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Pennsylvania Solar Generation

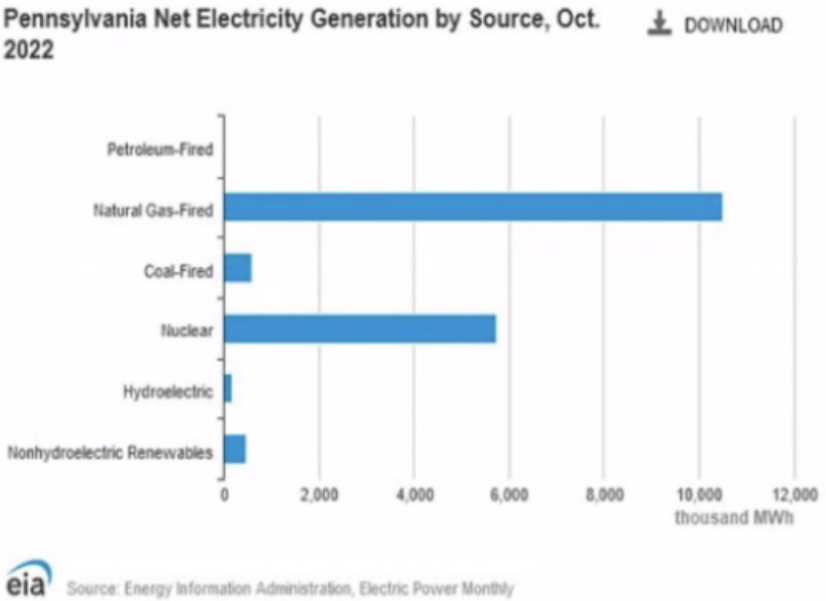
Legislative Landscape, Power Crisis & Future Outlook

Rooftop, Community/Merchant & Utility-Scale Solar

June 25, 2025

Energy Production in Pennsylvania

Rank	State	Total Energy Production (trillion Btu)
1	Texas	23,329
2	Pennsylvania	9,492
3	Wyoming	5,884
4	West Virginia	5,020
5	New Mexico	4,674
6	Oklahoma	4,546
7	North Dakota	4,275



