Metropolitan Water District of Southern California

# Fiscal Year 2015/16Cost of Service Option 3

April2014

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List of Schedules and Tables

# 1 Cost of Service

Prior to discussing the specific rates and charges that make up the rate structure, it is important to understand the cost of service process that supports the rates and charges. The purpose of the cost of service process is to: (1) identify which costs should be recovered through rates and charges; (2) organize Metropolitan's costs into service functions; (3) classify service function costs on the basis for which the cost was incurred; and (4) allocate costs to rate elements. The purpose of sorting Metropolitan's costs in a manner that reflects the type of service provided (e.g., supply vs. conveyance), the characteristics of the cost (e.g., fixed or variable) and the reason why the cost was incurred (e.g., to meet peak or average demand) is to create logical cost of service "building blocks". The building blocks can then be arranged to design rates and charges with a reasonable nexus between costs and benefits.

## *1.1 Cost of Service Process*

The general cost of service process involves the four basic steps outlined below.

*Step 1 - Development Of Revenue Requirements*

In the revenue requirement step, the costs that Metropolitan must recover through rates and charges, after consideration of revenue offsets, are identified. The cash needs approach, an accepted industry practice for government-owned utilities, has historically been used in identifying Metropolitan's revenue requirements and was applied for the purposes of this study. Under the cash needs approach, revenue requirements include operating costs and annual requirements for meeting financed capital items (debt service, funding of replacement and refurbishment from operating revenues, etc.).

*Step 2 – Identification Of Service Function Costs*

In the functional allocation step, revenue requirements are allocated to different categories based on the operational functions served by each cost. The functional categories are identified in such a way as to allow the development of logical allocation bases. The functional categories used in the cost of service process include:

- Supply
- Conveyance and Aqueduct
- Storage
- Treatment
- Distribution
- Demand Management
- Administrative and General
- Hydroelectric

In order to provide more finite functional allocation, many of these functional categories are subdivided into more detailed sub-functions in the cost of service process. For example, costs for the Supply and Conveyance and Aqueduct functions are further subdivided into the sub-functions State Water Project (SWP), Colorado River Aqueduct (CRA), and Other. Similarly, costs in the Storage function are broken down into the sub-functions Emergency Storage, Drought Carryover Storage, and Regulatory Storage.

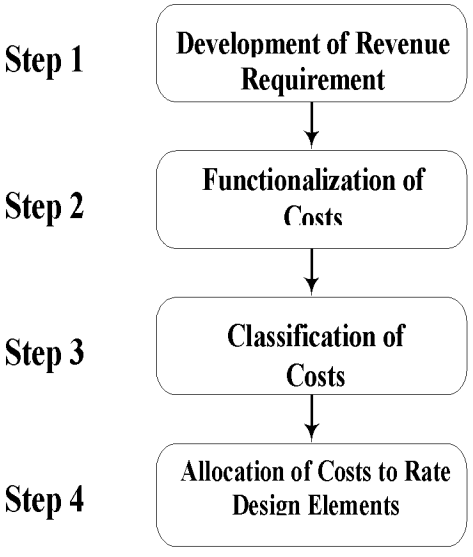
*Step 3 - Classification Of Costs*

In the cost classification step, functionalized costs are separated into categories according to their causes and behavioral characteristics. Proper cost classification is critical in developing a rate structure that recovers costs in a manner consistent with the causes and behaviors of those costs. Under American Water Works Association (AWWA) guidelines, cost classification may be done using either the Base/Extra-Capacity approach or the Commodity/Demand approach. In the simplest sense, these approaches offer alternative means of distinguishing between utility costs incurred to meet average or base demands and costs incurred to meet peak demands. The Commodity/Demand approach was modified for its application to Metropolitan's rate structure by adding a separate cost classification for costs related to providing standby service. Analysis of system operating data indicated that a modified Commodity/Demand approach was most appropriate for developing Metropolitan's cost of service classification bases.

*Step 4 - Allocation Of Costs To Rate Design Elements*

The allocation of costs to the rate design elements depends on the purpose for which the cost was incurred and the manner in which the member agencies use the Metropolitan system. For example, costs incurred to meet average system demands are typically recovered by dollar per acre-foot rates and are allocated based on the volume of water purchased by each agency. Rates that are levied on the amount or volume of water delivered are commonly referred to as volumetric rates as the customer's costs vary with the volume of water purchased. Costs incurred to meet peak distribution demands (referred to in this report as demand costs) are recovered through a peaking charge (the Capacity Charge) and are allocated to agencies based on their peak summer demand behavior. Costs incurred to provide standby service in the event of an emergency are referred to here as standby costs. Differentiating between costs for average usage and peak usage is just one example of how the cost of service process allows for the design of rates and charges that improves overall customer equity and efficiency. Figure 1 summarizes the cost of service process.

***Figure 1. The Cost of Service Process***




### *1.2 Revenue Requirements*

The estimated revenue requirements presented in this report are for FY 2015/16. Throughout the report, FY 2015/16 is used as the "test year" to demonstrate the application of the cost of service process. Schedule 1 summarizes the FY 2015/16 revenue requirement by the major budget line items used in Metropolitan's budgeting process. Current estimates indicate Metropolitan's annual expenditures (including capital financing costs, but not construction outlays financed with bond proceeds, if any) will total approximately $1.651 billion in FY 2015/16.

The rates and charges do not have to cover this entire amount. Metropolitan generates a significant amount of revenue from interest income, hydroelectric power sales and miscellaneous income. These internally generated revenues are referred to as revenue offsets and are expected to generate about $58 million in FY 2015/16. It is expected that Metropolitan will also generate about $92 million in ad valorem property tax revenues (assuming that ad valorem tax rates are maintained at 0.0035% of assessed valuation). Property tax revenues are used to pay for a portion of Metropolitan's general obligation bond debt service, a portion of Metropolitan's obligation to pay for debt service on bonds issued to fund the State Water Project (SWP), and other SWP costs. The total revenue offsets for FY 2015/16 are estimated to be around $150 million. Therefore, the revenue required from rates and charges is the difference between the total costs and the revenue offsets, or $1.502 billion. Given an effective date of January 1, 2016, the rates and charges recommended in this report, combined with rates and charges effective through December 31, 2015 will generate a total of $1.494 billion in 2015/16.

All of Metropolitan's costs fall under the broad categories of Departmental Costs or General District Requirements. Departmental Costs include budgeted items identified with specific organizational groups. General District Requirements consist of requirements associated with the Colorado River

Aqueduct (CRA), SWP, the capital financing costs associated with the Capital Investment Plan (CIP), and Water Management Programs. General District Requirements also include reserve fund transfers required by bond covenants and Metropolitan's Administrative Code.

