

CALIFORNIA COASTAL COMMISSION

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Item W6

December 13, 2005

TO: Commissioners and Alternates

FROM: Alison Dettmer, Manager – Energy and Ocean Resources Unit
Tom Luster, Environmental Scientist

RE: **Staff Briefing on Desalination Issues**

– INFORMATION ITEM ONLY –

At the Coastal Commission meeting of December 14, 2005, staff will provide a briefing on desalination issues. The briefing will consist primarily of a presentation by Dr. Peter Gleick, President and co-founder of the Pacific Institute for Studies in Development, Environment, and Security. The slides from Dr. Gleick's presentation are attached to this memo.

Staff will also provide you a brief description of the proposed desalination-related projects anticipated to come before you for permit review in 2006.

Developing an Appropriate Approach to Desalination

Dr. Peter H. Gleick

Presentation to the California Coastal Commission
December 14, 2005



**PACIFIC
INSTITUTE**

Research for People and the Planet

Background

- ◆ The Institute is an independent research group in Oakland, founded in 1987.
- ◆ The Institute neither supports nor opposes desalination generically. We are interested in fact-based analysis.
- ◆ We are preparing a 2006 Desalination Report, funded by the Packard Foundation and Resources Legacy Fund Foundation.
- ◆ We acknowledge the excellent work done by the Coastal Commission already.

Critical Issues

- ◆ Assessment of “Need”
- ◆ Water-Use Efficiency: A Feasible Alternative
- ◆ Desalination Contradictions
- ◆ New Challenges
- ◆ Moving Toward a Consistent Desalination Policy
- ◆ Recommendations

Other Issues Not Addressed Here

- ◆ Environmental impacts: marine entrainment, impingement, discharge
- ◆ Growth-inducing effects
- ◆ Energy demand and pricing
- ◆ Financing design
- ◆ ...others

California Water and Desalination: Conclusions

- ◆ Desalination is an option for California's water future worth considering.
- ◆ Current plans for facilities are racing ahead of our ability to evaluate, manage, and regulate them.
- ◆ Don't believe all the hype.
- ◆ Don't let the hype sidetrack proper oversight, regulation, and management.

Why do we “need” desalination?

- ◆ Offers a “new” supply
- ◆ Reduces dependence on other local resources
- ◆ Reduces dependence on imported resources
- ◆ Improves system reliability (droughts, natural disasters)
- ◆ Improves water quality

But, can these same advantages be obtained in other ways at lower cost?

Alternatives to Desalination?

- ◆ “... for some Coastal Act policies, all feasible alternatives and mitigation measures must be implemented.”
- ◆ “Review of a desalination proposal will, therefore, likely require an alternatives analysis to identify if there are other feasible alternatives that better conform to Coastal Act requirements...”

(Coastal Commission 2004 Desalination study, pg. 25).

