



- Board of Directors
Water Planning and Stewardship Committee

1/10/2012 Board Meeting

9-1

Subject

Review options for a Replenishment Program

Description

Background

The existing Replenishment Service Program provides a discounted water rate to agencies to increase purchase and delivery of water into local storage during periods of favorable supply. Under the program, Metropolitan has the ability to interrupt deliveries when needed. In May 2011, the Board directed staff to develop options for a new replenishment program that assures regional reliability benefits for board consideration. Metropolitan staff has engaged in a workgroup process with the member agencies and basin managers to develop program alternatives and has had ongoing communication with the Board for guidance and feedback. The Board adopted a set of policy principles for a new replenishment program in November 2011. In December 2011, staff presented the Board with an information letter with concepts for an alternative replenishment program that were based on the adopted policy principles.

This information letter presents specific program options, including estimated incentive levels, for board review. Staff has also provided other reference material as attachments. Details and specific terms of the program proposal are included in [Attachment 1](#). If adopted by the Board, the new replenishment program would replace the existing Replenishment Service Program and the existing Replenishment Water Rate would be discontinued.

For the purpose of this board letter, the term “basin” can refer to both groundwater and surface storage facilities, and “regional storage” refers to water stored in Metropolitan’s facilities or programs subject to Metropolitan’s call for delivery

Proposal for a Multilevel Replenishment Program

Consistent with the board-approved policy principles, staff proposes a three-level program to replace the existing Replenishment Service Program. The three levels correspond to different degrees of regional benefits, availability, and performance requirements, and would be offered under different water supply conditions. Metropolitan would no longer offer the current replenishment rate associated with the existing Replenishment Service Program; instead, rates would be based on Metropolitan’s full service rate with incentives offered in proportion to regional water management benefits and avoided costs. Metropolitan would determine when and how much water would be available under each level.

- Level 1 – when Metropolitan has supplies available to put into regional storage
- Level 2 – only when supplies available for storage exceed the regional storage put capacity
- Level 3 – when regional storage capacity is unavailable on a short-term basis

Together, the three program levels would provide Metropolitan with operational flexibility to manage water supplies more effectively under different ranges of water supply conditions.

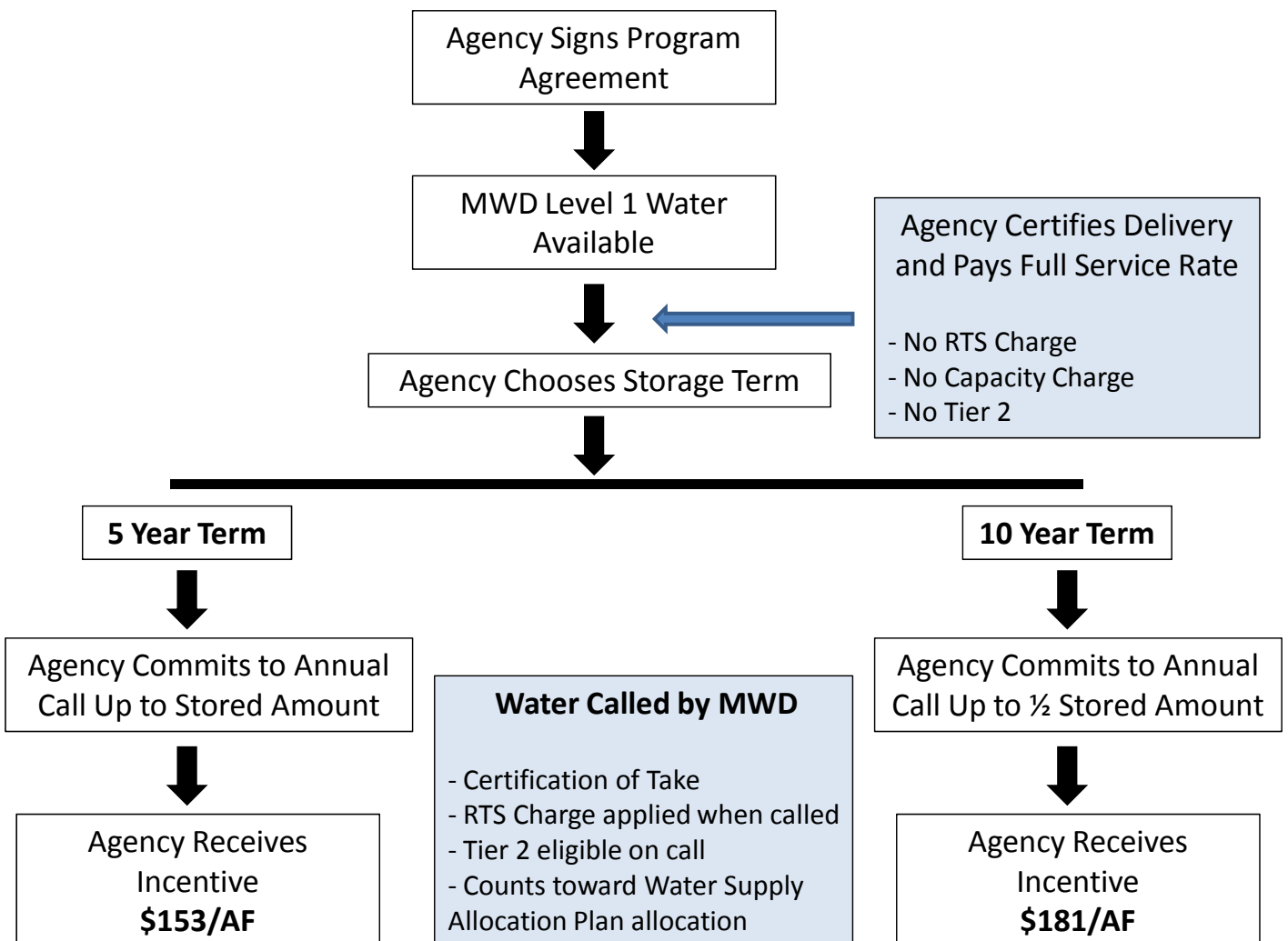
Level 1 – Long-term Contractual Storage with Call

General Description

Level 1 would provide for local storage of imported water supplies in the groundwater basins and surface reservoirs. This level provides the benefit of additional regional supplies to meet dry-year needs and operational flexibility at Metropolitan’s call. As part of a three-level program, Level 1 makes use of contractual, on-call storage, similar to other storage programs in Metropolitan’s regional storage portfolio. Level 1 would require a written agreement between the participating agency and Metropolitan. The participating agency would undergo a certification and assessment process to ensure that water is actually stored and not used for immediate consumptive needs. Timing of water deliveries would be based upon mutual agreement between Metropolitan and the agency. The participating agency would store water until the water is called by Metropolitan, or until the end of the storage term. Agencies could choose either a 5-year or a 10-year storage term. The storing agency would take possession of water that remains in storage at the end of the storage term. Under Level 1, the agency would receive a financial incentive based upon Metropolitan’s avoided marginal costs of its State Water Project (SWP) storage programs. Specific terms and details for how the incentive is calculated for a Level 1 Program are shown in [Attachment 1](#).

The process for Level 1 is illustrated in the following diagram.

Level 1 Process



A second option for applying the incentive would split the incentive between the years of puts and takes, rather than providing the entire incentive after delivery into storage. Under this option, the total split incentive would be \$203/AF for a 10-year term, and \$193/AF for a 5-year term. This option increases the total incentive an agency may receive, but it reduces Metropolitan’s risk of paying an incentive for water that is never called from the storage account.

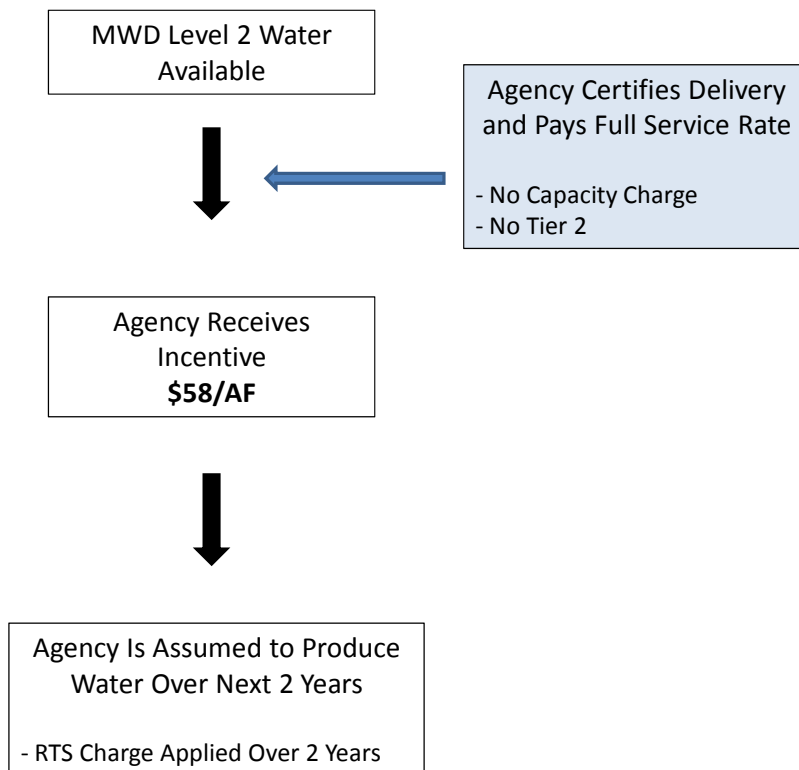
Level 2 – Short-term Storage without Call

