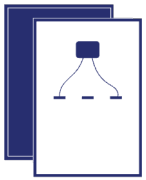
Distributed Energy

Facing today's challenges while building for the future

Danielle Merfeld, Global Chief Technology Officer, Qcells

pv magazine USA Week 2025 | October 30, 2025

From Solar Manufacturer to Clean Energy Technology Leader

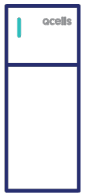


U.S. Modules

Software

Residential Solar Market Leader*

Qcells



Energy Storage

Grid Services

Hanwha

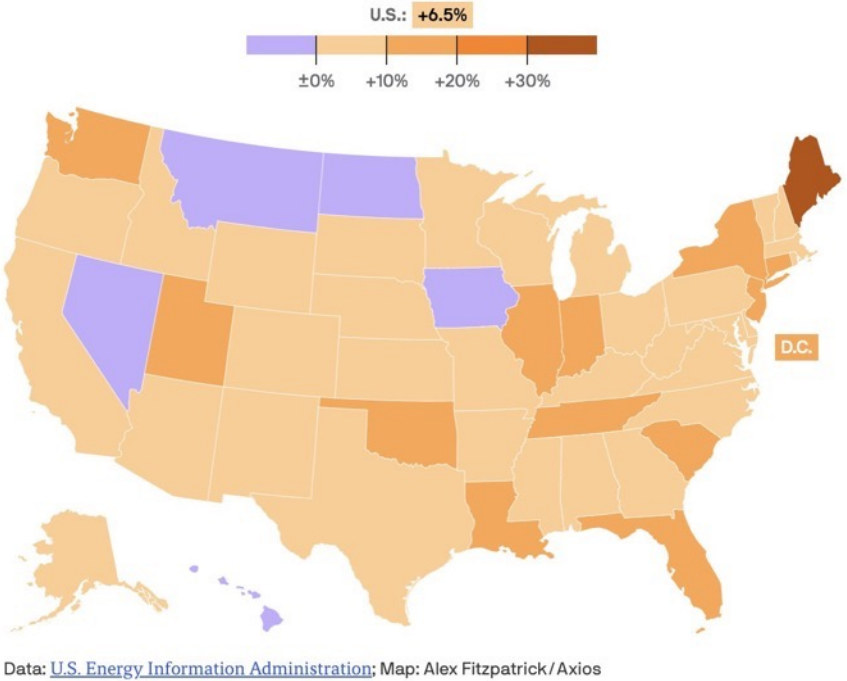
Parent Company

*Wood Mackenzie Power & Renewables US Distributed Solar Leaderboard

The Case for Distributed, American Manufactured Energy

Energy Costs are Skyrocketing

Change in average residential electricity prices from May 2024 to May 2025



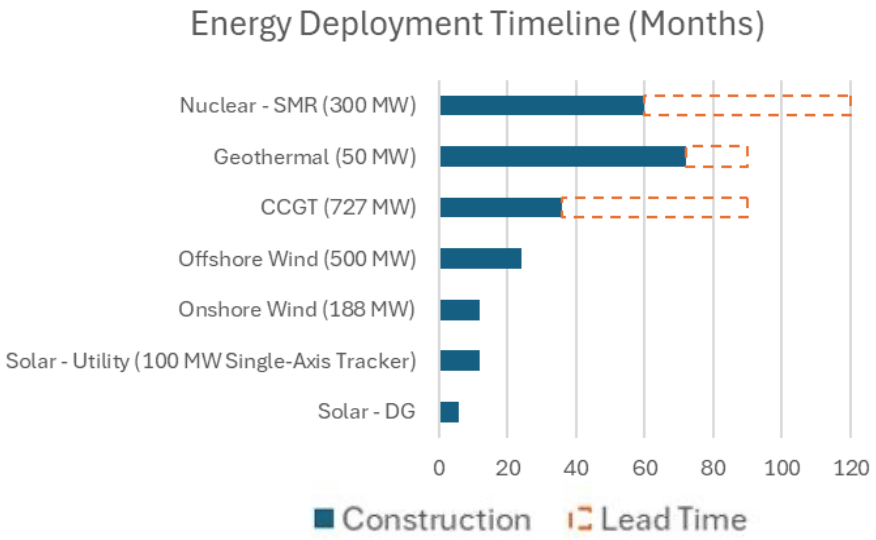
Data: U.S. Energy Information Administration; Map: Alex Fitzpatrick/Axios

