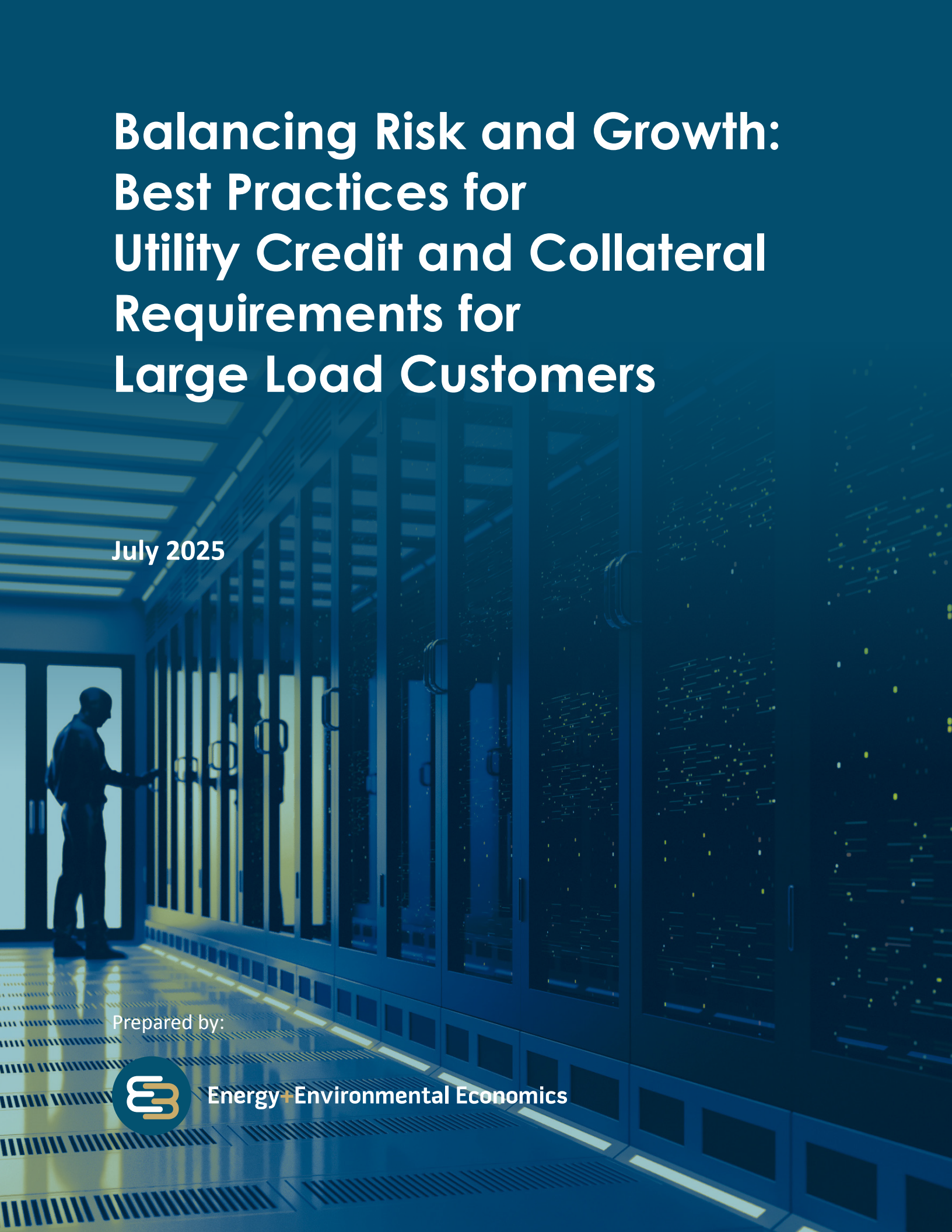
Balancing Risk and Growth: Best Practices for Utility Credit and Collateral Requirements for Large Load Customers



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Executive Summary

In an era of rapid load growth, utilities and regulators face growing pressure to modernize credit and collateral policies to manage risks while supporting continued economic growth. Many current approaches are built for smaller or riskier customers and often fail to reflect the financial strength and operational reliability of today's large loads such as data centers, which are typically backed by well-capitalized sponsors, long-term contracts, and high load factors. Utilities must still manage real risks such as stranded assets and nonpayment, making credit policies essential for protecting ratepayers and ensuring cost recovery. Moreover, in some markets, data centers likely represent the first of multiple waves of load growth, underscoring the need for adaptable policies to enable utilities to effectively meet the future needs of industrial growth, electrification, and other emerging demands.[1]

This whitepaper offers a modern and adaptable risk-aligned framework based on five core principles:

And highlights best practices that translate these principles into action:

1. **Differentiate perceived vs. actual risk** by assessing project maturity, sponsor strength, and contractual backing to avoid blanket conservatism.
2. **Align credit with project maturity**, using milestone-based requirements that scale with utility exposure.
3. **Introduce optionality** through a menu of acceptable credit tools, reflecting customer diversity while maintaining protections.
4. **Avoid redundant risk mitigants** by calibrating requirements and leveraging tools like a Credit Efficiency Index (CEI).

