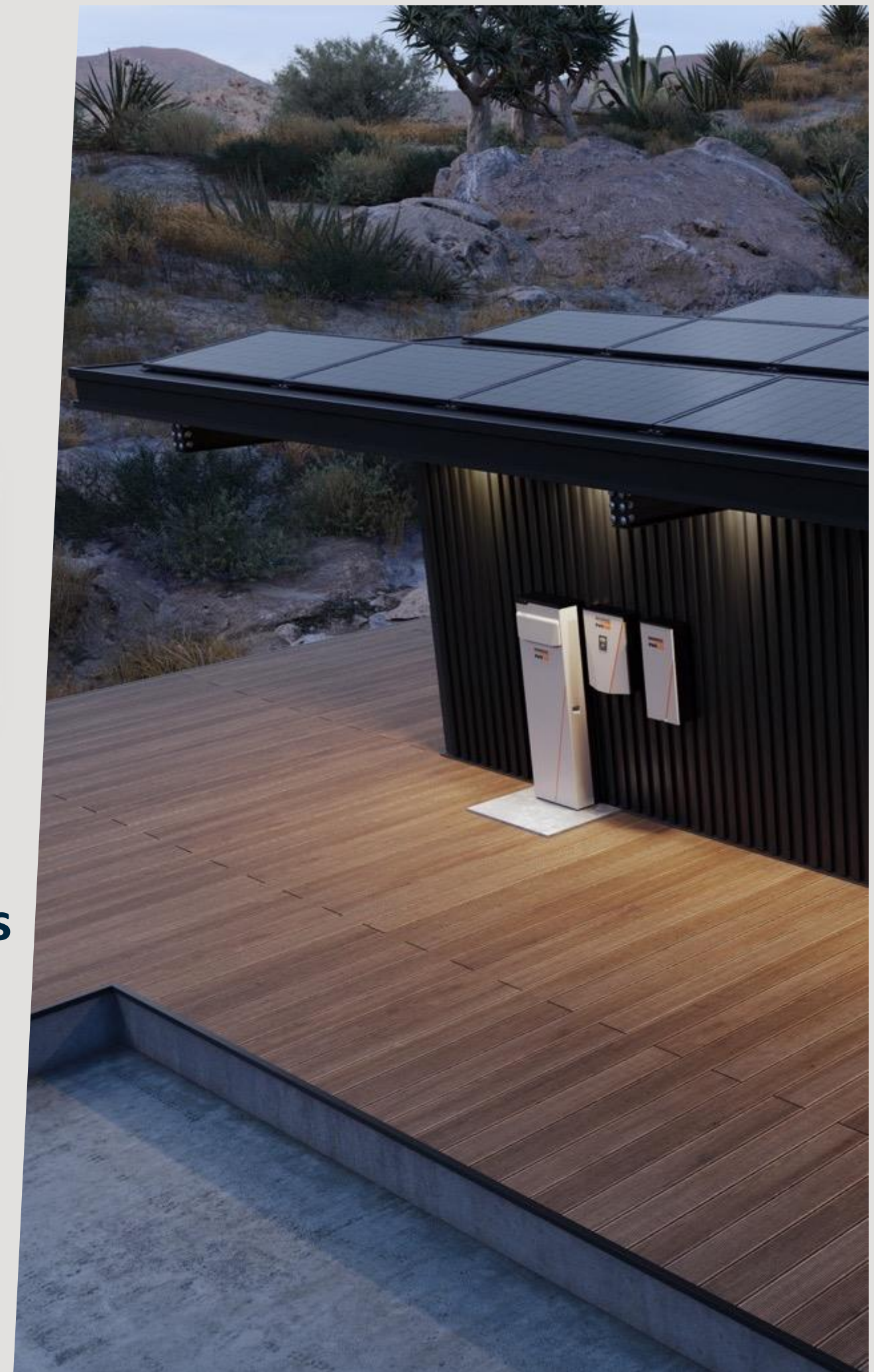




Ensuring Resource Adequacy | Enhancing Grid Reliability and Resilience

Zolaikha Strong | Policy & Regulatory Affairs Generac Power Systems
Illinois Renewable Energy Conference | October 2, 2024



Leading the Energy Evolution



HOW WE'RE POWERING FUTURE TECHNOLOGIES

Through diverse energy technologies, Generac is helping to create a more resilient, efficient and sustainable energy ecosystem. One that empowers people and relieves a stressed, aging grid. That's why we've made significant investments in products that promote decarbonization, digitization and decentralization – with the technology to unite it all.



Solar + Battery Storage

Helps customers store energy for use during peak utility rate hours or outages.



