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September 7, 2022

### **MEMORANDUM**

**TO: Council Members**

**FROM: Jennifer Light, Power Division Director**

**SUBJECT: Conservation Under the Power Act**

### **BACKGROUND:**

**Presenter:** John Shurts and Jennifer Light

**Summary:** This presentation provides an overview of conservation under the Northwest Power Act. Staff will cover the following topics:

1. The Council's obligations under the Act around cost-effective conservation
2. Examples from the two most recent power plans of how the Council developed a conservation program consistent with the Act requirements
3. Bonneville's obligations for conservation acquisition and plan consistency

# Conservation Under the Northwest Power Act

John Shurts and Jennifer Light  
Council's Power Committee  
September 13, 2022

# Presentation Outline

- Act's requirements for Council in Power Plan
  - Conservation as a resource
  - Conservation definition
  - Conservation priority and cost-effective priority
  - Conservation in the Power Plan and the plan's resource strategy
  - Cost-effectiveness and what that means for conservation
- How this played out in plan development
  - 7<sup>th</sup> Plan
  - 2021 Plan
- Bonneville, Conservation Acquisition, and Plan Consistency

# **CONSIDERATION OF CONSERVATION IN COUNCIL PLAN DEVELOPMENT**

# Conservation as a “resource”

Section 3(19) "Resource" means—

- (A) electric power, including the actual or planned electric power capability of generating facilities, or
- (B) *actual or planned load reduction resulting from direct application of a renewable energy resource by a consumer, or from a conservation measure*

-- implications

# What is “conservation” under the Act?

3(3) "Conservation" means any reduction in electric power consumption as a result of increases in the efficiency of energy use, production, or distribution.

**Note** the two-pronged definition – to qualify as “conservation” under the Act, an action must:

- reduce electric power consumption (“power” is defined to include both energy and peaking capacity – 3(9))
- do so as a result of increases in the efficiency of energy use . . .

# What is “conservation” under the Act? (cont’d)

## Implications:

- reduction/curtailment of electric consumption is not, by itself, conservation (sweater/building example)
- what is meant by increases in *efficiency* of use, etc? some mechanism for getting the same value with less energy
- at what level to assess? process vs plant (widget example)
- modern issue - implications for demand response measures
  - time-of-use measures; contracted curtailment; etc.
- modern issue - behavioral measures
- modern issue – implications for electrification
  - fuel switching history; flip in direction

# Conservation as a “priority”

4(e)(1):

The plan shall give priority to resources which the Council determines to be cost-effective.

Priority shall be given: first, to conservation; second, to renewable resources; third, to generating resources utilizing waste heat or generating resources of high fuel conversion efficiency; and fourth, to all other resources.

Implications:

- read together? past practice. read separately? 2021 Power Plan issue.
- what does it mean to “give priority”?

something that is important and must be dealt with before other things; the fact or condition of being regarded or treated as more important; take precedence or proceed before others; something important that must be done first or needs more attention than anything else



# Conservation in the plan resource strategy

4(e)(2) The plan shall set forth a general scheme for implementing conservation measures and developing resources pursuant to section 6 of this Act to reduce or meet the Administrator's obligations with due consideration by the Council for environmental quality, compatibility with the existing regional power system...

4(e)(3)...The plan shall include the following elements which shall be set forth in such detail as the Council determines to be appropriate:

(A) an energy conservation program to be implemented under this Act, including, but not limited to, model conservation standards

also 4(e)(3)(D) ...

# Conservation and cost-effectiveness

3(4)(A) "Cost-effective", when applied to any measure or resource referred to in this Act, means that such measure or resource must be forecast--

(i) to be reliable and available within the time it is needed, and

(ii) to meet or reduce the electric power demand, as determined by the Council or the Administrator, as appropriate, of the consumers of the customers at an estimated incremental system cost no greater than that of the least-cost similarly reliable and available alternative measure or resource, or any combination thereof.