The paper also offers additional stakeholder-specific recommendations:

+ **Utilities** should adopt flexible, risk-based credit structures that evolve with project development and offer vetted credit options.
+ **Regulators** should promote transparency, stakeholder input, and regional coordination to ensure fair and scalable frameworks.
+ **Developers** should engage early, provide clear project information as relevant, and offer flexible credit alternatives to reduce risk.

In this era of rapid load growth, credit policy must evolve from a rigid safeguard into a strategic enabler of responsible, efficient infrastructure integration. This whitepaper provides a roadmap to achieve that goal while protecting ratepayers and supporting long-term grid resilience.

[1] These concepts are discussed in more depth in: I. Riu, D. Smiley, S. Bessasparis, K. Patel, "Load Growth Is Here to Stay, but Are Data Centers?: Strategically Managing the Challenges and Opportunities of Load Growth," Energy and Environmental Economics, Inc., July 2024. Available at: https://www.ethree.com/

Authors & Acknowledgments

Project Team

Energy and Environmental Economics, Inc. (E3) is a leading economic consultancy focused on the power sector in North America. For over 30 years, E3's data driven analysis and unbiased recommendations have been utilized across the power industry by the utilities, regulators, government agencies, project developers, investors, and non-profit entities. E3 has offices in San Francisco, Boston, New York, Denver, and Calgary.

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Defined Terms

Term	Definition
Collateral	Assets or financial instruments pledged to a utility to mitigate financial risk from customer nonperformance or default.
Credit Support	A broad category of financial assurances including collateral, guarantees, and bonds used to reduce utility exposure to customer financial risk.
Contribution in Aid of Construction (CIAC)	A nonrefundable upfront payment from the customer to help cover utility infrastructure or interconnection upgrade costs.
Commercial Operation Date (COD)	The date a facility becomes fully operational and begins delivering contracted load to the utility.
Energy Services Agreement (ESA)	Binding contract between a utility and a customer that defines service terms, cost recovery mechanisms, and obligations related to delivering and receiving electric service.
Engineering, Procurement, and Construction (EPC)	A company or contractor responsible for delivering a project under an Engineering, Procurement, and Construction (EPC) contract, managing all aspects from design through completion.
Interconnection	The process of connecting a customer's facility to the utility grid, involving planning, infrastructure upgrades, and regulatory approvals.
Letter of Agreement (LOA)	Document outlining specific commitments between a utility and a customer (e.g., funding studies) prior to executing interconnection/service agreements.
Letter of Credit (LOC)	A bank-issued guarantee that ensures payment to a utility in case of customer default; often required as a form of collateral.
Large Load	A large and often high-consumption customer, typically exceeding 10 MW and up to several hundred MWs, including data centers, crypto mining, industrial users, or manufacturing facilities.
Milestone-Based Collateral	Collateral that is posted incrementally as a project reaches defined development milestones (e.g., permit approval, EPC execution, COD).
Parent Guarantee	A credit assurance provided by a customer's parent company or corporate sponsor, backing the financial commitments of the project entity.
Performance Bond	A guarantee that is typically issued by a bank or insurer to ensure fulfillment of customer obligations or performance under a utility contract.
Prepayment	An upfront payment used by utilities to offset risk in early stages of customer interconnection; may function like a refundable or nonrefundable deposit.
Private Financial Assessments	E.g., third-party evaluates customer's financial health according to specific metrics such as debt service coverage ratio, EBITDA margins, etc.
Ratepayer	An end-use utility customer who pays for electric service and whose interests must be protected from cost shifting or stranded infrastructure risks.
Sponsor Support Agreement	A legal commitment from a project sponsor to cover shortfalls or defaults under specific conditions, often used in lieu of cash collateral, including committed growth equity
Stranded Cost / Stranded Asset	Infrastructure or investment that becomes unrecoverable due to customer nonperformance, load attrition, or project cancellation.
Surety Bond	A financial guarantee issued by a third-party insurer that compensates the utility if a customer fails to meet obligations.
Tariff	A formal utility rate schedule, contract, or set of terms approved by a regulator that governs customer pricing & requirements for electricity service.
Utility Capital Support	E.g., customer commitments to reduce the utility's financing needs, helping protect utility credit quality and expedite timelines.
Working Capital	Liquid financial resources a customer uses for operating expenses; can be constrained by large upfront collateral requirements.

The Context of Growth and Risk

In the early 20th century, unregulated and intense competition among electric companies led to redundant infrastructure buildout, with multiple providers constructing costly and duplicative networks in the same areas. As the model proved economically unsustainable, policymakers and industry leaders increasingly recognized that electric service exhibited the characteristics of a natural monopoly, where a single provider could deliver power more cost-effectively due to the high fixed costs and economies of scale involved in grid infrastructure. In response, the regulatory compact emerged - a framework in which utilities are granted legal monopolies in exchange for a commitment to serve all customers reliably and at just and reasonable rates, subject to oversight.

The electricity sector is now in a time of immense transition as it is being transformed by a number of economic growth trends, including the onshoring of manufacturing, the electrification of buildings, industry and transportation, hydrogen fuel production, renewable generation integration, and the digitization of the economy. In particular, with growth in data centers, driven by artificial intelligence (AI), cloud computing, digital services, e-commerce, and content delivery, the U.S. is entering a new era of load growth that is concentrated, nonlinear, and a distinct departure from the incremental, distributed patterns of the past 20 years.

