# Economic Outlook

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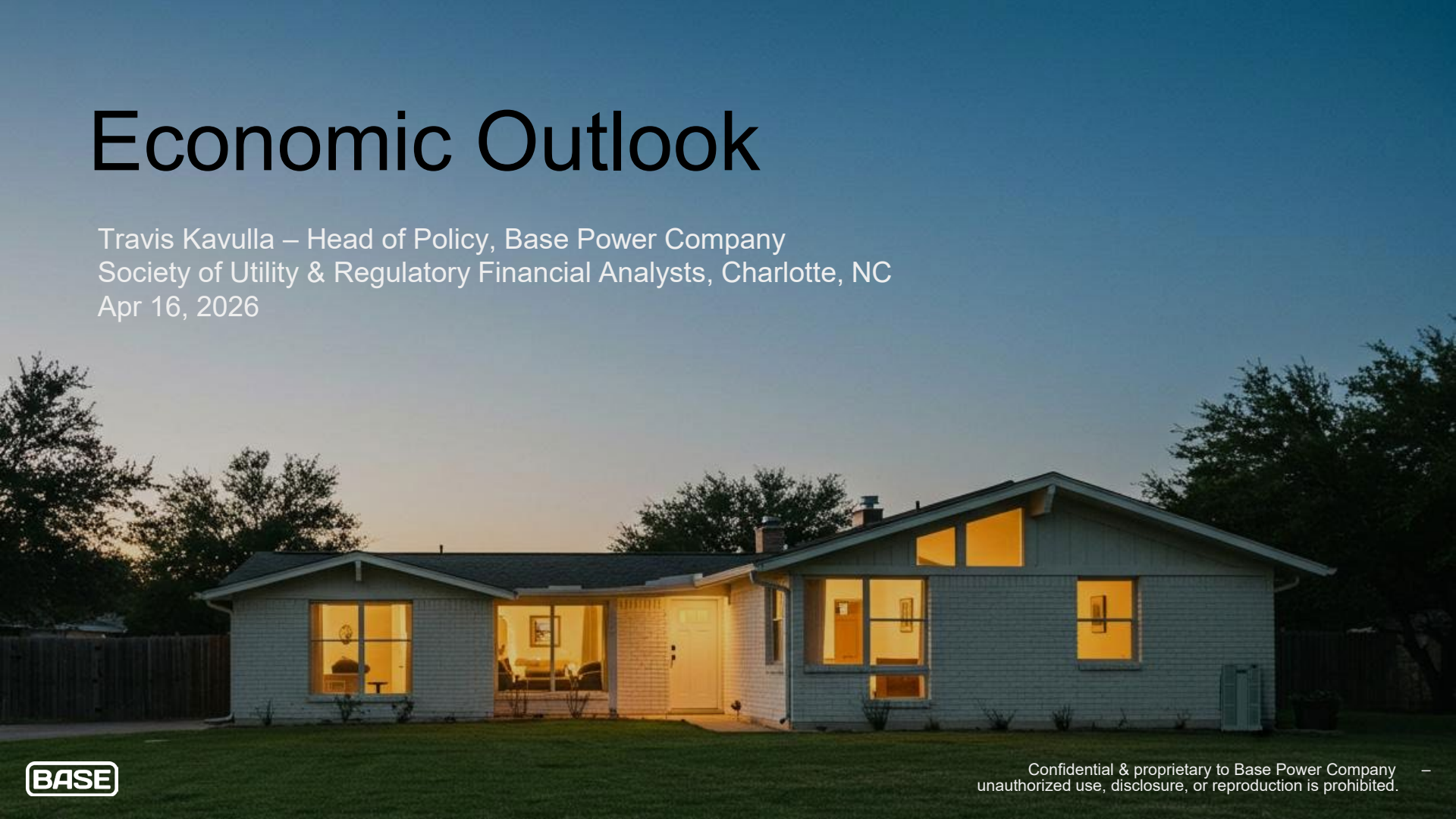
Society of Utility & Regulatory Financial Analysts, Charlotte, NC
Apr 16, 2026



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# Introduction: Travis Kavulla

- Head of Policy, Base Power Company

- Lecturer, University of Chicago, Harris School of Public Policy: “Utilities & Electricity Markets: Regulation in the United States”

*Previously:*

- Vice President, Regulatory Affairs NRG Energy
- Director, Energy & Environmental Policy, R Street Institute
- Board Member, Western Energy Market (operated by the CAISO)
- Chairman, Montana Public Service Commission, and President, National Association of Regulatory Utility Commissioners (NARUC)

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# Outline

## 01 What's Real?

Significant uncertainty permeates power sector demand projections, with growth highly concentrated in a single industry. Since at least part of this growth is supplied by a deregulated commodity market, we can observe what people with actual "money down" are doing

## 02 Double Whammy

Materials price inflation and a rising cost of capital are creating an environment where marginal costs exceed embedded, average cost of service

## 03 A Bifurcated Market

Both commodity and regulated-utility services are likely to be expressly bifurcated as to facilitating data centers' electricity-service needs

## 04 Affordability

Bold approaches to constrain everyday consumers' bills are on the table, with a potentially significant rebalancing of regulated-utility business models and returns

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# What’s Real? Load forecasts…

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# So Bullish that It's…Bearish?

