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The Data Center Flexible-load Landscape Report for the US

EPRI DCFlex demonstrations, utility partnerships, flexible-load projects and policy developments

Public evidence reviewed through 4 October 2026

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Executive Summary

This report surveys the U.S. data center flexible-load landscape, including all seven U.S. entries in EPRI's nine-project DCFlex portfolio, 18 additional U.S. project entries, and selected technology tests, utility programs and market rules. It is a public-source inventory, not a census of every deployment. International examples are included separately as benchmarks.

Flexible AI computing is moving from controlled trials into utility operations. NVIDIA reports repeated grid-response signals at its Santa Clara Eos facility; Google has an approved flexibility contract for its operating Fort Wayne data center. Other established approaches use backup generation, batteries or interruptible tariffs.

The pipeline is larger than the publicly demonstrated response. Google reports 1 GW of contracted demand response across five utilities; Georgia Power reports up to 1,000 MW of potential flexibility for OpenAI's planned Project Camellia. Neither figure represents verified delivered curtailment.

The examples span a 256-GPU Phoenix test, a reported 1 MW load reduction at Santa Clara and the planned 96 MW Manassas AI facility. GPU count, facility size, storage capacity, contracted MW and measured demand reduction are different metrics and should not be aggregated.

Why it matters

Utilities are testing several routes to flexibility: software-controlled compute, geographic workload shifting, cooling controls, batteries, on-site generation and flexible interconnection. The principal question is what each mechanism can deliver reliably when the grid needs it.

Coverage and counting

Record category	Entries	Boundary
US DCFlex map entries	7	All seven U.S. entries; excludes Paris and London.
Additional US data center project entries	18	Named sites or announced arrangements beyond the map; includes proposed and contracted projects.
Laboratory validation	1	Verrus at NREL, now NLR; not a utility-connected operating campus.

Record category	Entries	Boundary
Vendor demonstration facility	1	Vertiv and CPower Ohio microgrid; not a customer data center deployment.
Market aggregate benchmark	1	ERCOT large flexible loads; not a site count.
Utility programs and policy frameworks	7	Separate from projects; approvals do not establish enrollment.

Coverage: 25 U.S. project entries, plus 10 separate laboratory, vendor, market-aggregate and policy records. Three additional infrastructure campuses are tracked in a watchlist. One entry may span more than one physical location; EPRI participation does not imply EPRI financing.

How commercial readiness is rated

The following labels provide a consistent shorthand for the status of public evidence as of 4 October 2026. They are analytical categories, not certifications; a signed contract, completed test and recurring dispatch are different milestones.

Level	Meaning
Commercial	Established tariff or market participation at an operating site; the public record supports an established arrangement, though recent dispatch data may remain unavailable.
Early commercial	Live pilot or effective flexibility contract at an operating site. Does not by itself establish measured dispatch under every obligation.
Contracted / approved	Signed arrangement or approved framework with flexibility commissioning or enrollment not confirmed; approvals may be conditional or pending.
Demonstrated	Completed field test with no continuing commercial arrangement established in the reviewed record.
Pre-commercial	Announced, proposed, simulated, under construction or pending approval, with no field result.
Not a grid service	A test that does not involve a utility calling on the data center.

Part 1 US EPRI DCFlex demonstration portfolio

EPRI identifies nine demonstration entries worldwide, including the seven U.S. entries below. Paris and London are covered in the international reference section. The map illustrates five U.S. locations; Manassas and the PADO AI Texas project are not shown. Workstream alignment is this report's interpretation. [V8]

AIxENERGY / MAP

EXHIBIT 2

Where data center flexibility is being tested

Selected DCFlex demonstration locations discussed in this article



Figure 1. Where data center flexibility is being tested. Adapted from Exhibit 2 of Arshad Mansoor (President and CEO, EPRI), “Dependable Enough to Plan On: Data Centers, Flexibility and the Path to Scale,” AIXEnergy, 27 September 2026. The map shows five U.S. DCFlex locations (Phoenix, Dallas, Chicago, Ashburn and Lenoir); Manassas and the Texas PADO AI site are not shown.

Project location	Primary test	Evidence level	Alignment	Commercial readiness
Phoenix, Arizona	IT workload flexibility	Completed field test; public paper	WS2 Programs	Demonstrated
Lenoir, North Carolina	IT workload flexibility	Active demonstration; no result published	WS2 Programs	Pre-commercial
Chicago, Illinois	IT workload flexibility	Completed, per Emerald AI; no result published	WS1 DC Design	Demonstrated
Dallas, Texas	HVO generator-based backup solution	Field test completed 6 May 2026	WS1 DC Design	Not a grid service
Ashburn, Virginia and Chicago, Illinois	Geospatial shifting and IT workload flexibility	Completed, per Emerald AI; megawatts not published	WS1 DC Design	Demonstrated
Manassas, Virginia	Load flexibility by design	Under construction; later-2026 target, no go-live confirmed	WS1 DC Design	Pre-commercial
Texas, location to be determined	Compute and HVAC load flexibility	Announced; no result published	WS1 DC Design	Pre-commercial

EPRI's five workstreams address flexible data center design, utility programs, interconnection, system planning and distribution-connected data centers. Projects may contribute to several workstreams; the table shows the primary alignment used here.

