Power Plan Work Session

May 27, 2026

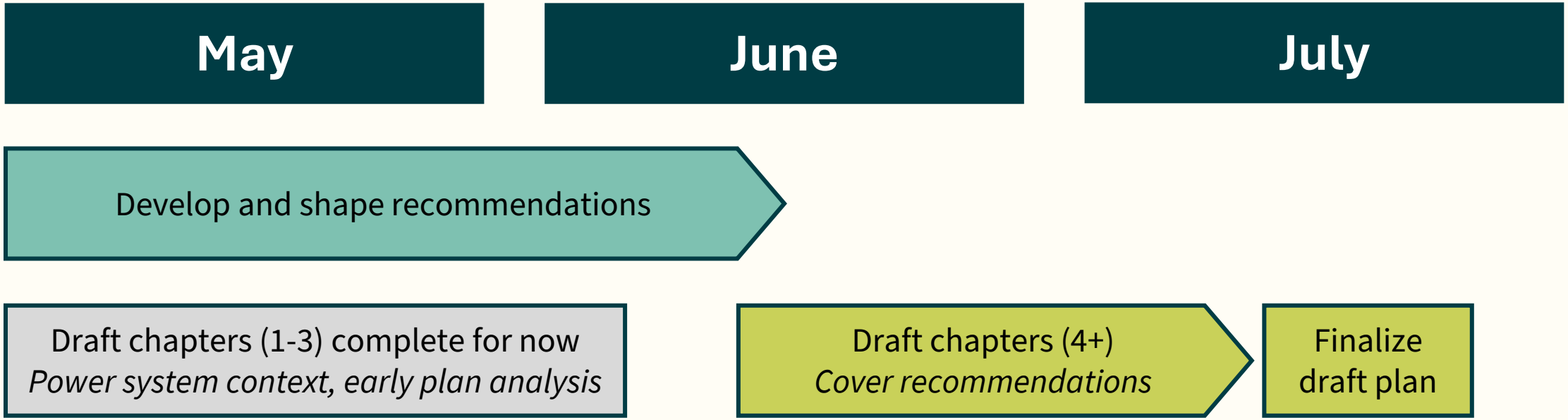
Northwest **Power** and **Conservation** Council

Agenda

- Check-in on process and what comes next
- Discussion of proposed resource strategy
- Discussion of proposed recommendations to Bonneville
- Follow-up discussion on other proposed supporting recommendations

What’s Coming Up

Getting to a Draft Power Plan



Upcoming Council Meetings

Date	Council meeting agenda item
May 27 (Webinar)	Continued discussion around proposed recommendations • Regional resource strategy • Recommendations to Bonneville • Supporting recommendations
June 16-17 (Portland)	Transition to discussion of recommendations to review of chapters that capture the recommendations: • Chapter 4 – Action Plan • Chapter 5 – Conservation Program
June 30 – July 1 (Webinar)	Continue discussion and refinement of chapters, as we work towards a draft plan • Chapter 4 (second look) • Chapter 5 (second look) • Introduction (first look) • Chapters 1-3 (revisit as needed)
July 14-15 (Portland)	Possible decision to release the draft Ninth Plan

What Happens After Decision to Release the Draft?

- Final edits are made and the draft Plan is readied for publishing on the website
- Notice is provided to the region through email, newsletter, social media outlets
- Council accepts comment through public comment period via:
  - Written comment through the website and email
  - Oral comment at Council meetings
  - Comment at formal public hearings (at least one in each state)
  - Other consultations scheduled with entities throughout the region
- Council has traditionally had a 60-day public comment period for the power plan, with no extensions to that timeline, and this is staff's recommendation for the Ninth Plan with a goal of finalizing by the end of 2026

Potential Schedule for Public Comment

- July 14-15, 2026: Decision to release the draft Plan
- July 21, 2026: Release for public comment
  - August 11-12 Council Meeting
  - September 9-10 Council Meeting
  - Early-August to mid-September public hearings
- September 18, 2026: Close public comment period (60 days)

Potential Schedule Post Public Comment

- Council has typically taken between 2-3 months from close of comment period to adopting the final power plan
  - Sixth Plan: 3 months (Nov 3-Feb 10)
  - Seventh Plan: 2 months (Dec 18-Feb 10)
  - Eighth Plan (2021 Plan): 3 months (Nov 19-Feb 16)

- Post public comment period Council Meetings and potential schedule:
  - October 14-15 (Tamarack): Discuss comments received
  - November 17-18 (Portland): Potential decision on final Power Plan (2 months)
  - December 15-16 (Portland): Decision on final Power Plan if needed (3 months)

Proposed Resource Strategy

What is a Resource Strategy?

- The resource strategy is the core piece of a power plan, putting forward a recommendation for new resources and amounts to meet the region's needs
- It directly connects to the Power Act requirements around:
  - "The plan shall set forth a general scheme for implementing conservation measures and developing resources … to reduce or meet the Administrator's obligations"
  - This "general scheme" is to give due consideration to environmental quality, compatibility with the existing system protection of fish and wildlife, and other criteria that the Council sets forth
  - Elsewhere, the Act requires the plan provide a forecast of resources and amounts of those resources to meet the Administrator's obligation
- This resource strategy can then be supported by other recommendations

Cost-Effectiveness and Resource Prioritization

- Council is to give priority to resources it determines to be **cost-effective:**
  Measure or resource must be reliable and available within the time it is needed and meet or reduce the electric power demand of consumers at an estimated incremental system cost no greater than that of the least-cost similarly reliable and available alternative measure or resource
- Priority then shall be given to:
  1. Conservation
  2. Renewables
  3. Generating resources utilizing waste heat or generating resources of high fuel conversion efficiency
  4. All other resources

Informing the Resource Strategy

- Analysis has shown that a portfolio approach will be necessary to provide for adequacy, meet policy, and balance costs and risks
- Resource strategy will include a portfolio approach to provide a cost-effective solution:
  - Demand side: Conservation, demand response, and voltage regulation
  - Supply side: Renewables, storage, and natural gas
- Staff recommend using information from across the sensitivities to develop a risk informed portfolio

Options for Discussion

- Staff developed an initial test strategy to provide a starting place for discussion with the Power Committee and to test for adequacy and cost-effectiveness
- Power Committee expressed general support with the overall approach and asked staff to develop some additional options for discussion at the full Council
- Staff developed two options that build off the initial test strategy
  - Option 1: Adds conservation and wind
  - Option 2: Adds natural gas
- Staff also conducted an alternative assessment around if the natural gas were constrained further
  - More on this after a discussion of Options 1 and 2

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Options Building on Initial Test Strategy

