

- Status Update on Five-Year Supply Actions

Summary

A Five-Year Supply Plan is being prepared to identify the specific resource and conservation actions that would be implemented over the next five years to manage water deliveries under continued drought conditions and court ordered restrictions. Since April 2008, staff has been working with the member agencies through a series of meetings and workshops to develop and implement the Five-Year Supply Plan. The Plan was initiated in response to a number of extraordinary events, such as regulatory actions that reduced water supplies from the State Water Project (SWP) to protect Delta smelt, as well as a record-dry hydrology that will result in about 1.1 million acre-feet of withdrawals from Metropolitan storage from January 2007 through December 2008.

This status update of the five-year supply planning process describes specific actions that are being considered for evaluation and implementation, and provides an estimate of Metropolitan's potential supply volumes and costs resulting from these identified actions. There are numerous specific projects and transactions that have been identified as potential resource options for the next five years. However, most of these options have not been incorporated into Metropolitan's current budget. A more detailed financial assessment, including detailed cost estimates and rate impacts, will be developed. In addition, this analysis should consider the financial impacts of a regional water shortage on the Southern California economy.

Attachments

[Attachment 1: Initial 2009 Supply Outlook \(Critically Dry-Year\)](#)

[Attachment 2: Firm Supplies for 2009](#)

[Attachment 3: Potential Resource Options for the Next Five Years](#)

Detailed Report

Since April 2008, staff has been working with the member agencies through a series of meetings and workshops to develop and implement a Five-Year Supply Plan. These meetings focused on reviewing current and forecasted conditions, developing an approach and an inventory of specific options to address potential shortfalls in the five-year planning horizon for water supply, and assembling work teams with the member agencies to identify resource opportunities. Staff is reporting these options at this exploratory phase because early identification of potential resource options and the evaluation of their feasibility and cost are key to expediting the implementation of a number of these initiatives that would make additional supplies available within the next five years. These options also identify new areas of supply development for the long-term and will be considered in the 2009 Integrated Resources Plan. Further information and additional details on the progress of the resource options listed will be the subject of a future board information letter.

2009 Supply Situation

The water conditions that we face in 2009 are the result of water supply conditions and resource actions that have occurred over the preceding years, including several extraordinary events, such as:

- An extended 8-year drought in the Colorado River watershed resulted in storage levels in Lake Mead and Lake Powell going below 50 percent of capacity in 2007 and early 2008;
- Record dry hydrology in Southern California dropped groundwater basins and local reservoirs to very low operating levels;
- The federal court order to restrict SWP deliveries due to Delta smelt resulted in the loss of about one-third of the available SWP supplies in 2008, reducing the likelihood that regional storage can be refilled in the near term; and

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- The SWP suffered from the driest spring of record this year, leading to forecasts of end of year water supplies in Lake Oroville and San Luis Reservoir at the lowest operating levels since 1976.

These supply conditions, along with increasing firm demands on Metropolitan, have led to significant withdrawals from Metropolitan's storage reserves, including Diamond Valley Lake (DVL), and its groundwater banking and conjunctive use programs to meet all scheduled water deliveries. To illustrate this point, from January 2007 through December 2008, an estimated 1.1 million acre-feet (MAF) of storage reserves will be withdrawn to meet about one quarter of wholesale demands over this two year period.

If these critically dry conditions continue, layered on top of these court-ordered SWP restrictions, the initial supply conditions for 2009 are anticipated to be as follows:

- A 10% - 20% initial SWP allocation (210,000 to 418,000 AF), due to forecasted low SWP reservoir levels leading into 2009;
- About 900,000 acre-feet of Colorado River Aqueduct (CRA) supplies, based on the expected U. S. Bureau of Reclamation (USBR) approved order, leading to a CRA that is about three-quarters full;
- Demands of 2.2 to 2.4 MAF due to significant decreases in local groundwater storage, reservoir storage, and Los Angeles Aqueduct supplies. Demands exclude groundwater replenishment deliveries due to assumed dry conditions;
- Maximum withdrawals from the Central Valley Banking Programs for the third consecutive year, leaving as little as one more year of reserves; and
- One remaining year of dry-year storage reserves in DVL and the Flexible Storage accounts, assuming all emergency storage supplies are maintained.