The data center sector exemplifies this trend, with high load factors, long-term capital investments, and mission critical service demands. Backed by Fortune 100 sponsors or institutional investors, these data centers typically rely on long-term tenant contracts, power purchase agreements, and performance guarantees making them a creditworthy and stable load class once operational.

The rapid, large-scale growth of data centers, coupled with uncertain trajectories has created significant challenges for utilities. They face gigawatts of interconnection requests amid supply chain issues, capital investment and transmission gird constraints, with prolonged delays increasingly straining the system's ability to uphold commitments to timely and reliable service, further stressing the regulatory compact. Concerns about affordability, stranded assets, underused infrastructure, and unfamiliar counterparties are rising, making credit and collateral policies key risk management tools.

However, many existing financial policies were built for different contexts. Applying them uniformly to modern data centers can lead to overly conservative requirements, misaligned with actual risks, and may deter beneficial load growth.

Load growth, particularly from high-load factor customers such as data centers, can provide several benefits. Financially, large loads could help lower rates for all customers, as they allow utilities to spread their fixed costs over a higher sales volume, in addition to increasing and stabilizing utility revenue. From a grid reliability perspective, they can help support crucial investments in grid infrastructure which reduces aging infrastructure risks and improves overall service quality. Economically, they support local job growth, expand the tax base and spur regional growth and development. From a sustainability perspective, these loads can accelerate emerging clean energy deployment by serving as anchor customers for early-stage, higher-risk projects that advance utility decarbonization goals.

To address this challenge and mismatch of tools, utilities and regulators must distinguish between perceived risks that are often tied to unfamiliar models vs. actual risks, which can be objectively evaluated based on historical performance, project sponsors, contracts, and development stage.

This whitepaper proposes a modern credit and collateral framework built on five principles: Balance, Equity, Optionality, Scalability, and Adaptability. It outlines key risks for utilities and data centers, critiques current practices, and offers the following best practices for improvement:

+ Calibrate between perceived and actual risk,
+ Align credit requirements with project maturity for risk symmetry,
+ Provide optionality through a menu-based approach,
+ Avoid overlapping risk mitigants

The paper concludes with practical recommendations for designing effective credit and collateral requirements. Drawing on its experience with utilities, regulators, developers, investors, and policymakers, E3 offers guidance grounded in technical analysis and real-world market conditions.

Well-designed credit and collateral policies serve a dual purpose: protecting utilities and ratepayers from default risks while supporting the timely integration of essential infrastructure. Achieving this balance is key to ensuring that large load growth delivers broad benefits to customers, the grid, and the economy.

Core Principles for Collateral and Credit Support Design

As large loads like data centers play a growing role in utility planning, credit and collateral policies must adapt to reflect modern project dynamics, financial models, and risk profiles. Drawing on its national experience advising utilities, regulators, and developers, E3 has identified five core principles that underpin effective and lasting policy design. These principles guide E3's approach to crafting credit and collateral frameworks that align utility risk management with the realities of today's energy and infrastructure landscape.

Balance

Equity

Optionality

Scalability

Adaptability

Core Principles for Collateral and Credit Support Design

Balance

Are collateral requirements proportionate to actual risk?

Collateral frameworks should protect utilities and ratepayers from real financial exposure such as stranded assets or lost revenues without overcompensating for speculative or generalized concerns. E3 advocates calibrating risk based on project stage, sponsor quality, and capital investment.

A balanced approach:

+ Distinguishes between perceived and actual risk
+ Aligns collateral timing and size with utility exposure
+ Allows for collateral reduction or return as risk diminishes over time

Equity

Are data centers and other large loads treated consistently with utility precedent and regulatory norms?

Even as large loads like data centers bring new characteristics, credit and collateral policies should uphold foundational principles of cost causation and nondiscriminatory treatment. Equity ensures that all customers are held to consistent standards, regardless of sector. Further, equitable treatment within a sector can promote competition and diversity, avoiding choosing winners and losers within competitive industries.

An equity-focused framework:

+ Avoids arbitrary thresholds or burdens targeted at specific industries or customers
+ Reflects how utilities manage other large, high-load-factor customers (e.g., industrial, manufacturing)
+ Aligns with regulatory norms for fair access and cost recovery

Optionality

Are there multiple viable paths to meeting credit requirements that reflect the diversity of customer profiles and project structures?

A rigid, one-size-fits-all policy, such as mandating a letter of credit from an A-rated bank can exclude legitimate, creditworthy projects with alternative financial structures. Optionality introduces flexibility by offering a defined set of acceptable credit instruments for both utilities and large-load customers.

Key benefits of an optionality-based approach:

+ Provides multiple compliance options, such as Contribution in Aid of Construction (CIAC), surety bonds, or guarantees from parents, affiliated, tenant or 3rd party with financial interest in the customers
+ Enables utilities to tailor credit tools to specific risks (e.g., construction vs. operational risk) and stages
+ Reduces reliance on custom agreements, easing administrative burden and improving scalability
+ Creates a more diverse customer base for the utility which helps further derisk

Scalability

Can the policy framework apply consistently across multiple projects and over time?

