruptible service is deemed adequate when agreed to by the customer in exchange for a price reduction, an incentive payment or some other benefit. Third, regardless of whether the customer is participating in a demand response program or has agreed to an interruptible tariff, the utility continues to plan to meet the customer's demand. The utility will typically include the customer's expected demand in the load forecast it uses for resource and transmission planning, while also including the responsive or interruptible load as a flexible resource in its resource plan. These programs and tariffs give the utility flexibility, which can be utilized in the system in the event that load is higher than expected within certain time frames.

Flexible interconnection

Interconnection service refers to the level of service that a generator or load (interconnection customer) requests when it interconnects.⁵³ Historically, different interconnection service options have been limited to generators and not available to loads. However, as noted by Lawrence Berkeley National Laboratory (LBNL), differentiated service levels will likely be an important part of the regulatory framework for nonfirm (curtailable) service for large loads. Additionally, discussions of service levels typically focus on transmission level service, not the distribution level. Nonfirm interconnection service for the distribution system is typically referred to as flexible interconnection and is distinct from nonfirm service on the transmission system, where

⁵² Cappers et al., 2009, p. 22.

⁵³ Kahrl & Frick, 2026, p. 11.

many large loads are expected to connect.⁵⁴ The concept of flexible interconnection is more developed for the distribution system, whereas for the transmission system it will likely continue to evolve.

Obtaining firm service can be slower than many modern large loads want. Traditionally, a new customer must wait to interconnect until the utility completes necessary upgrades. As new large load customers increase in size, they strain the electric grid more and may trigger substantial and time-consuming network upgrades or interconnection infrastructure.

To speed up the connection, a customer could instead accept a flexible or nonfirm connection.⁵⁵ Under this construct, a customer can connect before requisite system upgrades have been completed by accepting reduced service (consumption limits) that corresponds with existing system constraints.⁵⁶ These constraints could be due to insufficient resource adequacy or limitations on the transmission or local distribution systems.⁵⁷

Flexible interconnection can either be a temporary bridge — until the requisite upgrades are completed — or a permanent commitment that avoids the need for the upgrades over the long term. Because the permanent option can avoid, rather than merely delay, network upgrades or other investments, it offers potentially substantial cost advantages.

Maintaining grid reliability with flexible interconnection depends on ensuring the consumption limits are met. Direct utility control over a customer's imports from the grid provides the greatest level of assurance. Alternatively, the utility could require a customer to install equipment such as certified power control systems or relays that limit grid imports and exports or automatically disconnect a customer from the grid. In a third option, the system operator sends a dispatch instruction to the load indicating the consumption limit has been met (e.g., based on an economic bid), and the load either follows the instructions or is penalized for noncompliance.

Options for flexible interconnection include staggered connections, static flexible interconnections and dynamic flexible interconnections. Examples of these interconnections in practice typically draw from electric vehicle charging stations or other distributed energy resource contexts⁵⁸ but could be applicable to large load connections with modifications.

A curtailable distribution service is a more permanent version of flexible interconnection. As noted by LBNL, a curtailable load service “would be different than traditional demand response because it would (a) allow distribution operators to curtail net loads to relieve distribution

⁵⁴ For a robust discussion of flexible interconnection options, see Kahrl & Frick, 2026, pp. 32-33.

⁵⁵ Bjarghov, S., Stefanussen Foslie, S., Askeland, M., Rana, R., & Taxt, H. (2024, August). *Enhancing grid hosting capacity with coordinated non-firm connections in industrial energy communities*. Science Direct. <https://www.sciencedirect.com/science/article/pii/S2666955224000248> at 1.

⁵⁶ Kahrl & Frick, 2026, p. 30.

⁵⁷ While there are options for flexible or nonfirm service at the transmission level, those generally fall outside of state jurisdiction, and we therefore do not explore them here. Further information on these transmission-level options is available in Kahrl & Frick, 2026, pp. 26-31.

