Metropolitan's Demand Management Program: Cost Recovery Options

Finance and Insurance Committee

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Rick Giardina
Executive Vice President

RAFTELIS

Rick Giardina
Executive Vice President
Raftelis Financial Consultants, Inc.

- Over 40 years utility rate and finance experience
- Former Chair American Water Works Association, Rates and Charges Committee
- 2 terms on the US EPA, Environmental Financial Advisory Board
- Advisor to some of the largest water utilities across the US, Canada and Puerto Rico
- Served as an arbiter/mediator and expert witness in numerous rate disputes

Demand Management "Assignment"

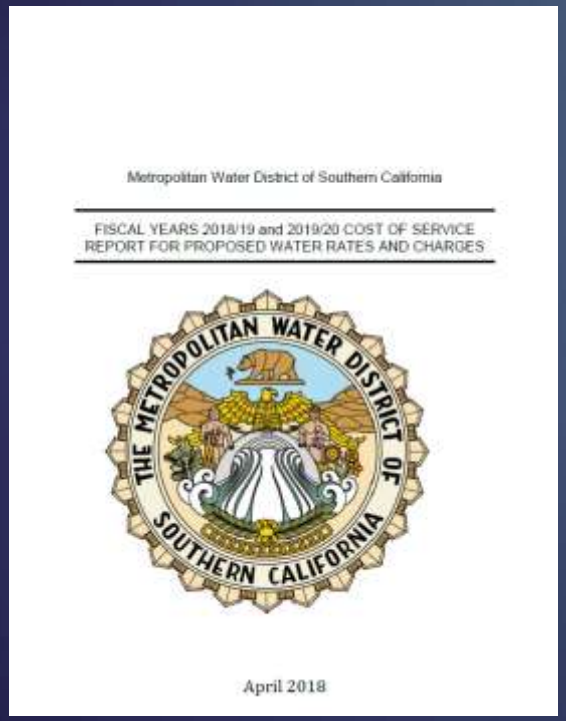
- April 2018 Board directive to determine the most appropriate method for the allocation and recovery of demand management (DM) costs

  - Phase 1 – Prepare a recommended methodology for updating Metropolitan's functionalization of demand management program costs – WaterDM

  - Phase 2 – Develop demand management cost recovery mechanisms; whether through Metropolitan's existing rate structure or alternative cost recovery mechanisms – Raftelis

WaterDM

Metropolitan Cost of Service Process


Metropolitan Water District of Southern California

FISCAL YEARS 2018/19 and 2019/20 COST OF SERVICE REPORT FOR PROPOSED WATER RATES AND CHARGES

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

April 2018

- Step 1: Develop of Revenue Requirements
- Step 2: **Functionalize Costs**
- Step 3: Allocate Costs
- Step 4: Distribute Costs To Rate Elements

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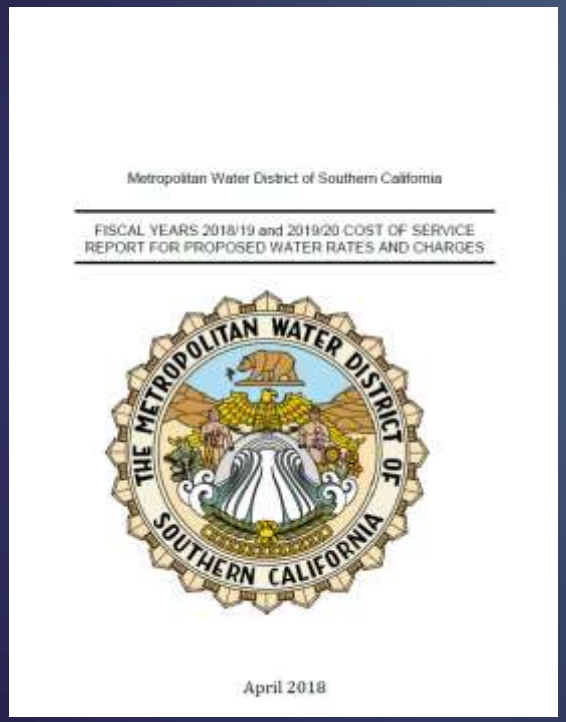
Metropolitan Cost of Service Process


Metropolitan Water District of Southern California

FISCAL YEARS 2018/19 and 2019/20 COST OF SERVICE REPORT FOR PROPOSED WATER RATES AND CHARGES

April 2018

- **Step 1** Develop of Revenue Requirements
- **Step 2** Functionalize Costs
- **Step 3** **Allocate Costs**
- **Step 4** **Distribute Costs To Rate Elements**

History of Metropolitan Functional Assignment for Demand Management

1996

IRP establishes Demand Management in preferred resource mix

2015

IRP Update focuses on Adaptive Management. "Climate change may prove to be the most significant challenge to water supply reliability for Southern California."

