

Mapping the Barriers to Electricity Generation Development in Pennsylvania

Potential Barriers to Project Development in Pennsylvania

PJM Grid Operator Queue

- Projects must move through a **multi-phase study process** before receiving an interconnection agreement to connect to the grid
- Projects can be withdrawn either by the developer or by PJM if required milestones are not met

Project Siting

- Local **zoning and land-use ordinances** determine where a project can be built
- Developers must comply with jurisdiction-specific policies (e.g., setbacks, height/noise/lighting limits)
- Many projects require discretionary approval from a local zoning hearing board

Permitting

- Gas plants must obtain state and federal **air quality and other environmental permits** before construction
- In Pennsylvania, the Department of Environmental Protection (PA DEP) manages this process

Key Insights

- Customer-initiated withdrawal is the main mode of attrition for Pennsylvania-based energy projects in the PJM queue, likely reflecting problems outside the queue process itself (like local ordinances and public opposition) and/or challenges identified in the first phase of queue requirements.
- Community concerns, restrictive ordinances and discretionary interpretation of these ordinances, court delays, and settlement uncertainty have created barriers for proposed solar, wind, and battery energy storage projects in Pennsylvania. Seventy-five percent of Pennsylvania-based renewable projects that entered the PJM queue since 2023 have withdrawn, representing 82 percent of renewable capacity that entered the queue over that period.
- Meanwhile, all 11 Pennsylvania-based gas plant interconnection requests since 2023 (totaling about 8 GW) involve upgrades at existing plants that do not require additional siting approval, or lack sufficient information to determine otherwise.
- The siting bill introduced in the Pennsylvania legislature (HB 2651) could streamline over 900 provisions for solar energy facilities across counties and jurisdictions, superseding specific restrictions in 10 counties and 198 jurisdictions while also reducing overall burdens.
- Even if the siting legislation were technology-neutral, its provisions still would not have impacted any of Pennsylvania's recent gas interconnection requests (at least those for which we had sufficient information), since they were all sited at existing plants rather than new sites.

Case Studies and Examples

1

Wilson Solar

Smaller Project in Development

Wilson Solar was a proposed 80 MW solar project in Venango Township in NW Pennsylvania. The township's pre-existing ordinance conditionally permits solar in areas zoned for agricultural and industrial use.¹ The supervisors rejected Birch Creek Development's application for a permit, the developer appealed to the county court, the parties reached a settlement, and development has resumed.

Siting Challenges:

- In August 2023, the planning commission recommended the supervisors approve the project; but in November, they changed their minds, saying the project was at odds with ordinance goals including aesthetics, a pleasant residential environment, and the need to protect farmland.² In January 2024, the **supervisors voted 3-0 to reject the application** in a crowded meeting that ended with applause from residents.
- In February 2024, Birch Creek appealed the decision to the county court. Birch Creek later settled with the township, which granted the permit so long as Birch Creek committed to conditions including a smaller project about a quarter of the original size.³

Local ordinances can lead to major delays and cancellations for renewable energy projects.

2

AH1-674 Shippingport Power Station

Withdrawn – Customer Milestone Not Met

This queue application likely represents an early interconnection request for the coal-to-gas conversion of the Bruce Mansfield coal plant, which retired in 2019. Frontier Group of Companies is developing the project, now planned at 2,550 MW of capacity. Since the project appears to be proceeding, the developer will likely need to submit a new interconnection request. Frontier Group has partnered with Aligned Data Centers; the plant is expected to serve a co-located data center and provide over 1 GW of excess capacity to PJM.^{4, 5}

Siting legislation would not impact coal-to-gas conversion projects.

