More affordable electricity with higher grid utilization

Richard Caperton, SPAN

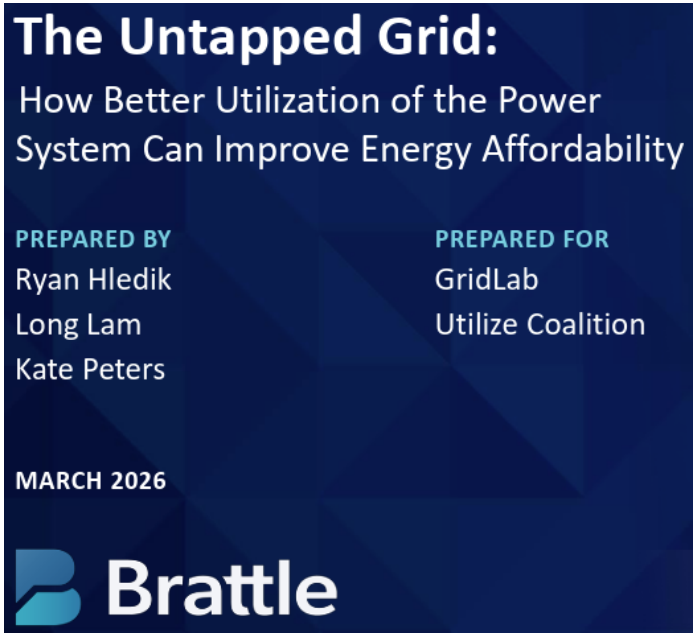
2026

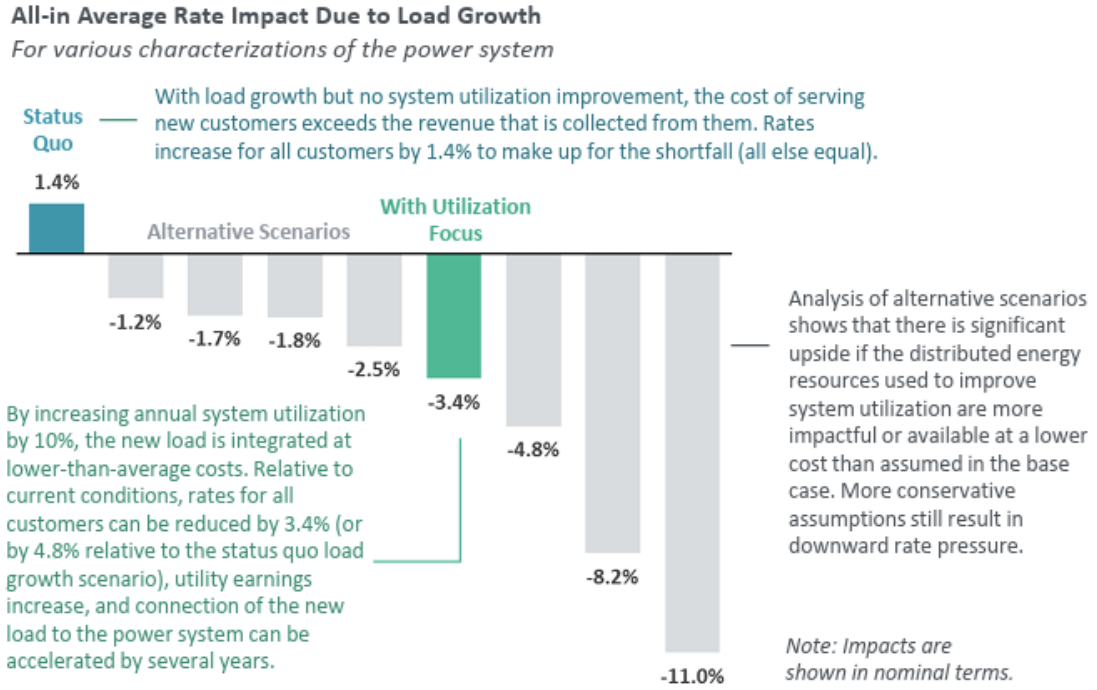
Power price = **Total cost of service** ÷ **Total system throughput**

©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

Utilization is the key affordability solution

Increasing utilization by 10% reduces rates by 3.4% & saves $140B over 10 years





©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

Utilize Coalition

Utilize Coalition is a industry-led cross-partisan campaign to make electricity cheaper, faster to connect, and more reliable through *increased grid utilization*.