2018-19

WaterDM project to review and update functional assignment approach

Rates unbundled. Demand Management is a functional cost category and the rate is included in transportation based on expected avoided future infrastructure costs.

2001

Metropolitan retrospectively documents ~ $3 billion in avoided transportation infrastructure.

2016, 2018

Adaptive Management
Update Functional Assignment Approach

- **1996 IRP –** *25-year forecast through 2020**

  Identified demand management yet to be implemented, avoided future projects

- **Conclusion of 25-year period – Adaptive management**

  No longer infrastructure-driven

  Changes in regional water supply

  Regulatory constraints

  Climate change

  Reliability and variability of imported supply

  Consideration of new supplies

- **2018-19 Project to Update Functional Assignment Approach**

  Research and develop a well-considered, updatable functional assignment method for demand management, to be used as part of Metropolitan's cost of service process.

WaterDM
DEMAND MANAGEMENT

*1996 Integrated Water Resources Plan Vols. 1, 2, and 3. Metropolitan Water District of Southern California, pp. 6-1

"Avoided Cost is the marginal cost avoided or saved by choosing one option over another to achieve the same goal." – AWWA M1, 7th ed.

Demand Management

Infrastructure

spend millions

avoid spending billions

Functional assignment establishes the allocation of the real costs for demand management to the appropriate cost components, in the appropriate relative share.

Adapted from:

AWWA. 2017. Water Rates. M1, Seventh Edition, American Water Works Association. Denver Colorado.

Bonbright, J. C., A.L. Danielson, D.R. Kamerschen. 1988. *Principles of Public Utility Rates.* Public Utilities Report Arlington VA.

WaterDM Recommendation

To estimate the relative share of impact of demand management offsets into the foreseeable future for the purpose of setting rates…

WaterDM recommends an incremental cost approach to estimate the relative share of avoided marginal costs using Metropolitan's categorized budgeted revenue requirements.

WaterDM – Hypothetical Example

Relevant Functional Category	Hypothetical Revenue Requirements* (M$/year)	Demand Management Functional Assignment %
Supply	$ 240	**20%**
Conveyance and Aqueduct	$ 600	**51%**
Storage	$ 140	**12%**
Distribution	$ 200	**17%**
Total Relevant Category	**$ 1,180**	**100%**

*Includes
- Operations and maintenance
- Administrative and general
- Long-term investments and planning

*Excludes
- Demand Management

Current Cost Recovery Methods

Rate Design Element	Functional Costs Recovered	Type of Charge	2019 [1]
Tier 1 Supply Rate	Supply	Volumetric ($/af)	$209
Tier 2 Supply Rate	Supply	Volumetric ($/af)	$295
System Access Rate	Conveyance/Distribution (Average Capacity)	Volumetric ($/af)	$326
Water Stewardship Rate	Demand Management	Volumetric ($/af)	$69
System Power Rate	Power	Volumetric ($/af)	$127
Treatment Surcharge	Treatment	Volumetric ($/af)	$319
Capacity Charge	Peak Distribution Capacity	Fixed ($/cfs)	$8,600
Readiness-to-Serve Charge	Conv./Distr./Emergency Storage & Available Capacity	Fixed (ten-year rolling average $M)	$133

[1] Rates and Charges effective January 1st

Demand Management Cost Recovery Options

Alt #1 – Existing COS Methodology
Alt #2 – Modified COS Methodology
Alt #3 – Functionalized Fixed Charge

Under all options the Water Stewardship Rate would be eliminated

Alt #1 – Existing COS Methodology

	Cost Recovery Component	Approx. % of DM Costs (1)	Charge / Rate
Alt #1	T1 Supply	25%	$/AF
	System Access Rate	75%	$/AF

Demand Management Costs recovered under two volumetric rates.

(1) Using hypothetical revenue requirement share

Alt #1 – Existing COS Methodology

Functionalized DM costs recovered from only the Supply Rate and the System Access Rate

- Considerations
  - Consistent with existing Metropolitan cost of service methodology – DM costs allocated like other fixed O&M costs and recouped through the Supply Rate and the System Access Rate
  - Can be consistently repeated using a standardized process
  - Minimal administrative burden
  - Consistent with WaterDM recommendation, i.e., functionalization of DM costs
  - DM costs are only recouped via rates associated with average system demands; not peak or standby

Alt #2 – Modified COS Methodology

	Cost Recovery Component	Approx. % of DM Costs (1)	Charge / Rate
Alt #2	T1 Supply	25%	$/AF
	System Access Rate	50%	$/AF
	System Power Rate	13%	$/AF
	Readiness-to-Serve Charge	10%	$/M
	Capacity Charge	2%	$/cfs

Demand Management Costs recovered under variable and fixed rates and charges.