Under this 2009 scenario, Metropolitan's firm supplies would total 1.7 to 1.9 MAF based on the critically dry SWP allocations and approved order for CRA deliveries, combined with withdrawals from Central Valley Banking Programs, conjunctive use programs, and system reservoirs. The estimates of firm supplies are shown in **Attachment 1**, with a detailed list of firm supplies shown in **Attachment 2**. Compared to demands of 2.2 to 2.4 MAF, the potential shortfall of firm supplies could be as much as 706,000 AF. To meet this potential gap between dry-year supplies and demands, staff has developed an inventory of resource options that can be implemented in 2009.

Resource Options

A set of potential resource options for 2009 has been evaluated based on the feasibility of specific projects and transactions. These options could yield from 520,000 to 1,250,000 acre-feet of additional supplies in 2009, if successfully implemented. The low end of the range, 520,000 acre-feet per year, is used for planning purposes under a critically-dry scenario. The specific resource options are projects or transactions that would be implemented or expedited by Metropolitan and are shown in **Attachment 3**, along with information on their estimated annual supply yield and preliminary ranges of costs that would be incurred by Metropolitan. If these options are selected and successfully implemented, together with the estimated firm supplies, the total amount of available supplies in 2009 would amount to 2.2 to 3.2 MAF. The set of resource options focus on six initiatives: conservation, Colorado River transactions, near-term Delta actions, SWP transactions, groundwater recovery, and local resources. Project feasibility assessments are being conducted and will continue over the next several months.

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Conservation

A member agency working group was convened to develop strategies to increase and accelerate conservation savings. The group identified the following elements that work together to increase the use of water efficient devices, affect the water use practices in Southern California, and reduce prohibited uses of water.

- Increased Outreach: Continue to heighten the public messaging campaigns, with an emphasis of coordination and sharing of resources with local agency efforts to increase the awareness of the water supply situation and the ways to decrease water use.
- Support of Local Ordinances and Tiered Pricing: Increase the resources and support for the implementation of water use ordinances and conservation-based tiered rate structures. As a result, Metropolitan has compiled a library of water saving ordinances now available online for member and local agencies, and is planning a regional workshop to provide guidance in creating and enforcing water use ordinances.
- Enhanced Conservation Programs: Accelerate the installation of water efficient devices. This is proposed to be done with two approaches. First, by temporarily increasing the incentives provided under Metropolitan's Conservation Credits Program. Second, by identifying and overcoming the current barriers in the distribution of water efficient devices. This may be done by increased coordination and partnering with the retailer of water efficient devices and potentially by streamlining the process of moving devices from the manufacturers to the end-user.
- Enhanced Public Sector Program: Extend the Public Sector Program, with the authorization of additional funding beyond the current program budget of \$15 million. This program reinforces Metropolitan's public messaging efforts to save water by public sector example, and also results in real reductions in potable water use.

Staff estimates that the successful implementation of actions above will result in 200,000 AF to 400,000 AF of annual conservation savings over and above what would have been achieved with the ongoing conservation program.

Colorado River Transactions

These transactions are based on opportunities to gain additional water supplies by enhancing existing programs and pursuing new initiatives. The existing programs that could be enhanced are the Palo Verde Irrigation District (PVID) Land Management Program and purchasing water from the Coachella Valley Water District. Staff is also currently in the preliminary design phase for a project to extract stored groundwater in the Hayfield Basin. Final design and a request for funding for the Hayfield project will be the subject of an upcoming board letter in the near future. Should the project be approved and successfully implemented, it is estimated that 12,000 AF could be produced in 2009. Feasibility investigations are also underway for participation with USBR in the Yuma Desalter that could yield 10,000 AFY. New initiatives could include an advance delivery of the remainder of water stored in the Arizona Groundwater account, a water exchange with Arizona, and a transfer from California Indians.

Should these programs on the Colorado River be successfully implemented, the result would be over 1 MAF of Colorado River Aqueduct supply for 2009, when added to firm Colorado River supplies.

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Near-Term Delta Actions

Metropolitan is committed to working within a framework of actions to improve water supply reliability, water quality, and protect fish species with the goal of building a sustainable Delta. Within this framework are near-term Delta actions including the following: (1) developing and implementing measures that protect fish species and reduce supply impacts, such as habitat and hatchery projects, and (2) developing and implementing physical and operational actions with the goal of reducing conflicts between water supply conveyance and the environment.