When considered in total, General District Requirements make up approximately 70 percent of the absolute value of the allocated costs. The largest component of the revenue requirement relates tothe capital financing program at $535 million, which makes up approximately 30 percent of Metropolitan's FY 2015/16 revenue requirements. Capital financing costs include pay-as-you-go funding of the CIP at $210 million. Metropolitan's SWP costsis the second largest component of the revenue requirement at $515 million, constituting approximately 29 percent of the revenue requirement. Metropolitan's SWP contract requires Metropolitan to pay its allocated share of the capital, minimum operations, maintenance, power and replacement costs incurred to develop and convey its water supply entitlement, irrespective of the quantity of water Metropolitan takes delivery of in any given year. Departmental O&M costs at $391 million make up 22 percent of the total revenue requirement in FY 2015/16. Water System Operations is the largest single component of the Departmental Costs and accounts for 12 percent of the revenue requirements. Water System Operations responsibilities include operating and maintaining Metropolitan's pumping, storage, treatment, and hydroelectric facilities, as well as the CRA and other conveyance and supply facilities.

## Schedule 1. Revenue Requirements (by budget line item)

| | Fiscal Year Ending 2016 | % of Revenue Requirements (1) |
|---|---|---|
| **Departmental Operations & Maintenance** | | |
| Office of the General Manager & Human Resources | $ 25,768,716 | 1.4% |
| External Affairs | 17,188,606 | 1.0% |
| Water System Operations | 215,676,523 | 12.0% |
| Chief Financial Officer | 9,187,432 | 0.5% |
| Business Technology & Engineering Services | 84,984,360 | 4.7% |
| Real Property Development & Mgmt | 5,289,803 | 0.3% |
| Water Resource Management | 16,340,755 | 0.9% |
| Ethics Department | 990,943 | 0.1% |
| General Counsel | 12,598,621 | 0.7% |
| Audit Department | 2,925,708 | 0.2% |
| **Total** | **390,951,466** | **21.7%** |
| **General District Requirements** | | |
| State Water Project | 515,004,362 | 28.6% |
| Colorado River Aqueduct Power | 36,503,152 | 2.0% |
| Supply Programs | 66,451,886 | 3.7% |
| Demand Management | 61,654,768 | 3.4% |
| Capital Financing Program | 534,707,370 | 29.7% |
| Operating Equipment and Leases | 26,634,780 | 1.5% |
| Increase (Decrease) in Required Reserves | 19,600,000 | 1.1% |
| **Total** | **1,260,556,317** | **70.0%** |
| **Revenue Offsets** | **(149,699,116)** | **8.3%** |
| **Net Revenue Requirements** | **$ 1,501,808,668** | **100.0%** |

(1) Given as a percentage of the absolute values of total dollars allocated.
Totals may not foot due to rounding

### *1.3 Service Function Costs*

Several major service functions result in the delivery of water to Metropolitan's member agencies. These include the supply itself, the conveyance capacity and energy used to move the supply, storage of water, distribution of supplies within Metropolitan's system, and treatment of these supplies. Metropolitan's rate structure recovers the majority of the cost of providing these functions through rates and charges.

The functional categories developed for Metropolitan's cost of service process are consistent with the AWWA rate setting guidelines, a standard chart of accounts for utilities developed by the National Association of Regulatory Utility Commissioners (NARUC), and the National Council of Governmental Accounting. Because all water utilities are not identical, the rate structure reflects Metropolitan's unique physical, financial, and institutional characteristics, as permitted under the AWWA guidelines.

A key goal of functional allocation is to maximize the degree to which rates and charges reflect the costs of providing different types of service. For functional allocation to be of maximum benefit, two criteria must be kept in mind when establishing functional categories.

- The categories should correlate charges for different types of service with the costs of providing those different types of service; and
- Each function should include reasonable allocation bases by which costs may be allocated.

Each of the functions developed for the cost of service process is described below.

- *Supply.* This function includes costs for those SWP and CRA facilities and programs that relate to maintaining and developing supplies to meet the member agencies' demands. For example, Metropolitan's supply related costs include investments in the Conservation Agreement with the Imperial Irrigation District and the Palo Verde Irrigation District (PVID) Program from the Colorado River supply programs. The SWP programs include transfer programs such as Kern Delta Program, Semitropic Water Storage Program, Yuba Accord Program, and the Arvin-Edison Water Storage Program. Costs for in-basin programs within Metropolitan's service area, such as Conjunctive Use Programsare also included.
- *Conveyance and Aqueduct.* This function includes the capital, operations, maintenance, and overhead costs for SWP and CRA facilities that convey water through Metropolitan's internal distribution system. Variable power costs for the SWP and CRA are also considered to be Conveyance and Aqueduct costs but are separately reported under a "power" sub-function. Conveyance and Aqueduct facilities can be distinguished from Metropolitan's other facilities primarily by the fact that they do not typically include direct connections to the member agencies. For purposes of this study, the Inland Feeder Project functions as an extension of the SWP East Branch and is therefore considered a Conveyance and Aqueduct facility as well.
- *Storage.* Storage costs include the capital financing, operating, maintenance, and overhead costs for Diamond Valley Lake, Lake Mathews, Lake Skinner, and five smaller regulatory reservoirs within the distribution system. Metropolitan's larger storage facilities are operated to provide: (1) emergency storage in the event of an earthquake or similar system outage; (2) drought storage that produces additional supplies during times of shortage; and (3) regulatory storage to balance system demands and supplies and provide for operating

flexibility. To reasonably allocate the costs of storage capacity among member agencies, the storage service function is categorized into sub-functions of emergency, drought, and regulatory storage.

- *Treatment.* This function includes capital financing, operating, maintenance, and overhead costs for Metropolitan's five treatment plants and is considered separately from other costs so that treated water service may be priced separately.
- *Distribution.* This function includes capital financing, operating, maintenance, and overhead costs for the "in-basin" feeders, canals, pipelines, laterals, and other appurtenant works. The "in-basin" facilities are distinguished from Conveyance and Aqueduct facilities at the point of connection to the SWP, Lake Mathews, and other major turnouts along the CRA facilities.
- *Demand Management.* A separate demand management service function has been usedto clearly identify the cost of Metropolitan's investments in local resources like conservation, recycling, and desalination.
- *Administrative and General (A&G).* These costs occur in each of the Groups' departmental budgets and reflect overhead costs that cannot be directly functionalized. The cost-of-service process allocates A&G costs to the service functions based on the labor costs of non-A&G dollars allocated to each function.
- *Hydroelectric.* Hydroelectric costs include the capital financing, operating, maintenance, and overhead costs incurred to operate the 16 small hydroelectric plants located throughout the water distribution system.

### *1.3.1 Functional Allocation Bases*

The functional allocation bases are used to allocate costs to the various service functions. The primary functional allocation bases used in the cost-of-service process are listed below.

- Direct assignment
- Net Book Value plus Work-In-Progress
- Prorating in proportion to other allocations
- Manager analysis
- Prior year results

Schedule 2 summarizes the amounts of total cost allocated using each of the above types of allocation bases.

