

# HOW TO EVALUATE A SOLAR PROPOSAL

This guide has been prepared to assist businesses evaluate the value-for-money of commercial scale solar proposals.

Commercial scale solar arrays involve a significant capital investment, so it is important to know what you are buying and from whom. The design, planning, construction and ongoing operation of a solar array can materially affect output over its life. Selecting a solar specialist with a track record in delivering high performing commercial solar arrays, demonstrates a capacity to manage these complex tasks.

The primary value generated by a solar array is the electricity generated over its lifetime. For this reason it is important to understand the credibility of output forecasts and validate forecasts with the solar installer's track record. Doing research and asking the right questions will empower you to make the best investment decision and maximise the benefits of your commercial solar array for decades to come.

When evaluating a solar proposal consider at the very least, these four simple questions.

1. Is the forecast of generation output reliable?
2. Does the solar company have a successful track record in installing solar arrays of the same size or greater?
3. What is the first year yield from the solar array?
4. Does the solar company have the processes and capability to service your solar array and maintain your component warranties?

The answers to these questions will enable you to separate the value-for-money proposals from sales spin, and support your decision to develop your solar array simply, safely and successfully.

For more information contact:

James Jackman  
Commercial Solar Account Manager  
Phone: 1300 553 213  
Email: [james.jackman@energymatters.com.au](mailto:james.jackman@energymatters.com.au).

## VALUE DRIVER

## WHY THIS MATTERS

## ENERGY MATTERS DELIVER

### 1. *Is the generation output forecast reliable?*

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| <ul style="list-style-type: none"><li>• Electricity generation forecast</li></ul>                       | <ul style="list-style-type: none"><li>• The electricity generation forecast may be a key input to your business case</li><li>• There are a variety of more or less accurate methods for forecasting output</li><li>• Tree shading or other obstructions can have a significant impact on array generation</li><li>• Some installers overstate generation forecasts to make their proposal appear more attractive</li></ul> | <ul style="list-style-type: none"><li>• Energy Matters use PVsyst, which is the industry leading modelling tool, with appropriate climate data, and locational shading analysis.</li><li>• PVsyst is the industry recognised leading solar forecasting tool, used on large-scale solar projects globally</li></ul>   |
| <ul style="list-style-type: none"><li>• Independent in-field testing of performance of panels</li></ul> | <ul style="list-style-type: none"><li>• “In the field” generation output matters most - laboratory test based generation projections often don’t give an accurate picture of output</li><li>• Independent in-field testing provides greater confidence that the performance of panels can be fairly compared</li></ul>   | <ul style="list-style-type: none"><li>• Energy Matters use REC panels, which was ranked no.1 in the highly regarded 2011 Photon magazine independent in field-testing of 45 leading panel manufacturers.</li><li>• Reference:<br/><a href="http://www.recgroup.com/Documents/REC_factsheet_Photon2012_ENG_lr.pdf">www.recgroup.com/Documents/REC_factsheet_Photon2012_ENG_lr.pdf</a></li></ul> |
| <ul style="list-style-type: none"><li>• Performance of past arrays delivered</li></ul>                  | <ul style="list-style-type: none"><li>• If the Solar Installer cannot reference the on-going performance of past projects then they cannot be sure the arrays they have installed are performing as intended</li></ul>   | <ul style="list-style-type: none"><li>• Energy Matters monitors the commercial arrays we install</li><li>• Our arrays have outperformed the forecasts we include in our proposals</li></ul>  |
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### 2. *Does the solar company have a successful track record in installing solar arrays of the same size or greater?*

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| <ul style="list-style-type: none"><li>• Experience in delivering projects of a similar size</li><li>• Past project performance (on budget, on time, on/above generation forecast)</li></ul>  | <ul style="list-style-type: none"><li>• Commercial scale solar projects involve greater complexity in design, project management and installation</li><li>• Successful past projects demonstrate capability to deal with this level of complexity</li><li>• Place additional weight on past projects which utilise the components which are being proposed for your project</li></ul>   | <ul style="list-style-type: none"><li>• Energy Matters has delivered millions of dollars of commercial solar arrays including Australia's largest commercial solar projects</li><li>• Request Case Studies on our track record of commercial solar arrays or visit our web page at:<br/><a href="http://www.energymatters.com.au/renewable-energy/solar-power/commercial/medium-scale-solar.php">http://www.energymatters.com.au/renewable-energy/solar-power/commercial/medium-scale-solar.php</a></li></ul>   |
| <ul style="list-style-type: none"><li>• Compliance and approvals<ul style="list-style-type: none"><li>○ Development approvals</li><li>○ Structural assessment</li><li>○ Network approvals</li><li>○ Clean Energy Council accreditation – Design / Installation / Components</li><li>○ State based Occupational, Health and Safety requirements</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Commercial Solar Arrays typically require electricity network approvals and council development approvals</li><li>• You may be liable and responsible for ensuring appropriate safety measures and plans have been followed for works on site</li><li>• Project delays - We are aware of many commercial solar arrays undertaken by competitors which have sat idle as they failed to meet requirements for commissioning</li><li>• Cost blow outs – Without appropriate planning and experience, the electricity network may require additional equipment and costs to be incurred</li></ul> | <ul style="list-style-type: none"><li>• Energy Matters has a team of experienced engineers, electricians, product developers, and project managers, all with accreditation/training and dedicated to Commercial Solar</li><li>• This experience is leveraged through Energy Matters streamlined business processes and quality assurance systems</li><li>• Energy Matters have developed a internationally award winning Enterprise Resource Planning tool to deliver efficiencies and ensure all activities are optimally scheduled, delivered and checked<br/><a href="http://www.energymatters.com.au/company-profile/awards-associations.php">http://www.energymatters.com.au/company-profile/awards-associations.php</a></li></ul> |

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### 3. What is the first year yield from the solar array?