Distributed Energy Resources (DERs)

With multiple DERs, it's possible to be more intentional and efficient about energy usage.



Grid Services

Our platform allows grid operators to autonomously control DERs and gensets to connect clean energy technologies, including Generac's product portfolio.



Industrial Power

Next-gen tech like our mobile battery energy storage and hydrogen fuel cell generators help push towards cleaner, more efficient industrial energy technologies.



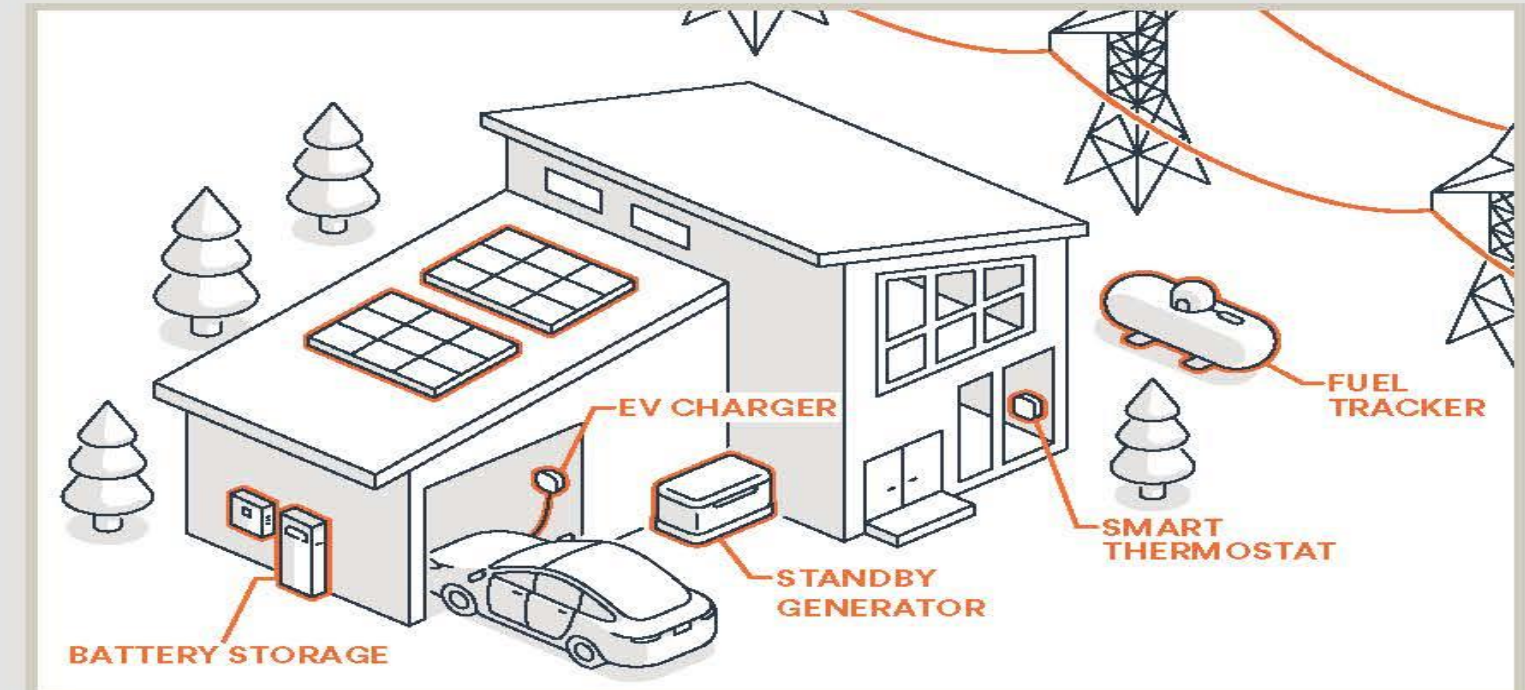
Emergency Backup Power

Scalable backup power to support grid resiliency.