(1) Using hypothetical revenue requirement share

Alt #2 – Modified COS Methodology

Functionalized DM costs recovered from variable and fixed charges and rates

- Considerations
  - Consistent with WaterDM recommendation, i.e., functionalization of DM costs
  - DM costs are recouped via charges and rates associated with average and peak demands, and standby capacity
  - Can be consistently repeated using a standardized process
  - Minimal administrative burden
  - Change from current cost of service approach – this Alt would add DM costs to System Power Rate, Capacity Charge and Readiness-to Serve Charge
    - Unique O&M costs incurred to avoid capital costs and variable power costs

Alt #3 Demand Management Fixed Charge

	Cost Recovery Component	Approx. % of DM Costs (1)	Charge / Rate
Alt #3A	DM Charge - Functionalized	100%	Fixed $
Alt #3B	DM Charge – Non-Functionalized	100%	Fixed $

(1) Using hypothetical revenue requirement share

Alt #3A – Functionalized Fixed Charge

Member agencies pay an annual fixed charge based on allocated Demand Management costs

- Considerations
  - Consistent with WaterDM recommendation, i.e., functionalization of DM costs
  - Consistent with underlying WaterDM recommendation, i.e., DM expenditures avoid average, peak and standby costs
  - Demand Management costs are largely fixed in nature and this approach provides a fixed revenue source
  - Depending on the allocation approach, potential exists for member agencies to not be allocated any DM costs even though they may demand services at any time

Alt #3A – Functionalized Fixed Charge
(hypothetical)

Function	% Rev Req	Supply Portion $M	Transportation Portion $M	Total $M
Supply	20%	$20		$20
Conveyance and Aqueduct	51%		$51	51
Storage - Emergency	4%		4	4
Storage - Drought	7%	7		7
Storage - Regulatory	1%		1	1
Distribution	17%		17	17
Total	100%	$27	$73	$100

Allocate Supply and Transportation Portion of DM costs to member agencies based on some measure of sales and all transactions

For example: historic water deliveries – over a pre-determined historic period: a long-term, multi-year, rolling average of all sales and transactions

Alt #3A – Functionalized Fixed Charge

Hypothetical Example

Member Agency A: for the historic period, had 5% of total Supply Portion and 4% of total Transportation Portion

Supply Portion of DM Costs:

5% of $27M = $1.35M

Transportation Portion of DM Costs:

4% of $73M = $2.92M

Member Agency A – Total Demand Management Annual Fixed Charge $4.27M

Regional Benefits of Demand Management

- Metropolitan's annual expenditures for demand management programs are a necessary and legislated expense for the provision of water service across the region.
- For Metropolitan, Demand Management Investments
  - reduce and avoid future capital and other costs
  - increase reliability
  - reduce the region's reliance on imported water supplies
  - decrease burden on infrastructure
  - free up conveyance capacity

...to the benefit of all existing and potential system users

Alt #3B – Non-Functionalized Fixed Charge

Member agencies pay an annual fixed charge based on allocated Demand Management costs

- Considerations
  - Functionalization of DM costs is not necessary
  - All member agencies would be subject to the DM Fixed Charge
  - Demand Management costs are largely fixed in nature and this approach provides a fixed revenue source

Alt #3B – Non-Functionalized Fixed Charge (hypothetical)

Function	% Rev Req	Total $M
Supply		
Conveyance and Aqueduct		
Storage - Emergency		
Storage - Drought		
Storage - Regulatory		
Distribution		
Total		$100

Allocate DM costs to member agencies based on: population, acreage, assessed value, or some combination thereof.

Alt #3B – Non-Functionalized Fixed Charge

Hypothetical Example

Member Agency A: has 5% of the selected metric, e.g., population, acreage, assessed valuation, etc.

Member Agency A – Total Demand Management Annual Fixed Charge:

5% of $100M = $5.0M

Demand Management Cost Recovery Alternatives

Alt	Cost Recovery Component	Approx % of DM Costs	Charge / Rate
#1	T1 Supply	25%	$/AF
	System Access Rate	75%	$/AF
#2	T1 Supply	25%	$/AF
	System Access Rate	50%	$/AF
	System Power Rate	13%	$/AF
	Readiness-to-Serve Charge	10%	$/M
	Capacity Charge	2%	$/cfs
#3A	Functionalized Charge	100%	Fixed $
#3B	Non-Functionalized Charge	100%	Fixed $

Next Steps

- Discussion and feedback
- Direction regarding a Preferred Alternative
- Subsequent F&I meeting incorporating feedback – November 4th
- Complete process before the budget and rate cycle begins in January of 2020

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Thank you!

Contact: Rick Giardina, CPA
303 305 1136 / rgiardina@raftelis.com