Project profiles

1 Phoenix, Arizona

USE CASE IT workload flexibility	UTILITY OR GRID PARTNER Salt River Project; NVIDIA also names Arizona Public Service	TECHNOLOGY PARTNERS Emerald AI, NVIDIA, Oracle
PUBLIC STATUS Completed field test; public paper	SCALE 256-GPU cluster; load in kW or MW not published	COMMERCIAL READINESS Demonstrated

Test whether an AI compute cluster can reduce electricity demand during grid stress while preserving essential services and customer commitments.

NVIDIA reports a 25% reduction for three hours on 3 May 2025 using 256 GPUs at an Oracle facility during an SRP peak event, while maintaining service quality. It is a documented field demonstration, written up by the people who ran it, including EPRI (arXiv:2507.00909, a preprint). The result concerns the test cluster, not the whole facility.

2 Lenoir, North Carolina

USE CASE IT workload flexibility	UTILITY OR GRID PARTNER Duke Energy	TECHNOLOGY PARTNERS Google
PUBLIC STATUS Active demonstration; no result published	SCALE Not published	COMMERCIAL READINESS Pre-commercial

Develop utility and data center operating and communication protocols, then test scheduling or shifting of computing workloads in response to grid needs.

EPRI says Google and Duke Energy are developing protocols that would give Duke confidence to rely on data center flexibility as a grid resource. No event result was found as of 4 October 2026.

3 Chicago, Illinois

USE CASE IT workload flexibility	UTILITY OR GRID PARTNER Constellation (a power supplier; the local wires utility is ComEd)	TECHNOLOGY PARTNERS Emerald AI, Oracle, NVIDIA
PUBLIC STATUS Completed, per Emerald AI; no result published	SCALE Not published	COMMERCIAL READINESS Demonstrated

Validate real-time control of AI computing demand and examine how flexible computing can respond to power-system conditions.

EPRI describes the test as compute load flexibility with real-time power control "in a simulated production environment". Emerald AI listed Illinois among five completed demonstrations in August 2026. No quantitative result is public.

4 Dallas, Texas

USE CASE HVO generator-based backup solution	UTILITY OR GRID PARTNER None named	TECHNOLOGY PARTNERS Compass Datacenters (Cummins QSK60 engine)
PUBLIC STATUS Field test completed 6 May 2026	SCALE 2 MW backup generator	COMMERCIAL READINESS Not a grid service

Compare hydrotreated vegetable oil with fossil diesel in a data center backup generator under real operating conditions.

EPRI describes a 6 May 2026 comparison of HVO and fossil diesel using a 2 MW Cummins QSK60 backup engine at Compass Datacenters, at 50% and 100% load. The public summary supports the test, equipment and methodology. Specific emissions reduction percentages are omitted pending verification in the underlying report.

5 Ashburn, Virginia and Chicago, Illinois

USE CASE Geospatial shifting and IT workload flexibility	UTILITY OR GRID PARTNER Constellation	TECHNOLOGY PARTNERS Emerald AI, Oracle, NVIDIA
PUBLIC STATUS Completed, per Emerald AI; megawatts not published	SCALE Not published	COMMERCIAL READINESS Demonstrated

Test whether computing work can be moved between regions during grid congestion while meeting grid and customer requirements.

Emerald AI reports that inference work on Oracle cloud was shifted from Virginia to Chicago using NVIDIA's Dynamo framework, relieving winter peak load in Virginia while keeping latency low. Delivered megawatts are not public.

6 Manassas, Virginia

USE CASE Load flexibility by design	UTILITY OR GRID PARTNER PJM named at announcement; Emerald AI named Dominion as a partner in August 2026. EPRI's map still shows TBD	TECHNOLOGY PARTNERS Digital Realty, NVIDIA, Emerald AI, EPRI
PUBLIC STATUS Under construction; later-2026 target	SCALE 96 MW Aurora AI Factory	COMMERCIAL READINESS Pre-commercial

Build flexibility into a commercial-scale AI facility from the start and test AI computational flexibility at that scale.

