

9 October 2007

Sydney Water Price Review 2007 Independent Pricing and Regulatory Tribunal PO Box Q290 QVB Post Office NSW 1230

Via email

Re Review of prices for Sydney Water Corporation's water, sewerage, stormwater and recycled water.

The Nursery & Garden Industry Australia is the peak industry body for an industry that has been severely impacted by Urban Water Restrictions and policies of supply authorities in all cities of Australia.

Our National Water Policy states that we will engage with Government and Supply Authorities on issues that may impact on water supply and pricing to ensure that our industry and consumers of our products have access to water at a fair and realistic price.

The Industry supports conservation measures and has made considerable investment in ensuring that businesses remain viable and the green assets within the urban environment remain alive.

We have reviewed the Sydney Water submission to IPART and believe it is an attempt to implement a pricing structure that will enable Sydney Water to "pass through" future cost variations that are:

• the result of poor business planning in respect of the desalination plant

 reductions in revenue due to reduced sales of water due to conservation measures being implemented by consumers.

We support IPART maintaining a vigorous analysis of the proposed increases to ensure they fully comply with the Terms of Section 12 of the IPART Act 1992

Yours sincerely

Robert Prince National Environmental Policy Manager Nursery and Garden Industry Australia PO Box 907 Epping NSW 1710 Ph 02 9876 5200



Submission to IPART re Review of prices for Sydney Water Corporation's water, sewerage, stormwater and recycled water Issues paper DP92

The Paper details that the review will be conducted under section 12 of the IPART Act 1992 and must cover matters related to:

- Consumer protection- protecting consumers from abuses of monopoly power; standards of quality, reliability and safety of the services concerned; social impact of decisions; effect on inflation
- Economic efficiency
- Financial viability
- Environmental protection- promotion of ecological sustainable development via appropriate pricing policies; consideration of demand management and least cost planning.

This submission is be based on the experience of the industry and submissions made by Sydney Water to support their case, based on two of the above criteria.

1. Consumer Protection:

The price review is based on the decision by the Government to proceed with a desalination project otherwise the review would not have been due until 30 June 2009. While the decision to proceed with the desalination plant is outside the scope of this review, consumers are asked to comment on the accuracy of Sydney Waters figures used to justify the pricing adjustment. It is interesting to note that a review of desalination plants conducted in California by the Pacific Institute and attached to this submission found that "while the cost of desalination had fallen in recent years it remains an expensive water supply option. Desalination facilities should be approved only where water agencies have implemented all cost effective water conservation and efficiency measures"

It is the figures not included in the Sydney water submission that are the biggest area where consumers will be subjected to increasing costs if Sydney Waters figures are wrong. These are in the following areas:

- Cost of the pipeline from Kurnell to the connection point with the mains system. Figures are separate from Plant costs and Sydney Water will cover this cost in the operating budget. This will then increase the operating costs for future years.
- Energy costs are subject to variation and Sydney Water are asking that "unforseen costs" should be part of the pass through mechanism on

pricing whereas these are considered to be commercial risks that Sydney Water must carry and cover from internal operational efficiencies as does any other business enterprise. (Ref table 5.5 page 51 of Sydney Water Submission)

The fact that Sydney Waters revenues are down on forecast due to the implementation of water restrictions should not be a basis for a consumer price increase. Within the Nursery and Garden Industry many businesses have been dramatically affected in loss of turnover and profitability due to water restrictions. They are not able to adjust prices in the manner Sydney Water have applied for, but have had to adjust their business management systems.

2. Financial Viability:

The IPART review of pricing in 2003 highlighted the fact that water price signals were an effective tool for Sydney Water to utilise to manage demand. The pricing scenarios outlined in Table 8.8 -8.9 reflect increasing revenue streams based on the new prices but do not appear to reflect the reduced volumes of usage that Sydney Water are stating have dramatically affected their current revenues. The water demand will continue to drop with the proposed price increases and greater uptake of the conservation programs Sydney Water is promoting:

- Greater awareness and education of consumers
- Increased uptake of rainwater tanks.
- Fitting of meters to individual apartments so definite price signals are provided to residents. IPART 2003 review found water use was 14% higher in non-metered residences.
- Enforcement of major water use businesses to meet their Water Management Plans as submitted in 2006
- Implementation of permanent water conservation measures.
- Sydney Water's water saving plans as outlined in the document supporting the granting of the Sydney Water Operating licence.