Resource	Option 1	Option 2
Conservation	1,060 aMW $150/MWh OR & WA (860 aMW) $70/MWh ID & MT (200 aMW)	950 aMW $100/MWh OR & WA (800 aMW) $60/MWh ID & MT (150 aMW)
Demand Response	590 MW	
Voltage Regulation	220 MW	
Renewables	9,000 MW + 335 MW wind	9,000 MW
Storage	5,200 MW	
Natural Gas	2,000 MW	2,250 MW

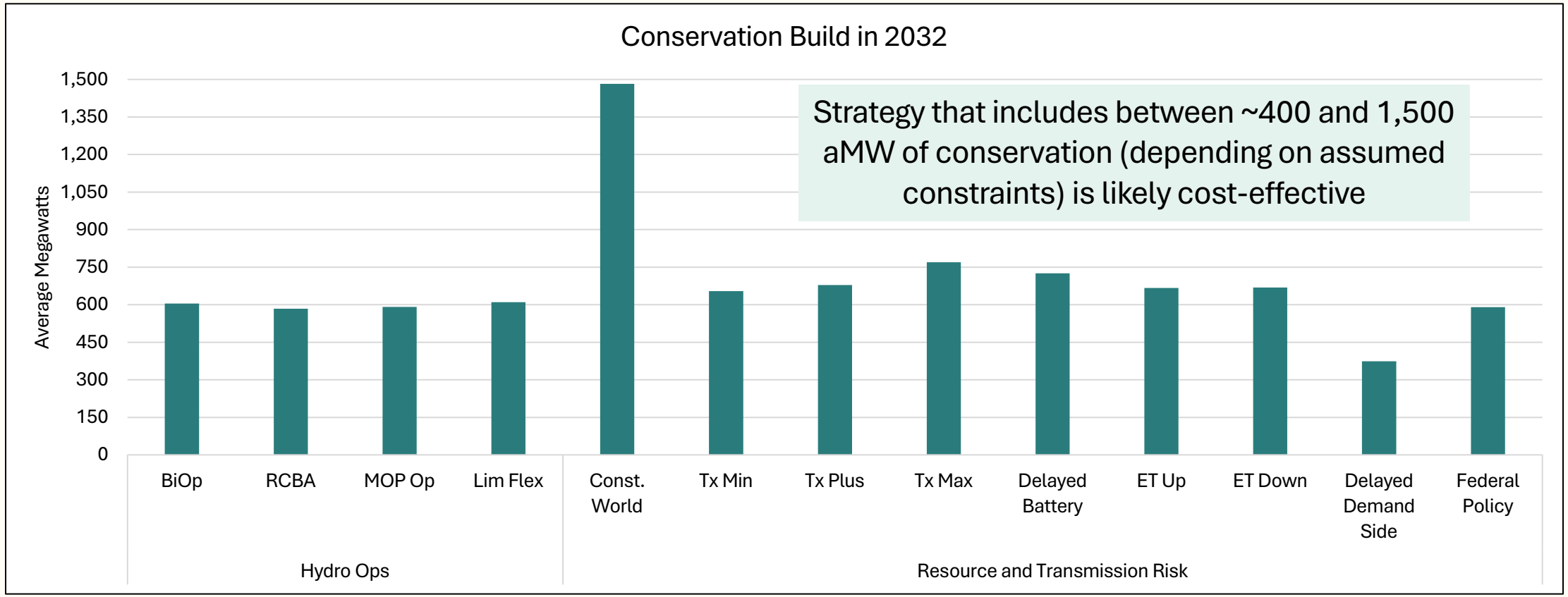
We'll come back to these specifics, but first let's walk through the rationale behind each of these resources

Conservation

Conservation

- Conservation is acquired in all sensitivities, supporting energy, planning reserve margins, and policy requirements
- Results show:
  - Conservation provides a good risk hedge against supply side constraints, long-term load growth, and potential futures with high market prices
  - Less conservation is cost-effective when the cost of other resources (including the market) come down

Model Results for Conservation in 2032



Constrained World Assumptions

- There has been a lot of discussion in advisory committees and elsewhere around this sensitivity, so to provide some context as a reminder of the assumptions
- This sensitivity:
  - Limited the total amount of supply side builds in the first six years
  - Increased the costs of supply side resources in the first six years
  - Delayed emerging technologies by 10-years
  - Assumed no new transmission

Supply Side Build Limits (MW)

	2028	2030	2032
Constrained World	2,600	6,900	12,100
All Other Sensitivities	6,900	13,800	23,000

- General agreement that there are constraints on the supply side, and some comments that we are in a "constrained world," but also thoughts that the region can build resources faster than it has in recent years to meet needs

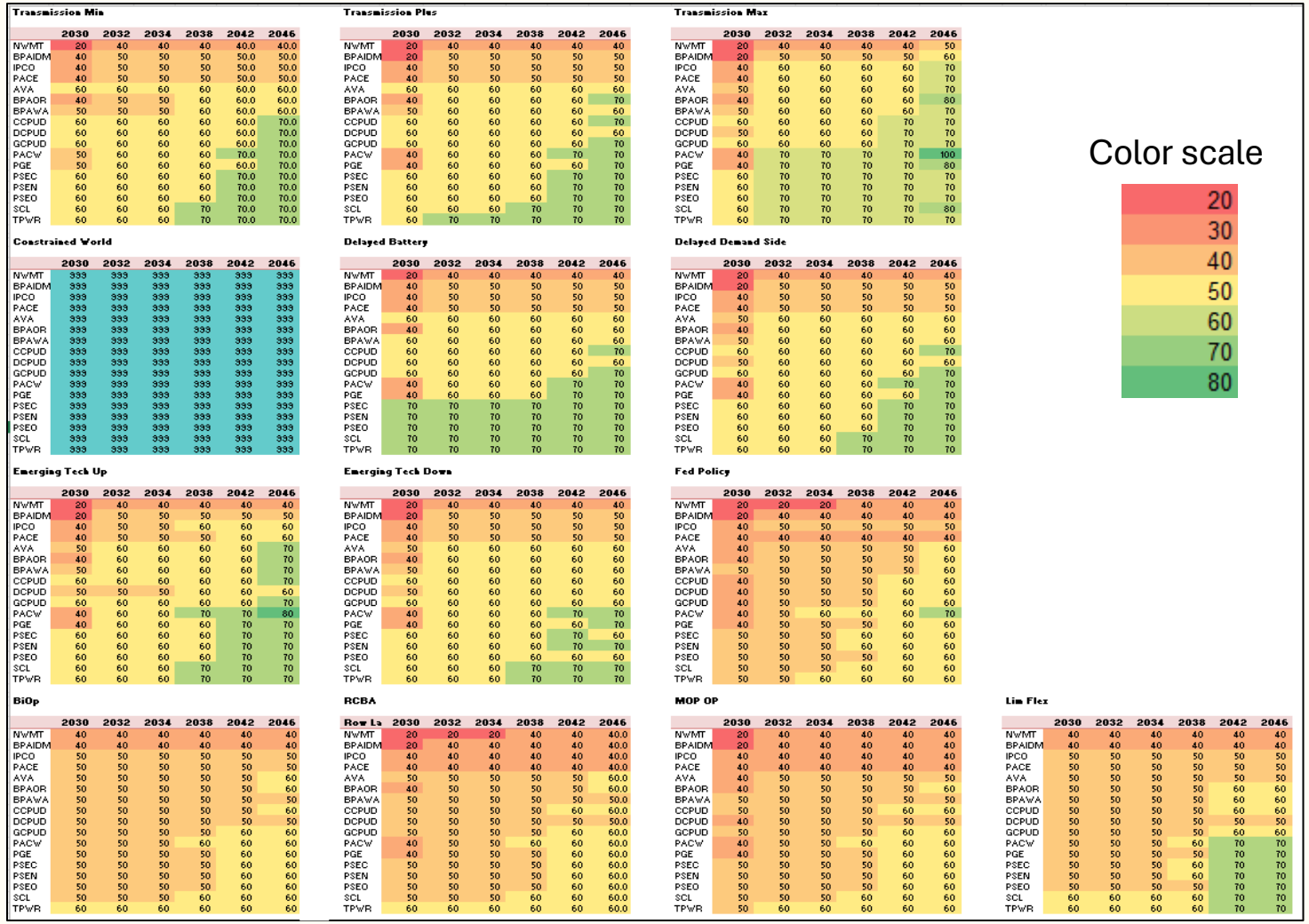
Advisory Committee Feedback on Cost-Effectiveness

