# Cascade Water Alliance
# Annual AMWA Conference
# *New Thinking About Rates, Costs, and Consumer Demand*

October 21, 2014

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# Key Topics

Today's presentation:

- Initial supply strategy
- What has changed since that strategy was adopted
- New supply strategy

Appendix – Questions you should ask:

- What about conservation?
- Demand forecasting and meeting demand
- Strategies and objectives
- New regional resiliency strategy (Ray Hoffman)

# Cascade Water Alliance

- Member-owned wholesale utility: 5 cities (Bellevue, Issaquah, Kirkland, Redmond, Tukwila) and 2 special districts (Sammamish Plateau and Skyway Water & Sewer)
- Seattle-area Regional Water Authority serving about 350,000 people east and south of Lake Washington
- Formed in 1999 following a decade of regional governance discussions and conflict
- Formed by agencies convinced that they needed to take control of their future water supplies to provide for regional water needs
  - -Projected need for new supply to serve rapidly growing suburbs
  - -Skepticism regarding absolute reliance on conservation and system efficiency improvements to meet growth

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# Initial Supply Strategy

# Cascade's Initial Supply Strategy

- "Declining Block" contract with Seattle
  - -Block supply through 2023
  - -Supply declines 85% from 2024-2045
- In 2009, purchased Lake Tapps as a new major potential water supply source (54,300 acre-feet)
- Tacoma as interim supply by 2009
- Efficiency and conservation as survival mechanisms
- Development of member independent supply

