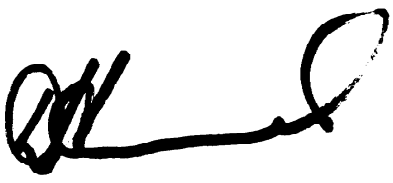
ENERGY SAVINGS PLANS SUMMARY

CLIENT: Kyogle Council

PARTNERS ENERGY MANAGEMENT

#Job no. 4704 – Council Summary Report

Date : 25 August 2013



David Howard

CONTENTS

1. EXECUTIVE SUMMARY

1.1 Project Scope

Partners Energy Management has been engaged by Infinity Solar to develop an Energy Savings Plan (ESP) for the Kyogle Council at five (5) of its sites. Namely the Chambers/Administration Building, Kyogle Library, Kyogle Pool, Kyogle Depot and Kyogle Senior Citizens Centre.

This project involved a site inspection, energy analysis, research and preparation of Energy Savings Plans for each site. The energy analysis was undertaken on the basis of using a Level 2 Energy Audit.

This Report is to summarise the results for Council and is presented in two portions – the first relates to energy reductions which can be made at this site and the second is an evaluation of a PV system which could supplement the initial reduction. The offer from Infinity Solar is attached under separate cover.

1.2 Existing Energy Consumption

These sites currently only use electricity. Electricity Baseline is tabled below.

Table 1.2 – Electricity Baseline :

Energy Type	kWh per year	Current Annual Electricity Cost (excl. GST)	GHG tCO_2 per year
Electricity	**303,395**	**$101,964**	**321.6**

1.3 Summary of energy saving opportunities

Current Usage p.a.	303,395 kWh
Current (2012/13) Cost p.a.	$101,964
Possible Energy Savings p.a.	120,555 kWh
Possible Cost Savings p.a.	$48,419
Percentage Cost Savings	47.5 %
Investment Required	$116,724
Simple payback	2.4 years
GHG Savings p.a.	127.7 Tonnes

Note some of these Opportunities had already been implemented by Council but have not yet impacted on electricity bills. This Table reflects how future bills will or could be, and includes PV options.

1.4 Proposed Cashflow Summary

The Financial Summary of the actual implementation and savings plans for these sites is listed in the Table below. This Table summarises the practical implementation Plans for each site and is used to demonstrate that no amount of additional finance should be required to implement the recommendations at each site.

YEAR	SITE	PROJECT NUMBERS	GHG Saving (tCO2 p.a.)	kWh Saving	$ Saving	Investment Required	New Predicted Total Annual Energy Bill	Accrued Annual Savings	Accrued Annual Expenditure	Net Finance Required
1		Current Situation					$101,964	$0	$0	$0
	Admin.	1, 2, 4, 6, 8	18.2	17,291	$9,587	$10,125	$92,377	$9,587	$10,125	$538
	Library	1, 4, 5, 12	5.2	5,013	$4,231	$3,800	$88,146	$13,818	$13,925	$107
	Depot	1, 2, 4, 6, 8	22.2	20,921	$8,749	$800	$79,397	$22,567	$14,725	$0
	Pool	1, 2, 3, 4, 5, 7	29.9	28,251	$8,032	$21,455	$71,365	$30,599	$36,180	$5,581
	Senior Citizens	1, 2, 4, 5, 6	8.0	7,586	$2,945	$2,120	$68,420	**$33,544**	**$38,300**	**$4,756**
2		Carried forward from previous year					$68,420	$28,788		
	Admin.	3, 5, 7, 9, 10	20.9	19720	$6,239	$22,790	$62,181	$35,027	$22,790	$0
	Library	2, 3, 6	2.2	2025	$732	$3,075	$61,449	$35,759	$25,865	$0
	Depot	3, 5, 7	2.0	1400	$546	$2,300	$60,903	$36,305	$28,165	$0
	Pool	6	6.4	6,000	$1,490	$20,000	$59,413	$37,795	$48,165	$0
	Senior Citizens	3, 8	0.9	838	$199	$2,075	$59,214	**$37,994**	**$50,240**	**$0**
3		Carried forward from previous year					$59,214	$30,504		
	Library	7, 8, 9, 10, 11, 13	11.3	10,710	$3,319	$14,702	$55,895	$33,823	$14,702	$0
	Senior Citizens	7	0.8	800	$190	$5,000	$55,705	$34,013	$19,702	$0

1.5 Proposal for PV

Attached, under separate cover, is a proposal from Infinity Solar for the supply and installation of different capacity systems for each site. At each site two different sizes of system and also two different qualities of system capacity have been offered.