**ERCOT All-Time Peak Demand**
**85,508 MW**
**(Aug 10, 2023)**

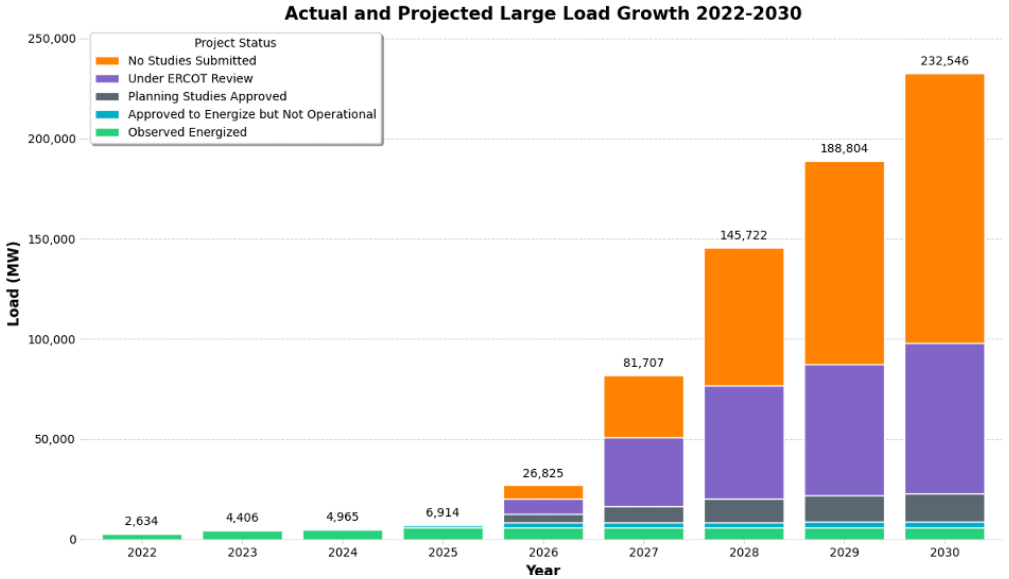
**ERCOT's 2025 Bottom-Up Load Forecast for 2027**
**138,000 MW**
**(a 61% increase in 2 years)**

**ERCOT's "More Reasonable" Adjusted Load Forecast for 2027**
**103,725 MW**
**(a 23% increase in 2 years)**

**ERCOT's "More Reasonable" Adjusted Load Forecast for 2031**
**145,000 MW**
**(a CAGR of 6.8% per year)**

**ERCOT, Feb. 2026**

## Large Load Interconnection Requests*




Source: ERCOT Board Meeting, Feb. 2026

Source: ERCOT's Revisions to Adjusted Load Forecasts and Amended Draft Proposed Order.

# IMPACT OF PROJECTIONS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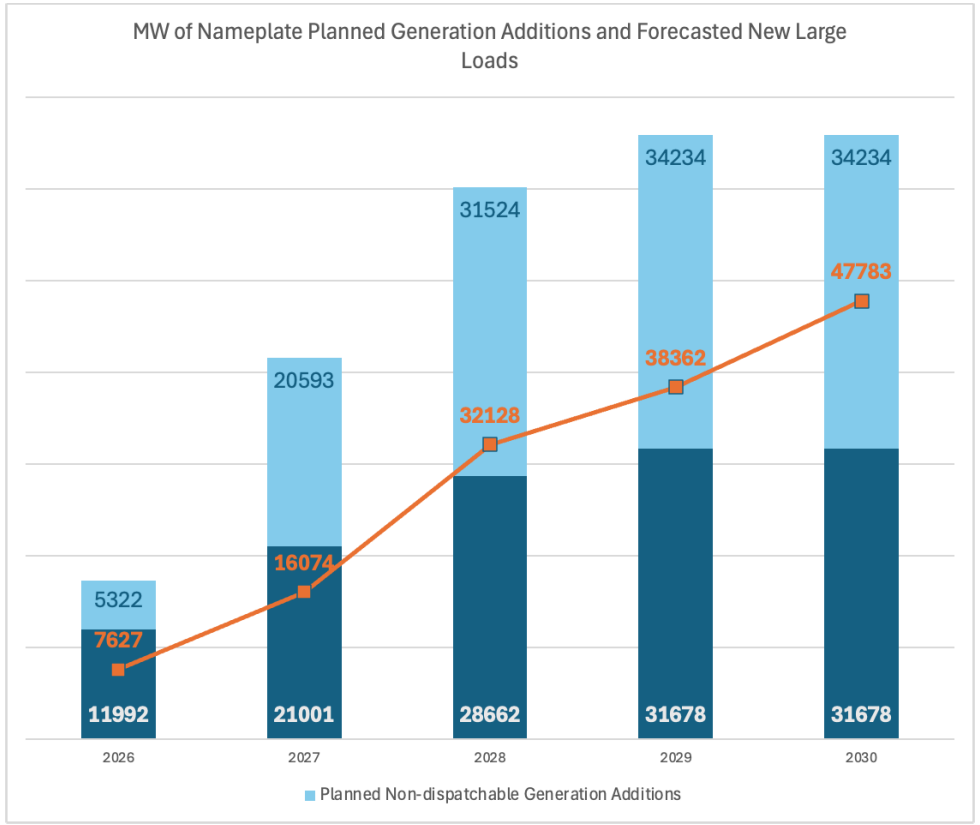
# Resource Additions

Generation additions in ERCOT cannot keep pace with the large load demand forecast

- Cumulative Loads includes only Large Loads (Contracted and TSP Officer Letter)
- 52% of Planned Generation is non-dispatchable Solar, while data center loads have very high load factors
- Even within the block of dispatchable generation, 82% of it is battery energy storage




Source: ERCOT Dember 2025 CDR, 2026-2030.

