

# Davis-Woodland Water Supply Project (DWWSP)

Report of  
National Water Research Institute  
Independent Advisory Panel

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Panel Chair

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# NWRI Independent Advisory Panels

- NWRI – 501c3 nonprofit research institute
- Independent Advisory Panels:
  - Provide third-party scientific and technical review
  - Conducted over 15 panels since 1996
  - Cover a variety of topics and issues related to water supply, wastewater, and water resources

# NWRI Panel Members

- 8 Members (pp. 18-21 of Report)
  - 4 Professional Engineers
  - 2 Hydrologists / Hydro-Geologists
  - 1 Planner
  - 1 Public Policy Expert

# Overall Objectives of Panel

- Provide independent review of DWWSP:
  - Evaluation of alternatives
  - Groundwater uses and limitations
  - Timing of improvements

# Panel Activities

- Conference call with Project Partners (PP)
- 2–day meeting with PP in June
- Site visit to proposed intake and water treatment plant locations
- Review of various reports
- Panel deliberations
- Prepared “Panel Report”

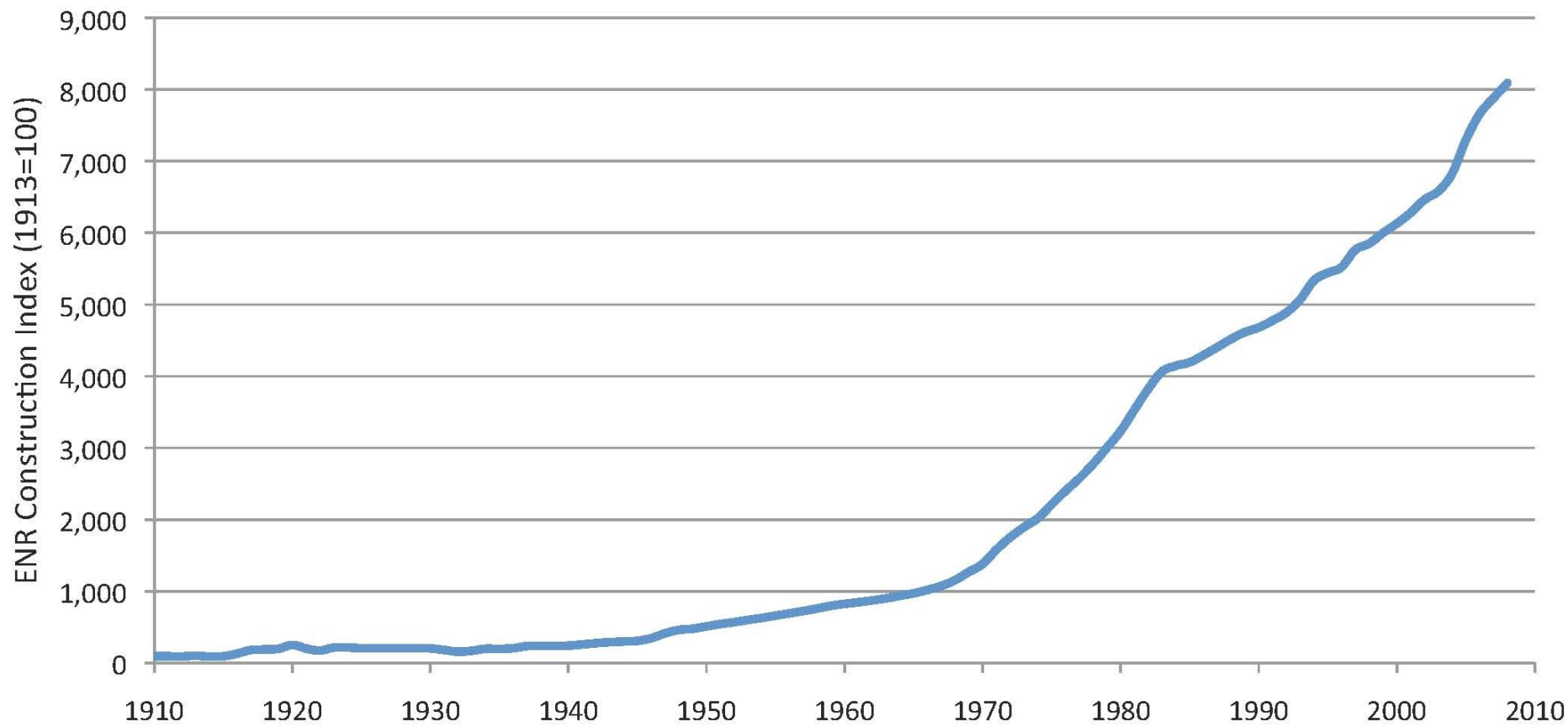
# Overall Assessment of DWWSP

- The Panel unanimously concluded that the DWWSP meets the stated project objectives:
  - Provides reliable present and future water supplies
  - Improves quality of drinking water supply
  - improves quality of wastewater effluents

