

LA Desalination Project 2020, Single Shaft Energy Balance, 2 BGD

Fresh Water Engine Stats

Haiwee Res elevation	3774 ft	
Sylmar surface elevation	1200 ft	
Fresh Water Engine Total Fall	2574 ft WC	
Fresh Water Engine OSE	87.1 %	
Fresh Water Engine flow	240000 gpm	345.6 MGD
Fresh Water Engine Theoretical power	156000 HP	116.3 MW

Fresh Water Pump Stats

Membrane Bank elevation	0 ft	
Sylmar surface elevation	1200 ft	
Fresh Water Pump Total Lift	1200 ft WC	
Fresh Water Pump OSE	94 %	
Fresh Water Pump flow	1389500 gpm	2000.9 MGD
Fresh Water Pump Theoretical power	421061 HP	314.0 MW

Seawater Pump Stats

Sea Water Underground Res elevation	-50 ft	
Membrane Bank elevation	0 ft	
Membrane Bank DP	1850 ft WC	800.9 psi
Seawater Pump Total Lift	1900 ft WC	
Seawater Pump OSE	94 %	
Seawater Pump flow	2779000 gpm	4001.8 MGD
Seawater Pump Theoretical power	1333359 HP	994.3 MW

Brine Engine Stats

Brine Engine supply pressure	1480 ft WC	640.7 psi
Membrane Bank elevation	0 ft	
Brine Conduit elevation	200 ft WC	
Brine Engine Total Fall	1280 ft WC	
Brine Engine OSE	94 %	
Brine Engine flow	1389500 gpm	2000.9 MGD
Brine Engine Theoretical power	449131 HP	334.9 MW

Membrane Bank Stats

Membrane sea water input flow	2779000 gpm	4001.8 MGD
Membrane brine water discharge ratio	50 %	
Membrane fresh water discharge ratio	50 %	
Membrane brine water output flow	1389500 gpm	2000.9 MGD
Membrane fresh water output flow	1389500 gpm	2000.9 MGD

Motor-Gen Stats

Fresh Water Engine Available power	135876 HP	101.3 MW
Fresh Water Pump Required power	447937 HP	334.0 MW
Brine Engine Available power	422183 HP	314.8 MW
Seawater Pump Required power	1418467 HP	1057.8 MW
Motor-Gen Required power	1308344 HP	975.6 MW
LA Desal w/ THP, Energy per Volume	3.81 MW*Hr/Acre*ft	
LA Desal w/o THP, Energy per Volume	4.21 MW*Hr/Acre*ft	
Electric Water Capacity	1258772 gpm	1812.6 MGD
Free Water Capacity	130728 gpm	188.2 MGD

Membrane/Conduit fresh water ratio 5.8 to 1