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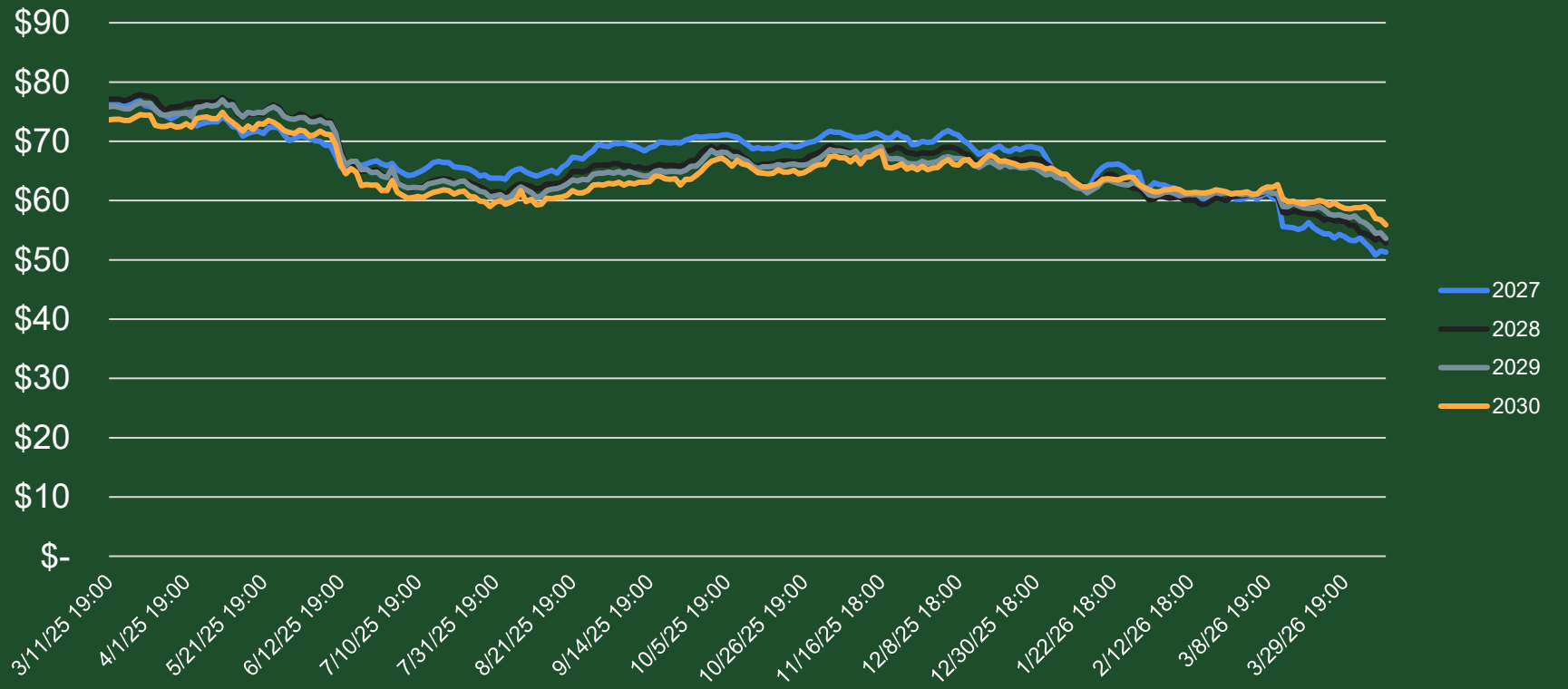
## ERCOT Load Zone North On-Peak Futures prices




Trading for forward years doesn't suggest the scarcity indicated by ***administrative*** projections of demand/supply

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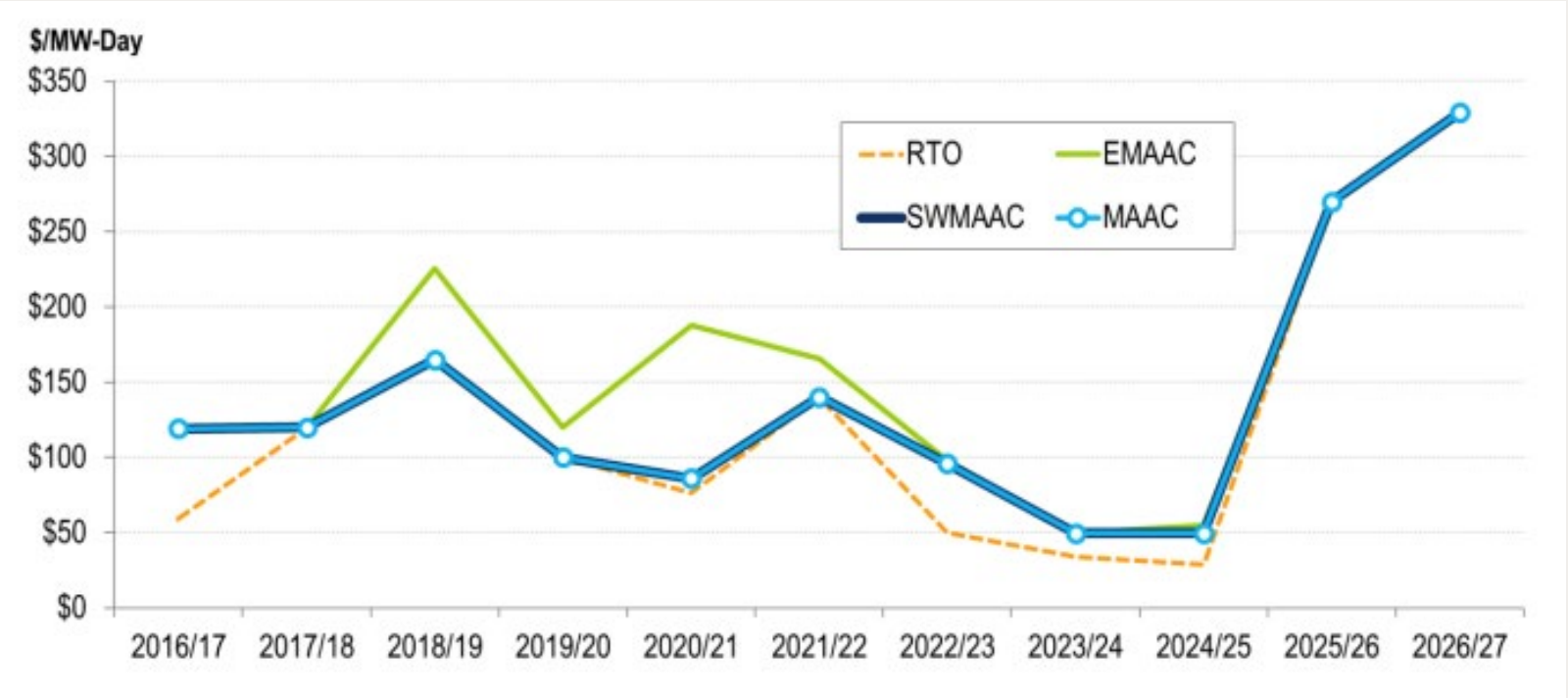
# PJM Capacity Prices




