

Day-Ahead Market Public Workshop

October 30, 2026

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NETWORK

BPA Rates Hearing

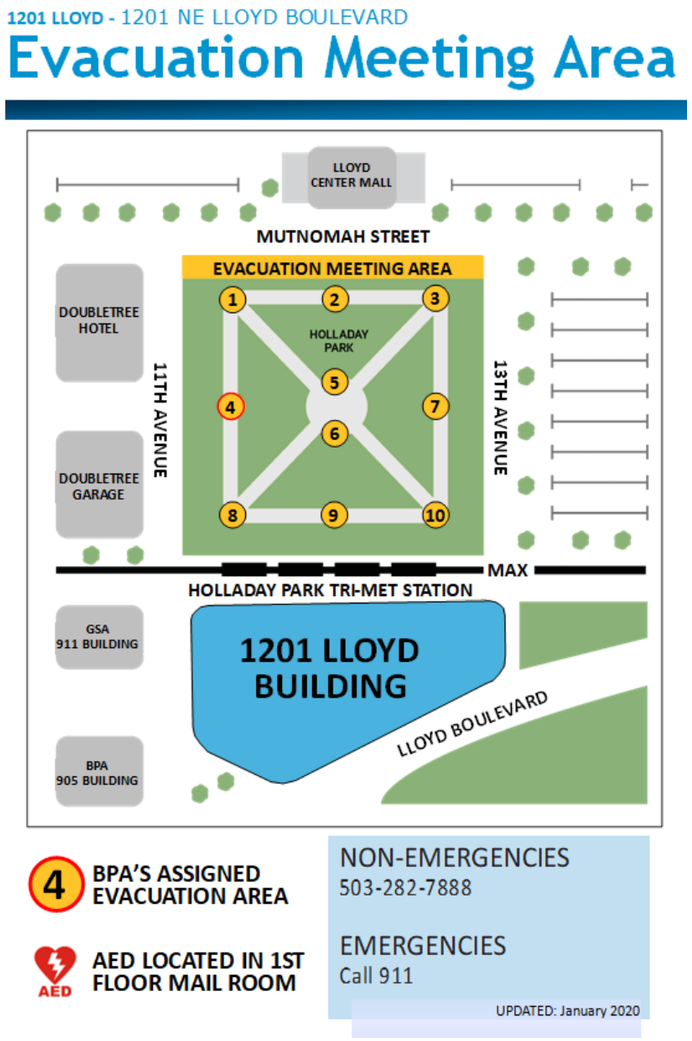
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Rates Hearing Room: Need to Know

BPA Day-Ahead Market



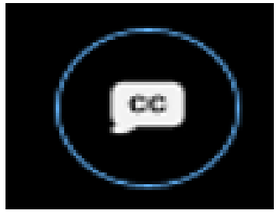
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- If a building evacuation was to occur, please proceed to the fire exit located just outside this room and assemble in Holladay Park at meeting area 4.
- An AED is available on the first floor inside the mail room.
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WebEx Accessibility Tools

BPA Day-Ahead Market

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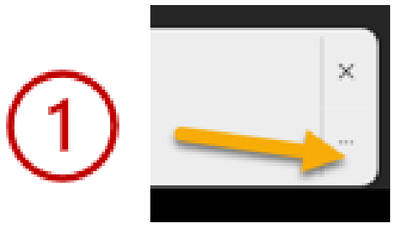
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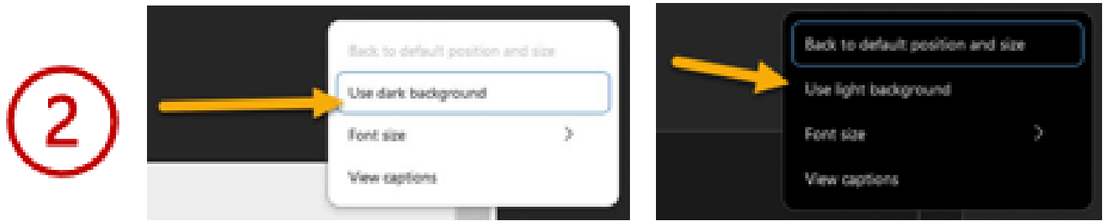
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Workshop Agenda