Charts: Energy Information Administration

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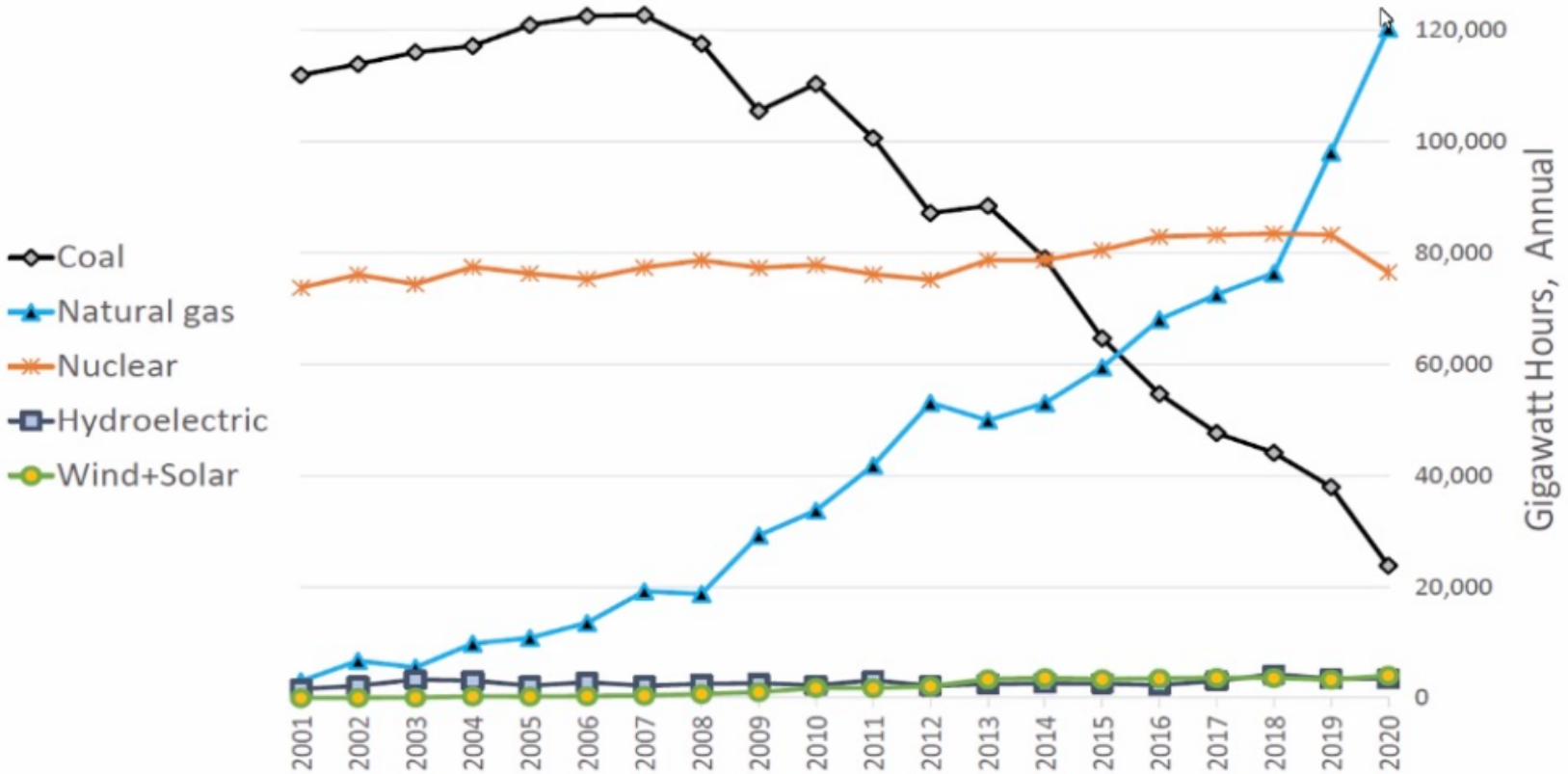
PA Electricity Generation by Source



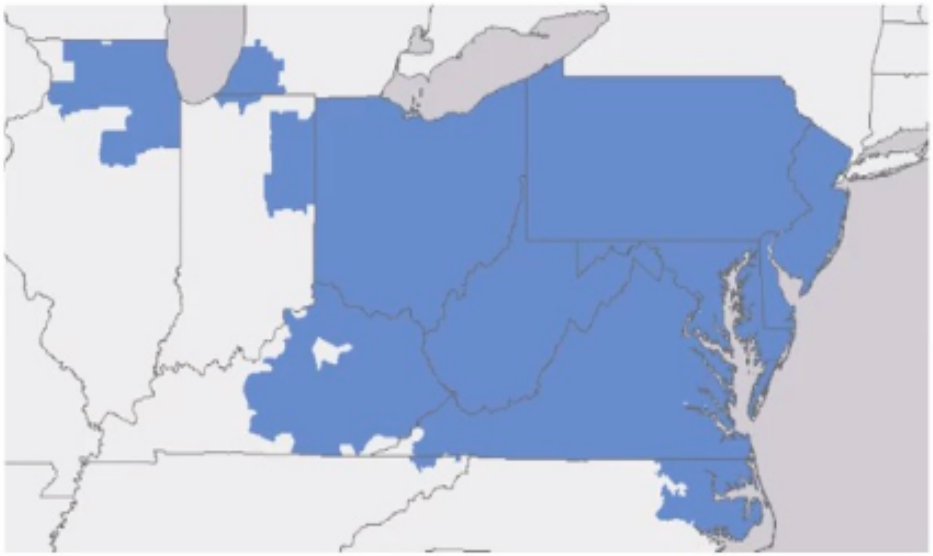
Data from U.S. Energy Information Administration (EIA): https://www.eia.gov/electricity/

PennState Law Center for Agricultural and Shale Law

Federal Regulation of access to the electrical transmission grid

- "Power Pool" / Regional Transmission Organizations (RTO)
- PJM Interconnection, LLC ("PJM")
- PJM is regulated by FERC (Federal Energy Regulatory Commission).

