

Kentucky's coal fleet is turning over just as data centers and battery plants pile on new load.

A \$5.8 billion battery complex, data centers lining up behind it, and more than 5 GW of interconnection interest are landing on a grid that still runs largely on coal — and a 2023 law now decides which coal units can retire. Every one of those forces reshuffles the projects on your list. Invizion helps electric utilities re-sequence a capital portfolio in a click — and defend every decision.

\$5.8B¹ BlueOval SK twin battery plants at Glendale — a signal of the manufacturing load reshaping Kentucky's grid.	#2² Kentucky's rank for power-sector carbon intensity (~1,744 lbs CO2/MWh, 2024) — a still coal-heavy fleet now in transition.	\$1.0B³ LG&E and KU's Mill Creek Unit 5 gas plant, replacing retiring coal (in service ~mid-2027).	\$10–12B⁴ PPL's potential new-generation investment across Kentucky and Pennsylvania through 2032, driven by data-center and industrial load.
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THE KENTUCKY LANDSCAPE

Four forces are moving your project list at once

None of these is theoretical, and none of them waits for your next budget cycle. Together they mean the capital plan you approved last year may already be the wrong plan.

DEMAND — LOAD GROWTH

New load, arriving faster than the fleet turns over

Ford and SK On's BlueOval SK battery complex in Glendale — a roughly \$5.8 billion twin-plant build that began production in 2025 — anchors a wave of manufacturing loads. Data centers are now queuing behind it: Big Rivers Electric has filed to serve a TeraWulf data-center operation in western Kentucky.⁵

PPL's Kentucky and Pennsylvania utilities report more than 5 GW of accepted interconnection requests and turbine reservations, and see \$10–12 billion of potential new generation across the two states through 2032.⁴

RELIABILITY — COAL & SB 4

A coal-heavy grid the state won't let you shrink on your own

Kentucky still leans hard on coal — it is the state's primary electricity source and gives Kentucky the nation's second-highest power-sector carbon intensity, about 1,744 lbs of CO₂ per MWh (2024).² Kentucky's 2023 Senate Bill 4 now bars utilities from retiring a fossil-fuel unit unless the PSC finds it won't harm reliability, resilience, or affordability.⁶

The tension is concrete: in the 2023 generation case the PSC approved new gas and solar but denied LG&E and KU's requests to retire the E.W. Brown 3 (412 MW) and Ghent 2 (486 MW) coal units.³

GENERATION — THE TRANSITION

Coal out where allowed, gas and solar in

Under the November 2023 CPCN, LG&E and KU are retiring Mill Creek coal Unit 1 (300 MW, completed at the end of 2024) and Unit 2 (297 MW, by 2027) while building a 645 MW gas combined-cycle unit, 240 MWac of solar, and a 125 MW battery.³ Coal still supplies the largest share of the state's generation.²

The cooperatives are adding renewables too — East Kentucky Power is building new solar for its 1.2 million members⁷ — while LG&E and KU explore a 266 MW pumped-storage project and small modular nuclear with X-energy.⁸

CAPITAL — GRID & TRANSMISSION

Build for the new load without dropping the backlog

Meeting that load while modernizing the grid is a capital problem. PPL plans about \$5.1 billion of infrastructure investment in 2026 alone, and its Kentucky–Pennsylvania generation venture could reach \$10–12 billion through 2032 as data-center and industrial load lands.⁴

In the west, Big Rivers Electric — three member cooperatives across 22 counties — is expanding to serve new large loads,⁹ while East Kentucky Power builds transmission and solar for its 16 cooperatives.⁷ New obligations don't replace the backlog — they stack on top of it, and something has to move.

WHO RUNS KENTUCKY'S GRID

Investor-owned utilities, big generation-and-transmission cooperatives, and TVA in the far west

Kentucky's grid is carried by three PSC-regulated investor-owned utilities and two large generation-and-transmission cooperatives, with the far-western Purchase region tied to TVA. Membership in PJM, MISO, and no RTO at all is split across them — but the capital pressures are shared.

Investor-owned utilities

Rates & capital recovery regulated by the Kentucky PSC

LG&E and KU (PPL)	Nearly 1.4M customers combined · operate outside an RTO
Kentucky Power (AEP)	Eastern Kentucky · PJM; Liberty's \$2.8B purchase fell through in 2023
Duke Energy Kentucky	Northern Kentucky (Cincinnati suburbs) · PJM

PPL plans roughly \$5.1 billion of infrastructure investment in 2026, with far more if Kentucky's generation build-out proceeds.

Cooperatives & federal power

Governed by boards & members, or by federal statute — not PSC-set retail rates

East Kentucky Power Cooperative	16 distribution co-ops · ~1.2M Kentuckians · PJM
Big Rivers Electric	3 co-ops · 120,000+ served · 22 western counties · MISO
Tennessee Valley Authority	Serves far-western Kentucky through local distributors

The cooperatives are funding new solar and grid expansion through USDA New ERA and IRA elective-pay tax credits.