- **Welcome (9:00-9:15 AM)**
  - Agenda, Objectives and Norm Review (5 minutes) – Jamae Hilliard Creecy, Executive Vice President of Strategy, Business Transformation, and Customer Services
  - Administrator Opening Remarks (10 minutes)

- **Production Cost Model Follow-up and Open Q&A (9:15-11:15 AM)**
  - Panel presentations: Dave Dernovsek (BPA), Arne Olson and Jack Moore (E3), John Tsoukalis (Brattle), Tim Belden (EnergyGPS), Michael Linn and Lauren Tenney-Denison (PPC)
  - Short presentations (~10-15 minutes each, ~60-75 min total) with remaining time reserved for Q&A from the room

- **BPA Updates (11:15-11:30 AM)**
  - BPA Markets Team (15 minutes)

Workshop Agenda

- **Resource Adequacy (12:30 – 3:00 PM)**
  - **Entity perspective (45 minutes)**
  - Panel: Steve Bellcoff (BPA), Pam Sporborg (ROWE RA/PGE), Rebecca Sexton (WPP/WRAP)
    - Short presentation (~15 min each) on RA program design and status update/design attributes for ROWE RA and WRAP RA. 2-3 moderated questions to panel
  - **Stakeholder perspective (45 minutes)**
  - Panel: Ray Johnson (Tacoma), Spencer Gray (NIPPC), Chris Allen (PNGC), Bear Prairie (Lower Valley Electric), Mary Weincke (PGP), Arne Olson (E3), Johnny Casana (AWS), David Matusiak (Google)
    - Very short presentation (~5 min each) on critical RA attributes and 1 question from each stakeholder to Entity panel
  - **Q&A / panel discussion**
- **Closing Remarks (5 minutes),** Dave Dernovsek, Director of Market Initiatives

Hybrid Meeting Reminders

- **Remote participants**
  - Please sign in to the WebEx using your full name and organization
  - Connect to WebEx audio using the *call me* function (best audio)
  - Lines are muted
  - Be aware of the double mute, and please remember to mute your lines after speaking
  - If you have a question, please use the raise hand feature or submit your question in the chat
  - WebEx comments are not visible to all participants
- **In-person participants**
  - Disconnect from audio if logged in to WebEx
  - Please speak clearly towards table mics
  - In case of building evacuation, gather at Holladay Park

Workshop Objectives

- **Evaluating Market Designs:** Vetting day-ahead market designs through collaborative, stakeholder-informed economic studies, production cost modeling (PCM), and sensitivity analyses.
- **Facilitating Stakeholder Dialogue:** Providing an open, transparent forum for constructive information exchange among BPA, customers, industry technical experts, and regional participants.
- **Assessing Value and Risk:** Analyzing potential economic benefits, rate impacts, and operational trade-offs associated with Day-Ahead Markets.
- **Informing BPA Decision-Making:** Evaluating emerging data, evolving market design elements, and participant feedback into BPA's evaluation process.

Workshop Reminders

- Sign in sheet is by the door, please sign in
- When speaking, state your name and organization
- Raise hand or use the chat function in WebEx to ask questions or comment
- Workshop will be recorded and posted to the Market Initiatives page on www.bpa.gov in approximately one week

Workshop Norms

- We will start panel Q&A with unaddressed questions from the September workshop.
- New questions and comments will be addressed in order they are received (to the best of our ability).
- Reasonable time limit on Q&A inclusive of panel or other responses ~4-5 minutes.
- Moderator will be mindful of time limits and ask that rabbit holes, cross-examinations and sidebars be noted as parking lot items.
- We encourage engagement and will proactively facilitate.



Opening Remarks

Travis Kavulla
Administrator and CEO

Where We Are

- Administrator Kavulla has presented a clear and consistent vision: A market with independent governance, market depth and liquidity, and a unified geographically diverse footprint is the best option for BPA and its stakeholders. Even where perspectives differ, we want to be transparent into the rationale guiding our path.
- We value the significant effort and strong partnerships developed through the DAM evaluation process over the past several years.
- We recognize that the recent change and uncertainty around the day-ahead markets decision process can feel disruptive.
- We care deeply about trust and relationships with our public power customers and remain committed to collaborating openly and constructively.
- Whatever market path BPA pursues, we will advocate for our customers' interests and work together to negotiate favorable outcomes with regional market entities.