PJM Interconnection coordinates the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia



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In the News

REUTERS

Energy | Industry Insight

Largest U.S. grid faces tight timeline to curb wind, solar delays

By Anna Flávia Rochas

January 25, 2023 11:40 AM EST · Updated 7 months ago

The New York Times

The U.S. Has Billions for Wind and Solar Projects. Good Luck Plugging Them In.

An explosion in proposed clean energy ventures has overwhelmed the system for connecting new power sources to homes and businesses.

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CLEAN ENERGY

Wind and solar power generators wait in yearslong lines to put clean electricity on the grid, then face huge interconnection fees they can't afford

THE WALL STREET JOURNAL.

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SUSTAINABLE BUSINESS

Grid Operator's Energy-Project Backlog Creates Frustration for Renewables Buyers

Indoor agriculture company AppHarvest is among those planning to procure clean power from projects that are awaiting approval from PJM Interconnection, the largest U.S. grid operator

Pennsylvania Power Generation Crisis

Current Challenges Facing the Commonwealth

Key Crisis Indicators

- **Aging Infrastructure:** Many coal and natural gas plants nearing retirement
- **Grid Reliability Concerns:** Increasing demand vs. decreasing baseload capacity
- **Transmission Bottlenecks:** Limited capacity to import power during peak demand
- **Economic Pressures:** Rising energy costs impacting businesses and consumers

> **The Challenge:** Pennsylvania needs to replace retiring fossil fuel generation while maintaining grid reliability and affordable electricity rates. Solar generation offers a critical solution path.

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Pennsylvania Solar Generation Overview

Three Distinct Market Segments

~800 MW
Total Installed Solar Capacity

~15,000
Solar Jobs in PA

Market Segments

- **Rooftop Solar:** Residential & commercial installations
- **Community/Merchant Solar:** Mid-scale projects (1-10 MW)
- **Utility-Scale Solar:** Large projects (10+ MW)

Growth Drivers

- Declining technology costs
- Net metering policies
- Corporate sustainability goals
- Energy independence objectives

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Rooftop Solar Segment

Residential & Commercial Installations

Market Characteristics

- Primarily behind-the-meter applications
- System sizes: 5-500 kW typically
- Heavy reliance on net metering
- Customer-owned or third-party financed

Key Benefits

- Direct customer savings
- No transmission costs
- Grid resilience improvements
- Local job creation

Current Challenges

- Net metering under legislative threat
- Utility interconnection delays
- Varying local permitting requirements
- Customer acquisition costs

> **Legislative Risk:** Rooftop solar industry heavily dependent on net metering preservation

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Community & Merchant Solar

The Fastest Growing Segment Under Threat

Merchant Solar Characteristics

- Size range: 1-5 MW typically
- Uses net metering for grid access
- Developer-owned and operated
- Sells power to third-party customers
- Enabled by Hommrich v. Commonwealth (2021)

Community Solar Model

- Subscription-based customer model
- Utility-administered programs
- Proposed under HB 504
- Gives utilities control over program

Current Threats

- **HB 504:** Creates competing framework that could eliminate merchant solar
- **SB 1040:** Specifically targets "Hommrich loophole"
- **Utility Opposition:** Active lobbying to eliminate merchant generation

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Utility-Scale Solar Development

Large Projects & Grid Integration

Market Characteristics

- Projects 10+ MW in size
- Direct utility procurement
- Wholesale market participation
- Requires transmission studies
- Long-term power purchase agreements

Development Challenges

- Transmission interconnection queues
- Land use and siting issues
- Local opposition concerns

Opportunities

- Utility renewable energy goals
- Corporate procurement demand
- Grid modernization initiatives
- Federal tax incentives

Growth Potential: Utility-scale solar represents the largest opportunity for capacity additions but faces siting and transmission challenges

Legislative Landscape Overview

Key Bills Shaping Solar's Future

Current Session (2024-2025)
HB 504 - Community Energy Act: Passed House, pending in Senate. Creates utility-controlled community solar program.