EPRI lists a facility under construction. Emerald AI's Aurora announcement explicitly names testing through DCFlex; its August 2026 update names EPRI, Dominion and PJM and targets later in 2026. NVIDIA's September account still describes the dedicated DSX Flex deployment as future. Aurora and the Vera Rubin AI Factory Research Center are treated as the same announced 96 MW project. [V6]

7 Texas, location to be determined

USE CASE Compute and HVAC load flexibility	UTILITY OR GRID PARTNER To be determined	TECHNOLOGY PARTNERS PADO AI
PUBLIC STATUS Announced; no result published	SCALE Not published	COMMERCIAL READINESS Pre-commercial

Pair an AI platform that controls computing and cooling loads to provide a facility-level flexibility resource.

EPRI names the use case and PADO AI only. PADO said in March 2026 that it has three demonstrations with EPRI but named no sites, utilities or operators. PADO targets data centers below about 75 MW.

Part 2 Additional US projects and technology validation

Additional U.S. examples include live software-controlled demand response, utility agreements, announced campuses and laboratory validation. Projects beyond EPRI's published map are listed separately.

Emerald AI and NVIDIA

Project and grid party	What it is	Status and public evidence	Commercial readiness
Santa Clara, California: NVIDIA Eos Silicon Valley Power	Emerald Conductor runs in production at NVIDIA's Eos AI factory under Silicon Valley Power's Flexible Load Interconnection Program, which gives data centers expanded grid access in exchange for dispatchable flexibility.	Pilot announced 21 April 2026 at "multi-megawatt scale". NVIDIA reported in September 2026 that the utility had sent more than 200 signals and that Eos cut from 4 MW to 3 MW in under a minute on an August evening.	Early commercial Production software and reported repeated utility signals. Full DSX Flex installation is still future; detailed commercial terms are not public. [V1]

Project and grid party	What it is	Status and public evidence	Commercial readiness
Hillsboro, Oregon Portland General Electric	Emerald software with the NVIDIA DSX stack on Grace Blackwell Ultra clusters. The host facility is not named in the sources reviewed.	Emerald reports completion in March 2026: 20% reduction in a cold scenario; over 25% for more than six hours on three reenacted heat-wave days; a 24-hour emergency scenario and response to CAISO price signals. These are test scenarios, not proof of 24-hour commercial dispatch.	Demonstrated Emerald calls it its largest demonstration. No enrollment in a utility program is public.

Emerald AI reports completed demonstrations in Arizona, Illinois, Virginia, Oregon and London. Santa Clara is a separate production deployment; NVIDIA says its full DSX Flex installation remains future. [V1]

Google

Project and grid party	What it is	Status and public evidence	Commercial readiness
Omaha area, Nebraska Omaha Public Power District	Google reduced the power demand of machine-learning workloads during grid events.	Three grid events in 2024, reported by Google in August 2025.	Demonstrated Real utility events, but no standing contract is described.
The Dalles, Oregon Northern Wasco County PUD	Day-ahead demand response at Google's data center.	Pilot reported by Google in October 2023, with the utility confirming the capability was demonstrated.	Demonstrated Completed pilot; no continuing program is described.
Fort Wayne, Indiana Indiana Michigan Power	Customer-specific demand response and clean capacity arrangement covering Google's operating Fort Wayne data center.	IURC approved the contract on 29 April 2026. The site was energized in November 2024 and is operating. The order describes credits and compliance provisions; key quantitative terms remain confidential. No event result is established. [V2]	Early commercial An approved contract at an operating site, with no public dispatch record.
Tennessee Valley Tennessee Valley Authority	Demand response agreement for Google machine-learning workloads.	Announced August 2025. Participating sites, size and results are not public.	Contracted / approved Agreement announced; no operating detail.
West Memphis, Arkansas Entergy Arkansas	Special rate contract for a planned data center, with load flexibility provisions to reduce use during grid constraints.	Entergy confirms APSC approval on 29 January 2026 in docket 25-055-P. Google identifies demand response in the agreement. The site remains a future deployment; a commercial dispatch record is not established. [V17]	Contracted / approved Counted by Google among its contracts; the site is not yet in service.
Hermantown, Minnesota Minnesota Power	Electric service agreement for a planned data center, counted by Google among its demand response contracts.	Agreement filed 26 March 2026. The Minnesota PUC's current project page lists it as under review. Signed agreement, not confirmed regulatory approval or live flexibility. [V18]	Contracted / approved Signed but pending regulatory approval; no site operating.
Van Buren Township, Michigan DTE Energy	Contracts for a 1 GW data center. Google says the agreement includes demand flexibility alongside solar and storage.	Conditionally approved by the Michigan Public Service Commission on 1 October 2026. Service is expected in December 2027 and full load in December 2028. The commission's release does not describe the demand response terms.	Contracted / approved Approved contract for a future site.