What has Changed?

- Progress on EDAM governance
  - ROWE incorporated and seated an inaugural Board of Directors
  - California AB 825 modified California law to allow CAISO and California regulated transmission operators to join a regionally governed electricity market
  - Governance of EDAM and WEIM will transfer to ROWE in 2028
- BPA leadership and DAM decision
  - Assess commitments and independence of ROWE governance
  - 3 principles of market choice

Since the Last Workshop

BPA received feedback and correspondence from numerous stakeholders:

- PPC, Tacoma Power, Northern Wasco letters to Administrator
- Public Preference customer feedback via meetings with BPA Account Executives
- Letters from Sens. Cotton and Boozman (AR)
- California Public Power Entities letter to ROWE

Since the Last Workshop

- Customer suggestions
  - More time to prepare and arrange attendance to future workshops
  - More time for PCM open discussion/Q&A and more opportunity for direct engagement with Administrator
  - Desire to hear BPA staff perspective
- PPC supplemental analysis and questions
  - PCM comparative economic benefits, fundamentals of price formation at Mid-C
  - Request for clarity on DAM decision criteria and timeline
  - Potential for refresh on Legal Analysis
- SPP White Paper
  - Evaluation of SPP/Markets+ on ROWE letter criteria
- EnergyGPS Analysis
  - Commentary on existing PCM studies
- CAISO/SPP Joint Seams Report submitted to FERC

Framework for Today's Discussion

BPA Day-Ahead Market

- Background: 2025 Direction, 2026 Draft Policy Decision
  - E3 WMEG PCM Study showed comparative net benefits to EDAM
  - BPA's past draft decision documents reflected quantitative and qualitative interpretations of PCM:
    - Benefits to BPA in a higher priced market accrue when BPA is surplus, but current macro long-term projections show decreasing surplus for BPA and the region
    - Difficulty in quantitatively assessing market design attributes (GHG, Congestion, governance) in existing PCM framework
    - Changes in hurdle rate assumptions have significant effect on comparative benefits
  - Qualitative benefits from governance and design attributes in M+ supported direction towards M+ over EDAM



PCM Follow Up

Dave Dernovsek

October 30, 2026

Topical Objectives

- PCM, Mid-C, and economic benefits topics approached with the following objectives:
  - Clarify BPA internal perspective on issues
  - Lean away from comparing entire markets or analyses and “right or wrong”
  - Lean towards areas of commonality and market or analytical attributes to advance discussion from PCM analysis to technical topics of importance (e.g., Resource Adequacy)

BPA Perspective – PCM Follow Up

BPA Day-Ahead Market

Topic	Discussion	BPA perspective
Economic benefits and market prices	Higher market price implies higher benefits	- Balance between market electricity prices and net economic benefits for BPA highly dependent on inventory shape and surplus position, which is uncertain in any given year - Long-term studies show decreasing surplus in the PNW region
Market Design Attributes	Quantitative vs. Qualitative assessment	- Historically, BPA did not quantitatively assess full impacts of governance, GHG, congestion, or fast-start pricing in terms of comparative economic benefits - BPA looks forward to engaging in stakeholder processes and discussing with region in remainder of workshops
Hurdle Rate Scenarios	Impact on comparative benefits	- BPA concurs that changing hurdle rates can have significant impact on comparative benefits - Asymmetric hurdle rates are real (e.g. CAISO TAC) and can impact fundamental price relationship between PNW and CA

