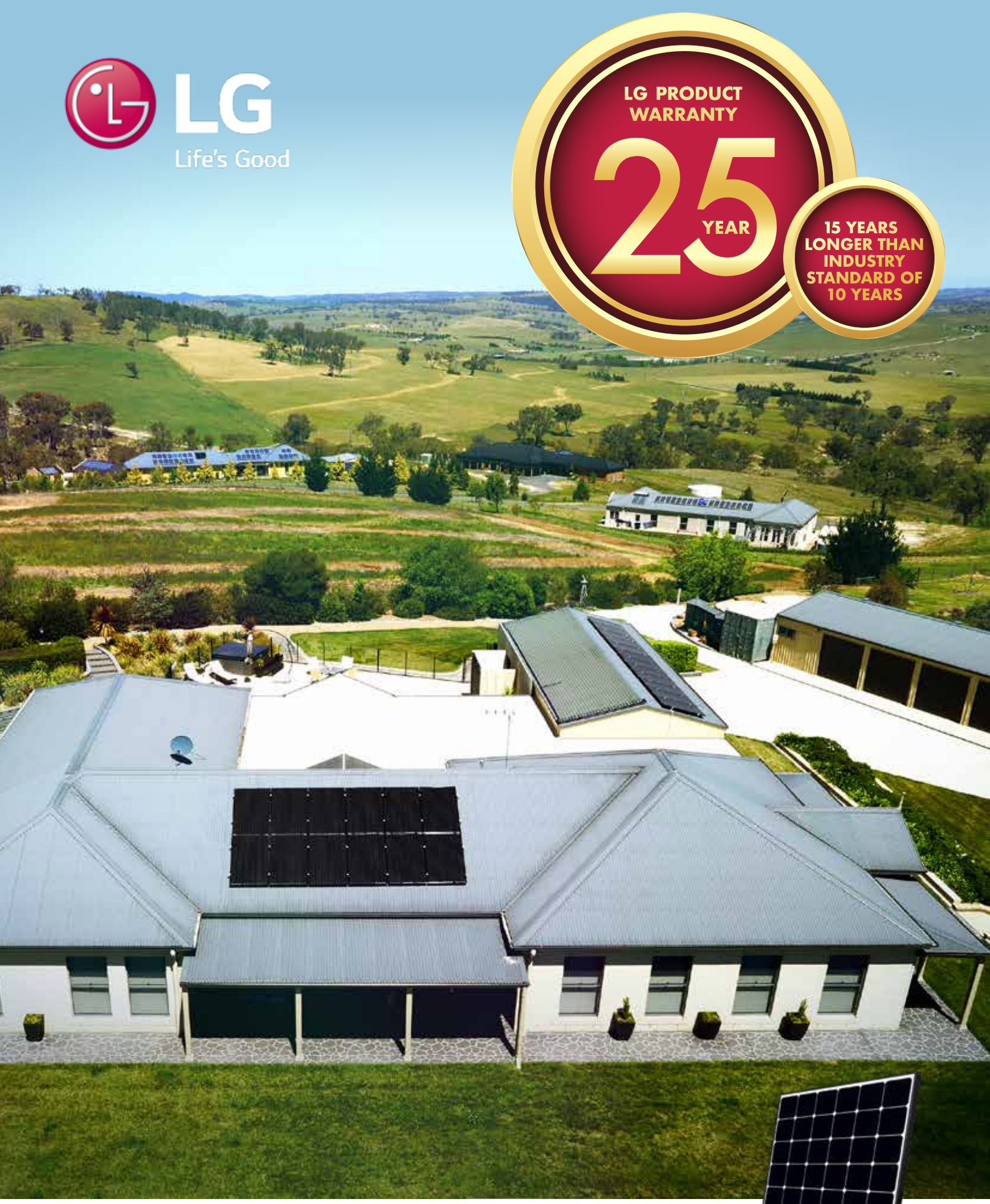
LG
Life's Good

LG PRODUCT WARRANTY
25 YEAR

15 YEARS LONGER THAN INDUSTRY STANDARD OF 10 YEARS



30 LG Panel Advantages

For more information visit I www.lgenergy.com.au
For enquiries contact I solar.sales@lge.com.au