Google reports 1 GW of contracted demand response across five utilities, without publishing site allocations or delivered MW. Lenoir is a separate DCFlex demonstration. [V4]

OpenAI and Verrus

Project and grid party	What it is	Status and public evidence	Commercial readiness
Effingham County, Georgia: OpenAI Project Camellia Georgia Power	Planned 3,200 MW facility with up to 1,000 MW of demand response under a 25-year agreement. Delivery is phased from 2028 to 2032. [V5]	Georgia Power announced the agreement in July 2026; August reporting records regulatory clearance. The specific software, event limits and reduction mechanism are not disclosed. No live deployment is established.	Contracted / approved The largest single flexibility commitment found. The site is not yet in service.
Golden, Colorado: Verrus laboratory validation NREL, now NLR	ARIES virtual emulation of a 70 MW design, followed by digital-twin and controller-hardware-in-the-loop validation. The laboratory is not a utility partner or a commissioned 70 MW campus. [V9]	Verrus reported the first results on 9 June 2025, including modeled full grid-import curtailment within a minute. Its 7 May 2026 StabiliGrid update expressly describes testing before grid deployment.	Pre-commercial Laboratory validation only.
Salem, Oregon: Oakline at Mill Creek Portland General Electric	Proposed Verrus campus designed to reduce demand during utility system peaks.	Development and permitting remain unresolved. Salem reports a 31 July 2026 application and an incomplete-application notice on 28 August. A city moratorium and blocked state-land sale create schedule risk; these do not establish project cancellation. [V15]	Pre-commercial Proposed, with approval in doubt.
Lyon Township, Michigan: Project Flex DTE Electric is publicly associated	Proposed Verrus campus with flexible-demand and battery design.	Proposed campus with local conditional planning approval reported in July 2026. No commissioning or utility flexibility-service agreement is established in the reviewed record.	Pre-commercial Proposed; not yet built.

PADO AI reports additional EPRI demonstrations without identifying the sites. Verrus combines storage and grid-aware controls; its laboratory validation and proposed campuses are distinct from Google's compute-management projects. [V9]

Part 3 Flexibility from batteries and on-site generation

These examples reduce net grid demand through storage or generation rather than necessarily shifting compute. Vendor tests and ERCOT's market aggregate are kept distinct from individual operating data centers.

Project and grid party	What it is	Status and public evidence	Commercial readiness
Cheyenne, Wyoming: Microsoft Black Hills Energy	Black Hills Energy's Large Power Contract Service tariff combines market power procurement with customer-owned dispatchable backup generation. The utility may call on generation at peak demand. [V3]	Tariff approved in July 2016 and described by the utility as an established Microsoft partnership. Eligibility is over 13 MW. Recent event-level dispatch data is not established.	Commercial A standing tariff for about ten years. It relies on generation, not on flexible computing.
Texas: large flexible loads ERCOT	Mostly cryptocurrency mining sites that cut consumption when prices are high or the grid is stressed, through ERCOT demand response and reserve programs.	EIA reported 5,479 MW of approved large flexible load as of October 2024, mostly cryptocurrency mining. This is historical approved load, not current AI flexibility, actual simultaneous curtailment or a count of facilities.	Commercial Years of market participation at gigawatt scale. The evidence is for crypto mining, not AI data centers.
Memphis, Tennessee: xAI campus arrangements MLGW and TVA	MLGW confirms a signed TVA/xAI/MLGW agreement requiring grid consumption reductions at high demand. Backup generation and storage can support the response. [V12]	MLGW's 2025 update confirms the agreement for the Paul Lowry site. Separate September 2026 reporting estimates about 2.8 GWh at Colossus 2 from satellite imagery. Do not assign this estimate to Colossus 1 or treat it as independently verified usable capacity.	Early commercial Operating campus and utility-confirmed curtailment agreement; site-specific event performance remains unverified.