While the IPART review document 4.1.1 asks for these projections to be factored into forward revenues, they do not appear to be covered in the Sydney Water submission.

Within Table 8.14 of the Sydney Water submission there is a comment that Level 1 restrictions will apply from 2008-09 and water sales will increase by 10% between 2008-09 and 2009-10 but new residences will increase by

1.5% (Table8.13) This indicates that Sydney Water are expecting a water volume increase over an above the savings levels specified.

If all these factors are not specifically identified in the forward operating revenue streams then Sydney Water will continue to require revenue adjustments. The

allowance of "flow through adjustments without returning to the Tribunal" will effectively give Sydney Water an unaudited operating budget.

We support the position being taken by the Tribunal in ensuring the recommendations from the last legal determination be upheld before new adjustments are implemented. (Page 21 of Review Document)

At present Sydney Water are running an expensive media campaign based on TV and Radio communicating what Sydney Water are doing in the area of recycling. In a depressed market due to reduced revenues and with a monopoly supply position one questions the logic of proceeding with this campaign and the controls Sydney Water have over their operating expenditure in relation to income.

Summary:

While it is recognised that Sydney Water and the Government of NSW are committed to a desalination plant to 'Drought Proof" the city in an area of variability in rainfall, the independent controls on pricing and performance need to be maintained.

The cost increases being proposed in this application will have a major impact on domestic water use which coupled with the restrictions will have a further impact on the Nursery and Garden Industry and the maintenance of living plant assets.

It is well recognised that gardens, trees and healthy turf have an important role to play in the climate change fight. A healthy green urban environment will reduce the "heat island effect" common in our cities and these require water.

The industry would welcome greater support for water conservation measures and consumers being able to use viable options to save both water and money in their own environment.

Appendix:

Desalination, with a grain of salt – A Californian Perspective Executive Summary – Pacific Institute Report available at: http://pacinst.org/reports/desalination/desalination_report.pdf



DESALINATION, WITH A GRAIN OF SALT A California Perspective

Heather Cooley, Peter H. Gleick, and Gary Wolff

JUNE 2006

DESALINATION, WITH A GRAIN OF SALT

A CALIFORNIA PERSPECTIVE

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Pacific Institute for Studies in Development, Environment, and Security 654 13th Street, Preservation Park Oakland, California 94612 www.pacinst.org Phone 510-251-1600 Facsimile 510-251-2203

Editor Ian Hart

Designer Bryan Kring, Kring Design Studio, Oakland, CA

Copy Editor Joe Sadusky, Kring Design Studio, Oakland, CA

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DESALINATION, WITH A GRAIN OF SALT A CALIFORNIA PERSPECTIVE

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ABOUT THE PACIFIC INSTITUTE

Founded in 1987 and based in Oakland, California, the Pacific Institute for Studies in Development, Environment, and Security is an independent, nonprofit organization that provides research and policy analysis on issues at the intersection of sustainable development, environmental protection, and international security.

The Pacific Institute strives to improve policy through solid research and consistent dialogue with policymakers and action-oriented groups, both domestic and international. By bringing knowledge to power, we hope to protect our natural world, encourage sustainable development, and improve global security. This report comes out of the Institute's Water and Sustainability Program.

More information about the Institute, staff, directors, funders, and programs can be found at www.pacinst.org and www.worldwater.org.

ABOUT THE AUTHORS

Heather Cooley

Heather Cooley is a Research Associate in the Water and Sustainability Program. Her research interests include conservation, privatization, climate change, and California water. Ms. Cooley holds a B.S. in Molecular Environmental Biology and an M.S. in Energy and Resources from the University of California at Berkeley. Prior to joining the Institute, Ms. Cooley worked at Lawrence Berkeley National Laboratory on climate and land use change.

Peter H. Gleick

Dr. Peter H. Gleick is co-founder and President of the Pacific Institute for Studies in Development, Environment, and Security in Oakland, California. Dr. Gleick works on the hydrologic impacts of climate change; sustainable water use, planning, and policy; and international conflicts over water resources. Dr. Gleick received a B.S. from Yale University and an M.S. and Ph.D. from the University of California at Berkeley. In 2003 he received a MacArthur Foundation Fellowship for his work on water issues. He serves on the boards of numerous journals and organizations and was elected an Academician of the International Water Academy in Oslo, Norway in 1999. In 2001, he was appointed to the Water Science and Technology Board of the U.S. National Academy of Sciences, Washington, D.C. In 2006, he was elected a member of the U.S. National Academy of Sciences. Dr. Gleick is the author of many scientific papers and five books, including the biennial water report The World's Water, published by Island Press (Washington, D.C.).