- Data Center Ramp-Up
- Electrification
- Weather Mitigation
- Grid Infrastructure Updates

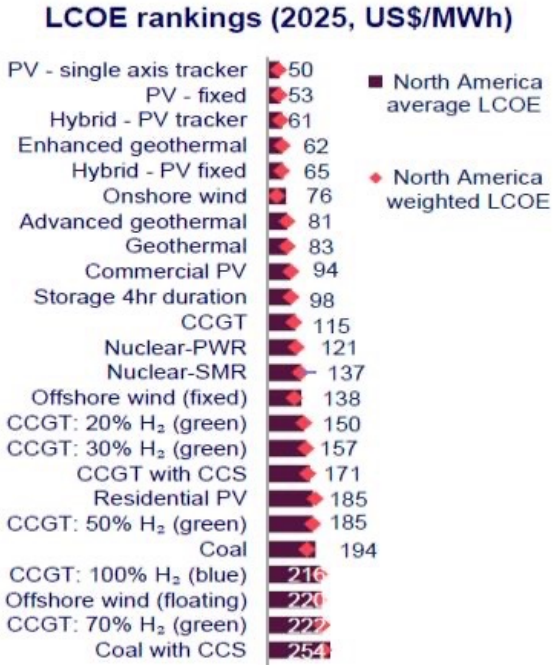
Source: *Axios, U.S. Energy Information Administration*

Distributed Energy Saves Time and Money

Fastest Time to Power



Affordability & Cost Stability

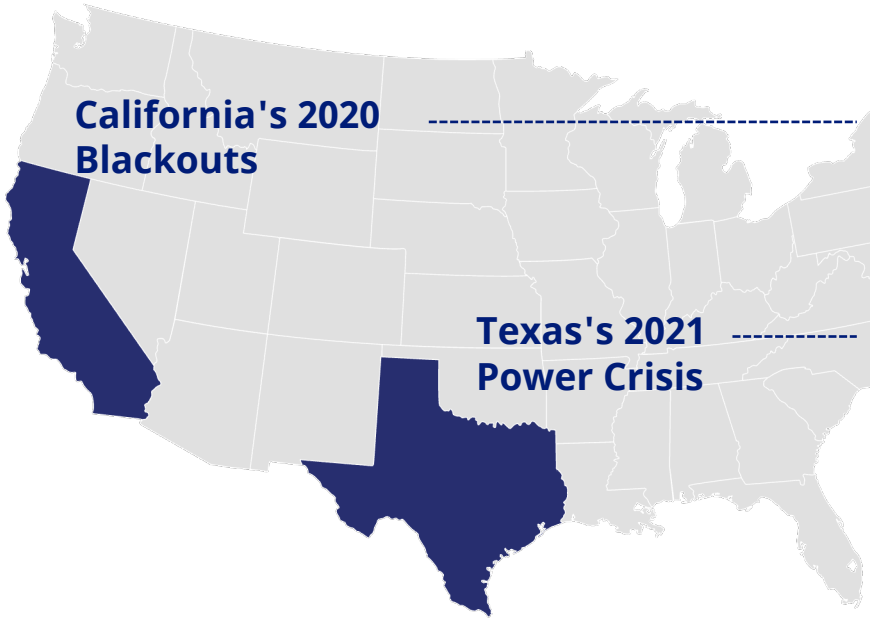


Sources: Lead time estimates are midpoints for geothermal, CCGT, and SMR. DG timeline provided by South Face Solar