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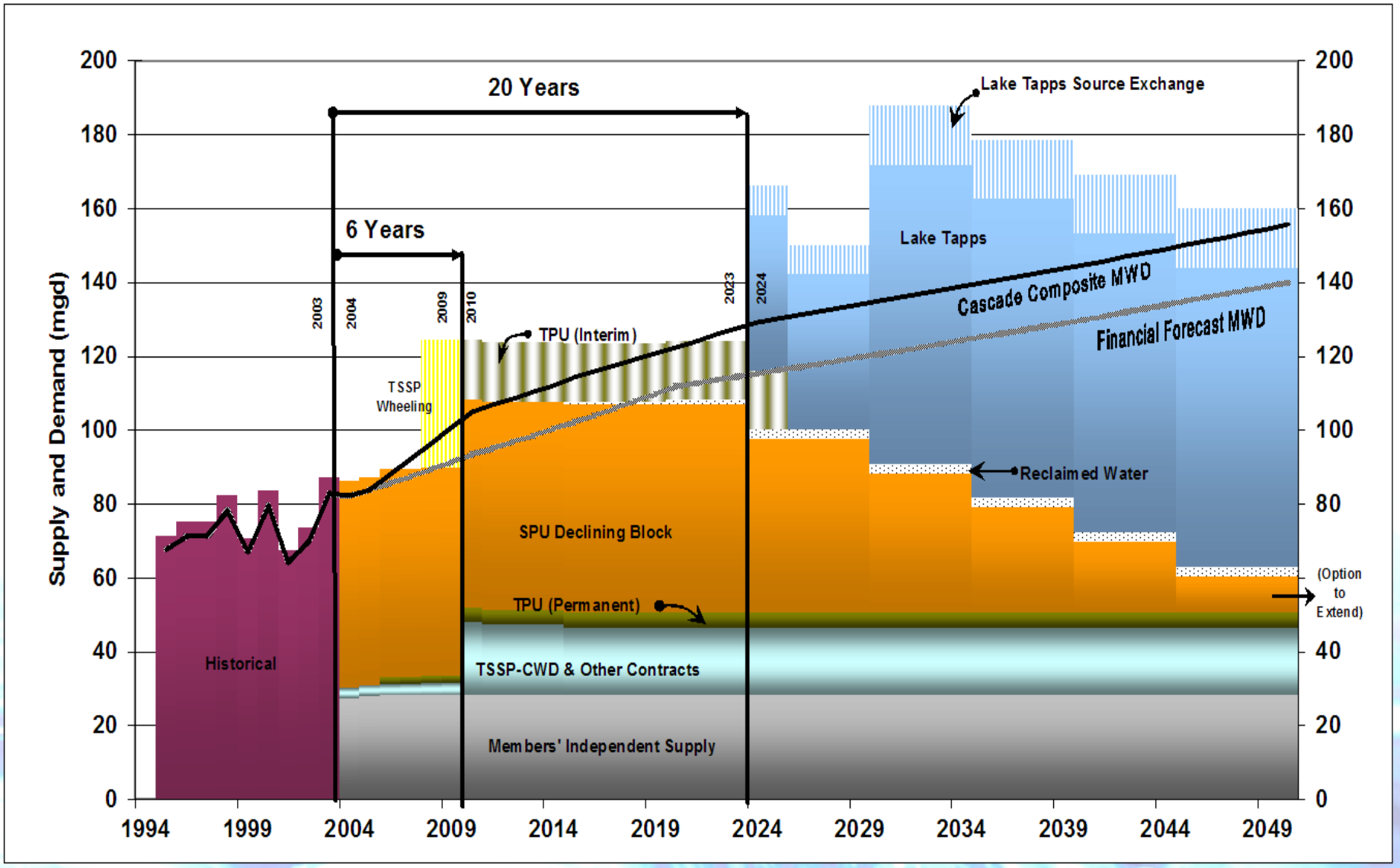
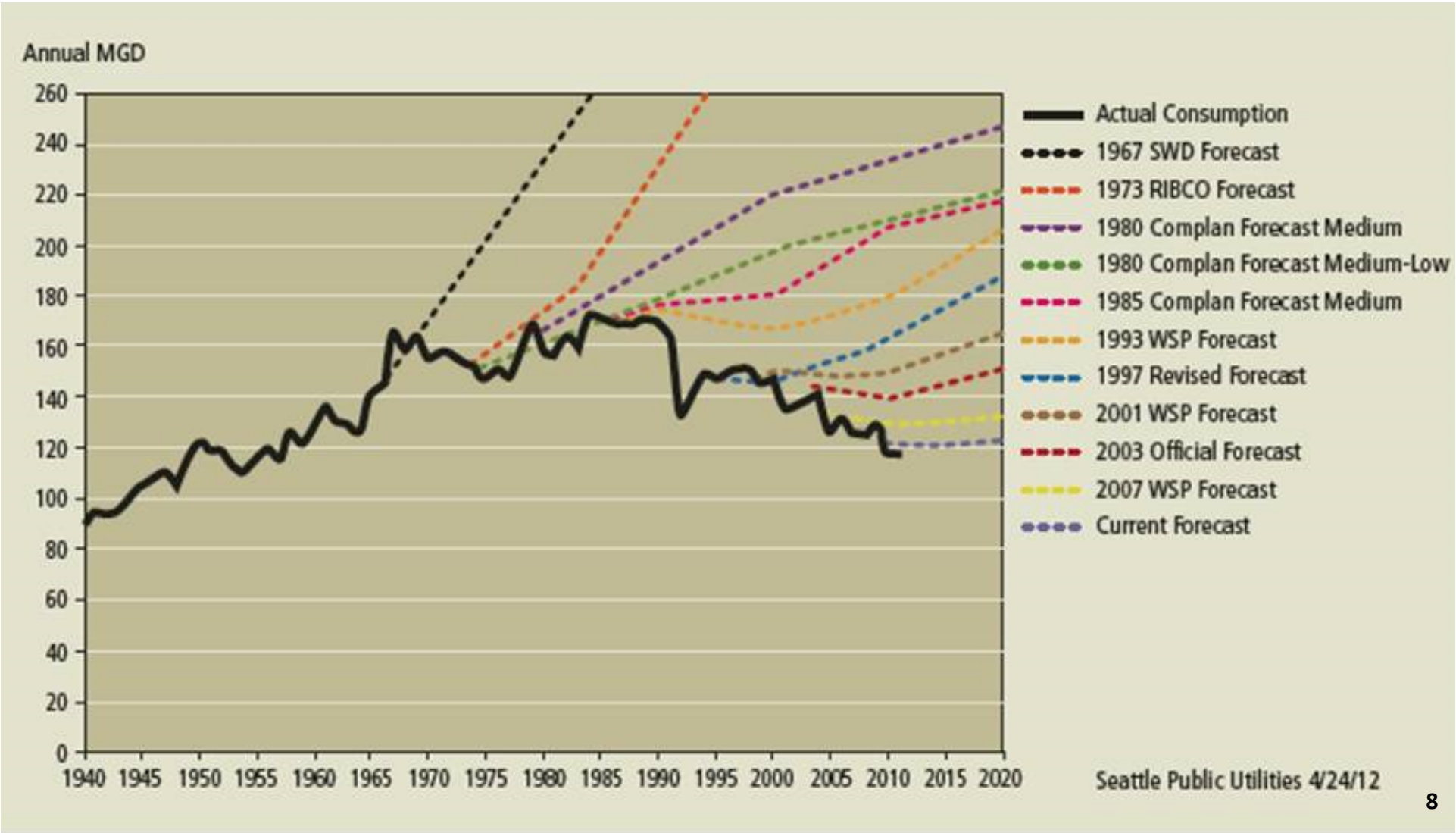
# Demand Forecast as of 2004

