Technical Resource for State Regulators on Large Load Interconnections

August 26, 2026

Purpose of this Resource

This *Technical Resource for State Regulators on Large Load Interconnection* provides state public utility commissioners and commission staff with technical background, guiding questions, and oversight considerations for the reliable integration of large loads, including data centers, cryptocurrency mining facilities, computational loads, and more, into the Western Interconnection.

The resource translates emerging technical standards and best practices into actionable oversight tools for use in Integrated Resource Plans (IRPs), rate cases, transmission and distribution investment reviews, and other regulatory proceedings. While this document was developed with public utility commission (PUC) oversight in mind, the resource is also valuable to the utilities, including investor-owned, consumer-owned, and municipal utilities, who are integrating large amounts of large loads on their systems.

Background

Utilities across the West are receiving large load interconnection requests from individual customers ranging from 50 MW to more than 1,000 MW — sizes that can rival entire utility systems in parts of the region. Commissioned by WIRAB and prepared by Elevate Energy Consulting, this resource draws on a survey of Western commissions and state energy offices, interviews with state regulatory staff, and a review of industry reports and large load proceedings through mid-2026. It supports oversight in tariff proceedings, Energy Service Agreements (ESA) reviews, IRPs, interconnection dockets, and rate cases.

Why This Matters in the West

- **Rapid Growth** – More than 80 percent of new large load requests in the Western Interconnection are data center facilities with new and unique operational characteristics.
- **Unique Risks** – High penetrations of large loads can introduce vulnerabilities in modeling, protection coordination, and operational performance, as demonstrated by recent large-scale tripping events.
- **State Commission Authority** – State commissions can set expectations, require transparency, and ensure utilities are prepared to integrate large loads without compromising affordability, reliability, or resilience.
- **Regional Coordination** – Aligning practices with neighboring jurisdictions, WECC and NERC guidance, and international standards can reduce costs, improve performance, and enhance system stability.

What's Inside

- **Survey Responses** from large load activity discussions with Western states
- **Ten Priority Issues** with large load interconnections.
- **Detailed Questions** for use in regulatory proceedings.
- **Recommendations** to strengthen utility readiness, technical capability, and accountability.

Prepared by Elevate Energy Consulting and Endorsed by WIRAB on August 25, 2026

Western Interconnection Regional Advisory Body (WIRAB)

In 2006, the Federal Energy Regulatory Commission (FERC) established the Western Interconnection Regional Advisory Body (WIRAB) under Section 215(j) of the Federal Power Act, following a petition from ten western governors. As a regional advisory body under this section, WIRAB is authorized to advise FERC, the North American Electric Reliability Corporation (NERC), and the Western Regional Entity (WECC) on issues related to electric grid reliability in the Western Interconnection. This includes providing input on whether proposed reliability standards, WECC governance structures, and budgets are just, reasonable, non-discriminatory, and in the public interest.

WIRAB includes all states and provinces with electric load in the Western Interconnection. Because it operates on an Interconnection-wide basis, FERC may give deference to WIRAB's recommendations. WIRAB strives to build consensus among its members before offering advice, making it unique in its ability to represent all jurisdictions in the region with one unified voice on grid reliability issues.

Disclaimer:
This resource is intended solely for informational purposes to support state commissions and their staff in understanding and overseeing large load integration. It does not constitute legal advice, create binding obligations, or replace the independent judgment of commissioners in regulatory proceedings. References to specific standards, practices, or technologies are for illustrative purposes only.

Commissioner Quick Reference – Large Load Interconnections in the West

Purpose:

The purpose of this Quick Reference is to equip state regulators with targeted oversight questions to ensure large loads, including data centers and cryptocurrency mining facilities, are integrated reliably.

10 Key Priority Issues & Core Guiding Questions

1. **Phantom Demand and Load Forecast Uncertainty**
   a. How does the utility develop its large load forecast?
   b. How are individual requests screened, weighted, or discounted before they enter forecasts used for resource and transmission planning?
2. **Speculative Requests, Queue Management, and Developer Readiness**
   a. What defined readiness criteria and milestone requirements must a developer meet before utility study resources and system capacity are committed?
   b. Is the queue processed first-come-first-served, cluster/batch, or some other bespoke methodology?
3. **Cost Allocation and Protecting Existing Customers**
   a. Should large loads be a separate customer class or subclass? Is the cost-of-service study granular enough to capture their distinct cost causation (i.e., high load factor, dedicated facilities, incremental resources)?
   b. Which costs are directly assigned versus allocated? How are incremental generation, fuel, capacity, transmission, and ancillary service costs attributed to the new load?
4. **Financial Assurances and Stranded Asset Risk**
   a. What collateral, security, or guarantees are required for new load applications? How are they sized relative to the utility investment at risk at each project stage?
   b. If dedicated infrastructure is built and the load never materializes or leaves early, who bears the unrecovered cost and through what mechanism?
5. **Tariff Design, Special Contracts, and Commission Review**
   a. What MW thresholds trigger the large load tariff and commission review of contracts? Are they appropriate given the size of requests arriving, both individually and in aggregate at a campus?
   b. Which terms are standardized in the tariff versus negotiated case by case? How does the commission review negotiated terms including handling of confidential provisions?
6. **Resource Adequacy and Alignment with Resource Planning**
   a. How are large loads incorporated into the IRP, resource adequacy plans, and transmission plans? Are assumptions consistent across these studies?
   b. Under high load scenarios, what generation and transmission are needed and on what timeline?
7. **Interconnection Process Transparency, Timelines, and Study Rigor**
   a. Is the large load interconnection process publicly documented with defined stages, studies, deposits, data requirements, and timelines from application through energization?
   b. What does the system impact study include (e.g., thermal, voltage, stability, protection, power quality)? What screening methods and triggers escalate a project to advanced dynamic or EMT analyses?