Gary Wolff

Gary Wolff, P.E., Ph.D., is Principal Economist and Engineer. Dr. Wolff received his B.S. in Renewable Energy Engineering Technology from Jordan College in 1982, his M.S. in Civil and Environmental Engineering from Stanford University in 1984, and his Ph.D. in Resource Economics from the University of California at Berkeley in 1997. His professional career has included solar energy construction contracting, water quality regulation for the State of California, serving as design engineer at a wastewater treatment plant, founding and serving as president of a small engineering consulting firm, holding a post-doctoral fellowship at the Center for Conservation Biology at Stanford University, and holding a visiting professorship at the Graduate School of International Policy Studies at the Monterey Institute of International Studies. He is former chair of the East Bay Municipal Utility District Demand Management Advisory Committee; a former member of the U.S. Bureau of Reclamation Desalination Research Project Executive Committee; and a member of the San Francisco Bay Regional Water Quality Control Board, the state regulator of ambient water quality in the nine-county Bay Area.

ACKNOWLEDGEMENTS

In this report, the Pacific Institute provides a comprehensive overview of the history, benefits, and risks of ocean desalination, and the barriers that hinder more widespread use of this technology. We offer a set of **Conclusions and Recommendations** that will help water users and planners interested in making desalination a more significant part of international, national, and local water policy. Our intention is to provide information to help the public and policymakers understand and evaluate the arguments being put forward by both proponents and opponents of the current proposals.

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ABBREVIATIONS AND ACRONYMS

mg/l: milligrams per liter			
MMWD: Marin Municipal Water District			
MPWMD: Monterey Peninsula Water Management District			
MSF: multi-stage flash distillation			
MWD: Metropolitan Water District of Southern			
California			
NEPA: National Environmental Policy Act NF: nanofiltration NPDES: National Pollutant Discharge Elimination System			
			OTC: once-through cooling
			ppm: parts per million
RO: reverse osmosis			
RWQCB: Regional Water Quality Control Board SD: standard deviation			
		SDCWA: San Diego County Water Authority SWFWMD: Southwest Florida Water Management District	
SWRCB: State Water Resources Control Board			
TDS: total dissolved solids			
UF: ultrafiltration			
US\$/kgal: U.S. dollars per thousand gallons			
U.S. EPA: United States Environmental Protection			
Agency			
VC: vapor compression			
WBMWD: West Basin Municipal Water District			
WtP: willingness to pay			
\$/kgal: dollars per thousand gallons			
\$/m ³ : dollars per cubic meter			
\$/kWh: dollars per kilowatt-hour			

CONVERSIONS

1 cubic meter (m³) = 264 gallons = 0.0008 acre-feet (AF)

1,000 gallons (kgal) = 3.79 cubic meters (m³) = 0.003 acre-feet (AF)

1 million gallons = 3,785 cubic meters (m³) = 3.1 acre-feet (AF)

1 acre-foot (AF) = 325,853 gallons = 1,233 cubic meters (m³)

1 cubic meter per day (m³/d) = 264 gallons per day = 0.3 acre-feet per year (AFY) = 2.6 x 10^{-4} million gallons per day (MGD)

1 million gallons per day (MGD) = 3,785 cubic meters per day (m³/d) = 1,120 acre-feet per year (AFY)

1 acre-foot per year (AFY) = 3.4 cubic meters per day (m^3/d) = 8.9 x 10⁻⁴ million gallons per day (MGD)

\$1 per thousand gallons (\$/kgal) = \$0.26 per cubic meter (\$/m³) = \$325.85 per acre-foot (\$/AF)

EXECUTIVE SUMMARY

ONG CONSIDERED THE Holy Grail of water supply, desalination offers the potential of an unlimited source of fresh water purified from the vast oceans of salt water that surround us. The public, politicians, and water managers continue to hope that cost-effective and environmentally safe ocean desalination will come to the rescue of water-short regions. While seawater desalination plants are already vital for economic development in many arid and water-short areas of the world, many plants are overly expensive, inaccurately promoted, poorly designed, inappropriately sited, and ultimately useless. To avoid new, expensive errors, policymakers and the public need to take a careful look at the advantages and disadvantages of desalination and develop clear guidance on how to evaluate and judge proposals for new facilities.