(B) [system cost]: all direct costs of a measure or resource over its effective life

(D) ... "estimated incremental system cost" of any conservation measure or resource shall not be treated as greater than that of any nonconservation measure or resource unless the incremental system cost of such conservation measure or resource is in excess of 110 per centum of the incremental system cost of the nonconservation measure or resource.

# Conservation and cost-effectiveness (cont'd)

## Implications/comments:

- cost effectiveness is a comparative test, not internal cost-benefit test: especially comparing cost of conservation measures vs least-cost generation alternative
- cost effective in the perspective of the end users (“consumers of the customers”) – not utility cost perspective
- all direct costs over life of resource – levelize the costs of vastly different resources in some reasonable way to be able to compare costs – issues in implementation
- 110% edge to conservation – how added in
- resources compared must be “similarly reliable and available” “within the time needed” – **major factor in the analysis of conservation and setting of conservation targets in the 2021 Power Plan**
- [https://www.nwcouncil.org/2021powerplan\\_cost\\_effective\\_conservation\\_recommendation\\_summary/](https://www.nwcouncil.org/2021powerplan_cost_effective_conservation_recommendation_summary/) (2021 Power Plan supporting materials)

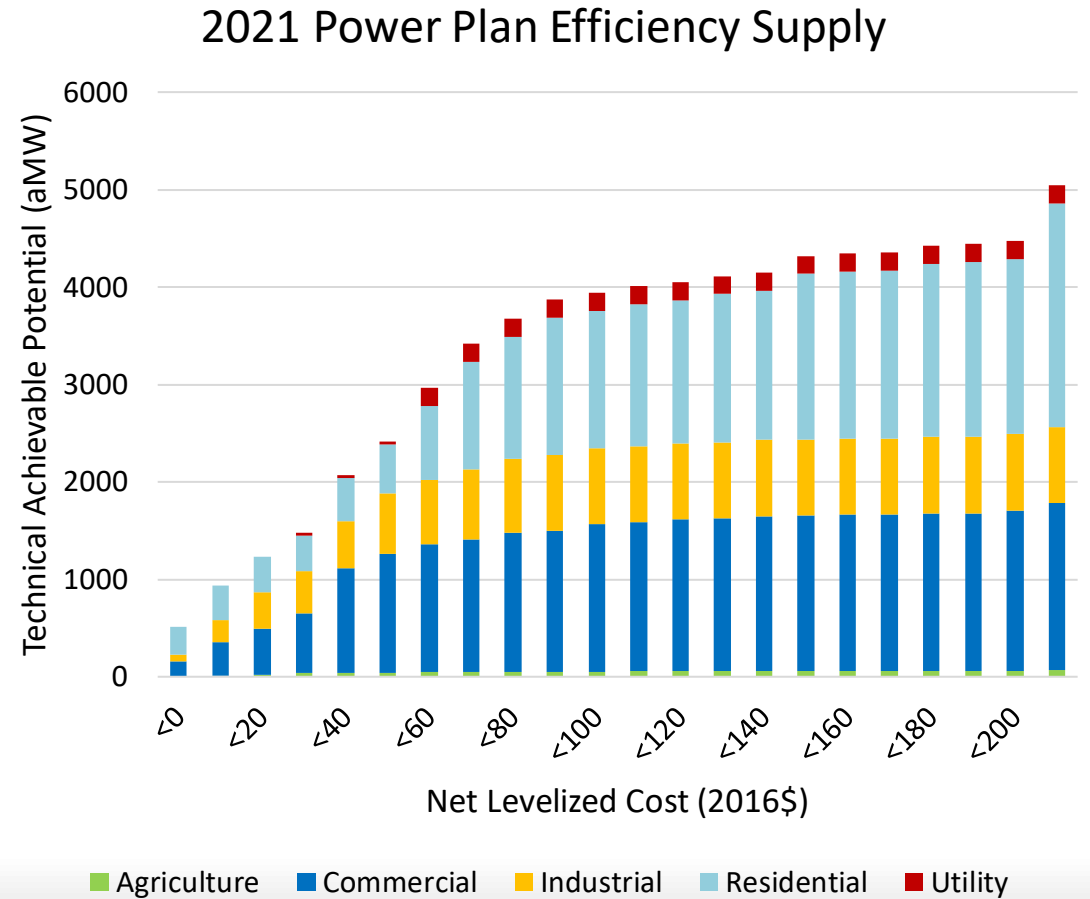
# **METHODOLOGY USED BY COUNCIL**

# Determining Cost-Effective Amount

- Step 1: Identifying system needs
- Step 2: Defining potential resources to meet those needs
- Step 3: Analyzing the resource options
- Step 4: Develop resource strategy

