

Solar Industry Overview



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Energy Supply Chain Overviews

- Jan 8 Rapid Fire: Supply Chain Segments 2026 Outlook:
Natural Gas, Data Centers, Nuclear & Solar
- Jan 22 Natural Gas: Midstream Supply Chain
- Feb 5 Hydrogen Supply Chain Report
- Feb 19 Chemicals Supply Chain Report
- March 5 Circular Plastics Supply Chain Report

Coming Soon: Electric Grid Components, Energy Efficient
Products



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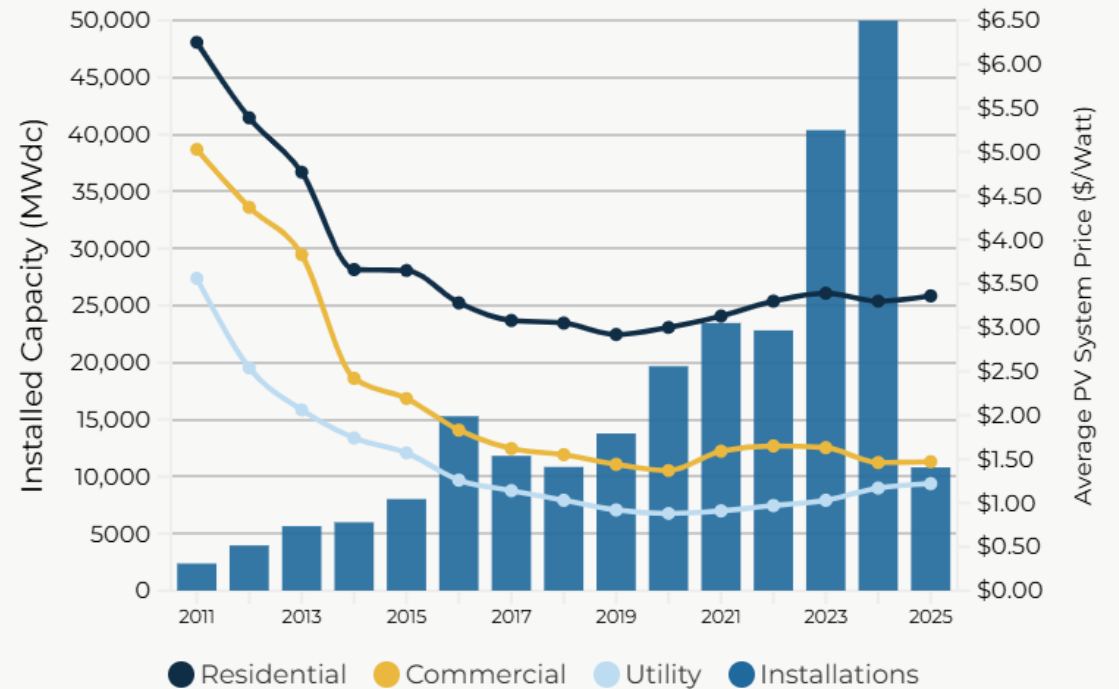


The Solar Industry in 2025: Opportunities, Growth, and Innovations

Agenda

- Overview of the Solar Industry
- Bipartisan Support and Policy Landscape
- Big Tech Investments
- Market Size, Installed Capacity, and Growth Forecasts
- Market Segments (Residential, Commercial, Utility-Scale)
- Key Market Drivers
- Challenges and Concerns
- Solar Panel Components
- Traditional and Advanced Manufacturers
- Trade Associations and Resources
- Where Solar is Today (Map)
- Conclusion and Q&A