⁵⁸ See Kahrl & Frick, 2026, p. 33.

constraints and (b) require distribution planners to adjust the load forecasts used in planning.”⁵⁹ Curtailable distribution service is distinguished from the options above by the degree to which the load would be counted in load forecasts. Depending on system constraints or other requirements acting on large load (including self-supply of generation or colocation discussed below), this service could be a permanent limit, and therefore the load would not be counted in load forecasts. LBNL notes this service could be complementary to flexible interconnection as discussed above and might also be extended to existing customers rather than being limited to new interconnection requests.⁶⁰

Options to Ensure Service Obligations Align with Policy Priorities in the Large Load Era

The evolution of utility service obligations demonstrates that they are not static. Obligations have evolved and adapted as the policy context has shifted over time. The advent of data centers is only the latest justification for critically evaluating the scope and extent of these obligations.

Policymakers and regulators have options to balance a utility’s obligation to serve new load from data centers (and other novel customers), while simultaneously satisfying a utility’s obligation to serve existing customers. Whether and how to implement any of these options depends on the policy and legal context in an individual state. Each option includes trade-offs and policy judgment; it is therefore possible that states will reach different decisions on the best path forward.

Investigate utility service obligations given data center developments

Many states have opened formal investigations or mandated studies that examine the impacts of data centers and other large loads. States could incorporate into these investigations an evaluation of what utility service obligations should look like for data centers, considering existing statutes, regulations and case law alongside state policy goals. These efforts can happen at the regulatory, legislative or executive levels.

Define or clarify limitations on the obligation to extend service

As noted, the unique characteristics of data centers raise significant questions about whether, how and when utilities should be obligated to extend service. States can proactively address these questions by clarifying what the obligation to extend service requires in the age of data

⁵⁹ Kahrl & Frick, 2026, p. 11.

⁶⁰ Kahrl & Frick, 2026, p. 12.

centers. As the Indiana Utility Regulatory Commission explained in one of the first large data center tariff decisions in 2024:

It is impossible to ignore the changing environment with respect to large load customers. Large load customers are by far the most unique of all customers in the amount of electricity they consume, the risk they pose to a system should that load change suddenly, and the cost of investment needed to serve that load as utilities seek to fulfill their obligation to serve. The legislature may well have something to say about future treatment.⁶¹

There are at least three types of clarifications that states could consider.

- **Ability to delay or deny service:** Despite the clamor for speed to power, states could recognize that the obligation to serve does not require service immediately upon request. For example, utilities are not required to connect data center customers when they lack the transmission or distribution infrastructure needed to do so. This limitation may already be clearly defined in state statutes. For example, Virginia’s Joint Legislative Audit and Review Commission (JLARC) review concluded state law clearly provided utilities the ability to delay service in this circumstance.⁶² In contrast, a recent Utah law specifies that a utility is not obligated to provide electric service whatsoever if it is unable to do so within the time frame requested by the customer, among other circumstances.⁶³
- **Lack of adequate resources:** States can clarify that utilities are not required to connect customers where they lack adequate resources to serve them. This could either result from general resource adequacy limitations or from an inability to serve the new customer while complying with state policy requirements. Oregon regulators, for example, have decided that Portland General Electric is not obligated to connect new data centers to the grid until there are sufficient clean energy resources available to comply with the state’s climate targets.⁶⁴ Allowing utilities to delay connection based on a lack of adequate resources must be balanced with the obligation for a utility to reasonably anticipate future demand. The case law establishing the reasonable anticipation standard applied to circumstances quite different from the magnitude of large load applications today. As noted above, load growth in the current large load era is different in scale, speed and location from prior load growth. State policy priorities may influence where the line is between “reasonable” anticipation of data center demand versus “unreasonable” speculative build-out. States prioritizing economic development opportunities, for example, may be more tolerant of the risks of overbuilding the grid ahead of demand, while states prioritizing protections for existing customers may find that reasonable anticipation requires more certainty that demand will materialize.

⁶¹ Indiana Utility Regulatory Commission, Cause 46097, In the matter of the verified petition of Indiana Michigan Power Company for approval of modifications to its industrial power tariff — Tariff I.P., July 19, 2024. <https://iurc.portal.in.gov/docketed-case-details/?id=b8cd5780-0546-ef11-8409-001dd803817e>

⁶² Joint Legislative Audit and Review Commission. (2024). *Data centers in Virginia*, p. 36. <https://jlarc.virginia.gov/landing-2024-data-centers-in-virginia.asp>.

