

## 10 Atmospheric Factors - Operational Impacts

### 10.1 Background

The SSDP does not have any direct emissions of pollutants to the atmosphere. However operation of the SSDP has the potential to impact on the atmospheric environment from the use of carbon-emitting energy sources. The focus on mitigating greenhouse gas emissions from the project will be on the electricity consumption of the desalination plant during its 25 year operation, as this is by far the most substantial. Emissions associated with construction and commissioning are insignificant in comparison. There is considerable uncertainty over the accuracy and methodology of calculating embedded energy, so this has not been considered.

### 10.2 Air Quality – GHG Emissions

#### 10.2.1 EPA Objective

Ensure that potential greenhouse gas emissions generated by the proposal are adequately addressed in the planning/design and operation of the project and that:

- Best practice is applied to maximise energy efficiency;
- A renewable energy source is used and/or appropriate offsets are implemented; and
- Ensure that emissions to air do not adversely affect environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards.

#### 10.2.2 Potential Impact

The project is expected to consume approximately 400,000 MWh per year of electricity. All power is consumed at the desalination plant as there is no additional pumping along the pipeline or at the tanksite. If purchased from the grid, this would equate greenhouse gas emissions of 392,000 tonnes CO<sub>2</sub>-e per year (based on 2007 WA state emissions factor – Department of Climate Change National Greenhouse Accounts Factors, January 2008).

#### 10.2.3 Policy and Standards

- EPA Guidance 12: Minimising greenhouse gas emissions.
- Greenhouse gas emissions inventory and benchmarking
- Measures to minimise greenhouse gas emissions

#### 10.2.4 Management of Impacts

Production of potable water from seawater using reverse osmosis has made massive gains in efficiency since the early 1990's. In this time the energy intensity of the water produced has reduced from over 10kWh/KL to less than 4kWh/KL. These savings have been achieved through efficiency gains across the entire process, but particularly with the use and improved design of energy recovery devices on the "first pass" water flow, such as those used at the PSDP. This plant will use the most up-to-date proven energy efficiency technologies.

The location of the plant close to the ocean is also key to an energy efficient operation. Twice the volume of water is pumped from the ocean to the plant than is pumped into the water supply system. Therefore minimising the pumping requirements for transferring the ocean water by locating the plant close to the shore makes significant reductions in energy use.

It is intended to purchase the entire electricity needs for the plant from a reliable renewable energy source. A process has already commenced to purchase the entire electricity requirements of the first stage of the plant from a renewable source, with Registrations of Interest already received. Subject to availability at a reasonable price, electricity from a renewable source, along with all environmental credits (e.g. RECs), will be purchased (and surrendered as necessary) to satisfy the annual power consumption of the plant.

Note that there is still considerable uncertainty regarding the future greenhouse gas reporting protocols for Scope 2 emissions. It is expected that the above approach will be recorded as zero emissions in the National Greenhouse and Energy Reporting System, but it is possible that for simplification the State emission factor will be imposed on all electricity purchases. No additional offsets will be obtained to satisfy a "state factor" or other future reporting mechanism as the principle of the plant's operations adding no greenhouse gas emissions will have been completely satisfied.

If satisfactory renewable energy is unable to be obtained, the plant's greenhouse gas emissions will be offset using accredited carbon offsets.

The Corporation is already a member of the Greenhouse Challenge Plus programme and is a participant in the Federal Government's Energy Efficiency Opportunities programme.

The current electricity procurement process is also giving commercially unproven renewable technologies the opportunity to supply up to 20% of the plant's initial power requirements. If achieved, this will give considerable impetus to developing renewable energy technologies.

#### **10.2.5 Predicted Outcome**

The EPA objective can be met for this factor.