



**INDUSTRY :**  
INDUSTRIAL  
& COMMERCIAL



## KERFOOT PTY LTD - New South Wales, Australia

Designed and installed by Kerfoot

### REQUIREMENTS

“We chose the LG panels as they are the best available in the solar market. The service we have received from the sales and delivery teams at LG has been exceptional. We strongly recommend any customers to look no further than using LG on their installation.”

Hugh Fraser, Business Development Manager – Kerfoot Pty Ltd

### PROJECT SPECS



SYSTEM SIZE  
**50.56kW**



PRODUCT  
**LG NeON®2  
395W 72 CELL PANELS**



ESTIMATED ANNUAL OUTPUT  
**Approx. 73,000kWh**



INSTALLED  
**July 2018**



### BENEFITS



Estimated annual savings on electricity usage fees: **Approx. \$13,600<sup>1</sup> AUD**  
**Approx. 68 tonnes of CO2** emission avoided per annum<sup>2</sup>

# KERFOOT PTY LTD - New South Wales, Australia

Designed and installed by Kerfoot

## BACKGROUND

Kerfoot is a privately-owned commercial electrical contracting business which has been steadily expanding its operations since 1972, providing industrial and commercial installations, maintenance and services to a broad range of public and private sector clients.

Services range from major electrical installations, all facets of Electrical upgrades, communications and data installations including advanced integrated installations.

The company has recently started an energy division and solar plays a part in the division's technology offerings.

Kerfoot prides itself on delivering and offering exceptional quality installations and that is why they choose to utilise LG solar products.

## CHALLENGE

Kerfoot set themselves a number of challenges for this project. First and foremost, the key challenge was to design a system to totally offset the power costs for the company as well as catering for future growth.

Kerfoot wanted to produce a switchboard that catered for the DC string supplies complete with string protection as well as incorporating AC grid protection.

Kerfoot only had power bills available to be able to assess the power demands for the site as network interval data was unavailable from the electricity retailer. Other challenges were that structural engineering constraints in relation to the roof loading.

Kerfoot wanted to provide a point of difference with their solar system and so have arranged the panels in a K configuration to represent the K in the company's name Kerfoot.

## SOLUTION

In order to address the roof design challenge to provide a structurally sound solution, it was decided to install the panels mounted on clenergy racking and provide a structural engineering certificate for the LG panels mounted on their racking system.

A switchboard was required to cater for both the DC string supplies, string protection and isolation as well as accommodating the AC grid protection equipment, the inverter supplies AC circuit breaker protection including solar power monitoring equipment. Coming from a background of doing things the right way Kerfoot were surprised there was nothing in the market to cater for their needs. Kerfoot set out to develop and manufacture a suitable switchboard inhouse using their internal expertise.

A separate power meter was installed to monitor the site's usage for a period of time to verify the design would cater for the site's requirements.

Kerfoot developed a monitoring system to enable the monitoring of grid usage, site self consumption, and solar generated including exported solar in real time.

## WHY WERE LG PANELS CHOSEN

The Kerfoot team chose the LG NeON<sup>®</sup> 2 395W 72 Cell panels for their project. The LG NeON<sup>®</sup> 2's 395W delivers 23% more electricity per square metre than many competing similar physical size panels. This panel also has a temperature coefficient of  $-0.36\%/^{\circ}\text{C}$  which means it continues to maintain strong output performance in high temperature climates.