U.S. Solar PV Pricing Trends & Deployment Growth

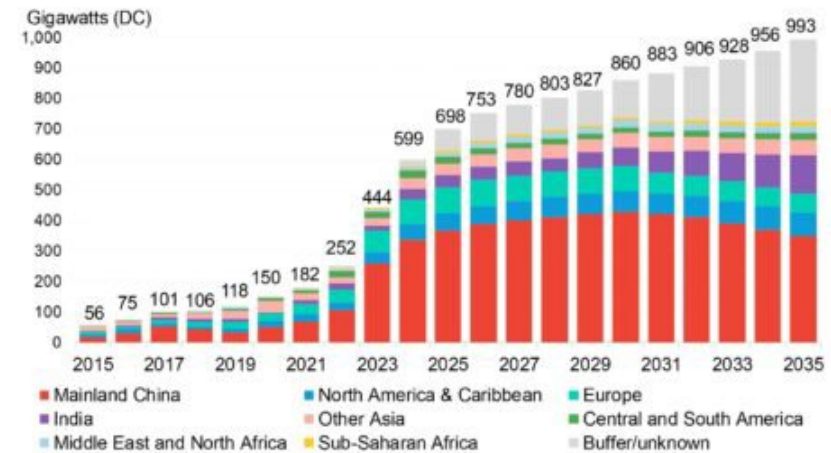


Source: [SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2025 Q2](#)

Solar Industry Overview

- The solar industry is expanding due to falling costs, tech improvements, and rising electricity demand through 2030
- PV systems dominate; global installations: 655 GW in 2025 (up 10% YoY), expected 930 GW annually by 2029
- U.S. contribution: 5-7% of electricity, over 219 GW cumulative capacity
- Emerging tech: Perovskite and bifacial panels; hybrid systems with batteries

PV installations, historical and forecast



Source: BloombergNEF. Note: Full data in BNEF's Capacity tool ([web](#) | [terminal](#)).



Bipartisan Priority in Solar Energy

- Solar enjoys bipartisan support for energy independence, jobs, and emissions reduction
- Trump era (2017-2021): ITC extensions, tariffs on imports
- Biden era (2021-2025): IRA with billions for credits, manufacturing, and Solar for All program
- Current Trump admin: Rolling back IRA incentives, but industry maturity makes them a "bonus"
- Shared focus on utility-scale solar for grid resilience and net-zero goals