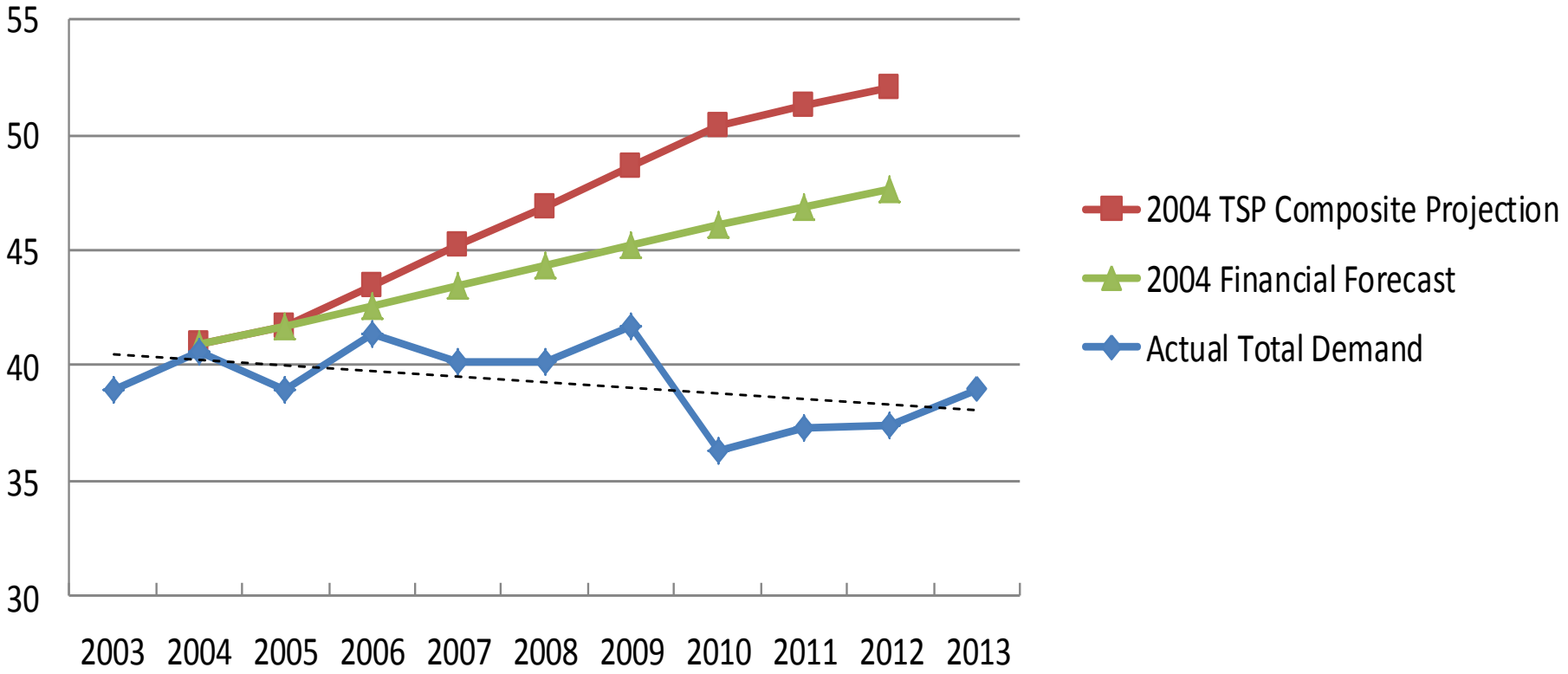


# What has Changed?

# Shifting Water Demand Forecasts
## *(Seattle Public Utilities, Including Cascade)*



# Cascade Average Daily Demand
## *(million gallons per day)*



# Factors Causing Changes in Demand Trends

- **Plumbing efficiency and regulation**
  - -New development has reduced impact on indoor water use
  - -Existing development gains efficiency over time
- **Conservation and technology**
  - -Explicit investments reduce existing demands
  - -Heightened awareness changes behavior