We bring together a wide range of stakeholders – policymakers, utilities, consumer advocates, labor unions, environmental groups, researchers, etc. – to pass simple, tech-neutral legislation to meaningfully incentivize grid utilization.

Carrier Google LINEVISION Everyday Electric

sparkfund SPAN TESLA verrus

©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

Virginia embraces utilization for affordability

Spanberger's transition plan prioritized **"Optimize grid utilization to get more out of the current distribution system and minimize the need for expensive new transmission."** The legislature passed SB 621 with the Governor's support. Utilities filed their initial utilization metrics in October. Next step is for SCC to set a timeline for improving utilization.

Appalachian Power:

"This results in a calculated system utilization of **14%**, based on both summer and winter loading, and summer and winter capabilities…**Improving grid utilization through load growth would be beneficial for rates**, but it is unclear that there are any other tangible benefits for customers."

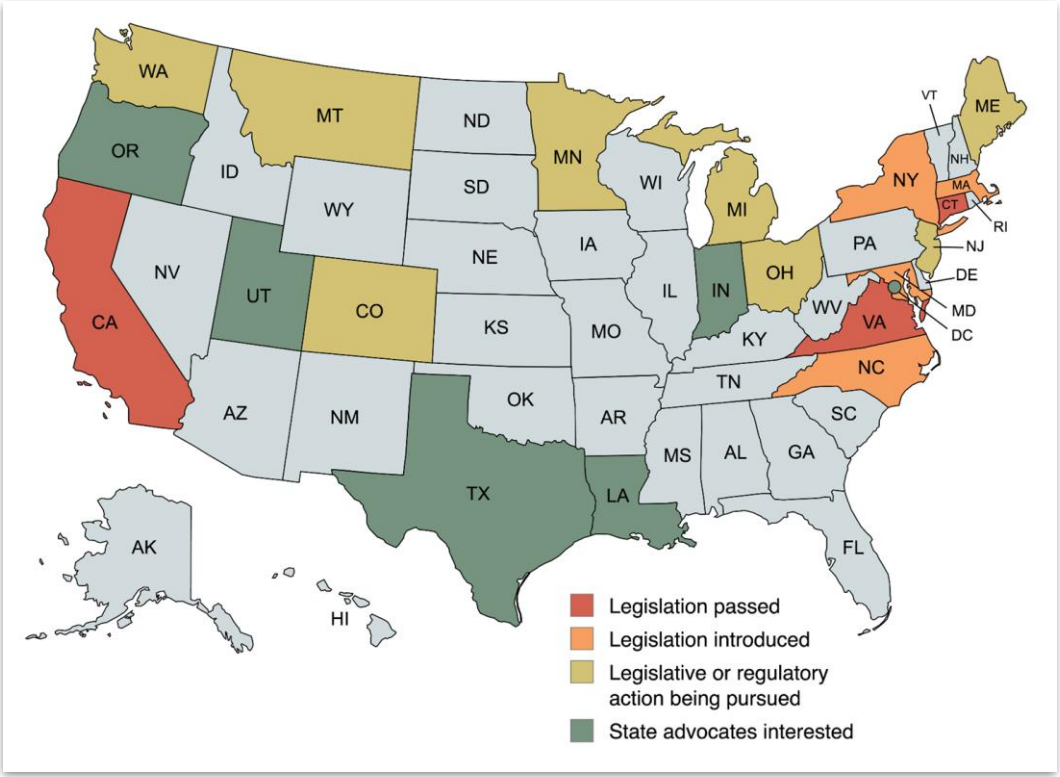
Dominion:

Metric	Measure	Result
(i)	Transformer **general** utilization at local peaks	78.3%
	Transformer **planning** utilization at local peaks	79.8%
(ii)	Annual delivered-load general utilization	41.0%
(iii)	Distribution energy losses	3.9%
(iv)	Feeders exceeding 100% planning utilization	82 feeders identified
(v)	Transformer **general** utilization at summer and winter system peaks	65.5% at summer peak 64.4% at winter peak
	Transformer **planning** utilization at summer and winter system peaks	66.3% at summer peak 64.5% at winter peak

Source:
Dominion filing: https://www.scc.virginia.gov/docketsearch/DOCS/8f6901!.PDF
Appalachian Power filing: https://www.scc.virginia.gov/docketsearch/DOCS/8f6b01!.PDF

©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

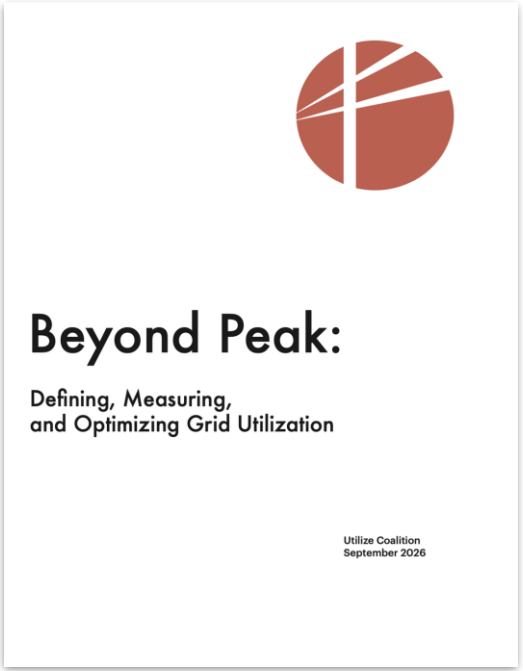
What other states are leading the way?



©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

How do you measure “grid utilization”?

$$\text{Grid Utilization (\%)} = \frac{\textit{Total Energy Delivered (MWh)}}{\textit{Total Energy Deliverable (MWh)}} \times 100$$



Energy delivered: The numerator captures the total energy, measured in MWh, delivered through the relevant asset or system during the measurement period. As the grid becomes more dynamic, conventional one-way measurements may provide an incomplete picture. Reverse power flows, distributed generation, storage, and other resources can affect how the grid is used without appearing as conventional net load at a single measurement point. Implementation should consider how these flows are represented.

Energy deliverable: The denominator captures the total energy, measured in MWh, that the relevant infrastructure could deliver over the same period. There are multiple ways to define the underlying capacity used to calculate the energy deliverable:

A **nominal calculation** uses a fixed reference rating for the relevant infrastructure, such as a nameplate or designated static rating.

An **operational calculation** is based on usable capacity under defined operating and reliability conditions. Depending on the application, usable capacity may reflect normal, seasonal, emergency, or dynamic ratings, as well as applicable planning or operating limits. Those limits may vary under different contingency conditions (e.g., N-0 or N-1) and account for power quality, local system conditions, and other constraints.

©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

An example: Load growth with flexible service connections

- Fit new load or generation within the existing grid's service capabilities
- Customers agree to use technology (such as a UL-listed Power Control System) to limit their import or export during certain times, which can be scheduled or dynamic
- California, Colorado, New York, Illinois, Connecticut and others are all starting to use flexible service connections
- Overall concept is always the same, but states/utilities differ by minimum connection size, load/generation/both, dynamic/static, technology used for control, and more