## Sudden (Projected) Demand in Commodity Markets: Marginal-Cost Price Exposure

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# Double Whammy: Utility Costs

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# Marginal-Cost Pricing? What's That?!

The grid, which is mostly large capital costs of a fixed nature with a good measure of 'fixed' O&M to support it, is subject to cost-of-service regulation where price results from:

$$\frac{\text{Network Fixed Costs}}{\text{Volumes of Throughput}}$$

## The math is not hard!

If you add demand to the system without triggering new fixed costs, rates are lower for everyone. New demand pays average rates: the type of subsidy everyone loves!

*But* if you add 1 unit of demand but that triggers 2 units of new fixed costs, rates go *up* for everyone (unless costs are directly allocated to the new demand): the type of subsidy everyone hates!

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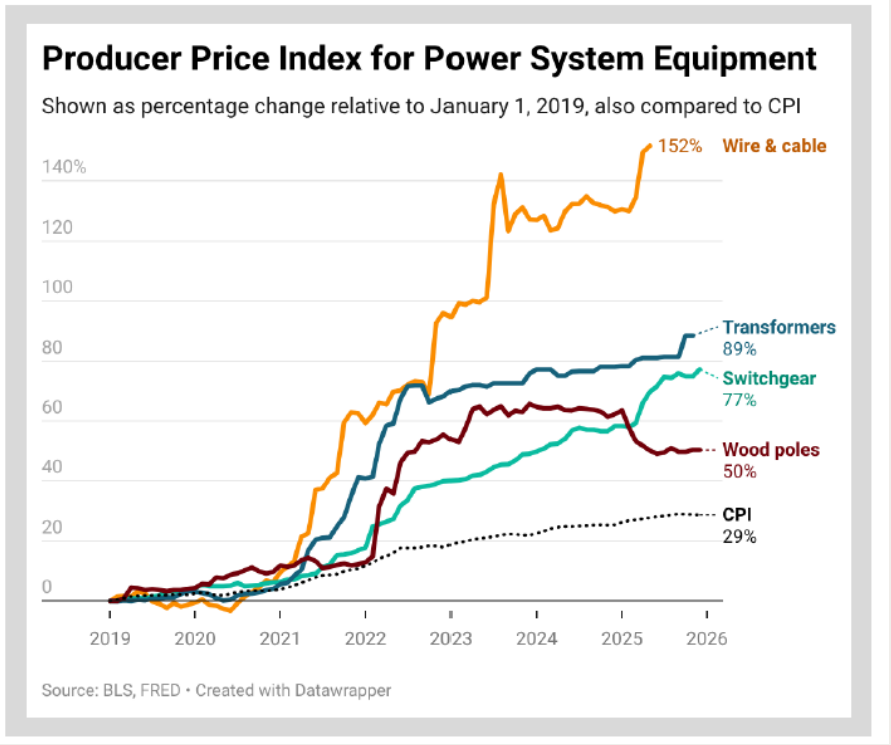


## Regulated Utility Costs

- Capital items that are the ingredients for regulated-utility service are rising in cost significantly
- Replacement cost > depreciation expense on a unit basis, and…
- In a load-growth environment, additional volumes will not recover costs if rates are charged on an averaged, embedded-cost basis
- In short, Marginal Cost > Stated Rates. This creates a rate-increase environment even if volumes were not increasing, the moreso if volumes expand in ways that require cap-ex