Source: Wood Mackenzie North America levelised cost of electricity (LCOE) 2025 report

Distributed Solar & Storage Have Become Core Stability Assets

Turning Points



Solar + Storage Added to the Grid

California added ***28GW+ PV*** and ***55 GWh+ storage*** since 2020 (52% and 9% from DE assets respectively)

Texas added ***37 GW+ PV*** and ***16 GWh+ storage*** since 2021 (6% and 3% from DE assets respectively)

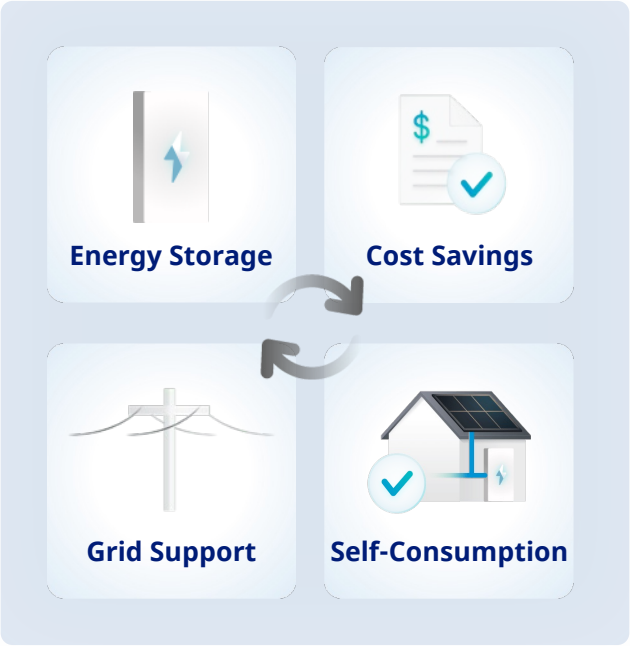
Improved Grid Stability

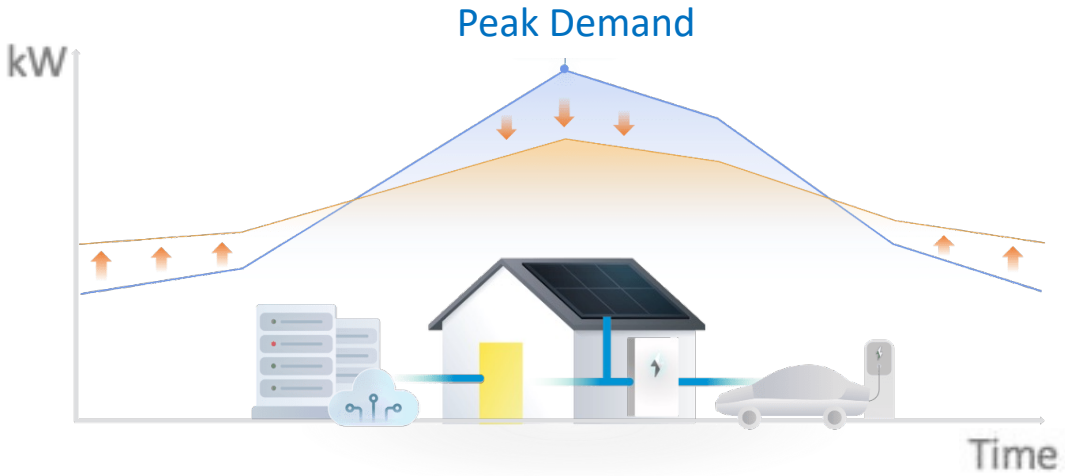
Avoided rolling black-outs in 2022 during a record 52 GW peak

ERCOT issued zero grid conservation appeals in summer 2024

Sources: Wood Mackenzie Power & Renewables - US Solar Market Insight Q3 and US Energy Storage Monitor Q3 2025
CAISO Key Statistics April 2025 Report, ERCOT 2024 State of the Grid Report