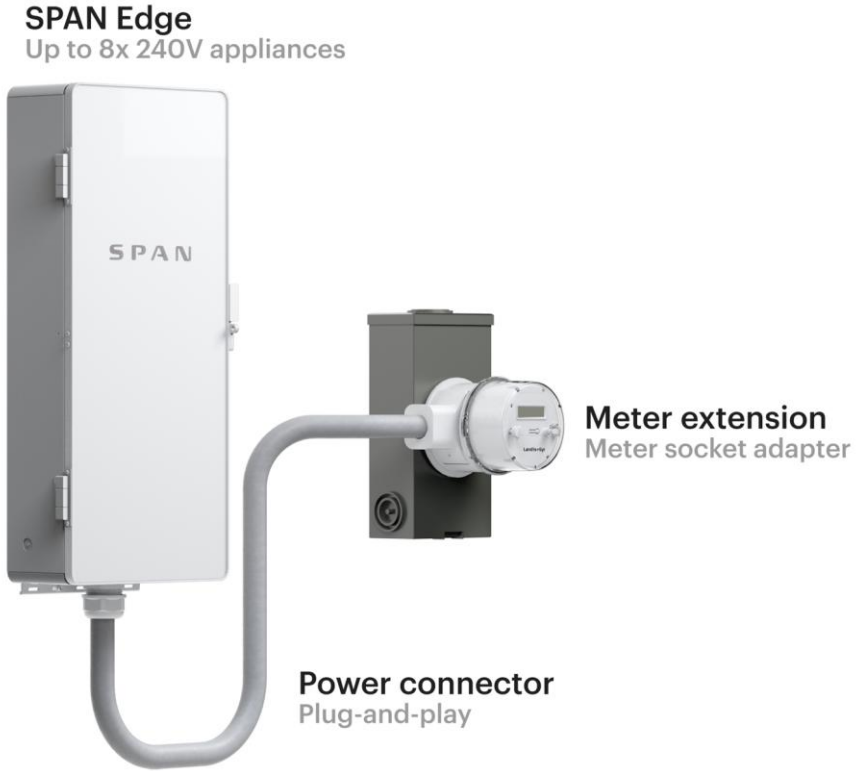
©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

DERs that boost utilization

Electrical
- Supports any service 100A to 200A
- 100A or 125A Parallel Service Panel
- 8 to 16 circuit spaces
- 3-wire single phase homes only (120/240V)
- Compatible with Form 2S utility meters including Landis+Gyr Revelo®, FOCUS® AXe
- Compatible with standard 1” breakers

Environmental
- Outdoor, NEMA 3R rated
- Surface mount with wall mount bracket

Connectivity
- Ethernet, WiFi, Cellular
- Over-the-air updates
- Compatible with utility mesh networks



©2024 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

SPAN’s PCS functionality is in use across the country

PG&E:
Electrification at Scale Without Service Upgrades

Problem: 600K+ homes will need electric service upgrades over the next decade to support EVs, heat pumps, and other electrification. Upgrades cost $6K–$40K each and take months, and projected to require millions in capital investment for distribution system upgrades.

Solution: SPAN Edge, an at-the-meter PCS, using PowerUp™, lets homes add electrification loads without a panel/service upgrade.

Program: PG&E's PanelBoost provides customers a SPAN Edge at no cost, and enables PG&E access as a flexible asset for distribution system load shaping with Dynamic Service Rating™.

Green Mountain Power:
All-Electric New Construction Without Distribution Upsizing

Problem: New construction all-electric neighborhoods (heat pumps, EV charging, batteries) would require 400A service, requiring significant increase in cost to support increased service.

Solution: SPAN's 200A smart panel as PCS manages loads in real time, letting every home go fully electric without a service upgrade with the use of PowerUp™, paired with Powerwall + solar for a neighborhood microgrid/VPP.

Program: GMP's Hillside East, VT first fully storm-resilient, all-electric neighborhood; ~$85/mo resiliency package including SPAN.

Nicor Gas:
Net-Zero Affordability Through Smart Load Management

Problem: Income-qualified homeowners need energy-efficient, resilient homes, but achieving net-zero, dual-fuel affordability was unachievable given budget and cost constraints.

