
From: Kunysz,Kathy
Sent: Friday, July 10, 2015 11:35 AM
To: Ti,Mike N
Subject: FW: MWD IRP UPDATE: ULARA GROUNDWATER HOMEWORK

From: Kunysz,Kathy
Sent: Tuesday, June 09, 2015 11:40 AM
To: Peter.Dugan@ladwp.com; Simon.Hsu@LADWP.com; delon.kwan@ladwp.com; Rafael.Viramontes@ladwp.com; David Pettijohn - LADWP (david.pettijohn@ladwp.com); Penny.Falcon@ladwp.com; Heather.Yegiazaryan@LADWP.com; greg.reed@ladwp.com; Sarah.Lacombe@ladwp.com; BDoxsee@burbankca.gov; AUmpfenour@burbankca.gov; Rtakidin@GlendaleCA.GOV; CMarcarelo@sfcity.org; TSalazar@sfcity.org
Cc: Kunysz,Kathy; Hacker,Matthew D; Sumi,David H; Nevills,Jennifer C
Subject: MWD IRP UPDATE: ULARA GROUNDWATER HOMEWORK

Dear Member Agency and Groundwater Managers and Staff,

Attached are the excel spreadsheets for your agency and groundwater basin showing draft projections for groundwater production and projections of sources and amounts of groundwater recharge in normal and multiple-dry-year situations. This information is being used in Metropolitan's 2015 update of its Integrated Resources Plan. Also attached is a slide from the IRP Member Agency Workshop #1 for Groundwater held on May 27. The slide shows a draft projection of the total regional deficit of groundwater recharge under the multiple-dry-year scenario. As part of this IRP Update, it is our objective to finalize this deficit amount with your input, and to identify strategies and policies to address it. Metropolitan is seeking to ensure that groundwater production is sustainable—groundwater is a significant component of regional water supply reliability.

Where there are multiple member agencies overlying a groundwater basin, we have sent the spreadsheets to all overlying member agencies and to the groundwater basin manager. The intent is for a coordinated review. Please review your spreadsheet(s) carefully **and provide corrections to the production and recharge projections in RED**. Please also list the assumption/rationale for the correction in RED. When reviewing the groundwater production projections, please note that Metropolitan has assigned groundwater production within a Metropolitan member agency's service area to that member agency. Also, the data is shown by calendar year.

Please return the modified spreadsheets to David Sumi with copy to Kathy Kunysz and Matt Hacker by Monday, June 22. If you have questions, please call Kathy Kunysz (213-217-6272) or Matt Hacker (213-217-6756). We will report the adjusted projections at an IRP workshop later this summer.