Energy Storage Compounds the Value of Solar



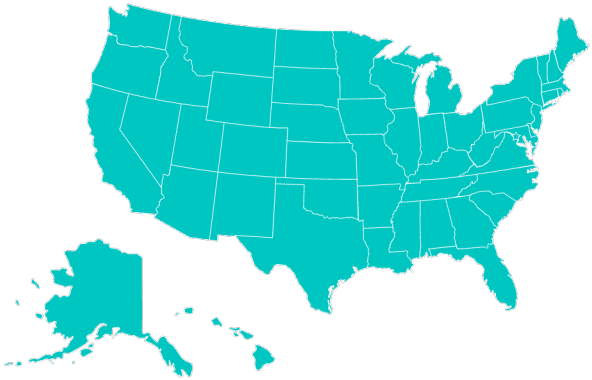


- Grid stabilization
- Peak shaving
- Solar time-shifting
- Reduced grid reliance on peaking power plants during high demand

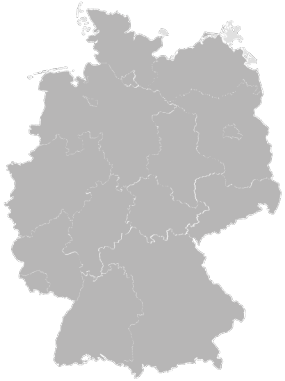

Why Isn't There More
Distributed Energy?

Barriers to Adoption- Cost

Australia
$4,000 ($0.57/w)



United States
$28,000 ($4/w)

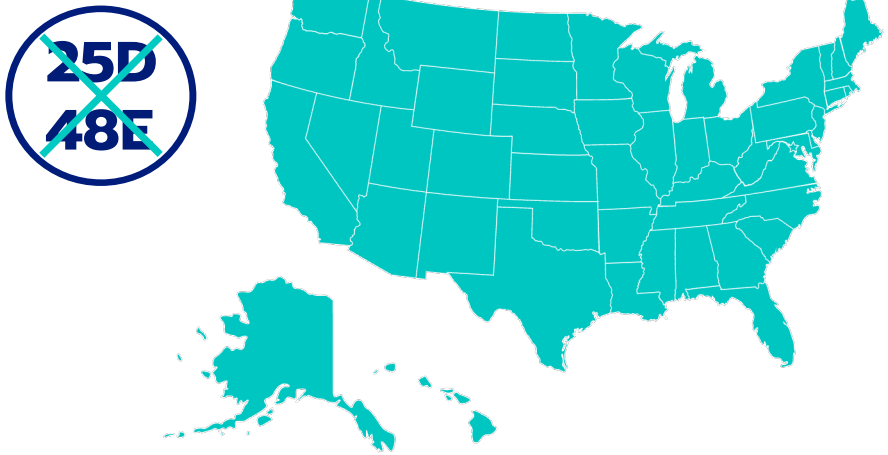


Germany
$10,000 ($1.42/w)

Based on median cost of a 7kW residential system

Source: *Permit Power "As Cheap as Our Peers: How cutting red tape can lower the cost of rooftop solar and offset rising utility bills"*

Barriers to Adoption – Policy Rollbacks/Gridlock



*While residential TPO projects still stand to benefit from the 30% ITC under Section 48E, the OBBBA now accelerates the phase-out of the Section 48E tax credit for community solar projects.