**Schedule 2. Summary of Functional Allocations by Type of Allocation Basis**

| Primary Functional Allocation Bases | Estimated for FY 2016 | % of Allocated Dollars |
|---|---|---|
| Direct Assignment | $ 955,142,911 | 53.0% |
| Net Book Value/Work in Progress | 580,851,933 | 32.2% |
| Prorating | 87,722,070 | 4.9% |
| Manager Analysis | 35,315,288 | 2.0% |
| Prior-Year Results | 75,722,811 | 4.2% |
| Other | $ 66,451,886 | 3.7% |
| Total Dollars Allocated | **$ 1,801,206,900** | **100.0%** |
| | | |
| **Portion of Above Allocations Relating to:** | | |
| Revenue Requirements before Offsets | 1,651,507,784 | |
| Revenue Offsets | 149,699,116 | |
| Total Dollars Allocated | **$ 1,801,206,900** | |

Totals may not foot due to rounding

Each of the primary allocation bases is discussed in detail in the remainder of this section. Discussion of each allocation basis includes examples of costs allocated using that particular basis.

**(a) Direct assignment**

Direct assignment makes use of a clear and direct connection between a revenue requirement and the function being served by that revenue requirement. Directly assigned costs typically include: Costs associated with specific treatment plants, purely administrative costs, and certain distribution and conveyance departmental costs. Examples of costs that are directly assigned to specific functional categories are given below.

* Water System Operations Group departmental costs for treatment plants are directly assigned to treatment.
* Transmission charges for SWP are directly assigned to conveyance.

**(b) Net Book ValuePlus Work-In-Progress**

Capital financing costs, including debt service and funding replacements and refurbishments from operating revenues, comprise about 30percent of Metropolitan's annual revenue requirements. One approach would be to allocate payments on each debt issue in direct proportion to specific project expenditures made using bond proceeds. But, this approach would result in a high degree of volatility in relative capital cost allocations from year to year. The approach used in this analysis is one widely used in water industry cost of service studies. Capital and debt-related costs (including repair and replacement costs paid from current revenues) are allocated on the basis of the relative net book values of fixed assets plus work in progress for assets under construction within each functional category. This approach produces capital cost allocations that are consistent with the functional distribution of assets. Also, since the allocation basis is tied to fixed asset records rather than debt payment records, the resulting allocations are more reflective of the true useful lives of assets. Use of net book values as an allocation basis provides an improved matching of functional costs with asset lives. A listing of fixed asset net book values summarized by asset function is shown in Schedule 3.

**Schedule 3. Net Book Value and Work in Progress Allocation Base**

| Functional Categories | NBV for FY 2016 | % of Total NBV |
|---|---|---|
| Source of Supply | $ 30,274,044 | 0.4% |
| Conveyance & Aqueduct | 1,809,704,101 | 20.9% |
| Storage | 2,140,326,295 | 24.7% |
| Treatment | 2,752,343,054 | 31.8% |
| Distribution | 1,455,183,855 | 16.8% |
| Administrative & General | 332,149,508 | 3.8% |
| Hydroelectric | 129,745,901 | 1.5% |
| **Total Fixed Assets Net Book Value** | **$ 8,649,726,758** | **100.0%** |

Totals may not foot due to rounding

In most instances, the cost-of-service process uses net book value*plus* work-in-progress to develop allocation bases for debt and capital costs.

Examples of revenue requirements allocated using these net book valueand work-in-progress allocations are shown below.

* Revenue Bond Debt Service: *allocated using Net Book Value plus Work In Progress.*
* Annual deposit of operating revenue to replacement and refurbishment fund: *allocated using Net Book Value plus Work In Progress.*

To calculate the relative percentage of fixed assets in each functional category, Metropolitan staff conducted a detailed analysis of historical accounting records and built a database of fixed asset accounts that contains records for all facilities currently in service and under construction. Each facility was sorted into the major service function that best represented the facilities primary purpose and was then further categorized into the appropriate sub-functions described earlier.

**(c) Prorating in proportion to other allocations**

Utility cost of service studies frequently contain line items for which it would be difficult to identify an allocation basis specific to that line item. In these cases, the most logical allocation basis is often a prorata blend of allocation results calculated for other revenue requirements in the same departmental group, or general category. Reasonable prorata allocations are based on a logical nexus between a cost and the purpose which it serves. For example: Human Resources Section costs are allocated using all labor costs, since Human Resources spends its time and resources attending to the labor force.

**(d) Manager analyses**

The functional interrelationships of some organizational units are so complex and/or dynamic that reliable allocation bases can only be developed with extensive input from the organization's

managers. In these cases, managers use their firsthand knowledge of the organization's internal operations to generate a functional analysis of departmental costs. For example, Fleet Services Unit costs are allocated to treatment, storage, conveyance and distribution based on vehicle count by location.

**(e) Prior year results**

If available, accounting data for the prior fiscal year by appropriation are used to functionalize Departmental O&M costs for several units or sections. Many of the appropriations parallel the service functions used in the cost of service. For example, Conveyance and Distribution Section costs are allocated to distribution, hydroelectric, and conveyance functions based on the prior year accounting data by appropriation.

A summary of the functional allocation results is shown in Schedules 4 and 5. Schedule 4 provides a breakdown of the revenue requirement for FY 2015/16 into the major service functions and sub-functions prior to the redistribution of administrative and general costs. Schedule 5 serves as a cross-reference summarizing how the budget line items are distributed among the service functions. The largest functional component of Metropolitan's revenue requirement is the Conveyance and Aqueduct function, which constitutes approximately 37 percent of the allocated revenue requirement.

**Schedule 4. Revenue Requirement (by service function)**

| Functional Categories | Fiscal Year Ending 2016 | % of Allocated Dollars (1) |
|---|---|---|
| **Source of Supply** | | |
| CRA | $ 49,574,843 | 3.3% |
| SWP | 96,954,181 | 6.4% |
| Other Supply | 11,583,936 | 0.8% |
| **Total** | **158,112,960** | **10.5%** |
| | | |
| **Conveyance & Aqueduct** | | |
| CRA | | |
| *CRA Power (net of sales)* | 49,029,263 | 3.2% |
| *CRA All Other* | 52,363,760 | 3.5% |
| SWP | | |
| *SWP Power* | 193,116,337 | 12.8% |
| *SWP All Other* | 182,214,861 | 12.1% |
| Other Conveyance & Aqueduct | 88,925,404 | 5.9% |
| **Total** | **565,649,625** | **37.4%** |
| | | |
| **Storage** | | |
| Storage Costs Other Than Power | | |
| *Emergency* | 68,446,709 | 4.5% |
| *Drought* | 57,463,479 | 3.8% |
| *Regulatory* | 17,229,366 | 1.1% |
| Wadsworth plant pumping/generation | (1,520,282) | 0.1% |
| **Total** | **141,619,272** | **9.6%** |
| | | |
| **Treatment** | | |
| Jensen | 60,746,471 | 4.0% |
| Weymouth | 63,388,281 | 4.2% |
| Diemer | 59,498,236 | 3.9% |
| Mills | 30,788,895 | 2.0% |
| Skinner | 66,387,052 | 4.4% |
| **Total** | **280,808,934** | **18.6%** |
| | | |
| **Distribution** | 157,077,485 | 10.4% |
| **Demand Management** | 71,685,973 | 4.7% |
| **Hydroelectric** | (3,065,507) | 0.2% |
| **Administrative & General** | 129,919,925 | 8.6% |
| **Total Functional Allocations:** | **$ 1,501,808,668** | **100.0%** |