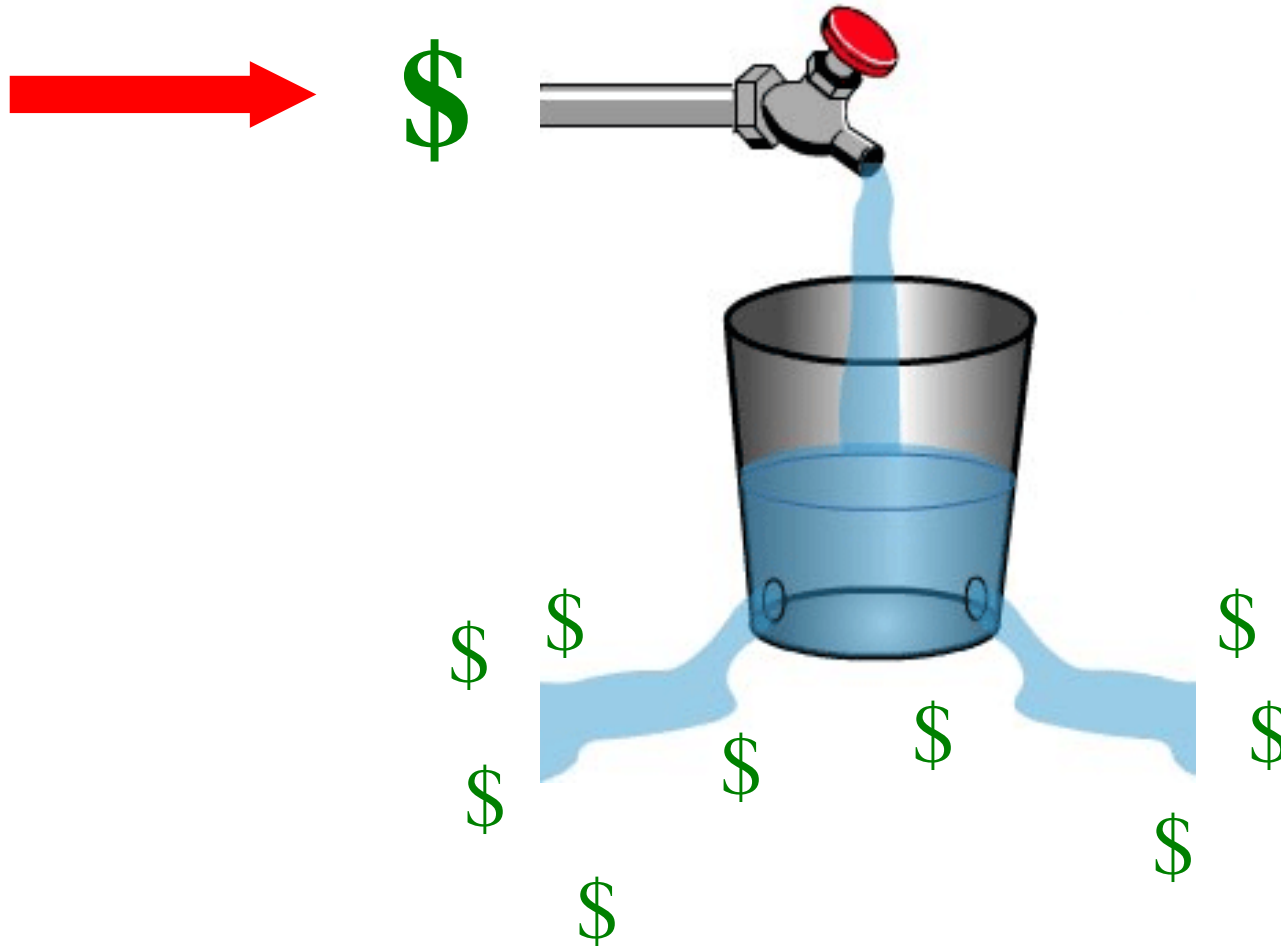
Water-Use Efficiency and Conservation

- ◆ Decreases need for new supply.
- ◆ Decreases dependence on current supply.
- ◆ Reduce drought severity.
- ◆ Less capital-intensive than new supply.
- ◆ Faster payback for many options.
- ◆ Many “co-benefits.”
- ◆ Environmental advantages.
- ◆ Large potential.