General Description

Similar to Level 1, Level 2 also provides for storage of imported water supplies in local groundwater basins and surface reservoirs. As part of a three-level program, Level 2 would provide increased operational flexibility and increased delivery of surplus supplies into the region during years when Metropolitan’s conveyance capacity into regional storage is projected to be at capacity for a given year. Level 2 would be available less frequently than Level 1, only when supplies are projected to exceed regional storage capacity. Of the three levels, Level 2 most closely resembles the existing Replenishment Service Program. Unlike Level 1, Level 2 water would not be subject to a call by Metropolitan and would not require a contract. An agency would take delivery of water and undergo certification and subsequent assessment to ensure that water was stored rather than used consumptively in the year. Under Level 2, a member agency would receive a financial incentive for its participation. However, because Level 2 water is not subject to call by Metropolitan, the incentive would be less than Level 1. Specific terms and details for how the incentive is calculated for Level 2 are shown in [Attachment 1](#).

The process for Level 2 is illustrated in the following diagram.

Level 2 Process



Level 3 – Water Otherwise at Risk of Spill or Loss

Level 3 provides for increased delivery of surplus supplies into the region in periods when regional storage capacity is fully utilized on a short-term basis (i.e., within a given year). Metropolitan would determine when, and for how long, water is available under Level 3. Level 3 would be available infrequently – only when supplies exceed short-term capacity into regional storage, such as when SWP Article 21 supplies are available in large quantities and on relatively short notice. Under Level 3, water would be available to all agencies above a set baseline of water demand; the water would have no call or production certification. The agency would not receive a financial incentive for its participation other than the ability to avoid Capacity Charges and the Tier 2 supply rate on these deliveries for water taken above the baseline. Unlike Level 1 and Level 2, water offered under Level 3 would not have an incentive based on Metropolitan's SWP storage program costs, because it does not require certified storage of water. Specific terms for Level 3 are shown in [Attachment 1](#).

Additional Information for Board Consideration

Staff will seek the Board's approval of the proposed replenishment program in February. Several questions and concerns have been raised about the proposal as staff has refined the program options. For reference, staff has provided additional information as attachments to this board letter that are intended to address those questions.

Term Sheets for Proposed Replenishment Program

Term sheets on the proposed Replenishment Program Levels 1, 2, and 3 are provided in [Attachment 1](#). They describe the program levels in greater detail, as well as the methodologies for determining the avoided cost incentives for Levels 1 and 2 and the Level 3 demand baselines.

Replenishment Workgroup Participants

To acknowledge the contributions of the Replenishment Workgroup as it developed and refined the proposed replenishment program throughout 2011, a list of the agencies that have participated in the Replenishment Workgroup process is shown in [Attachment 2](#). A recurring theme from a series of technical presentations made by member agencies and basin managers was that each basin had unique conditions and that a one-size fits all approach may not be appropriate. Input from these presentations as well as the ongoing deliberations from the workgroup were instrumental in the development of this three-level program proposal.

Comparison of the Existing Replenishment Service Program, the Conjunctive Use Program, and the Proposed Replenishment Program

[Attachment 3](#) is a reference sheet that clarifies differences between Metropolitan's current Replenishment Service Program, the Conjunctive Use Program, and the program being proposed in this board letter.

Proposed Water Surplus and Drought Management Plan Matrix

[Attachment 4](#) is a reference sheet that shows how the proposed replenishment program would fit within the Water Surplus and Drought Management (WSDM) Plan Matrix. The WSDM Plan provides a general framework that guides Metropolitan's operations of its regional storage portfolio.

Frequently Asked Questions on the Proposed Replenishment Program

[Attachment 5](#) is a list of responses to frequently asked questions that staff has received on the proposed replenishment program.

Summary and Next Steps

In November 2011, the Board adopted the following set of policy principles to guide policy development of a new program:

Regional Water Management Benefits: The program shall provide regional water management benefits, including: (1) dry-year supplies at Metropolitan's call, (2) flexibility to manage delivery of available supplies in a way that would provide additional storage beyond Metropolitan's regional storage capability, and (3) delivery of supplies available to Metropolitan that are otherwise at risk of spill or loss.

Equity for Member Agencies: The program shall be available to all member agencies and provide quantifiable regional benefits.

Financial Integrity: The program options shall support the stability of Metropolitan's revenues and coverage of costs. Program incentives shall be based on sound economic principles and be proportional to the regional water management benefits provided.

Operational Flexibility: The program shall enhance opportunities for Metropolitan to effectively manage water supplies under varied water supply conditions.

Complementary with Other Storage Programs: Features of the program shall be complementary with existing storage programs, so that past investments in local and regional groundwater and surface water storage continue to yield reliability benefits.

The multilevel program described in this board letter offers a comprehensive approach for local storage and water management that adheres to the adopted policy principles. The proposal recognizes that Metropolitan staff designed a program recognizing that Metropolitan and local storing agencies operate under a range of different water management situations and conditions. The three levels of the program are designed to provide regional water management benefits identified by the Board, including dry-year supplies at Metropolitan's call, operational flexibility to manage delivery of available supplies to provide additional storage beyond Metropolitan's regional storage capability, and ability to manage short-term supplies available to Metropolitan that would otherwise be at risk of spill or loss. Financial incentives are scaled to reflect an economic analysis of the alternative costs of Metropolitan's existing regional storage portfolio and also reflect the benefits of interruptible deliveries. The proposal supports Metropolitan's financial integrity and member agency equity by providing quantifiable regional benefits that are complementary with other existing local and regional storage investments. The program would be available for both local groundwater and surface storage in Levels 1 and 2, and to all qualifying member agencies in Level 3.

Options and recommendations for a replenishment program will be presented for board consideration in February 2012.

Policy

Metropolitan Water District Administrative Code Section 4514: Replenishment Service

By Minute Item 43514, dated April 13, 1999, the Board adopted the Water Surplus and Drought Management Plan.

By Minute Item 47393, dated February 12, 2008, the Board adopted the Water Supply Allocation Plan.

By Minute Item 48680, dated May 10, 2011, the Board provided direction to the General Manager to exercise his discretion to offer discounted replenishment service in an amount limited to increases in supply above currently allocated supplies and directed staff to make recommendations by December 2011 for options to reform the Replenishment Service Program in a manner that assures regional reliability benefits.

By Minute Item 48887, dated November 8, 2011, the Board adopted the amended policy principles for a replenishment program.

Fiscal Impact

The total revenue impact for this new replenishment program would depend on several factors, including the availability of Levels 1, 2, and 3 water, the actual quantity of acre-feet sold under each program level, and the specific terms and calls made under Level 1 agreements between Metropolitan and individual member agencies. The new replenishment program would replace the existing Replenishment Service Program and discontinue the existing replenishment water rate.

Because Level 1 and Level 2 Program water would be priced using a proration of average marginal costs of Metropolitan's SWP storage programs, Metropolitan would benefit from Level 1 and Level 2 agreements with member agencies by avoiding costs it would have otherwise incurred to store water in its regional water portfolio. Water called under Level 1 would be considered Metropolitan deliveries and would count toward the participating agency's allocation under the Water Supply Allocation Plan if the call is made during an allocation year. Because Level 2 involves the capture of water supplies that Metropolitan might otherwise have been unable to store, there would be potential for increased revenue.

Under Level 3, there would be no adverse fiscal impact to Metropolitan because it would be offered only in situations where regional storage capacity is exceeded on a short-term basis and supplies available to Metropolitan are otherwise at risk of spill or loss. Because Level 3 involves the capture of water supplies that Metropolitan might otherwise have been unable to store, there would be a potential for increased revenue.


 Deven N. Upadhyay
 Manager, Water Resource Management

1/3/2012

Date


 Jeffrey Kightlinger
 General Manager

1/3/2012

Date

Attachment 1 – Term Sheets for Proposed Replenishment Program

Attachment 2 – List of Agencies Participating in the Replenishment Workgroup

Attachment 3 – Comparison of Current Replenishment Service Program, CUP Program, and Proposed Replenishment Program

Attachment 4 – Proposed Water Surplus and Drought Management (WSDM) Plan Matrix

Attachment 5 – Frequently Asked Questions on the Proposed Replenishment Program

Ref# wrm12616178

Level 1 – Split Incentive

TERM SHEET

Proposed Updated Replenishment Service Program - Level 1 (*Split Incentive*)

Program Level 1 provides for the storage of imported water supplies in local groundwater basins and surface reservoirs. Stored water can be called in later years by Metropolitan to meet dry-year needs or provide operational flexibility. As part of a three-level program, Level 1 provides for the explicit use of local storage, similar to other storage programs in Metropolitan's regional storage portfolio.