⁶³ Utah State Legislature, Section 54-26-401, Qualified electric utility service obligations, May 7, 2025. <https://le.utah.gov/xcode/Title54/Chapter26/54-26-S401.html>

⁶⁴ The 2025 Oregon POWER Act requires the state’s Public Utility Commission (PUC) to consider whether electricity used to serve data centers would comply with the state’s clean energy targets. Oregon State Legislature, HB 3546, 2025 Reg. Sess., § 2(3)(c). <https://olis.oregonlegislature.gov/liz/2025R1/Measures/Overview/HB3546>. The Oregon PUC recently relied on that authority to approve Portland General Electric’s proposed load interconnection queue under which new data centers must comply with state climate targets before they can connect to the electric grid. Public Utility Commission of Oregon, Dkt. UM 2377, Order 26-154, May 7, 2026. <https://apps.puc.state.or.us/orders/2026ords/26-154.pdf>

If not defined clearly and narrowly, efforts to explicitly empower a utility to delay or deny extending service may have unintended consequences beyond data center development. In California, for example, grid constraints have led to long connection delays for electric vehicle charging depots that are critical to implementing the state's transportation electrification policies.⁶⁵ In Ireland, a new substation was built to relieve pressure, enable housing and industrial development and meet future needs, but almost all of its capacity is now being consumed by data centers.⁶⁶ Clearly defining when and how a utility can delay a connection will be essential to ensure connection delays or limitations do not have unintended consequences for other users and use cases.

- **Lack of reasonable certainty on load:** At a minimum, relying on *speculative* load is likely unreasonable. In contrast, reasonable efforts would include robust, scrutinized load forecasting, with scenario analysis and milestone requirements.⁶⁷ Regulators may consider establishing clear expectations for forecast methodologies, elements and metrics (e.g., how to manage data center speculative applications, stages of data center and other loads' progress and timing from application to energization). Additionally, regulators could enhance load forecasting review with robust third-party or stakeholder input and require utilities to improve forecasting tools and requirements. Comparing individual utility forecasts to RTO-level estimates might help to identify and understand the reasons for over- or undercounting.⁶⁸ If utilities plan along these lines, then they should satisfy the obligation to reasonably anticipate future data center demand.

Aside from data centers, other sources of end-use electrification, such as EV-charging hubs and increasingly electrified developments, are also increasing and projected to be greater over time than current data center load.⁶⁹ These sources of load growth, while still nascent in some jurisdictions, are rapidly growing in others.⁷⁰ How and where the new electrification load develops are different from traditional sources of load growth such as manufacturing or development, and as such "utilities and regulators will need to recognize that end-use electrification load growth can materialize in ways not adequately reflected in existing load forecasting systems, and targeted efforts may be needed."⁷¹ Effective forecasts that regulators can rely upon are necessary components of determining whether a utility's planned resource and infrastructure planning is reasonable.

Any of these clarifications may have policy implications. For example, policymakers seeking to attract data centers to their state may prioritize expedited data center interconnections for

⁶⁵ Lee, M. (2024, September 13). *It could take years to power up California's new EV charging stations*. ClimateWire. <https://subscriber.politicopro.com/article/eenews/2024/09/13/it-could-take-years-to-power-up-californias-new-ev-charging-stations-00178894>

⁶⁶ Commission for Regulation of Utilities. (2025, February 18). *Review of large energy users*. <https://consult.cru.ie/en/consultation/review-large-energy-users-connection-policy>.

⁶⁷ Eberle, L., & Kadoch, C. (2026, February). *Building resilient foundations for large loads*. Regulatory Assistance Project. <https://www.raponline.org/knowledge-center/building-resilient-foundations-for-large-loads/>; Wilson, D., & Meyer, S. (2025, December). *Forecasting for large loads: Current practices and recommendations*. Energy Systems Integration Group. <https://www.esig.energy/reports-briefs/forecasting-for-large-loads/>; and Schwartz, A., & Stenclik, D. (2026, April). *Resource adequacy with large loads: Planning for flexibility to accelerate integration*. Energy Systems Integration Group. <https://www.esig.energy/reports-briefs/large-loads-resource-adequacy/>.

⁶⁸ Eberle & Kadoch, 2026.

⁶⁹ Electric Power Research Institute (EPRI). (2026). *Data center load growth in context*. <https://powering-intelligence.epri.com/load-growth.html>

⁷⁰ Jermyn & Zimmerman, 2025, p. 512.