  - -Water system efficiency also improving; reduced losses
- **Densification**
  - -New development has smaller landscape footprint reducing irrigation loads
  - -Trend to high density multi-family also reduces irrigation loads
  - -Existing lower density land use replaced with higher density (low irrigation) development
- **Pricing**
  - -Water rates focus costs on high peak demands
  - -Rising water and sewer rates deter all water usage

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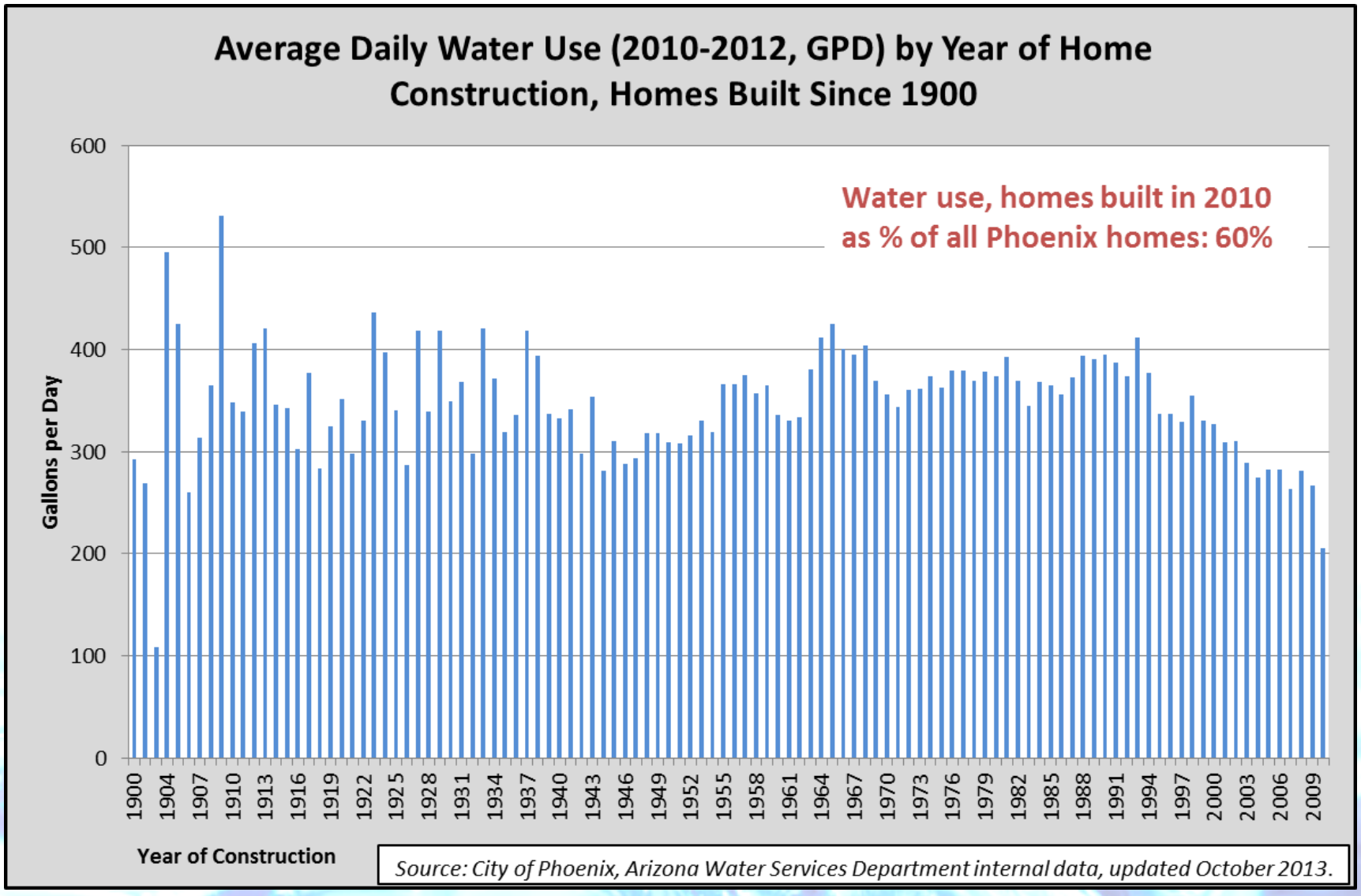