A near-term Delta action that could have an immediate impact on water supply, while meeting the goals of the framework described above, is the current effort to install the 2-Gate System by early 2009. Although the 2-Gate System is estimated to provide up to 200,000 AFY, a partial year of operations is assumed to yield 100,000 AFY in 2009, if the SWP allocation is greater than about 35%. At lower allocations it is conservatively assumed under these scenarios that the additional water diversions available from the Delta with these improvements would be marginal, since hydrology will be a larger influence on reduced supplies than regulatory restrictions on Delta pumping. This effort is based on Metropolitan and Contra Costa Water District taking the lead in the operational studies; turbidity and smelt monitoring; preparation of mitigated negative declaration, consistency determination for CESA, SWRCB 401 certification, streambed alteration permit, Section 7 Consultation for the Biological Opinion under Federal Endangered Species Act, environmental assessment for NEPA, and Section 404 compliance; acquisition of right-of-way; and completion of design and construction of the gates within the next six months. Assuming Metropolitan's portion of the construction cost is \$10 million and an annual yield of 200,000 AF, the estimated cost would be less than \$100 per AF for the first full year of operation.

SWP Transactions

The SWP transactions under development include the State Drought Water Bank for transfers in 2009 as well as additional transfers with entities within the Delta. Staff is also investigating the feasibility of crop rotation demonstration projects with Kern County agencies, as well as the return of existing transfers stored in Shasta Lake.

In addition, Metropolitan may benefit from a water transfer between North Kern Water Storage District and Desert Water Agency (DWA) by taking up to 10,000 AF of SWP water in 2009 and returning this water to DWA in small increments over the next 30 years.

Groundwater Recovery

Groundwater that requires treatment and recovery for consumptive use is a resource that has the potential to yield significant amounts of supply. Based on groundwater inventories conducted by Metropolitan and the member agencies, it is estimated that there is over 300,000 AF of groundwater that could be recovered in our service area. The feasibility and cost of groundwater recovery is dependent on the type and concentration of constituents that must be removed. For 2009, between 15,000 to 30,000 AF could be developed by expediting the installation of treatment facilities for Los Angeles Department of Water and Power well fields. Similar efforts with other member agencies to expedite groundwater recovery will be pursued. Additionally, it is estimated that between 5,000 to 20,000 AF could be supplied through the operation of wells in San Bernardino Valley Municipal Water District's (SBVMWD's) service area to deliver water to Metropolitan through the recently completed initial phase of the SBVMWD Central Feeder.

There is more than 300,000 AF of perched groundwater that has resulted from agricultural drainage in San Joaquin Valley. Both the USBR and the State Water Resources Control Board have put agencies within Kern County on notice that this perched groundwater must be cleaned up. If Metropolitan invests in the groundwater treatment facilities, Metropolitan could receive the recovered water.

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Local Resources

Metropolitan and the member agencies have convened in two recent working groups and additional follow-up meetings to determine which local resource projects could be expanded and/or accelerated with a potential to be on line within the next five years. Staff requested that the member agencies provide information on the potential yield, cost, and major implementation barriers that could be overcome with Metropolitan's assistance. The potential projects were combined into the following five categories.

- Upfront Funding – Physical Facilities: This category includes requests for the funding of physical components of a project, including connections, treatment and delivery of water
- Upfront Funding – Other: Includes funding for local resource project feasibility studies, design and environmental review, and permitting
- Equity Partnership: Includes requests for Metropolitan to purchase partial ownership of a project through funding of a share of total project cost
- Metropolitan Contracted Supply: Includes requests for Metropolitan to contract for the delivery of a water supply. Funding provided under this category is for the purchase of the contract rights to delivery
- Private Recycled Water Hookups: Includes requests for funding for the completion of hookups to existing recycled water distribution lines. Funding provided under this category would be for the payment of permits, meters, and customer-side plumbing to utilize recycled water

Staff is continuing to coordinate with the member agencies to improve cost estimates and refine implementation barriers for submitted projects. Although the estimated combined yield of all projects submitted for evaluation exceeds 200,000 AF by the 2013 timeframe, approximately 5,000 to 7,000 AF of yield is potentially available in 2009.

Three ocean desalination projects have progressed to the environmental review and regulatory permit phase and have schedules of being on line within the next five years. However, it is not considered feasible to expedite the completion of these projects to provide supply deliveries in 2009. Member agencies have suggested that Metropolitan should become an equity partner in these projects in order to expedite their completion. This would require a shift in current policy and a budget-rate review analysis.