With rising interconnection requests, particularly in high-growth regions, credit and collateral policies must be designed for administrative scalability. Effective frameworks should be repeatable, transparent, and capable of managing large project volumes without excessive customization.

Scalability involves:

+ Standardized criteria, documentation, and processes
+ Objective thresholds and milestone definitions
+ Streamlined application and compliance procedures
+ Efficient reuse of tools across projects
+ Clear, transparent expectations for all stakeholders

Adaptability

Can credit policies evolve in response to changing conditions, technologies, or regulatory environments?

As utilities adapt to rapid shifts driven by decarbonization, electrification, and digitalization, credit and collateral frameworks must remain flexible and forward-looking. Adaptability ensures policies can accommodate new project types and improve over time with experience and data.

Adaptable frameworks enable:

+ Periodic reassessment based on market trends, utility performance, or customer behavior
+ Risk-based triggers that adjust collateral in line with actual outcomes
+ Integration of emerging financial tools and mitigation strategies as they gain maturity

Applying the Principles

These five principles provide a foundational lens for E3's evaluation of credit and collateral frameworks for large loads. When applied collectively, they help ensure utility policies are:

+ Protective of ratepayers without deterring viable development
+ Fair and transparent across and within customer classes
+ Flexible to accommodate both established and emerging market needs now and into the future
+ Supportive of long-term investment and grid reliability

E3 encourages utilities and regulators to consider these principles when revising tariffs, crafting new credit structures, or formulating policies to effectively manage large load growth.

Utility Considerations: Credit Quality and Ratepayer Protections

A central goal of this whitepaper is to help utilities and regulators manage real financial risks while improving the alignment between credit requirements and actual customer risk, particularly in the context of accelerating large load growth.

This section outlines the primary utility concerns, with a focus on:

+ Credit quality and implications for financial exposure
+ Stranded cost risks, where infrastructure investments may not be fully recovered due to project delays, downsizing, or failure

Understanding these risks is essential for designing credit and collateral frameworks that are both protective and proportionate.

Utility Credit and Capital Efficiency

Utilities have legitimate concerns about protecting their credit ratings, avoiding regulatory disallowances, and maintaining capital efficiency. While traditional collateral tools like large, upfront letters of credit offer simplicity and a sense of security, they often fail to reflect actual risk exposure and can be inefficient or difficult to scale.

A more strategic, milestone-based credit framework can address these challenges while supporting beneficial load growth:

+ Mitigates stranded asset risk by aligning collateral requirements with project maturity and utility investment timelines
+ Improves capital efficiency through upfront contributions (e.g., CIACs or early-stage deposits), reducing utility outlay and improving cash flow
+ Enhances forecasting and planning via early coordination with large customers, supporting both capital allocation and credit evaluation processes

Offering flexible credit pathways can also reduce project drop-off and help convert more high-value, low-risk customers. In a competitive, capital-constrained landscape, rigid credit policies may cause project cancelation or drive viable projects to other jurisdictions leading to lost long-term revenues and underutilized infrastructure, both of which can weaken a utility's financial standing and hurt ratepayers.

By securing commitments from high-quality customers with strong counterparty profiles and long-term usage needs, utilities can strengthen their balance sheets, diversify their large ratepayer base, increase load factors, and reduce fixed-cost recovery risks which are outcomes that are generally credit positive.

Protecting Ratepayers

Safeguarding ratepayers is a core priority in designing interconnection policies, tariffs, and contract structures for large loads. Poorly designed or overly permissive credit policies can expose utilities and their customers to significant financial risks, including:

+ Stranded costs when projects are abandoned after prompting utility investments
+ Cost shifting to other customers if infrastructure is underused or not fully recovered through rates
+ Unpredictable exposure due to inconsistent or unclear credit requirements

The whitepaper's recommended approaches aim to reduce these risks without deterring beneficial load growth:

+ Milestone-based collateral structures ensure that customers take on risk at the time utilities commit capital, minimizing the chance of unrecoverable costs
+ CIACs and phased deposits offer early funding that directly reduces cost recovery burdens on the broader rate base
+ Performance-based collateral reassessments maintain protections if risk increases and offer relief as exposure declines

By adopting a risk-calibrated approach, utilities can distinguish between speculative ventures and credible projects, avoiding unnecessary overcollateralization that may otherwise block valuable, grid-enhancing development. This reduces the risk of forgoing long-term system benefits, lost revenues, and potential downward pressure on rates.

Utilities broadly share ratepayer protection goals, but their implementation of credit and collateral requirements varies, shaped by factors such as:

+ Institutional risk tolerance
+ Experience with large customers
+ System capacity constraints
+ Regulatory and policy mandates

Given this variability, applying consistent core principles is essential to crafting fair, effective, and adaptive credit frameworks that protect ratepayers while enabling strategic load growth.

Best Practices for Utilities

Grounded in the foundational principles above, these best practices help effectively address key pain points experienced by both utilities and customers. By improving transparency, infusing flexibility, and recognizing the diversity in large loads, these practices offer a fair and versatile framework for managing financial exposure while supporting timely and scalable interconnection.