3

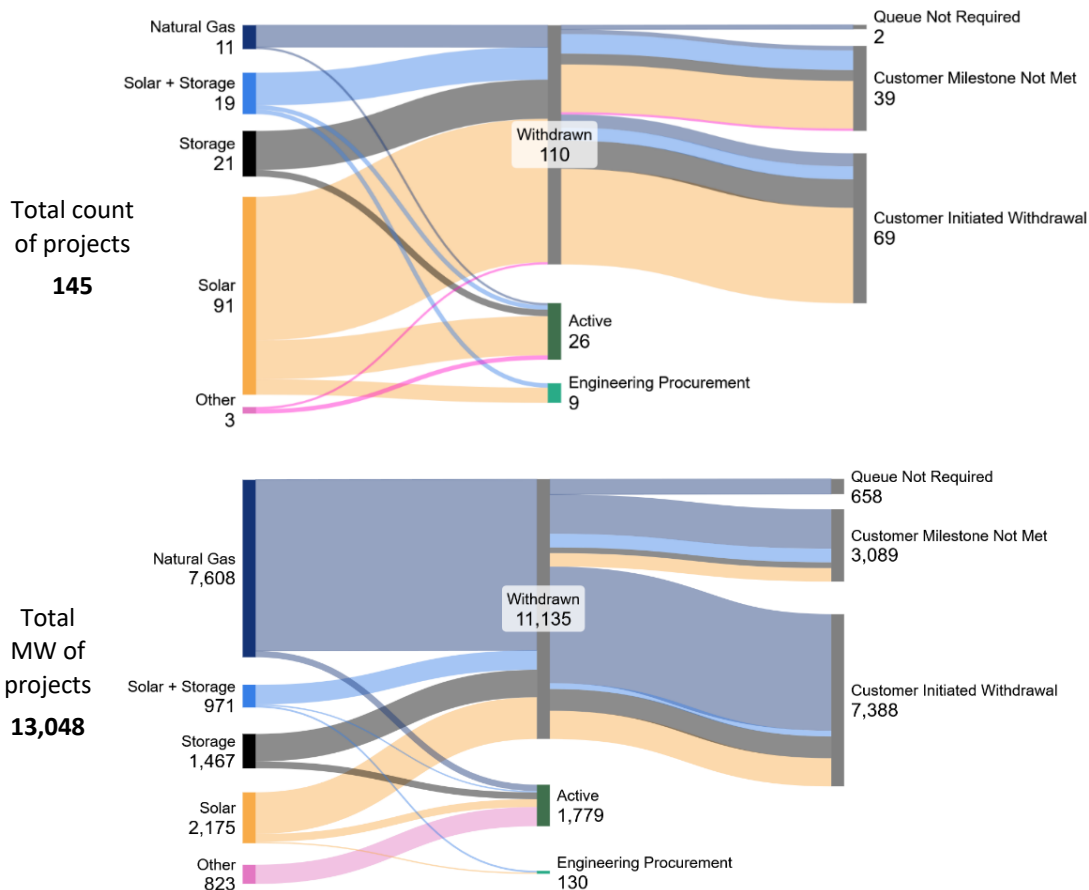
AH1-734 Armstrong Power

Active – Phase 2

This application is for the conversion of Armstrong Power from a gas peaker to a baseload plant through the addition of a steam cycle. The upgrade would enable the plant to operate at a higher capacity factor to help meet reliability needs in PJM. NRG Energy acquired the plant from LS Power in January 2026. The project remains active in the PJM queue and appears to be in the pre-construction phase.^{6, 7}

Siting legislation would not impact upgrade projects at existing plants.