Every capital dollar has to be defensible

Whether you answer to the Public Service Commission, a co-op board, or federal statute, the question is the same: why this project, why now, why at this cost? In Kentucky, the state also has a say in what you're allowed to close.

Kentucky Public Service Commission (PSC) sets rates and rules on generation certificates (CPCNs) and resource plans for the investor-owned utilities — LG&E, KU, Kentucky Power, and Duke Energy Kentucky.⁵

Senate Bill 4 (2023) bars retiring a fossil-fuel generating unit unless the PSC finds no harm to reliability, resilience, or rate affordability — it became law on March 29, 2023.⁶

The 2023 generation case shows SB 4's bite: the PSC approved 645 MW of new gas, 240 MWac of solar, and a 125 MW battery, but denied LG&E and KU's plan to retire the E.W. Brown 3 and Ghent 2 coal units.³

Rate cases are active statewide: LG&E and KU's 2025 electric cases (Nos. 2025-00113/00114) reset base rates effective January 1, 2026.³ with Kentucky Power (No. 2025-00257) and East Kentucky Power (No. 2025-00208) also before the PSC.⁵

The money is moving — can your plan absorb it?

Between private manufacturing investment, federal cooperative programs, and PPL's own capital plan, Kentucky has more capital in motion than it has had in a generation. The constraint is readiness: which projects qualify, which are shovel-ready, and how the timing lines up.

BlueOval SK — ~\$5.8 billion private investment in twin battery plants at Glendale, backed by about \$250 million in state forgivable loans; production began in 2025 and it is reshaping central-western Kentucky's load.¹

USDA New ERA is funding East Kentucky Power Cooperative's new solar farms in Fayette, Marion, and Loretto, plus supporting transmission.¹²

PPL's capital plan puts about \$5.1 billion into infrastructure in 2026, with \$10–12 billion of potential Kentucky–Pennsylvania generation investment through 2032 if the load materializes.⁴

IRA elective-pay (direct-pay) credits let Kentucky's tax-exempt cooperatives and public power capture clean-energy tax credits on the solar and storage they build.

KENTUCKY'S GRID, IN BRIEF

Questions Kentucky utility leaders are asking

Short, sourced answers — the same facts we dig into with utilities looking at their capital programs.

How fast is electricity demand growing in Kentucky?

The \$5.8 billion BlueOval SK battery complex began production in 2025, data centers such as TeraWulf are lining up behind it, and PPL's Kentucky and Pennsylvania utilities report more than 5 GW of accepted interconnection interest and \$10–12 billion of potential new generation through 2032.¹⁵⁴

What is happening to Kentucky's coal plants?

Coal still supplies the largest share of Kentucky's generation, but it is turning over: LG&E and KU are retiring Mill Creek coal Units 1 and 2 and building gas and solar. Under Senate Bill 4 (2023), though, the PSC must approve any fossil-unit retirement — and it denied the proposed retirements of E.W. Brown 3 and Ghent 2.²³⁶

Does the Public Service Commission set my utility's rates?

The PSC regulates rates and generation certificates for the investor-owned utilities — LG&E, KU, Kentucky Power, and Duke Energy Kentucky. The generation-and-transmission cooperatives, East Kentucky Power and Big Rivers, are governed by their member-owned boards.⁵⁷⁹

Who keeps the lights on in Kentucky?

Three investor-owned utilities — LG&E and KU (nearly 1.4M customers), Kentucky Power (AEP), and Duke Energy Kentucky — plus two large cooperatives, East Kentucky Power (~1.2M members) and Big Rivers in the west, with TVA serving the far-western Purchase region.¹⁰¹¹⁷⁹

What funding is available for Kentucky's grid?

USDA New ERA is funding East Kentucky Power's new solar, BlueOval SK drew about \$250 million in state forgivable loans against \$5.8 billion of private investment, PPL plans roughly \$5.1 billion of infrastructure spend in 2026, and IRA elective-pay lets cooperatives capture clean-energy tax credits.³²¹⁴

How does Invizion help Kentucky electric utilities plan capital?

Invizion is scenario-based capital portfolio optimization for utilities. It lets you model how a data-center load surge, a New ERA award, a rate-case outcome, or an SB 4 decision on a coal retirement reshuffles your whole project list, re-sequence the portfolio automatically, and keep a defensible record of every decision for the PSC or your board.

REFERENCES

Sources

Every figure in this briefing is tied to a primary or authoritative source.

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ABOUT INVIZION

Capital program optimization for utilities

Invizion is a purpose-built capital lifecycle management platform for utilities. It integrates budgeting, CIP, scenario analysis, and funding-source tracking in one system — so utilities can re-sequence a capital portfolio in a click and demonstrate audit-ready, defensible decisions to regulators, boards, and rating agencies.

See how utilities keep capital plans current and defensible with Invizion.

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