⁷¹ Jermyn & Zimmerman, 2025, p. 512.

perceived economic development reasons.⁷² These considerations may influence how regulators or policymakers choose to adapt the obligation to extend service. Regardless of where a state lands on balancing policy, creating clear standards for when a utility can delay or deny service will reduce uncertainty for regulators, utilities and large load customers.

The far end of the spectrum: Islanded large loads

States must balance the need to protect existing customers with the public benefit of getting new loads to connect rather than island or relocate. The most severe response would be to interpret the obligation to serve as prohibiting data centers from connecting, thus driving them to develop independently of the electric grid. This has several drawbacks.⁷³ First, utilities will lose the opportunity to optimize the existing system and reduce overall costs. When properly managed and priced, new demand can spread fixed costs across a wider customer base, reducing rates for everyone. Resources like demand flexibility and energy efficiency can free up system headroom and improve grid utilization. These options are unavailable to serve data centers that are disconnected from the grid.

Second, developing multiple, independently operated mini-grids is inefficient economically and environmentally. Islanded data center facilities are completely isolated from the bulk electric power system and other utilities. As a result, they are unable to pool resource reserves or benefit from other economies of scale. Islanded facilities are also more likely to rely on less efficient types of power production, for example, reciprocating internal combustion engines or simple-cycle turbines rather than combined cycle plants.

Third, states will lose economic oversight of islanded data centers. New statutes in a handful of states have largely or entirely exempted these islanded facilities from economic regulation by state utility commissions, though they remain subject to other siting and permitting or air quality laws and regulations.⁷⁴ Despite being islanded, these facilities still risk raising electric rates for utility customers through direct competition with utilities for scarce generation resources and grid components.⁷⁵ They also pose risks to reliability and public policy, particularly if previously islanded facilities subsequently seek grid connection.

⁷² Navigating the competition to connect in constrained systems may require policymakers or regulators to develop criteria for how to prioritize connections to maximize the public interest. For example, the Netherlands has developed a prioritization policy that accounts for social benefits. Association of Netherlands Municipalities (VNG). (2024). *Prioritization framework for grid capacity*. <https://vng.nl/artikelen/prioriteringskader-acm-voor-netcapaciteit>.

⁷³ Valainis, A. (2026, May 13). *Going off grid: The false panacea of islanding high-impact loads*. Regulatory Assistance Project. <https://www.raponline.org/blog/going-off-grid-false-panacea-islanding-high-impact-loads/>

⁷⁴ Ohio, HB 15 (2025); Oklahoma, SB 480 (2025); New Hampshire, HB 672 (2025); and Utah, SB 132 (2025). Legislation was introduced in Colorado but did not pass (HB 26-1246, introduced February 18, 2026).

⁷⁵ Kim, G. (2026, February 5). Amazon outbids WA utility for one of nation's largest solar projects. *Seattle Times*. <https://www.seattletimes.com/seattle-news/climate-lab/amazon-outbids-wa-utility-for-one-of-nations-largest-solar-projects/>; and Webb, S. (2026, April 4). *The supply crunch that could raise your electric bill*. E&E News, Politico. <https://subscriber.politicopro.com/article/eenews/2026/04/06/the-supply-crunch-that-could-raise-your-electric-bill-00858918>

Strengthen interruptible service

Interruptible service represents a potential win-win for states facing significant demand growth: It may enable faster connection of data centers while safeguarding service to existing customers. Many data centers, however, have different economics than most electricity users and may not respond to market signals or requests to curtail like traditional industrial customers. To address this concern, states have a few options to strengthen interruptible service options: make voluntary interruptible options more robust or mandate that specific large load customers accept interruptible service under specified conditions. Either option may be consistent with a state's existing utility service obligations, as we discuss below.

The potential benefits from even small amounts of load flexibility to help address large load growth are well documented.⁷⁶ Most relevant to the obligation to serve, with proper definition and enforcement, interruptible service can enable data centers to connect more quickly. A data center can be interruptible on a temporary basis, until requisite upgrades are completed. Or a more advantageous alternative in the current capacity constrained environment would be a data center that remains interruptible throughout its lifespan, which could avoid certain upgrades or investments entirely and result in substantial cost savings over the long-term. Interruptible service can also reduce cost and risk. If properly incorporated into utility planning, flexibility may mitigate overbuilding risk.⁷⁷ Well-managed load flexibility can also increase utilization of existing resources, which reduces costs to all customers by spreading fixed costs over more users.