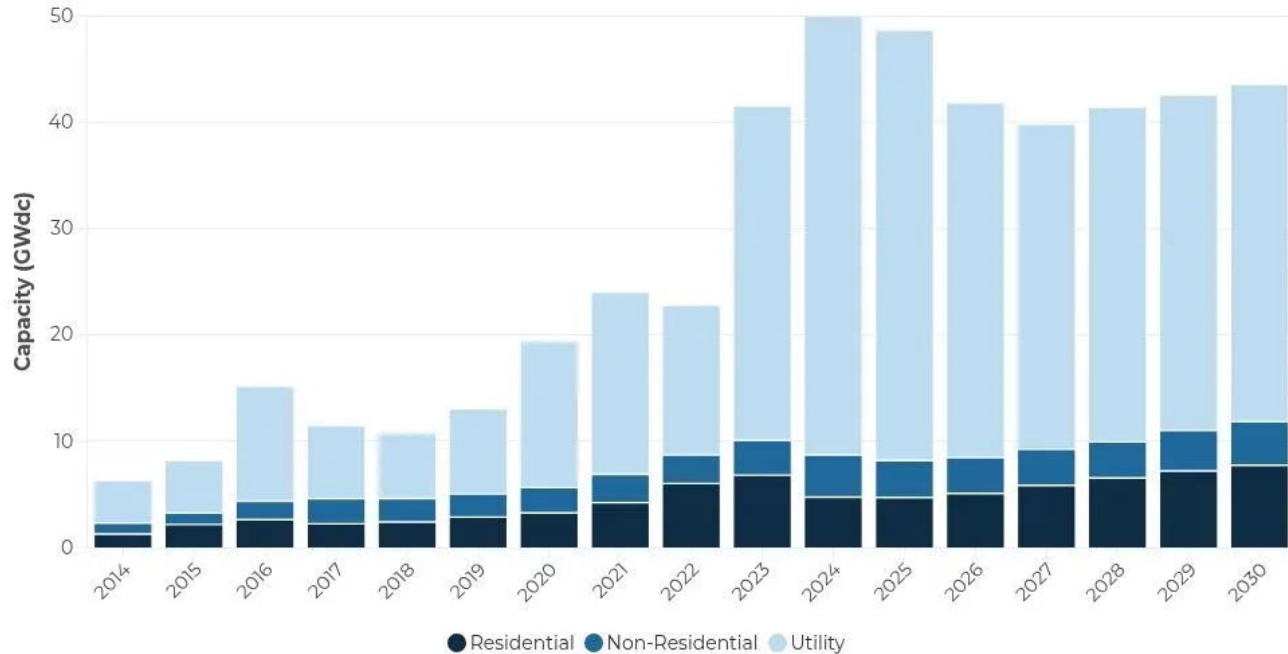


Big Tech Investments in Solar

- Big Tech powers AI/data centers with solar to meet clean energy needs.
- Amazon: \$20B in green expansions, 5 GW renewables
- Google: 2.7 GW solar/wind for 24/7 carbon-free
- Microsoft: 10 GW by 2030; Meta and others total 84 GW commitments
- Driven by net-zero pledges; PPAs reduce risks for developers
- Data center demand could double by 2030, spurring solar-plus-storage innovations