1 Calibrate between Perceived vs. Actual Risk

2 Align Credit Requirements with Project Maturity for Risk Symmetry

3 Provide Optionality through a Menu-Based Approach

4 Avoid Overlapping Risk Mitigants

1 Calibrate between Perceived vs. Actual Risk

A common challenge in credit and collateral policy design is the disconnect between perceived and actual risk. While utilities rightly assess exposure from large loads, perceptions are often shaped by isolated cases rather than the strong financial and operational profiles of mature, commercially backed data centers. This can lead to overly conservative policies that deter viable projects. A more effective approach grounds risk assessments in objective factors such as sponsor strength, contracts, and project maturity ensuring requirements align with real, not assumed, risk.

Perceived Risks

Utilities and regulators are justifiably cautious about large, single-site loads due to concerns about stranded assets and financial disruption. Common perceived risks include:

+ **Project abandonment:** Speculative interconnection requests that stall, wasting resources.
+ **Uncertain backing:** Projects lacking committed tenants or solid financial support.
+ **Volatile models:** Association with boom-bust sectors
+ **Limited track record:** New entrants without utility experience seen as higher risk.

While valid in some cases, these concerns can often become the default lens for evaluating all large loads.

Actual Risks

As previously outlined, utilities face legitimate risks related to credit quality and ratepayer impacts. However, these risks can and are effectively mitigated through well-established tools such as CIACs to offset utility capital outlays, parent guarantees or sponsor support letters to provide a financial backstop, or demonstrated load ramps from comparable sites or markets to confirm delivery and operational capability.

Moreover, project risk diminishes over time as key development milestones are achieved and customers commit increasing levels of capital and collateral are factors that should inform how requirements are calibrated, as discussed in the next best practice. Once energized, data center loads typically exhibit very high load factors (i.e., 80%)[2], low volatility, and long asset lives which are characteristics that reduce utility risk and improve cost recovery over time.

The Disconnect

Risk levels vary significantly across customers, but many utilities apply blanket conservative credit requirements, often conflating speculative projects with well-capitalized, mission-critical infrastructure. As a result, even projects backed by Fortune 100 sponsors or long-term tenant commitments may face strict requirements, e.g. two years of prepaid collateral, simply due to their size or lack of precedent. This one-size-fits-all approach can deter investment, reduce ratepayer benefits, and discourage early, transparent engagement from developers who view the process as unpredictable or overly punitive.

Recommendations to Close the Gap

Utilities and regulators can close the risk-perception gap by focusing on practical, risk-calibrated solutions.

1. **Risk Education and Transparency:** Regulators and utility credit teams should invest in training to distinguish between different project types, sponsors, and milestones, and remove anecdotal evidence and confirmation bias from the equation.
2. **Project Maturity Scoring:** Utilities can implement a standardized readiness or maturity scoring framework to replace subjective or binary risk assessments.
3. **Segmented Customer Risk Categories:** Utilities should segment by sponsor strength, project stage, and business model rather than apply a uniform standard.
4. **Feedback Loop from Operational Experience:** Utilities already serving data centers should use real-world performance data to refine credit policies.

Grounding credit decisions in actual exposure, rather than generalized assumptions, can more effectively protect ratepayers while enabling responsible infrastructure growth at the pace the digital economy demands.

[2] Moss, Sebastian. “Silicon Valley Power Says Data Center Load to Double by 2035, Will Need Geothermal Power and Batteries.” Data Center Dynamics, Dec. 2023, https://www.datacenterdynamics.com/en/news/silicon-valley-power-says-data-center-load-to-double-by-2035-will-need-geothermal-power-and-batteries/.

2 Align Credit Requirements with Project Maturity for Risk Symmetry

Effective credit and collateral policies should reflect risk symmetry, which ensures that financial protections for the utility track the actual risk it bears at each stage of a project's development. This ensures safeguards are in place without placing undue burdens on customers during early project phases.

Moreover, credit and collateral requirements should not be static. Instead, they should evolve in phases, aligning with the customer's investment commitments, project maturity, and utility exposure over time. This approach provides a more transparent, proportional, and flexible framework for risk management.

Figure 1 plots the evolution of risk over a project lifetime from the perspectives of the customer and utility. Key activities are grouped into project phases that can serve as milestones triggering utility risk mitigation tools, such as CIACs and collateral. Importantly, this framework splits collateral into phases to better reflect the timing of utility risk and also includes a phase/trigger for the reduction or release of collateral once the site is operational. This stepwise framework ensures that collateral reflects the relative likelihood and financial consequence of project default or underperformance at each point in time.

Calibrating risk to developmental milestones encourages large load growth while ensuring "skin in the game" for developers as well as the utility. Utilities can use this risk-aligned framework as a base and adapt their internal processes and customer mix as needed.

Ultimately, risk symmetry is not about reducing safeguards, rather it's about aligning them with real risk. A phased framework better matches utility exposure with project maturity, supporting reliable grid planning and a more efficient interconnection process.