Next Steps

The extraordinary events affecting water supply in the preceding years has demonstrated the value of Metropolitan's diverse regional resource portfolio, which will experience withdrawals of about 1.1 MAF from January 2007 through December 2008. However, another critically-dry year could present challenges that require extraordinary actions including development of the above programs and implementation of the Supply Allocation Plan. Under this five-year supply action plan, numerous projects and transactions have been identified for implementation in 2009 and their continued benefits in improving water supply reliability over the next five years are being assessed. Over the next several months, staff will provide updates on the progress of the Five-Year Supply Actions, continue workshops with the member agencies to develop local resource and conservation actions, and request board actions to implement projects as appropriate.

Initial 2009 Supply Outlook (Critically Dry-Year)

<u>Supply</u>	<u>Yield (in afy)</u>
Firm Supplies	
• Colorado River Supplies	908,000
• SWP (10 – 20% Allocation)	210,000 – 418,000
• Central Valley Banking Programs	118,000
• Regional Surface Reservoirs	351,000
• Conjunctive-Use Programs	77,000
• Multi-Year Transfer	30,000

	1,694,000 - 1,902,000
 Resource Options	
• See Attachment 3	517,000 – 1,255,000

Maximum Available Supplies	2,211,000 – 3,157,000

Firm Supplies for 2009

Colorado River Supplies

Basic Apportionment	550,000
Present Perfected Rights	(4,000)
Imperial Irrigation District (IID)/MWD Conservation	85,000
Palo Verde Irrigation District Following	118,000
IID/San Diego County Water Authority Transfer	60,000
Coachella Canal Lining	29,000
All American Canal Lining	17,000
Drop 2 Reservoir	34,000
Recovery of Arizona Water	35,000
Lower Colorado Water Supply Project	7,000
Exchange with Coachella Valley Water District	(43,000)
Southern Nevada Water Agency Storage Agreement	20,000
Total CRA Supplies	908,000

State Water Project Supplies (Dry-Year)

	SWP Allocation	
	10%	20%
MWD Table A	191,000	382,000
Desert Water/Coachella Valley (DWCV) Table A	17,000	34,000
Port Hueneme	2,000	2,000
Total SWP Supplies	210,000	418,000

Central Valley Banking Programs

Arvin Edison	40,000
Kern Delta	8,000
Semitropic	70,000
Total Central Valley Banking Programs	118,000

Regional Surface Reservoirs

Diamond Valley Lake	216,000
Flexible Storage - Castaic	75,000
Flexible Storage - Perris	60,000
Total Regional Surface reservoirs	351,000

Conjunctive Use Programs

All operational programs with storage	77,000
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Multi-Year Transfer

Yuba	30,000
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Total Firm Supplies, AF	1,694,000	to	1,902,000
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- under 10% and 20% SWP Allocations

Potential Resource Options for the Next Five Years

Resource Options	2009 Annual Yield (AF/Year)		Estimated Unit Cost \$/AF
Conservation			
Ordinances / Tiered Pricing	200,000	– 400,000	0 - 50
Expanded Conservation Program	15,000	– 15,000	200 - 500
Subtotal	215,000	-- 415,000	
Colorado River Transactions			
Additional PVID Transfers (Crop Stressing / Fallowing)	40,000	– 40,000	300 - 400
Yuma Desalter	10,000	– 13,500	300 - 400
Arizona Programs	10,000	– 10,000	0
California Indians	10,000	– 10,000	300 - 400
Agreements with CVWD	35,000	– 50,000	300 - 400
Hayfield	12,000	– 12,000	350 - 450
Subtotal	117,000	-- 135,500	
Near-Term Delta Actions			
Revised Biological Opinion (Operations, Barriers, Habitat, Permits)	0	– 200,000	20 - 100
Subtotal	0	-- 200,000	
SWP Transactions			
Drought Water Bank / NOD Transfer	100,000	– 300,000	250 - 350
In-Delta Transfers	20,000	– 40,000	250 - 350
Kern County Programs	10,000	– 40,000	300 - 400
Shasta Return	10,000	– 38,000	0
North Kern	10,000	– 10,000	0
Subtotal	150,000	-- 428,000	
Groundwater Recovery			
LA DWP GW Demo	15,000	– 30,000	200 - 400 *
SBVMWD Central Feeder	5,000	– 20,000	100 - 200
San Joaquin GW Program Demo	10,000	– 20,000	400 - 500
Subtotal	30,000	-- 70,000	
Local Resources			
Upfront Funding – Physical Facilities	3,000	– 5,000	300 - 600
Private Recycled Water Hookups	2,000	– 2,000	300 - 600
Subtotal	5,000	-- 7,000	
Total	517,000	-- 1,255,500	

* These costs would be reimbursable to Metropolitan.