In this report, the Pacific Institute provides a comprehensive overview of the history, benefits, and risks of ocean desalination, and the barriers that hinder more widespread use of this technology, especially in the context of recent proposals for a massive increase in desalination development in California.

The potential benefits of ocean desalination are great, but the economic, cultural, and environmental costs of wide commercialization remain high. In many parts of the world, alternatives can provide the same freshwater benefits of ocean desalination at far lower economic and environmental costs. These alternatives include treating low-quality local water sources, encouraging regional water transfers, improving conservation and efficiency, accelerating wastewater recycling and reuse, and implementing

The potential benefits of ocean desalination are great, but the economic, cultural, and environmental costs of wide commercialization remain high. smart land-use planning. At present, the only significant seawater desalination capacity is in the Persian Gulf, on islands with limited local supplies, and at selected other locations where water options are limited and the public is willing to pay high prices.

In the United States, almost all seawater desalination facilities are small systems used for high-valued industrial and commercial needs. This may be changing. Despite the major barriers to desalination, interest has recently mushroomed as technology has improved, demands for water have grown, and prices have dropped.

Interest in desalination has been especially high in California, where rapidly growing populations, inadequate regulation of the water supply/landuse nexus, and ecosystem degradation from existing water supply sources have forced a rethinking of water policies and management. In the past five years, public and private entities have put forward more than 20 proposals for large desalination facilities along the California coast (Figure ES1; Table ES1). If all of the proposed facilities were built, the state's seawater desalination capacity would increase by a factor of 70, and seawater desalination would supply 6% of California's year 2000 urban water demand. Project proponents point to statewide water-supply constraints, the reliability advantages of "drought-proof" supply, the waterquality improvements offered by desalinated water, and the benefits of local control. Along with the proposals, however, has come a growing public debate about high economic and energy costs, environmental and social impacts, and consequences for coastal development policies. We review and analyze these factors here.



Operator	Location	<u>Max Capacity</u> MGD	m³/d
Marin Municipal Water District	San Rafael	10-15	38,000-57,000
East Bay Municipal Utility District/ San Francisco Public Utilities Commission/ Contra Costa Water District/ Santa Clara Valley Water District	Pittsburg/Oakland/ Oceanside	20-80	76,000-300,000
East Bay Municipal Utility District	Crockett	1.5	5,700
Montara Water and Sanitary District	Montara	N/A	N/A
City of Santa Cruz	Santa Cruz	2.5, possible expansion to 4.5	9,500, possible expansion to 17,000
California American Water Company	Moss Landing	11-12	42,000-45,000
Pajaro-Sunny Mesa/Poseidon	Moss Landing	20-25	76,000-95,000
City of Sand City	Sand City	0.3	1,100
Monterey Peninsula Water Management District	Sand City	7.5	28,000
Marina Coast Water District	Marina	1.3	4,900
Ocean View Plaza	Cannery Row	0.05	190
Cambria Community Services District/ Department of the Army	Cambria	0.4	1,500
Arroyo Grande/Grover Beach/ Oceano Community Services District	Oceano	1.9	7,100
Los Angeles Department of Water and Power	Playa Del Rey	12-25	45,000-95,000
West Basin Municipal Water District	El Segundo	20	76,000
Long Beach Water Department	Long Beach	8.9	34,000
Poseidon Resources	Huntington Beach	50	190,000
Municipal Water District of Orange County	Dana Point	25	95,000
San Diego County Water Authority/ Municipal Water District of Orange County	Camp Pendleton	50, expanding to 100	190,000, expanding to 380,000
Poseidon Resources	Carlsbad	50, possible expansion to 80	190,000, possible expansion to 300,000
San Diego County Water Authority	Carlsbad	50, possible expansion to 80	190,000, possible expansion to 300,000

Based on this assessment, we conclude that most of the recent seawater desalination proposals in California appear to be premature. Among the exceptions may be desalination proposals where alternative water-management options have been substantially developed, explicit ecosystem benefits are guaranteed, environmental and siting problems have been identified and mitigated, the construction and development impacts are minimized, and customers are willing to pay the high costs to cover a properly designed and managed plant. Table ES1 Proposed Plants in California as of Spring 2006 Is desalination the ultimate solution to our water problems? No. Is it likely to be a piece of our water management puzzle? Yes.

