



# The Chandler Proposal - Need

## Challenges and opportunities in the salt market

Current situation	Challenges and opportunities	Competitive advantage of the Proposal
<ul style="list-style-type: none"> <li>• Asia consumes about 42 % of the global supply of salt.</li> <li>• Demand for salt is growing at 3-5 % per annum in Asia.</li> <li>• Australia is the largest external supplier of salt to Asia (about 60% of salt imported to Asia comes from Australia). However, Australia is near production capacity.</li> <li>• Australia produces approximately 13.2 million tonnes of salt per annum (M tpa) predominantly via solar evaporative salt facilities in Western Australia.</li> <li>• In Australia and Asia, salt is produced predominantly via solar evaporative salt facilities – heavy rain and cyclones can disrupt salt production in solar evaporative facilities for months at a time.</li> <li>• This process is also quite inefficient (about 65 tonnes of sea water is needed to produce one tonne of salt) and time intensive (the process can take between 12-18 months).</li> </ul>	<p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• There is growing concern by Asian salt buyers about reliable supply, quality and price pressure.</li> <li>• There is an approximate six million tonne shortfall of salt expected in the Asian market by 2018.</li> <li>• To meet this shortfall, up to 47,000 hectares of new solar evaporative salt facilities would be required along environmentally sensitive coastal areas.</li> <li>• It is becoming increasingly difficult to secure approvals for new solar evaporative salt projects in Australia due to their environmental impact. (three recent failed applications 2.5 M tpa, 3- 4 M tpa and approximately 1 M tpa).</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• There are new markets in Asia and growing demand from existing markets, but growing supply pressures.</li> <li>• An opportunity exists to meet the growing demand for salt in Asia. This opportunity is mining of rock salt in the Chandler Formation in the NT. Currently, no deep rock salt mining exists in Australia.</li> </ul>	<ul style="list-style-type: none"> <li>• Unlike solar evaporative salt facilities which are located in environmentally sensitive coastal areas and, are becoming increasingly difficult to obtain planning approval for, the Proposal will have a relatively small surface footprint and is located in semi-arid zone not affected by cyclones, in a geographically and tectonically stable area.</li> <li>• Extensive investigations have proven that billions of tons of salt are contained within the Chandler Formation.</li> <li>• Mining this salt could easily be scaled up to meet demand.</li> <li>• Core testing shows high grade salt is available.</li> <li>• Existing logistics infrastructure is in place and has spare capacity.</li> <li>• The Adelaide/Darwin Railway Line is located adjacent to the proposed Apirnta Facility and would be used to transport salt from the proposed Chandler Facility to port facilities in Adelaide.</li> <li>• Australia is a gateway to Asia. We are closer than India and Chile who also supply salt to Asia.</li> </ul>



## Challenges and opportunities in the waste market

Current situation	Challenges and opportunities	Competitive advantage of the Proposal
<ul style="list-style-type: none"> <li>• Australians are the second highest producers of hazardous waste per capita.</li> <li>• Resources and energy boom translates to a waste boom.</li> <li>• Manufacturing decline generates a contaminated soil waste boom.</li> <li>• Market size: 6 M tpa and growing at 3% per year.</li> <li>• Large legacy waste pool (900 Mt) due to lack of affordable supply and growing.</li> <li>• Increased regulation and environmental legislation.</li> <li>• Directors assume personal liabilities and this regime is now being extended further to certain employees.</li> <li>• Landfill liner useful life before isolation properties are compromised is 10-30 years, yet &gt;50% still accept hazardous waste.</li> <li>• Traditional re-processing, incineration, treatment before landfilling, storage/disposal into man-made engineered landfill are temporary solutions.</li> <li>• There are limited cost effective solutions available</li> </ul>	<p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Waste production in Australia has grown at six times population growth.</li> <li>• Australian and international accounting standards are now exposing the size of waste problem.</li> <li>• Complex technical solutions, long lead times for viable solutions and costly alternatives are frustrating producers.</li> <li>• Legislation increasingly banning surface landfills.</li> <li>• Lack of transparency in pricing from existing players.</li> <li>• Transportation costs.</li> <li>• Complex regulatory issues.</li> <li>• Final disposal of mixed wastes types supports the linear economy "Take, Make and Dispose".</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Waste market is a \$14.5 billion industry that hires over 50,000 people and is growing.</li> <li>• No salt geological repository businesses exist in Australia.</li> </ul>	<ul style="list-style-type: none"> <li>• World's best practice</li> <li>• Tellus stores like with like</li> <li>• Tellus supports the circular economy = "Take, Make, Recover this Generation or Store Safely for next Generation or Dispose Safely".</li> <li>• Permanent isolation of hazardous materials using sound environmental management principals.</li> <li>• Cost advantage</li> <li>• Model removes company, Director and employee liability</li> <li>• Simplicity and flexibility</li> <li>• One of the few tools that can solve the large legacy waste problems</li> <li>• Tellus' solutions could be key tools for governments in emergency situations (man made and natural disasters)</li> </ul>