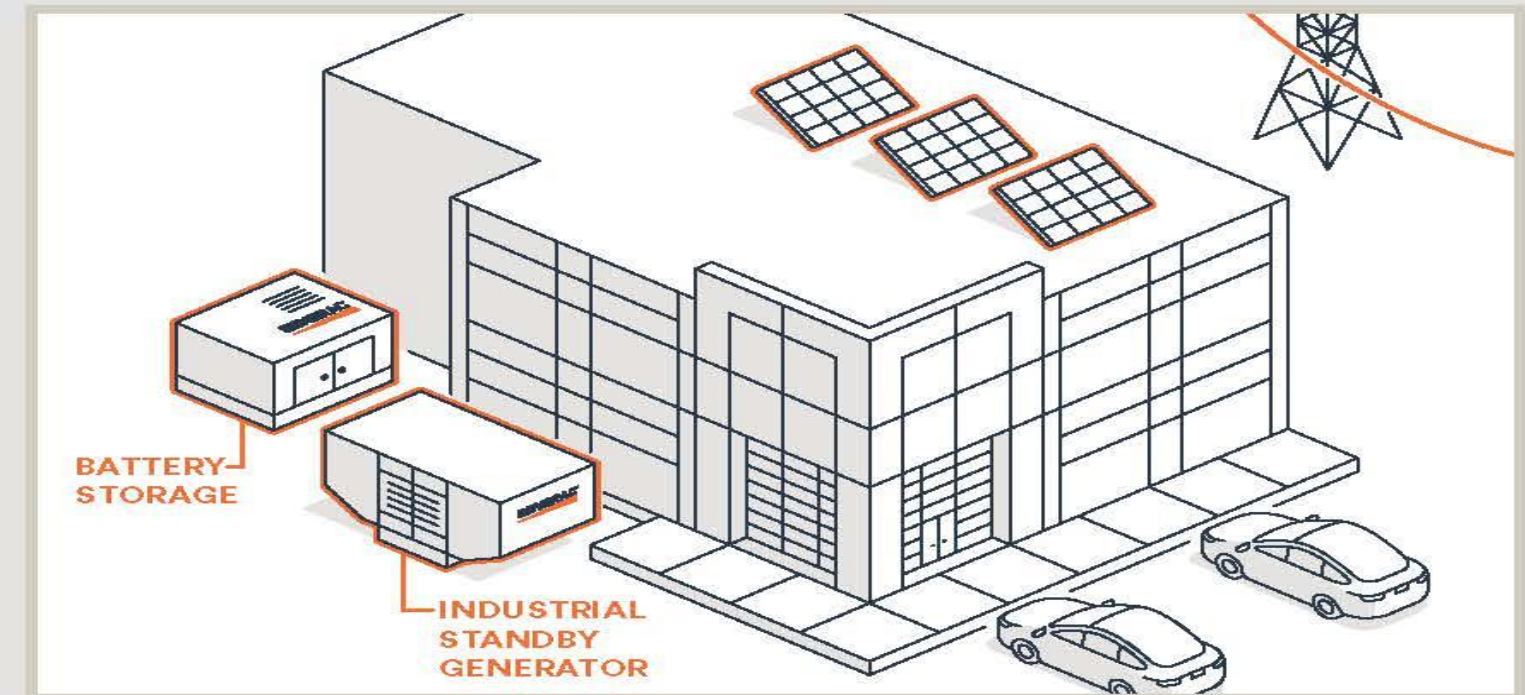
A LEGACY OF RESILIENT ENERGY SOLUTIONS

To help support our customers and to serve the greater good, we're accelerating towards Grid 2.0, merging our rich history in power generation with the future of energy technology.

Residential - Multiple components connected to a single interface for optimal consumption and generation of energy within a home.



Commercial & Industrial - A managed solution integrating distributed energy resources (DERs) for optimal energy consumption and generation.



Integrating Resource Adequacy to Maintain Grid Reliability

Generation Capacity

- Ensuring there is enough energy production capacity to meet demand

Demand Response

- Strategies to reduce or shift electricity consumption during peak times

Energy Storage

- Batteries and other forms of storage to balance intermittent generation

Transmission and Distribution

- Ensuring the grid can deliver power where it's needed

Reserve Margins

- Maintaining extra capacity to handle unexpected events or spikes in demand

Metrics, **Challenges** & Strategies to Ensure Resource Adequacy

Increased integration of variable renewable energy sources (solar, wind)