30 LG PANEL ADVANTAGES AND THEIR BENEFITS FOR YOU

A solar panel harvests the sun and converts it into electricity and is together with the inverter the most important part of a solar system. A solar system only achieves a positive return on investment after a number of years. Not all solar panels are built the same. Given that a solar panel is exposed to wind and weather and has to endure many temperature variations, while producing electricity, the build quality of a solar panel is very important.

With non branded panels, even within one manufacturer there are variations in build quality, depending on the destination of the product and the originating factory. LG panels all come from one factory in Gumi, South Korea and there are effectively no variations as to the build quality meaning our panels shipped to Vietnam or Indonesia are the same as the ones shipped to Germany, Japan, the US or Australia.

Choosing long lasting, high efficient LG solar panels and quality inverter solutions will help ensure you will have a long lasting trouble free system. Longer lasting systems will in all likelihood provide a higher financial return than, poor quality systems. So while LG panels initially cost more than some competitor panels over the life of the system, LG panels can create one of the best financial and environmental results for you.

Peace of mind warranties

1 Twenty five (25) year parts and labour manufacturer's warranty

LG offers a 25 year parts and labour warranty which includes the cost of shipping panels for the NeON® 2 and NeON® R, as well as the labour cost of un-installing and re-installing the panel, compared to the 10 year manufacturer's warranty offered by most other manufacturers, which is the current industry standard.

YOUR BENEFIT: You get a longer warranty than many other panels on the market (25yrs v 10yrs). Also some competing panels do not cover labour and/or transport for replacement panels. LG has also developed a detailed customer friendly warranty brochure to help you, should there ever be a claim.

NeON® R
NeON® 2

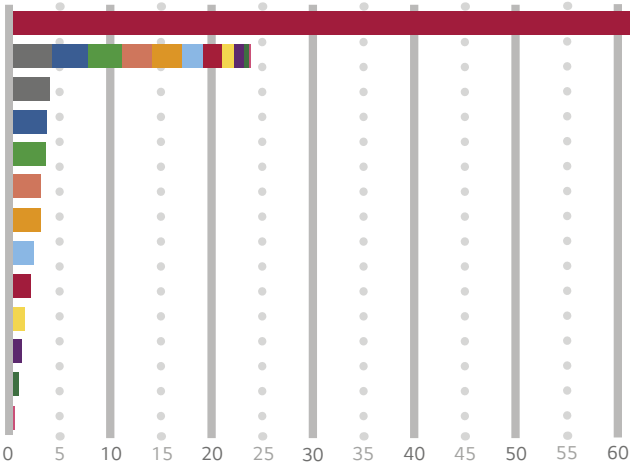
Extended Product Warranty
10yrs + 15yrs

2 Diversified manufacturer– stable and strong warranty

In mid 2016 there were over 220 panel manufacturers with panels registered for sale with the Clean Energy Council in Australia. It is likely that in future there may be a significant consolidation of solar manufacturers with potentially only a fraction of these manufacturers operating in Australia long term. LG with its diversified manufacturing, strong bankability, diversified product portfolio and its multi-billion dollar size has a better opportunity than many others to be a leader in solar in decades to come.

YOUR BENEFIT: A peace of mind, strong warranty.

The Warrantor's 2017 Global Sales in Billions of US Dollars



LG Electronics	**$61.4bn**
All below combined	$23.7bn
Jinko Solar*	$3.9bn
Trina Solar*	$3.5bn
Canadian Solar*	$3.4bn
First Solar*	$2.9bn
JA Solar*	$2.9bn
Hanwha Q Cells*	$2.2bn
Sunpower*	$1.9bn
Yingli*	$1.2bn
Suntech*	$0.9bn
REC Solar*	$0.6bn
Winaico/Win Win Precision Tech*	$0.15bn

*2017 Annual Financial Statements.