Voluntary interruptible options

Interruptible service is already available and being used by some large load customers.⁷⁸ Halcyon's Large Load Tariff Tracker identifies at least 39 examples, across 15 states, of anticipated or current large load tariffs or special contracts under which customers may be interrupted under specified circumstances.⁷⁹ Many of these tariffs and agreements are voluntary: Customers may choose whether to select interruptible or uninterruptible service. But the agreements generally require that once a customer opts in, it must comply with curtailment orders when called. That is, the agreements go beyond price-based incentives and instead require a customer to curtail demand under specific circumstances, subject to penalties or other enforcement action by the utility. In some cases, the agreements require the large load to curtail

⁷⁶ Norris, T. H., Profeta, T., Patino-Echeverri, D., & Cowie-Haskell, A. (2025). *Rethinking load growth: Assessing the potential for integration of large flexible loads in US power systems* [Report NI R 25-01]. Nicholas Institute for Energy, Environment & Sustainability. <https://nicholasinstitute.duke.edu/sites/default/files/publications/rethinking-load-growth.pdf>. While this study identified significant potential system benefits from various assumed levels of flexibility, it doesn't address the extent to which data centers can be flexible and how any flexibility would be implemented and enforced. EPRI's DCFlex Initiative is developing answers to the former; state policymakers and regulators could define the latter.

⁷⁷ If data centers can avoid exacerbating system peaks, they are less likely to drive substantial infrastructure expenditures that could become stranded if load fails to materialize or is later shut down.

⁷⁸ Federal Energy Regulatory Commission (FERC). (2026, June 18). *FERC launches aggressive targeted action to speed large load integration* [News release]. <https://www.ferc.gov/news-events/news/ferc-launches-aggressive-targeted-action-speed-large-load-integration>

⁷⁹ Halcyon. (2026, July 17). *Large load tariff tracker*. <https://halcyon.io/large-load-tariff-tracker>

only in emergency situations; in others, the customer must curtail its demand upon request by the utility, with few limitations. For example, Xcel Energy's (a U.S.-regulated electric and gas utility in Minnesota) large peak controlled time-of-day service offers an option to interruptible large load customers with greater than 3 MW of controllable load who can curtail grid use during peaks or high price events.⁸⁰

At a minimum, states can ensure that voluntary interruptible service options are available to customers and effectively designed. When evaluating whether to adopt, adapt or expand voluntary interruptible service options, decision-makers should keep in mind a few unique characteristics of data centers:

1. Anecdotal evidence indicates that if a large load customer objects to interruptions, a utility might not call for service interruptions. This indicates that strong regulatory direction or statutory mandates may be necessary to ensure utilities utilize interruptible tariffs during certain times or events.⁸¹
2. Many interruptible tariffs do not physically curtail load but instead impose either financial penalties or a higher rate for usage during times of grid stress. While this has worked for price-sensitive industries, experience to date indicates that data center customers are more likely than other industrial customers to choose to pay the higher price or penalty rather than reduce demand. Consequently, states may need to modify interruptible tariffs to either: (1) ensure the price signal (including penalties) would trigger meaningful reaction or (2) require large customers to install equipment such as certified power control systems or relays that limit grid imports and exports or automatically disconnect customers from the grid.
3. Given the magnitude of data center load, transparency is paramount. States could develop metrics that require utilities to report, on a regular cadence or in a future integrated resource plan (IRP) or rate case, how often interruptible customers are curtailed, under what circumstances and whether and how customers comply with calls by the utility to curtail demand.

Air quality and interruptible service

At a high level, a data center (or any large industrial user) has two main options to reduce demand: (1) reducing onsite operations (e.g., for data centers, this could include slowing down, delaying or relocating to another facility various compute workloads) or (2) producing onsite power to offset the amount of electricity needed from the grid. Under the latter, many data centers rely on backup diesel generators, which emit local air pollutants and greenhouse gases. This raises at least two important air quality considerations.