*But wait there's more*

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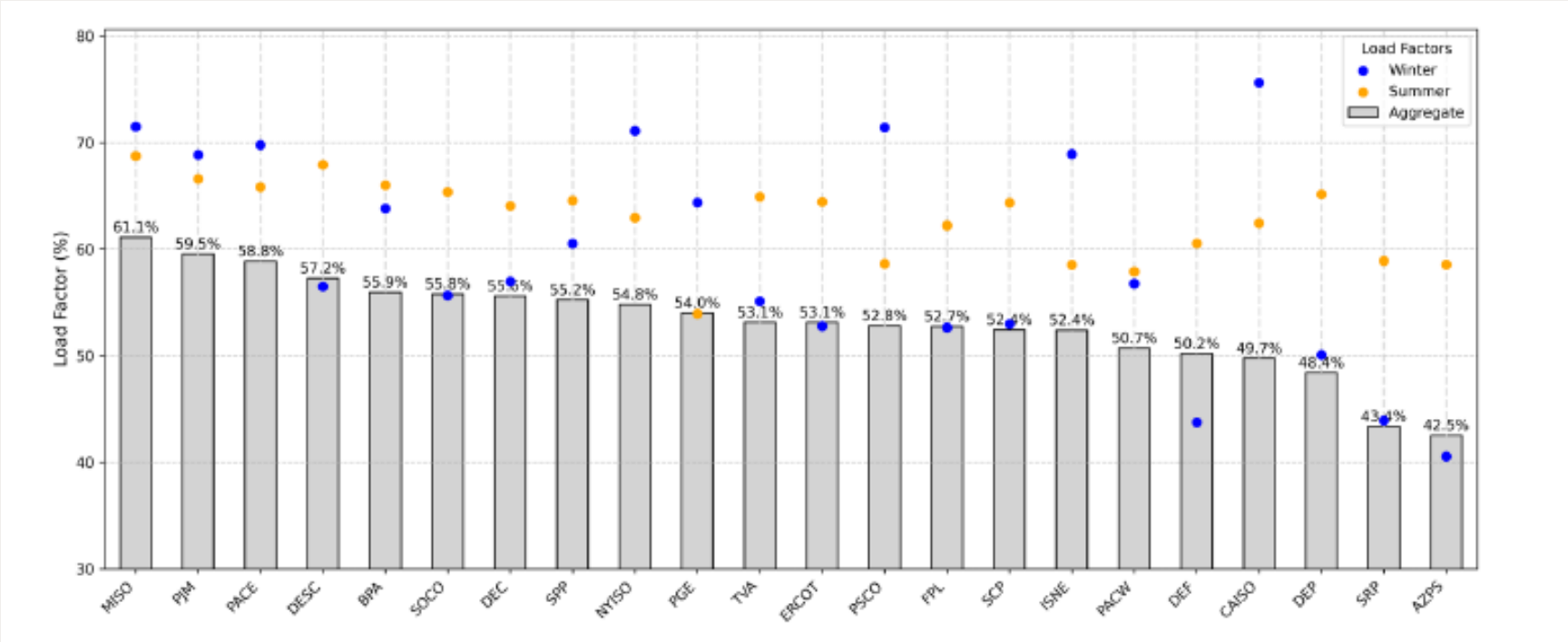
# Interest Rates

| UTILITY | EMBEDDED DEBT COST (used in ratemaking) | RECENT ISSUANCE RATE(S) (2025–2026 offerings) | GAP (new minus embedded) | DEBT MATURING (through Dec 2030) |
|---|---|---|---|---|
| Oncor Electric Delivery - TX | 4.39% | ~5.0–5.5% | +1.11% | ~$1.5–2.0B est. |
| Pacific Gas & Electric (PG&E) - CA | ~4.7–5.0% | 5.20% / 6.00% | +0.85% | ~$4–5B |
| San Diego Gas & Electric (SDG&E) - CA | ~4.5–4.8% | 5.20% / 5.95% | +1.04% | ~$1.0–1.5B |
| DTE Electric - MI | ~4.3–4.6% | 4.85% / 5.55% | +0.86% | ~$1.5–2.0B |
| Northern States Power (Xcel sub.) - MN | ~4.0–4.4% | 4.85% / 5.55% | +1.16% | ~$1.5–2.0B |
| Duke Energy Carolinas - NC/SC | ~4.0–4.5% | ~5.0–5.5% (est.) | +1.46% | ~$1.5–2.5B |
| Duke Energy Corp (HoldCo) - Various | ~3.8–4.3% | 5.45% / 5.80% | +1.79% | ~$7–9B |
| Dominion Energy (Virginia Power) - VA | ~4.2–4.6% | 4.60% / 5.00% / 5.45% | +0.78% | ~$4–6B |
| Ameren Missouri / Illinois (Union Electric)– MS/IL | ~4.3–4.7% | 4.80% / 5.55% | +0.83% | ~$1.5–2.5B |
| Portland General Electric - OR | ~4.5% | ~5.0–5.5% (est.) | +1.00% | ~$0.5–1.0B est. |




# Grid *still* Underutilized

Source: Duke Nicholas Institute (2025)

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# Bifurcated Markets:
## A Utility for Data Centers

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## A Separate Customer Class…
## Or a Parallel Industry?

- Utilities have long mutualized the incremental costs of demand growth by charging both new and existing users average, embedded-cost pricing – sometimes with incremental costs defined by a relatively limited allowance. That seems to be changing!