# Defining Available Resources

- Goal is to capture resource attributes and costs to allow for a comparison of options
- Develop supply curves for energy efficiency capturing:
  - Available potential over time
  - Cost of efficiency measures
  - Shape of energy savings
- Also develop estimates for availability, cost, etc. for other resources and market supply

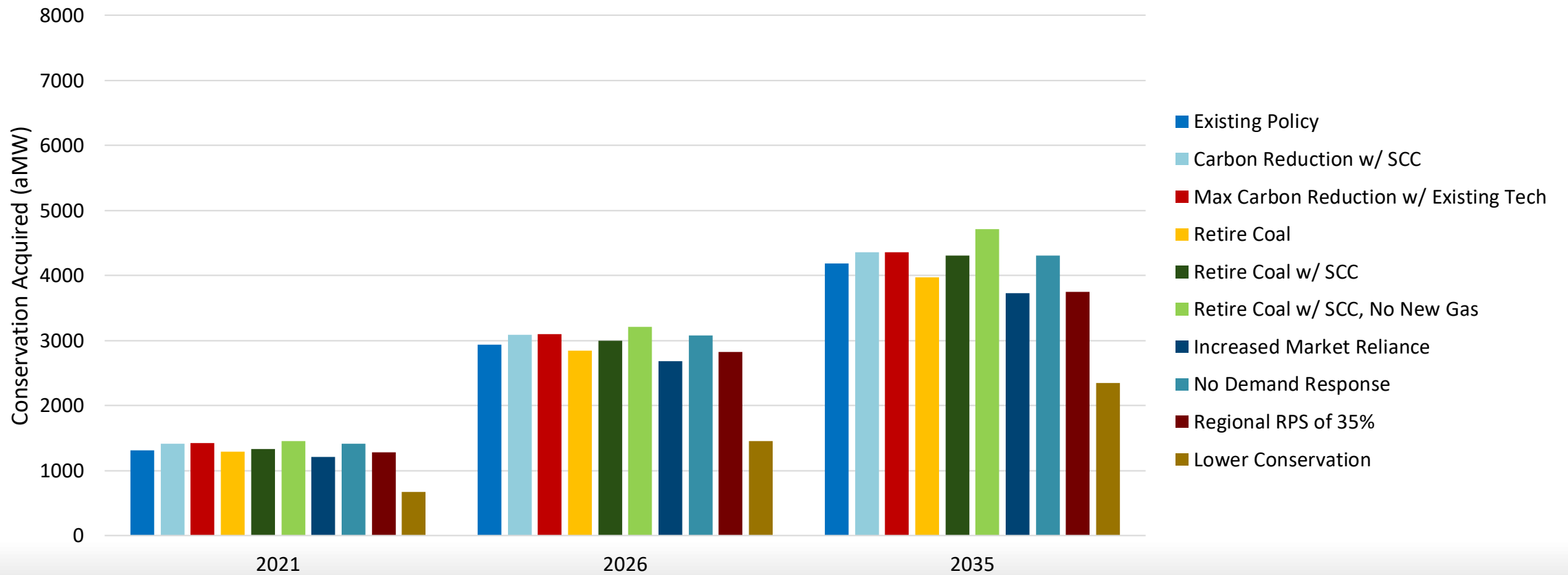


# Analyzing Resource Options

- Model a variety of scenarios to explore a variety of potential future policies under a range of uncertainty
- Analyze model results and other considerations to establish a **cost-effective** resource strategy that assures an adequate, efficient, economical and reliable power supply
- Council's approach has evolved along side the power system