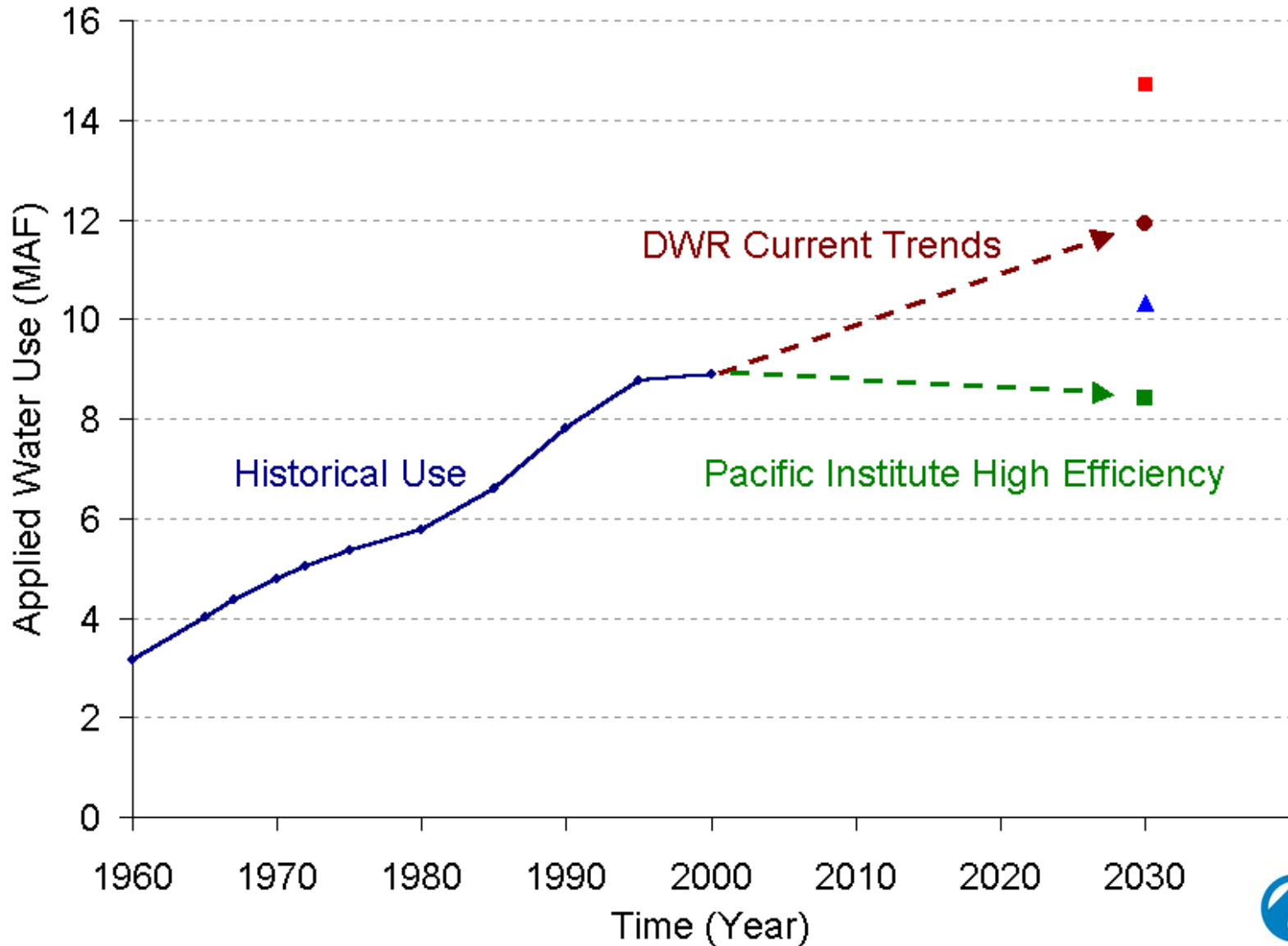
Water-Use Efficiency and Conservation

- ◆ The potential for urban efficiency improvements is large: 30% of current use can be eliminated cost-effectively with existing technology.
- ◆ Water plans almost always underestimate this potential.
- ◆ The costs of efficiency improvements are often far below the costs of desalination.

What's the first thing to do to a leaky bucket?



Actual and Projected California Urban Water Use



Desalination Contradictions

- ◆ Supply **versus** demand water management.
- ◆ Recommendation for (and need for) low chemical use and discharges **versus** chemicals used with membranes.
- ◆ Beach well advantages **versus** intake limits.
- ◆ Co-location **versus** efforts to reduce once-through cooling impacts at power plants.

Desalination Contradictions

- ◆ Argument that desalination is cost-effective and competitive **versus** demand for subsidies, exemptions, and accelerated decision making.
- ◆ Public goods **versus** private developments.
- ◆ Reduced impacts of emergency/drought systems **versus** economic disadvantages of part-time operation.

New Concerns/New Challenges?

- ◆ Public risks associated with **privatizing a public resource.**
- ◆ **Good economic assessments** have yet to be done, and are hard to do.
- ◆ Special challenges of **“co-location.”**
- ◆ **Climate change:** serious impacts expected for California’s coasts.

Moving Toward a Consistent and Comprehensive Desalination Policy



Recommendations

- ◆ Create consistent policies on desalination.
- ◆ Reduce redundant regulatory efforts, but enforce standards and rules designed to protect the coast, environment, and local communities.
- ◆ Assess “public” versus “private” advantages and disadvantages. No private plant should be able to circumvent public protections.

Recommendations

- ◆ Require co-located plants to undergo full CEQA and Coastal Act reviews.
- ◆ Assess full costs and benefits, including non-economic costs.
- ◆ Eliminate inappropriate subsidies and exemptions.

Recommendations

- ◆ Require comprehensive assessment of water conservation and efficiency potential.
- ◆ Require implementation of consistent efficiency programs prior to desalination:
 - Adopt conservation rate designs
 - Design and implement programs to capture all cost-effective efficiency options.

Recommendations

- ◆ No project should be approved unless it accounts for future climate changes, including:
 - Sea-level rise over life of plant
 - Storm surges
 - Storm frequency
 - Beach erosion.

Dr. Peter H. Gleick

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