First, it is important to ensure any demand response programs account for air permit restrictions. If a facility's air permit limits backup diesel generators to emergency use only, those engines are generally not allowed to be used in demand response programs. However,

⁸⁰ Lindemann, J., & Collier, A. (2026, August 25). *Stretching the possibilities: Where large-load tariffs fit in the future of data center flexibility*. Smart Electric Power Association. <https://sepapower.org/knowledge/where-large-load-tariffs-fit-in-the-future-of-data-center-flexibility/>

⁸¹ Confidential discussion with state public utility commission staff, August 2026.

anecdotal evidence indicates that customers and utilities may nevertheless list those generators as demand response resources. This raises questions about whether the demand response could actually respond, if called, and if so, how states should address any resulting violations of individual air permits or area-wide air quality standards.

Second, the potential environmental impacts from backup diesel generator operations are an important consideration when expanding any type of interruptible service. States could directly address this issue by requiring or incentivizing less polluting backup options. For example, some states have required data centers to install—or conditioned state incentives on data centers installing—nonemitting backup alternatives or pollution control equipment on diesel generators.^{82 83}

Mandatory interruptible service

States could strengthen interruptible service options by *requiring* certain customers, like data centers, to be interruptible or to accept conditional firm service under specified circumstances (grid stress). This may be necessary if not enough large load customers opt into voluntary interruptible service; it may also provide greater contractual certainty or direct utility control than voluntary demand response participation.

While these options are available universally, states in RTOs might face these issues sooner as a result of the FERC's show cause orders under Section 206, directing the six regional grid operators to justify or reform the rules that govern how large energy users connect to the grid.⁸⁴ One regional transmission organization, PJM (Pennsylvania-New Jersey-Maryland Interconnection), proposed an Interim Resource Adequacy Service (IRAS) framework in response to the FERC order. The IRAS would aim to reduce or transfer the electricity demand from new large load customers ahead of any action that would serve to shut off traditional consumers, including residential consumers.⁸⁵ PJM will not directly curtail individual customers but will proportionately reduce electricity deliveries to utilities or areas with large loads that have failed to procure sufficient new capacity to cover the increased demand. Consequently, states within the PJM footprint will need to define how load reductions would be allocated. States may,

⁸² Pennsylvania Department of Community & Economic Development. (2026, February 3). The Governor's Responsible Infrastructure Development (GRID) Standards. <https://dced.pa.gov/business-assistance/data-center-resources/grid-standards/>. In addition, an August 2026 executive order requires agency review of air permitting regulations in light of concerns about data center impacts. Commonwealth of Pennsylvania Governor's Office (2026, August 18), E.O. 2026-05. https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/eo2026_05_protecting%20pennsylvania%20consumers%20from%20data%20center%20impacts_final_executed.pdf.

⁸³ Statement of Expectations for Responsible Data Center Development and Operations in Massachusetts. (2026, June 25). <https://www.mass.gov/info-details/healey-driscoll-administration-statement-of-expectations-for-responsible-data-center-development-and-operations-in-massachusetts>. In a September 2026 executive order, the governor prohibited state agencies from issuing permits to data centers over 25 MW unless they comply with these expectations for responsible development. Commonwealth of Massachusetts (2026, September 8), Executive Order No. 658. <https://www.mass.gov/executive-orders/no-658-establishing-requirements-for-responsible-data-center-development-and-operations-in-massachusetts-to-protect-and-support-ratepayers-communities-and-the-environment>

⁸⁴ FERC, 2026.

⁸⁵ PJM Inside Lines. (2026, August 13). *PJM proposes framework to connect data centers without compromising reliability, affordability*. <https://insidelines.pjm.com/pjm-proposes-framework-to-connect-data-centers-without-compromising-reliability-affordability/>

among other options, choose to set up mandatory interruptible or flexible connection with large loads or to equally spread reductions across all customer classes.⁸⁶

Policymakers and regulators may determine that mandating interruptible or conditional firm service is a natural limitation on utility service obligations given the mounting pressures facing grid operators. Some states have required mandatory interruptible service requirements on large loads. For example, Idaho Power Company's Speculative High-Density Load tariff is mandatory for customers with a metered demand of 1 MW or more per billing period and requires remote disconnection.⁸⁷ Alternatively, states can tailor load flexibility mandates to address specific system constraints across resource adequacy, the local distribution system or the transmission grid.