# Seventh Plan Scenario Results for Conservation

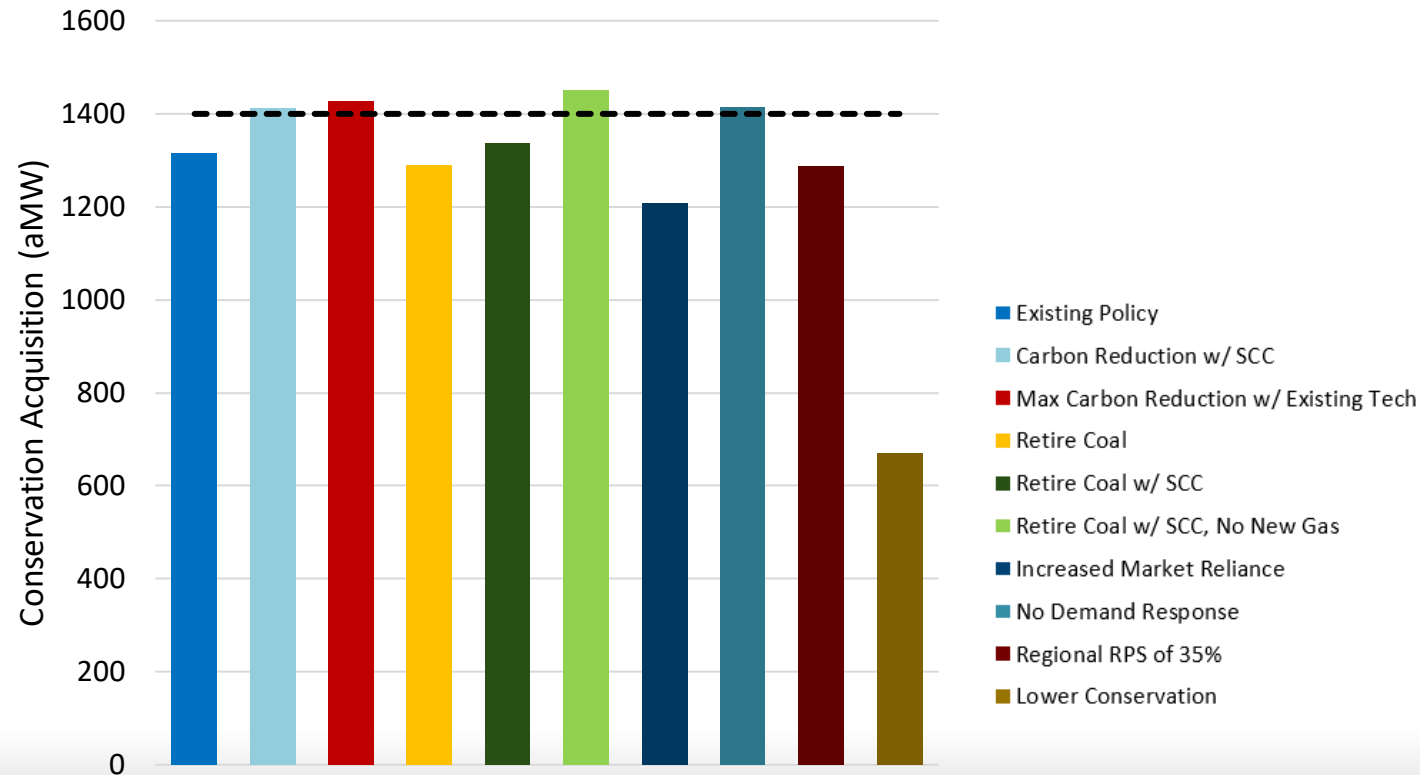
Conservation Results in 7th Plan Scenario Modeling