Queue Withdrawals in Pennsylvania



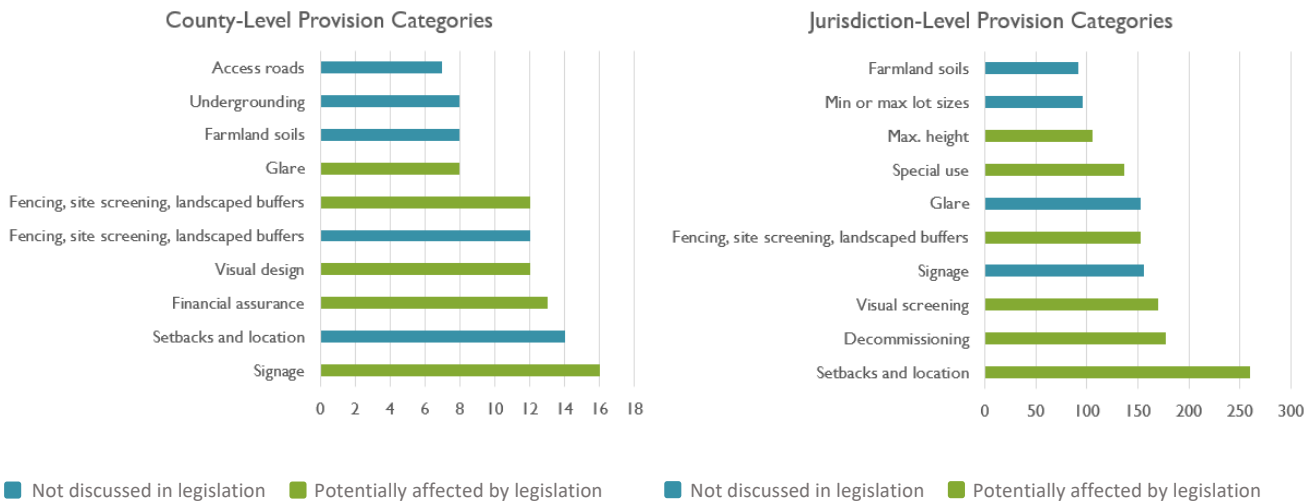
While solar projects represent the largest *number* of withdrawn projects (81, including hybrid), gas projects represent the largest *capacity* withdrawn from the queue (7 GW) due to the large size of each individual project.

Solar projects withdraw from the queue at the highest rate, mostly at or before Phase 1 of the interconnection process, indicating challenges with siting and/or permitting.

Across PJM, more projects (38%) have reached the active stage or beyond relative to the current queue within Pennsylvania (24%).⁸

Introduced legislation (HB 2651) in Pennsylvania proposes to create a statewide, standardized permitting and zoning framework for energy facilities that we estimate could streamline 90 solar ordinance provisions at the county level and 821 provisions at the jurisdiction level.

Top 10 Provision Types and Effect of Proposed Legislation



There have been recent calls for siting and permitting reform in Pennsylvania to unlock barriers to building renewable energy projects. These include Governor Shapiro’s “Lightning Plan”, which would establish the Reliable Energy Siting and Electric Transition (RESET) Board to centralize and streamline energy project development.⁹

Although initiatives like the RESET Board would be **technology-neutral**, they would in practice **primarily impact renewables**.

Recent PJM interconnection requests for **gas generation** in Pennsylvania have mostly been **upgrades or conversions** at existing fossil plants, which would not be affected by potential statewide, technology-neutral siting legislation.

End Notes

(1) “Solar Ordinance.” Venango Township. Available at: <https://venangotwp.com/2024/09/18/1151/>.

(2) Myers, Valerie. “Venango supervisors give thumbs down to proposed solar farm.” *Erie Times-News*. January 9, 2024. Available at: https://www.yahoo.com/news/venango-supervisors-thumbs-down-proposed-090628085.html?fr=sycsrp_catchall.

(3) “Wilson Solar Conditions.” Available at: <https://venangotwp.com/wp-content/uploads/2025/12/Wilson-Solar-Conditions.pdf>.

(4) Frontier Group of Companies. “Shippingport Industrial Park”. Available at: <https://frontier-companies.com/shippingport-industrial-park/>

(5) Frontier Group of Companies. 2025. “Bruce Mansfield Conversion Announcement”. Available at: <https://frontier-companies.com/the-frontier-group-of-companies-to-transform-bruce-mansfield-power-plant-into-state-of-the-art-natural-gas-power-plant-supporting-americas-energy-goals-and-pennsylvanias-economic-gr/>

(6) Global Energy Monitor. “Armstrong Gas Power Station”. Available at: https://www.gem.wiki/Armstrong_Gas_power_station

(7) LS Power. 2025. “LS Power Submits Proposal to Add New Generation Supply Across PJM”. Available at: <https://www.lspower.com/news/ls-power-submits-proposal-to-add-new-generation-supply-across-pjm/>

(8) PJM. “Cycle Service Request Status”. Available at: <https://www.pjm.com/planning/m/cycle-service-request-status>

(9) “Governor Shapiro Unveils “Lightning Plan” to Strengthen Commonwealth’s Energy Leadership, Create Jobs, and Lower Costs for Consumers”. 2025. PA.gov. Available at: <https://www.pa.gov/governor/newsroom/2025-press-releases/governor-shapiro-unveils-lightning-plan-to-strengthen-commonwe>