Currently the tariff that must be applied to these systems is a NET TARIFF. This tariff type demands that if electricity is not used on site within ½ an hour of electricity production from the PV system, it will be exported to the grid. When this occurs the Export rate applies. This is commonly only 8 cents/kWh but some retailers will negotiate different rates. An example is used from Infinity Solar that relates to a Retailer named DIAMOND ENERGY. This Company offers standard Import rates but offers 20 cents/kWh for Export; this is a substantial improvement on 8 cents and changes the cost viability of these systems.

In each Report is an assessment of the assessed income from the various sizes of system – these figures are site dependent. Each site has had their load profile analysed and the figures presented are my assessment of the resulting income; these figures have an error margin as the final result is purely dependent on what happens with electricity use and PV generation ½ hr by ½ hr. For this analysis only 8 cents/kWh has been allowed for Exported electricity.

Each site considers the payback from the PV offer and some sites are better than others. It would appear the Administration building offers the best return for either a 5 kW or 10kW system, at 2.9 years. Whereas the Pool offers better long term opportunity should the Export price of the generated electricity be increased.

Should Council install the larger capacity system at each site the expected revenue will be $13,237.

In hindsight the installation of the 5 kW system at the Senior Citizens Centre may not have been a very profitable short term investment, but perhaps in the longer term it will also yield good result.

These systems generally will result in reduced operating costs of the site and contribute to a reduction of Greenhouse Gases produced each year.

An important consideration in proceeding with a PV system is to have confidence in the quality of the components and the integrity of the supplier and installer. Hence it is important for Council to assure itself that Infinity Solar meet this criteria.

Should the larger capacity PV systems be employed at each site, a total of 35 kW, they will create savings of $13,534 and reduce Greenhouse Gas emissions by 60.8 Tonnes.

2. CONCLUSIONS & COMMENTS

2.1 Framework of Analysis

The audit levels were undertaken at a Level 2 in compliance with Australian Standard AS/NZS 3598:2000. However due to the lack of annual electronic data, the stated error margin becomes difficult to guarantee due to the seasonal variation which will occur and hence the need for seasonal testing. As much data has been collected as is reasonable under the circumstances however the Report should be linked, in confidence level, to an error margin of +/-30%. All other factors comply with the Australian Standard requirements.

2.2 Assessor Details

Assessor details	
Name of Assessor	**David Howard (BE electrical)**
Date assessment commenced	**18 June 2013**
Date assessment completed	**11 July 2013**
Phone number	**0421 381 005**
Email address	**david@partnersenergy.com.au**

2.3 Concluding Comments

As a conclusion to this project it might be beneficial for Council to consider some views from the Report Author.

1. Energy reductions are generally not technically difficult to identify or implement. Further they can mostly be enacted over a 2 to 3 year plan, without additional funding. The primary outcome to the Energy Savings Plans which have been here is to demonstrate this fact.
2. The savings identified at these sites are not dissimilar to magnitudes of savings that many sites realise. There is generally substantial energy waste, for a variety of reasons, in most businesses throughout Australia.
3. From a Council perspective, the use of PV systems can enhance the cost efficiency and sustainability of many sites. However energy reduction is always a good first step, in order not to overcapitalise on a PV system – as has occurred at the Senior Citizens site.
4. Council wide there are many sites which would provide greater return, for PV investment, than those sites reviewed here. Such sites include locations with high base daytime loads – such as pumping stations – and also locations which use very small amounts of power such as perhaps RFS depots, toilet blocks and barbeque sheds. This latter category in fact offers the most opportunity as they use small quantities of power yet they must pay the daily access charge which is approx. $500 p.a., whether any electricity is used or not. Hence a PV system at these sites might incorporate an LED light with built in battery backup and a small PV cell. The location can then be disconnected from the electricity grid and substantial financial savings will be made.