(1) Given as a percentage of the absolute values of total dollars allocated.
Totals may not foot due to rounding

## Schedule 5. Service Function Revenue Requirements (by budget line item)

| Fiscal Year Ending 2016 | Source of Supply | Conveyance & Aqueduct | Storage | Water Quality | Treatment | Distribution | Demand Management | Hydro Electric | Administrative & General | Total $ Allocated |
|---|---|---|---|---|---|---|---|---|---|---|
| **Departmental Operations & Maintenance** | | | | | | | | | | |
| Office of the General Manager & Human Resources | $ 1,203,318 | $ 8,964,397 | $ 792,987 | $ - | $ 4,419,717 | $ 3,027,311 | $ 370,259 | $ 293,646 | $ 6,697,083 | $ 25,768,716 |
| External Affairs | - | - | - | - | - | - | 2,897,383 | - | 14,291,223 | 17,188,606 |
| Water System Operations | 12,546,789 | 38,317,628 | 3,528,311 | - | 97,792,705 | 57,158,424 | 8,160 | 5,370,823 | 953,683 | 215,676,523 |
| Chief Financial Officer | - | - | - | - | - | - | - | - | 9,187,432 | 9,187,432 |
| Business Technology & Engineering Services | 2,496,064 | 10,644,224 | 8,988,988 | - | 18,315,713 | 11,055,946 | 735,770 | 1,032,911 | 31,714,743 | 84,984,360 |
| Real Property Development & Mgmt | - | - | 5,289,803 | - | - | - | - | - | - | 5,289,803 |
| Water Resource Management | 9,380,797 | - | - | - | 128,775 | 1,152,505 | 5,485,083 | - | 193,594 | 16,340,755 |
| Ethics Department | - | - | - | - | - | - | - | - | 990,943 | 990,943 |
| General Counsel | - | - | - | - | - | - | - | - | 12,598,621 | 12,598,621 |
| Audit Department | - | - | - | - | - | - | - | - | 2,925,708 | 2,925,708 |
| **Total Departmental O&M** | 25,626,969 | 57,926,248 | 18,600,089 | - | 120,656,910 | 72,394,186 | 9,496,655 | 6,697,379 | 79,553,028 | 390,951,466 |
| **General District Requirements** | | | | | | | | | | |
| State Water Project | 78,539,665 | 436,464,698 | - | - | - | - | - | - | - | 515,004,362 |
| Colorado River Aqueduct Power | - | 36,503,152 | - | - | - | - | - | - | - | 36,503,152 |
| Supply Programs | 66,451,886 | - | - | - | - | - | - | - | - | 66,451,886 |
| Demand Management | - | - | - | - | - | - | 61,654,768 | - | - | 61,654,768 |
| Capital Financing Program | 1,789,848 | 106,992,491 | 126,539,384 | - | 170,143,885 | 101,933,794 | - | 7,670,777 | 19,637,190 | 534,707,370 |
| Other Operating Costs | 620,797 | 1,264,620 | 409,105 | - | 2,280,150 | 1,561,802 | 1,741,018 | 151,493 | 18,605,795 | 26,634,780 |
| Increase (Decrease) in Required Reserves | - | - | - | - | - | - | - | - | 19,600,000 | 19,600,000 |
| **Total General District Requirements** | 147,402,196 | 581,224,960 | 126,948,489 | - | 172,424,035 | 103,495,596 | 63,395,786 | 7,822,270 | 57,842,985 | 1,260,556,317 |
| **Revenue Offsets** | (14,916,205) | (73,501,583) | (3,929,306) | - | (12,272,012) | (18,812,297) | (1,206,468) | (17,585,156) | (7,476,089) | (149,699,116) |
| **Net Revenue Requirements** | **$ 158,112,960** | **$ 565,649,625** | **$ 141,619,272** | **$ -** | **$ 280,808,934** | **$ 157,077,485** | **$ 71,685,973** | **$ (3,065,507)** | **$ 129,919,925** | **$ 1,501,808,668** |

Totals may not foot due to rounding

### *1.4 Classified Costs*

In the cost classification step, functionalized costs are further categorized based on the causes and behavioral characteristics of these costs. An important part of the classification process is identifying which costs are incurred to meet average demands vs. peak demands and which costs are incurred to provide standby service. As with the functional allocation process, the proposed classification process is consistent with AWWA guidelines, but has been tailored to meet Metropolitan's specific operational structure and service environment.

Two methods are discussed in the AWWA M1 Manual, Principles of Water Rates, Fees and Charges. These two methods are the Commodity/Demand method and the Base/Extra Capacity method.

In the simplest sense, these approaches offer alternative means of distinguishing between utility costs incurred to meet average or base demands and costs incurred to meet peak demands. The Commodity/Demand method allocates costs that vary with the amount of water produced to the commodity category with all other costs associated with water production allocated to the demand category. In the Base/Extra Capacity method, costs related to average demand conditions are allocated to the base category, and capacity costs associated with meeting above average demand conditions are allocated to the extra capacity category.

The Commodity/Demand approach was modified for its application to Metropolitan's rate structure by adding a separate cost classification for costs related to providing standby service. Analysis of system operating data indicated that a modified Commodity/Demand approach was most appropriate for developing Metropolitan's cost of service classification bases.

Classification categories used in the analysis include:

- Fixed demand costs
- Fixed commodity costs
- Fixed standby costs
- Variable commodity costs
- Hydroelectric costs

Demand costs are incurred to meet peak demands. Only the direct capital financing costs were included in the demand classification category. A portion of capital financing costs was included in the demand cost category because in order to meet peak demands additional physical capacity is designed into the system and, therefore, additional capital costs are incurred. Commodity costs are generally costs that tend to vary with the amount of water produced. Variable commodity costs include costs of chemicals, most power costs, and other cost components that increase or decrease in relation to the volume of water supplied. Fixed commodity costs include fixed operations and maintenance and capital financing costs that are not related to accommodating peak demands or standby service.