3 Warranty registration with LG Australia/NZ

LG offers a simple warranty registration process via lgenergy.com.au in Australia and New Zealand.

YOUR BENEFIT: LG has a record of your purchase details in case of a warranty claim.

4 Tier 1 Ranking by Bloomberg New Energy Finance

LG panels have been recognised by Bloomberg New Energy Finance as a Tier 1 Solar Manufacturer. The Bloomberg Tier 1 ranking is widely recognised within the industry as a measure for bankability of the manufacturer. It does not reflect build quality or longevity of the panels. Other manufacturers sometimes use the Tier 1 label as a sign of build quality or financial stability of the manufacturer – which IT IS NOT.

YOUR BENEFIT: Being a Tier 1 panel alone, does not guarantee a long lasting panel. It is the combination of many manufacturing aspects as demonstrated in these pages, that bears witness to LG's excellent solar panel quality.

5 Australia-wide LG Dealer Network

LG has partnered with 70 quality focused and reputable installation companies to install our solar panels Australia-wide. This means where ever you are in Australia an LG installer is only a phone call away. At August 2018, LG is the only solar panel manufacturer in the market, that has such an extensive installation network.

YOUR BENEFIT: In future years, should you need installation and warranty support, there will be help at hand.

Great Visual Appearance

6 Great looks for your roof

LG NeON® 2 and NeON® R panels have been designed with appearance in mind. Their black cells and black frames give an aesthetically pleasing uniform appearance. Standard competitor poly panels have blue cells and plain aluminium frames. For very aesthetic conscious customers LG is also offering a stunning looking complete black version of their NeON® 2 range.

YOUR BENEFIT: Ensuring you have panels that are high quality, attractive panels making your roof look great and which may help preserve or increase the resale value for your home.

LG NeON® R

LG NeON® 2

LG NeON® 2 Black

Higher Performance through winning technology

7 Proven field performance

LG and other companies, including the Australian consumer organisation Choice have been involved in a number of comparison tests of the LG modules against many other brand panels. LG NeON® 2 and NeON® R panels are consistently one of the highest performing panels in these tests.

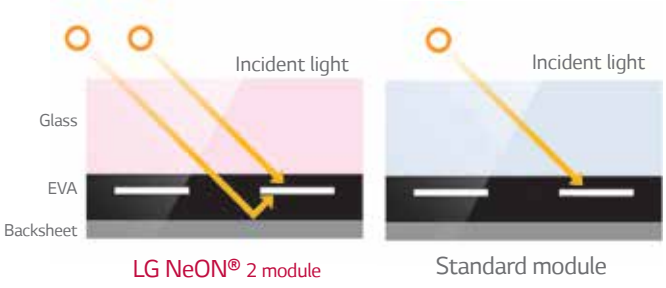
YOUR BENEFIT: Improved performance in all weather conditions.

LG panels and competitor panels comparison system, Sydney, Australia

8 Double sided cell structure for NeON® 2 panels

The LG NeON® 2 panel produces energy from both the front and the back of the cell. This innovative approach allows the absorption of light from the front and the back of the cell, which raises the panel's performance. As of 2018 the LG NeON® panel is the only panel in Australia offering this feature. Other NeON® panel innovations also won further Intersolar Awards in 2015 and 2016, and the "Top Brand PV Award" in Australia in 2016, 2017 and 2018.

YOUR BENEFIT: Additional electricity generation from light hitting the edge and back of the solar cell



LG NeON® 2 module | Standard module

9 Maximising roof space for future expansions (More power per square Metre)

LG NeON® 2 panels are rated at 325/330/335W per panel, whereas many of our competitors' panels achieve only a 260W rating. This equates to 26% more power for the NeON® 2 panel than many 260W panels that are the same physical size. The LG NeON® R can produce an even more impressive output with 360W and 365W per 60 cell module.

