



carbon footie commercial case study



ROYAL PERTH GOLF CLUB

Customer: Royal Perth Golf Club
Website: www.rpgc.com.au
Customer Size: 60 employees
Country or Region: Perth, WA
Industry: Sports
Savings: \$15,000 PA

Customer Profile

With more than 100 years of tradition and experience, the prestigious Royal Perth Golf Club has earned a reputation as one of the finest clubs in Perth. Successful events depend upon experience, versatility and imagination and this is the focus of our events team.

Solution Spotlight

- 30 KW Solar PV System
- \$35,000 in initial savings
- LED Refit
- 40% ROI

Making the Cut to Electricity Costs, Royal Perth Golf Club Goes Green with PV Solar

“Royal Perth Golf Club is very excited about the 30kWh Solar System which has been installed by Energy Efficiency Specialists Carbon Footie. This PV Solar system will further enable and assist the Club achieve its environmental ambitions via a significant reduction in our energy use”.

Mr Brad Dawson, General Manager

Business Needs

The cost of electricity has become a major factor (overhead) at all levels of business with the consumption of so-called “black energy” having a major impact upon an organisation’s carbon footprint. Global warming, carbon emissions reduction targets and now an actual cost imposed upon carbon, is transforming business thinking in Australia. Business is responding with new approaches and practices with the aim of becoming more economically and environmentally sustainable. Organisations have become aware of carbon costs and their environmental impact. This begs the question - What practical, affordable and cost effective responses can we as an organisation take to meet this challenge?

For Royal Perth Golf Club (RPGC) the unit cost of electricity in recent years resulted in double-digit increases (annually) and with an 9.5% increase attributed to (from July 2012) the Carbon tax, electricity costs were in need of serious attention.

Solution

The RPGC has become the greenest golf club in Perth, Western Australia with the installation of a 30kW Solar System. Established in 1895, the RPGC has expanded over the past century and presently occupies an approximate facilities footprint and roof-top area of 2,732 m².

Having already installed LED lighting throughout the club house and its other facilities, this initial move into new lighting technology and sustainability, has now been combined with a PV Solar system. Installed by Perth’s commercial Energy Efficiency Specialists, Carbon Footie the move to solar and LED lighting will reduce their carbon emissions by a staggering 40,737 tonnes per annum.

The PV system was commissioned (switched on), on Wednesday 23 January 2013 and will not only significantly reduce the energy costs of the Club but it will make a significant contribution toward their own clearly stated environmental goal of reducing their carbon foot-print and their impact(s) upon the environment.





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The Feasibility Study examined:

- 1. Detailed analysis of half hourly electricity consumption**
- 2. Optimum sizing of a Solar PV System**
- 3. Comparisons of consumption during hours of production**
- 4. Financial and Environmental benefits for RPGC**

Data was obtained from the electricity retailer consisting of half-hourly electricity consumption usage periods for January 2012 to September 2012. Each 24 hour period were assessed (importantly day-time hours) to establish the sizing and effects of a Solar PV system on the buildings energy profile, specifically targeting the electricity consumption between the day-time periods of peak production which are 10:00hrs to 16:00hrs.

Analysis of the data determined the optimum size Solar PV system required to achieve the greatest financial benefit and subsequent payback period (30kWp). Whilst an even larger size system could have been installed and applied, with additional controls established to prevent unwanted generation feed into the grid, the additional expenditure for such a system would not have been financially viable. The other factors which discounted a larger system, was the cost of extra equipment and restrictions on the placement of additional panels.

The Feasibility Study concluded that a 30 kWp System would meet 45% of minimum kWh consumed by RPGC during 10:00hrs to 16:00hrs which is equivalent to 28% of total kWh consumed during day-light hours, based upon Royal Perth Golf Course's geographical location and orientation (slightly off true North). Indeed, the daily average yield that will be obtained by the 30 kWp System over the course of a year is 5.3 solar hours.

With the Solar System and LED lighting, it has become feasible for RPGC to achieve a significant reduction of the peak kW demand and consumption on the South West Interconnected System Network (SWIS), especially during peak operational times in the summer months. By reducing this demand and consumption to a lesser value, real reductions in future negotiable contract energy charges can also be achieved. These operational (costs) reductions will be in addition to savings achieved through lower kWh consumption via self-generation of kWh's by Solar. The RPGC will consume all generated electricity from the Solar PV System, a term called Self-Consumption, during peak-period-production-hours, as there is currently no allowance or financial benefit to "feed" into the grid.

The implementation of a Solar PV System as an alternative (green) energy source will undoubtedly prove to be cost-beneficial and environmentally beneficial for the Club.

Utilising CEC (Clean Energy Council) approved estimates for the calculations and analysis of current expenditure versus avoided expenditure, there is also a relatively "short-term" capital expenditure payback period and ROI of 3 years (33%) respectively.

Benefits

Having already engaged Carbon Footie to implement an efficient lighting program, producing an estimated 15% saving on their lighting (electricity) costs annually, the Solar Feasibility Study concluded that a 30kWp Solar PV system will reduce energy costs in excess of \$15,000 per annum. For the 15-20 year life span of the generating system, an estimated total generation value exceeds \$200,000. This value proposition does not incorporate the impact of annual electricity tariff increases.



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Summary

Carbon Footie has provided a holistic, one-stop sustainable energy solution, commencing with the provision of an initial energy audit, tariff analysis and rate assistance advice. The outcome was the supply and installation of LED Lighting and installation of a 30Kw Solar Energy (PV) System. Royal Perth Golf Club is now nicely positioned to mitigate their electricity costs and ultimately save thousands of dollars off the organisation's bottom line. With a payback of less than three years, commercial PV Solar is now a cost-effective, long-term option for organisations seeking renewable energy alternatives.

RPGC has embraced renewable energy reduction measures and invested in sustainable solutions which will perform for many years to come. It has assured its place among the elite of Perth establishments which are taking the lead in managing their own energy needs while reducing their carbon emissions and hence their environmental impact.



For more information about other Carbon Footie customer successes please visit

www.carbonfootie.com.au/commercial/casestudies

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