Expected Soon
SB 1040 Reintroduction: Sen. Boscola expected to reintroduce legislation targeting merchant solar "loophole."

Ongoing Threats
Amendment Risk: Any energy legislation could be amended to restrict net metering or merchant generation.

Strategic Concern

Even if HB 504 stalls, utilities will continue seeking vehicles to eliminate merchant generation through Act 129 legislation, the Governor's "Lightning Plan," or other bills.

HB 504 - Community Energy Act

Detailed Analysis of Key Provisions

What HB 504 Does

- Creates utility-administered community solar program
- Allows customer subscriptions to remote solar projects
- Gives utilities control over program design
- Establishes subscriber protections
- Sets capacity targets and timelines

Senate Status

Key Players: Chairman Pat Stefano and Ranking Member Lisa Boscola have expressed significant concerns about merchant generation and net metering during committee hearings. High risk of restrictive amendments if bill advances.

Hommrich v. Commonwealth (2021)

The Legal Foundation for Merchant Solar

Court Ruling Summary

The Pennsylvania Supreme Court ruled that merchant solar generation is permitted under existing net metering laws, establishing the legal framework that enables the current merchant solar market.

What Hommrich Enabled

- Merchant generators can use net metering
- Third-party power sales are permitted
- Developer-owned projects are viable
- Legal certainty for investments

Why It's Under Attack

- Utilities view decision as "loophole"
- Enables competition in generation
- Reduces utility control over solar development
- Creates pressure for "legislative fix"

Legislative Threat: SB 1040 specifically designed to "close the Hommrich loophole" and eliminate commercial-scale net metering in Pennsylvania. (2024)

Senate Opposition Dynamics

Key Players and Positions

Chairman Pat Stefano

- Consumer Protection & Professional Licensure Committee
- Expressed concerns about merchant generation
- Questions net metering impacts on ratepayers
- Key gatekeeper for solar legislation

Senator Lisa Boscola (Ranking Member)

- Previously introduced SB 1040
- Vocal critic of "Hommrich loophole"
- Concerned about utility ratepayer impacts
- Expected to reintroduce restrictive legislation

Utility Influence

- Active lobbying against merchant generation
- Prefer utility-controlled community solar
- Argue merchant solar is "subsidized" by ratepayers
- Seeking to eliminate competition

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Utility Opposition Strategy

How Utilities Are Fighting Solar Competition

Utility Arguments

- **Cost Shift:** Net metering creates unfair burden on non-solar customers
- **Grid Stability:** Distributed generation creates management challenges
- **Cross-Subsidization:** Solar customers don't pay "fair share" of grid costs
- **Market Distortion:** Merchant solar is "subsidized" competition

Utility Tactics

- Quiet lobbying to insert restrictive amendments
- Supporting utility-controlled alternatives (HB 504)
- Seeking legislative vehicles beyond solar bills
- Building coalitions with ratepayer advocates

The Real Issue

While utilities frame opposition around ratepayer protection, the fundamental concern is competitive threat. Merchant solar enables independent power generation that bypasses utility control and reduces their monopoly position.

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Economic Benefits of Solar Development

Quantifying the Value to Pennsylvania

$2B+
Total Solar Investment in PA

15,000+
Direct & Indirect Solar Jobs

$50M+
Annual Tax Revenue

$200M+
Landowner Lease Payments

Rural Economic Impact

- Property tax revenue for schools and municipalities
- Lease payments to farmers and landowners
- Local construction and maintenance jobs
- Economic multiplier effects in rural communities

Statewide Benefits

- Grid stability and peak demand reduction
- Avoided transmission infrastructure costs
- Reduced reliance on imported energy
- Environmental and health benefits

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Grandfathering & Investment Protection

Protecting Existing Projects and Investments

Projects at Risk

- Operating merchant solar facilities
- Projects under development
- Signed interconnection agreements
- Secured financing and offtake contracts
- Permitted but not yet constructed projects

Protection Strategies

- Explicit grandfathering language in any legislation
- Clear definition of "existing" projects
- Protection for projects in development pipeline
- Constitutional takings arguments
- Investor protection provisions

Investment Security Concerns

Critical Need: Any legislative changes must include robust grandfathering provisions to protect hundreds of millions in existing investments and maintain investor confidence in Pennsylvania's solar market.