Standby service costs relate to Metropolitan's role in ensuring system reliability during emergencies such as an earthquake or an outage of a major facility like the Colorado River Aqueduct. The standby costs identified include the emergency storage capacity within the system, and the standby capacity within the conveyance and distribution systems.

An additional component used in Metropolitan's cost classification process is the hydroelectric component. While not a part of most water utilities' cost classification procedures, the hydroelectric classification component is necessary to segregate revenue requirements carried from the hydroelectric function established in the functional allocation process. Hydroelectric revenue requirements are later embedded in the distribution function. Any net revenues generated by the hydroelectric operations offset the distribution costs and reduce the System Access Rate. All users of the distribution system benefit proportionately from the revenue offset provided by the sale of hydroelectric energy.

Schedule 6 provides the classification percentages used to distribute the service function costs into demand, commodity and standby service classification categories. All of the supply costs are classified as fixed commodity costs. Because these particular supply costs have been incurred to provide an amount of annual reliable system yield and not to provide peak demand delivery capability or standby service, they are reasonably treated as fixed commodity costs.

Costs for the Conveyance and Aqueduct (C&A) service function are classified into demand, commodity, and standby categories. Because the capital costs for C&A were incurred to meet all three classification categories, an analysis of C&A capacity usage for the test year was used to determine that 54 percent of the available conveyance capacity varies with the quantity of water produced. A system peak factor[1] of 1.4 was applied to the annual usage to determine that 24 percent of available capacity is used to meet peak monthly deliveries to the member agencies. The remaining portion of C&A, around 22 percent, is used for standby. The same classification percentages are applied to the CRA, SWP, and Other (Inland Feeder) Conveyance and Aqueduct sub-functions. The classification shares reflect the system average use of conveyance capacity and not the usage of individual facilities. All of the Conveyance and Aqueduct energy costs for pumping water to Southern California are classified as variable commodity costs and, therefore, are not shown in Schedule 6 because they carry through the classification step.

Storage service function costs for emergency, drought and regulatory storage are also distributed to the classification categories based on the type of service provided. Emergency storage costs are classified as 100 percent standby related. Emergency storage is a prime example of a cost Metropolitan incurs to ensure the reliability of deliveries to the member agencies. In effect, through the emergency storage capacity in the system, Metropolitan is "standing by" to provide service in the event of a catastrophe such as a major earthquake that disrupts regional conveyance capacity for an extended period of time. Drought carryover storage serves to provide reliable supplies by carrying over surplus supplies from periods of above normal precipitation and snow pack to drought periods when supplies decrease. Drought storage creates supply and is one component of the portfolio of resources that result in a reliable amount of annual system supplies. As a result, drought storage is classified as a fixed commodity cost, in the same manner as Metropolitan's supply costs. Regulatory storage within the Metropolitan system provides operational flexibility in meeting peak demands and flow requirements, essentially increasing the physical distribution capacity. Therefore, regulatory storage is classified in the same manner as distribution costs.

[1]Peak monthly deliveries to the member agencies average about 44 percent more than the average monthly deliveries.

Distribution service function costs were classified as fixed commodity by using projected sales data for the test year. During this period, 44 percent of the system distribution capacity varies with the quantity of water produced. Distribution service function costs were classified as fixed demand by using three years of recorded non-coincident peaks. The difference between the three-year average non-coincident peak and the commodity flows divided by the system capacity, or 39 percent of the distribution capacity, was used to meet peak day demands. Although the Metropolitan distribution system has a great deal of operational flexibility, the total amount of distribution capacity was limited to the historical peak non-coincident[2] 24-hour daily flow of all the member agencies. The remaining 17 percent of distribution capacity is associated with standby service.

Treatment service function costs were also classified as fixed commodity by using projected treated deliveries to the member agencies for the test year. Treatment fixed demand percentage calculation uses system non-coincident peak factor applied to the test year usage; the remaining capacity is associated with standby service. Total treated water capacity of 4,204 cfs, the total design capacity of all the treatment plants, was used in the calculation. Administrative and general costs have been allocated to the classification categories by service function based on the ratio of classified non-A&G service function costs to total non-A&G service function costs.

[2] The term "non-coincident" means that the peak day flow for each agency may or may not coincide with the peak day system flow. Both non-coincident and coincident approaches to measuring peak demands are used in rate design approaches. A non-coincident approach is used in the rate design to capture the different operating characteristics of the member agencies (e.g., the distribution system is designed to meet peak demands in different load areas within the System that have non-coincident demands due to each member agencies unique operating characteristics).

## Schedule 6. Classification Percentages

| Function | Classification Percentages: Fixed Commodity | Fixed Demand | Fixed Standby | Total % Classified | Comments |
|---|---|---|---|---|---|
| **Source of Supply** | | | | | |
| Colorado River Aqueduct | 100% | 0% | 0% | 100% | Supply costs classified as fixed commodity |
| State Water Project | 100% | 0% | 0% | 100% | Supply costs classified as fixed commodity |
| **Conveyance & Aqueduct** | | | | | |
| Colorado River Aqueduct | 54% | 24% | 22% | 100% | Demand percentage represents amount of system conveyance capacity used to meet peak demands. Commodity percentage represents amount of capacity that is a function of the amount of water delivered. Standby percentage is the remainding conveyance capacity. SWP, CRA, and Other are treated the same due to the use of a uniform system-wide System Access Rate. |
| State Water Project | 54% | 24% | 22% | 100% | |
| Other | 54% | 24% | 22% | 100% | |
| **Storage** | | | | | |
| Emergency | 0% | 0% | 100% | 100% | Classifies as Standby (recovered by RTS) |
| Drought | 100% | 0% | 0% | 100% | Classified as fixed commodity (recovered by Supply Rates) |
| Regulatory | 44% | 39% | 17% | 100% | Classified the same way as distribution. |
| **Treatment** | 30% | 30% | 40% | 100% | Demand percentage represents amount of system treatment capacity used to meet peak demands. Commodity percentage represents amount of capacity that is a function of the amount of treated water delivered. Standby percentage is the remaining treatment capacity. The same classification is applied to all five treatment plants due to the use of a uniform system-wide Treatment Surcharge. |
| **Distribution** | 44% | 39% | 17% | 100% | Demand percentage represents amount of system distribution capacity used to meet peak demands. Commodity percentage represents amount of capacity that is a function of the amount of water delivered. Standby percentage is the remaining distribution capacity. The same classification is applied to all distribution facilities due to the use of a uniform system-wide System Access Rate. |

Totals may not foot due to rounding

A summary of cost classification results is shown in Schedule 7. Theclassification of the service function costs results in about 8 percent, or $127 million of the total revenue requirements, being allocated to the demand classification category. This amount represents a reasonable estimate of the annual fixed capital financing costs incurred to meet peak demands (plus the allocated administrative and general costs). A portion of Metropolitan's property tax revenue is allocated to C&A fixed demand costs and is used to pay for the general obligation bond debt service allocated to the C&A costs, and other SWP costs. This revenue offsets the amount that needs to be recovered through rates.