- In March 2026, Hyperscalers & White House announced the "Ratepayer Protection Pledge" which for grid costs defines a "but for" principle (allocating incremental costs that would not exist but for data centers to those particular customers) and announces a Bring Your Own Generation construct for supply

- Let's look at how those might be achieved…

# Allocating Scarce Grid Capacity to Large Load

| Criterion | Option 1 — preferred<br>**Open season auction** | Option 2 — preferred<br>**Customer prepayment of incremental costs** | Option 3 — distant third<br>**Transmission security agreements (TSAs)** |
|---|---|---|---|
| **Direct cost allocation** | **Incremental cost**<br>Winning bidders pay at least the full incremental cost of grid expansion to serve them; surplus revenues benefit other ratepayers. | **Incremental cost**<br>Data center pre-funds the utility's own estimate of the cost to serve it, holding other customers harmless dollar-for-dollar. | **Averaged cost**<br>Revenue guarantee is keyed to the existing average embedded-cost rate, not incremental cost — a greenfield build and a brownfield redevelopment yield the same obligation. |
| **Value-based vs. cost-of-service pricing** | **Value-based**<br>NPV-scored auction lets data centers reveal willingness to pay and compete on flexibility, speed, and location — not a simple pass-through of embedded rates. | **Hybrid**<br>Starts from cost-of-service logic (prepay the utility's estimate) but allows a follow-on value analysis to rebate joint benefits back to the data center over time. | **Cost-of-service**<br>Extends conventional average-cost pricing to an environment where it has reached "its breaking point." No mechanism rewards efficient siting or operational flexibility. |
| **Risk allocation: data center vs. legacy ratepayers** | **DC bears risk**<br>Binding financial commitments secured before utility capital spending begins; tradeable rights protect against default or obsolescence without stranding costs on others. | **DC bears risk**<br>Full prepayment eliminates cost-shift risk to other customers on the front end. Utility retains ability to seek cost-sharing later only for demonstrably joint benefits. | **Mixed / residual on ratepayers**<br>Collateral or parent guarantee reduces but does not eliminate risk. If a TSA does not cover incremental cost and the data center defaults, stranded costs likely recirculate onto legacy ratepayers via utility rate base. |
| **Efficiency of grid siting & capacity use** | **High**<br>NPV scoring rewards data centers that avoid peak demand and choose locations with existing infrastructure headroom; iterating open seasons right-sizes expansion to actual demand. | **Moderate**<br>Ad hoc and location-neutral; does not actively steer data centers toward lower-cost grid locations, but a regulator can add a value analysis for oversized, jointly beneficial projects. | **Low**<br>Sends no locational or temporal price signal. A data center pays the same whether it builds in a grid-constrained area or a well-served one, and has no incentive to curtail at peak times. |
| **Speed & access to interconnection** | **Structured clarity**<br>Replaces speculative first-in-time queues with a defined plan, awarded rights, and an iterative cycle — reducing the Gold Rush dynamic that produces inflated demand projections and bureaucratic snarls. | **Can expedite**<br>Customer-contributed capital should accelerate service; removes utility balance-sheet constraints and regulatory preapproval hang-ups as barriers to timely interconnection. | **Partial improvement**<br>Filters out pure speculators (only committed data centers take on the revenue guarantee), but does not fundamentally reform the queue or accelerate utility capital deployment. |
| **Alignment with utility incentives** | **Tension**<br>Requires utilities to share interconnection planning with a competitive process, limiting their monopoly on capital-spending opportunity; utilities may resist. | **Opposed by utilities**<br>Utilities have actively litigated against customer-contributed capital because it competes with their own rate-base investment opportunity. Regulatory reform needed to overcome resistance. | **Utility-preferred**<br>Monopolizes the capital opportunity, prices at average cost, obtains a revenue guarantee, and shifts residual stranded-cost risk back to regulators — secures utility profits while limiting downside. |

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## Bring Your Own Generation

- Does “BYOG” impose a mere expectation on data centers to build, buy, or pay for data centers – or does it *prohibit* regulated utilities from co-mingling regulated rate base with generation investments to new large loads?

- BYOG approaches exist both in regulated utilities (sleeves for generation that don’t touch utility balance) and, of course, restructured utilities (which have no obligation to serve except as a provider of last resort, and then for certain customer classes)

- With genuine BYOG contracts, counterparty relationship is between supplier/data center, with no intermediation by PUC + captive customer base

## Risks to Utility Customers

- Let’s assume you want utilities to play a role. Here are some protections to have in mind:

1. Is the utility ring-fenced adequately (is it co-mingling regulated rate base with generation investments to new large loads)?

2. If the PUC hasn’t ring-fenced the investment, are the marginal costs (both fixed &variable) of generation fully allocated to the new load?

3. Is the load adequately collateralized and under an obligation to pay full freight for the asset?

*We should be prepared for, like in previous technological revolutions, many defaults!*

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# Affordability

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# Spend more, make more

- American utility regulation conveys incentives to investor-owned utilities
    - Spend as much capital as possible to increase profit, so long as authorized return > actual cost of capital
    - Do little to make the most use out of the capital infrastructure that's been invested in
- Utilities acting under this incentive are a significant contributor to the affordability crisis American ratepayers are experiencing today.
- The introduction of what is called "Performance-Based Regulation" usually has meant either
    - Trivial ROE adjustments, not large enough to motivate actions in view of stronger countervailing rate-base incentive
    - Multi-Year Rate Plans, which are not "PBR" at all, but instead an extension of cost of service regulation that further annuls ordinary competitive incentives