Benefits of a Risk-Symmetric Approach

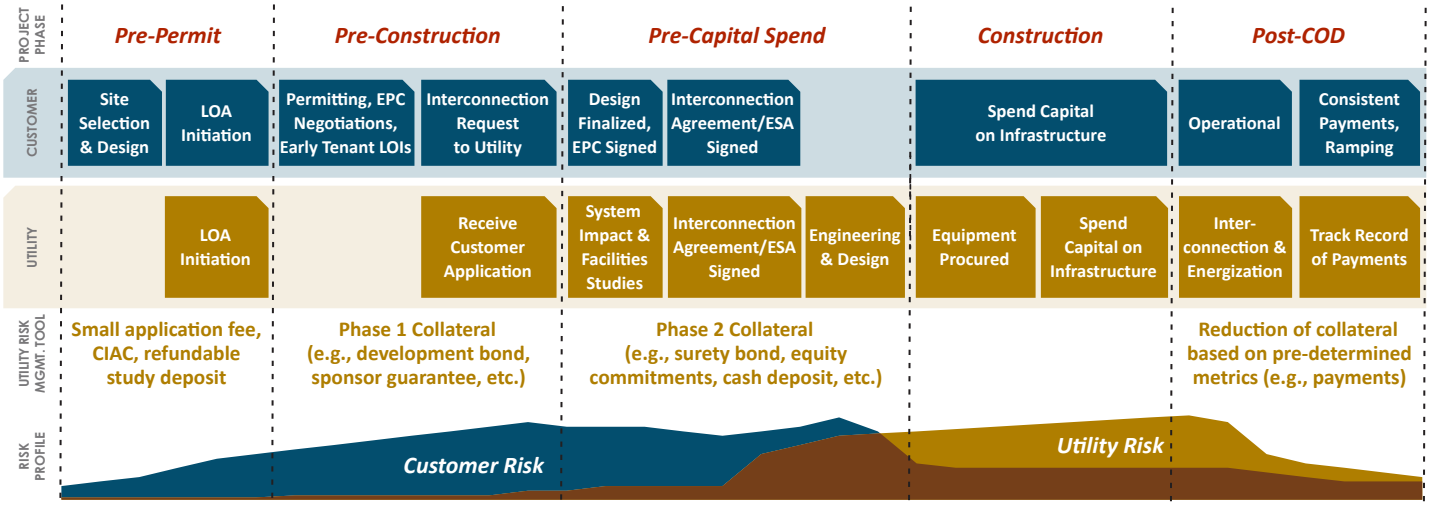
1. **Targeted Utility Protection:** Project risk is highest early in development, before permitting, contracts, or capital deployment. During this stage, utilities face exposure from engineering and planning costs. Initial deposits or CIACs can offset this risk without requiring long-term commitments. As customer investment grows and utility exposure shifts, collateral should transition to milestone-based requirements and decline once the project is operational and generating revenue.

2. **Encourages Project Discipline without Overburdening Early Stages:** Requiring full collateral upfront can deter viable projects and restrict cash flow. A phased approach distinguishes credible developments from speculative ones, encouraging commitment while preserving financial flexibility.

3. **Supports Mutual Derisking:** Phased collateral structures can resolve timing conflicts, such as those faced by colocation or multitenant data centers that need signed ESAs in order to secure tenants. Aligning collateral with actual project risk, such as tying it to pre-capital spend milestones, enables developers to move forward, improving certainty for both customer and utility.

4. **Improves Transparency and Predictability:** A milestone-based structure offers a clear roadmap for when and why financial requirements apply. This builds trust, reduces negotiation friction, and ensures consistent policy enforcement.

Figure 1: *Project Development Timeline from Utility and Customer Perspectives*



3 Provide Optionality through a Menu-Based Approach

One-size-fits-all policies, such as requiring an A-rated letter of credit (LOC) for all large loads, may simplify administration but often leads to overcollateralization which can impact the viability of projects, exclude creditworthy customers and limit the diversity of a utility's large customer rate base, and result in the underuse of utility capacity. For diverse data center projects, such rigid requirements can be misaligned with actual risk.

To resolve this, utilities should adopt a menu-based credit framework that offers a defined set of acceptable credit tools. This flexible approach lets customers meet requirements with instruments suited to their project profile, while maintaining transparency, financial discipline, and ratepayer protection.

Design Considerations for a Menu Framework

A well-designed menu-based credit approach should be standardized, transparent, and adaptable. Key elements include:

- Clear instrument list with defined eligibility
- Mix-and-match flexibility, allowing combinations of credit and deposit tools
- Milestone-based timing, aligning requirements with project progress
- Collateral adjustments based on performance or credit events
- Regular updates to reflect evolving market and regulatory conditions

Optionality does not weaken standards, rather it ensures rigor while accommodating customer diversity and system complexity. This approach enhances ratepayer protection, improves capital efficiency, and increases transparency, reducing delays and costs in large-load interconnection.

Aligning Credit Tools with Specific Risk

A menu-based framework enables utilities to match credit tools to distinct risk types, rather than applying one-size-fits-all solutions; this targeted approach creates a more proportional and defensible policy. Tools should be offered as flexible, combinable options, allowing customers to address risk effectively while meeting requirements. Table 1 provides examples of best fit credit tools for each risk type, and the table of Defined Terms provides additional detail on these tools.