1. **Agreement** – Level 1 requires a written agreement between the participating agency and Metropolitan with clear terms and expectations. A contract between Metropolitan and the participating agency will specify:
 - Baseline basin information to be used for certifications
 - Put and Take terms
 - Incentive rate terms
 - Basin losses
 - Protection for Metropolitan against water quality or other basin impacts
 - Acknowledgement that Metropolitan is not responsible for basin management
2. **Deliveries** – Metropolitan will determine when water is available to store under Level 1. Timing of water deliveries will be based upon mutual agreement between Metropolitan and the participating agency. The participating agency will take delivery of water and undergo a certification and assessment process to ensure that water was actually stored and not used for immediate consumption.
3. **Storage Term** – The participating agency will store water until it is called by Metropolitan, or until the end of the storage term. The participating agency can choose either a 5-year or 10-year storage term. Water remaining in storage at the end of the term will belong to the participating agency without any further encumbrance from Metropolitan.
4. **Storage Call** – The agreement allows Metropolitan to call for withdrawal of stored water during the storage term. When Metropolitan calls for withdrawal of stored water, the participating agency will undergo certification and assessment to ensure that the water was produced.

Metropolitan's call for the withdrawal of stored water will be limited to 100 percent of the stored water in any year of the 5-year term, or 50 percent of the stored water in any year of the 10-year term.
5. **Effect on Water Supply Allocation** – Water called under Level 1 will be considered Metropolitan deliveries and will count toward the participating agency's allocation under the Water Supply Allocation Plan if the call is made during an allocation year.
6. **Purchase Payment** – For water delivered under Level 1, the participating agency will pay the applicable Full Service Tier 1 rate in effect at the time the water is delivered.

Level 1 – Split Incentive (continued)

Water delivered under Level 1 will not be counted towards the Capacity Charge or the Readiness-to-Serve Charge calculations for that year, at the time of delivery.

7. **Take Payment** – When stored water is withdrawn from the program at Metropolitan’s call, the participating agency will pay the differential between the Full Service Tier 1 and Tier 2 rates as appropriate.

In addition, the quantity of water withdrawn will be added to the participating agency’s Readiness-to-Serve baseline for that year.

8. **Incentive** – The participating agency will receive a financial incentive for its participation based upon Metropolitan’s avoided marginal costs of its SWP storage programs prorated for the estimated probability of use. The proration will differ depending on the length of the program term; the 10-year storage term will receive a higher prorated incentive than the 5-year storage term.

A portion of the incentive will be provided to the participating agency after the water is delivered to storage and the remainder will be paid at the time the water is withdrawn. The total estimated incentives based on 2011 SWP Program costs are:

- \$193 per acre-foot for a 5-year storage term
- \$203 per acre-foot for a 10-year storage term

Appendix A provides additional detail as to how the Level 1 split incentives are calculated.

The avoided costs of the SWP storage programs will be recalculated annually to account for inflation of costs and any renegotiation of terms for the SWP storage programs. In order to provide certainty to the member agencies, the incentive amount for a given year will be based on storage program costs from the previous year. The estimated probability of use will be updated every 5 years based on modeling done by Metropolitan staff.

9. **Penalty** – If the participating agency is not able to certify that the water is withdrawn or a subsequent assessment by Metropolitan shows insufficient production, the water will be repriced at a penalty rate that makes the cost of the water equivalent to two times the Tier 2 Full Service rate in effect at the time the water is called. The agency will receive a credit for the payment already made on the water when it was stored. The intent of the penalty is to ensure that an agency produces water on call.

Penalties under the Level 1 program will be assessed independently from any penalties that may be incurred under Metropolitan’s Water Supply Allocation Plan. The intent of the Water Supply Allocation Plan penalty is to ensure that an agency’s total use of Metropolitan water remains within the allocated amount during an allocation year.

Level 2

TERM SHEET

Proposed Updated Replenishment Service Program - Level 2

Program Level 2 provides for the storage of imported water supplies in local groundwater basins and surface reservoirs. As part of a three-level program, Level 2 provides increased operational flexibility and potential delivery of surplus supplies into the region during years when Metropolitan's conveyance capacity into regional storage is unavailable or projected to be at capacity for a given year.

1. **Agreement** – Level 2 does not require a contract between Metropolitan and the participating agency.
2. **Deliveries** – Metropolitan will determine when water is available to store under Level 2. The participating agency will take delivery of water and undergo a certification and assessment process to ensure that water was actually stored and not used for immediate consumption. Timing of water deliveries will be based upon mutual agreement between Metropolitan and the participating agency. There is no further tracking by Metropolitan of the water after the delivery is made.
3. **Storage Term** – Metropolitan does not have a call on water under Level 2, therefore there is no storage term. Incentives paid under Level 2 are set based on the expectation that the water stored will be produced in the subsequent two years.
4. **Storage Call** – Water stored under Level 2 will not be subject to a call or take certification by Metropolitan.
5. **Effect on Water Supply Allocation** – Water stored under Level 2 will not affect the participating agency's allocation under a Water Supply Allocation Plan. Because there is no call under Level 2, stored water would be as assumed to be local production in an allocation year.
6. **Purchase Payment** – For water delivered under Level 2, the participating agency will pay the applicable Full Service Tier 1 rate in effect at the time the water is delivered.

Water delivered under Level 2 will not count towards the Capacity Charge calculation, but will be applied to the Readiness-to-Serve Charge calculation; deliveries will be added to the participating agency's Readiness-to-Serve baselines equally in each of the two years following delivery of the water.

7. **Take Payment** – No take payment is required under Level 2.
8. **Incentive** – The participating agency will receive a financial incentive for its participation based upon Metropolitan's alternative marginal costs of its SWP storage programs prorated for the estimated probability of use.

The total estimated incentive based on 2011 SWP Program costs is \$58 per acre-foot. Appendix B provides additional detail about how the Level 2 incentive is calculated.

Level 2 (continued)

The avoided costs of the SWP storage programs will be recalculated annually to account for inflation of costs and any renegotiation of terms for the SWP storage programs. In order to provide certainty to the member agencies, the incentive amount for a given year will be based on storage program costs from the previous year. The estimated probability of use will be updated every 5 years based on modeling done by Metropolitan staff.

9. **Penalty** – Water stored under the Level 2 Program is not subject to a call or production certification by Metropolitan, and therefore will not be subject to penalties for nonperformance.

Level 3

TERM SHEET

Proposed Updated Replenishment Service Program - Level 3

Program Level 3 provides for increased delivery of surplus supplies into the region in periods when regional storage capacity is unavailable on a short term basis. As part of a three-level program, Level 3 would be available infrequently – only when supplies exceed short term capacity into regional storage, such as when SWP Article 21 supplies are available in large quantities and on relatively short notice.

1. **Agreement** – Level 3 does not require a contract between Metropolitan and the participating agency.
2. **Deliveries** – Metropolitan will determine when, and for how long, water is available under Level 3. When Level 3 water is available, it will be available to all member agencies above a calculated baseline water demand. Appendix C describes the methodology for calculating a member agency's baseline water demand.
3. **Storage Term** – Water delivered under Level 3 will not be subject to a storage term.
4. **Storage Call** – Water delivered under Level 3 will not be subject to a call or certification and assessment by Metropolitan.
5. **Effect on Water Supply Allocation** – Water delivered under Level 3 will not impact the participating agency's allocation under a Water Supply Allocation Plan.
6. **Purchase Payment** – For water delivered under Level 3, the participating agency will pay the applicable Full Service Tier 1 rate in effect at the time the water is delivered.

Water delivered under Level 3 will not count towards the Capacity Charge calculation, but will count towards the participating agency's Readiness-to-Serve baseline for that year.

7. **Take Payment** – No take payment is required under Level 3.
8. **Incentive** – No additional incentive is offered for water delivered under Level 3.
9. **Penalty** – Water stored under Level 3 is not subject to a call or certification by Metropolitan, and therefore will not be subject to penalties for nonperformance.

Incentive Calculation - Split

APPENDIX A

Proposed Updated Replenishment Service Program – Incentive Calculation (*Split*)

Incentives Based on the Avoided Cost of Other Storage Programs

To have regional benefit and financial integrity, program incentives would be based on avoided costs within Metropolitan's existing regional portfolio. Use of local storage can offset these costs. Metropolitan would consider offering water incentivized for local storage to the extent that the cost to Metropolitan would not exceed comparable costs for using its regional storage portfolio alternatives. Metropolitan's State Water Project (SWP) storage program costs are representative of marginal regional storage costs. A basket of Metropolitan's SWP storage program put and take costs would be used as a proxy for quantifying Metropolitan's potential avoided marginal costs. Proportions of these costs are appropriate incentives for local storage in Level 1 and Level 2, depending on storage terms and duration.