8. **Reliability and Technical Performance of Large Loads**
    a. What ride-through and other operational performance requirements has the utility codified? Where did it draw its references from during its development?
    b. How frequently are these performance requirements reviewed and updated to keep pace with rapidly evolving industry practices?
9. **Co-Location and Bring-Your-Own-Generation (BYOG)**
    a. What studies and rules apply when load co-locates at an existing generator, including impacts on nearby generators, transmission flows, and the capacity available to other customers?
    b. For bring-your-own-generation or microgrid systems, what reliability, interconnection, and reconnection requirements apply?
10. **Flexibility, Curtailment, and Demand Response**
    a. Can the facility curtail or shift load through on-site energy storage or workload management? By how much, how fast, and for how long?
    b. Has flexibility been demonstrated for the technology being deployed?

General Tips:

- Ask "why" when utilities deviate from national or regional standards.
- Tie technical requirements to ratepayer impacts and avoided costs.
- Require regular public reporting on large load performance and compliance.
- Coordinate with other commissions to align practices regionally.

Technical Resource for State Regulators and Commissioners

Oversight of Large Load Interconnections

August 2026

Purpose

This technical resource is designed to support state public utility commissioners, commission staff, and state energy offices exercise informed oversight of large load interconnections. "Large loads" predominantly include large cloud and artificial intelligence (AI) data centers, and include cryptocurrency mining operations, hydrogen electrolyzers, large manufacturing, and other industrial facilities. Industry is experiencing large load interconnection requests from individual customers whose demand range from 50 MW to more than 1,000+ MW, which can rival the size of entire utility systems in parts of the West. The guiding questions in this resource are intended to help regulators stay informed about key topics and engage with utilities, developers, and stakeholders during large load tariff proceedings, electric service agreement (ESA) and special contract reviews, integrated resource plans (IRPs), interconnection-related dockets, rate cases, and rulemakings. The goal is to help regulators (i) protect existing customers, (ii) ensure just and reasonable rates, (iii) oversee prudent utility investment, (iv) support economic development, and (v) help maintain a reliable and resilient electric grid during a period of massive demand growth.

This resource was commissioned by the Western Interconnection Regional Advisory Body (WIRAB) and completed by Elevate Energy Consulting. It is informed by a survey of Western commissions and energy offices, interviews with state regulatory staff across the West, and a review of industry reports, reliability analyses, and other large load proceedings through mid-2026.

How to Use This Resource:

This resource is intended to be focused and high-level: each topic is introduced in plain language, connected to grid reliability issues where relevant, and paired with practical questions regulators can ask during interactions with their stakeholders. The guiding questions are not a universal checklist; they should be adapted to each state's authority, utility system, and proceedings. This resource does not substitute for legal advice, independent engineering analysis, or a detailed review of project-specific costs and reliability impacts.

Applicability

Oversight of large loads is split across state and federal jurisdictions, and unlike generation, much of it is not yet covered by mandatory federal reliability requirements.[1] State regulators have authority over retail service including who may serve a large load, rates and terms of that service, large load tariffs, special contracts, resource planning, and (in many states) facility siting. The Federal Energy Regulatory Commission (FERC) has authority over transmission service and wholesale markets, and the North American Electric Reliability Corporation (NERC) administers mandatory Reliability Standards for users,

[1] These are actively under development with FERC's show cause orders to each of the six regional grid operators under its jurisdiction and with NERC's Large Load Action Plan and Reliability Standards development efforts.

owners, and operators of the bulk power system (BPS). Large load customers are generally not NERC-registered entities today, and there are currently no Reliability Standards applicable to large load customers. However, this is an evolving regulatory landscape and NERC has a fast-tracked Large Load Action Plan that includes registration of computational load owner/operators and mandatory standards obligations for those entities (and standards applicable to existing registered entities). FERC ordered NERC to formalize NERC's large load action in July 2026 by requiring NERC to develop new Reliability Standards and revisions to its Rules of Procedure, including registry criteria for computational load entities, by December 31, 2026.

From a reliability perspective, the behavior of many large load facilities today is governed mainly by transmission provider/utility interconnection requirements and by the terms negotiated into tariffs, ESAs, and interconnection agreements. State regulators play a key role in ensuring reliability oversight of large loads as compared with practices for interconnecting new generation resources.

Federal activity is moving quickly and should be tracked by state regulatory offices; however, the states will still have an important role to play from a reliability oversight perspective. In June 2026, FERC issued show cause orders directing the regional transmission organizations to justify or reform their large load interconnection rules, while expressly recognizing that states will continue to regulate the terms of retail sales to large loads and which entities may serve them. Most of the Western Interconnection sits outside of an RTO, and FERC encouraged Western transmission owners to propose their own large load interconnection rules. This means that Western states and utilities will carry much of the process design themselves rather than larger regional grid operators addressing these issues. Table 1 summarizes the high-level division of roles.

