RATCH-Australia Corporation

Milestone Report 1

(For Public Release)

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Collinsville Solar Thermal Power Station

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Table of Contents

1. Background

RATCH Australia Corporation Limited (RAC) is completing a feasibility study on the Collinsville Solar Thermal Power Station (the Measure). The Measure involves all preparatory work to assess the viability of converting the existing coal-fired Collinsville Power Station into a hybrid solar thermal /gas power station.

The Australian Renewable Energy Agency (ARENA) has provided $2.5 million in funding for the Measure under a Funding Agreement with RAC. The ARENA funding is provided to assist with the development and deployment of renewable energy technologies.

Figure 1: Existing Collinsville Power Station

2. Introduction

This report provides an update on the progress of the Measure to-date, along with a comprehensive summary of the knowledge sharing activities completed during the period and lessons learned relating to the Measure during this period.

3. Progress

RAC has progressed with the Measure in accordance with the project plan. The focus of Milestone 1, the first phase of the Measure, has been the on establishing the project plans, schedules and the project team to ensure the Measure outcomes can be achieved on time and within budget.

In addition, the solar data meter has been installed to ensure the maximum amount of actual onsite solar data can be incorporated in the Measure.

4. Knowledge Sharing

The key learning from this initial work relate to the installation of solar monitoring systems on-site. As there are no off-the-self systems available, bespoke site specific systems need to be developed. The following outline key learnings from the installation process to-date.

Equipment

The solar monitoring station comprises equipment that is deliberately placed in an open field with the best available freedom from high objects in all directions, including trees, and part of the equipment is deliberately placed on a 10 metre height mast. The installed system should be configured to continue normal operation during and after severe weather such as: heat wave; thunderstorm with attendant lightning and strong gusty wind; dust storm; and flood.

Normal design of outdoor weather monitoring systems accommodates extreme environmental conditions. The Collinsville installation has had failures that would have been avoided if the supplier had made full demonstration of the system prior to dispatch to the remote site.

PROPOSED MINOR UPGRADES:

1. Ground the base of 10 metre mast using grounding bar and copper wire bolted to bar and mast.

2. Check the grounding status of the guy wires, the data logger within the logger cabinet, the antenna cable and the fitting of the weather transmitter.

3. Maintain check on replacement solar regulator

4. Apply clamp-on toroids to signal wire pairs entering the Instrument Cabinet to suppress glitches. Apply clamp on toroids to dc supply to the stepper motor and check for reduced EMI in sensed signals.

5. Reduce the time between cleaning the optical surfaces from weekly to each Monday, Wednesday and Friday.

6. Glitches in WIND DIR signal removal by revising method for calculating wind direction after wind run has been computed from observations.

7. Retail supply and repair under warranty for this equipment is all on return to factory or supplier basis. Failure of a major item such as solar tracker, data logger, solar regulator, pyranometer, batteries and pyrheliometer would reduce measurement output. Even with best practice maintenance and installation it is difficult to be fully protected against

cyclonic winds and electrical storms. Cost benefit of having spares on site, or equivalent arrangement, for all essential items should be considered.

8. Check whether shielded cables were supplied for signal twisted pairs and whether the shield is appropriately grounded.

Figure 2: Solar Data Meter

5. Published reports, promotional material, media publicity and other relevant documentation

RAC has prepared an introductory brochure for general public release providing a summary of the Measure and solar thermal technology. ARENA's approval was sort prior to release of this brochure. A copy of the brochure is included in Attachment 1.

Attachment 1: Collinsville Solar Thermal Brochure

In addition, RAC has prepared a new page on their website, http://ratchaustralia.com/Collinsville%20Energy%20Park.html, to distribute information on the Collinsville Solar Thermal Power Station project.