Project and grid party	What it is	Status and public evidence	Commercial readiness
Hillsboro, Oregon: Aligned Data Centers Portland General Electric, with GridCARE and Calibrant Energy	31 MW / 62 MWh battery project with Calibrant, intended to accelerate Aligned's connection and support PGE's grid. PGE confirms the partnership. GridCARE's wider 80 MW capacity finding is not the battery's rating. [V13]	Announced October 2025 with a 2026 operating target; PGE described it in May 2026. EEI lists the project and grid-service purpose but does not explicitly confirm commissioning. No dated commissioning notice is established.	Contracted / approved Deployment agreement and utility participation confirmed; operational flexibility not independently established.
San José, California: Microsoft Pacific Gas and Electric	Microsoft San José project with Enchanted Rock generation intended for backup and grid services. The CEC record for 1657 Alviso-Milpitas Road is docket 19-SPPE-04. [V19]	EEI describes a 77 MW data center; CEC lists a 99 MW project and approved exemption. These figures describe different source scopes. Neither record establishes a date for grid-service commissioning or measured dispatch.	Contracted / approved Approved project and announced energy design; live grid-service operation unverified.
Delaware, Ohio: Vertiv and CPower PJM, through CPower's virtual power plant	Vertiv's data center battery system integrated with CPower's platform so that data centers can offer storage as a grid resource.	CPower's 14 April 2026 announcement identifies revenue from a 1 MW microgrid at Vertiv's Ohio Customer Experience Center. It combines storage, solar, hydrogen fuel cell and UPS systems. No commercial customer data center is identified. [V20]	Demonstrated Shown at a vendor site; no data center customer yet.
Edison, New Jersey: Iron Mountain and Calibrant Regional utility not named	23 MWh on-site battery to integrate with an existing 7.2 MW solar installation and reduce peak grid demand.	Definitive build-own-operate agreement announced 19 February 2026. Utility dispatch contract, battery MW rating and commissioning are not disclosed. [V21]	Contracted / approved Private deployment agreement; utility-service qualification and go-live unverified.
Saline Township, Michigan: Oracle, OpenAI, Related Digital DTE Electric	1,383 MW planned campus with emergency load interruption ahead of other DTE customers. Separate 1,383 MW storage agreement funds utility-owned resources, not necessarily on-site batteries.	MPSC conditionally approved contracts on 18 December 2025, case U-21990. This is emergency interruptibility plus utility storage; it does not demonstrate software-controlled workload response. [V22]	Contracted / approved Regulatory conditions and future supply arrangement; no live dispatch established.

Related US infrastructure watchlist

Three Lancium-related Texas campuses—Abilene, Childress and Hall County—are tracked separately. Grid connection and project announcements do not establish delivered AI-load flexibility.

Abilene, Texas. Lancium and Crusoe's 1.2 GW campus has energized initial buildings and hosts Stargate infrastructure. Current company materials describe energy orchestration and grid-supporting resources, but the reviewed record does not establish site-specific AI curtailment MW or a recurring utility dispatch record. [V25]

Childress, Texas. Crusoe and Lancium announced a separate 1 GW campus in July 2026; Lancium reports an approved interconnect. **Hall County, Texas.** QTS and Lancium separately announced a campus in July 2026. Both remain infrastructure pipeline entries here, pending site-specific flexibility-service evidence. [V25]

Part 4 Utility programs, tariffs and market rules

These seven entries describe utility tariffs, interconnection options and policy frameworks—not additional operating data centers. Approval, customer enrollment and actual dispatch are separate milestones.

Program and authority	What it is	Status and public evidence	Commercial readiness
Flex Connect Pacific Gas and Electric (California)	Flexible distribution connection: customers connect sooner and accept limits during constrained hours until upgrades are built.	PG&E's program materials describe Flex Connect as a pilot using controls to enforce flexible import limits. A February 2026 CPUC decision directs PG&E and Southern California Edison to offer flexible connections as a standard tariff. No named data center enrollment is established. [V14]	Early commercial program Operating framework moving to a standard tariff; not evidence of a live data center project.

Program and authority	What it is	Status and public evidence	Commercial readiness
Provisional Controllable Load Resource ERCOT and the Public Utility Commission of Texas	Loads of 75 MW or more accept ERCOT curtailment instructions in exchange for faster connection in the "Batch Zero" process. Separately, Senate Bill 6 (2025) requires large loads with backup generation to accept emergency curtailment.	PGRR145 approved 18 June 2026. ERCOT records 11 July 2026 effectiveness for Batch Zero and withdrawal-limited private-use networks; PCLR provisions take effect upon system implementation. Do not label PCLR dispatch live on 10 July. [V7]	Approved framework Implementation differs by provision; no named live PCLR site verified.
Conditional High Impact Large Load Service Southwest Power Pool	Non-firm transmission service for large loads for up to seven years while they wait for firm service. The grid operator can curtail it during constraints or emergencies.	FERC accepted CHILLS on 5 June 2026 as non-firm service while sufficient resources or network upgrades are pending. No named participating data center is established. [V11]	Contracted / approved Approved; no public enrollment.
Interim Resource Adequacy Service PJM Interconnection	Proposal that new loads of 50 MW or more that do not bring their own new capacity are curtailed before other pre-emergency measures.	PJM's large-load page identifies IRAS and the large-load registry under docket ER26-3515 as pending FERC approval. Future registry and service dates are implementation proposals, not operating enrollments. [V10]	Pre-commercial Pending federal approval.
Large Load Demand Flexibility Program Dominion Energy Virginia	Program required by 2026 Virginia law (House Bill 284 and Senate Bill 371) for large-load customers to adjust use under set conditions.	Stakeholder work began July 2026. Filing with the State Corporation Commission is planned for January 2027, with a final order expected by 30 November 2027.	Pre-commercial In design; terms and incentives are not set.
Large-load tariff with interruptible option Xcel Energy (Minnesota)	A large-load tariff with a 15-year minimum term. DSIRE Insight reports an optional interruptible rate for customers of 100 MW or more with at least 3 MW of controllable load.	Large-load tariff approved by the Minnesota Public Utilities Commission on 15 May 2026. No enrollment is public.	Contracted / approved Approved; no public enrollment.
Model large-load tariff Pennsylvania Public Utility Commission	Guidance for utilities serving loads above 50 MW, or 100 MW in aggregate.	Final order issued May 2026. It is nonbinding and relies on utilities' existing interruptible tariffs instead of creating a new non-firm service.	Pre-commercial Guidance only; no new flexible service.