# Focusing in on the Action Plan Period

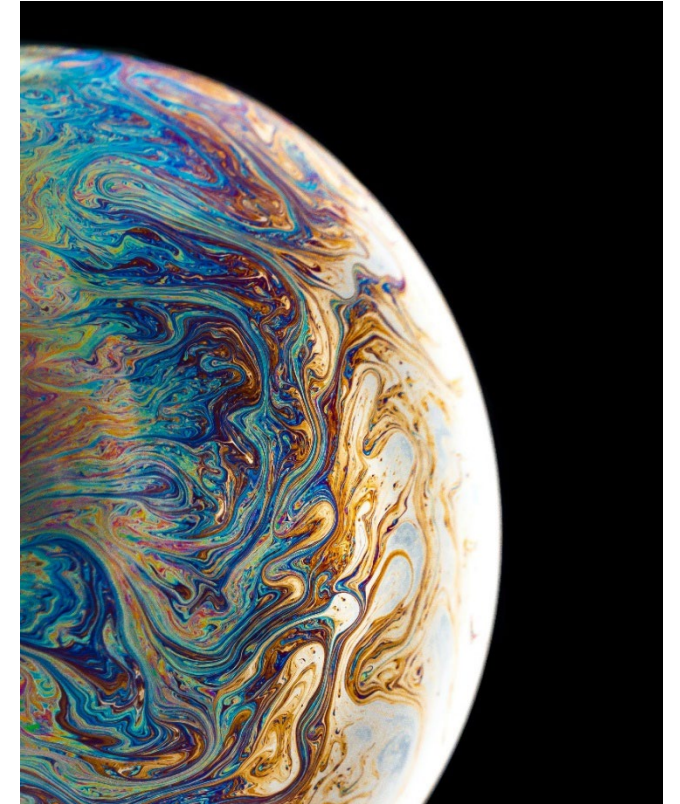
Conservation Acquisition by 2021  
in Seventh Plan Scenarios



- Results robust across most scenarios
- Considering cost and risk, as well as likely policy futures, 1400 aMW was determined to be cost-effective relative to other resources
  - Robust solution across futures that valued carbon
  - Essentially purchasing conservation up to the cost of a gas plant

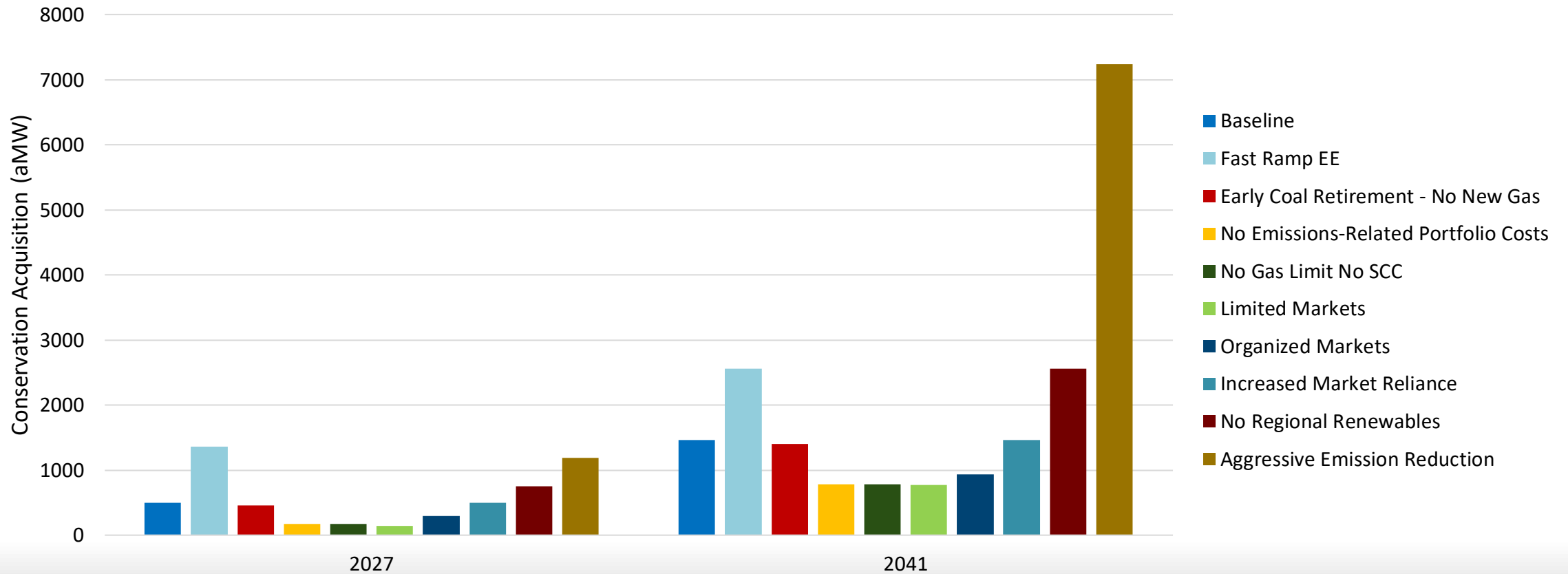
# Grappled with More Uncertainty in 2021 Power Plan