BPA Perspective – PCM Follow Up

BPA Day-Ahead Market

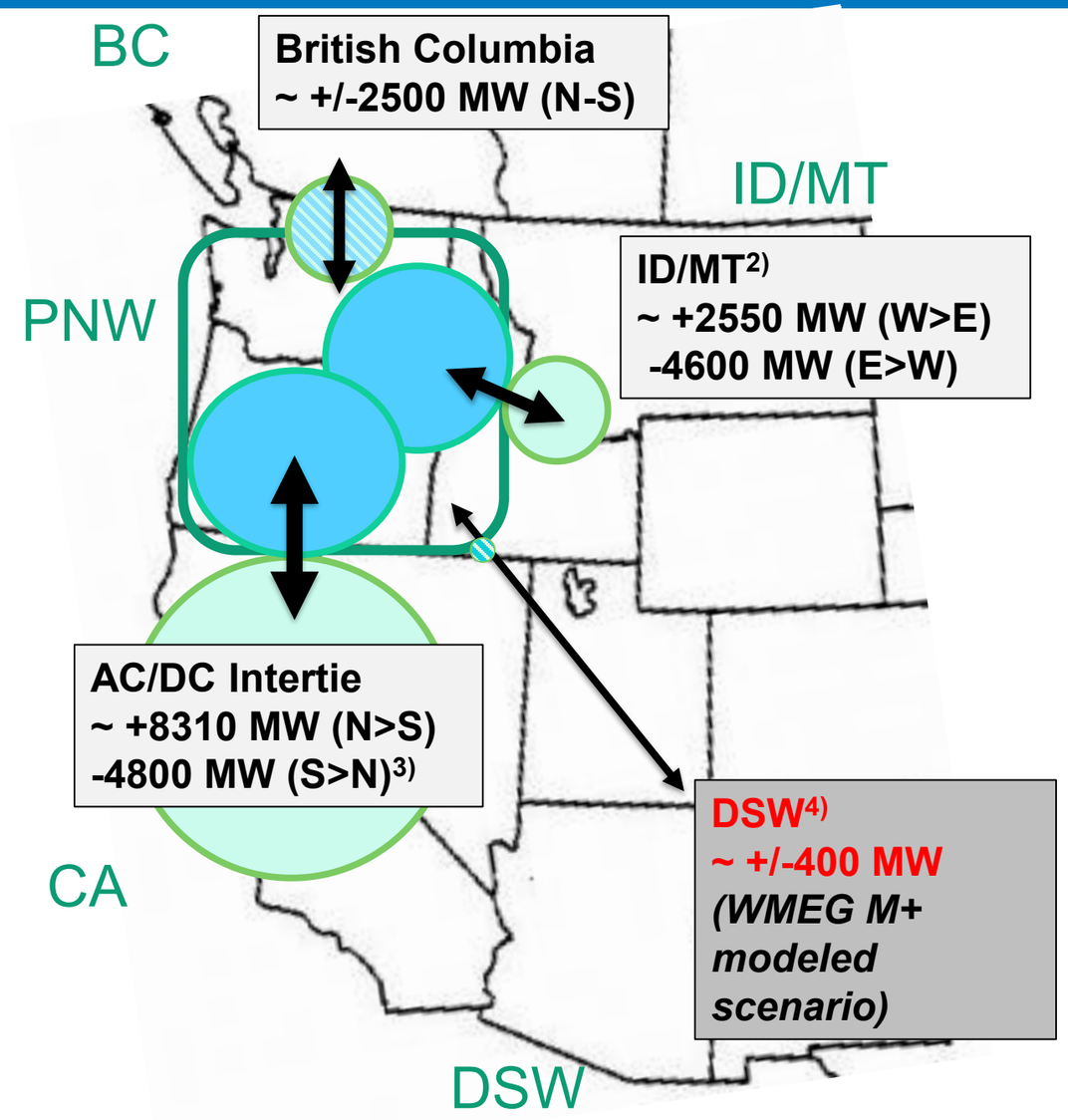
Topic	Discussion	BPA perspective
Rate impacts from quantitative analysis	Higher priced markets, quantification of market design attributes have rate implications	- Natural tension between Net Secondary Revenue assumptions, short-term implied rate impacts, uncertainty and volatility based on loads and streamflows, and long-term financial health - Market design evolves over time - Independent governance enables this evolution via stakeholder advocacy and collaboration
PCM	Significance of PCM results in BPA's DAM Decision Framework	- PCM is an industry standard, important analytical component for making decisions about the future, but it is not the only one - BPA's record is clear and consistent: Quantitative benefits expressed through PCM results are important magnitudinal and directional indicators but do not by themselves constitute a DAM decision rationale