Policy context

- ◆ **Federal emergency authority.** PJM's filing archive records temporary DOE authority to use backup generation during 2026 emergencies. Temporary emergency powers are policy context, not proof that a named data center was dispatched or enrolled in a standing flexibility program. [V28]
- ◆ **Federal review.** FERC's June 2026 large-load proceedings address interconnection and reliability frameworks. They should not be counted as site deployments. [V11]
- ◆ **Industry coordination.** Industry alliances and EPRI frameworks support standards and policy development. Membership alone does not identify an operating project or establish flexible MW.

Part 5 Investment risk: who pays if demand does not materialize

Future data center electricity demand is uncertain, while the generation, transmission and distribution built to serve it is recovered over 20 to 40 years. If projected load does not arrive, or leaves early, the cost of those assets can fall on other customers. Several states now require the large customer that triggers the investment to carry more of that risk, through minimum-bill tariffs, long contract terms, collateral and exit fees. This part reviews four approaches and the risks that remain with local communities and consumers. It complements the tariffs and market rules in Part 4.

State approaches to allocating demand risk

State and instrument	Key terms	Status	Who carries the risk
Ohio: AEP Ohio data center tariff Public Utilities Commission of Ohio	Data centers above 25 MW pay for at least 85% of the capacity they reserve over a 12-year contract, including a ramp of up to four years, whether or not they use it. Collateral of 50% of minimum charges is required unless credit standards are met. Early exit costs three years of minimum charges.	Approved July 2025. The Ohio Manufacturers' Association has appealed to the Ohio Supreme Court, arguing the tariff is unduly discriminatory; the case was filed in November 2025.	The developer, for the contract term. Not fully settled while the appeal is pending.
Virginia: Dominion Energy large-load rate class (GS-5) State Corporation Commission	Customers above 25 MW with a load factor above 75% sign 14-year contracts. Minimum charges cover 85% of contracted transmission and distribution demand and 60% of generation demand, with stronger financial requirements than existing classes.	Approved November 2025 in Dominion's biennial review. Takes effect January 2027. Virginia has the largest concentration of data centers in the world.	The large customer for wires costs; generation risk is partly shared through the lower 60% floor.
Texas: Senate Bill 6 and PUCT rule 16 TAC §25.194 Public Utility Commission of Texas, ERCOT	Loads of 75 MW or more post financial security of \$50,000 per MW of requested peak demand, plus a \$100,000 study fee, before the ERCOT interconnection study begins. After transmission capacity is allocated, security rises to the greater of \$50,000 per MW or the allocated upgrade costs.	SB 6 enacted in 2025; it requires security on a per-MW basis. The PUCT set the amounts in a final rule adopted 18 September 2026.	The applicant, from the first study onward; speculative requests are screened out early.
Louisiana: Entergy Louisiana and Meta, Richland Parish Louisiana Public Service Commission	A contract for a single project rather than a general tariff. Meta's Hyperion campus is planned for 5 GW of computing. Three gas-fired units were approved in August 2025; Entergy has asked to build seven more combined-cycle units of about 754 MW each, about 7.5 GW in all. Meta pays for the plants under a long-term contract; the agreement for the expansion runs 20 years. The companies say other customers will save more than \$2 billion over 20 years.	Evidentiary hearing held 7 to 9 October 2026. The expansion is scheduled for the commission's 16 December 2026 session.	Meta, for the contract term only. Remaining plant value can fall to other customers if the contract is not renewed.

Ohio result

Financial commitment filtered the queue. AEP Ohio had more than 30 GW of initial interest. Under the tariff, load studies were requested for about 13 GW and 5.6 GW signed service agreements, in addition to 12.2 GW signed before the tariff took effect. The gap indicates how much of the projected demand was speculative.

The direction is clear: the party that creates the need for the investment is being asked to carry more of the risk. Minimum bills, long terms and collateral protect other customers while the contract runs. Xcel Energy's large-load tariff and Pennsylvania's model tariff in Part 4 follow the same logic.