## Schedule 7. Service Function Revenue Requirements (by classification category)

| Fiscal year ending 2016<br>Functional categories (by sub-Fuction) | Fixed Demand | Fixed Commodity | Fixed Standby | Variable Commodity | Hydroelectric | Total Classified |
|---|---|---|---|---|---|---|
| **Source of Supply** | | | | | | |
| CRA | $ - | $ 55,748,977 | $ - | $ - | $ - | $ 55,748,977 |
| SWP | - | 109,029,016 | - | - | - | 109,029,016 |
| Other Supply | - | 13,026,618 | - | - | - | 13,026,618 |
| **Subtotal: Source of Supply** | - | 177,804,611 | - | - | - | **177,804,611** |
| **Conveyance & Aqueduct** | | | | | | |
| CRA | | | | | | |
| *CRA Power* | - | 15,014,059 | - | 37,062,970 | - | 52,077,028 |
| *CRA All Other* | 3,469,482 | 51,686,959 | 3,257,746 | - | - | 58,414,186 |
| SWP | | | | | | |
| *SWP Power* | - | - | - | 200,612,875 | - | 200,612,875 |
| *SWP All Other* | 11,669,919 | 180,696,160 | 10,957,727 | - | - | 203,323,806 |
| Other Conveyance & Aqueduct | 19,212,192 | 58,557,039 | 19,517,807 | - | - | 97,287,038 |
| **Subtotal: Conveyance & Aqueduct** | 34,351,593 | 305,954,216 | 33,733,281 | 237,675,845 | - | **611,714,934** |
| **Storage** | | | | | | |
| Storage Costs Other Than Power | | | | | | |
| *Emergency* | - | 9,900,032 | 62,626,966 | - | - | 72,526,998 |
| *Drought* | - | 64,620,076 | - | - | - | 64,620,076 |
| *Regulatory* | 6,311,647 | 9,702,832 | 2,730,536 | - | - | 18,745,014 |
| Storage Power | - | - | - | (1,579,297) | - | (1,579,297) |
| **Subtotal: Storage** | 6,311,647 | 84,222,940 | 65,357,501 | (1,579,297) | - | **154,312,791** |
| **Water Quality** | | | | | | |
| CRA | - | - | - | - | - | - |
| SWP | - | - | - | - | - | - |
| Other | - | - | - | - | - | - |
| **Subtotal: Water Quality** | - | - | - | - | - | **-** |
| **Treatment** | 50,760,413 | 159,237,171 | 63,910,523 | 31,249,894 | - | **305,158,001** |
| **Distribution** | 35,437,427 | 122,333,950 | 15,330,889 | - | - | **173,102,266** |
| **Demand Management** | - | 80,613,863 | - | - | - | **80,613,863** |
| **Hydroelectric** | - | - | - | - | (897,798) | **(897,798)** |
| **Total Costs Classified** | **$ 126,861,080** | **$ 930,166,752** | **$ 178,332,193** | **$ 267,346,441** | **$ (897,798)** | **$ 1,501,808,668** |

Totals may not foot due to rounding

About 62 percent of the revenue requirement ($930 million) is classified as fixed commodity. These fixed capital and operating costs are incurred by Metropolitan to meet annual average service needs and are typically recovered by a combination of fixed charges and volumetric rates. Fixed capital costs classified to the Standby category total about $178 million and account for about 12 percent of the revenue requirements. Standby service costs are commonly recovered by a fixed charge allocated on a reasonable representation of a customer's need for standby service. The variable commodity costs for power on the conveyance and aqueduct systems, and power, chemicals and solids handling at the treatment plants change with the amount of water delivered to the member agencies. These costs are classified as variable commodity costs, total about $267 million, and account for about 18 percent of the total revenue requirement. Because of the variable nature of these costs, it is appropriate to recover them through volumetric rates.

## 2 Rates and Charges

Schedule 8 provides a cross-reference between the classified service function costs and their allocation to the rate design elements. The specifics of each rate design element are discussed in detail in the following section. Schedule 9 summarizes the rates and charges that would be effective on January 1, 2016 using the assumptions and methodology of this report. Average costs by member agency will vary depending upon an agency's RTS allocation, capacity charge and relative proportions of treated and untreated Tier 1 and Tier 2 purchases.

## Schedule 8. Classified Service Function Revenue Requirements (by rate design element)

| Fiscal year ending 2016 | Rate Design Elements | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Service Function by Classification Category | Supply Rates | System Access Rate | Water Stewardship Rate | System Power Rate | Capacity Charge | Readiness-to-Serve Charge | Treatment Surcharge | Total Costs Allocated |
| **Supply** | | | | | | | | |
| Fixed Demand | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Fixed Commodity | 177,804,611 | - | - | - | - | - | - | 177,804,611 |
| Fixed Standby | - | - | - | - | - | - | - | - |
| Variable Commodity | - | - | - | - | - | - | - | - |
| Hydroelectric | - | - | - | - | - | - | - | - |
| **Subtotal: Supply** | 177,804,611 | - | - | - | - | - | - | 177,804,611 |
| **Conveyance and Aqueduct** | | | | | | | | |
| Fixed Demand | - | - | - | - | - | 34,351,593 | - | 34,351,593 |
| Fixed Commodity | - | 305,954,216 | - | - | - | - | - | 305,954,216 |
| Fixed Standby | - | - | - | - | - | 33,733,281 | - | 33,733,281 |
| Variable Commodity | - | - | - | 237,675,845 | - | - | - | 237,675,845 |
| Hydroelectric | - | - | - | - | - | - | - | - |
| **Subtotal: Conveyance and Aqueduct** | - | 305,954,216 | - | 237,675,845 | - | 68,084,873 | - | 611,714,934 |
| **Storage** | | | | | | | | |
| Fixed Demand | - | - | - | - | 6,311,647 | - | - | 6,311,647 |
| Fixed Commodity | 64,620,076 | 19,602,865 | - | - | - | - | - | 84,222,940 |
| Fixed Standby | - | - | - | - | - | 65,357,501 | - | 65,357,501 |
| Variable Commodity | (1,579,297) | - | - | - | - | - | - | (1,579,297) |
| Hydroelectric | - | - | - | - | - | - | - | - |
| **Subtotal: Storage** | 63,040,778 | 19,602,865 | - | - | 6,311,647 | 65,357,501 | - | 154,312,791 |
| **Treatment** | | | | | | | | |
| Fixed Demand | - | - | - | - | - | - | 50,760,413 | 50,760,413 |
| Fixed Commodity | - | - | - | - | - | - | 159,237,171 | 159,237,171 |
| Fixed Standby | - | - | - | - | - | - | 63,910,523 | 63,910,523 |
| Variable Commodity | - | - | - | - | - | - | 31,249,894 | 31,249,894 |
| Hydroelectric | - | - | - | - | - | - | - | - |
| **Subtotal: Treatment** | - | - | - | - | - | - | 305,158,001 | 305,158,001 |
| **Distribution** | | | | | | | | |
| Fixed Demand | - | - | - | - | 35,437,427 | - | - | 35,437,427 |
| Fixed Commodity | - | 122,333,950 | - | - | - | - | - | 122,333,950 |
| Fixed Standby | - | - | - | - | - | 15,330,889 | - | 15,330,889 |
| Variable Commodity | - | - | - | - | - | - | - | - |
| Hydroelectric | - | (897,798) | - | - | - | - | - | (897,798) |
| **Subtotal: Distribution** | - | 121,436,152 | - | - | 35,437,427 | 15,330,889 | - | 172,204,468 |
| **Demand Management** | | | | | | | | |
| Fixed Demand | - | - | - | - | - | - | - | - |
| Fixed Commodity | - | - | 80,613,863 | - | - | - | - | 80,613,863 |
| Fixed Standby | - | - | - | - | - | - | - | - |
| Variable Commodity | - | - | - | - | - | - | - | - |
| Hydroelectric | - | - | - | - | - | - | - | - |
| **Subtotal: Demand Management** | - | - | 80,613,863 | - | - | - | - | 80,613,863 |
| **Total** | | | | | | | | |
| Fixed Demand | - | - | - | - | 41,749,074 | 34,351,593 | 50,760,413 | 126,861,080 |
| Fixed Commodity | 242,424,687 | 447,891,031 | 80,613,863 | - | - | - | 159,237,171 | 930,166,752 |
| Fixed Standby | - | - | - | - | - | 114,421,670 | 63,910,523 | 178,332,193 |
| Variable Commodity | (1,579,297) | - | - | 237,675,845 | - | - | 31,249,894 | 267,346,441 |
| Hydroelectric | - | (897,798) | - | - | - | - | - | (897,798) |
| **Total** | **$ 240,845,390** | **$ 446,993,232** | **$ 80,613,863** | **$ 237,675,845** | **$ 41,749,074** | **$ 148,773,263** | **$ 305,158,001** | **$ 1,501,808,668** |