Market Size & Installed Capacity

U.S. Solar PV Installations and Forecast
by Segment

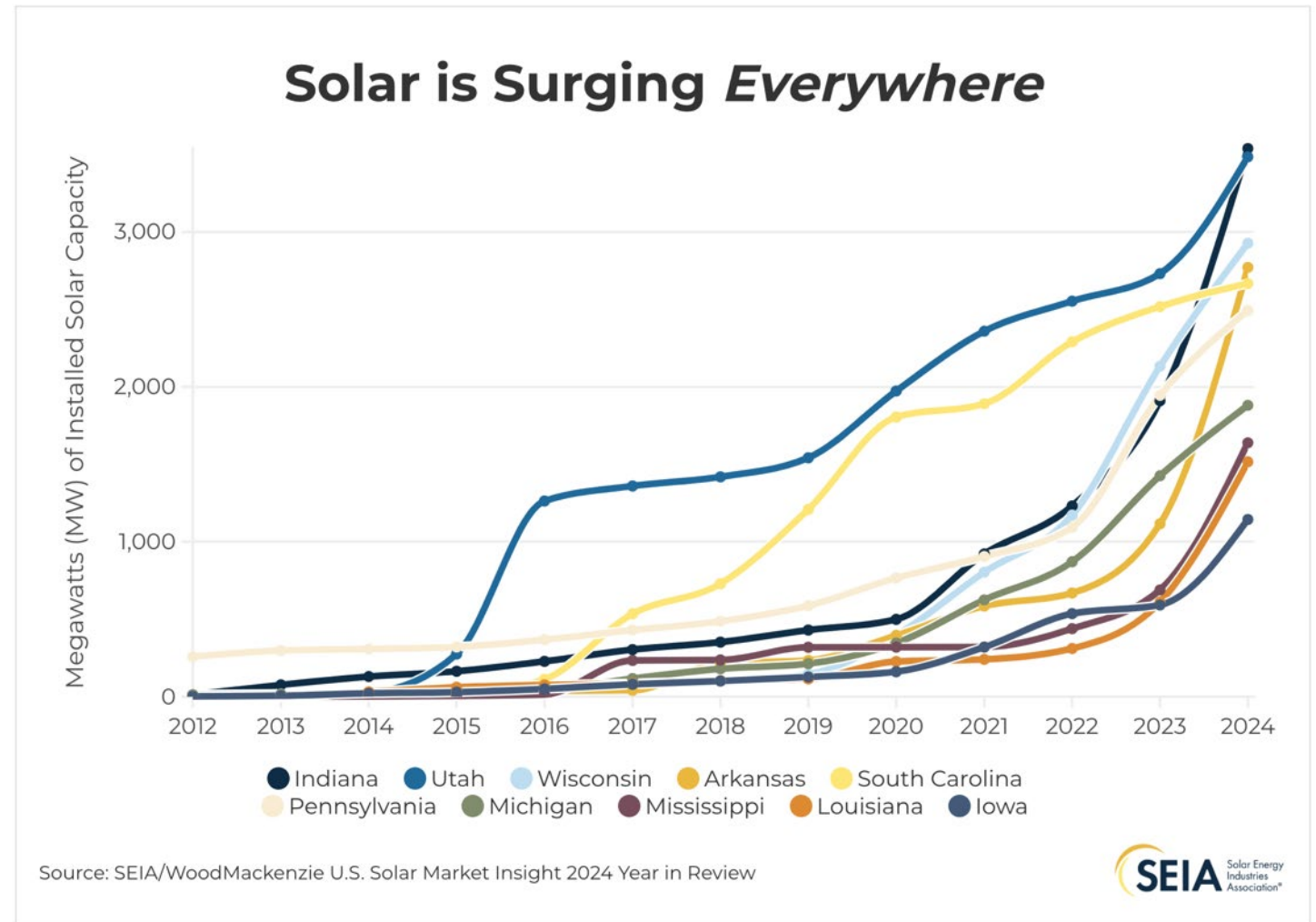


Source: SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight Q2 2025

- U.S. market size: \$32.6B in 2025, CAGR 23.2% (2015-2025), 34.1% YoY growth
- Installed capacity: 219 GW, generating 300B kWh annually
- 40.5 GW added in 2024; milestones like Gemini Solar Project
- Competition from wind/gas, but supported by incentives

Growth Forecasts to 2030 & Beyond

- U.S. to 412 GW by 2030 (CAGR 15.11%)
- Global: 930 GW annual installs by 2029
- By 2050: U.S. 1,600 GW (40-45% of electricity); global 4.7 TW
- Equipment market CAGR 8.9% to 2029
- Drivers: IRA, PPAs; Challenges: Rollbacks, grid issues



Market Segments

- Residential: 5-10 kW rooftops; ITC 30% in 2025; 1.1 GWdc Q2 2025 (down 9% YoY)
- Commercial/Industrial: 50 kW-2 MW; IRA direct pay; 0.6 GWdc Q2 (up 27%)
- Utility-Scale: >2 MW ground-mounted; 5.7 GWdc Q2 (down 28%); leads growth with 168 GW by 2030
- Versatility: Distributed quicker, utility-scale scalable





Key Market Drivers

- Rising clean energy demand (data centers, electrification)
- Federal policies (IRA, incentives)
- Tech advancements (bifacial, perovskites)
- Energy security/grid reliability
- Decarbonization of industries
- Workforce/supply chain development
- Public-private collaborations