BPA Perspective – Mid-C

Topic	Discussion	BPA perspective

Mid-C price formation	Mid-C more accurate and beneficial hub vs. EDAM DA/EIM RT price	- Mid-C and EDAM prices are interrelated but are based on independent fundamentals, making them not directly comparable
		  - Differences in regional supply/demand and hurdle rates of importing/exporting power
		  - Mid-C is an imperfect information proxy of numerous components in organized markets
		  - Mid-C index still represents a 16-hr (HLH) or 8-hr (LLH) block that proxies increasingly volatile hourly values
		  - Mid-C is increasingly fragmented due to implied GHG pricing (specified vs. unspecified), non-WA delivery, and non-CAISO sourcing
		- Future price transparency at Mid-C from organized market clearing prices have implications for liquidity and price convergence
		- **The Mid-C now is not the Mid-C of the future**

BPA Perspective – Regional Transfer Capability[1)] BPA Day-Ahead Market



- Organized market depth and liquidity depends on access to resources, load, and transmission
- Access limitations can present significant challenges to utilizing efficiencies of market footprints
- Specifically, market-accessible transmission between PNW and DSW region extremely limited in PCM Markets+ scenarios

1) *Approximation of regional physical transfer capability (not solely BPAT transmission and no delineation of ownership or rights)*
2) *Expected increase in 2030s due to expansion projects*
3) *Winter season numbers*
4) *Modeled scenario only, not physical transfer capability*

Panel Presentations

- David Dernovsek (BPA)
- Tim Belden (EnergyGPS)
- Arne Olson and Jack Moore (E3)
- John Tsoukalis (Brattle Group)
- Michael Linn and Lauren Tenney Denison (PPC)

Short presentations (10-15 min each) then Q&A/moderated discussion

Open Q&A

- Questions from 9/22 workshop
  - **Vijay Satyal (WRA):** Do efficiency gains (higher trading), even with lowest seams cost, project a greater benefit to stay with EDAM and is this primarily due to continued participation in EIM?
  - **Trisha Blevins (TID):** For John [Brattle], curious if there has been any vetting of the model after PAC/CAISO go-live in EDAM? Are results what you expected?
  - **James Dykes (Grant PUD):** In the E3 and Brattle studies, was CA battery buildout incorporated? If so, was there a range of MW buildout outcomes? How did this impact the benefits in the short term (5 years) and long term (10-15 years)?



BPA Updates

Jamae Hilliard Creecy
Libby Kirby
October 30, 2026

BPA Updates: Markets Implementation

BPA Day-Ahead Market

- Markets+
  - BPA continues planning and developing requirements for potential Markets+ participation
  - BPA has paused any work that requires any formal decision (e.g., agreements, RFPs, etc.)
  - BPA staff continues to participate in Markets+ forums
- EDAM
  - BPA has successfully begun participation on behalf of transfer customers in PAC and PGE BAs

BPA Updates: Engagement with the ROWE

BPA Day-Ahead Market

- BPA is actively engaging in ROWE stakeholder processes and has been active in the Pathways, RIF, and CAISO processes that inform ROWE.
  - BPA submitted comments on the ROWE Briefing Book (via Pathways stakeholder process)
  - On Oct. 1, BPA submitted comments on the ROWE's Proposed Resource Adequacy Program Design which described Bonneville views on core design elements of a durable ROWE RA program.
    - Bonneville continues to support the Western Resource Adequacy Program (WRAP) and proactive regional collaboration to ensure system reliability across the Western Interconnection.
  - Forthcoming BPA will submit comments on ROWE Principal Place of Business
    - BPA prefers a principal place of business outside California and in an intermountain west location.
- ROWE Board was seated on Oct. 16, 2026, and BPA is awaiting a formal response to its Sept. 3, 2026 letter and monitoring steps the ROWE Board is taking to fulfill BPA's criteria for independent governance.
- BPA is ready to engage with ROWE on market design issues important to BPA and its customers, as well as the Board's consideration and eventual adoption of policies, such as those set forth in the ROWE Briefing Book.

Timeline

- BPA is holding a series of Day-Ahead Market public workshops this fall, the next one is Thursday, Nov 19.
- BPA expects to issue a draft Day-Ahead Market decision in early December 2026.
- BPA expects to publish its final Day-Ahead Market decision and accompanying record of decision by the end of February 2027.

