

Alert Solar Farms and Solar Panel Owners! Singapore High Court Sheds Light on Defective Backsheets in PV Modules

We are pleased to present you our Sustainability Update, which shares insights from our Sustainability Partners and experts across sectors and domains on key environmental, social and governance ("ESG") developments and trends.

In this issue, we explore briefly the issues surrounding a particular type of backsheet material, commonly used in solar panels, which has given rise to quality issues and purchasers' potential legal recourses. This is a developing area and we invite you to get in touch with our Partners in our [Sustainability Practice](#) who are ready to assist you with any queries you may have.

Introduction

The solar energy sector has experienced tremendous growth in recent decades. The global solar installation capacity reached 239 GW of power in 2023; by the end of 2024, it is expected to more than double to around 574 GW.¹ Solar energy is now a US\$82 billion industry and is forecast to reach USD\$60 billion by 2031.²

However, this growth has not come without a price. With the ever-increasing demand for low-cost solar panels, some manufacturers have resorted to using lower-quality components and materials, some of which have given rise to severe safety and durability issues.

One such cheap but inferior material which was introduced into the market in around 2010 was the AAA backsheet, which comprised three layers of polyamide. There have been many scientific articles written on this particular backsheet material, criticising it as a defective material. However, the inherent defect of this particular backsheet has not, as far as our search of the caselaw has shown, been decisively ruled upon in any court, until now.

In *DGE v DGF* [2024] SGHC 107, the Singapore High Court made some observations regarding the inherent defect of the AAA backsheet material and the legal recourses which may be available to purchasers of solar panels which contain such AAA backsheets.

The Respondent was successfully represented by Partner Lai Yew Fai, Partner Tao Tao, and Associate Brendan Tan Zi Jian of Rajah & Tann Singapore.

¹ SolarPower Europe. (2023, June). *Global Market Outlook for Solar Power 2023-2027*.

² Fernandez, L. (2024, March 20). *Global market value of solar panels 2021-2031*. Statista

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Brief Facts

DGF ("F") was in the business of procuring building materials, including solar panels, and building residential houses in various cities. DGE ("E") is a company which manufactures materials used for the photovoltaic sector. F and E entered into two agreements for E to supply solar panels to F.

In 2013, E delivered the solar panels to F, some of which were manufactured with the AAA backsheet material. These modules were then installed on the rooftops of various residential houses. In 2017, F discovered that these backsheets had developed cracks.

F commenced arbitration proceedings against E for the supply of defective solar panels (arising from the use of the AAA backsheet). F succeeded against E, and E was found liable under the United Nations Convention on Contracts for the International Sale of Goods ("**CISG**").

E then applied to set aside the Tribunal's decision before the General Division of the Singapore High Court ("**SGHC**"), but its application was dismissed. For further information on the SGHC's decision, please see our Legal Update titled "[Defective Solar Panels: Singapore High Court Provides Guidance on How Unpleaded Claims and Abandoned Claims May Affect Pleadings](#)".

Why are AAA Modules Inherently Defective?

In its decision, the SGHC acknowledged the arbitral tribunal's finding that the AAA backsheet material was inherently defective because it was inherently susceptible to degradation and/or cracking, and thus posed a safety hazard and was not durable. This was despite E raising various defences in the arbitration, including that:

1. it was the installation condition, rather than the inherent defect of the AAA backsheet material, which gave rise to the issues; and
2. the cracks which appeared on the AAA backsheet would not give rise to a safety hazard because the live circuits within the solar panel would still be insulated by other materials and that the voltage flowing through the solar panels were low and nominal.

In another upcoming article, we will dwell deeper into some of these and other defences.

It was reported in the SGHC case that the Tribunal found these defences were not relevant to the question of E's liability to F for supplying inherently defective solar panels. The SGHC judgment also remarked that the arbitral tribunal had found, in particular, that the inherent defect of the AAA backsheet material was supported by "overwhelming scientific consensus".

Legal and Regulatory Framework Providing Protection for Buyers of AAA modules

In light of the inherently defective nature of the AAA backsheet material, purchasers of solar panels which use this backsheet material may choose to pursue action (whether in Court or through arbitration) against their seller.

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On a broader view, in the quest for low-cost solar panels, it is not unimaginable that other backsheet materials besides AAA and, for that matter, other components and materials in a solar panel, may also turn out to be defective or unsuitable. As defective materials can take considerable time to manifest themselves physically, it is incumbent on solar farm and solar panel owners to inspect solar panels regularly. As mentioned above, quite apart from affecting the durability of a solar panel, there can be potential issues of safety.