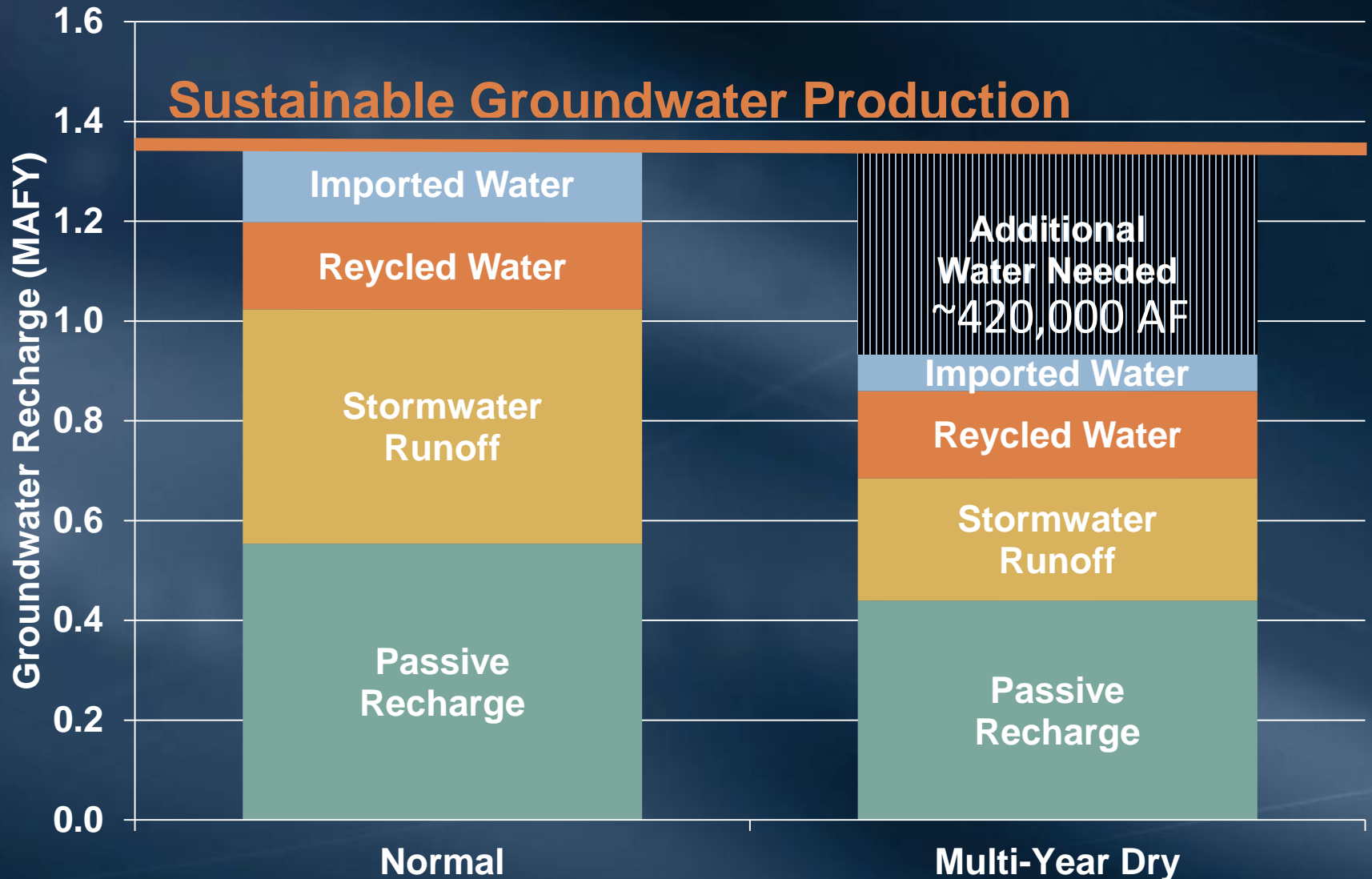
Thank you,
Kathy Kunysz
Program Manager, Groundwater Issues
Metropolitan Water District of Southern California



gw workshop rechr
deficit slide...
Humboldt.xlsx
Los Angeles.xlsx
Glendale.xlsx
UJATA Business.xlsx
San Fernando.xlsx

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How to Address Multiple-Year Dry Cycle



City of Burbank

Groundwater					Average	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Agency	Type	IMP/EXP	Basin/Reservoir																																										
Burbank	GW	OWN	San Fernando Valley Basin		337	318	378	354	438	365	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	
Burbank	GWR	OWN	San Fernando Valley Basin		6,998	10,202	9,917	10,138	10,462	9,544		10,793	11,165	11,536	11,907	12,278	12,650	13,021	13,392	13,763	14,135	14,506	14,877	15,248	15,619	15,991	16,362	16,733	17,104	17,475	17,846	18,217	18,588	18,959	19,330	19,701	20,072	20,443	20,814	21,185	21,556	21,927	22,298	22,669	23,040
Total Groundwater					7,335	10,520	10,295	10,492	10,900	9,908	400	11,193	11,565	11,936	12,307	12,678	13,050	13,421	13,792	14,163	14,535	14,906	15,277	15,648	16,019	16,391	16,762	17,133	17,504	17,875	18,246	18,617	18,988	19,359	19,730	20,101	20,472	20,843	21,214	21,585	21,956	22,327	22,698	23,069	