Lunch Break

- Scheduled 1 hour (11:30 am – 12:30 pm)



Resource Adequacy

Steve Bellcoff, BPA

October 30, 2026

Panel presentations and discussion

- **Entity Panelists (~15 min)**
  - Steve Bellcoff (BPA)
  - Pam Sporborg (PGE/ROWE RA)
  - Rebecca Sexton (WPP/WRAP)

- **Stakeholder Panelists (~5 min + question to Entity panelists)**
  - Ray Johnson (Tacoma)
  - Spencer Gray (NIPPC)
  - Chris Allen (PNGC)
  - Bear Prairie (Lower Valley Electric)
  - Mary Wiencke (PGP)
  - Johnny Casana (AWS)
  - David Matusiak (Google)
  - Arne Olson (E3)

What is Resource Adequacy?

- **Planning** – Ensuring enough generation and transmission resources to serve load across a wide range of conditions with a sufficient degree of reliability

- **Adequacy** – “The ability of the electric system to supply the aggregate electrical demand and energy requirements of the end-use customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements” (NERC Definition)

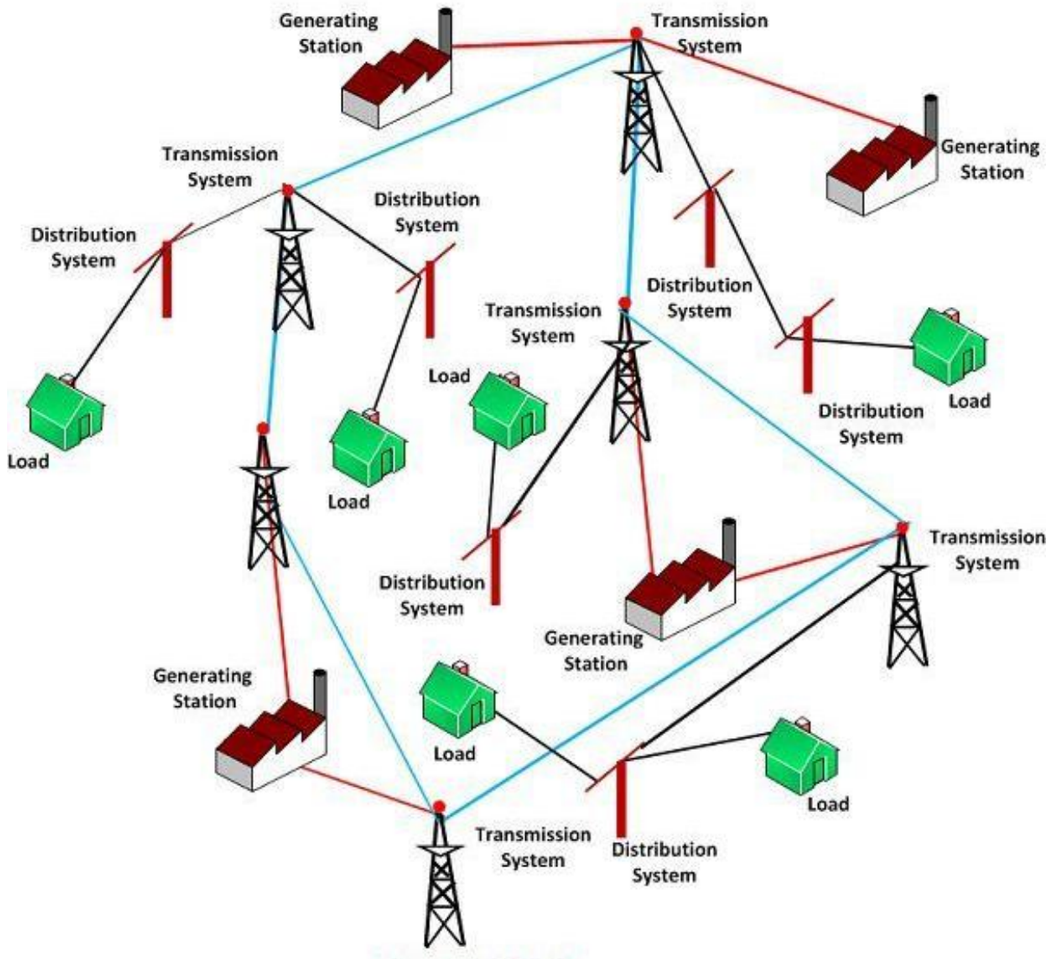
- **Resource Adequacy** – “The ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses)” (NERC Definition)