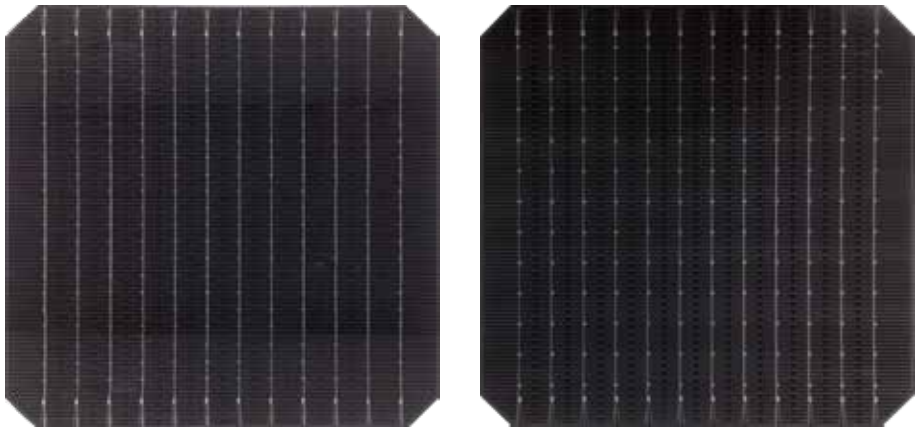
YOUR BENEFIT: You use less roof space for a given system capacity and/or have room for future system expansions for batteries and potentially even electric car charging in years to come.

Higher Performance through winning technology

10 12 wire busbars ("CELLO" Technology Increases Power) with NeON® 2

LG's "CELLO" Multi wire busbar cell technology lowers electrical resistance and increases panel efficiency, giving more power per panel and providing a more uniform look to the panel. In 2015 LG won the Intersolar Award in Germany for this innovation.

YOUR BENEFIT: Higher electricity output than many competing panels in all weather conditions and innovative technology ensures your panel stays relevant in future years.

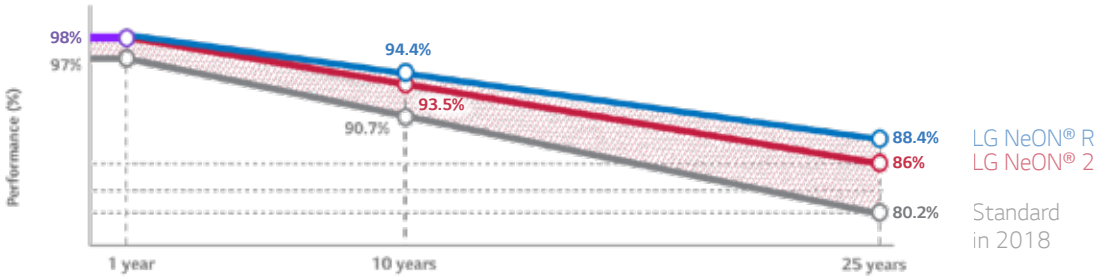


Front and rear of NeON® 2 cell

11 Lower degradation than industry standard

Solar panels degrade over their lifetime and produce less electricity each year. The NeON® 2 and NeON® R have a very low LID, due to the use of N type treatment of the cells which uses phosphorous as a replacement for Boron.

YOUR BENEFIT: Less degradation of electricity production than many competing panels as the panel ages.



12 Anti-reflective coating increases output

LG is using an anti-reflective coating technology on the glass and on the cells of our panels to ensure more light is absorbed in the panel and not reflected.

YOUR BENEFIT: More absorbed light means more electricity generation.

LG invests heavily in solar research.

13 Improved High Temperature Performance

Solar panels slowly lose ability to generate power as they get hotter. On a very hot summer day panels can be as hot as 70 degrees Celsius which means for many panels a performance loss of over 20% over a panel that is only 25 degrees Celsius on a milder day. LG NeON® 2 and NeON® R have one of the best temperature performance characteristics, which means even in very high temperatures our panels will deliver higher output than many competing panels.