- General agreement across Council advisory committees that the risks around near-term supply side resource availability are real, and conservation is a good hedge
- Conservation Resources Advisory Committee recommended the Council consider the long-term signal for conservation when developing near-term strategy
- Bonneville expressed interest in a cost-effectiveness level that is high enough to support residential program offerings for its customers

- **Proposal:** Use the information from the long-term (2046) results to guide a near-term strategy, as this provides a hedge against both these risks without over relying on any specific sensitivity.

Model Results Showing Locational Differences

- Results also indicate very different values across the region for conservation
  - Roughly 4 to 5 different locational values, depending on the sensitivity
  - Greatest value tends to be in and around the Puget Sound area
  - Montana consistently shows the lowest value for conservation
- This suggests that a cost-effective resource strategy would include different locational signals for conservation



Transmission Min

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40.0	40.0
BPAIDM	40	50	50	50	50.0	50.0
IPCO	40	50	50	50	50.0	50.0
PACE	40	50	50	50	50.0	50.0
AVA	60	60	60	60	60.0	60.0
BPAOR	40	50	50	60	60.0	60.0
BPAWA	50	50	50	60	60.0	60.0
CCPUD	60	60	60	60	60.0	70.0
DCPUD	60	60	60	60	60.0	70.0
GCPUD	60	60	60	60	60.0	70.0
PACW	50	60	60	60	70.0	70.0
PGE	50	60	60	60	60.0	70.0
PSEC	60	60	60	60	70.0	70.0
PSEN	60	60	60	60	70.0	70.0
PSEO	60	60	60	60	70.0	70.0
SCL	60	60	60	70	70.0	70.0
TPWR	60	60	60	70	70.0	70.0

Transmission Plus

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	40
BPAIDM	20	50	50	50	50	50
IPCO	40	50	50	50	50	50
PACE	40	50	50	50	50	50
AVA	60	60	60	60	60	60
BPAOR	40	60	60	60	60	70
BPAWA	50	60	60	60	60	60
CCPUD	60	60	60	60	60	70
DCPUD	60	60	60	60	60	60
GCPUD	60	60	60	60	60	70
PACW	40	60	60	60	70	70
PGE	40	60	60	60	60	70
PSEC	60	60	60	60	70	70
PSEN	60	60	60	60	70	70
PSEO	60	60	60	60	70	70
SCL	60	60	60	70	70	70
TPWR	60	70	70	70	70	70

Transmission Max

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	50
BPAIDM	20	50	50	50	50	60
IPCO	40	60	60	60	60	70
PACE	40	60	60	60	60	70
AVA	50	60	60	60	60	70
BPAOR	40	60	60	60	60	80
BPAWA	50	60	60	60	60	70
CCPUD	60	60	60	60	70	70
DCPUD	50	60	60	60	70	70
GCPUD	60	60	60	60	70	70
PACW	40	70	70	70	70	100
PGE	40	70	70	70	70	80
PSEC	60	70	70	70	70	70
PSEN	60	70	70	70	70	70
PSEO	60	70	70	70	70	70
SCL	60	70	70	70	70	80
TPWR	60	70	70	70	70	70

Constrained World

	2030	2032	2034	2038	2042	2046
NWMT	333	333	333	333	333	333
BPAIDM	333	333	333	333	333	333
IPCO	333	333	333	333	333	333
PACE	333	333	333	333	333	333
AVA	333	333	333	333	333	333
BPAOR	333	333	333	333	333	333
BPAWA	333	333	333	333	333	333
CCPUD	333	333	333	333	333	333
DCPUD	333	333	333	333	333	333
GCPUD	333	333	333	333	333	333
PACW	333	333	333	333	333	333
PGE	333	333	333	333	333	333
PSEC	333	333	333	333	333	333
PSEN	333	333	333	333	333	333
PSEO	333	333	333	333	333	333
SCL	333	333	333	333	333	333
TPWR	333	333	333	333	333	333

Delayed Battery

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	40
BPAIDM	40	50	50	50	50	50
IPCO	40	50	50	50	50	50
PACE	40	50	50	50	50	50
AVA	60	60	60	60	60	60
BPAOR	40	60	60	60	60	60
BPAWA	60	60	60	60	60	60
CCPUD	60	60	60	60	60	70
DCPUD	60	60	60	60	60	60
GCPUD	60	60	60	60	60	70
PACW	40	60	60	60	70	70
PGE	40	60	60	60	70	70
PSEC	70	70	70	70	70	70
PSEN	70	70	70	70	70	70
PSEO	70	70	70	70	70	70
SCL	70	70	70	70	70	70
TPWR	70	70	70	70	70	70

Delayed Demand Side

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	40
BPAIDM	20	50	50	50	50	50
IPCO	40	50	50	50	50	50
PACE	40	50	50	50	50	50
AVA	50	60	60	60	60	60
BPAOR	40	60	60	60	60	60
BPAWA	50	60	60	60	60	60
CCPUD	60	60	60	60	60	70
DCPUD	50	60	60	60	60	60
GCPUD	60	60	60	60	60	70
PACW	40	60	60	60	70	70
PGE	40	60	60	60	70	70
PSEC	60	60	60	60	70	70
PSEN	60	60	60	60	70	70
PSEO	60	60	60	60	70	70
SCL	60	60	60	70	70	70
TPWR	60	60	60	70	70	70

