

● **Board of Directors**
Water Planning and Resources Committee

June 13, 2000 Board Meeting

11-1

Subject

Metropolitan's Various Roles for Desalination

Description

In February 2000, staff provided an overview of Metropolitan's seawater desalination activities. The Board's consideration of policy principles in its strategic planning process regarding local resources development and choice and competition, offered a timely opportunity to review Metropolitan's roles both in seawater desalination and in recovery of brackish water. The Board directed staff to update Metropolitan's policy principles for seawater desalination, originally adopted in 1995. The updated policy principles would serve to define a strategy for one or both resources. In order for the Board to comprehensively update the policy principles, staff has initially assessed the various roles that Metropolitan could take on for seawater and brackish water desalination. **Attachment 1** is a discussion of the strengths and weaknesses of four distinct roles:

- Supply Development;
- Local Resource Development;
- Research Partnership; and
- Legislative Advocacy.

While each role is discussed individually, a combination of roles may provide the most benefit to the service area. A proposed combination could be local resource development, research partnership, and legislative advocacy. This proposed combination would balance Metropolitan's interests in local resource development and member agencies' desire for choice and competition for their needs above projected baseline demands.

The intent of this assessment is to stimulate Board discussion of what roles Metropolitan should pursue with regards to seawater and brackish water desalination. Staff will use the Board's discussion of these roles to develop a set of objectives for the resources, as well as policy principles for consideration by late summer 2000. As identified in February, after adoption of revised policy principles, staff would then bring separately for board consideration and action the following items:

- Future activities related to VTE-MED technology – September 2000;
- Evaluation of Metropolitan's Ormond Beach property – October 2000; and
- Proposed approach for further research efforts in seawater desalination – November 2000.

Policy

Prior Board direction provided by Board letter dated July 18, 1995.

Fiscal Impacts

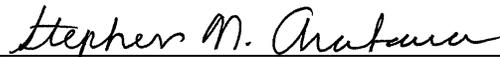
Status Quo. Under its currently adopted policy principles, Metropolitan could commit to capital-intensive research and demonstration of seawater desalination technology, the costs for which might be partially but not completely mitigated through public/private partnerships. Metropolitan is already pursuing research and demonstration of brackish water desalination technology through the Desalination Research and Innovation Partnership (DRIP). Metropolitan could also commit to long-term retention of land it now owns for construction of a desalination plant at some undetermined future date. Metropolitan's proprietary rights,

under the marketing agreement with the Parsons/IDE joint venture, might yield a revenue stream, depending upon future sales of the technology.

Policy Option. A new approach for seawater and brackish water desalination, in conjunction with the strategic plan, could redefine the relationship between Metropolitan, member agencies, and third parties for the research and development of this supply option, including financial participation by Metropolitan. Revising Metropolitan's policy principles to reflect this alternative approach would provide a more integrated strategy focusing on regional, basic research supporting local projects initiated by member agencies. An integrated approach would provide more certainty that Metropolitan's investments in desalination are made in response to local demand and are cost effective.

Staff Recommendation

None.



Stephen N. Arakawa
Acting Manager, Water Resource Management

5/25/2000
Date



General Manager

5/29/2000
Date

Attachment 1

Roles for Seawater and Brackish Water Desalination: Initial Staff Assessment

Metropolitan's current policy is to pursue development of seawater desalination independently from brackish water recovery. Development of brackish water as a supply has been pursued through Metropolitan's Local Projects Program. Research and demonstration of brackish water has been pursued through the Desalination Research and Innovation Partnership. This discussion only addresses Metropolitan's role in using the desalination technology to develop additional water supplies. It needs to be noted that the technology, especially brackish water desalination, can be a cost-effective measure for salinity management, which is a part of the Desalination Research and Innovation Partnership research effort.

Part of a comprehensive strategy for seawater and brackish water desalination is the range of activities or "roles" to play in the research, development, and implementation of the resource. Those roles can be categorized as supply development, local resource development, research partnership, and legislative advocacy. A discussion of each role's strengths and weaknesses follows below.