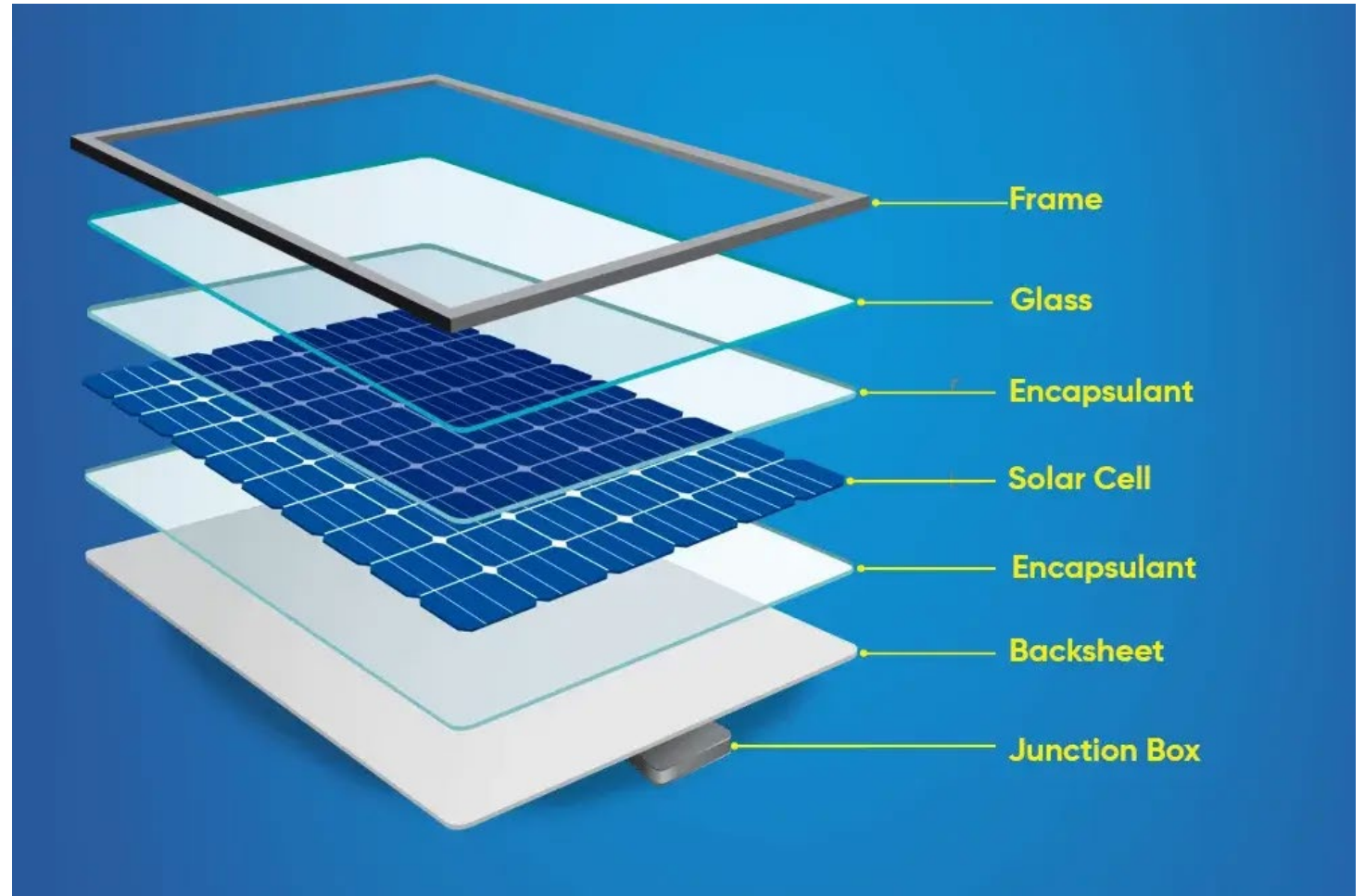
A large field of solar panels under a blue sky with clouds. The panels are arranged in rows and are tilted towards the sun. The sky is bright blue with scattered white clouds. The foreground shows some green grass and a red rope tied to a panel.

Challenges & Concerns

- High costs/delays (\$1,000/kW utility)
- Public safety misconceptions (toxicity, fires)
- End-of-life waste/recycling
- Aging panels/degradation
- Competition from gas/renewables
- Regulatory/financing hurdles for advanced tech
- Supply chain dependencies (80% from China)

Solar Panel Components

- Solar Cells (core PV)
- Glass Cover, Encapsulant, Backsheet
- Frame, Junction Box, Inverter.
- Mounting System, Charge Controller, Battery Storage
- Wiring, Monitoring System



Traditional & Advanced Manufacturers

- Traditional: JinkoSolar, LONGi, Canadian Solar, Trina Solar, JA Solar (crystalline focus)
- Advanced: First Solar (thin-film), Oxford PV (perovskite), Hanwha Q CELLS (bifacial), SunPower, Heliogen (CSP), Swift Solar, etc