- Clean policies across WECC resulting in a changing resource mix
- Dramatic decrease in price for alternative resources:
  - Renewables cost have come down significantly
  - Decrease in price of combustion turbine
  - Market prices are rapidly decreasing and frequently negative by ~2030
  - Decrease in fuel prices
- Uncertainty remains around market availability during times of need, impacts of electrification of loads, and more



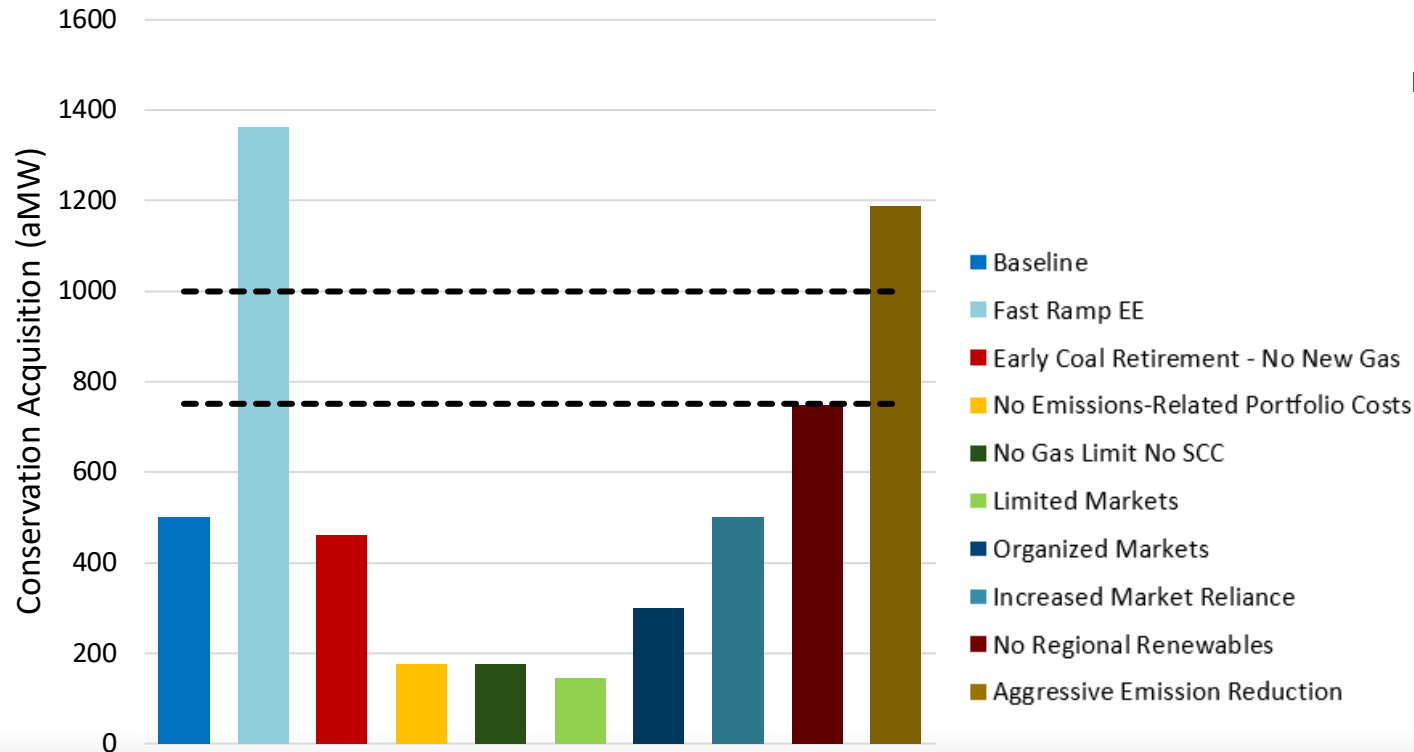
# 2021 Plan Results for Conservation

Conservation Results in 2021 Power Plan Scenario Modeling



# Focusing in on Action Plan Period

Conservation Acquisition by 2027  
for Select Scenarios



- Amount of efficiency was sensitive to assumptions
- Developed 750-1000 aMW target to ensure:
  - Enough resources for an adequate system
  - Recognize uncertainty in loads, resource development and costs
  - Hedging risk with hydro flexibility

# **BONNEVILLE'S OBLIGATIONS TO ACQUIRE CONSERVATION CONSISTENT WITH THE ACT**

# Relevant Power Act Provisions

4(d)(2) Following adoption of the plan and any amendment thereto, all actions of the Administrator pursuant to section 6 of this Act shall be consistent with the plan and any amendment thereto, except as otherwise specifically provided in this Act.

**6(a)(1) The Administrator shall acquire such resources through conservation, implement all such conservation measures, and acquire such renewable resources which are installed by a residential or small commercial consumer to reduce load, as the Administrator determines are consistent with the plan....**

6(a)(2) ... [T]he Administrator shall acquire, in accordance with this section, sufficient resources--  
(A) to meet his contractual obligations that remain after taking into account planned savings from measures provided for in paragraph (1) of this subsection, and  
(B) to assist in meeting the requirements of section 4(h) of this Act.

6(b)(1) Except as specifically provided in this section, acquisition of resources under this Act shall be consistent with the plan, as determined by the Administrator.

# Implications: Ongoing conservation program

- **Ongoing conservation program**

- note the sequence

- ongoing conservation program to reduce load with cost-effective conservation - not tied to need for other resources; instead, stretch the value of existing hydrosystem and stem off the day more expensive generating resources are needed