Aspect	State Regulators (Retail Service)	FERC / NERC (Transmission And BPS)
Regulatory Authority	Retail rates and terms of service; large load tariffs, ESAs, and special contracts; IRP and resource adequacy oversight; siting (by state)	FERC: transmission service, wholesale rates, and interconnection policy NERC: mandatory Reliability Standards for applicable registered entities
Interconnection Process	Distribution-level connections and retail service arrangements; state- or utility-defined large load processes	Transmission service requests under the OATT; RTO/ISO processes, where applicable; FERC show cause orders regarding RTO large load rules
Technical Requirements	Conditions in tariffs, ESAs, and utility service rules; state adoption of utility facility connection requirements	NERC FAC-001/FAC-002 facility interconnection requirements and studies apply to utilities; no large load-specific requirements exist yet
Cost Allocation	Retail cost allocation, rate design, and protection of existing customer classes	Allocation and recovery of transmission network upgrade costs under FERC policy
Possible Gap	Reliability obligations largely depend on what states and utilities require by contract and tariff	NERC standards development for large loads is underway but not yet in effect, multi-year implementation expected

Beyond Public Utility Commission Oversight

Although this resource was developed with PUC oversight in mind, most of its content is equally useful to consumer-owned, municipal, and cooperative utilities and their governing boards. In the West specifically, large load activity has migrated to consumer-owned utility territories in some states, where retail rates have historically been lower and state oversight is limited. Several of those utilities have imposed load caps or moratoria while they work through transmission constraints. Local jurisdictions, including cities and counties within IOU territories have also imposed moratoria on potential new large load interconnection until rules and consumer protections can be put in place. State energy offices, legislatures, local governmental agencies, and consumer advocates will also find the questions in this document useful when evaluating large load legislation and policy.

Background

The West, like most of North America, is experiencing significant growth in requests to interconnect large loads. The WECC 2025 Western Assessment of Resource Adequacy projects that annual demand in the Western Interconnection will grow roughly 25% over the next decade, with peak demand rising from about 164 GW in 2025 to more than 190 GW by the mid-2030s. This growth is more than four times the historical rate in the West and driven primarily by data centers and manufacturing. Individual load interconnection requests have jumped from tens of megawatts a few years ago to hundreds of megawatts, with multiple multi-gigawatt campuses now proposed in several Western states (for example, a roughly 1 GW data center proposal in Montana and announced multi-gigawatt developments in Utah). For perspective, ERCOT is tracking well over 400 GW of large load interconnection requests against a historic system peak of roughly 85 GW; the trend is upwards but this illustrates a possible overstatement of what loads will actually materialize.

WIRAB has identified large loads as a central reliability risk mitigation priority for 2026 and beyond. This resource builds on WECC's 2025 assessment of large load interconnection risks in the Western Interconnection, NERC's Large Loads Action Plan, and WIRAB's parallel 2026 effort to develop template technical interconnection requirements for large loads that utilities can adopt or adapt (conducted in collaboration with a Western industry advisory group).[2]

Feedback from Western State Regulatory Staff

To ground this resource in current state experience, WIRAB staff and Elevate surveyed and interviewed commissions and state energy offices across the West in 2026. Every responding state reported active large load work including open dockets, pending tariffs, or interconnection applications under review. Three issues were cited as most pressing almost universally:

1. **Cost allocation** and ensuring large loads bear the costs they impose without deterring development
2. **Stranded asset risk** if loads do not materialize, and
3. **Load forecast uncertainty** and its effect on infrastructure investment decisions

Nearly every respondent reported that their commission currently defers to the utility on reliability and technical study matters and cited (i) lack of in-house technical staff or expertise, and (ii) opacity of utility study processes as the primary barriers to more rigorous oversight. States requested plain-language explanations of key technical concepts, a question framework organized by topic, and information about other states' efforts to guide staff. This document is intended to respond directly to those requests.

[2] Whereas that deliverable is written for utilities, this technical resource is written for state regulators and their staff.

Listed below is a snapshot of Western activity as of mid-2026 to illustrate the pace and the diversity of approaches. This list is not a comprehensive summary of all Western Interconnection states, just a snapshot in time based on survey responses received and research on publicly available information.

- **Arizona:** Utilities are pairing existing extra-high load factor tariffs with ESAs that add surety bonds and other protections, are using non-refundable cluster study fees, and "pay for what you request" commitments to avoid speculative projects. The Corporation Commission convened a statewide large load workshop in April 2026.
- **Colorado:** Xcel Energy filed a large load tariff (Proceeding 26AL-0137E) with a 50 MW threshold, a Commission-directed "clean transition tariff" pathway requiring clean firm supply, and a "speed to power" pathway. The Commission also opened an investigatory docket on large load interconnection (25I-0418E) and has required testimony on how power quality and reliability mitigation costs will be assigned to the loads that cause them.
- **Montana:** NorthWestern Energy filed a large load tariff (Docket 2026.04.023) with tiers at 5 MW and 50 MW, development agreements and deposits that fund studies, minimum load duration commitments (up to 15 years), exit penalties, and Commission approval of ESAs above 50 MW.
- **Nevada:** The Commission approved a Clean Transition Tariff and an energy supply agreement with a major data center customer under it, with reliability review occurring through the IRP process.
- **New Mexico:** More than a decade of experience with a Commission-reviewed special services contract serving a large data center, new microgrid and advanced-grid legislation (HB 93), and pending large load tariff filings. Staff note the challenge of gigawatt-scale requests on a comparatively small system.
- **Oregon:** HB 3546 (the POWER Act) requires a separate rate class for large data center loads of 20 MW or more. Portland General Electric's Schedule 96 is in effect and a PacifiCorp tariff is in development. A Governor-appointed Data Center Advisory Committee is developing broader policy recommendations.
- **Utah:** SB 132 (2025) created an alternative path, allowing loads over 100 MW to bring their own generation (up to and including full islanding), subject to Commission approval of large load contracts that demonstrate existing ratepayers bear no costs attributable to the new load. Implementing rules are in progress (Docket 25-R318-01), and state staff have flagged reliability as a gap in the framework.
- **Washington:** The UTC opened a policy docket (UE-260162) on investor-owned utilities and large loads. Most large load growth has occurred in consumer-owned utility territories, some of which have adopted load caps pending transmission expansion. In 2026, SB 5982 clarified that data centers must meet the state's clean energy standards.

