Integrated Solar Water Concept Study

Concept Study
Summary Document

Executive Summary

Veda Research (Veda) proposes the evaluation of an Integrated Solar Powered Water Production Pilot Plant Project (ISPW Project) which can be designed to undertake the commercial production of pre-determined grades of water utilising solar derived electrical power.

Veda proposes that the ISPW Project be designed, engineered and constructed as a commercially sized facility to evaluate technical, operational and commercial performance. The site should be so located to permit expansion in phased modular blocks. This will require the site to have sufficient space for the installation of additional solar panels and to be close to raw water sources to feed the water treatment plant.

Although there is a wide perception that commercial grid competitive solar power generation is presently unable to offer returns attractive to private sector investors, Veda believes that ISPW Project will provide an opportunity to establish benchmarks that could assist in the formulation of renewable energy and carbon abatement policies to achieve long term commercial viability.

The water processing element of the ISPW Project will permit direct equivalence to consumer electricity tariffs rather than wholesale electricity prices. At the same time the proposed location of the ISPW Project will offer additional benefits – meeting additional water supply demand, utilization of saline water sources, preservation of catchment and recharge areas, reduction in the contamination of the ecosystem, and the remediation of land.

For these reasons Veda proposes that the Client consider the possibility of providing support for the ISPW Project to permit the investigation and research the matrix of issues that impact long term commercial viability of solar powered water treatment / processing projects.

This document is intended to provide a conceptual outline of the ISPW Project. The ISPW Project is designed as a pilot project the primary purpose being to demonstrate the operational and commercial performance of a commercial sized project utilising technically proven equipment with good operating references.

At the same time the ISPW Project will be so located such that it can be conveniently scaled up in modular blocks once the performance of the pilot plant has recorded performance levels above predetermined benchmarks with respect to solar power output and water production.

The ISPW Project could be carried out on an accelerated basis as it is expected that much of the raw data with respect to solar insolation levels, feed water availability, brine discharge, environmental impact analysis and permitting procedures, have already been established for the region of interest. A project schedule can be calculated once a preliminary survey of the information available is made and an understanding of the additional research surveys is obtained.

The issue of land remediation could also be considered if required as a supplementary benefit of the ISPW Project. A part of Desalination and Water Treatment Plant (DWT) output, treated to meet minimum irrigation water quality levels for the purposes of raising drought and salt resistant crops, could be tested. This option could be further considered during the feasibility phase.