Residual risks to communities and consumers

Louisiana illustrates several risks that large-load tariffs and single-project contracts do not address.

- ◆ **Contract term shorter than asset life.** Meta's expansion contract runs 20 years and starts in 2028, before construction is complete; gas plants operate for 30 years or more. Entergy estimates the plants and batteries will be about 75% depreciated when the contract ends. The remaining 25%, about \$3.4 billion, could fall on other customers if Meta leaves or does not renew. Entergy's estimated customer benefit falls from about \$1.9 billion to about \$991 million in that case.
- ◆ **Terms are not public.** The details of the power arrangement are covered by non-disclosure agreements signed by state and local officials, including the governor. On 12 August 2026 the commission voted 3 to 1 to overturn its administrative judge's order requiring Meta to disclose how it calculated its job and electricity demand projections. The public cannot test how strong the protection is.
- ◆ **Forgone tax revenue.** Data center equipment is exempt from sales tax for 20 years; one estimate puts the forgone revenue at more than \$3.3 billion. The project was promoted with about 1,000 permanent jobs; Meta's reported operational commitment is 300 to 500.
- ◆ **Local costs outside any tariff.** Construction traffic falls on parish roads and residents. Police records show 64 crashes near the site between January and mid-September 2025, against nine in all of 2024, and school-day traffic on Highway 183 nearly tripled.

- ◆ **Wholesale market costs are not reached.** Tariffs and bilateral contracts cover utility assets, not wholesale capacity prices. In PJM, the independent market monitor attributed \$6.3 billion, or 38%, of the \$16.4 billion in charges from the July 2026 base residual auction to data center demand, and \$29.4 billion, or 46%, across the last four auctions. Those costs are spread across all customers.

Why it matters

Large-load tariffs move stranded-cost risk to the developer for the contract term, but not beyond it, and not in wholesale markets. Contract length relative to asset life, public disclosure of terms, and treatment of capacity costs are the points to test in any new large-load agreement.

Part 6 Flexibility and grid connection: reference cases

This part asks whether a data center has connected to the grid sooner because it agreed to be flexible, and if so, which utility was involved, what flexibility was provided and how much earlier it could connect. It has happened, but the examples are small and recent: tens of megawatts, mostly delivered by batteries rather than by slowing computing. Most other mechanisms are programs that have not yet produced a result. Several cases also appear in Parts 2 to 4; this part brings them together around the connection question.

Operating examples

Site and utility	Flexibility provided	Connection benefit	Commercial readiness
Hillsboro, Oregon: Aligned Data Centers Portland General Electric, with GridCARE and Calibrant Energy	A 31 MW / 62 MWh battery on a 72 MW campus, about 43% of peak load. PGE can dispatch it during critical grid periods through its Dispatchable Standby Generation program. The flexibility comes from the battery, not from curtailing computing.	Lets PGE serve the site without waiting for transmission upgrades. PGE and its partners say customers connect years earlier than expected; this is their description, not a measured figure for Aligned. GridCARE's analysis freed about 80 MW for data centers in Hillsboro in 2026, with a target of 400 MW by 2029.	Contracted / approved Reported as deployed; no dated commissioning notice published. See Part 3.
Santa Clara, California: NVIDIA Eos Silicon Valley Power (municipal utility)	Emerald AI software slows or reschedules lower-priority computing when the utility sends a signal. The utility had sent more than 200 signals by September 2026; in one August event the site cut load from 4 MW to 3 MW in under a minute.	Silicon Valley Power's Flexible Load Interconnection Program gives data centers expanded grid access in exchange for flexibility it can call on. NVIDIA's facility is the first site. No figure has been published for how much earlier a site can connect.	Early commercial Pilot scale. See Part 2.

Programs that have not yet produced a result

Program and authority	What the customer agrees to	Connection benefit and status	Commercial readiness
Provisional Controllable Load Resource ERCOT and the Public Utility Commission of Texas	Loads of 75 MW or more follow ERCOT curtailment instructions.	Faster connection through the Batch Zero process. Approved June 2026; Batch Zero took effect 11 July 2026, and PCLR provisions take effect when ERCOT's systems are implemented. No data center is operating as a PCLR. Batch Zero studies await a governor-ordered audit of about 300 projects, due by 10 December 2026.	Approved framework See Part 4.
Conditional High Impact Large Load Service Southwest Power Pool	Non-firm transmission service that the grid operator can curtail during constraints or emergencies.	Service for up to seven years while the customer waits for firm service. FERC accepted it on 5 June 2026. No participating data center is named.	Contracted / approved See Part 4.