Totals may not foot due to rounding

**Schedule 9. Rates and Charges Summary**

| Effective January 1st | 2014 | 2015 | 2016 |
|---|---|---|---|
| Tier 1 Supply Rate ($/AF) | $148 | $157 | $154 |
| Tier 2 Supply Rate ($/AF) | $290 | $290 | $290 |
| System Access Rate ($/AF) | $243 | $255 | $258 |
| Water Stewardship Rate ($/AF) | $41 | $41 | $41 |
| System Power Rate ($/AF) | $161 | $125 | $137 |
| Full Service Untreated Volumetric Cost ($/AF) | | | |
| Tier 1 | $593 | $578 | $590 |
| Tier 2 | $735 | $711 | $726 |
| Full Service Exchange Cost ($/AF) | $445 | $421 | $436 |
| Treatment Surcharge ($/AF) | $297 | $337 | $343 |
| Full Service Treated Volumetric Cost ($/AF) | | | |
| Tier 1 | $890 | $915 | $933 |
| Tier 2 | $1,032 | $1,048 | $1,069 |
| Readiness-to-Serve Charge ($M) | $166 | $157 | $150 |
| Capacity Charge ($/cfs) | $8,600 | $11,000 | $10,700 |

### *2.1 System Access Rate (SAR)*

The SAR is a volumetric[3] system-wide rate levied on each acre-foot of water that moves through the MWD system. The MWD system includes MWD's right to use SWP facilities for transportation of SWP and non-SWP water. All system users (member agency or third party) pay the SAR to use Metropolitan's conveyance and distribution system. To meet the board stated objective to collect all costs in 2015/16, the SAR would increase to $258 per acre-foot. The SAR recovers the cost of providing conveyance and distribution capacity to meet average annual demands. Current estimates indicate that the SAR revenue requirement will be about $447 million in FY 2015/16, or 30 percent of the total revenue requirement.

[3] A volumetric rate is a charge applied to the actual amount of water delivered.

### *2.2 Water Stewardship Rate (WSR)*

The WSR would remain unchanged at $41 per acre-foot. The WSR recovers the costs of providing financial incentives for existing and future investments in local resources including conservation and recycled water. These investments or incentive payments are identified as the "demand management" service function in the cost of service process. Demand management costs are classified as 100 percent fixed commodity costs and are estimated to be about $81 million in FY 2015/16, about 5 percent of the revenue requirement. The WSR is a volumetric rate paid by each acre-foot of water that moves through the Metropolitan system. All system users (member agency or third parties) will pay the same proportional costs for existing and future conservation and recycling investments.

Investments in conservation, recycling, and groundwater recovery decrease the region's overall dependence on imported water supplies from environmentally sensitive areas like the Bay-Delta; increase the overall level of water supply reliability in Southern California; reduce and defer system capacity expansion costs; and create available space to be used to complete water transfers. Because conservation measures and local resource investments reduce the overall level of dependence on the imported water system, more capacity is available in existing facilities for a longer period of time. The space in the system made available by conservation and recycling is open to all system users. Similar to the public benefit charges implemented in the electric and natural gas industries in California after "open access" (customer choice of supplier) was implemented, the regional and statewide benefits of demand management are assessed to all users of the Metropolitan system, regardless of the source of the imported water supply.

The benefits of demand management programs are recognized by section 130.5 of the MWD Act, enacted by S.B. 60 (Stats. 1999, ch. 414), which requires the Metropolitan to "place increased emphasis on sustainable, environmentally sound, and cost-effective water conservation, recycling, and groundwater storage and replenishment measures." Because Metropolitan is mandated under S.B. 60 to fund water supply programs like conservation and recycling, it is appropriate to recover the costs of supporting these programs on all water moved through the system.

### *2.3 System Power Rate (SPR)*

SPR would increase to $137 per acre-foot in 2016. The SPR is a volumetric rate that recovers the costs of pumping water to Southern California. The SPR recovers the cost of power for both the SWP and CRA. In FY 2015/16 the revenue requirement for the SPR is estimated to be about $238 million, about 16 percent of the total revenue requirement.

### *2.4 Treatment Surcharge*

The treatment surcharge would increase to $343 per acre-foot to collect all treatment costs in 2015/16. The treatment surcharge is a system-wide volumetric rate set to recover the cost of providing treated water service. The treatment surcharge revenue requirement is expected to be about $305 million in FY 2015/16, almost 20 percent of the total revenue requirement. The treatment surcharge recovers all costs associated with providing treated water service, including commodity, demand and standby related costs. Significant capital improvements at Metropolitan's five treatment plants, such as the Ozone Retrofit Program at Weymouth, as well as refurbishments and improvement programs at all five treatment plants result in additional capital financing costs being allocated to the treatment surcharge.