The cost of desalination has fallen in recent years, but it remains an expensive water-supply option. When the barriers to desalination are overcome, carefully regulated and monitored construction of desalination facilities should be permitted. We urge regulators to develop comprehensive, consistent, and clear rules for desalination proposals, so that inappropriate proposals can be swiftly rejected and appropriate ones identified and facilitated. And we urge private companies, local communities, and public water districts that push for desalination facilities to do so in an open and transparent way, encouraging and soliciting public participation and input in decision making.

Is desalination the ultimate solution to our water problems? No. Is it likely to be a piece of our water management puzzle? Yes. In the end, decisions about desalination developments will revolve around complex evaluations of local circumstances and needs, economics, financing, environmental and social impacts, and available alternatives. We urge that such decisions be transparent, open, public, and systematic. To that end, we offer a set of **Conclusions and Recommendations** that will help water users and planners interested in making desalination a more significant part of international, national, and local water policy. Our intention is to provide information to help the public and policymakers understand and evaluate the arguments being put forward by both proponents and opponents of the current proposals.

Desalination Conclusions and Recommendations

Economic Costs of Desalination

The cost of desalination has fallen in recent years, but it remains an expensive water-supply option. Desalination facilities are being proposed in locations where considerable cost-effective conservation and efficiency improvements are still possible.

- Water planners, agencies, and managers must comprehensively analyze all options, including conservation and efficiency, and pursue less costly, less environmentally damaging alternatives first.
- Desalination facilities should be approved only where water agencies have implemented all cost-effective water conservation and efficiency measures.

Desalination costs are influenced by many factors, making comparisons difficult and estimates uncertain.

- All cost estimates should explicitly state the underlying assumptions.
- Cost comparisons must be made on a comparable basis.

The assumption that desalination costs will continue to fall may be false. Further cost reductions may be limited, and future costs may actually increase.

• Projected costs must be justified over the lifetime of the facility, taking

into account possible changes in the cost of energy and construction materials, limits to membrane performance, and other factors.

More energy is required to produce water from desalination than from any other water-supply or demand-management option in California. The future cost of desalinated water will be more sensitive to changes in energy prices than will other sources of water.

- Project proponents should estimate and publicly disclose the full energy requirements of each proposed project and provide details of energy contracts.
- Project proponents should explicitly evaluate energy price risk, including year-to-year variation and trends over time, in the revenue requirement of water utilities that invest in or purchase water from ocean desalination.

Public subsidies for desalination plants are inappropriate unless explicit public benefits are guaranteed.

• Decisionmakers should offer public subsidies to desalination facilities only when the facilities come with a guarantee of public benefits, such as restoration of ecosystem flows.

More research is needed to fill gaps in our understanding, but the technological state of desalination is sufficiently mature and commercial to require the private sector to bear most additional research costs.

• Public research funds should be restricted to analyzing the public aspects of desalination projects, including environmental impacts, mitigation, and protection.

Reliability and Water-Quality Considerations

Desalination plants offer both system-reliability and water-quality advantages, but other options may provide these advantages at lower cost.

- Water agencies should estimate the value of reliability or water-quality advantages in general, regardless of how that reliability or water-quality improvement is achieved.
- Water agencies should compare the cost of providing reliable or highquality water from various sources, including ocean desalination. Water managers must still apply the standard principles of least-cost planning.

Desalination can produce high-quality water but may also introduce biological or chemical contaminants into our water supply.

- In order to ensure public health, all water from desalination plants must be monitored and regulated.
- When new or unregulated contaminants are introduced, new legislation, regulatory oversight, or standards may be needed.

More energy is required to produce water from desalination than from any other water-supply or demand-management option in California.

Desalination can produce water that is corrosive and damaging to waterdistribution systems.

- Additional research is needed to determine the impacts of desalinated product water on the distribution system.
- Water-service providers must ensure that distribution systems are not adversely affected.

Environmental Considerations

Desalination produces highly concentrated salt brines that may also contain other chemical pollutants. Safe disposal of this effluent is a challenge.

- More comprehensive studies are needed to adequately identify all contaminants in desalination brines and to mitigate the impacts of brine discharge.
- Water managers should carefully monitor, report, and minimize the concentrations of chemicals in brine discharges.
- Federal or state regulators should evaluate whether new water-quality regulations are needed to protect local environments or human health.
- Under all circumstances, water managers must minimize brine disposal in close proximity to sensitive habitats, such as wetlands.
- Disposal of brine in underground aquifers should be prohibited unless comprehensive and competent groundwater surveys are done and there is no reasonable risk of brine plumes appearing in freshwater wells.