Emerging Tech Up

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	40
BPAIDM	20	50	50	50	50	50
IPCO	40	50	50	60	60	60
PACE	40	50	50	60	60	60
AVA	50	60	60	60	60	70
BPAOR	40	60	60	60	60	70
BPAWA	50	60	60	60	60	70
CCPUD	60	60	60	60	60	70
DCPUD	50	50	50	60	60	60
GCPUD	60	60	60	60	60	70
PACW	40	60	60	70	70	80
PGE	40	60	60	70	70	70
PSEC	60	60	60	60	70	70
PSEN	60	60	60	60	70	70
PSEO	60	60	60	60	70	70
SCL	60	60	60	70	70	70
TPWR	60	60	60	70	70	70

Emerging Tech Down

	2030	2032	2034	2038	2042	2046
NWMT	20	40	40	40	40	40
BPAIDM	20	50	50	50	50	50
IPCO	40	50	50	50	50	50
PACE	40	50	50	50	50	50
AVA	50	60	60	60	60	60
BPAOR	40	60	60	60	60	60
BPAWA	50	60	60	60	60	60
CCPUD	60	60	60	60	60	60
DCPUD	50	60	60	60	60	60
GCPUD	60	60	60	60	60	60
PACW	40	60	60	60	70	70
PGE	40	60	60	60	70	70
PSEC	60	60	60	60	70	60
PSEN	60	60	60	60	70	70
PSEO	60	60	60	60	60	60
SCL	60	60	60	70	70	70
TPWR	60	60	60	70	70	70

Fed Policy

	2030	2032	2034	2038	2042	2046
NWMT	20	20	20	40	40	40
BPAIDM	20	40	40	40	40	40
IPCO	40	50	50	50	50	50
PACE	40	40	40	40	40	40
AVA	40	50	50	50	50	60
BPAOR	40	50	50	50	50	60
BPAWA	50	50	50	50	50	60
CCPUD	40	50	50	50	60	60
DCPUD	40	50	50	50	60	60
GCPUD	40	50	50	50	60	60
PACW	40	50	60	60	60	70
PGE	40	50	50	50	60	60
PSEC	50	50	50	60	60	60
PSEN	50	50	50	60	60	60
PSEO	50	50	50	50	60	60
SCL	50	50	50	60	60	60
TPWR	50	50	60	60	60	60

BiOp

	2030	2032	2034	2038	2042	2046
NWMT	40	40	40	40	40	40
BPAIDM	40	40	40	40	40	40
IPCO	50	50	50	50	50	50
PACE	50	50	50	50	50	50
AVA	50	50	50	50	50	60
BPAOR	50	50	50	50	50	60
BPAWA	50	50	50	50	50	50
CCPUD	50	50	50	50	50	60
DCPUD	50	50	50	50	50	50
GCPUD	50	50	50	50	60	60
PACW	50	50	50	60	60	60
PGE	50	50	50	50	60	60
PSEC	50	50	50	50	60	60
PSEN	50	50	50	50	60	60
PSEO	50	50	50	50	60	60
SCL	50	50	50	60	60	60
TPWR	60	60	60	60	60	60

RCBA

Row La	2030	2032	2034	2038	2042	2046
NWMT	20	20	20	40	40	40.0
BPAIDM	20	40	40	40	40	40.0
IPCO	40	40	40	40	40	40.0
PACE	40	40	40	40	40	40.0
AVA	50	50	50	50	50	60.0
BPAOR	40	50	50	50	50	60.0
BPAWA	50	50	50	50	50	50.0
CCPUD	50	50	50	50	60	60.0
DCPUD	50	50	50	50	50	50.0
GCPUD	50	50	50	50	60	60.0
PACW	40	50	50	60	60	60.0
PGE	40	50	50	50	60	60.0
PSEC	50	50	50	50	60	60.0
PSEN	50	50	50	50	60	60.0
PSEO	50	50	50	50	60	60.0
SCL	50	50	50	60	60	60.0
TPWR	60	60	60	60	60	60.0

MOP OP

	2030	2032	2034	2038	2042	2046
NWMT	40	40	40	40	40	40
BPAIDM	20	40	40	40	40	40
IPCO	40	40	40	40	40	40
PACE	40	40	40	40	40	40
AVA	40	50	50	50	50	50
BPAOR	40	50	50	50	50	60
BPAWA	50	50	50	50	50	50
CCPUD	50	50	50	50	60	60
DCPUD	40	50	50	50	50	50
GCPUD	50	50	50	50	60	60
PACW	40	50	50	60	60	60
PGE	40	50	50	50	60	60
PSEC	50	50	50	50	60	60
PSEN	50	50	50	50	60	60
PSEO	50	50	50	50	60	60
SCL	50	50	50	60	60	60
TPWR	50	60	60	60	60	60

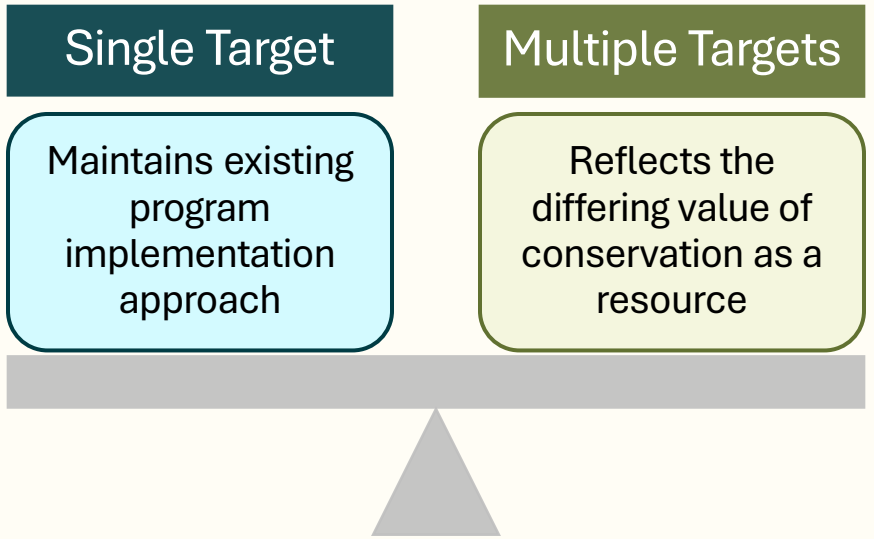
Lin Flex

	2030	2032	2034	2038	2042	2046
NWMT	40	40	40	40	40	40
BPAIDM	40	40	40	40	40	40
IPCO	50	50	50	50	50	50
PACE	50	50	50	50	50	50
AVA	50	50	50	50	50	50
BPAOR	50	50	50	50	60	60
BPAWA	50	50	50	50	60	60
CCPUD	50	50	50	50	60	60
DCPUD	50	50	50	50	50	50
GCPUD	50	50	50	50	60	60
PACW	50	50	50	60	70	70
PGE	50	50	50	50	70	70
PSEC	50	50	50	60	70	70
PSEN	50	50	50	60	70	70
PSEO	50	50	50	50	70	70
SCL	60	60	60	60	70	70
TPWR	60	60	60	60	70	70