### *2.5 Capacity Charge*

The Capacity Charge would decrease to $10,700 per cubic-foot-second of capacity during calendar year 2016. The decrease is due to the decrease in pay-as-you-go funding of the CIP. The capacity charge is levied on the maximum summer day demand placed on the distribution system between May 1 and September 30 for a three-calendar year period. The three-year period ending December 31, 2014 is used to levy the capacity charge effective January 1, 2016 through December 31, 2016. Demands measured for the purposes of billing the capacity charge include all firm demand, including wheeling service and exchanges.

The capacity charge is intended to pay for the cost of peaking capacity on Metropolitan's distribution system, while providing an incentive for local agencies to decrease their use of the Metropolitan system to meet peak day demands and to shift demands into lower use time periods particularly October through April. Over time, a member agency will benefit from local supply investments and operational strategies that reduce its peak day demand on the system in the form of a lower total capacity charge. The estimated capacity charge to be paid by each member agency in calendar year 2016 will be provided to the Board in April 2015.

### *2.6 Readiness-to-Serve Charge*

The costs of providing standby service, such as emergency storage, are recovered by the RTS. Metropolitan's costs for providing emergency storage capacity within the system are estimated to be about $65 million in FY 2015/16. In addition, to simplify the rate design by reducing the number of separate charges, the demand and standby related costs identified for the conveyance and aqueduct service function, and standby costs for the distribution function, are also allocated to the RTS. These costs are estimated to be about $84million in FY 2015/16. The RTS would decrease to $150million in calendar year 2016. The decrease is due to the decrease in pay-as-you go funding of the CIP.

The RTS is allocated to the member agencies based on each agency's proportional share of a ten-year rolling average of all firm deliveries (including water transfers and exchanges that use Metropolitan system capacity). A ten-year rolling average leads to a relatively stable RTS allocation that reasonably represents an agency's potential long-term need for standby service under different demand conditions. Member agencies that so choose may have a portion of their total RTS obligation offset by standby charge collections levied by Metropolitan on behalf of the member agency. The detailed schedule with an estimate of each agency's RTS obligation for calendar year 2016 will be provided to the Board in April 2015.

### *2.7 Purchase Order*

The Purchase Order determines the amount of water that can be purchased at the Tier 1 rate. The existing Amended and Restated Purchase Order agreements presently in effect expire December 31, 2014. The Purchase Order will be addressed in the second half of 2014.

### *2.8 Tier 2 supply rate*

The Tier 2 Supply Rate reflects Metropolitan's cost of purchasing water transfers north of the Delta. The Tier 2 Supply Rate encourages the member agencies and their customers to maintain existing local supplies and develop cost-effective local supply resources and conservation. The Tier 2 Supply Rate would remain at its current level of $290 per acre-foot. At an expected average sales level of 1.75 million acre-feet, it is estimated that no acre-feet will be sold at the Tier 2 Supply Rate.

### *2.9 Tier 1 supply rate*

The total revenue requirement for the supply service function is about $241 million in FY 2015/16. The Tier 1 Supply Rate would decrease to $154 per acre-foot in 2016. The Tier 1 Supply Rate is simply calculated as the amount of the total supply revenue requirement that is not recovered by the Tier 2 Supply Rate divided by the estimated amount of Tier 1 water sales. At an expected demand level of about 1.75 MAF, it is estimated that Metropolitan will sell about 1.57MAF at the Tier 1 Supply Rate in 2015/16.The two-tier pricing approach is closely linked to the Purchase Order and a base level of demand. The 2016 Tier 1 Annual Limit for all member agencies will be provided to the Board in April 2015.

## 3 Sales

Staff estimates of water sales used for developing the rate recommendation were based on current member agency demands and information and an expectation that demands will trend to levels expected under normal weather conditions. Since 1989/90, total sales have averaged about 2.00 MAF per year, ranging from a high of around 2.5 MAF in 1989/90 to a low of about 1.5 MAF in 1997/98. In 2015/16, water sales are projected to be 1.75 MAF. Treated water sales are projected to be 898 TAF in 2015/16, and Exchanges 179 TAF.

## 4 Proof of Revenue

Based on expected sales of 1.75 MAF the expected revenues would be about $3.1 million higher than the total revenue requirement, if the rates and charges were in effect the entire test year period. The cost-of-service allocation assuming a full twelve months of revenue is used to allocate costs among the various rate elements, but should not be interpreted as over- or under-collection during a given fiscal year. However, because the recommended rates do not take effect until January 1, 2016, the expected revenues for 2015/16 will be about $8million lower than the total revenue requirement in 2015/16. The total revenue requirement includes a $1.9million increase in the required reserves for the Revenue Remainder Fund. Draws from the Water Stewardship Fund are $8.9 millionin 2015/16. Accounting for these adjustments, the deposit to reserves is almost $2.8 million in 2015/16.

**Schedule 10. FY 2015/16 Proof of Revenue if Rates Effective for Full Test Year ($ millions)**

| | Revenues if Rates Effective July 1st | Revenue Requirements | Difference | % Over (Under) Collected |
|---|---|---|---|---|
| Supply | 241.9 | 240.8 | 1.1 | 0% |
| System Access Rate | 451.5 | 447.0 | 4.5 | 1% |
| Water Stewardship Rate | 71.8 | 80.6 | (8.9) | -11% |
| System Power Rate | 239.8 | 237.7 | 2.1 | 1% |
| Treatment Surcharge | 307.9 | 305.2 | 2.7 | 1% |
| Readiness-to-serve Charge | 150.0 | 148.8 | 1.2 | 1% |
| Capacity Charge | 42.1 | 41.7 | 0.4 | 1% |
| **Total** | **1,505.0** | **1,501.8** | **3.1** | **0%** |

Totals may not foot due to rounding

**Schedule 11. FY 2015/16 Proof of Revenue if Rates Effective January 1 ($ millions)**

| | Revenues if Rates Effective Jan 1 | Revenue Requirements | Difference | % Over (Under) Collected |
|---|---|---|---|---|
| Supply | 244.6 | 240.8 | 3.8 | 2% |
| System Access Rate | 448.5 | 447.0 | 1.5 | 0% |
| Water Stewardship Rate | 71.8 | 80.6 | (8.9) | -11% |
| System Power Rate | 227.8 | 237.7 | (9.9) | -4% |
| Treatment Surcharge | 304.9 | 305.2 | (0.2) | 0% |
| Readiness-to-serve Charge | 153.5 | 148.8 | 4.7 | 3% |
| Capacity Charge | 42.7 | 41.7 | 1.0 | 2% |
| **Total** | **1,493.8** | **1,501.8** | **(8.0)** | **-1%** |

Totals may not foot due to rounding