Relevance to the West

The regulatory and utility landscape for large load growth in the West is somewhat unique compared with other portions of the North American bulk power system. Outside of California and small portions of other markets, the Western Interconnection has no regional transmission organization (RTO). Thus, there is no common interconnection queue, no standardized large load interconnection process, and no regional tariff to reform. Each utility, and each state, is thus building its approach largely from scratch. This can lead to more instances of inconsistency, speculation from developers, and gaps between neighboring jurisdictions. It can also make regional information sharing through entities such as WIRAB and WECC more valuable. Many Western systems are also small relative to the requests they are receiving, where a single gigawatt-scale request can exceed the peak demand of an entire balancing authority in the West. Therefore, decisions about one customer can dominate a utility's resource plan, transmission plan, and rate trajectory.

Resource adequacy assessments are showing loss of load risks emerging in parts of the West if planned resources are delayed; roughly half of planned additions are speculative while historically only about two-thirds of planned resources have come online in the year scheduled. Adding hundreds of megawatts of new, high load factor demand onto the existing load forecast creates meaningful challenges for the sector. New large loads can also introduce operational risks if not adequately studied, evaluated, and addressed before energization. Large computational loads are electronically-coupled facilities whose protection and control systems can interact with the grid and affect bulk power system reliability. In a July 2024 Eastern Interconnection event, a normally cleared transmission fault caused roughly 1,500 MW of data center load to transfer to backup power and drop off the system in under a second. A simultaneous load loss event had never been planned for, and similar events have occurred since then involving voltage-sensitive cryptocurrency mining load reductions and other related events. NERC's 2026 Summer Reliability Assessment also flagged these concerns as an operational readiness concern. NERC has since issued a Level 3 Alert related to computational loads in lieu of the more lengthy standards development process.

State & Regional Action is Paramount

Full implementation of the upcoming NERC Reliability Standards development efforts for computational loads is expected to be years away. Until then, requirements that Western states and utilities put into interconnection requirements, processes, tariffs, and contracts are the primary line of defense from a reliability perspective.

Electricity affordability is another key concern and discussion point throughout the industry. Large loads can spread costs over more sales and fund grid upgrades that benefit everyone; on the other hand, they could shift generation, transmission, fuel, and reliability-mitigation costs onto everyday ratepayers if protections are not adequate. Water use, emissions, land use, and community impacts add further dimensions that many Western states are addressing in parallel. Regulators who engage early, ask disciplined questions, and set clear expectations are better positioned to navigate this challenging landscape.

Recommendations for Regulators and Decision Makers

Regulators can acknowledge these challenges and then move from reactive, case-by-case assessment to a proactive framework using tariffs, dockets, planning proceedings, and regional coordination to ensure reliability, affordability, and fairness as large loads connect. State regulators and decision makers should consider the following actions and engage their utilities on each:

- **Establish a large load framework before applications force one.** Consider a generic or investigatory docket, or direct tariff filings, so that thresholds, process steps, protections, and review authority are defined early rather than litigating one contested case at a time.
- **Ensure growth pays for growth.** Consider granular cost-of-service support, appropriate customer classes / subclasses, direct assignment of identifiable costs (e.g., interconnection, dedicated facilities, incremental generation, fuel, capacity, ancillary services), and ongoing reporting demonstrating that large loads cover their costs.
- **Scale financial assurances to the risk.** Consider minimum contract terms, minimum demand or take-or-pay commitments, collateral or surety, ramp commitments, and exit fees against the utility investment at risk so that stranded costs do not fall to remaining customers.
- **Demand forecast discipline and transparency.** Request utilities to explain how interconnection requests are screened, weighted, and not duplicated before they enter broader load forecasts. Require scenario analysis of loads forecasts and define milestones at which a request may drive investment decisions.
- **Bring reliability into the tariff or other mandatory requirements document, not just the interconnection agreement.** Ensure that the tariff or other mandatory requirements documents explicitly state that the technical reliability-centric details (e.g., data sharing, study models, ride-through, power quality, monitoring, etc.) are mandatory and enforceable conditions of service. Consider assigning mitigation costs to the customers whose load characteristics cause them.
- **Encourage utilities to adopt rigorous technical interconnection requirements for large loads.** Encourage adoption of the template technical interconnection requirements developed through WIRAB's industry advisory group (est. publication Dec 2026) and practices set forth in NERC reliability guidelines on risk mitigation for large loads. Ask for technical justification when utilities deviate from established practices or industry/regulatory recommendations.
- **Encourage study rigor proportional to size and system strength.** Very large or electronically-coupled loads in weak or highly concentrated areas warrant detailed dynamic stability studies beyond conventional phasor domain interconnection studies. This may include detailed electromagnetic transient (EMT) modeling and studies, power quality assessments, protection coordination reviews, and other scenario-based analyses that add time and complexity to the interconnection process yet are critical for ensuring grid reliability.
- **Integrate large loads into resource adequacy and IRP processes.** Ensure IRPs, resource adequacy reports (including the Western Resource Adequacy Program and WECC's Western Assessment of Resource Adequacy, where applicable), and transmission plans use consistent assumptions regarding large load growth and certainty. Examine bridging strategies for situations where load arrives faster than supply.
- **Set clear rules for co-location and bring-your-own-generation.** Consider requiring studies of impacts on nearby generators and the surrounding system, fair standby and backup service pricing, safe islanding and reconnection protocols, transparency about resource adequacy effects, etc.
- **Reward verified flexibility.** Where large loads offer curtailment, use of on-site storage, demand response, or other creative flexibility options, establish contractual obligations, rights, telemetry, penalties, and other considerations and incentives that unlock faster interconnection. Cautiously treat unverified flexibility claims with skepticism and request technical proof of performance.