The following table shows the 2011 put and take costs for the basket of Metropolitan's SWP storage programs. The actual costs will be recalculated annually to include escalation in contract costs as well as any renegotiated terms. In order to provide certainty to the member agencies, the incentive amount for a given year will be based on storage program costs from the previous year. The recalculated costs would apply to program supplies on a go-forward basis.

| SWP Storage Program | 2011 Put Cost¹ | 2011 Take Cost | Total Cycle Cost² |
|----------------------------|----------------------------------|-----------------------|-------------------------------------|
| Semitropic | \$82 | \$159 | \$241 |
| Arvin-Edison | \$115 | \$162 | \$277 |
| Kern Delta | \$119 ³ | \$113 | \$232 |
| Mojave | \$0 | \$115 | \$115 |
| Average | \$79 | \$137 | \$216 |

Estimated Probability Analysis for Prorating Level 1 and Level 2 Incentives

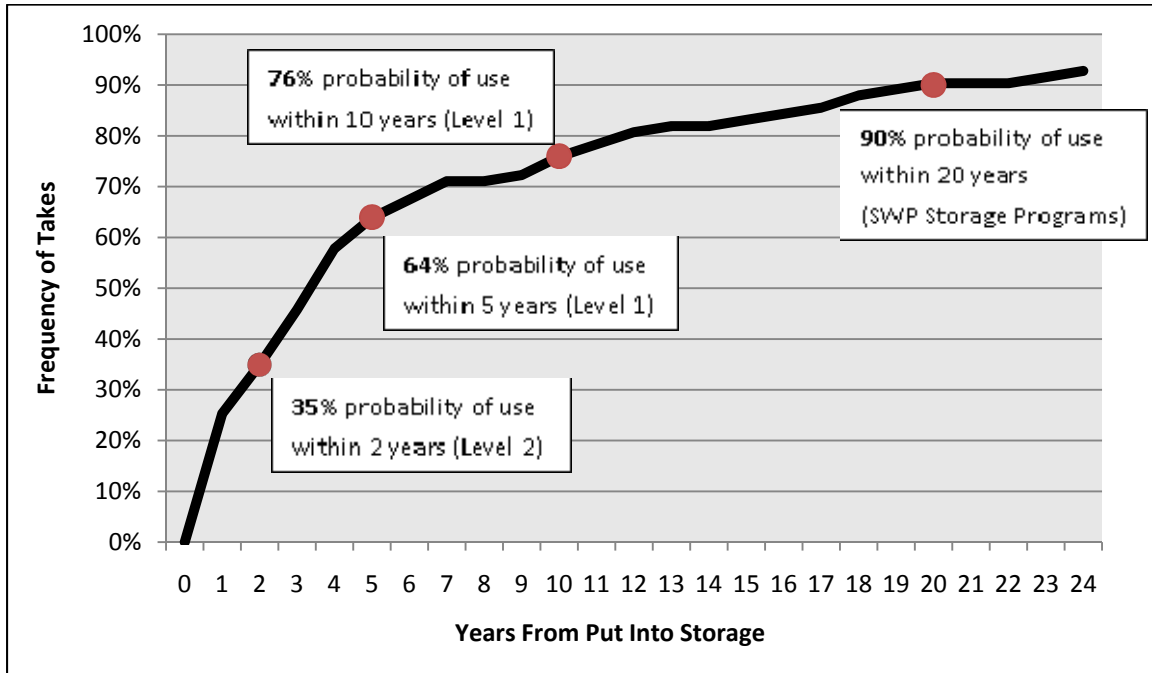
For the purposes of prorating financial incentives for Level 1 and Level 2, it is necessary to estimate the probabilities of the use of stored water. Metropolitan staff modeled the estimated probability of the use of stored water, shown in the graph below. The blue line on the graph shows the cumulative probability of the use of stored water for a 25-year period. The circles on the graph show the estimated probabilities of the use of stored water at periods of 2, 5, 10 and 20 years.

¹ Includes program loss factors to equal 1 acre-foot of water produced.

² Totals may not match precisely due to rounding.

³ Actual 2011 put costs are significantly reduced (\$40) because of an upfront capital payment. The \$119 is representative of the 2011 put cost absent the capital payment and more closely matches the estimated put cost from 2012 and forward.

Incentive Calculation – Split (continued)



The estimated probabilities are used to determine the prorated incentive levels so that they correctly reflect the proportional value of shorter storage term lengths, compared to that of the SWP storage programs which are assumed to continue for a 20-year term. Metropolitan staff will recalculate these probabilities every five years to reflect Metropolitan’s most recent planning assumptions.

| Storage Term (Years) | Probability of Taking Storage | Proration Formula | Incentive Factor |
|----------------------|-------------------------------|--------------------|------------------|
| 20 | 90% | $0.90/0.90 = 1.00$ | 100% |
| 10 | 76% | $0.76/0.90 = 0.84$ | 84% |
| 5 | 64% | $0.64/0.90 = 0.71$ | 71% |
| 2 | 35% | $0.35/0.90 = 0.39$ | 39% |

Level 1 Incentive Calculations

To calculate the Level 1 incentives, the 5-year and 10-year term incentive proration factors that were calculated above are applied to the cost of SWP storage programs using this formula for a split incentive:

$$(SWP\ Put\ Cost \times Incentive\ Factor) + SWP\ Take\ Cost$$

The following table shows the resulting incentives for both the 5-year and 10-year terms. The put portion of the incentive would be paid to the participating agency at the time Metropolitan delivers water under the Level 1 Program. The take portion of the incentive would be paid when Metropolitan calls for the withdrawal of stored water, and the production is certified to ensure that the water was produced.

| Storage Term (Years) | 2011 SWP Put Cost | Incentive Factor | 2011 Prorated SWP Put Cost | 2011 SWP Take Cost | Total 2011 Incentive |
|----------------------|-------------------|------------------|----------------------------|--------------------|----------------------|
| 10 | \$79 | 84% | \$66 | \$137 | \$203 |
| 5 | \$79 | 71% | \$56 | \$137 | \$193 |

Level 1 – Upfront Incentive

TERM SHEET

Proposed Updated Replenishment Service Program - Level 1 (*Upfront Incentive*)

Program Level 1 provides for the storage of imported water supplies in local groundwater basins and surface reservoirs as regional supplies for dry year needs and operational flexibility at Metropolitan's call. As part of a three level program, Level 1 provides for the explicit use of local storage, similar to other storage programs in Metropolitan's regional storage portfolio.

1. **Agreement** – Level 1 requires a written agreement between the participating agency and Metropolitan with clear terms and expectations. A contract between Metropolitan and the participating agency will specify:
 - Baseline basin information to be used for certifications
 - Put and Take terms
 - Incentive rate terms
 - Basin losses
 - Protection for Metropolitan against water quality or other basin impacts
 - Acknowledgement that Metropolitan is not responsible for basin management
2. **Deliveries** – Metropolitan will determine when water is available to store under Level 1. Timing of water deliveries will be based upon mutual agreement between Metropolitan and the participating agency. The participating agency will take delivery of water and undergo a certification and assessment process to ensure that water was actually stored and not used for immediate consumption.
3. **Storage Term** – The participating agency will store water until it is called by Metropolitan, or until the end of the storage term. The participating agency can choose either a 5-year or 10-year storage term. Water remaining in storage at the end of the term will belong to the participating agency without any further encumbrance from Metropolitan.
4. **Storage Call** – The agreement allows Metropolitan to call for withdrawal of stored water during the storage term. When Metropolitan calls for withdrawal of stored water, the participating agency will undergo certification and assessment to ensure that the water was produced.

Metropolitan's call for the withdrawal of stored water will be limited to 100 percent of the stored water in any year of the 5-year term, or 50 percent of the stored water in any year of the 10-year term.
5. **Effect on Water Supply Allocation** – Water called under Level 1 will be considered Metropolitan deliveries and will count toward the participating agency's allocation under the Water Supply Allocation Plan if the call is made during an allocation year.
6. **Purchase Payment** – For water delivered under Level 1, the participating agency will pay the applicable Full Service Tier 1 rate in effect at the time the water is delivered.

Level 1 – Upfront Incentive (continued)

Water delivered under Level 1 will not be counted towards the Capacity Charge or the Readiness-to-Serve Charge calculations for that year, at the time of delivery.

7. **Take Payment** – When stored water is withdrawn from the program at Metropolitan’s call, the participating agency will pay the differential between the Full Service Tier 1 and Tier 2 rates as appropriate.

In addition, the quantity of water withdrawn will be added to the participating agency’s Readiness-to-Serve baseline for that year.

8. **Incentive** – The participating agency will receive a financial incentive for its participation based upon Metropolitan’s avoided marginal costs of its SWP storage programs prorated for the estimated probability of use. The proration will differ depending on the length of the program term; the 10-year storage term will receive a higher prorated incentive than the 5-year storage term.

The incentive will be provided to the participating agency after the water is delivered to storage. The estimated incentives based on 2011 SWP Program costs are:

- \$153 per acre-foot for a 5-year storage term
- \$181 per acre-foot for a 10-year storage term

Appendix B provides additional detail as to how the Level 1 upfront incentives are calculated.

