

Irvine Ranch Water District  
Preliminary - For Discussion Purposes Only  
**Poseidon Ocean Desalination Project Comparison to  
Using Water Available from MWD  
With MWD Water Supply Allocation Every 5 Years**

**Based On Net Present Value Cost of Water Estimates  
For 34 Year Period of 2015 to 2048**

Newport Beach

February 10, 2015

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Alt No.	Water Supply Reliability Alternative	Total Pumping Demand on OC Basin Based on BPP: 2015 to 2048 (AF)	OCWD					Newport Beach							
			Total Amount of MWD Water Replaced with Alternative: 2015 to 2048 (AF)	Total Increased Reliability---Total Additional Water Made Available to OCWD From Alternative: 2015 to 2048 (AF)	NPV Total Cost of Additional Water Made Available to OCWD From Alternative: 2015 to 2048 (Billion \$)	True Cost of Increased Reliability to OCWD (\$/AF)	Cumulative Excessive Overdraft of OC Basin in 2048 (AF)	Average Annual GW Production Without Alternative (AFY)	Average Annual MWD Tier-1 Water Purchases (AFY)	Total Increased Reliability --- Total Additional Amount of Water Made Available to Agency from Alternative: 2015 to 2048 (AF)	Annual Increased Reliability --- Annual Additional Amount of Water Made Available to Agency from Alternative (AFY)	Average Annual GW Production With Alternative (AFY)	NPV - Total Cost of Additional Water Made Available to Agency From Alternative: 2015 to 2048 (\$)	Annual Cost of Increased Reliability --- Annual Cost of Increased Water Made Available to Agency From Alternative (\$/YR)	Percent Increased Reliability --- Percent Increase in Total Water Supply to Agency With Alternative (%)
1	Poseidon Ocean Desalination Project With LRP Agreement in Place Requiring Offset of MWD Supplies for 25 Years	12,172,937	1,593,500	244,000	\$ 1.233	\$ 5,051	297,637	12,313	4,789	8,392	247	12,560	\$ 42,390,133	\$ 1,246,769	1.44%
2	Poseidon Ocean Desalination Project Without LRP Agreement and With the Use of MWD Tier-1 Supplies	12,172,937	1,333,020	524,780	\$ 1.688	\$ 3,218	0	12,313	4,789	18,048	531	12,844	\$ 58,070,557	\$ 1,707,958	3.10%
3	Using Purchased of MWD Tier-2 and MWD Over Allocation Penalty Water to Meet Demands With Stabilized Overdraft Conditions	12,172,937	0	530,823	\$ 0.757	\$ 1,427	0	12,313	4,789	18,256	537	12,850	\$ 26,044,699	\$ 766,021	3.14%
4	Banking Tier-2 Water in OC Basin in Advance of Water Supply Allocations	12,172,937	0	525,482	\$ 0.551	\$ 1,048	0	12,313	4,789	18,072	532	12,845	\$ 18,943,505	\$ 557,162	3.11%

**Column Descriptions:**

- 1 Alternative number provided for reference purposes.
- 2 Description of alternative to improve water supply reliability.
- 3 Total groundwater production from the Orange County Basin by all Producers combined assuming a BPP of 72 percent for the period 2015 to 2048
- 4 Total amount of MWD water that OCWD would need to give up in exchange for executing an LRP agreement with MWD to receive an LRP subsidy for the project.
- 5 Amount of additional water that would be available to OCWD as a result of the alternative. Since Alternative No. 1 would require a one-for-one reduction in purchases from MWD, the alternative would only provide additional water during periods when MWD calls a water supply allocation.
- 6 Net present value of the cost of the additional water that would be available to OCWD as result of the alternative. For Alternative No.1, this includes the additional cost of water over the cost of the MWD water that is to be replaced by water from the ocean desalination project over the life of the project.
- 7 Cost of the additional water made available from the project on per AF basis.
- 8 Cumulative overdraft in excess of 400,000 AF that would be experienced by the project by the year 2048.
- 9 Assumed annual groundwater production by the agency based on FY 2013/14 water use values that is assumed to repeat every year from 2015 to 2048 assuming a constant BPP of 72 percent.
- 10 Assumed annual water purchases by the Agency from MWD based on FY 2013/14 water use values to repeat every year from 2015 to 2048 assuming a constant BPP of 72 percent.
- 11 The total additional water supply that is expected to be available to the Agency as a result of the alternative over the period 2015 to 2018. (Proration of Column 5)
- 12 The annual amount of additional water that would be available to the Agency as a result of the alternative.
- 13 The adjusted amount of groundwater production that would be available to the Agency as a result of the additional water available from the alternative.
- 14 Net present value of the cost of the additional water that would be available to the Agency as result of the alternative. (Proration of Column 6)
- 15 Annual cost of the additional water that would be available to the Agency as result of the alternative.
- 16 Percent increase in water supply available to the Agency as a result of the alternative.

**Key Assumptions in Simulation of Alternatives:**

MWD Water Supply Allocations to occur every 5 years and assumed to be 70 percent allocations.  
BPP assumed to be 72 percent over 30 years.  
Target OC Basin overdraft set at -300,000 AF with excessive overdraft occurring below -400,000 AF  
For Alternatives 2,3 and 4, there is 56,000 AF of Tier-1 water available to OCWD in non-allocation years and the OCWD's Baseline is 51,000 AF during allocations.  
Assumes that OCWD would be recharging all Poseidon water through an in-lieu recharge program  
LRP subsidy for the Poseidon project in Alternative 1 assumed to be \$340/AF for 25 years and modeled consistent with current MWD requirements.  
MWD untreated water rates applied when comparing the Poseidon project.  
MWD water rates assumed to increase at 6% per year.  
Poseidon Ocean Desalination Project costs are P50 backloaded costs taken from CEC Report (December 2014).  
Poseidon Project is assumed to be online in 2018.  
GWRS Final Expansion assumed to be online in 2019 and producing 30,000 AFY with a total GWRS contribution to recharge at 130,000 AFY.  
Santa Ana River baseflows at 52,400 AFY throughout simulation period.  
Annual storm flow recharge into OC Basin at 50,000 AFY throughout simulation period.  
Annual incidental recharge into OC Basin at 65,000 AFY throughout simulation period.  
Losses from OC Basin not simulated.  
Others