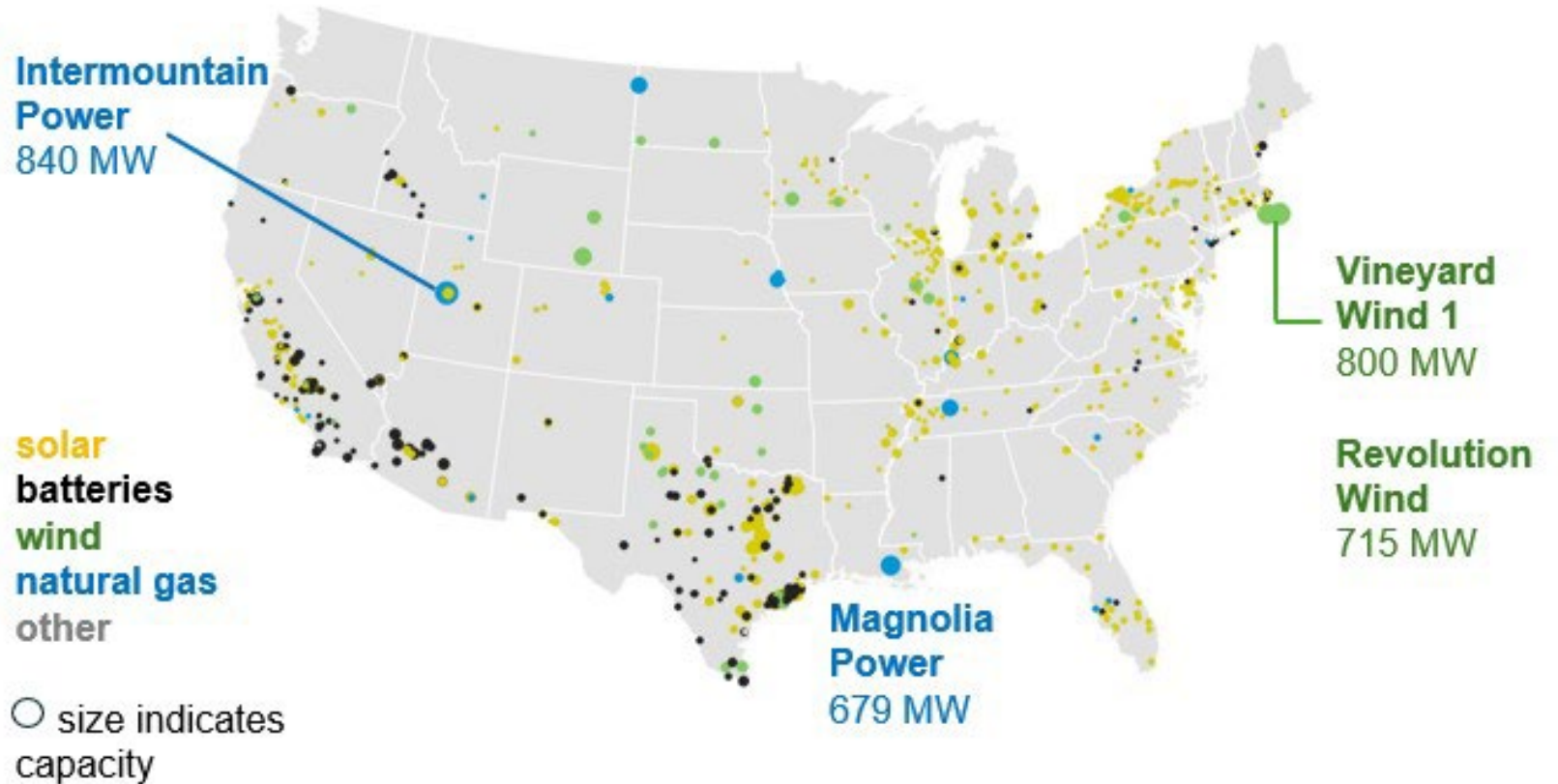
Trade Associations & Resources

- SEIA, ASES, Solar Power Europe, ACP, CCSA, ISES, FlaSEIA, Solar United Neighbors, SREA, Solar Power World
- Government: DOE Solar Office, NREL



Where Solar is Today - U.S. Map

Planned 2025 U.S. utility-scale electric generator additions



Conclusion - Q&A

- Recap: Solar's growth to 412 GW by 2030, driven by tech, policy, and demand despite challenges