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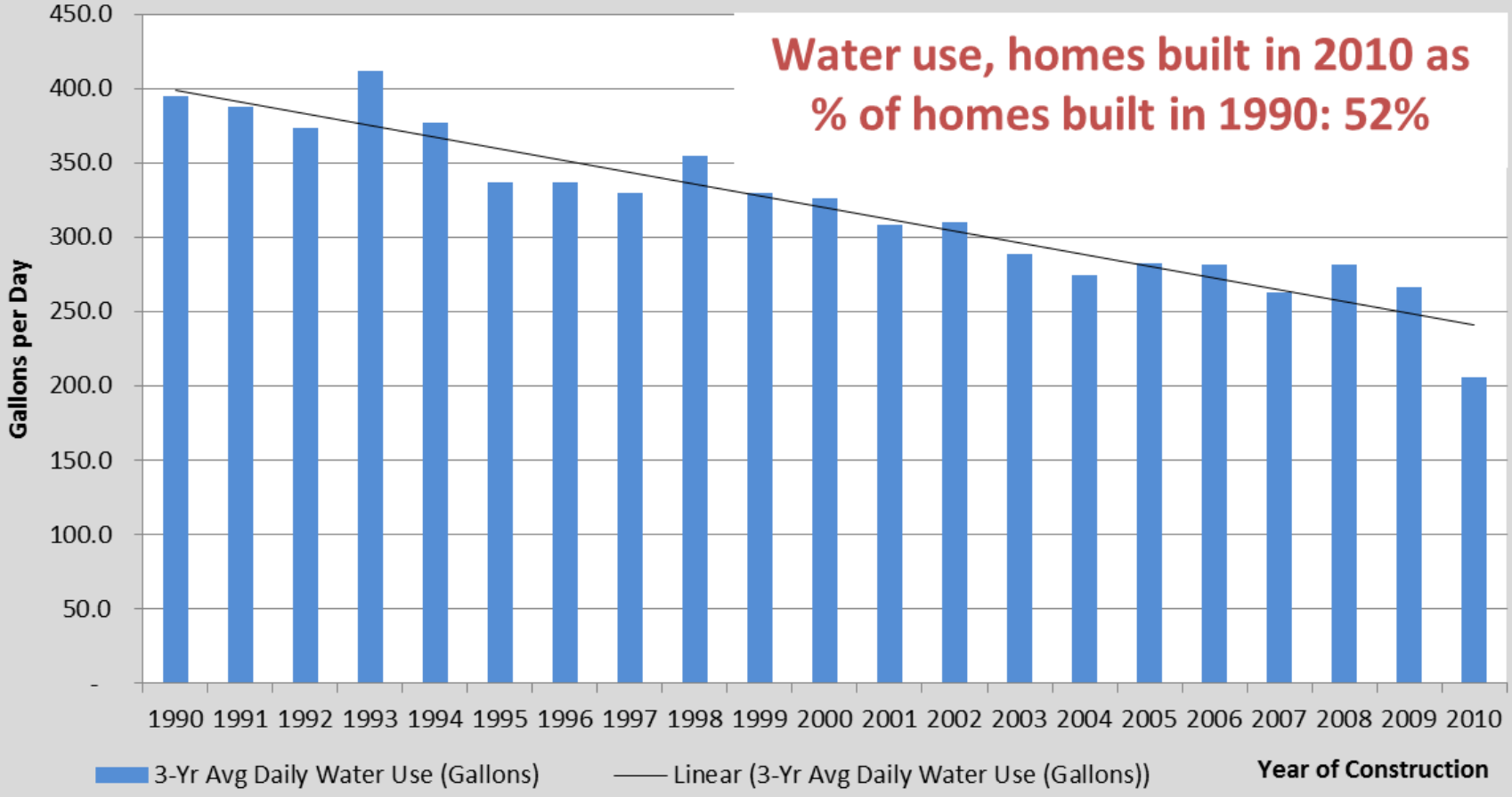
## Average Daily Water Use (2010-2012, GPD) by Year of Home Construction, Homes Built Since 1990