Color scale

Advisory Committee Feedback on Locational Value

Recognition that there are trade-offs when deciding whether and how to account for the different locational value of conservation



Considerations for a Single Target Approach

- Single target aligns with the regions current program implementation framework, by maintaining consistency in both principle and practice:
  - Bonneville conservation program under the current conservation program agreements and structure
  - Market transformation efforts
- If pursing a single target approach, the Council should consider:
  - How to ensure there is enough conservation to support an adequate system and appropriately hedge against risk, while also ensuring the portfolio remains cost-effective
  - Due to the location of loads and potential, a single target would need to be at or near the results from the west side to ensure sufficient cost-effective conservation

Considerations for a Multiple Target Approach

- Multiple targets (or cost-effectiveness thresholds):
  - Better reflects differing value of conservation as a resource
  - Sends appropriate signal to avoid paying more for conservation in some parts of the region than is otherwise cost-effective for meeting needs
  - Sends appropriate signal to avoid under-investing in conservation in parts of the region where more is cost-effective to support adequacy and policy
- If pursuing a multiple target approach, Council should consider:
  - Being mindful of the implementation challenges when developing recommendations
  - Using state boundaries, particularly as they connect to policy differences, to ease implementation challenges

Proposal: Two Targets

- Develop two targets: (1) OR & WA and (2) ID & MT
- Results suggest more than 2 targets, but this approach seeks to both recognize the locational realities while minimizing some of the implementation complexity

Washington & Oregon	Idaho & Montana

• Load growth exists, but there is more limited resource potential
  • Limited renewable potential west of the Cascades
  • Statewide clean policies limit natural gas availability and economics
  • Transmission constraints limit near-term potential to bring remote resources to load
• These factors increase the value of conservation for ensuring resource adequacy, and therefore more conservation is part of a cost-effective portfolio
	• Load growth exists, but there are more resource options available in these states
	  • Greater renewable potential
	  • Natural gas is a more available and a more economic option (even when meeting utility goals)
	  • Greater transmission connectivity to the broader west
	• These factors results in conservation being cost-effective only up to the comparable price of natural gas and renewables

Addressing Implementation Concerns

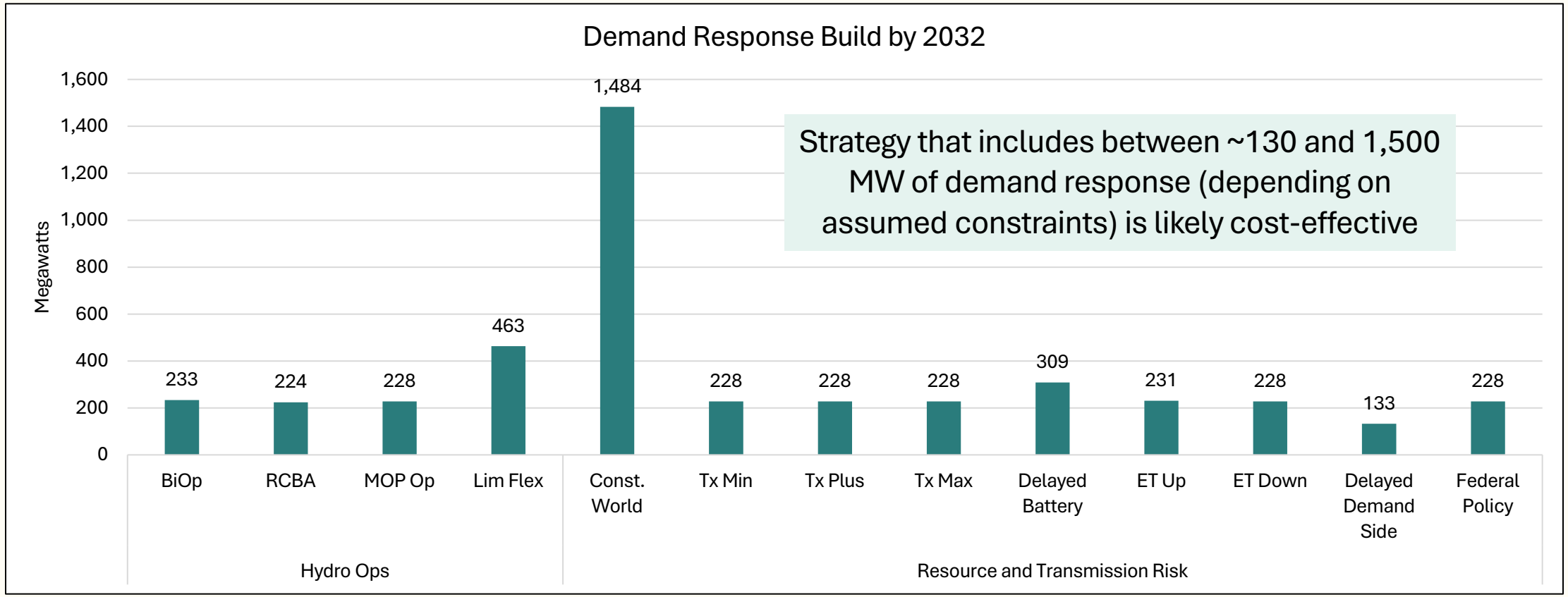
- For a multiple target approach, staff would provide language to support program and implementation flexibility
- Bonneville already includes elements that provide flexibility:
  - Self-funding under the current conservation program structure has allowed for more conservation in some parts of the region with more value
  - Portfolio approach to cost-effectiveness has allowed Bonneville to include measures in support of customers (or market transformation efforts)
  - Bonneville has had different program designs over the years and could explore opportunities to modernize its program under the new conservation agreements to better meet their customers' diverse needs
- Market transformation is a long-term approach to filing the pipeline with conservation measures (rather than near-term conservation acquisition) and this work remains valuable

Demand Response

Demand Response

- Demand response is acquired in all sensitivities, supporting the planning reserve margin (by lowering loads) and policy requirements
- Results show:
  - Limited demand response was acquired across most sensitivities, driven in part by modeling considerations, as well as the model preferring resources that provide both energy and flexibility
  - More demand response is acquired when either there are constraints on the supply side or overall limitations in the amount of flexibility in the system