- **Coordinate regionally and stay aligned with federal developments.** Engage transmission providers on technical requirements, coordinate with neighboring commissions through WIRAB and NARUC, and track FERC's large load proceedings and NERC's standards development efforts.

General Tips for State Regulators to Act

- Ask "why" when a utility's protections or technical requirements are less stringent or not aligned with existing or emerging practices across the industry or of neighboring Western states.
- Use dockets and workshops to build the record and prepare staff expertise before the large gigawatt-scale application(s) arrives.
- Invest in staff capability or supplemental technical support; nearly every Western state identified this as a key constraint.
- Tie reliability requirements to ratepayer impacts: costs avoided, risks mitigated or transferred, reliability preserved.
- Require regular public reporting on queue status, contracted versus actual load, cost recovery performance, etc.

Ten Priority Issues and Guiding Questions for State Regulators

Based on industry research,[3] the WIRAB survey, and scoping interviews with Western states, the ten issues described below represent concerns consistently facing state commissions in large load proceedings today. Many are economic and process questions rather than reliability topics; however, each carries a reliability dimension that is highlighted throughout. Each issue is introduced briefly and paired with guiding questions regulators can use in their interactions with stakeholders.

1. Phantom Demand and Load Forecast Uncertainty

Utilities must decide how much of their load interconnection request pipeline should be treated as real. Developers routinely submit duplicate requests across multiple utilities and states while identifying the optimal interconnection locations. Announced projects frequently change size and timing, and may vanish completely. One Midwestern utility's large load forecast dropped by more than half after a tariff with firm commitments took effect. Overestimating demand drives premature generation and transmission investment that existing customers could be stuck paying for; underestimating demand risks energy shortfalls. There is currently no consistent industry practice for when a large load request should enter forecasts, IRPs, and transmission plans.

Reliability Consideration: *Load forecasts feed every resource adequacy and transmission study. Inflated demand can distort regional assessments and misdirect scarce resources whereas underestimated forecasts can create congestion, capacity and energy inadequacy, and elevated levels of reliability risk. Ensuring consistent load forecast approaches that carefully treat these considerations is crucial.*

Core Guiding Questions:

- How does the utility develop its large load forecast? How are individual requests screened, weighted, or discounted before they enter forecasts used for resource and transmission planning?
- At what defined milestone (e.g., application, study deposit, signed ESA, financial commitment, construction start) does a request enter the official load forecast and justify investment?
    - Is that milestone consistent across the IRP, transmission planning, and resource adequacy methodologies?
    - Does the utility share this load forecast data across departments internally (i.e. with IRP planners, transmission planners, etc.) and does this same information get shared within regional studies like with WECC's Loads and Resources data request and with Regional Planning Regions?
- How does the utility identify and remove duplicate load interconnection requests from the same developer across service territories or states? What information is required or provided from the customer to understand these concerns?

Additional Questions:

- What high/low/delay scenarios are analyzed by the utility, and how do proposed investments change across them?
    - What investments are robust across all scenarios versus contingent on specific scenarios?

[3] Some references include: RMI Large Load Tariff Principles, RMI Large Load Tariffs Dashboard, E3 Large Load Tariff Whitepaper, LBNL Electricity Rate Design for Large Load Brief, and other industry papers.

- How are contracted ramp schedules and load factors compared against actual metered behavior, and how is the forecast trued up?
- What information does the commission receive to independently evaluate large load forecast credibility (e.g., signed agreements versus announcements, deposits paid, equipment orders, site control)?

2. Speculative Requests, Queue Management, and Developer Readiness

Interconnection queues fill with speculative projects when entry is cheap. Several Western utilities have found that meaningful, non-refundable study fees, deposits, site control requirements, and pay-for-what-you-request commitments quickly separate serious developers from speculators. Texas's new framework batches mature projects into a single study using defined readiness criteria; Arizona utilities report that large upfront cluster study costs have effectively self-screened the queue. Transparent queues with defined milestones and stage gates also give commissions visibility into what is likely to come.

Reliability Consideration: *Congested, opaque queues delay credible projects, consume scarce study engineering resources, and degrade the quality of downstream reliability studies since speculative requests will skew study results.*

Core Guiding Questions:

- What defined readiness criteria (deposits, fees, site control, financial showings) and milestone requirements must a developer meet before utility study resources and system capacity are committed?
- Is the queue processed first-come-first-served, cluster/batch, or some other bespoke methodology?
- Is queue status transparent to the commission and, where appropriate, to the public?