Water use, homes built in 2010 as % of all Phoenix homes: 60%

*Source: City of Phoenix, Arizona Water Services Department internal data, updated October 2013.*

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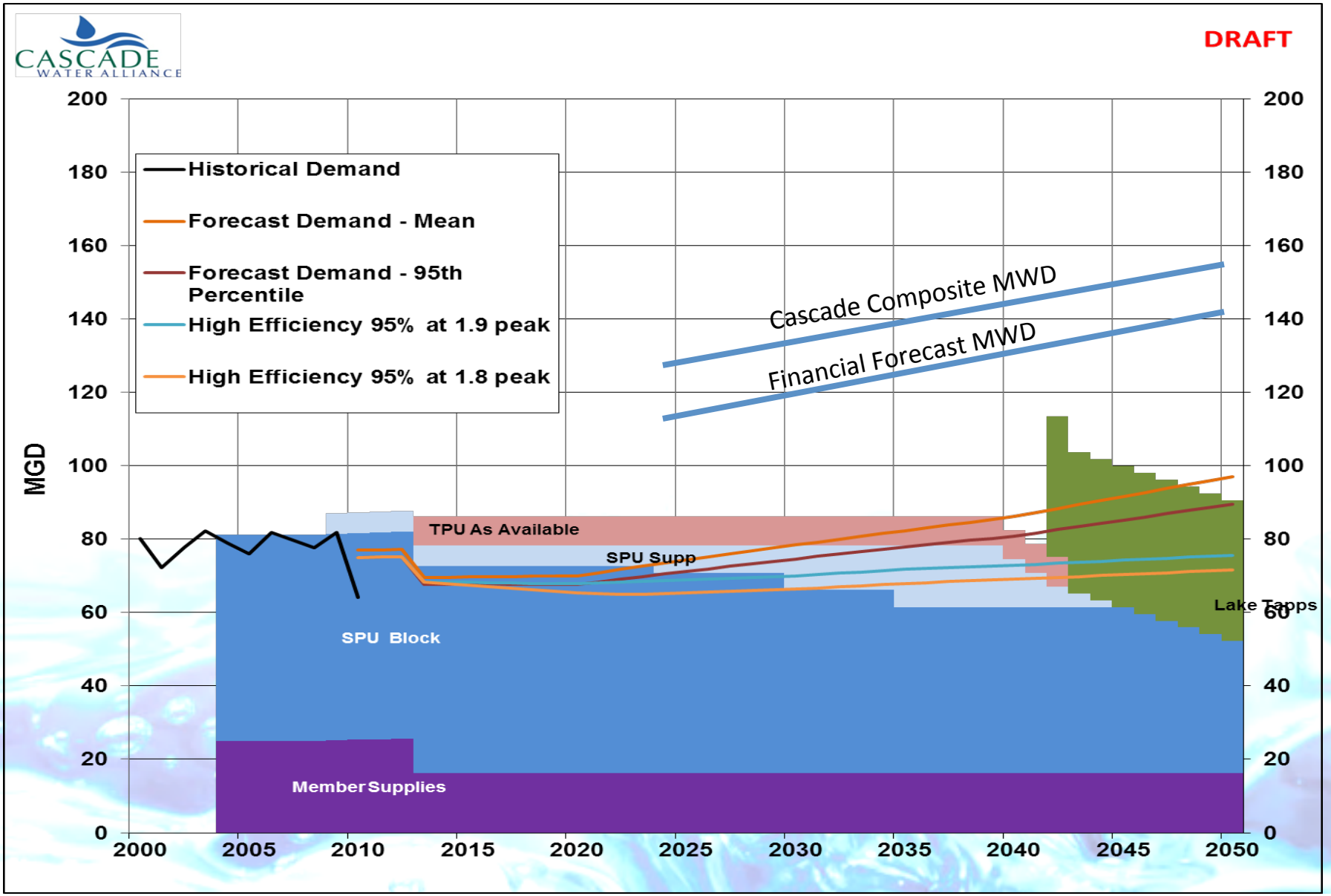
# New Strategy