How To Get More Distributed Energy Online

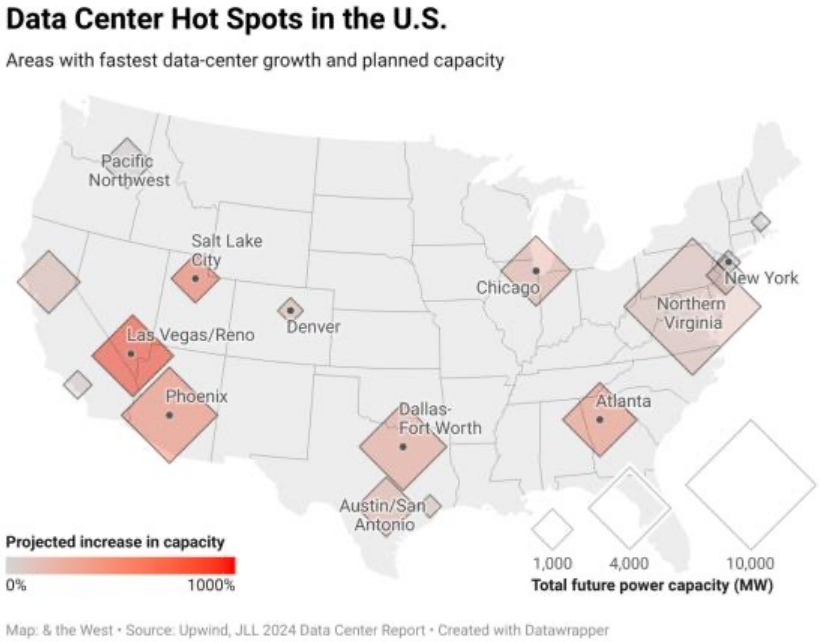
Cut Red Tape and Drive Down ‘Soft Costs’

Permitting

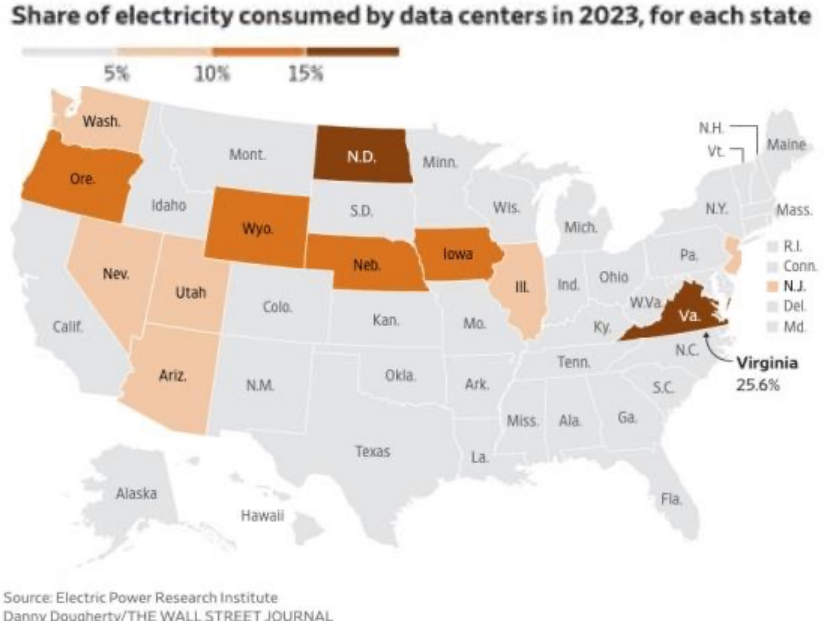
Interconnection

Inspection

Use Distributed Energy to Support Hyperscalers



Source: *& the West, Upwind, JLL 2024 Data Center Report*



Source: *The Wall Street Journal, Electric Power Research Institute*

Get Bipartisan Distributed Energy Bills over the Finish Line

SOLAR POWER

Support the Georgia Homegrown Solar Act

Source: *Environment America.org*

Republican-led community solar legislation moves forward in Missouri and Iowa

Legislation in Missouri aims to launch a three-year pilot program, whereas a new comprehensive community solar policy goes before the House in Iowa.

FEBRUARY 19, 2025 ANNE FISCHER

MARKETS & POLICY | POLICY | IOWA | MISSOURI

A new 1.75-megawatt agrivoltaic solar array at Iowa State University will study how best to optimize land use while providing local community benefits.