- **Resource Sufficiency** – Balance of demand and energy availability in a defined near-term period



BPA Interest in Resource Adequacy

- BPA doesn't operate as an island - The lack of resources in any connected BA could lead to reliability issues on BPA's system
- Historic lack of consistent planning standards between entities has created longstanding uncertainty and risk of resource adequacy status of our neighbors
- Resource mix has changed away from baseload dispatchable resources towards non-dispatchable Variable Energy Resources
- Forecasted load growth with both supply and delivery constraints



Benefits of Consistent Resource Adequacy

Resource Adequacy Standards:

- Provide clear, uniform metrics
- Provide accountability and commitment from each participant
- Create transparency for the region that each participant is planning based on physical resources and not simply leaning on the same depth of market
- Create transparent expectations of transmission needs
- Create potential for cost and resource savings through diversity benefits
- Put bounds around how much capacity BPA is responsible for providing
- Provide markets with a sufficient foundation of expected resources to meet load
- Provide clear resource and transmission development signals



Attributes of a Strong Resource Adequacy Program

- **Clear Uniform and/or Comparable Requirements**
  - Evaluation of Loads
  - Accreditation of Supply
  - Program Requirements
  - Deliverability– transmission and congestion
  - Participation – no holes
- **Sound Planning Requirement**
  - Recognized standard such as 1:10 LOLE
  - Planning Standards produced results in Operational period
  - Creates potential for cost and resource savings through diversity
  - Focused on enhancing reliability
- **Resource Accountability**
  - Physical resources vs paper resources
  - Consistent/ comparable accreditation
  - Creditable accreditation (available when needed)
- **Standard Accountability**
  - Participants held to Requirements - compliancy
  - Incentive/ disincentive structure strong enough to require compliance
  - Incentive to buy/build capacity
- **Equity**
  - Diverse participants treated equally
  - Planning requirement transfers to Operation expectation
- **Market Participation**
  - Required for market participation
  - Resources used to meet RA standard are bid into Market (must offer, must bid)
- **Independent Governance**
  - Governance represents participants and stakeholders
  - Minimize complexity and administrative burden

WRAP Forward Showing Results -- BPA

Summer 2026

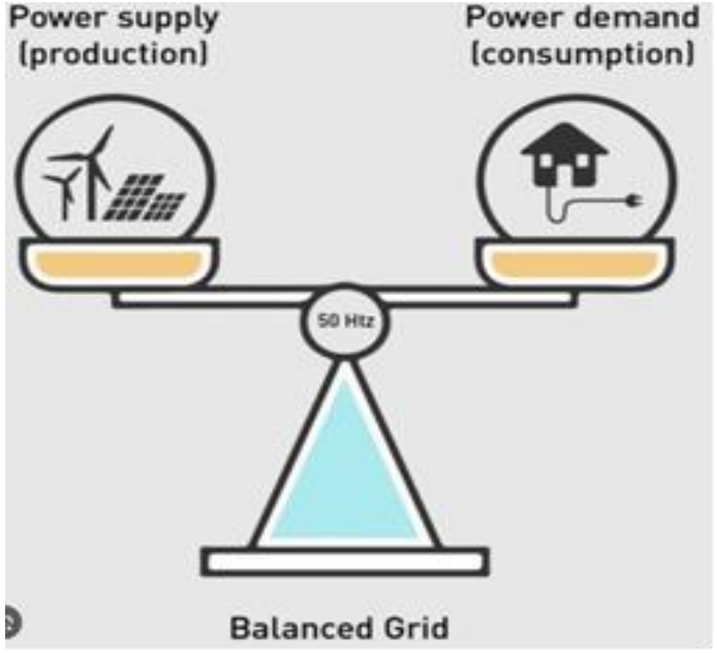
	Jun-26	Jul-26	Aug-26	Sep-26
Resources	15,319	14,982	14,824	16,842
Contract Purchases	479	490	482	487
Contract Sales	3,059	3,409	3,431	3,909
Total Portfolio QCC	12,739	12,064	11,875	13,420
Planning Reserve Margin	22%	14%	18%	21%
Initial Capacity Required	10,997	10,949	11,255	10,026
CR Adjustment (Gen+Load)	81	93	93	100
CR Requirement (Info Only)	620	668	665	600
Adjusted Capacity Required	11,077	11,041	11,347	10,127
Surplus/Deficient Capacity	**1,662**	**1,022**	**527**	**3,294**
FS Requirement Met?	*Yes*	*Yes*	*Yes*	*Yes*