Model Results for Demand Response in 2032



Advisory Committee Feedback and Recommendation

- Demand response advisory committee expressed concerns around the modeling limitations, and many noted that they see more value in this resource than recognized by the model
- General agreement across advisory committees that the risks around near-term supply side resource availability are real, and demand response is a good hedge for that risk

- **Proposal:** 590 MW of demand response
  - This represents the potential from electric vehicle time of use program, a load that will need to be managed to minimize resource needs and distribution impacts
  - Council should recognize the local differences and encourage utilities to pursue flexibility, including demand response, in a way that best needs their needs

Voltage Regulation

Voltage Regulation

- Voltage regulation was acquired in the full amount in every single sensitivity
- Model dispatches this product differently by location and over time
  - Action Plan period: generally dispatched as conservation, although more as a demand response product in the east side
  - Long-term: general dispatched as a demand response product regionally

- **Proposal:** Develop this resource (220 MW)

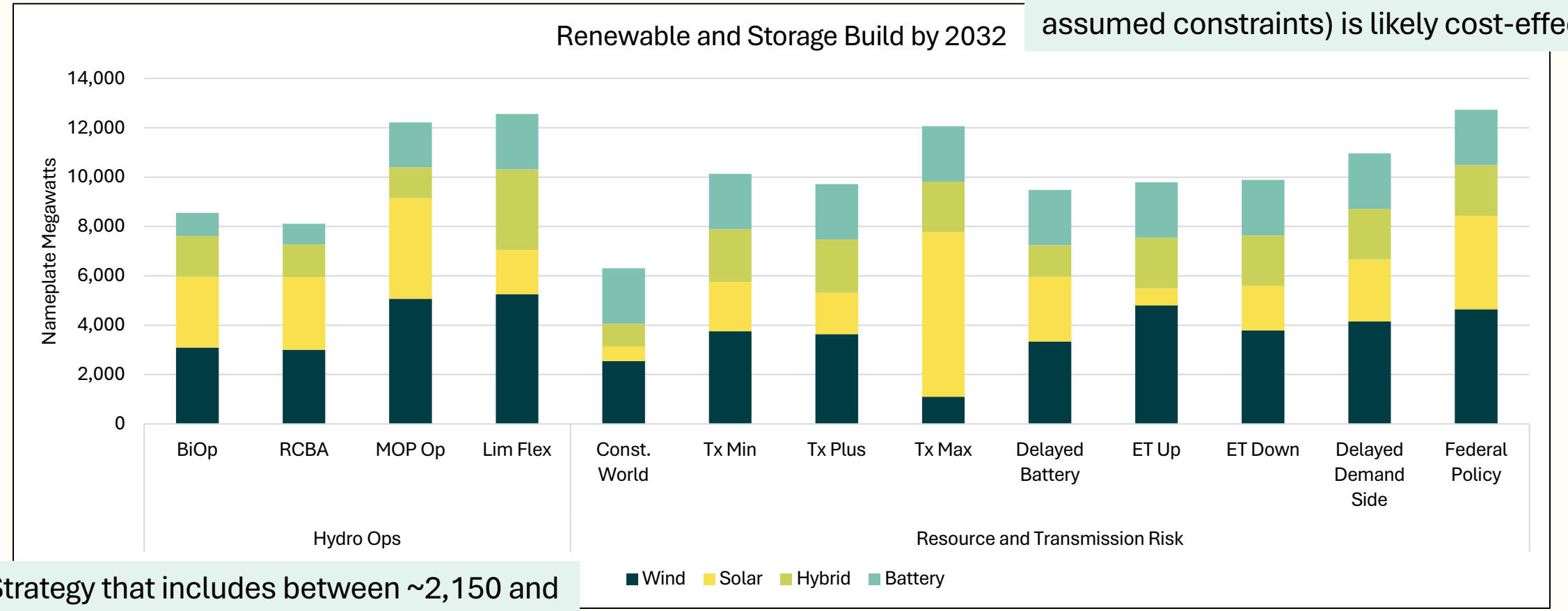
Renewables and Storage

Renewables and Storage

- Renewables and storage are selected in all sensitivities to provide for energy (renewables and hybrids), support planning reserve margins (hybrids and storage), and meet policy
- Model generally wants diversity in renewables, in terms of type and location
  - Roughly a 50/50 split between wind and solar across sensitivities, although results vary based on west-wide market renewable mix
  - Model wants diversity in location of renewables, both within the region and relative to the broader west-wide market
- Hybrid resources provide a way of adding more flexibility in the system, when needed, while still providing energy

Model Results for Renewables and Storage in 2032

Strategy that includes between ~4,050 and 10,500 MW of renewables (depending on assumed constraints) is likely cost-effective



Strategy that includes between ~2,150 and 5,500 MW of storage is likely cost-effective

Feedback and Recommendation

- Council advisory committee members asked questions about modeling, but otherwise did not provide direction for how to consider the results
- General agreement across advisory committees that the risks around near-term supply side resource availability are real, but no specific direction as to whether the modeled results are unrealistic
  - Results are above planned/committed projects, but around half the identified future needs from regional IRPs
- Staff have also heard some concern regarding land impacts, and a suggestion that the Council consider that in the recommendations

- **Proposal:** At least 9,000 MW of renewables (a balance of wind and solar, including hybrids) and 5,200 MW of storage (including hybrids)
  - Note: Option 1 includes an additional 335 MW of wind