Supply Development

In fulfillment of this role, Metropolitan would undertake the development of seawater and brackish desalination as an added component of its supply mix of State Water Project and Colorado River supplies.

Strengths

- Metropolitan would develop local supply sources in addition to its State Water Project and Colorado River supplies.

Weaknesses

- Extensive investment in capital facilities would be required both for production as well as connection to Metropolitan's distribution system.
- Incorporating the supply into the distribution system would result in increased power consumption due to pumping.
- For brackish groundwater desalination, institutional difficulties of Metropolitan acquiring local water rights.
- High unit cost for production of seawater and brackish water desalination favors "baseloading," or continuous production to lower unit costs. Given the higher unit costs for desalination, Metropolitan would use State Water Project and Colorado River supplies first, and then rely on seawater and brackish water desalination when those supplies cannot meet member agency demands.
- Metropolitan would incur a high risk in the rapidly changing technological development of this resource; specifically the risk of picking the wrong technology for development and production or not reacting efficiently to future changes in technology.

Local Resource Development

Metropolitan would consider seawater desalination projects in the manner that it would evaluate other local resources as is currently the case for brackish groundwater recovery provided under the Local Projects Program. Seawater and brackish water desalination could be included in a future RFP for local resources, where projects would be competitively proposed for a resource target established as part of an updated IRP. This process could be incorporated into Metropolitan's existing Local Projects Program. Such a process would establish an investment level for Metropolitan for the competitive development of seawater desalination within its service area by other parties.

Strengths

- Metropolitan would invest in desalination projects to the extent that the resource offsets the additional cost of developing other imported supplies or alternatives.
- Metropolitan would minimize its outlays for capital facilities.
- Actual level of utilization of the resource – continuous vs. supplemental production – would not be a concern for Metropolitan.

Weaknesses

- Resource is capital intensive, local proponents may not be able to fund full-scale production.
- If consortiums are formed, local distribution systems may be inadequate to distribute supply to all members of the consortium.
- As a strategy by itself, it maintains a high degree of risk for both Metropolitan and local proponents in technological development of resource.
- Potential loss of revenue if desalination project water is used to replace water that is otherwise purchased from Metropolitan.

Research Partnership

Metropolitan would fund research of seawater and brackish water desalination technology through partnerships. Funding would develop a better understanding of the technological issues facing this resource.

Strengths

- Sharing risk with partners lessens risk in technology development.
- More than one technology or process may be investigated.
- Provides opportunity for evaluation at various stages, such as concept, test, and scalable pilot, without committing to full-scale production.

Weaknesses

- If the development cycle is too long, the research partnership may fail to react to market conditions for this resource and developments in other areas.
- Partnership may not sufficiently fund critical portions of development cycle such as a scalable pilot.
- Success of the partnership depends on the strengths of the partners.

Legislative Advocacy

Invest necessary resources to advocate legislation that creates a financial and regulatory environment favorable to the successful research of seawater and brackish water desalination. Coordinate with member agency legislative efforts.

Strengths

- Metropolitan would help enhance opportunities for local, state, and federal funding for desalination research in its service area.
- Metropolitan would coordinate its legislative efforts on desalination issues with member agencies and other entities at the state and federal level.

Weaknesses

- No weaknesses identified.

Possible Combination of Roles

A proposed combination of several roles would balance Metropolitan's interests in local resource development and member agencies' desire for choice and competition for their needs above projected baseline demands. A proposed combination would be local resource development, research partnership, and legislative advocacy.

The benefits from the combined position would be:

Minimum investment in capital facilities. Metropolitan would minimize its development of additional infrastructure, with the emphasis on infrastructure development shifting to those entities deriving the most benefits from the resource.

Shared risk amongst several partners. The risk arising from evolving technology and processes, as well as the financial risk of this resource, would be shared through local resource development and research partnerships.

Opportunity to promote further research. Many opportunities exist for seawater desalination research. Promoting such research allows Metropolitan to maintain a favorable position within the desalination industry that is evolving.

A coordinated approach to seek additional funding sources. The opportunities for additional funding from sources such as the state and federal governments would be enhanced by a coordinated effort of Metropolitan and interested member agencies.