- from the report of the Senate Energy Committee, after summarizing the bill's conservation provisions and priority:

- “The Administrator is required to rely on conservation to the maximum extent feasible...and to continue conservation efforts even if [Bonneville] possesses an adequate supply of power.” Senate Report 96-272 (July 1979), p. 16 (Legislative history compilation, p. 460)

- Representative Al Swift in introducing on the House floor what was called the reconciliation version of the bill after it had been through two House committees:

- “The bill requires in section 6(a) that all cost-effective conservation ... be implemented or acquired by BPA; this obligation is a continuing one, regardless of other resource obligations. After planned savings from such measures and resources are taken into account, the remaining obligations are to be met through BPA's acquisition of resources.” Rep. Swift, H9853 (Sept. 29, 1980) (Legislative history compilation, p. 185)

# Implications: Consistency

## ■ Consistency

- arrangement represents a *constitutional* consideration – independent federal agency decision, tied to interstate agency Council’s power plan via “consistency” determination
- so, not a non-discretionary direct mandate
- even so, a *substantive* tie or criteria; not just procedural or consideration or guidance
- definitions:
  - marked by agreement : COMPATIBLE; agreement or harmony of parts or features to one another or a whole : CORRESPONDENCE; agreeing or accordant, compatible, not contradictory; agreement, harmony, or compatibility
- one way to think about it: power plan is default for Bonneville decisionmaking on matters within its scope; need general correspondence or agreement at program level; Bonneville may deviate in particulars with reasonable explanation that is something other than just policy desires
- plan’s conservation acquisition target – how to assess consistency: results? vs. plans/process/budgeting? – where are decisions made?
- how close is consistent? gray area, but range
- what to do if consistency issue? review; nothing; next power plan; exchange of views; objections; 4i review of Bonneville actions; 4j request for action; litigation; etc.