Image: Iowa State University

Source: ***PV** magazine*

Republican Reps. Ray (left) and Hoops (right) listen to members ask questions about their legislation.

***Image:** The Ohio House of Representatives*


Qcells is Leading On Distributed Energy

U.S. Manufacturing Leadership

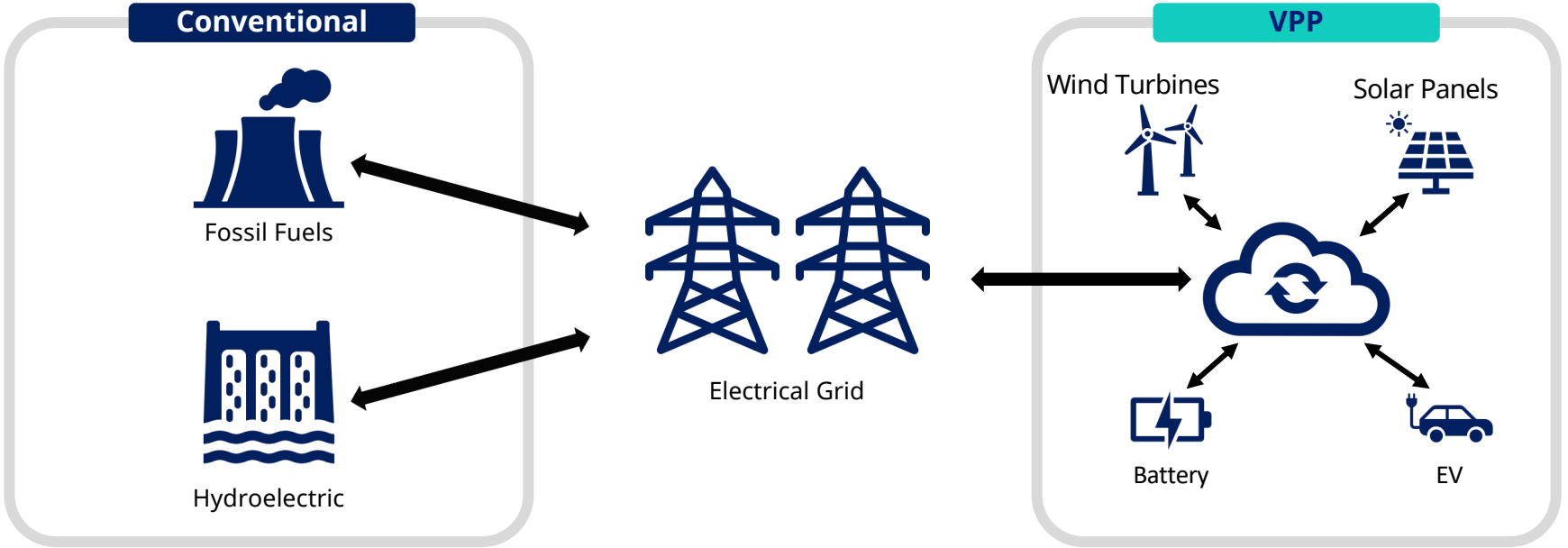
- Qcells has invested **$2.8 billion** to build an integrated solar supply chain in the U.S.
- Job creation and local economic development (**4,000+ total new jobs** in Georgia)
- One in three residential rooftop PV modules in the U.S. is a Qcells module

Innovations in U.S. Originated Software

Geli
Energy Software by qcells

- At the forefront of developing commercial, community & industrial (CCI) software solutions
- Software solutions leverage real-time analytics, AI and machine learning algorithms
- All engineered to meet utility, customer, and regulatory needs in a dynamic energy market

Expanding Grid Services / Virtual Power Plant (VPP) Footprint



Qcells systems participating in grid services provide
resilience, economic sufficiency and sustainability

Thank you!

www.qcells.com