BPA DAY-AHEAD MARKET WORKSHOP

BPA Day Ahead Market - Resource Adequacy Considerations

Perspectives on Physical Reliability, System Planning, and Regional Benefits

Resource Adequacy in Regional Day-Ahead Markets

Perspectives on Physical Reliability, System Planning, and Regional Benefits | BPA DAM Workshop

REGIONAL MARKET FOUNDATION

The Core Value of Resource Adequacy

Physical Reliability During Scarcity:

A day-ahead market must be anchored by physical resource availability, ensuring firm energy and capacity when extreme weather or grid stress occurs.

Incentivizing Timely Investment:

Enforceable RA obligations create transparent, durable market price signals to invest in new firm capacity, storage, and transmission across the Northwest.

Regional Cost Savings & Rate Stability:

Coordinated RA mechanisms reduce redundant reserve procurement across individual balancing areas, delivering system savings for regional customers.

LARGE CUSTOMER PERSPECTIVE

System Planning & Responsible Load Growth

Proactive Planning for Data Center Load:

Regional power systems and market models must formally plan for load growth to ensure adequacy and operational readiness.

Environmental & Permitting Realities:

Air quality regulations and environmental permitting constraints significantly limit reliance on emitting backup generation; reliability must be primarily delivered by the grid and market.

Paying Our Own Way:

Google is committed to paying 100% of the energy and dedicated infrastructure costs driven by our growth, protecting regional ratepayers from cost shifting.

Key Market Design Considerations for Resource Adequacy

Footprint Diversity, Modern Resource Accreditation, and Regional Deliverability | BPA DAM Workshop

REGIONAL FOOTPRINT

Footprint Scale & Diversity

Footprint Diversity:

A larger, geographically diverse market footprint spanning varied weather, hydrology, and renewable profiles lowers total regional Planning Reserve Margins (PRM).

Maximizing Clean Capacity:

Pooling non-coincident peaks across the West maximizes existing clean generation and reduces redundant capacity investments for customers.

CAPACITY RULES

Resource Accreditation

Technology-Neutral Valuation:

Accreditation frameworks should evaluate distributed capacity, Virtual Power Plants (VPPs), and Distributed Energy Resources (DERs) on equal footing with traditional thermal generation.

Capturing Real-Time Value:

Accreditation rules must accurately value the flexibility and reliability that fast-responding distributed assets provide during critical peak hours.

TRANSMISSION & ALIGNMENT

Deliverability & Alignment

Firm Deliverability:

Capacity counted toward resource adequacy must be paired with firm transmission deliverability to ensure physical delivery during system stress.

Regional Consideration:

BPA and stakeholders should consider a cohesive, binding regional RA construct that ensures common accountability and prevents leaning.

Advancing Reliability Through Load Flexibility & Collaboration

Data Center Demand Flexibility, Virtual Power Plants, and Regulatory Alignment | BPA DAM Workshop

DEMAND RESPONSE & INNOVATION

Demand Flexibility in Practice

1 GW Contracted Across U.S. Grids:

Google has integrated 1 GW of demand-side flexibility into contracts with multiple utility partners across the country, including Tennessee Valley Authority, Indiana Michigan Power, and others.

Flexible Compute Workloads:

Limiting or shifting non-urgent machine learning compute workloads above a guaranteed Firm Service Level baseline, providing fast peak capacity relief in certain locations.

Scaled Virtual Power Plants:

Deploying aggregated distributed energy resources and VPP models (e.g., 1 GW Voltus partnership) to deliver accredited local capacity and community savings.

REGULATORY CONSIDERATIONS

Designing RA Rules for Flexibility

Designing for Load Flexibility:

BPA and regional stakeholders should consider load flexibility, demand response, and distributed capacity when thinking about RA and market rules.

Transparent Capacity Valuation:

Establishing market and tariff frameworks that recognize, accredit, and incentivize demand flexibility as a dependable capacity resource.

Bounded & Predictable Operational Rules:

Developing clear operational parameters (such as defined annual call hours and automated dispatch protocols) that protect critical services while aiding system reliability.