For example, in Texas, Senate Bill 6 (SB 6) authorizes the grid operator, ERCOT, to curtail large loads or require the loads to deploy backup generation before shedding firm load during periods of grid stress.⁸⁸ Likewise, a Michigan Public Service Commission order requires DTE Electric to shed large loads prior to other customers in the event of an emergency.⁸⁹

Regardless of whether it is voluntary or mandatory, states should ensure that utilities maximize the value of load flexibility by incorporating it into load forecasting and resource planning.⁹⁰

Define conditions for expedited service connections

Alternatively, or in addition to clarifying when connection can be delayed, states may decide to create a fast track or other expedited connection pathway. Developing this type of fast track would ensure utilities only offer expedited connections when doing so will not harm existing customers and provide confidence to large load developers that they can connect quickly if they comply with specified conditions.

To do so, states could define — by legislative or regulatory changes, depending on context — when a utility is authorized to offer expedited connection. While there are many considerations with expedited service that are not discussed here, states could limit the opportunity for an expedited connection with the following conditions:

- **Flexibility requirements:** Similar to SB 6 in Texas, a utility's obligation to extend a quick connection could be conditioned upon a data center's commitment to satisfy certain flexibility requirements during peak load or other grid-straining events.

⁸⁶ PJM's IRAS wouldn't apply to customers that BYOP. States could determine whether to align load flex requirements with PJM or impose other conditions.

⁸⁷ See Idaho Power Company. (2024, January 1). *Schedule 20: Speculative High-Density Load*. Idaho Public Utilities Commission No. 30, Tariff No. 101. <https://docs.idahopower.com/pdfs/AboutUs/RatesRegulatory/Tariffs/20.pdf>. See also Kahrl & Frick, 2026, p. 50.

⁸⁸ SB 6 does not authorize or require any violation of air emission limitations or other environmental requirements.

⁸⁹ Michigan Public Service Commission, Case No. U-22059, Order, August 27, 2026. <https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/068cs00002PdZXHAAZ>

⁹⁰ See, for example, Schwartz & Stenclik, 2026.

- **Obligations to bring own new clean power:** Requiring new load to bring a certain percentage of its own new generation can alleviate resource adequacy constraints and therefore enable connection without detrimentally impacting existing customers. States could also require large customers to bring specific types of generation or demand-side investments (like energy efficiency) that will promote state policy goals.
- **Transparency and disclosure requirements:** Large load applications must disclose to appropriate state regulators the type, location, energy and water needs and time-to-power requirements as well as any duplicative applications for service from other utilities. While transparency alone will not alleviate grid constraints, providing the requisite information up front may help expedite a utility's review of the connection request.

States may consider expanding this list to other conditions that align with state public policy directives.

Conclusion

Expectations of utilities and their corresponding service obligations are inextricably linked to societal context and policy priorities. This paper examined the history and evolution of utility service obligations and the reasonable limitations on those obligations as technology and societal expectations have shifted. Utility regulation is not static; it must evolve in response to modern policy drivers.

Regulators and policymakers have options to adapt utility service obligations to meet the data center era. The rapid expansion of data center demand challenges utilities' ability to provide safe and reliable service at just and reasonable rates to existing customers. We highlighted four strategies available to help states balance the desire to connect data centers quickly with the mandate to protect existing customers: First, investigating utility service obligations in light of data center demand is a straightforward starting place. Second, states can proactively modify the obligation to extend service by clarifying the circumstances when a utility can delay interconnection. Third, expanding the deployment of interruptible rates is a potential win-win that enables utilities to connect new large loads while mitigating impacts on existing customers. This option will require modifications to the utility obligations to extend service, continue service, provide adequate service and offer all customers equal terms. Finally, defining conditions for expedited service can provide certainty to prospective customers while protecting existing customers. This option would require policymakers and regulators to carefully balance competing priorities. Given the mounting pressure that data centers are placing on the grid, states may act to ensure utility obligations continue to align with policy priorities.



Regulatory Assistance Project (RAP)®
Belgium · China · Germany · India · United States

1100 13th St NW
Suite 800
Washington, DC 20005, USA

+1 802 223 8199
info@raponline.org
raponline.org