The avoided costs of the SWP storage programs will be recalculated annually to account for inflation of costs and any renegotiation of terms for the SWP storage programs. In order to provide certainty to the member agencies, the incentive amount for a given year will be based on storage program costs from the previous year. The estimated probability of use will be updated every 5 years based on modeling done by Metropolitan staff.

9. **Penalty** – If the participating agency is not able to certify that the water is withdrawn or a subsequent assessment by Metropolitan shows insufficient production, the water will be repriced at a penalty rate that makes the cost of the water equivalent to two times the Tier 2 Full Service rate in effect at the time the water is called. The agency will receive a credit for the payment already made on the water when it was stored. The intent of the penalty is to ensure that an agency produces water on call.

Penalties under Level 1 will be assessed independently from any penalties that may be incurred under Metropolitan’s Water Supply Allocation Plan. The intent of the Water Supply Allocation Plan penalty is to ensure that an agency’s total use of Metropolitan water remains within the allocated amount during an allocation year.

Incentive Calculation – Upfront

APPENDIX B

Proposed Updated Replenishment Service Program – Incentive Calculation (*Upfront*)

Incentives Based on the Avoided Cost of Other Storage Programs

To ensure regional benefit and financial integrity, the proposed updated Replenishment Service Program incentives will be based on the avoided costs of Metropolitan’s existing regional portfolio. Because the use of local storage can offset these costs, Metropolitan can incentivize local storage to the extent that the cost to Metropolitan would not exceed comparable costs for using its regional storage portfolio alternatives. Metropolitan’s State Water Project (SWP) storage program costs are representative of marginal regional storage costs. A basket of Metropolitan’s SWP storage program put and take costs is used as a proxy for quantifying Metropolitan’s potential avoided marginal costs. Proportions of these costs are appropriate incentives for local storage in Level 1 and Level 2, depending on storage terms and duration.

The following table shows the 2011 put and take costs for Metropolitan’s SWP storage programs. The actual costs will be recalculated annually to include escalation in contract costs as well as any renegotiated terms. In order to provide certainty to the member agencies, the incentive amount for a given year will be based on storage program costs from the previous year. The recalculated costs will apply to program supplies on a go-forward basis.

| SWP Storage Program | 2011 Put Cost⁴ | 2011 Take Cost | Total Cycle Cost⁵ |
|----------------------------|----------------------------------|-----------------------|-------------------------------------|
| Semitropic | \$82 | \$159 | \$241 |
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Estimated Probability Analysis for Prorating Level 1 and Level 2 Incentives

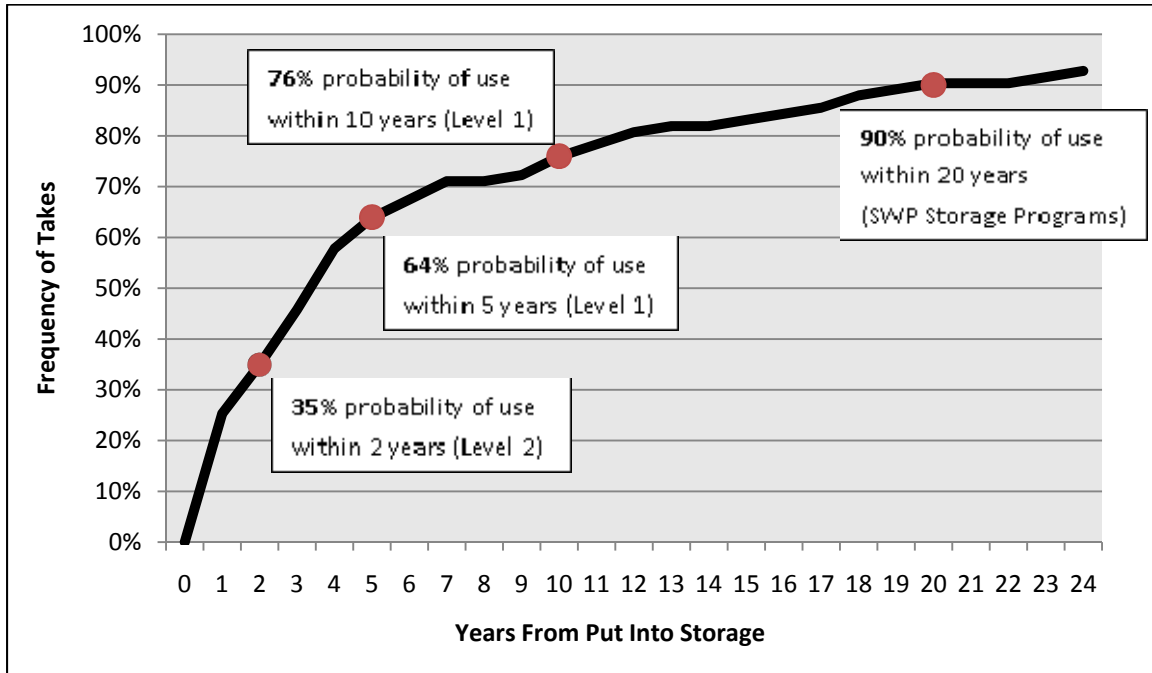
For the purposes of prorating the financial incentives for Level 1 and Level 2, it was necessary to estimate the probabilities of the use of stored water. Metropolitan staff modeled the estimated probability of the use of stored water, shown in the graph below. The line on the graph shows the cumulative probability of the use of stored water for a 25-year period. The circles on the graph show the estimated probabilities of the use of stored water at periods of 2, 5, 10 and 20 years.

⁴ Includes program loss factors to equal 1 acre-foot of water produced.

⁵ Totals may not match precisely due to rounding.

⁶ Actual 2011 put costs are significantly reduced (\$40) because of an upfront capital payment. The \$119 is representative of the 2011 put cost absent the capital payment and more closely matches the estimated put cost from 2012 and forward.

Incentive Calculation – Upfront (continued)



The estimated probabilities are used to determine the prorated incentive levels so that they correctly reflect the proportional value of shorter storage term lengths, compared to that of the SWP storage programs which are assumed to continue for a 20-year term. Metropolitan staff will recalculate these probabilities every five years to reflect Metropolitan’s most recent planning assumptions.

| Storage Term (Years) | Probability of Taking Storage | Proration Formula | Incentive Proration Factor |
|----------------------|-------------------------------|--------------------|----------------------------|
| 20 | 90% | $0.90/0.90 = 1.00$ | 100% |
| 10 | 76% | $0.76/0.90 = 0.84$ | 84% |
| 5 | 64% | $0.64/0.90 = 0.71$ | 71% |
| 2 | 35% | $0.35/0.90 = 0.39$ | 39% |

Level 1 Program Incentive Calculations

To calculate Level 1 incentives, the 5-year and 10-year term incentive proration factors that were calculated above are applied to the cost of SWP storage programs using this formula:

$$(SWP \text{ Total Cycle Cost}) \times \text{Incentive Factor}$$

The following table shows the resulting incentives for both the 5-year and 10-year terms. The full amount of the incentive would be paid to the participating agency at the time Metropolitan delivers water under the Level 1 Program.

| Storage Term (Years) | 2011 SWP Cycle Cost | Incentive Factor | Total 2011 Incentive |
|----------------------|---------------------|------------------|----------------------|
| 10 | \$216 | 84% | \$181 |
| 5 | \$216 | 71% | \$153 |

Incentive Calculation – Upfront (continued)

Level 2 Incentive Calculation

To calculate the Level 2 incentive, the 2-year term incentive proration factor that was calculated above is applied the cost of SWP storage programs using this formula:

$$(SWP \text{ Put Cost} + SWP \text{ Take Cost}/2) \times \text{Incentive Factor}$$

The following table shows the resulting incentive for the 2-year term.

| Storage Term (Years) | 2011 SWP Put Cost | 2011 SWP Take Cost/2 | Incentive Factor | Total 2011 Incentive |
|----------------------|-------------------|----------------------|------------------|----------------------|
| 2 | \$79 | \$69 | 39% | \$58 |

Level 3 – Baselines and Implementation

APPENDIX C

Proposed Updated Replenishment Service Program

Level 3 Implementation

Level 3 water is accessible to all member agencies when Metropolitan declares Level 3 water availability. Metropolitan will only offer Level 3 water in situations where regional supplies exceed short-term capacity into regional storage.

Level 3 water sales are intended to be over and above normal agency demands. To reasonably ensure that Level 3 purchases result in additional actions by member agencies to increase their demands and not offset same year demands, Metropolitan will set baselines for each agency based on their recent deliveries from Metropolitan. The Level 3 baseline is calculated as the average of the cubic-foot-per-second (cfs) deliveries taken from Metropolitan over the previous 30 days before Metropolitan's declaration of Level 3 availability.

The process for implementing Level 3 is shown below:

Step 1: Level 3 Declaration

- Metropolitan declares Level 3 availability.

Step 2: Baseline

- An agency's baseline is the average cfs of the previous 30 days for each agency, for all Metropolitan deliveries including those made under various water programs; including Levels 1 and 2 of this proposed program.

Step 3: Application by Agency

- Each participating agency submits a list of specific actions to increase their demands, with estimated quantities.