Additional Questions:

- What non-refundable costs or attestations deter speculative or duplicative applications? What evidence suggests they are working?
- When capacity is constrained, what criteria determine which loads proceed first (e.g., readiness, reliability impact, economic value) and who decides?
- What happens when a project withdraws from the queue? How are deposits treated, and how are restudy costs for remaining projects handled?
- Does the process clearly define stages from interconnection application through energization, with timelines and obligations at each gate?

3. Cost Allocation and Protecting Existing Customers

The most universal concern across Western states is cost allocation and preventing cost shifts on existing customers — i.e., "growth pays for growth." Large and high load factor customers do not fit neatly into existing load class cost-of-service studies and allocation methods that are based on peak demand. Inadequate treatment can under-charge them for energy-related and dedicated costs they cause. Recommended industry practice combines direct assignment of identifiable costs (interconnection facilities, dedicated infrastructure, incremental generation, fuel, capacity, and ancillary services) with detailed cost-of-service analysis for a distinct class or subclass. Ongoing reporting should verify that costs remain covered as the system evolves.

Reliability Consideration: *Cost allocation should also capture reliability mitigation. If the load's electrical characteristics require reactive support, protection upgrades, power quality mitigation, advanced transmission technologies, additional headroom, improved operator tools, telemetry, etc., those costs should follow cost causation to the large load rather than the general body of ratepayers.*

Core Guiding Questions:

- Should large loads be a separate customer class or subclass? Is the cost-of-service study granular enough to capture their distinct cost causation (i.e., high load factor, dedicated facilities, incremental resources)?
- Which costs are directly assigned versus allocated? How are incremental generation, fuel, capacity, transmission, and ancillary service costs attributed to the new load?
- How are costs of mitigating power quality or other reliability impacts that are caused by a large load identified and assigned to that customer?

Additional Questions:

- Where embedded average costs understate the cost of serving new large loads, is a marginal or incremental cost approach used?
- What periodic reporting will demonstrate, after-the-fact, that large loads are covering their costs and existing customers are not adversely affected?
- How do retail arrangements interact with FERC-jurisdictional transmission service and network upgrade cost recovery so costs are neither double-recovered nor missed?

Existing State-level Examples

Look at Oregon HB3546 (the POWER Act) and Utah's SB132 (2025) for examples of existing state-level policies that are underway to help protect existing customers and set policies for large load cost allocations.

4. Financial Assurances and Stranded Asset Risk

Serving a large load can require hundreds of millions of dollars of generation, transmission, and substation investment with lead times of five to ten years. These timelines are much longer than the commitment horizon of a typical data center business plan. If load shrinks, departs, or never arrives, assets can be stranded. Western and national practice is converging on minimum contract terms (e.g., 10–15 years), minimum demand or take-or-pay obligations (e.g., 80–90% of contracted capacity), collateral, surety bonds or parent guarantees, development deposits to fund studies, ramp commitments, and exit fees sized to unrecovered investment.

Reliability Consideration: *Stranded asset exposure creates pressure to defer or under-build. Credible financial commitments let utilities build the resources and transmission the system needs without gambling with ratepayer dollars on customers that may never appear.*

Core Guiding Questions:

- What collateral, security, or guarantees are required for new load applications? How are they sized relative to the utility investment at risk at each project stage?
- If dedicated infrastructure is built and the load never materializes or leaves early, who bears the unrecovered cost and through what mechanism?
- Are there minimum contract terms, minimum demand or take-or-pay provisions, ramp commitments, and exit fees? How were their levels justified?

Additional Questions:

- How do protections transfer or adjust if the facility is sold, downsized, repurposed, or its corporate parent changes?
- Are protections consistent across tariff service, negotiated special contracts, and any expedited "speed to power" pathway—or can developers pick the weakest link?

5. Tariff Design, Special Contracts, and Commission Review

As of mid-2026, roughly half of U.S. states have approved or pending large load tariffs; most Western states have activity underway. Recognize that tariff design choices matter. For example, consider the MW threshold that triggers the tariff (e.g., 5 to 100 MW across states, with NERC proposing 50 MW presently); which terms are standardized in the tariff versus negotiated in an ESA; whether the commission reviews and approves ESAs;[4] and how "clean transition" pathways interact with state energy policy and the utility's existing resource acquisition so large loads bring supply rather than absorbing resources already planned for other customers. One-off negotiated pathways deserve scrutiny since they can bypass protections the tariff was designed to provide.

Reliability Consideration: *The tariff, or another commission-approved enforceable instrument, is the state's most durable vehicle for reliability terms and it is important to ensure that the tariff includes or points explicitly to enforceable grid reliability requirements that the load class must meet, ideally with a universal load threshold harmonized across the Western Interconnection and aligned with the NERC threshold where feasible. Large load thresholds for tariff cost-allocation measures and requirements may warrant different threshold levels driven by state-needs rather than the grid reliability requirements and corresponding thresholds.*

Core Guiding Questions:

- What MW thresholds trigger the large load tariff and commission review of contracts? Are they appropriate given the size of requests arriving, both individually and in aggregate at a campus?
- Which terms are standardized in the tariff versus negotiated case by case? How does the commission review negotiated terms including handling of confidential provisions?
- If a clean energy or "clean transition" pathway exists, how does it ensure the large load adds supply rather than claiming low-cost clean resources already planned for other customers?