Winter 2026-2027

	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27
Resources	16,861	16,723	17,052	16,811	17,190
Contract Purchases	373	399	409	407	426
Contract Sales	4,230	4,242	4,293	4,123	4,069
Total Portfolio QCC	13,004	12,879	13,168	13,095	13,547
Planning Reserve Margin	29%	13%	13%	11%	19%
Initial Capacity Required	11,275	12,317	12,372	12,088	11,383
CR Adjustment (Gen+Load)	112	113	112	108	105
CR Requirement (Info Only)	634	769	768	764	680
Adjusted Capacity Required	11,386	12,430	12,484	12,196	11,489
Surplus/Deficient Capacity	**1,618**	**449**	**684**	**899**	**2,058**
FS Requirement Met?	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*

Resource Adequacy – Today and Tomorrow

- **Today's Resource Adequacy**
  - Peak load - Capacity (or Peak Capacity) – resource accredited capability
    - Short term duration events – hours not days or months
  - Deliverability – Transmission rights
    - Firm/High Priority
    - Resource to Load





- **Future Considerations**
  - Energy – Firm or Critical fuel supply constrained
    - Single most critical constraint by resource type
      - Hydro – low water conditions
      - Gas – pipeline disruption/onsite storage
      - Wind – stagnant wind events
      - Solar – cloud cover
  - Deliverability – Transmission
    - Conditional Firm
    - Optimized market dispatching impacts
    - Interregional transmission impacts

Critical Water Year Planning -- BPA

	Summer 2026				Winter 2026/2027				
Energy-aMW	Jun	Jul	Aug	Sep	Nov	Dec	Jan	Feb	Mar
Federal Resources	8,823	7,664	7,837	6,247	7,760	8,572	8,987	7,781	7,884
Storage Hydro	7,275	6,220	6,406	4,882	6,279	7,173	7,574	6,504	6,553
Run of River	403	300	296	228	342	265	297	160	215
Wind	29	28	18	20	23	18	-	-	-
Thermal	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116

- **BPA has long planned around Critical Water Year planning**
  - Prior to 2022 used 1937 to define critical firm hydro conditions
  - Since 2022 P10 of most recent 30 years – modified flows (1989-2018)

	Summer 2026				Winter 2026/2027				
1Hr-MW	Jun	Jul	Aug	Sep	Nov	Dec	Jan	Feb	Mar
Federal Resources	17,205	15,936	15,684	16,285	17,223	18,088	19,131	18,761	18,233
Storage Hydro	15,624	14,423	14,269	14,721	15,835	16,693	17,680	17,233	16,918
Run of River	426	346	252	385	210	214	273	353	138
Wind	-	-	-	-	-	-	-	-	-
Thermal	1,154	1,168	1,163	1,179	1,179	1,180	1,178	1,175	1,177

WRAP QCC – Federal Resources

- WRAP QCC

	Summer 2026				Winter 2026/2027				
WRAP QCC	Jun	Jul	Aug	Sep	Nov	Dec	Jan	Feb	Mar
Federal Resources	14,947	14,622	14,493	16,525	16,472	16,332	16,665	16,420	16,809
Storage Hydro	13,503	13,208	13,100	15,128	15,139	14,971	15,250	15,065	15,463
Run of River	312	276	254	256	180	207	262	202	193
Wind	4	9	11	12	-	-	-	-	-
Thermal	1,128	1,128	1,128	1,128	1,154	1,154	1,154	1,154	1,154

- Compared to Firm/Critical Water analysis

	Summer 2026		Winter 2026/2027	
Delta %	QCC to Firm Energy	QCC to 1 hour Cap	QCC to Firm Energy	QCC to 1 hour Cap
Federal Resources	198%	93%	199%	90%
Storage Hydro	222%	93%	219%	90%
Run of River	89%	78%	80%	81%
Wind	38%		0%	
Thermal	101%	97%	103%	98%



Closing Remarks

Dave Dernovsek, BPA