

<b>Performance Summary</b>	<b>Conventional: Soda-RO-Evap-Crys</b>	<b>Advanced: SS-RO-SaltMaker</b>
Plant Inlet Capacity (m3/day)	1,090	1,090
Plant Inlet Capacity (tonnes/day)	1,123	1,123
Plant Inlet Capacity (GPM)	200	200
Plant Inlet Total Dissolved Solids (TDS)	19,062	19,062
Membrane System Recovery	70%	89%
Size of Evaporation System (tonnes/day inlet)*	337	125
Size of Evaporation System (m3/day inlet)	327	104
Mass of Solids Beneficially Re-Used (tonnes/day)	-	0.76
Mass of Solids Produced (tonnes/day)	24.61	21.40
<b>Capital Costs</b>		
Pre-Treatment & Membrane System	\$ 2,788,634	\$ 4,113,636
Evaporation-Crystallization System	\$ 6,200,000	\$ 2,650,000
Installation	Not included, assumed equal	Not included, assumed equal
<b>Sub-Total Capital Cost</b>	<b>\$ 8,988,634</b>	<b>\$ 6,763,636</b>
Capital Cost (\$/m3)	\$ 3.68	\$ 2.67
<b>Energy Consumption Analysis</b>		
Power: Pre-Treat & Membrane System (kW_e)	178.0	429.7
Power: Thermal System(kW_e)	501.0	60.4
Power: Total	679.1	490.1
Thermal Power as Low Pressure Steam (MW_t)	0.3	0.8
Thermal Power as Low Pressure Steam (tonnes/day)**	11.7	27.0
<b>Operating Costs</b>		
Labor	Not included, assumed equal	Not included, assumed equal
Soda Ash (\$/yr)	\$ 1,125,857	\$ -
Soda Ash (\$/m3 inlet)	\$ 2.98	\$ -
Sodium Chloride (\$/yr)	\$ -	\$ 14,740
Sodium Chloride (\$/m3 inlet)	\$ -	\$ 0.04
Chemicals: Other (\$/yr)	\$ 41,799	\$ 275,192
Chemicals: Other (\$/m3)	\$ 0.11	\$ 0.73
Energy: Electrical (\$/yr)	\$ 386,013	\$ 318,152
Energy: Electrical (\$/m3 inlet)	\$ 1.02	\$ 0.84
Energy: Thermal (\$/yr)	\$ 110,753	\$ 76,737
Energy: Thermal (\$/m3 inlet)	\$ 0.29	\$ 0.20
<b>Sub-Total Operating Cost (\$/yr)</b>	<b>\$ 1,664,422</b>	<b>\$ 670,082</b>
Sub-Total Operating Cost (\$/m3)	\$ 4.40	\$ 1.77
<b>Total Cost (Less Install &amp; Labor) (\$/m3)</b>	<b>\$ 8.09</b>	<b>\$ 4.44</b>
<b>Savings</b>		
CapEx Savings From Increased Membrane System Recovery (%)	25%	
OpEx Savings From Eliminating Soda Ash (%)	37%	
<b>Total Cost of Ownership Savings (%)</b>	<b>45%</b>	

\*Density of the brine adjusted inlet volume. SS-RO brines have high density with specific gravity of ~1.2

\*\*Advanced option assumes a multiple effect thermally driven crystalizer driven with 95 deg C heat (SaltMaker)