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| <ul style="list-style-type: none"><li>• <math>Y = R \times G / P</math><br/>Where,<br/>Y = [First year yield]<br/>R = [benchmark electricity rate]<br/>G = [forecast 1<sup>st</sup> year generation]<br/>P = [array price]</li><li>• <math>R = D \times ON + E \times OFF</math><br/>Where,<br/>R = [benchmark electricity rate]<br/>D = [daytime electricity rate]<br/>E = [export electricity rate]<br/>ON = [% used onsite]<br/>OFF = [% exported] = (1 – ON)</li></ul> | <ul style="list-style-type: none"><li>• The primary value generated by a solar array is the electricity generated over its operating period.</li><li>• First year yield is a simple method to compare the value-for-money of performance</li><li>• If you are not satisfied in the proposals forecast generation (i.e. response to Q1) adjust the forecast down<ul style="list-style-type: none"><li>○ For example, we have found that estimates based on the Clean Energy Council guidelines may overestimate generation by up to 15%</li></ul></li><li>• If you are not satisfied in the Solar Companies track record (i.e. response to Q2) factor in a contingency of 10-20% on to the price<ul style="list-style-type: none"><li>○ This reflects the potential cost implications associated with additional works and equipment to meet approvals</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Energy Matters estimates of first year yield and financial return are informed by the use of professional tools, the performance of our installed arrays and are developed by our experienced team of engineers</li><li>• Energy Matters can provide detailed financial analysis for your solar array including return on investment; payback; yield; internal rate of return, among other metrics</li></ul> |
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| <ul style="list-style-type: none"><li>• Optimal array sizing can reduce the level of electricity exported</li></ul> | <ul style="list-style-type: none"><li>• Solar electricity tends to be worth most when used on-site (where it may be valued at the retail rate) as opposed to exported to the grid (where it may be valued at the wholesale rate)</li><li>• Some installers oversize arrays which leads to more electricity being exported and a lower return for investors</li></ul> | <ul style="list-style-type: none"><li>• Energy Matters have developed a proprietary process to optimally size a solar array to meet your specific site's needs</li><li>• This involves analysis of<ul style="list-style-type: none"><li>○ On-site electricity usage and load</li><li>○ Roof capacity</li><li>○ Network connection and approval considerations</li></ul></li></ul> |
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### 4. *Does the solar company have the processes and capability to service your solar array and maintain your component warranties?*

<ul style="list-style-type: none"><li>Monitoring and maintenance services</li></ul>	<ul style="list-style-type: none"><li>Warranties are often contingent on the installer undertaking maintenance. However, many installers do not offer this service, which may risk the utility of the warranty.</li></ul>	<ul style="list-style-type: none"><li>Energy Matters offer Power Maximiser service as an annual subscription which includes continuous monitoring, troubleshooting and maintenance</li></ul>
<ul style="list-style-type: none"><li>Easily accessible warranties</li></ul>	<ul style="list-style-type: none"><li>Read the fine print: some warranties require the installer or manufacturer to undertake all maintenance (if this is the case insure the installer actually does offer to undertake the maintenance)</li><li>Some manufacturer's do not have local agents to administer warranty claims; meaning you may need to track down overseas offices</li></ul>	<ul style="list-style-type: none"><li>Energy Matters will handle all warranty claims on your behalf</li><li>Energy Matters provide long term warranties for our workmanship and have arranged extended warranties with suppliers</li></ul>
<ul style="list-style-type: none"><li>Experience in claiming warranty with specific supplier</li></ul>	<ul style="list-style-type: none"><li>Without the solar installer having experience in claiming a warranty with the specific supplier there is less confidence that any future claim will be honoured</li><li>Disputes on warranty may arise when a supplier disputes the workmanship or procedures of the solar installer</li><li>Alternatively the supplier may not have an easily accessible claims process</li></ul>	<ul style="list-style-type: none"><li>Energy Matters have delivered over 50 MWs of commercial and domestic solar arrays using components manufactured by those included in our proposal</li><li>We have claimed warranties on less than 0.1% of our projects and all of these warranty claims have been honoured by our manufacturers</li></ul>
<ul style="list-style-type: none"><li>Appropriately funded warranties</li></ul>	<ul style="list-style-type: none"><li>Warranty is only as strong as the financial backing and its accessibility. Check that there are local avenues to claiming your warranty, that they have a history of honouring warranty claims, and that the warranty is funded</li></ul>	<ul style="list-style-type: none"><li>REC warranty is funded by a standalone fund, which is backed by the Norwegian Sovereign wealth fund. This removes the risk of default over the 25-year period due to REC closing.</li></ul>