Impingement and entrainment of marine organisms are among the most significant environmental threats associated with seawater desalination.

- The effects of impingement and entrainment require detailed baseline ecological assessments, impact studies, and careful monitoring.
- Intake pipes should be located outside of areas with high biological productivity and designed to minimize impingement and entrainment.

Subsurface and beach intake wells may mitigate some of the environmental impacts of open ocean intakes. The advantages and disadvantages of subsurface and beach intake wells are site-specific.

• For all desalination projects, proponents should evaluate the advantages and disadvantages of these options, including a review of impacts on freshwater aquifers and the local environment.

Desalination may reduce the need to take additional water from the environment and, in some cases, offers the opportunity to return water to the environment.

• Desalination proposals that claim environmental benefits must come with binding mechanisms to ensure that these benefits are delivered and maintained in the form, degree, and consistency promised.

Impingement and entrainment of marine organisms are among the most significant environmental threats associated with seawater desalination.

Climate Change

Desalination offers both advantages and disadvantages in the face of climatic extremes and human-induced climate changes. Desalination facilities may help reduce the dependence of local water agencies on climatesensitive sources of supply.

• Desalination proposals should evaluate the long-term climatic risks and benefits.

Extensive development of desalination can lead to greater dependence on fossil fuels, an increase in greenhouse gas emissions, and a worsening of climate change.

- Plans for desalination must explicitly describe the energy implications of the facility and how these impacts fit into regional efforts or requirements to reduce greenhouse gas emissions or meet regional, state, or federal clean air requirements.
- Regulatory agencies should consider requiring desalination plants to offset their greenhouse gas emissions.

Coastal desalination facilities will be vulnerable to the effects of climate change, including rising sea levels, storm surges, and extreme weather events.

- Planners should design and construct all desalination facilities using estimates of future, not present, climate and ocean conditions.
- Regulatory agencies should permit desalination facilities only when consideration of climate change factors and other hazards has been integrated into plant design.

Siting and Operation of Desalination Plants

Ocean desalination facilities, and the water they produce, will affect coastal development and land use.

- Project proponents must evaluate the growth-inducing impacts of desalination facilities on a case-by-case basis and not assume these impacts to be incidental, minimal, or secondary.
- Desalination proponents must identify to the public and appropriate regulatory agencies all buyers and potential buyers of project water.
- California coastal development permits should be denied to desalination plants that will induce growth beyond levels projected in certified Local Coastal Programs.

There are unresolved controversies over private ownership and operation of desalination facilities.

• Negotiations over project contracts should be open, transparent, and include all affected stakeholders.

Desalination offers both advantages and disadvantages in the face of climatic extremes and human-induced climate changes. 7

- Contracts that lay out the responsibilities of each partner are a prerequisite for the success of any project. These contracts must include explicit dispute resolution mechanisms and provisions addressing financial risks in the event of project failure.
- Independent technical and contract review should be standard.

Co-location of desalination facilities at existing power plants offers both economic and environmental advantages and disadvantages.

- Proponents should not use desalination to keep once-through cooling systems in operation longer than would otherwise be permitted under current or proposed regulations.
- Regulators should not issue exemptions to permit once-through cooling systems to remain in operation solely to service desalination plants.
- Project proponents must assess the effects of desalination independently of the power plant due to uncertainty associated with oncethrough cooling system systems.
- Additional research is needed to determine whether there are synergistic effects caused by combining desalination's high salinity discharge with the high temperatures and dead biomass in power plant discharge.

Siting, building, and operation of desalination facilities are likely to be delayed or halted if local conditions and sentiments and the public interest are not adequately acknowledged and addressed.

- The process of designing, permitting, and developing desalination facilities must be transparent and open.
- Draft contracts, engineering designs, and management agreements should be widely available for public review beginning in the early stages of project development.
- Project developers and local water agencies should commission and make publicly available independent review of the social and economic impacts of desalination facilities on local communities.
- Affected community members should be invited to participate in desalination project planning, implementation, and management during the early stages of the process.

The regulatory and oversight process for desalination is sometimes unclear and contradictory.

- Federal, state, and local policies should standardize and clarify the regulation of desalination.
- Desalination should not be hindered by inappropriate regulation nor accelerated by regulatory exemptions.

The regulatory and oversight process for desalination is sometimes unclear and contradictory.