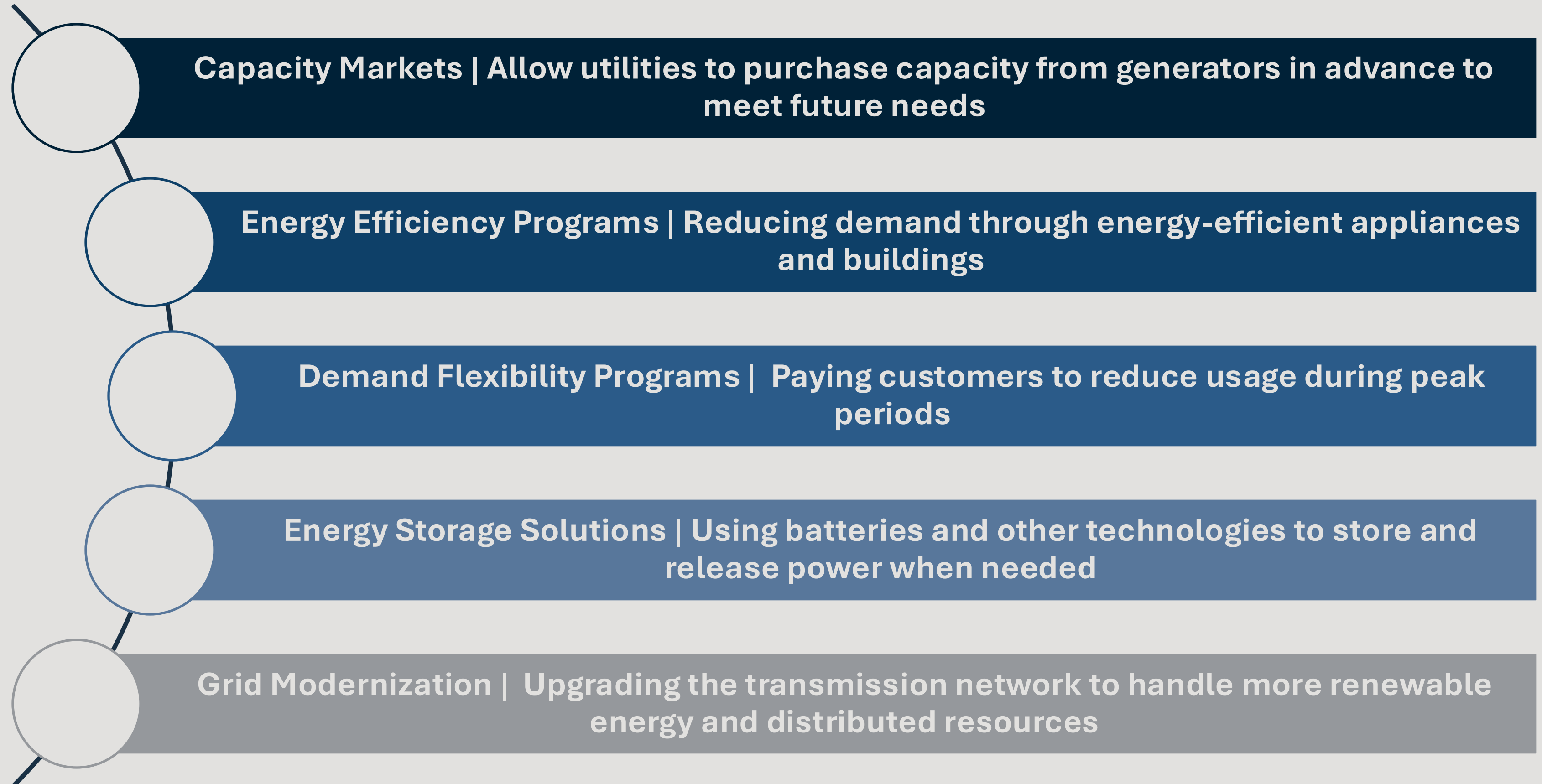
Retirement of traditional baseload plants (coal, nuclear)

Aging grid infrastructure

Climate change and extreme weather events

Electrification of transportation and buildings leading to increased demand

Metrics, Challenges & **Strategies** to Ensure Resource Adequacy



Role of Distributed Energy Resources (DER)

By Definition | Small-scale power generation or storage that is connected to the grid



What Are The Benefits

Can reduce the strain on the grid and contribute to local energy supply.

Can be bundled into capacity markets as VPP.

Integrated in Flexible Demand Response Programs.



There Are / Can Be Challenges

Market Access / Design

Regulatory Barriers

Visibility & Control

Consumer Participation

Energy Storage's Role of Distributed Energy Resources (DER)

Incentives for customers to participate in programs & bring innovative solutions

Ratepayer Value, participant benefits to lower cost of resiliency.

Examples
• Puerto Rico
• MASS GRIP

Essential stress reducer of the grid

Resilience & Reliability



Examples Market Designs Incorporating Energy Storage

Order 2222

- Landmark ruling that opened the door for aggregated DERs to fully participate in wholesale energy, capacity, and ancillary service markets, thus enhancing resource adequacy and reduce regulatory barriers.

CAISO

- Integrated into the energy and ancillary services markets, enabling them to support grid reliability and meet resource adequacy needs.
- Challenges - Balancing storage deployment costs and long-term storage needs for multi-day renewable energy variability.

PJM

- Modifying Rules to integrate in capacity market (Reliability Pricing Model). Capacity Market Reform working with Distributed System Operators, DER Aggregation Models and Pilot Programs.
- Challenges – Visibility of Data, Coordination with DSO, Intermittency, Cost Allocation to name a few.



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