Step 4: Eligibility

- Actual demand must be higher than the baseline during the Level 3 period.
- Eligible Level 3 credit is limited to the lesser of the increase in actual demand during Level 3 period and the listed actions (described in Step 3).

Step 5: Certification

- Certification of agency's implementation of its submitted list of actions would be necessary if agency is eligible for Tier 2 rates or the capacity charge as a result of taking the Level 3 water.

List of Agencies Participating in the Replenishment Workgroup

The following is a list of agencies that attended at least one Replenishment Workgroup meeting between March 14, 2011 and December 19, 2011. All of Metropolitan's member agencies were invited to participate throughout the process. Member agencies were encouraged to invite their local basin managers.

| | Agency |
|-----|---|
| 1. | City of Anaheim |
| 2. | City of Beverly Hills |
| 3. | City of Burbank |
| 4. | Calleguas Municipal Water District |
| 5. | Central Basin Municipal Water District |
| 6. | Chino Basin Watermaster |
| 7. | City of Compton |
| 8. | Eastern Municipal Water District |
| 9. | Foothill Municipal Water District |
| 10. | Glendale Water and Power |
| 11. | Inland Empire Utilities Agency |
| 12. | City of Los Angeles |
| 13. | City of Long Beach |
| 14. | Municipal Water District of Orange County |
| 15. | Orange County Water District |
| 16. | City of Pasadena |
| 17. | Rancho California Water District |
| 18. | Raymond Basin Management Board |
| 19. | City of Santa Ana |
| 20. | San Diego County Water Authority |
| 21. | Three Valleys Municipal Water District |
| 22. | Upper San Gabriel Valley Municipal Water District |
| 23. | Water Replenishment District |
| 24. | West Basin Municipal Water District |
| 25. | Western Municipal Water District |

**Comparison of Replenishment Service Program, CUP Program, and
Proposed Replenishment Program**

| | Current Replenishment Service Program | Conjunctive Use Project (CUP) | Proposed Replenishment Program |
|--------------------------------------|---|--|--|
| Status | Would be eliminated under proposed program | Program would be in effect under proposal | Program would be in effect under proposal |
| General Description | Encourages replenishment of local groundwater basins and reservoirs by offering a financial incentive to agencies purchasing water for this purpose. This is an interruptible supply. Agencies are expected to offset interruptions with production from local storage. | Agreements with participating member agencies to store available imported water in local groundwater basins and to withdraw that stored water in dry years at Metropolitan's call. | Multilevel program for regional water management using local storage. Includes three levels for long-term storage with dry year calls, shorter-term storage with no call, and water made available on a short-term basis when there is risk of spill or loss. |
| Put Certification | Yes | Yes | Level 1: Yes Level 2: Yes |
| Take Certification | No | Yes | Level 1: Yes |
| Metropolitan Call on Storage | None | Yes | Level 1: Yes |
| Term | N/A | 25-year term | Level 1: 10- and 5-year terms |
| Cost (\$/AF, Untreated, 2011) | Replenishment Water Rate when delivered <ul style="list-style-type: none"> • \$409 | Full Service Rate minus O&M credit when water is produced on a call | Level 1 and Level 2: Full Service Rate minus Prorated Incentive based on offset cost: <ul style="list-style-type: none"> • Level 1, Split Incentive, Untreated, Tier 1, 10-yr term: \$324 • Level 1, Split Incentive, Untreated, Tier 1, 5-yr term: \$334 • Level 2, Untreated, Tier 1, 2-yr term: \$469 • Level 3: \$527 |
| Tier 2 | Not applied | Eligible when water is called | Level 1: Eligible when water is called Level 2: Exempt Level 3: Exempt |
| Readiness-To-Serve Charge | Not applied | Applied when called | Level 1: Applied when called Level 2: Applied over 2 years Level 3: Applied on purchase |
| Capacity Charge | No Capacity Charge | No Capacity Charge | No Capacity Charge |
| Supply Availability | Administered at Metropolitan's discretion in accordance with Metropolitan's Water Surplus and Drought Management (WSDM) Plan, when imported supplies and system capacity are available | At Metropolitan's discretion in accordance with Metropolitan's Water Surplus and Drought Management (WSDM) Plan | At Metropolitan's discretion: <ul style="list-style-type: none"> • Level 1: When Metropolitan has available supply to put into regional storage • Level 2: When Metropolitan's regional storage put capacity is limited • Level 3: When Metropolitan's regional storage capacity is unavailable on short-term basis |

Proposed "WSDM Matrix" with revised Replenishment Program

| Surplus Stages | | | | | Actions | Shortage Stages | | | | | | |
|----------------|---|---|---|---|--|-----------------|---|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | Make Cyclic Deliveries | | | | | | | |
| | | | | | Deliver Level 3 Replenishment | | | | | | | |
| | | | | | Deliver Level 2 Replenishment | | | | | | | |
| | | | | | Put to SWP Groundwater Storage | | | | | | | |
| | | | | | Put to SWP Carryover | | | | | | | |
| | | | | | Store in Level 1 | | | | | | | |
| | | | | | Put to Conjunctive Use Groundwater | | | | | | | |
| | | | | | Put to DWR Flexible Storage | | | | | | | |
| | | | | | Put to Metropolitan Surface Storage | | | | | | | |
| | | | | | Public Outreach | | | | | | | |
| | | | | | Take from Metropolitan Surface Storage | | | | | | | |
| | | | | | Take from SWP Groundwater Storage | | | | | | | |
| | | | | | Take from Conjunctive Use Storage | | | | | | | |
| | | | | | Call Level 1 Replenishment Storage | | | | | | | |
| | | | | | Take from DWR Flexible Storage | | | | | | | |
| | | | | | Extraordinary Conservation | | | | | | | |
| | | | | | Reduce IAWP Deliveries | | | | | | | |
| | | | | | Call Options Contracts | | | | | | | |
| | | | | | Buy Spot Transfers | | | | | | | |
| | | | | | Implement Water Supply Allocation Plan | | | | | | | |

Existing “WSDM Matrix” with existing Replenishment Program

| Surplus Stages | | | | | Actions | Shortage Stages | | | | | | |
|----------------|---|---|---|---|--|-----------------|---|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | Make Cyclic Deliveries | | | | | | | |
| | | | | | Put to SWP Groundwater Storage | | | | | | | |
| | | | | | Put to SWP Carryover | | | | | | | |
| | | | | | Put to Conjunctive Use Groundwater | | | | | | | |
| | | | | | Put to DWR Flexible Storage | | | | | | | |
| | | | | | Put to Metropolitan Surface Storage | | | | | | | |
| | | | | | Public Outreach | | | | | | | |
| | | | | | Take from Metropolitan Surface Storage | | | | | | | |
| | | | | | Take from SWP Groundwater Storage | | | | | | | |
| | | | | | Cut Replenishment Deliveries | | | | | | | |
| | | | | | Take from Conjunctive Use Storage | | | | | | | |
| | | | | | Take from DWR Flexible Storage | | | | | | | |
| | | | | | Extraordinary Conservation | | | | | | | |
| | | | | | Reduce IAWP Deliveries | | | | | | | |
| | | | | | Call Options Contracts | | | | | | | |
| | | | | | Buy Spot Transfers | | | | | | | |
| | | | | | Implement Water Supply Allocation Plan | | | | | | | |

The Water Surplus and Drought Management (WSDM) Plan provides a general framework that guides Metropolitan’s operations of its regional storage portfolio in both surplus and shortage conditions. The charts above provide graphical representation of WSDM actions that are considered at each surplus or shortage stage, shown in blue. The red shading indicates WSDM actions that would change as result of the proposed Replenishment Program.

Frequently Asked Questions on the Proposed Replenishment Program

This is a compilation of responses to frequently asked questions received by Metropolitan staff on the proposed changes to the Replenishment Service Program. Staff has continued to refine its proposal for a new replenishment program based on ongoing feedback from the Board and from the Replenishment Workgroup with member agencies and basin managers. Responses reflect the Replenishment Program proposal as of Board Information Letter 9-1 dated January 10, 2012.

Question 1: How does the Replenishment Program proposal deal with historical replenishment activities, i.e., refill of overdraft or supporting increased operating yields of groundwater basins?

Within the multilevel proposal, Level 2 most closely resembles the function of the current Replenishment Service Program with respect to the refill of overdraft in local basins. Level 2 provides an incentive based on Metropolitan's alternative storage costs and a waiver from Tier 2 and the capacity charge. It requires put certification for 1 year in local storage, and there is no call provision. Although Level 2 is available on an infrequent basis, this does not prevent agencies with local storage to purchase full service water when Level 2 is unavailable. The proposed Replenishment Program in no way diminishes the ability for agencies to purchase water for replenishment needs on a full-service basis.

Question 2: What board policy besides Metropolitan's Administrative Code Section 4514 is relevant for purposes of the Replenishment Workgroup meetings with the member agencies and groundwater basin managers?