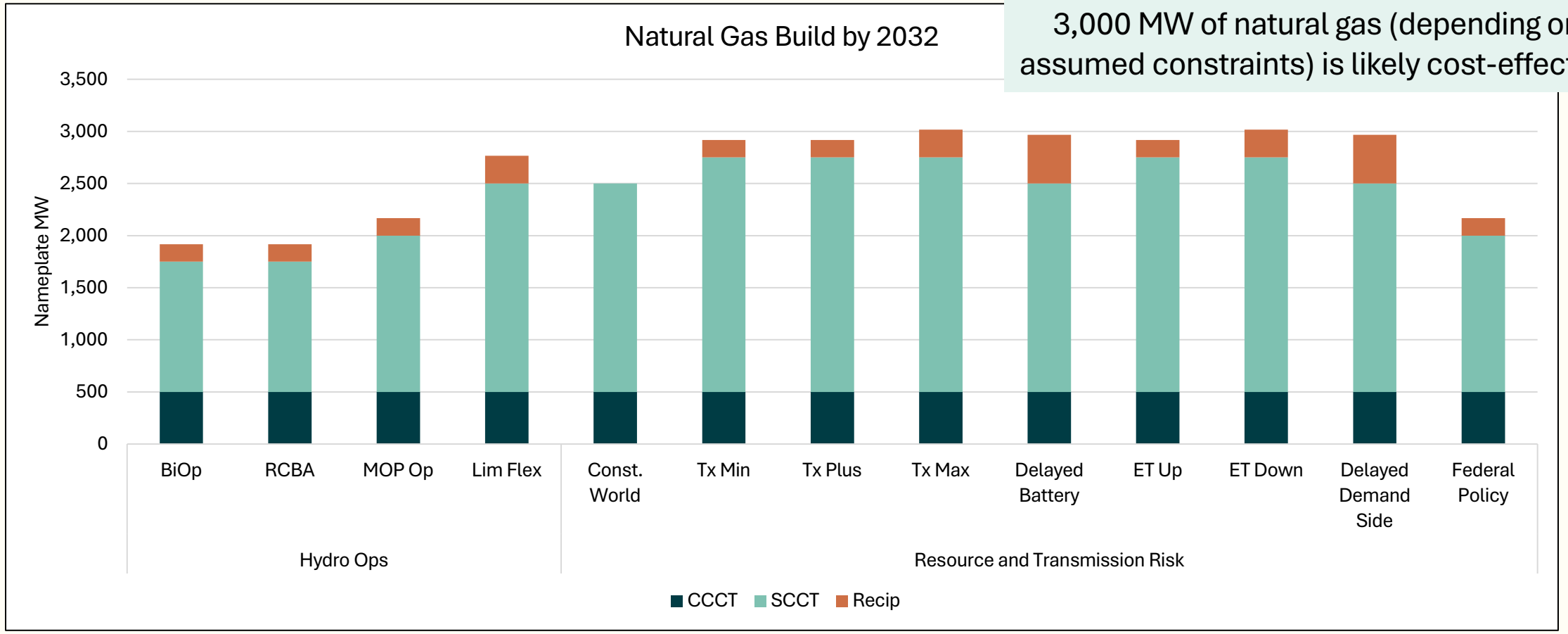
Natural Gas

Natural Gas

- Natural gas is selected in all sensitivities, providing energy and supporting the planning reserve margins
- Model prefers gas peakers (simple cycles and recips), particularly in the near-term, which provide more flexibility for the system than combined cycles
  - New gas in the system provides an important role for seasonal reserves, as a hedge against hydro risks
  - Model uses existing gas in the system more for generation and a hedge against both hydro and load risks

Model Results for Natural Gas in 2032

Strategy that includes between 2,000 and 3,000 MW of natural gas (depending on assumed constraints) is likely cost-effective



Advisory Committee Feedback and Recommendation

- In addition to the concern around building supply side resources generally, some entities have expressed concern around the added constraints in the natural gas system
  - Planned/committed new gas is around 1,400 MW
  - PNUCC NRF identifies an additional 1,600 MW of needed future “dispatchable capacity”
- Additionally, policy on the west side makes it challenging (although not impossible) to build new natural gas

- **Proposal:** Recommend at least 2,000 MW of natural gas as part of a cost-effective strategy
  - Note: Option 2 includes an additional 250 MW of natural gas, essentially an additional simple cycle

Back to the Options

Options Building on Initial Test Strategy

Resource	Option 1	Option 2
Conservation	1,060 aMW $150/MWh OR & WA (860 aMW) $70/MWh ID & MT (200 aMW)	950 aMW $100/MWh OR & WA (800 aMW) $60/MWh ID & MT (150 aMW)
Demand Response	590 MW	
Voltage Regulation	220 MW	
Renewables	9,000 MW + 335 MW wind	9,000 MW
Storage	5,200 MW	
Natural Gas	2,000 MW	2,250 MW

- Staff recommend Option 1, however both strategies:
  - Provide a portfolio approach informed by the range of sensitivities and advisory committee feedback
  - Are cost-effective and prioritize resources consistent with the Power Act (costs are within 0.12% of each other)
  - Appear adequate based on the "quick" test, with Option 1 being a little longer (a full test will still be needed)

Additional Analysis
Further Constraining Gas

Analysis of Less Gas than Initial Strategy

- Analysis started with the initial test strategy, but reduced the amount of natural gas to 1,600 MW
- In solving for the remaining gap, the model selected an additional 1,440 MW of wind
- Staff does not consider this option to be cost-effective, unless the Council determines that 2,000 MW of natural gas would not be available
- Appears to be marginally adequate based on quick test, although a full test would be needed to confirm adequacy

Resource	Alternative Analysis
Conservation	950 aMW $100/MWh OR & WA (800 aMW) $60/MWh ID & MT (150 aMW)
Demand Response	590 MW
Voltage Regulation	220 MW
Renewables	9,000 MW + 1,440 MW wind
Storage	5,200 MW
Natural Gas	1,600 MW

Discussion of Resource Strategy Options

Additional Recommendations Around the Strategy Regardless of Option

- In addition to putting forward a recommended portfolio of resources, staff recommends the Council include supporting recommendations
- Council meeting on May 13 touched on these concepts, including:
  - Importance of addressing the barriers to supply side constraints (e.g. interconnection, permitting, etc.)
  - Need for investment in transmission
  - Exploring and leaning into the flexibility of the existing system, particularly in the winter
- In June, staff will bring specific language around these (and other recommendations) for the Council to consider and refine

Thoughts on Resource Strategy

- It will be important to narrow in on a strategy soon in order to allow sufficient time for a complete adequacy check
- While not unanimous, staff heard general support from the Power Committee for the initial test strategy, and staff is recommending a path along the lines of Option 1 (although Option 2 is also viable)
  - How comfortable is the Council with these options?
  - Is there a clear preference for either Option 1 (more EE + wind) or Option 2 (more gas)
  - Are there any additional studies that the Council needs in order to help inform a final resource strategy recommendation?
- Staff will bring proposed language in June for discussion

Recommendations to Bonneville

Recommendations to Bonneville

- In addition to developing a regional resource strategy, the Council puts forward recommendations to Bonneville to guide resource acquisition in support of their obligations
- Council has always designated a portion of the regional conservation target to Bonneville, and staff have been working on an approach with Bonneville staff for a similar allocation in the Ninth Plan
- For supply side resources, since Bonneville's full obligation under the Provider of Choice contracts is not fully known, staff is proposing an approach that provides guidance while avoiding being overly prescriptive

Bonneville Conservation

Overall Approach

- Ninth Plan includes supply curves for all 17 zones included in the model
- Staff worked with Bonneville staff to map its customers to the Council's modeling zones and determine what share of those zones represent Bonneville based on load
    1. Mapping customers to zones: Staff used EIA data, data on Bonneville transfer customers, and Bonneville staff expertise
    2. Determined Bonneville customer load: Staff used total retail load data provided in Bonneville's contract high water mark implementation workbooks
    3. Determine share of zone represented by Bonneville load: Staff compared Bonneville customer loads to total historical loads in the zone for the same year
- From this, once a final target is calculated, staff can determine how much of the cost-effective potential in each zone should be apportioned to Bonneville