<sup>1</sup> The estimated average annual electricity usage are estimates made by LG Solar™. The estimates made by LG Solar™ are based on the actual system size, estimated annual output of the system in the post code of the location with degradation of rated electricity production of 2% in the first year and 0.5% in subsequent years, as well as a lifetime of 25 years. We assume a flat electricity rate of \$0.25 per kWh, a feed-in tariff of \$0.11 per kWh (with annual increases of 2.5% per annum). Based on the industry the end-customer is in, we assume 80% self-consumption of solar electricity generated (e.g. for end-customers in the manufacturing industry we assume 80% self consumption from Monday to Friday and 20% on weekends (with corresponding 20% and 80% being exported into the grid), while for leisure based clients we assume 80% self consumption everyday and 20% being exported into the grid). We do not apply a net present value discount on the estimated annual electricity usage savings. Of course actual annual electricity savings will vary on a wide-variety of factors including installation conditions, usage and self-consumption patterns, actual hours of sunlight, electricity rates, feed in tariffs, increases in electricity rates as well as other factors. For further details and other solar calculators, please see: <https://www.lgenergy.com.au/solar-calculators>.

<sup>2</sup> The estimate for CO<sub>2</sub> emissions avoided assumes that the entire electricity output of the system is consumed and the emission factor used is the weighted average for all Australian States based on the calculator available at [carbonneutral.com.au](https://carbonneutral.com.au). For more information, please see: <https://carbonneutral.com.au/carbon-calculator/>.

# KERFOOT PTY LTD - New South Wales, Australia

Designed and installed by Kerfoot

## BACKGROUND

Kerfoot is a privately-owned commercial electrical contracting business which has been steadily expanding its operations since 1972, providing industrial and commercial installations, maintenance and services to a broad range of public and private sector clients.

Services range from major electrical installations, all facets of Electrical upgrades, communications and data installations including advanced integrated installations.

The company has recently started an energy division and solar plays a part in the division's technology offerings.

Kerfoot prides itself on delivering and offering exceptional quality installations and that is why they choose to utilise LG solar products.

**“ We chose the LG panels as they are the best available in the solar market. The service we have received from the sales and delivery teams at LG has been exceptional. We strongly recommend any customers to look no further than using LG on their installation. ”**

Hugh Fraser,  
Business Development Manager – Kerfoot Pty Ltd

## CHALLENGE

Kerfoot set themselves a number of challenges for this project. First and foremost, the key challenge was to design a system to totally offset the power costs for the company as well as catering for future growth.

Kerfoot wanted to produce a switchboard that catered for the DC string supplies complete with string protection as well as incorporating AC grid protection.

Kerfoot only had power bills available to be able to assess the power demands for the site as network interval data was unavailable from the electricity retailer. Other challenges were that structural engineering constraints in relation to the roof loading.

Kerfoot wanted to provide a point of difference with their solar system and so have arranged the panels in a K configuration to represent the K in the company's name Kerfoot.



<sup>1</sup> The estimated average annual electricity usage are estimates made by LG Solar™. The estimates made by LG Solar™ are based on the actual system size, estimated annual output of the system in the post code of the location with degradation of rated electricity production of 2% in the first year and 0.5% in subsequent years, as well as a lifetime of 25 years. We assume a flat electricity rate of \$0.25 per kWh, a feed-in tariff of \$0.11 per kWh (with annual increases of 2.5% per annum). Based on the industry the end-customer is in, we assume 80% self-consumption of solar electricity generated (e.g. for end-customers in the manufacturing industry we assume 80% self consumption from Monday to Friday and 20% on weekends (with corresponding 20% and 80% being exported into the grid), while for leisure based clients we assume 80% self consumption everyday and 20% being exported into the grid). We do not apply a net present value discount on the estimated annual electricity usage savings. Of course actual annual electricity savings will vary on a wide-variety of factors including installation conditions, usage and self-consumption patterns, actual hours of sunlight, electricity rates, feed in tariffs, increases in electricity rates as well as other factors. For further details and other solar calculators, please see: <https://www.lgenergy.com.au/solar-calculators>.

<sup>2</sup> The estimate for CO2 emissions avoided assumes that the entire electricity output of the system is consumed and the emission factor used is the weighted average for all Australian States based on the calculator available at [carbonneutral.com.au](https://carbonneutral.com.au). For more information, please see: <https://carbonneutral.com.au/carbon-calculator/>.