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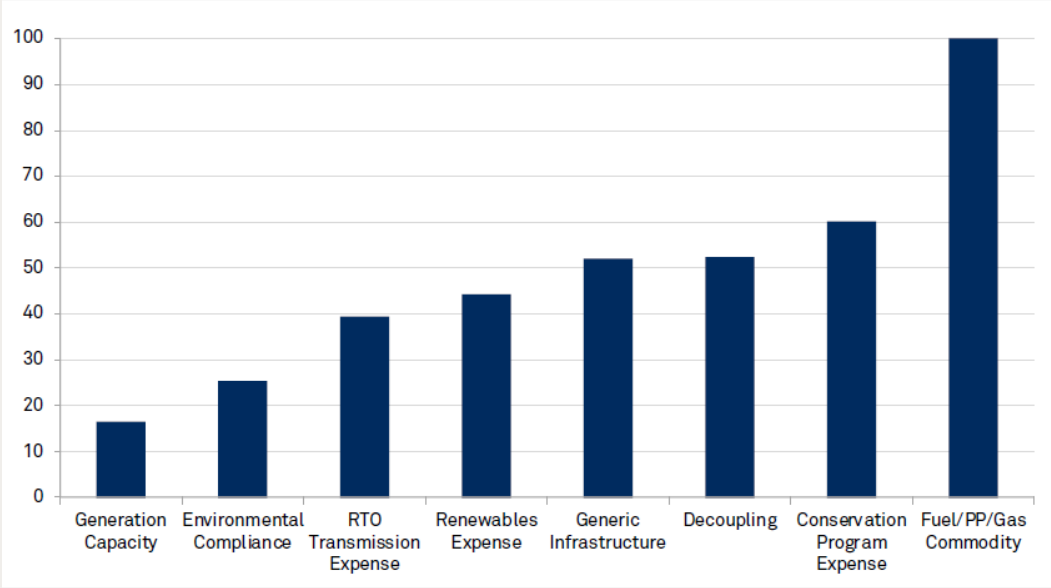
# Less ‘skin in the game’, more immediate pass-throughs of costs to consumers

- Utilities used to be ‘on a budget’ – with rates periodically reset, their bottom line would then be exposed to any deviations in costs. Under this approach, they would share the pain of rising costs with consumers.
- However, the introduction of ‘adjustment clauses’, ‘riders’ or ‘trackers’ has eroded this incentive over time.
- These rate adjustors recover to the utility whatever it happened to spend, regardless of the initial ‘budget’ for these costs.




As of Sept. 19, 2018.
Source: Regulatory Research Associates, an offering of S&P Global Market Intelligence

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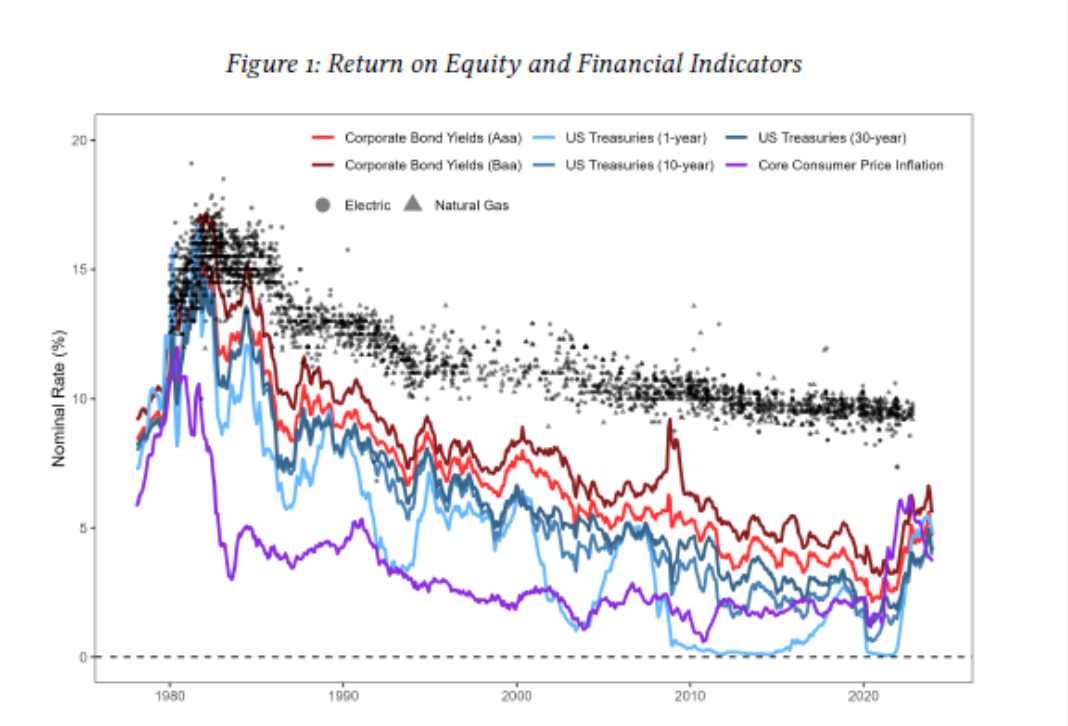
# Less risk…. More reward?




Source: Werner & Jarvis (2025) “Rate of Return Regulation Revisited” – Energy Institute at Haas

- Regulator-authorized profits (Return on Equity) reached an all time high in 2020, net of the “risk-free” rate (as measured by 30-Y Treas bonds)
- Recent increases in Fed borrowing rates have eroded the most extraordinary profits
- Nevertheless, investors in utilities can make either a 4.5% Treasury return vs a ~9-10% return in a utility sector whose investors face few risks
- Utilities also have ‘thick’ equity ratios, higher than other infrastructure sectors