YOUR BENEFIT: Better performance on hot days than most conventional panels means more power generated to use to run air-conditioning, pool pumps and fans for example.

Higher Performance through winning technology

14 Excellent low light performance

Great performance under low light conditions due to LG technology and our own cell manufacturing with low tolerances, ensuring highly consistent performing panels. At 200W/m2 LG panel efficiency drop is -2% while many competitors' panels reduce by -4%.

YOUR BENEFIT: Better performance on low light days including cloudy or early morning/late afternoon, the time when performance really counts.

15 Multi Award Winner

LG panels have won numerous awards in recent years. For example the NeON® panel range won the Intersolar Award for Photovoltaic Innovation in Germany, three times since 2013. The LG solar brand has won the "Top Brand" in Australia Award in 2018, 2017 and 2016.

YOUR BENEFIT: Panels have been recognised as innovative and cutting edge by industry experts giving you confidence in the quality and performance of the product.

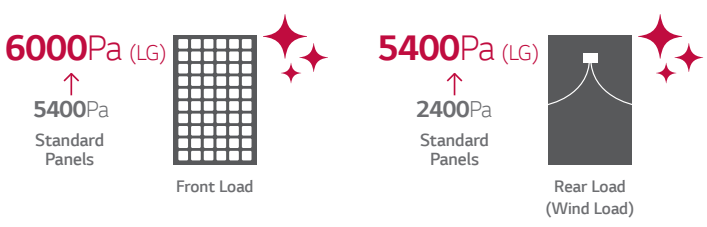
Quality built and testing for better reliability

Not all solar panels are built the same, and many struggle to achieve the LG build quality. In Australia & NZ some competitors' panels have failed in as little as 2-3 years. Reasons for failures and low output performance include hot spots, corrosion, water ingress, failed bypass diodes, poor sealants, delaminations and micro cracks.

16 Cyclone wind load resistance

LG modules have a strong double walled frame. When it comes to wind forces (rear load) many competitor modules are certified to 2400 Pascals. LG modules are certified to more than double, 5400 Pascals, making them very sturdy and one of the strongest on the market.

YOUR BENEFIT: Less likely issues with panel failure in extreme wind conditions and wind load exposure over many years.



17 Extensive testing program

One of LG's specialties is our focus on testing. In order to be sold in Australia solar modules have to be tested and pass the IEC standard tests once. LG solar panels are regularly tested up to 3 times the IEC standards by LG in-house testing laboratories. LG also chooses to spend a significant amount of money on research and development. In fact, 25% of their entire solar focussed workforce is dedicated to discovering new technologies and improving our solar technology.

YOUR BENEFIT: Confidence in the product and ensuring a very robust and longer lasting solar module.

18 Lightweight but strong

Our LG 60 cell panels, at just 18kg while having high wind stability capabilities, are lighter and more robust than many competitor panels.

YOUR BENEFIT: Less weight and stress on your roof structure, especially for larger systems.

19 High quality components

Our LG panels use quality junction boxes which are highly water resistant (IP68) and use premium Swiss MC4 panel connection plugs.

YOUR BENEFIT: Confidence in the product and ensuring a very robust and longer lasting solar panel.

20 Made in Korea

LG panels are manufactured in Gumi, South Korea in a fully automated state of the art factory. The wafers, cells and panels are manufactured in one seamless process production line, which emulates the air purity of semi conductor manufacturing environment.

YOUR BENEFIT: A consistent and high quality solar product.

21 Premium quality control on input materials and production

LG controls its supply chain very thoroughly to ensure a consistent and high quality solar panel. During the fully automated standardised manufacturing process very low variation tolerances are allowed during the 500 quality control processes.

YOUR BENEFIT: A consistent and high quality solar product.

22 Anti PID technology for yield security

PID (Potential Induced Degradation) has been a more recent discovery that can affect the long term performance of solar panels. LG panels are manufactured with anti PID technology and have been extensively tested by leading third party testing laboratories regarding PID.