# Why Now? Why Not Wait?

- Loss of water rights to withdraw Sacramento River water
- Loss of ability to purchase summer water
- Loss of funding opportunities
- Additional costs due to inflation

# ENR Construction Cost Index



# Why Not Wait ? (cont.)

- Increased costs to rewrite CEQA documents
- Failure to comply with future NPDES permits
  - *Possible fines and litigation*

# Alternatives Considered

- The Panel considered all project alternatives:
  - Only the proposed DWWSP alternative was determined to meet the project objectives
  - No other alternative was identified that was capable of meeting the project objectives other than those considered by the PP:
    - Groundwater with well-head treatment
    - Groundwater with centralized treatment
    - Deep groundwater without demineralization

# Groundwater with Well-Head Treatment

- Advantages

- Can design treatment processes specific to individual wells

- Fraught With Difficulties

- Space constraints

- Cost of brine disposal – these costs alone rule out the feasibility of this alternative.

# Groundwater with Centralized Treatment

- Advantages

- Consistency in water quality
- Less maintenance than well-head treatment
- Ability to modify treatment processes to address changing requirements

- Disadvantages

- Cost of brine disposal – these costs alone rule out the feasibility of this alternative.

# Use of Groundwater Without Demineralization

- Does not require brine disposal
  - Therefore, carefully considered by Panel
- Best possibility of meeting project objectives
- Capital costs savings:
  - Moderate compared to other options (Table 1, Appendix D)
- Disadvantage:
  - Wastewater effluent quality objective would not be met:  
*Could result in fines and litigation  
to comply with NPDES permit*

# Use of Groundwater Without Demineralization – Continued

- Uncertainty regarding sustainable yield of deep aquifer
  - Possible subsidence
  - Increased energy costs
  - Possibility of interference with U.C. Davis wells
  - Quality of groundwater will deteriorate with time
- The Panel concluded:
  - This alternative appears infeasible and less attractive than the alternative proposed for the DWWSP

# Other Recommendations: Maximizing Conservation and Reuse

- Conservation:
  - Important in a balanced portfolio
  - Current Assembly Bill 2175 will require a 20 percent reduction in water usage by 2021
  - Encourage conservation and reuse to ensure a stable water supply during years of drought
- Water Recycling:
  - DWWSP will greatly expand reuse potential of effluent due to improvement in water quality
  - Higher water quality yields more reuse options and greater benefits

# Benefits of Water Recycling

- Improvement in regional water supply portfolio
- Agricultural irrigation water reliability
- Potential for other uses in lieu of using ground or surface water.

# Other Recommendations, Cont.

- A balanced water portfolio for the DWWSP requires:
  - Groundwater
  - Surface water
  - Plus maximizing conservation and reuse

# Sustainable Water Supply Portfolio



# Other Recommendations

- Water Rates:
  - The PP have benefited from some of the lowest water rates in California.
  - If the decision is made to proceed with the DWWSP, the new rates will be comparable to rates throughout the State.
- Public Outreach Program:
  - The PP are encouraged to develop an effective public outreach program that identifies the benefits the DWWSP will provide to the public.

# Final Conclusions of Panel

- Water Resources Association and the PPs have shown exemplary foresight in developing a regional plan and in submitting an application to SWRCB for Water Rights to withdraw water from the Sacramento River.
- Without this foresight, the PP would have had a much more difficult time in developing the proposed DWWSP, which fully meets the three stated project objectives.

## Davis-Woodland Water Supply Project Greenhouse Calculations

<b>Project Alternative</b>	<b>Energy Cost per Year, thousands of dollars</b>	<b>CO<sub>2</sub> Equivalents, metric tons/year</b>
No Project	1,586	4,522
Surface Water	916	2,611
Treated Groundwater	3,027	8,629

# Project Costs

- Document the cost of doing nothing
  - Include impact on water rights, summer water purchasing, meeting discharge requirements, relying upon aging infrastructure, and others.
- Examine all viable means to cost-effectively design and implement DWWSP
  - Look at incorporating public-private partnerships that do not sacrifice reliability, stability, and public health.
- Pursue grants, loans, and bonds to offset costs minimize increases to water rates