Accelerating 16.5 GW of New Capacity in Pennsylvania Using Existing Grid with $1.4B Savings

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The Challenge

- **Gridlock in Interconnection Queues:** Pennsylvania has 21 GW across 694 projects in the PJM interconnection queue, with average connection timelines exceeding 5 years — over 40 months to reach interconnection agreement, plus 2+ years for construction.
- **Skyrocketing Capacity Prices:** PJM 2027/28 capacity reached $333/MW-day — an 11x increase from $29/MW-day in 2024/25, hitting the price cap.
- **Gas Plant Supply Chain Constraints:** New gas plants ordered today won't come online until 2030-2031 at earliest. Capital costs surging to $2,200-2,800/kW for recent combined-cycle projects (GridLab 2025).
- **Data Center Growth:** PPL alone has 25.2 GW of signed data center agreements. Power availability is the primary site selection factor.

The Solution

- **Unlocking Idle Grid Connections:** 10.5 GW of Pennsylvania's thermal capacity (31%) operates at less than 20% capacity factor. Coal plants average just 19% utilization. Solar plants at 15.1% CF severely underutilize their interconnections.
- **Bypassing the Queue:** Deployment of new generation at existing underutilized plants can bypass lengthy interconnection queues.
- **Energy Potential:** Pennsylvania can add 16.5 GW of new energy capacity through surplus interconnection: 10 GW at thermal plants (9.5 GW solar + 0.5 GW wind) and 4.3 GW at renewable plants + 2.3 GW of 6-hour battery storage.
- **Rapid Deployment:** Surplus interconnection can save $1.4 billion in interconnection costs, equivalent to $256 per Pennsylvania household. Projects can be completed in 12-18 months compared to 5+ years for standard queue projects.

Policy Recommendations

1. **Integrate into Resource Planning:** Require the Pennsylvania PUC and utilities to evaluate surplus interconnection potential in resource planning — identify which existing plants offer the best opportunities for co-location.
2. **Develop Procurement Mechanisms:** Create RFPs for specific plant sites and Purchase and Sale Agreement structures to enable third-party development at utility-owned facilities.
3. **Streamline Permitting:** Co-located projects have inherently lower land-use and environmental impacts and should qualify for expedited approval pathways.
4. **Evaluate Before Greenfield:** Require evaluation of surplus interconnection opportunities before approving new greenfield generation capacity.

Key Impact Metrics

16.5 GW	12-18 mo	$1.4B
New Energy Capacity Available Through Existing Infrastructure	Accelerated Project Timeline vs. 5+ Years for New Interconnections	Direct Cost Savings from Avoiding New Transmission Infrastructure

Explore Interactive Data Dashboard

Explore surplus potential, site development opportunities, renewable resource quality, and economic competitiveness for each Pennsylvania plant.

Visit Dashboard