# Demand Forecast as of 2012



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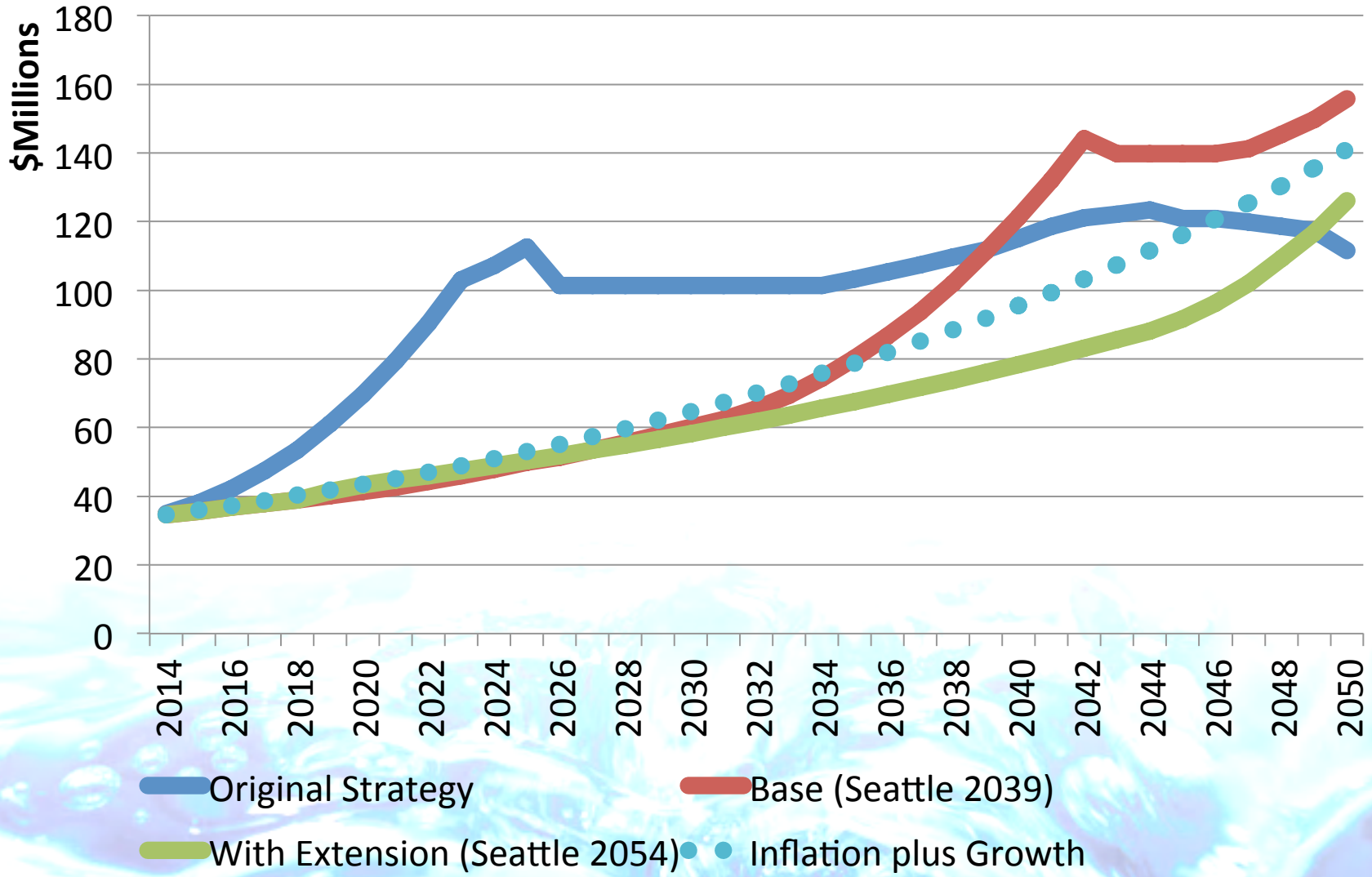
# New Strategies at Cascade