Metropolitan staff received board direction to make recommendations by December 2011 for options to modify the existing Replenishment Service Program in a manner that ensures regional reliability benefits. Moreover, the Replenishment Workgroup is part of the ongoing collaboration between Metropolitan and the member agencies. The proposed program also relies on the policy decisions the Board has made in setting Metropolitan's Full Service Water Rates, the Water Supply Allocation Plan, and the adopted Replenishment Policy Principles.

Question 3: Are the "Key Development Principles" referenced in the September 2011 Board Letter 9-2, "Update on Replenishment Service Program", intended to be a statement of the Board?

The "Key Development Principles" were a product of staff and member agency discussion in the Replenishment Workgroup intended to facilitate discussion of new program concepts. The Policy Principles on replenishment that the Board adopted in November 2011 serve as a statement of the Board and the basis for this proposal.

Question 4: How are concerns about the performance and equity of the existing Replenishment Service Program that were raised by the 2008-2009 Groundwater Workgroup process addressed? (The Groundwater Workgroup was a facilitated process with member agencies and groundwater managers that met between July 2008 and February 2009)

Issues raised by the Groundwater Workgroup include:

- **Questionable and unquantifiable performance expectations**

The proposed changes to the replenishment program are designed to address concerns about performance expectations under the current Replenishment Service Program. Performance expectations are tied to the avoided cost of Metropolitan's State Water Project (SWP) storage programs. Level 1 would require a written agreement between the participating agency and Metropolitan with clear terms and expectations. Both Level 1 and Level 2 include put certifications and an annual assessment to ensure that water is stored, and Level 1 has a take certification to ensure water is produced when called.

- **Potential of shifting water sales within a year as opposed to generating true longer-term storage**

Under Level 1 and Level 2, shifting of same-year water sales would be prevented via put certifications and an annual assessment. To the extent that water is not stored beyond the year in question, then the certification will be reduced. Level 3 water availability would be based on deliveries above a set baseline of demands for each member agency. Only deliveries above the baseline will qualify for the exemption from the Capacity Charge and Tier 2 rates, when Level 3 water is offered.

- **Potential offset to future full service sales**

The proposed program is designed to encourage full service sales in the year in which surplus supplies are available. However, any water purchased for storage through the proposed Replenishment Program is expected to be an offset to full service sales in future years. The financial incentives offered are designed to reflect water management benefits and avoided costs from Metropolitan's SWP storage programs.

- **Unequal distribution of costs and benefits among participating and nonparticipating agencies**

Participating member agencies pay the Full Service Water Rate and may receive incentives based on water management benefits, as defined in the board-adopted policy principles. Those incentives represent offsets to Metropolitan's regional storage costs

that may have otherwise occurred without the proposed Replenishment Program. Additionally, Level 2 and Level 3 serve to sell water in a surplus year that would otherwise have been lost. Without this proposed program, these lost supplies could never be used to generate revenues.

- **Storing water for future use as opposed to refilling overdraft**

Levels 1 and 2 require the certification and assessment of water being put into storage for future use. Because Level 2 does not require a certification of withdrawals from storage and does not have a call provision, it could be used for refilling overdraft if an agency chooses to do so. Level 3 could also be used to refill overdraft, although most agencies would choose to participate in Level 2, if possible.

- **Difficulties in measuring and verifying in-lieu deliveries to storage**

Metropolitan has a methodology to certify in-lieu deliveries using historical baselines to determine what an agency would have done if in-lieu replenishment water had not been available. An agency's baseline is established by using the average of the 3 prior years of local production. Past in-lieu replenishment is included in the production baseline, but past production for storage programs such as the Conjunctive Use Program is excluded. Baseline adjustments can be made, but must be reasonable and substantiated by data. Delivery into storage will be certified to ensure that incentives are not paid for water that is used for consumptive purposes within the year.

- **Cash flow and budgeting issues associated with the frequency under which replenishment supplies are available**

The issue of cash flow budgeting issues by local agencies due to the uncertain and short-term availability of replenishment program water was explicitly addressed in the Replenishment Workgroup process. Metropolitan staff discussed with member agencies and basin managers whether the new Replenishment Program should have a cash flow assistance option. A description of this option was included in the program proposal for Level 2 in the Board Information Letter 9-1 dated December 13, 2011. However, after additional discussion with the Replenishment Workgroup, this option was eliminated as it appeared to provide only minor benefits with a significant administrative burden.

Question 5: How has the Board been involved in the policy framework?

In May 2011, the Board directed staff to develop a new replenishment program for consideration that would assure regional benefits. In adopting the Policy Principles for a replenishment program in November 2011, the Board established a framework to guide staff to develop a final proposal. Staff presented draft principles for Water Planning and Stewardship (WP&S) Committee feedback in October 2011. Staff subsequently incorporated the Board's comments into the final policy principles that the Board adopted in November 2011.

Question 6: How does the Metropolitan region benefit from the proposed changes to the Replenishment Program, in terms of water supply and budget impacts?

Regional water management benefits are explicitly identified in the board-adopted Policy Principles. Regional benefits include: (1) dry-year supplies at Metropolitan's call, (2) flexibility to manage delivery of available supplies in a way that would provide additional storage beyond Metropolitan's regional storage capability, and (3) delivery of supplies available to Metropolitan that would otherwise be at a risk of spill or loss. Together, the three levels of the proposed Replenishment Program address all of these benefits.

Total revenue impact for the proposed Replenishment Program would depend on several factors, including the availability of Levels 1, 2, and 3 water, the actual quantity of acre-feet sold under each program level, and the specific terms and calls made under Level 1 agreements between Metropolitan and individual member agencies. The new Replenishment Program would replace the existing Replenishment Service Program and discontinue the replenishment water rate in Metropolitan's rate structure. The proposed Replenishment Program is based on water sales at the Full Service Rates with incentives that may be paid based on the avoided cost of Metropolitan's alternative storage programs. Under Level 1, these incentive payments offset the costs Metropolitan would incur to store supplies elsewhere. Under Level 2 and Level 3, Metropolitan is able to sell water that would otherwise have been lost and never sold.

Question 7: What Metropolitan costs will be avoided through implementation of the new Replenishment Program?

The incentives in Level 1 and Level 2 are specifically designed to offset the cost of storing water in Metropolitan's SWP storage programs. Level 3 has the potential to reduce Metropolitan's exposure to future dry-year transfer costs, but these potential cost offsets were not used as the basis for the Level 3 incentive.

Question 8: How much storage does Metropolitan plan to maintain?

Metropolitan manages its storage portfolio to capture surplus supplies to meet future dry-year demands. The proposed program works in a complementary fashion with Metropolitan's storage portfolio, providing opportunities to increase flexibility and offset marginal storage costs. The proposed program also provides the opportunity to manage water that would otherwise have been lost because additional capacity to deliver into Metropolitan's storage was unavailable. The Water Surplus and Drought Management (WSDM) policies also highlight the value of diversifying the storage programs to include storage capabilities both within the service area and out-of-basin in order to meet demands in drought and emergency conditions. Metropolitan's current Integrated Water Resources Plan does not have an explicit goal for increased storage capacity.

Question 9: What is the total cost of Metropolitan's storage programs, including the cost of putting water into storage during the years it is available?

Attachment 1 of this board letter shows costs of Metropolitan's regional storage programs. Average variable (put and take) costs for a basket of Metropolitan's SWP storage programs are used to determine the incentive payments for using local storage under the proposed Level 1 and Level 2 programs.

Question 10: How does staff intend to budget that cost in the future?

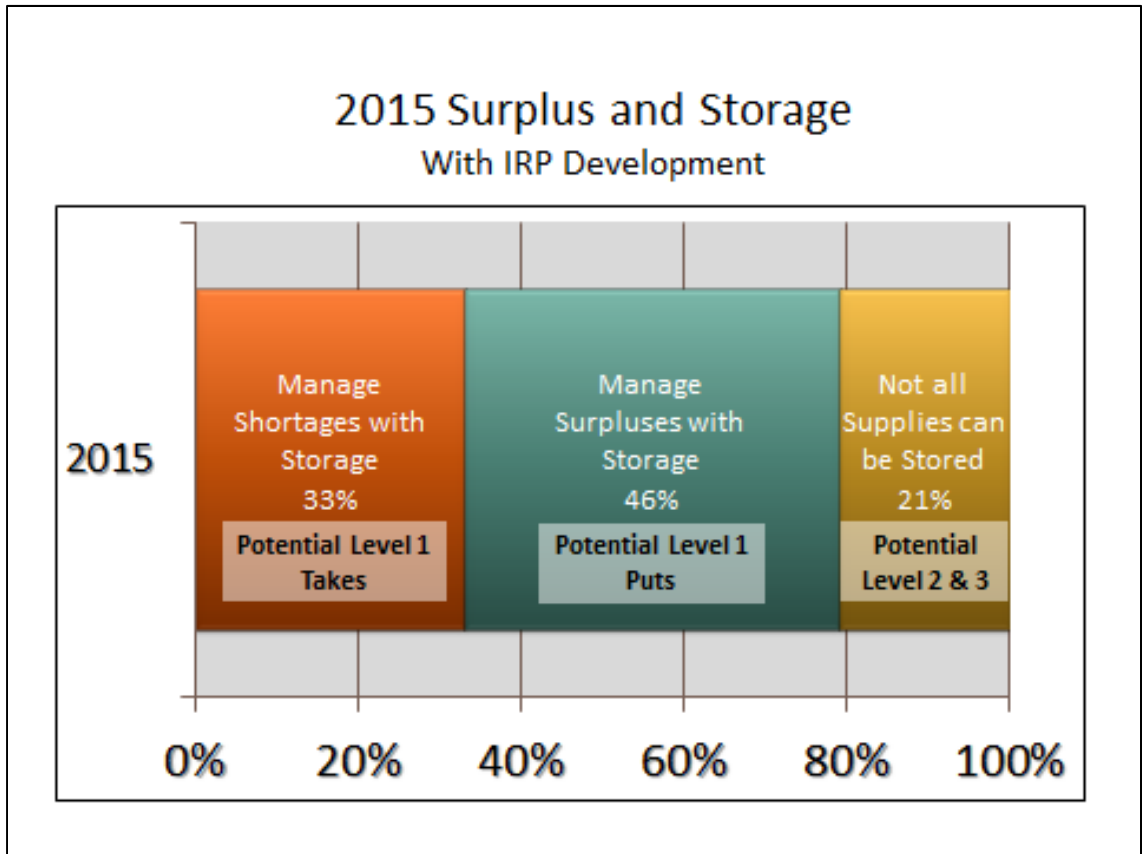
Staff currently budgets for the costs of its storage programs in the supply program component of Metropolitan's Operations and Maintenance budget.