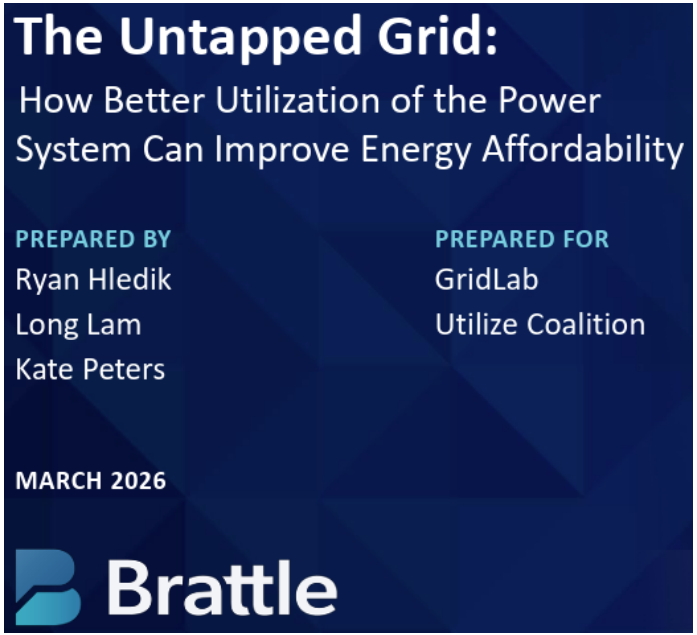
Solution: SPAN panel provide lower cost builder upgrade and load flexibility capabilities, managing loads across the home, enabling net-zero energy/emissions design in an affordable, dual-fuel build.

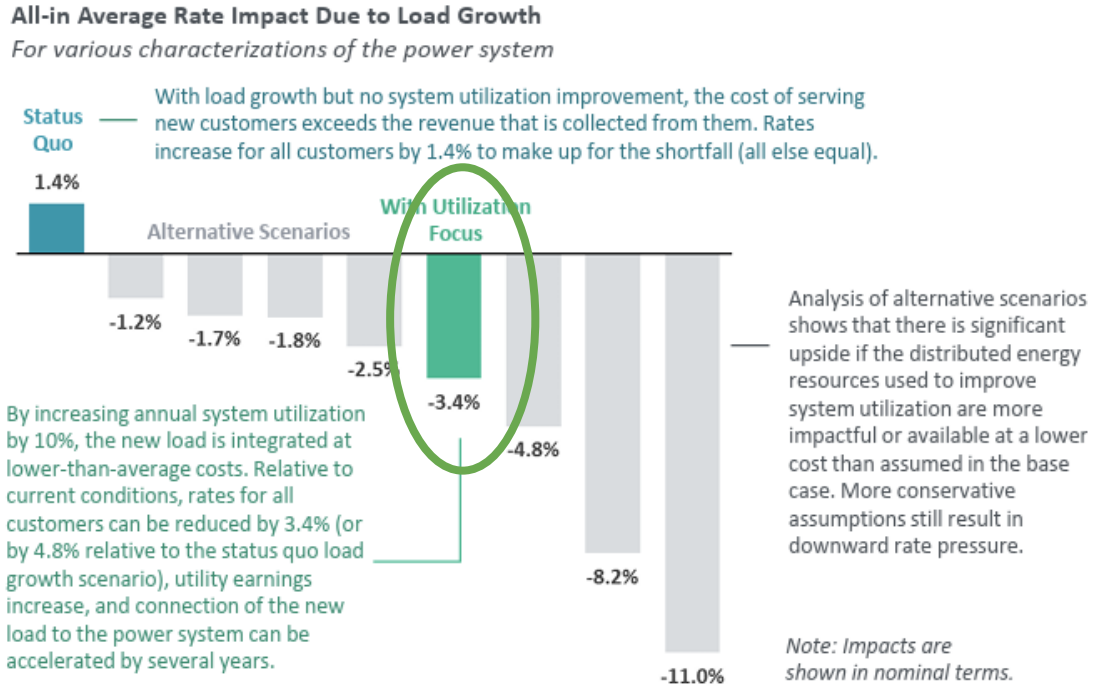
Program: Nicor Gas + Habitat for Humanity partnership in Aurora, IL, community build out of dual-fuel homes.

©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

Utilization is the key affordability solution

Increasing utilization by 10% reduces rates by 3.4% & saves $140B over 10 years





©2026 SPAN.IO, Inc. Proprietary and Confidential, disclosed under NDA.

Thank you!

Richard Caperton, SPAN 2026