Additional Questions:

[4] For example, NorthWestern Energy's proposed Montana Large New Load tariff requires it above 50 MW, Idaho reviews every special contract, Arizona requires a vote when rates deviate from tariff.

- Do any expedited or one-off pathways preserve the tariff's financial and reliability protections? How will agreements under them be evaluated and made transparent?
- Does the tariff include reliability-related obligations such as data provision, study models, ride-through, and other requirements? Or are these left to interconnection agreements or other vehicles that the commission never reviews?
- Are similar frameworks being applied across all jurisdictional utilities? What is known about large load terms at consumer-owned utilities in the state?

6. Resource Adequacy and Alignment with Resource Planning

Large loads can be designed, built, and energized much faster than the generation and transmission needed to support them. WECC's assessments already project loss of load risk rising in parts of the West under "realistic" build scenarios. Large loads are the dominant driver of the demand growth behind that risk. States need IRPs, resource adequacy programs, and transmission plans to use consistent large load assumptions; states also need utilities to explain what happens if load arrives before supply. Phased energization tied to resource availability, temporary service limits, load caps, imports, storage utilization, and enforceable load flexibility are all bridging solutions that can be explored.

Reliability Consideration: *Resource adequacy is where forecast error, queue speculation, and construction risk converge. The West's dependence on variable resources and hydro conditions makes this more of a challenge and should be carefully evaluated.*

Core Guiding Questions:

- How are large loads incorporated into the IRP, resource adequacy plans, and transmission plans? Are assumptions consistent across these studies?
- Under high load scenarios, what generation and transmission are needed and on what timeline? How does that compare with realistic procurement, supply chain, and construction timelines?
- If load materializes before supply, what measures protect existing customers and offer a bridge to a long-term solution? Are they contractual?

Additional Questions:

- How do large load additions affect reserve margins, flexibility needs, and utility/regional resource adequacy statistics?
- How does serving the new load affect the state's clean energy requirements and emissions trajectory? Who bears compliance cost?
- Has the utility demonstrated the deliverability of energy to the new load under stressed conditions, not just installed capacity or simplified deliverability assumptions?

7. Interconnection Process Transparency, Timelines, and Study Rigor

Unlike generator interconnection, there is no standardized process for studying large load interconnections. Each utility presently defines its own bespoke process. Several states report that the process is opaque or difficult to evaluate independently. A well-designed process is publicly documented; defines stages, milestones, deposits, and timelines from application through energization; specifies the studies performed at each stage (e.g., feasibility, system impact, facilities); and states what the customer must provide and when. Study scope should be proportional to size and location and very large loads or computational loads may deserve additional scrutiny especially in weak system strength pockets or areas with high density of other large loads or inverter-based generating resources.

Reliability Consideration: *System impact studies identify possible reliability risks. Missing these risks can introduce real, large-scale grid reliability risks across the bulk power system. "Speed to power" pressure should be tempered with realistic expectations regarding the depth and breadth of studies commensurate with the size and complexity of the loads being introduced.*

Core Guiding Questions:

- Is the large load interconnection process publicly documented with defined stages, studies, deposits, data requirements, and timelines from application through energization?
- What does the system impact study include (e.g., thermal, voltage, stability, protection, power quality)? What screening methods and triggers escalate a project to advanced dynamic or EMT analyses?
- What facility data must the customer provide (e.g., load composition, UPS and backup transfer design, dynamic and EMT models), at what stage, and how is quality checked? Where are these requirements located?

Additional Questions:

- How are load interconnection studies coordinated with generator interconnection studies and transmission planning so the utility maintains a single, consistent view of the system?
- Can the commission review study inputs, assumptions, and results? What confidentiality framework enables that review?
- How does the utility balance study rigor against timeline pressure, and where has it declined or conditioned a request based on study results?

8. Reliability and Technical Performance of Large Loads

Modern large loads behave differently than conventional industrial loads. Data centers are power electronic-based and introduce similar and additive risks to inverter-based generation. Understanding, modeling, and studying their protection and control design, UPS systems, transfer logic, and dynamic response are key to reliability of the bulk power system. When many such facilities cluster in an area, risk escalates and should be studied carefully. AI training loads add fast, large power swings and can introduce oscillation risks and equipment lifespan degradation concerns. There are currently no federal-level performance standards for large loads so presently utilities must step into the role of establishing clear, effective, and consistent technical performance requirements for new large loads.

Reliability Consideration: *These issues are the core reliability focus of this technical resource and pervade all other considerations addressed herein.*

Core Guiding Questions:

- What ride-through and other operational performance requirements has the utility codified? Where did it draw its references from during its development?

- How frequently are these performance requirements reviewed and updated to keep pace with rapidly evolving industry practices?
- Has the utility assessed the risk of simultaneous loss of concentrated loads or forced oscillations in its service area?

Additional Questions:

- Are large load customers required to provide verified and validated dynamic models that are regularly updated throughout the interconnection, design, and commissioning process, for use in interconnection and planning studies?
- How do the facility's UPS and backup transfer schemes behave during grid disturbances? Does the utility require this information as part of its interconnection request obligations?
- What power quality requirements (e.g., harmonics, flicker, rapid load fluctuation) apply, who monitors compliance, and who pays for mitigations?
- How are load facility protection settings coordinated with utility protection system design and are they verified at commissioning and after modifications?
- Does the utility have telemetry, disturbance monitoring, and communication protocols with facility operators, and are large loads reflected in operating procedures and load shed schemes?
- Is the utility adopting or have plans to adopt the WIRAB template technical interconnection requirements being developed? Are practices aligned with NERC recommendations or other industry practices?