Overall, menu-based credit policies offer a scalable, risk-informed alternative to rigid standards, enabling utilities to integrate large loads responsibly while maintaining financial integrity.

Table 1: *Best Fit Credit Tools by Specific Risk Type*

Risk Type	Best-Fit Credit Tools
Project readiness	This risk can be addressed by forms of upfront payment/deposits: ▪ CIAC ▪ Development deposits ▪ Milestone-based or phased collateral
Credit-worthiness	Alternatives to credit rating such as: ▪ Parent, affiliate, tenant, or 3rd parties with a financial interest in the customer guarantees ▪ Surety bonds ▪ Net worth thresholds ▪ Private financial assessments ▪ Utility capital support
Operational default risk	Alternatives to liquidity and credit rating such as: ▪ Contingent equity / sponsor support agreements ▪ Performance bonds ▪ Payment history ▪ Bespoke insurance product or escrow mechanism
Ramp risk or delay	This risk is often addressed with credit and non-credit tools such as: ▪ Link collateral reduction/release to key load milestones ▪ Minimum demand charge ▪ Contract minimum or "take-or-pay" provision ▪ Phased interconnection, aligning utility investment with customer load milestones

Why Optionality Matters

1. **Supports Diverse Customer Types:** Large load customers vary in structure and credit profile. Optionality allows utilities to tailor credit tools such as parent guarantees, milestone-based deposits, or alternative funding evidence which helps match project specifics, encouraging broader participation and better risk alignment. A more diverse customer base helps the utility further derisk, and overly stringent and rigid policies could limit the ability to fill any unused capacity.

2. **Adapts to Evolving Project Risk:** As projects mature, risk declines. Flexible collateral structures can start conservatively (e.g., CIACs), then scale down as construction progresses and performance is demonstrated to ensure protections align with actual exposure.

3. **Encourages Financial Innovation:** Menu frameworks support the use of alternative tools like surety bonds, insurance products, and hybrid models (e.g., partial deposits plus guarantees). These improve financial flexibility while preserving safeguards, which is especially valuable in capital-intensive sectors like data centers.

4. **Reduces Burden and Builds Trust:** Transparent menus streamline compliance, reduce the need for case-by-case exceptions, and improve predictability which can accelerate timelines and enhancing developer confidence.

4 Avoid Overlapping Risk Mitigants

Credit requirements often combine multiple tools (e.g. LOCs, CIACs, guarantees, and milestone deposits) to cover various risks. While each serves a purpose, applying them without a clear framework can create unnecessary redundancy. This overlap can lead to overcollateralization, tying up customer capital, slowing or canceling projects, and increasing attrition risk. For utilities, excessive layering may seem protective, but can obscure actual exposure, reduce transparency, and hinder scalability. Table 2 provides some examples of these potential redundancies.

Table 2: *Examples of Overlapping Risk Tools*

Risk Tool	Risk Mitigated	Potential Overlap
CIAC	Stranded infrastructure cost	Often addresses same risk as collateral aimed at default
Milestone-Based Collateral	Development risk, default before COD	Should scale down as CIAC and contracts are secured
Parent or Sponsor Guarantee	Counterparty risk	Redundant if CIAC and tenant contracts are in place
Letter of Credit (LOC) or Surety Bond	Broad performance assurance	Should not be additive to other secured risk-specific tools
Minimum Bill or Demand Guarantee	Revenue stability	May offset need for full credit-based collateral post-COD

While each credit tool is valid on its own, many can substitute for one another if properly structured. A sound framework should recognize existing derisking measures and avoid layering requirements unless clearly justified.

Introducing a Credit Efficiency Index (CEI)

To better align credit requirements with actual risk, E3 proposes a Credit Efficiency Index (CEI), which is a conceptual framework to assess overlapping risk mitigants and guide more efficient credit structures.

The CEI assigns weighted scores to key derisking factors, such as CIAC coverage, sponsor strength, development stage, stranded cost risk, demand guarantees, and operational track record. Higher scores signal lower risk and justify reduced or phased collateral; lower scores suggest a need for stronger safeguards.

This approach supports consistent, transparent, and risk-based credit policies to help utilities focus protections where truly needed, streamline negotiations, and treat customers equitably.

A Calibrated Approach, Not Risk Stacking

Recognizing overlapping protections is not about removing safeguards, rather it's about applying them proportionally. Utilities and regulators can improve credit policy effectiveness by:

+ Creating internal offset or equivalency tables for risk tools
+ Using a CEI-like framework to tier credit requirements
+ Embedding reassessment triggers as projects progress

A calibrated approach maintains financial discipline and protects ratepayers while supporting timely, capital-efficient load interconnection. An example CEI scorecard is provided in the Appendix.

Conclusion: A Path Forward

A principles-based and flexible framework for credit and collateral design enables utilities, regulators, and large-load customers to responsibly balance financial risk with economic opportunity. By grounding policies in fairness, transparency, and risk alignment, stakeholders can avoid two common pitfalls: overly conservative credit and collateral requirements that deter viable investment, and underpricing risk in ways that expose utilities and ratepayers to financial harm.