YOUR BENEFIT: This means LG panels are more likely to give decades of clean power.

23 Positive tolerance (0/+3%)

If we sell you a 330 Watt rated solar panel then the flash test of this panel will show at least 330W and can be up to 339.6W. Some competitor panels have -/+ tolerance, so you could get a flash test result below the rated Watt, (e.g. a 250W panel may really only be 243W) meaning you pay for Watts you never get.

YOUR BENEFIT: Every Watt you pay for is delivered with LG solar, plus sometimes a little more.

24 Passed fire test

All LG modules have passed fire safety tests and contain flame retardant materials, meaning should any electrical malfunction occur, the panel will not combust and catch fire, as required by Australian registration regulations.

YOUR BENEFIT: Safety for your home.

25 High compatibility with all quality inverter and racking solutions

LG modules are designed for residential, commercial and utility scale systems. The panels will work with all inverter and micro inverter solutions on the Australian and NZ market. The panels can be mounted for roof top or ground mount in vertical (landscape) and horizontal (portrait) installation positions.

YOUR BENEFIT: Maximum system design flexibility, allowing a bigger system to be installed in some roof situations, due to the landscape install option.

26 Micro crack testing

Two EL "flash" tests are performed on each LG panel during production to ensure no cells with microscopic cracks are used. One test is conducted before lamination and one after lamination. An image of each micro crack free panel with serial number is stored in LG's database in case of any future warranty claim.

YOUR BENEFIT: A well built panel without microcracks leaving the factory.

27 LG Testing Laboratory Certification

LG has had its internal testing facilities certified by 4 major international testing laboratories (VDE, UL, TUV Rheinland and Intertek) and to ensure the ongoing accuracy and reliability of its internal testing processes. This is a first within the solar industry.

YOUR BENEFIT: Shows LG's commitment to producing panels of uncompromising quality.

Environmental leadership

28 Lower energy payback time

Energy payback is the time it takes for a solar panel to generate the power it took to manufacture, ship and install the solar system. In June 2018 LG calculated the embodied energy in an LG solar panel as 297.65kg of CO_2 from resourcing of raw materials, to manufacture, and including transporting and installing product. In Brisbane, Australia, the average energy payback of a 330w NeON® 2 for example is under 1 year, 5 months as opposed to a standard 260w panel which is close to 2 years. Because LG panels are also built to last long, this means each LG panel can create more clean energy during its working life.

YOUR BENEFIT: Higher environmental benefits via LG panels in regards to CO_2 abatement compared to less efficient panels which use the same amount of raw materials.

29 No Ozone depleting gases in manufacturing process

LG Electronics runs a Homogenous Substance Management system to ensure that no ozone depleting substances are used in the manufacturing of the panels, or any of the materials supplied to LG for manufacturing of the solar panels.

30 LG panels part powering the LG Solar Factory

In 2014 LG installed a 3.2MW of solar power (over 11,000 panels) on the roof of its solar factory in Gumi, South Korea to generate some of the electricity to manufacture the panels. Overall LG has installed over 18MW of Solar panels across its manufacturing facilities in Korea including electrical appliance and battery factories.

LG Solar factory, Gumi, South Korea with LG solar panels on the roof.

HEAD OFFICE

New South Wales
2 Wonderland Drive, Eastern Creek, NSW 2766

CONTACT

Email: solar.sales@lge.com.au

Enquiries: 02 8805 4000 (Australia)

STATE OFFICES

Queensland
Unit 4/105 Freight Street, Lytton, QLD, 4178

Victoria
3 John Deere Court, Derrimut, VIC 3030

South Australia
162 Richmond Rd, Marleston, SA 5033

Western Australia
18 Baile Road, Canning Vale, WA 6155

New Zealand
60 Highbrook Drive, Highbrook Business Park, East Tamaki, AKL 2013

For further information please see: LGenergy.com.au

LG Life's Good