9. Co-Location and Bring-Your-Own-Generation (BYOG)

Developers increasingly propose co-locating loads alongside new generators or at existing generators, building generation on-site, or islanding entirely. Utah SB 132 expressly allows loads over 100 MW to bring their own generation and operate off-grid; New Mexico's HB 93 authorizes microgrids. These configurations may relieve resource adequacy pressure and can speed energization; however, they raise questions regarding removing existing capacity from the grid, on-site generation interacting with the grid, backup and standby service being subsidized, and how islanded facilities are treated if they later seek grid service. Additionally, BYOG may create supply chain competition and constraints with existing utility development that may limit a utility's ability to build out infrastructure to maintain reliable and cost-effective service for existing customers. FERC's ongoing co-located load proceedings will shape the wholesale side, but retail and reliability terms will likely remain with states and NERC.

Reliability Consideration: *Co-located configurations change power flows, fault behavior, grid dynamics, possible control interactions, impacts to nearby generators or loads, and other reliability issues that must be studied before energization.*

Core Guiding Questions:

- What studies and rules apply when load co-locates at an existing generator, including impacts on nearby generators, transmission flows, and the capacity available to other customers?
- For bring-your-own-generation or microgrid systems, what reliability, interconnection, and reconnection requirements apply? Who verifies performance and compliance?
- How are standby and backup services priced so that a nominally self-supplied facility does not lean on the system without paying for it?

Additional Questions:

- What are the emissions, permitting, and fuel security implications of on-site generation choices (e.g., diesel versus storage versus clean firm)? Do they align with state policy?
- If a co-located or islanded facility later seeks full or partial grid service, what processes and protections govern that transition? What studies are conducted and on what basis?
- How are the resource adequacy effects of co-location—capacity effectively removed from or added to the shared system—reflected in planning?

10. Flexibility, Curtailment, and Demand Response

Flexible large loads could be one of the most powerful risk mitigation tools and studies suggest that even limited curtailment during the highest-risk hours can substantially reduce the new capacity needed to serve large load growth, and batteries, workload shifting, and on-site resources make flexibility technically feasible for many facilities. Several states are exploring incentives such as faster interconnection or favorable rates for verified flexibility. Some recent approvals require that data center load be shed ahead of other customers during grid stress. The critical regulatory task is making flexibility real: contractual curtailment rights, telemetry, testing, and penalties, rather than unverifiable assurances used to soften study assumptions.

Reliability Consideration: *Defining an enforceable flexibility framework directly reduces resource adequacy risk, provides operators a controllable lever during contingencies and other extreme events, and helps mitigate potential reliability risks. Conversely, unverified flexibility that grid planners and operators rely upon yet fail to deliver is reliability risk itself.*

Core Guiding Questions:

- Can the facility curtail or shift load through on-site energy storage or workload management? By how much, how fast, and for how long?
- Has flexibility been demonstrated for the technology being deployed?
- Are flexibility commitments enforceable through contractual curtailment rights, telemetry, periodic testing, and penalties for non-performance rather than just assumed in studies?

Additional Questions:

- What incentives (e.g., interconnection priority, rate treatment) are offered for verified flexibility? Are they available on comparable terms to all qualifying customers?
- During grid emergencies, where do large loads sit in the curtailment or disconnection order relative to other customers? Is that reflected in contracts and operating procedures?
- How are flexibility commitments reflected in resource adequacy accounting and IRP portfolios? What happens to the plan if they underperform?

Federal, Regional, and Industry Activities to Track

Large load policy is evolving quickly across the country and at every level. State regulators generally cannot participate in every forum but should consider tracking the following efforts and asking utilities how they are engaging:

- **FERC large load interconnection proceedings (Docket RM26-4-000 and the June 2026 show cause orders)** which directed RTOs/ISOs to reform large load interconnection rules and encouraged non-RTO Western transmission owners to propose their own rules. FERC also affirmed continued state authority over retail service. Outcomes from these efforts will shape transmission interconnection processes and cost recovery agreements in the West.
- **FERC co-located load proceedings** that address configurations pairing large loads with generators and will influence how bring-your-own-generation arrangements are treated.
- **NERC Large Loads Action Plan** including the NERC Large Loads Working Group; July 2025 white paper on characteristics and risks of emerging large loads; Level 2 Alert, subsequent alert report, and Level 3 Alert; 2026 reliability guideline on risk mitigation for large loads; NERC Load Modeling Working Group data center modeling work; and NERC registration and standards development efforts. Until comprehensive standards take full effect, states have a strong role to play in helping ensure reliability of large load interconnections.
- **NERC and WECC reliability assessments**, including the Western Assessment of Resource Adequacy, the WECC large load risk assessment, and NERC seasonal and long-term assessments.
- **WIRAB's Western large load work** involving the industry advisory group and the template technical interconnection requirements for large loads, which utilities can adopt or adapt and regulators can reference in proceedings.
- **Peer state proceedings and trackers** including EEI's running compilation of large load tariffs and projects and NARUC activity, which provide benchmarking across other jurisdictions.