- Extend contract with Seattle from 2024 to 2039 and re-opener discussion every five years
- Modify contract with Tacoma providing water through 2042
- Delay construction of new Lake Tapps water supply as long as reasonably possible
- Do appropriate conservation based on appropriate costs and benefits
- Examine the potential for Cascade's water supply to become a long-term regional supply source

# Benefits to Cascade's Regional Partners

- **Extended revenue (from Cascade)**
  -Decades of added revenue from supply to Cascade
- **Efficient use of existing resources**
  -Uses reserve capacity until needed for internal demands
  -Avoids financial distress of a "glut" market
- **Insurance for the future**
  -Cascade's Lake Tapps supply remains a safeguard against escalating demands
  -Cascade demands can be displaced (with adequate lead time)
- **Flexibility and adaptability**
  -Extensions or accelerations are possible
  -Continued efficient use of water resources can translate into a low-cost model for all participants
- **Enhanced regional reliability**
  -Reliability derives in large part from diversity of supply portfolio
  -Regional interconnections benefit all regional suppliers

# Cascade Projected Revenue Requirements



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# *Appendix*

# Questions You Should Ask

# Determining Conservation's Role in Cascade's Supply Plan

- **Is it cost-effective?**
  -Return on investment is delayed, yet life cycle of investments is often short
- **What is the right target?**
  -Our critical requirement is peak capacity: peak week and seasonal
  -Most hardware (+/or measurable) conservation focuses on indoor use
  -We rejected "volume saved" and moved to "peak season capacity savings" as the supply metric for our situation
- **What do we gain by conserving now?**
  -Ability to quantify as a resource
  -Cumulative gains from small investments
  -Retention of conservation ethic
  -Increased likelihood of further contract extensions
- **What are the hazards?**
  -"Hardening of demand" as flexibility is squeezed out of system
  -Ongoing revenue risk and loss
  -Investments superseded by regulation; chasing trends with money

# Do We Really Believe the Demand Forecast?

- Is population the only control variable?
- Is the nature of growth changing from expansion to densification?
- Does the recent past indicate that something is changing?
- Do projected per capita demands and trends make sense?

# Have We Evaluated All Means of Meeting Demands?

- What are primary system constraints and cost drivers? Total AF? Peak capacity? Storage?
- How do sources vary in addressing critical constraints? Are the right metrics being compared?
- Has there been an evaluation of conservation potential and cost?
- Has there been a comparative economic analysis of conservation vs. “wet” supplies?
- Are both financial (e.g., rates and per capita costs) and economic (e.g., life-cycle cost) evaluations being used?
- Are scalability and ability to defer being adequately considered?

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# What are Risks of Current Strategy?

- If major supply costs are incurred, will demands decline from forecast?
- If supplies are not built, will lower costs increase demands?
- Are accumulating cost burdens realistic?
- Are risks of stranded (or underutilized) investments acceptable?

# What are Risks of a "Conservation" Strategy?

- Will delay put "wet" options at risk?
- Does conservation remove or reduce demand management (e.g., drought) flexibility?
- Does delay increase total costs?

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# What is Our Objective?

- Adequate supply at all costs? Never a restriction or shortage? Some metric of supply reliability?
- What is our service commitment re: demands? Are we responding to quantity or quality of service requests? (if less water delivers the same value package, is it the same?)
- Lowest price?
- A defined balance of supply and financial risks? Where is that balance point?
- Is there a flexible path that brings these two dimensions together? With what risks and management/planning mandate?

# What Are the Reasonable Next Steps After Answering These Questions?

- Evaluate conservation potential (e.g., CPA and related economic/portfolio/rate analysis)
- Question/test demand forecasts
- Run sensitivity analysis using various input metrics and assumptions
- Enhance quality of demand forecast methodology
- Full rate and economic evaluation of portfolio scenarios
- Transparent weighing and balancing of water and financial risk

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# Resiliency