Question 11: What are the assumptions about how often and at what quantity water will be available for storage or withdrawal out of regional storage?

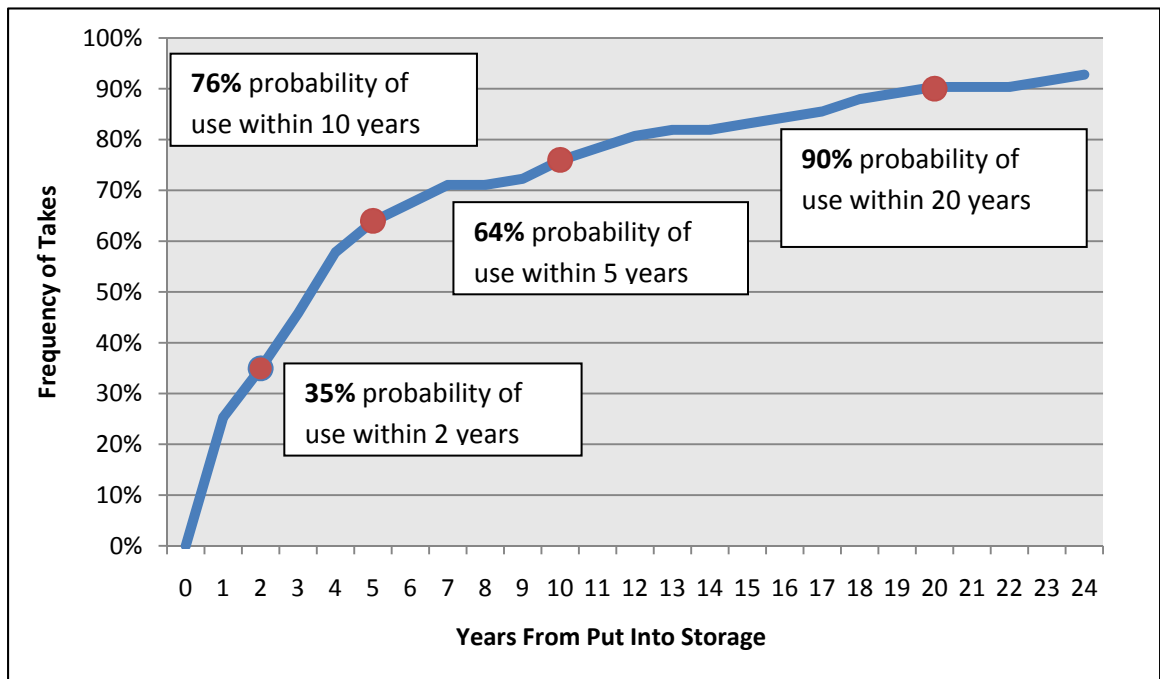
Metropolitan manages its regional storage portfolio according to varying circumstances including hydrology, storage balances, storage put and take capacity, operational priorities, and comparative marginal costs between different storage options. Given these many considerations, it is more useful to illustrate the likelihood of using storage across a range of possible hydrologies in a single given year rather than to forecast a particular scenario.

Staff has provided snapshots of estimated probability that water would be available to put water into Metropolitan's regional storage in the year 2015, as well as the estimated annual probability of taking water from its State Water Project regional storage programs after 2011, based on a range of 83 historical hydrologies for each given year. These snapshots are shown in the figures below.

Estimated Probability of Storage Use



Estimated Probability of Storage Use



Because member agencies would purchase Levels 1, 2, and 3 replenishment program water on a voluntary, interruptible basis, Metropolitan staff cannot predict with precision how much water each member agency would choose to purchase in a future year.

Question 12: How does Metropolitan determine where to store and take water?

Metropolitan's WSDM Plan provides a framework for determining where water is stored and how that water is withdrawn from the storage programs in the storage portfolio. On an ongoing basis, staff considers various aspects of storage, including location, put and take capacity, losses, variable costs, and performance history. Consideration of these aspects is reflected in Metropolitan's ongoing operation of its regional storage portfolio. For reference, Attachment 4 shows the WSDM Plan matrix, which is the framework that Metropolitan uses to guide its storage operations according to different degrees of regional surplus or shortage. This framework has been updated to include the proposed replenishment program.

Question 13: How will the implementation of a new Replenishment Program affect Metropolitan's future water rates and demand? What policies can ensure that the new Replenishment Program would not displace full service purchases?

The proposed program is designed to encourage full service sales in the year in which surplus supplies are available. However, any water purchased for storage through the proposed Replenishment Program is expected to be an offset to full service sales in future years. The financial incentives offered are designed to be reflective of water management benefits and avoided costs from Metropolitan's SWP storage programs.

The proposed Replenishment Program is based on the full service water rate, with incentives based on the regional water management benefits and offset costs to Metropolitan's SWP regional storage programs. The current replenishment service rate would be discontinued upon adoption of the proposed program. The proposed Replenishment Program Level 1 and Level 2 require certifications and an assessment for puts to storage. The certifications ensure that full service consumptive purchases are not being displaced in the year of storage. The Level 3 program establishes baselines to reasonably ensure that Level 3 purchases represent increases in member agency demands and not offsets of same year full service demands.

Question 14: Would it be more equitable to simply distribute discounted water to all member agencies when it is deemed available under specified conditions?

The proposed multilevel replenishment program assigns different values to long-term storage with call provisions (Level 1), short-term storage without call provisions (Level 2), and short-term sales in conditions where Metropolitan water is otherwise at risk of spill or loss (Level 3). The overall package of the three-level program ensures equity for all member agencies by assuring that participating agencies take actions that exceed their current operations to provide regional benefits. Level 3 is available to all member agencies, without requiring that water be stored. This option has minimal financial incentives compared to Level 1 and Level 2 because water is not stored over time, resulting in lower potential regional benefits.

Question 15: How do the proposed changes to the Replenishment Service Program address the policy principles adopted by the Board in November 2011?

The program concepts described in this board letter offer a comprehensive approach for local storage and water management that adheres to the policy principles that were adopted by the Board in November 2011. In working closely with the member agencies and basin managers, Metropolitan staff designed a program recognizing that Metropolitan and local storing agencies operate under a range of different water management situations and conditions. The three levels of the program are designed to provide regional water management benefits identified by the Board, including dry-year supplies at Metropolitan's call, operational flexibility to manage delivery of available supplies to provide additional storage beyond Metropolitan's regional storage capability, and ability to manage short-term supplies available to Metropolitan that would otherwise be at risk of spill or loss. The financial incentives reflect avoided costs of Metropolitan's existing regional storage portfolio and short-term benefits from interruptibility. The program would support Metropolitan's financial integrity and member agency equity by providing quantifiable regional benefits based on an economic analysis of alternative storage costs. The program is also designed to be complementary with other existing local and regional storage investments. The program would be available for both local groundwater and surface storage in Levels 1 and 2, and to all qualifying member agencies in Level 3.

Question 16: Why is the Readiness-To-Serve charge being applied to interruptible storage deliveries?

The Readiness-To-Serve charge is assessed to member agencies on a rolling 10-year average share of firm water purchases. Deliveries under Levels 1 and 2 are interruptible during the year that the water is stored and are not counted toward the Readiness-To-Serve calculation in the year of delivery. However, when water is called

or produced by the member agency, it offsets a firm water purchase from Metropolitan. This offset purchase is counted toward the Readiness-To-Serve calculation for that year; it is reflective of the firm purchases that the member agency would have made without the program in place, and thus avoids any cost-shifting within the Readiness-To-Serve charge due to the program.