This whitepaper presents an updated approach and high-level framework to credit and collateral policy tailored to today's landscape. The recommended practices, including menu-based credit options and risk symmetry, are designed to help utilities on behalf of their customers and shareholders (if applicable) manage real risk while enabling the timely and efficient integration of large, capital-intensive loads like data centers.

For Utilities

Utilities are encouraged to adopt a structured yet flexible approach to credit and collateral that supports risk management, regulatory defensibility, and enables load growth. Specifically, utilities should:

+ Align collateral requirements to clearly defined project risk milestones (e.g., financial close, EPC execution, tenant signings) and use phases as applicable.
+ Accept diverse, pre-vetted forms of collateral, including surety bonds, parent guarantees, and sponsor support agreements.
+ Recognize the credibility and financial strength of well-capitalized customers and offer exemptions where justified, by calibrating across perceived vs. actual risk and leveraging optionality.
+ Implement reassessment mechanisms that reduce collateral obligations as projects demonstrate performance to correct for overlapping risk mitigants and maintain risk symmetry.

Transparent and standardized credit frameworks modeled on power supply contracts or interconnection service agreements can reduce ambiguity, support internal consistency, and improve confidence among both utilities and customers.

For Regulators

Regulators play a central role in ensuring that utility credit policies are risk-aligned, fair, and adaptable. Commissions should:

+ Require that credit and collateral levels be clearly justified based on quantifiable utility exposure.
+ Ensure consistency across similar customer types and avoid discriminatory treatment.
+ Encourage stakeholder input, case study development, and policy experimentation through pilot programs.
+ Support policy reassessment through regular updates tied to changes in load forecasts, performance data, and market conditions.

By providing guardrails that balance prudence with flexibility, regulators can enable more resilient and investment-friendly interconnection policy across their jurisdictions.

For Data Center Developers

Data center developers have a critical role to play in the implementation of risk-aligned credit policies. As utilities evolve their frameworks, developers can contribute to more effective outcomes by:

+ Engaging proactively and transparently with utilities, providing clear documentation of financial backing, tenant commitments, and project maturity.
+ Preparing multiple compliant forms of credit support including combinations of sponsor guarantees, CIACs, or milestone-based collateral.
+ Demonstrating long-term commitment to system use through performance history and regular communication on ramp-up progress.
+ Collaborating constructively on policy design efforts, especially in regions with limited prior experience serving large loads.

Well-prepared developers who clearly articulate their risk profile and project readiness will benefit from frameworks that distinguish credible infrastructure from speculative proposals ensuring fair treatment, timely interconnection, and long-term operational certainty.

Final Note

As demand and infrastructure investment surge, credit and collateral policies will be central to enabling scalable, reliable interconnections. These policies must balance real financial risks with transparency, adaptability, and economic growth.

This whitepaper outlines a flexible, risk-aligned framework that protects ratepayers, supports financial discipline, and accommodates diverse customers to ideally lay the groundwork for consistent, effective utility-customer engagement.

By adopting these best practices, stakeholders can transform credit policy from a barrier into a strategic tool for grid resilience and long-term value.

Appendix

Illustrative Credit Efficiency Index Scoring Framework

The Credit Efficiency Index (CEI) is a sample framework to help utilities transparently assess the overall financial readiness and risk profile of a large-load customer project. The CEI score can inform scaled collateral requirements by translating upstream project commitments into a simple, auditable risk score.

Interpretation

- **75–100 Points (Low Risk):** Eligible for lowest collateral tier or exemption with CIAC and minimum bill in place.
- **50–74 Points (Moderate Risk):** Milestone-based collateral or hybrid instruments required.
- **Below 50 (Higher Risk):** Full upfront collateral and/or performance security required.

Utilities may use CEI scores to tailor credit requirements proportionally while maintaining transparency and risk discipline. This approach supports scalable, replicable decision-making aligned with project-specific derisking characteristics.

Note: This is a conceptual tool meant to be illustrative. Utilities and their regulators should continue to define their own thresholds, weights, and documentation requirements.

Scoring Matrix *(Out of 100 Points)*

Category	Criteria	Points
1. CIAC Contribution	≥65% of utility capital cost	15
	40–64% of capital cost	7
	<40% of capital cost	0
2. Minimum Contract Term / Demand Guarantee	≥7-year contract with minimum annual demand	15
	3–6 years with soft demand commitment	7
	<3 years or no commitment	0
3. Development Stage	COD within 18 months and EPC executed	15
	Permits secured, EPC not yet executed	7
	Pre-permit	0
4. Sponsor Financial Strength	Investment-grade rated parent OR $1B+ private equity sponsor	15
	Mid-sized sponsor with liquidity disclosure	7
	Thin-cap or new developer	0
5. Historical Performance / Portfolio Maturity	3+ operational projects with strong utility history	15
	1–2 projects in service	7
	First-time interconnection	0
6. Stranded Asset Reusability	Infrastructure highly reusable (e.g., core substation/ shared feeder)	12
	Partially reusable (e.g., shared line capacity, moderate switching options)	6
	Dedicated or custom-built with low to no ability to repurpose / reuse	0
7. Stranded Cost Materiality	<10 MW and/or <$5M investment impact	13
	10-50 MW or $5M-$20M infrastructure investment	6
	>50 MW and/or >$20M investment at risk	0