Recharge					2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050					
Normal Year																																													
Burbank	IMPORT	OWN	San Fernando Valley	Calculated as Total Groundwater Production-Demand*0.2	6,750	7,093	7,435	7,777	8,119	8,462	8,833	9,203	9,574	9,945	10,316	10,687	11,058	11,429	11,800	12,171	12,542	12,913	13,284	13,655	14,026	14,397	14,768	15,139	15,510	15,881	16,252	16,623	16,994	17,365	17,736	18,107	18,478	18,849	19,220	19,591	19,962	20,333	20,704	21,075	
Burbank	STORM	OWN	San Fernando Valley	Stormwater included in LA's projection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Burbank	REC	OWN	San Fernando Valley	No recycled water recharge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Recharge					6,750	7,093	7,435	7,777	8,119	8,462	8,833	9,203	9,574	9,945	10,316	10,687	11,058	11,429	11,800	12,171	12,542	12,913	13,284	13,655	14,026	14,397	14,768	15,139	15,510	15,881	16,252	16,623	16,994	17,365	17,736	18,107	18,478	18,849	19,220	19,591	19,962	20,333	20,704	21,075	
Dry Year (actual 2012-2014)																																													
Burbank	IMPORT	OWN	San Fernando Valley	Calculated as Total Groundwater Production-Demand*0.2	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837		
Burbank	STORM	OWN	San Fernando Valley	Stormwater included in LA's projection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Burbank	REC	OWN	San Fernando Valley	No recycled water recharge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Recharge					6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837	6,837

City of Los Angeles

Agency		Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	Average	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Los Angeles	GW	OWN		Central Basin	11,573	9,018	5,637	7,422	8,633	8,457	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500				
Los Angeles	GW	OWN		Eagle Rock Basin	162	170	189	164	188	175	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200		
Los Angeles	GW	OWN		San Fernando Valley Basin	54,651	59,054	48,268	50,479	57,523	53,195	51,119	52,243	52,195	51,844	51,448	51,619	52,311	52,239	52,170	52,263	52,580	52,411	52,346	51,813	52,189	52,045	51,993	51,663	51,805	52,512	52,272	52,217	53,018	53,045	52,811	52,305	52,283	52,525	52,060	52,289	52,273	52,068	52,616	52,941	52,767	53,087				
Los Angeles	GW	OWN		Sylmar Basin	1,744	1,667	1,282	1,264	1,299	1,451	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400			
Los Angeles	GW	OWN		West Coast Basin	5,283	4,147	4,572	4,614	3,993	4,522	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500			
					67,800	65,719	67,143	66,785	66,444	66,048	66,219	66,911	66,839	66,770	66,663	67,180	67,011	66,946	66,413	66,789	66,645	66,553	66,263	66,505	67,112	66,872	67,317	67,518	67,645	67,411	66,909	66,983	67,125	66,660	67,389	66,873	66,668	67,216	67,441	67,367	67,687									

Groundwater Projection		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050					
Projection		67,800	65,719	67,143	66,785	66,444	66,048	66,219	66,911	66,839	66,770	66,663	67,180	67,011	66,946	66,413	66,789	66,645	66,553	66,263	66,505	67,112	66,872	67,317	67,518	67,645	67,411	66,909	66,983	67,125	66,660	67,389	66,873	66,668	67,216	67,441	67,367	67,687					

Recharge

Normal Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050				
Los Angeles	IMPORT	OWN	San Fernando Valley Basin	No imported water in San Fernando.																																						
Los Angeles	STORM	OWN	San Fernando Valley Basin	Average 1996-2005																																						
Los Angeles	REC	OWN	West Coast Basin	Assume 100% recycled water at barrier.																																						
		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000		
Multiple Dry Year (actual 2012-2014)		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050				
Los Angeles	IMPORT	OWN	San Fernando Valley Basin	No imported water in San Fernando.																																						
Los Angeles	STORM	OWN	San Fernando Valley Basin	Average 2012-2014																																						
Los Angeles	REC	OWN	West Coast Basin	Assume 100% recycled water at barrier.																																						
		12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188

City of Glendale

				Average																																																	
Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050								
Glendale	GW	OWN	Verdugo Basin	1,772	1,422	1,581	1,579	1,284	1,528	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160				
Glendale	GWR	OWN	San Fernando Basin	7,282	6,801	7,841	6,618	7,526	7,214	6,181	6,319	6,456	6,593	6,731	6,868	7,005	7,142	7,280	7,417	7,554	7,691	7,829	7,966	8,103	8,240	8,378	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	8,469	
Glendale	GWR	OWN	Verdugo Basin	679	482	423	368	343	459	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Groundwater Production																																																					
Requirements				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050													
Average				1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500		
New wells:																																																					
Rochowen - 700mgd (online 2012)				660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660		
				2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	

Recharge
 Recharge for Glendale is included in LA projection.