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# DEBT-EQUITY RATIOS OF OTHER INFRASTRUCTURE INDUSTRIES

| Ticker | Company | Book debt % | Book leverage bar (debt \| equity) | LT Debt | Book Eq |
|---|---|---|---|---|---|
| | **Renewable IPPs** Yieldcos, contracted renewables, and global renewable IPPs | | | | |
| **NEP** | NextEra Energy Partners | **28%** | 28% \| 72% | $5.2B | $13B |
| **BEP** | Brookfield Renewable Partners | **48%** | 48% \| 52% | $22.2B | $24B |
| **CWEN** | Clearway Energy | **59%** | 59% \| 41% | $8.1B | $5B |
| **AES** | AES Corporation | **79%** | 79% \| 21% | $29.0B | $7B |
| **AY** | Atlantica Sustainable Infra. | **77%** | 77% \| 23% | $5.4B | $1B |
| *AVG* | *Renewable IPP simple avg* | *58%* | 58% \| 42% | | |
| | **Traditional Merchant / Thermal IPPs** Unregulated generators; commodity price exposure; leveraged legacy structures | | | | |
| **NRG** | NRG Energy | **84%** | 84% \| 16% | $11.8B | $2B |
| **VST** | Vistra Corp. | **75%** | 75% \| 25% | $16.7B | $5B |
| **CEG** | Constellation Energy | **44%** | 44% \| 56% | $10.7B | $13B |
| *AVG* | *Merchant IPP simple avg* | *68%* | 68% \| 32% | | |
| | **Infrastructure Industry Averages (Damodaran Jan 2026)** For reference — book D/(D+E) sector averages; number of firms shown | | | | |
| **N=23** | Airlines (air transport) | **71%** | 71% \| 29% | - | - |
| **N=9** | Cable TV / broadband | **65%** | 65% \| 35% | - | - |
| **N=23** | Oil & gas distribution (pipelines) | **63%** | 63% \| 37% | - | - |
| **N=21** | Telecom (wireless) | **52%** | 52% \| 48% | - | - |
| **N=29** | Chemical (basic / commodity) | **52%** | 52% \| 48% | - | - |
| **N=142** | Oil & gas (E&P) | **33%** | 33% \| 67% | - | - |

Quick reference — segment book debt % range:

| Renewable IPPs | Thermal IPPs | Airlines | Cable TV | Pipelines | Telecom wireless | Chemicals (basic) | Oil & gas E&P |
|---|---|---|---|---|---|---|---|
| **28 – 79%** | **44 – 84%** | **~71%** | **~65%** | **~63%** | **~52%** | **~52%** | **~33%** |

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Book debt % = long-term debt (incl. current portion) ÷ (debt + book equity including NCI). Individual company data from FY 2024 10-Ks. Industry averages from Damodaran NYU Stern (Jan 2026).

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# Will PUCs require a refinance of utility spending?

- The utility sector is a system with substantial capital spending, and if that capital is not financed in the lowest-cost way possible, then customers will be overpaying and the perverse incentives described before will be magnified.

- Three possible options
  - **Securitization**. Utilities and gov’ts issue low-interest ‘securitized bonds’ secured by future ratepayer collections, at an interest rate similar to municipal or state bonds.
  - **Re-balanced capital structure**. PUCs should require greater leverage, moving away from a ~50% equity ratio. Greater ‘leverage’, or debt financing, would align electric utilities with telecom, rail, airlines, and other infrastructure industries.
  - **Competitive equity**. At present, PUCs are in the position of guessing what the appropriate return on equity should be for utilities, which is then built into rates. A better approach is an innovative new idea “competitive direct equity,” where utilities would raise equity through an auction for incremental capital spending they engage in. (Credit to Mark Ellis of the American Economic Liberties Project for this idea.)

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# Securitization: How far could it go?

- Consider PSE&G's electric utility, which serves 2.4MM customers in New Jersey, where the newly elected governor has promised to 'freeze' electricity rates by executive order.

- The state PUC (the New Jersey Board of Public Utilities) has set rates for PSE&G customers with:
  - a Return on Equity (shareholder profit) of 9.6%, or 13.7% pre-tax (ratepayers pay for the utility's income taxes through utility rates), at
  - a 55% equity ratio, for a 'Weighted Average Cost of Capital' (WACC) of 9.33%
  - $1.2B annual return, based on WACC & capital invested its distribution system, $12.7B

- Issuing securitized bonds (the % interest rate reflects issuances since 2022) would pay off the principal in rate base, removing it from the utility books. The high-cost utility return would be replaced by low-interest debt. This produces annual savings to consumers of $543M. (For context, total PSE&G electric revenue from NJ customers in 2024 was $4.37B).

| Consumer savings from securitization ($ millions) | | | | |
|---|---|---|---|---|
| | | Total Return/Profit | | |
| | Principal | Utility | Securitization | Annual Savings |
| **Rate** | | 9.33% | 5.04% | 4.29% |
| **Distribution Rate Base** | $ 12,662.0 | $ 1,180.9 | $ 638.2 | $ 542.7 |

Sources:

FERC Form 1 (PSE&G 2024), EIA Form 861; NJ BPU Order approving PSE&G rates (Oct 2024)

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# Some Concluding Thoughts

- Much demand growth is concentrated in a single sector. History counsels that even if aggregate growth emerges, it will come with many defaults and disruptions along the way.
- This is a high-risk moment in time, though there are obvious options for regulators / utilities to lay off that risk to data centers.
- The industry as a whole should be trying to find nimble assets and avoid heavy capital spending.
- Capital spending is, of course, unavoidable but cap-ex that serves multiple purposes and provides an off-ramp (optionality) for the bets made should be advantaged in regulatory decision-making.
- There is a need to use the grid much more flexibly than we have, and to provide regulatory pathways to facilitate this.
- Utilities should expect to face margin pressure in view of customer affordability concerns. For that matter, even merchant generators should not expect to obtain marginal-cost pricing advantage on rocketing demand.

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