Program and authority	What the customer agrees to	Connection benefit and status	Commercial readiness
Flex Connect Pacific Gas and Electric (California)	Customers accept limits on power imports during constrained hours until upgrades are built.	Energization in 4 to 8 months instead of 1 to 3 years for a firm connection. Five customers enrolled and about 85 in the pipeline, mostly EV charging at 2 to 5 MW; a few data center prospects reach about 10 MW. Enrolled sites had full capacity in 90% of hours. A February 2026 CPUC decision directs a standard tariff.	Early commercial program Small loads; no large data center yet.

Bottom line

Faster connection in exchange for flexibility has happened in the U.S., but at the scale of tens of megawatts and mostly with batteries. Flexible computing at the scale of a large AI data center is still being demonstrated, as the DCFlex portfolio in Part 1 shows.

Part 7 Reference projects outside the United States

Paris and London complete EPRI's nine-entry portfolio. Other international examples provide context for computing flexibility, batteries, UPS systems and on-site generation; none are included in U.S. totals.

FR Paris, France · DCFlex reference		
USE CASE Power-quality fault ride-through	UTILITY OR GRID PARTNER RTE	TECHNOLOGY PARTNERS Schneider Electric, Data4
PUBLIC STATUS Active demonstration; no result published	SCALE Not published	COMMERCIAL READINESS Pre-commercial

Evaluate how a data center and its electrical systems respond to voltage and frequency disturbances.

EPRI lists fault ride-through as the use case. No field result is public.

UK London, United Kingdom · DCFlex reference		
USE CASE IT workload flexibility	UTILITY OR GRID PARTNER National Grid	TECHNOLOGY PARTNERS Emerald AI, Nebius, NVIDIA
PUBLIC STATUS Completed live-site trial	SCALE 96 NVIDIA Blackwell Ultra GPUs	COMMERCIAL READINESS Demonstrated

Show that AI infrastructure can respond to day-ahead, hour-ahead and real-time curtailment requests without disrupting priority workloads.

A five-day trial in December 2025 ran more than 200 simulated grid events. The cluster cut demand by up to 40%, shed 30% in about 30 seconds and followed reduction requests for up to 10 hours.

Other international examples

Project and grid party	What it is	Status and public evidence	Commercial readiness
Belgium: Google Elia, with Centrica Energy	Google shifts non-urgent computing when the Belgian system needs relief.	Described by Google in August 2025 as ongoing. No dispatch data is public.	Early commercial Ongoing arrangement without public results.
Taiwan: Google Taiwan Power Company	Daily peak-hour reductions in data center power use.	Carried out in the summers of 2022 and 2023; described by Google as ongoing.	Early commercial Repeated seasonal use; terms not public.

Project and grid party	What it is	Status and public evidence	Commercial readiness
Dublin, Ireland: Microsoft EirGrid, through Enel X	Grid-interactive UPS batteries that provide grid services.	Certified, tested and approved for grid connection in July 2022, with operation expected later that year. Later operation was not re-checked.	Early commercial Approved and connected; operating record not re-checked.
Ireland: Digital Realty, nine data centers EirGrid, through Enel X	UPS batteries provide frequency response under the DS3 program.	Active participant, per the Enel X case study.	Commercial Operating in an established grid-services market.
Finland: Aurora DC Nordic reserve market, with Eaton	A 400 kW UPS system in the FCR-N reserve market.	Deployed in 2019; Eaton calls it the first commercial deployment of its grid-interactive UPS.	Commercial Commercial since 2019, at small scale.
Norway: Basefarm Statnett, with Fortum and Eaton	UPS capacity in the Fast Frequency Response market.	Pilot followed by 800 kW of market participation from the 2020 season, with revenue reported.	Commercial Paid market participation, at small scale.
Suwon, South Korea: Samsung SDS Enel X Korea	The data center curtails grid load on dispatch notice, using on-site generation.	Active participant earning program revenue.	Commercial Operating program; relies on on-site generation.
Belgium: Google battery reference Elia, with Centrica and Fluence	Battery-backed grid services, separate from Google compute scheduling.	Centrica's 2022 announcement describes 2.75 MW / 5.5 MWh installed storage, with 2.75 MWh optimized for grid services. [V23]	International reference Battery project; MW and MWh are distinct.
Netherlands: Google Eneco	Compute demand reduction supporting the Dutch grid.	Google's October 2023 account reports the pilot and daily European evening reductions during winter 2022 to 2023. [V24]	Demonstrated Historical reference; ongoing enrollment not established here.

Evidence notes

- ◆ **Source strength.** EPRI, utility, regulator, operator and vendor publications support the principal findings. Vendor performance claims are attributed; a project announcement is not independent validation of performance.
- ◆ **Completeness boundary.** Confidential projects, unnamed PADO demonstrations and unannounced utility enrollments cannot be enumerated. The wider U.S. inventory is selected coverage; ordinary power-supply agreements without a documented flexibility mechanism are outside the main list.

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