In this respect, the CISG lays down the standards relating to the quality, function, and packaging of goods. These standards apply automatically where the contract for the sale of goods is between parties whose places of business are in different states, where the states are both contracting states to the CISG.

The CISG requires, amongst other things, that the goods be fit for the purposes for which the goods of the same description would ordinarily be used. The SGHC acknowledged the arbitral tribunal's findings that E's supply of the inherently defective solar panels (using the AAA backsheet) was in breach of the provisions of the CISG.

We emphasise that each case is fact-specific and turns on the exact terms used in the sales contracts. That being said, the judgment by the SGHC and the underlying arbitral award empower buyers by reiterating their rights under the CISG. At the same time, manufacturers and sellers have been put on notice about their obligation to deliver non-defective solar panels.

Rajah & Tann Sustainability Practice

We are amongst the pioneers in Singapore when it comes to matters to do with environmental advisory, business conduct and other sustainability issues. We are proud to have been involved in many "first of its kind" transactions, ranging from green and sustainable financing, sustainable investment, renewable project and sustainable technology.

With our deep expertise and experience, we will help you unpack and reconcile the different global standards and regulations on ESG factors in your sustainability journey. Beyond regulatory compliance, we will bring in our expertise in tax, corporate and capital markets, funds, infrastructure, international arbitration, technology, to name a few – because we have seen how various issues pan out over the transactions we have worked on. We can help you address the commercial aspects and economic objectives of the transactions, and at the same time fulfil the legal and technical requirements set out in the various ESG principles and guidelines.

If you have any questions regarding sustainability, please feel free to contact our team below who will be happy to assist you.

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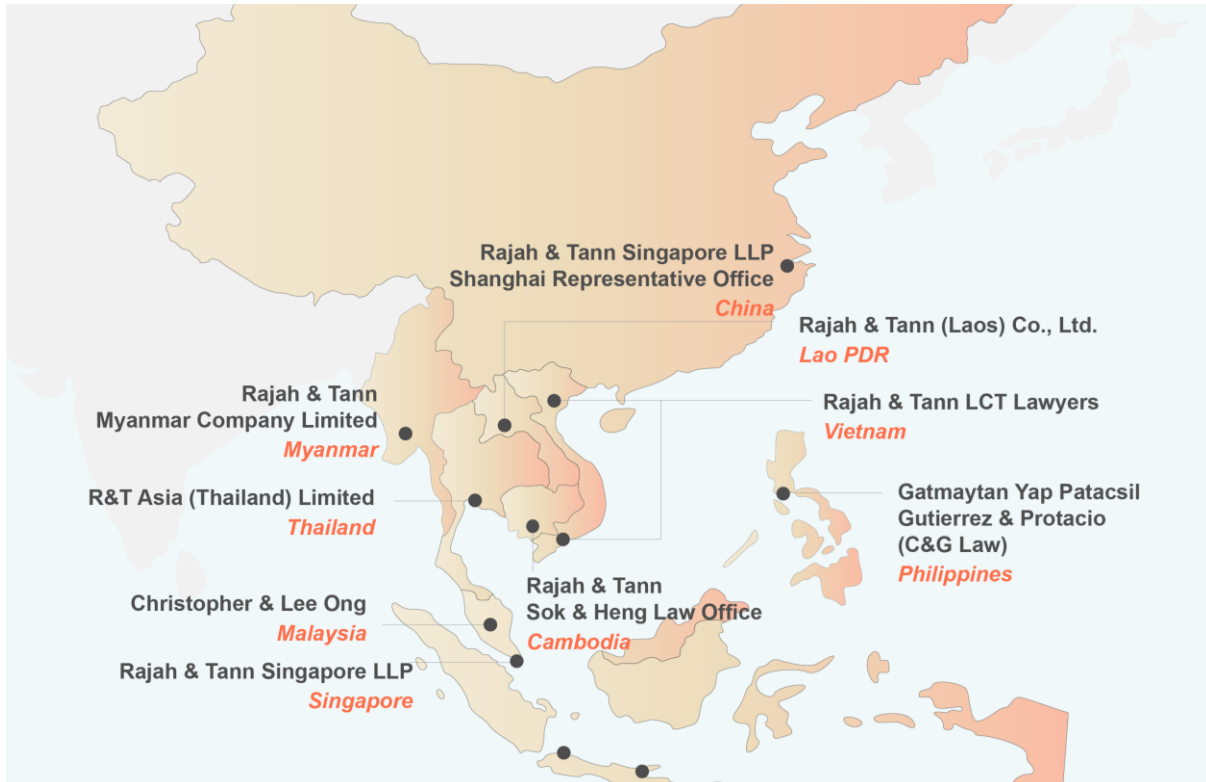
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