Legislative Gap: Current proposed legislation lacks clear grandfathering provisions, creating uncertainty for existing and developing projects.

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Regulatory Environment

PUC Proceedings and Utility Commission Actions

Key PUC Proceedings

- Net metering reviews and modifications
- Interconnection standards updates
- Distribution system planning
- Rate design proceedings
- Grid modernization initiatives

Regulatory Trends

- Increasing scrutiny of net metering
- Time-of-use rate proposals
- Demand charge modifications
- Grid service interconnection fees
- Advanced meter infrastructure deployment

Regulatory Strategy Needs

While legislative battles dominate headlines, regulatory proceedings at the PUC can significantly impact solar economics through rate design, interconnection standards, and net metering rules. Ongoing engagement required.

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Federal Policy Impacts

How National Policies Affect PA Solar

Current Federal Support

- **Investment Tax Credit (ITC):** 30% through 2032
- **Production Tax Credit (PTC):** Alternative to ITC
- **Inflation Reduction Act:** Manufacturing incentives
- **Infrastructure Investment:** Grid modernization funding

Policy Uncertainties

- Long-term ITC phase-down schedule
- Trade policy impacts on equipment costs
- Regulatory changes under new administration
- Regional transmission planning

Strategic Opportunity

Strong federal incentives create favorable development window through 2032. Pennsylvania should maximize deployment during this period rather than creating legislative barriers.

Legislative Trends to Monitor

Key Areas of Future Policy Development

Near-Term Legislative Risks

- **HB 504 Amendments:** Restrictive provisions if bill advances
- **SB 1040 Revival:** Direct attack on merchant solar
- **Act 129 Changes:** Energy efficiency law modifications
- **Lightning Plan:** Governor's energy initiative
- **Budget Bills:** Utility provisions in omnibus legislation

Emerging Policy Areas

- **Energy Storage:** Regulatory framework development
- **Grid Modernization:** Smart grid and infrastructure bills
- **Economic Development:** Clean energy job creation initiatives

Ongoing Vigilance Required

Utilities will continue seeking legislative vehicles to restrict merchant solar even if primary bills stall. Any energy-related legislation could become a vehicle for restrictive amendments.

Potential Compromise Scenarios

Finding Middle Ground Solutions

Dual-Track Approach

- Allow both merchant and community solar models
- Set capacity caps for each segment
- Differentiated interconnection procedures
- Market-based solutions for cost allocation

Gradual Transition Model

- Grandfather existing projects permanently
- Phase-in new requirements over time
- Pilot programs for new approaches
- Regular review and adjustment mechanisms

Enhanced Community Benefits

- Local hiring requirements
- Community benefit agreements
- Educational partnerships
- Agricultural land protection

Grid Modernization Focus

- Advanced interconnection standards
- Smart grid integration requirements
- Grid services compensation
- Time-of-use rate structures

> **Compromise Strategy:** Focus negotiations on addressing legitimate utility concerns while preserving merchant solar viability and investment protection.

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Quantifying Community Solar's Economic Value

Study Overview

Penn State Center for Economic and Community Development: Independent analysis of 235 planned community solar facilities across 48 Pennsylvania counties, totaling 1,033 MW of capacity.

$1.8B
Construction Phase Economic Output

11,631
Construction Phase Jobs

$83M
Annual Operations Economic Output

520
Ongoing Annual Jobs

Job Creation Breakdown

- **Direct Jobs:** 5,991 construction, 114 operations
- **Indirect Jobs:** 1,907 construction, 53 operations
- **Induced Jobs:** 3,733 construction, 354 operations
- **Economic Multiplier:** Each direct job creates 1.94 total jobs

Revenue Streams

- **Annual Property Taxes:** $574,260 statewide increase
- **Landowner Leases:** $700-$1,000 per acre annually
- **Consumer Savings:** $30,000 per MW annually
- **One-time Tax Rollbacks:** $1.7M from Clean & Green exits

Questions? Comments?

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