Proposed Bonneville Target

(assuming Options above; amount will change with changes to regional strategy)

Resource	Option 1	Option 2
Regional Target	1,060 aMW $150/MWh OR & WA (860 aMW) $70/MWh ID & MT (200 aMW)	950 aMW $100/MWh OR & WA (800 aMW) $60/MWh ID & MT (150 aMW)
Bonneville Target	435 aMW $150/MWh OR & WA (390 aMW) $70/MWh ID & MT (45 aMW)	400 aMW $100/MWh OR & WA (365 aMW) $60/MWh ID & MT (35 aMW)

- These numbers represent the amount of cost-effective conservation mapped to the Bonneville customer load
- 2021 Power Plan included a recommendation that at least 90% of conservation acquired is through programs; and staff is considering a similar recommendation for the Ninth Plan

Additional Bonneville Program Recommendations

- Staff recommend that the Ninth Plan include additional recommendations supporting and encouraging Bonneville to provide flexibility in its program to meet the diverse set of customer needs while achieving the conservation resource targets included in the plan

Bonneville Demand Response and Voltage Regulation

Demand Response

- In the 2021 Power Plan, the Council recommended that Bonneville work to enable and encourage customer utilities to pursue the cost-effective demand response identified in the modeling
- Some members of the Demand Response Advisory Committee have expressed concern with Bonneville rates not setting appropriate signals
- For the Ninth Plan, staff recommend a similar recommendation, including sending signals through rate design to encourage demand response that is valuable for the system
  - Bonneville's updated rate methodology (PRDM) provides some options for sending signals to customers including the Tier 1 demand charge and the new capacity credit

Voltage Regulation

- Voltage regulation should be pursued by Bonneville customers as part of the overall resource strategy
- This could be delivered as either a demand response or conservation program
- Bonneville should continue developing and identifying opportunities for supporting customers in implementing voltage regulation, whether as a conservation resource or demand response program
  - This would be in addition to the previously identified cost-effective conservation resource targets for Bonneville

Bonneville Supply Side Resources

Potential Needs Beyond Conservation

- Bonneville's total obligation under the Provider of Choice contracts is not yet fully known
- Tier 1 Obligation
  - Bonneville will provide up to 7,250 aMW to customers at the Tier 1 rate
  - The timing of when Bonneville would need to acquire resources to serve this full 7,250 aMW is unknown (i.e. it might not be at 7,250 aMW in year 1 of the contracts)
- Tier 2 Obligation
  - Customers still have time to make their Tier 2 elections, including how much load would be served as part of the Tier 2 long-term firm option
  - Timeline for knowing this obligation is after the likely release of the draft

Staff Recommendation

- Staff recommends that rather than providing prescriptive MW recommendations for supply side resources, that the Ninth Plan instead provide broader recommendations to help guide future potential resource acquisition
- As a starting point, staff recommend that Bonneville prioritize adding **renewables** to the system:
  - Traditionally Bonneville has needed energy (not capacity)
  - Existing hydropower base can help support the integration of renewables
  - Bonneville's transmission position is also supportive of integrating renewables
  - Staff expects that much of the regional natural gas will be acquired by other utilities, and therefore more of the remaining need will be to acquire renewables
  - Power Act prioritizes cost-effective renewables
  - Many (although not all) customers are looking to Bonneville to provide a clean option for policy
- Should Bonneville determine a capacity need through its needs assessments or other determination of need, Bonneville should assess whether storage (including hybrid resources) or natural gas are more cost-effective to support their needs

Recommendation on RFP Process

- Bonneville has not acquired a new large resource in a competitive bid process in decades
- Many stakeholders have expressed the need to start the RFP process soon to ensure timely delivery of resources
- It will be critical that Bonneville is ready to act when the need is identified
- Bonneville is already working on establishing a process around resource acquisition
- Staff recommend that the plan include language recognizing Bonneville's progress on this and expressing some urgency in getting this into place to support future resource acquisition

Additional Bonneville Recommendations

Recommendation on Transmission

- Council discussed at the May 13 meeting interest in a strong recommendation to the region to invest in transmission development
- Staff recommends a parallel recommendation to Bonneville recognizing the existing transmission efforts
  - Continue to advance the projects identified in the Grid Expansion and Reinforcement Portfolios
  - Continue to work on processes for evaluating, expanding, and improving access to the transmission system through the Grid Access Transformation Project
  - Continue to work with regional entities on the identification and development of cost-effective transmission capacity expansion opportunities

Support Other Elements of Plan Recommendations

- In addition to the specific recommendations discussed in this section, staff expect that Bonneville will be a crucial player in supporting many of the other recommendations discussed for the broader Power Plan
- In June, in the drafts of Chapters 4 and 5, staff will identify clearly those areas for which they recommend Bonneville play a role

Proposed Model Conservation Standards

Reminder about Model Conservation Standards

- Section 4(e)(3) requires that the power plan include an energy conservation program, including "model conservation standards"
- These can include standards for buildings, programs, other others
  - Plan 1 – Plan 6: Focused on building-code specific requirements
  - Seventh Plan: Focused on encouraged programs to focus on gaps in implementation
  - Eighth Plan: Focused on consistency
- Model conservation standards need to be at levels that are regionally cost-effective and economically feasible for consumers
- Now that the Council is getting close to a resource strategy, staff is in a better position to recommend specific mode

Proposed Areas for Model Conservation Standards in the Ninth Plan

Data Center Standard

- Standard for new data centers that seeks to address power usage, peak power, and water usage

Heat Pump Retro-Commissioning

- Approach focused on providing “tune-ups” to existing heat pumps to maximize the benefit for both home occupants and the grid

Next Steps

Transitioning to Drafting

- Chapters 4 and 5 of the draft program are intended to capture the full suite of recommendations from the Council, including:
  - Topics discussed at the May 13 meeting
  - Topics discussed today
  - Other recommendations identified through the drafting process
- Staff propose to draft these chapters for review at the June meeting
  - Staff will try to work with members on some specific elements of the drafting as they relate to comments from the Council meetings
  - Goal is to send draft chapters to members around June 9-10 to provide time for review in advance of the Council meeting discussion

Upcoming Council Meetings

Date	Council meeting agenda item
May 27 (Webinar)	Continued discussion around proposed recommendations • Regional resource strategy • Recommendations to Bonneville • Supporting recommendations
June 16-17 (Portland)	Transition to discussion of recommendations to review of chapters that capture the recommendations: • Chapter 4 – Action Plan • Chapter 5 – Conservation Program
June 30 – July 1 (Webinar)	Continue discussion and refinement of chapters, as we work towards a draft plan • Chapter 4 (second look) • Chapter 5 (second look) • Introduction (first look) • Chapters 1-3 (revisit as needed)
July 14-15 (Portland)	Possible decision to release the draft Ninth Plan

Further Discussion?