Abbott Risk Consulting Limited

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Safety Statement Solar Panels – Old Wood Energy Park, Wysall, Nottinghamshire

Issue 1 – March 2026

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Executive Summary

This Safety Statement is for the proposed Old Wood Energy Park, comprising a Solar Farm and Battery Energy Storage System (BESS) at Wysall, Nottinghamshire.

The aim of this Safety Statement is to address the safety concerns raised at the Inquiry 10 – 12 March 2026 relating to questions on:

1. Solar Panel Fire Safety.

2. Solar Panel use of Per- and Polyfluoroalkyl Substances (PFAS).

Abbreviations

ALARP	As Low As Reasonably Practicable
ARC	Abbott Risk Consulting Ltd
BESS	Battery Energy Storage System
FRS	Fire and Rescue Service
HSAWA	Health and Safety at Work Act
HSE	Health and Safety Executive
NFCC	National Fire Chiefs Council
SMS	Safety Management System
SoC	Statement of Case
UK	United Kingdom
UL	Underwriters Laboratories
UN	United Nations

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1.0 Introduction

1.1 Aim and Purpose

1.1.1 This Safety Statement is for the proposed Old Wood Energy Park Solar Farm and Battery Energy Storage System (BESS) Project at Wysall, Nottinghamshire. The aim is to address the safety concerns raised at the Inquiry relating to Solar Panel Fire Safety and Per- and Polyfluoroalkyl Substances (PFAS) in Solar Panels, specifically the potential for PFAS deposition to the ground and local environment.

1.2 Personal Introduction

1.2.1 My name is James David Tough. I have a Masters (MSc) Degree in Environmental Decision Making and a Bachelor of Science Honors (BSc Hons) reading Safety and Environmental Management.

1.2.2 I am a Chartered Scientist and a Chartered Environmentalist and hold the position of Principal Consultant with Abbott Risk Consulting (ARC) Ltd.

1.2.3 I have been instrumental in the development of BESS Safety Management Plans, Emergency Response Plans, and BESS Site Safety Audits. Additionally I have represented clients as the Safety Subject Matter Expertise at Planning Inquiries, Planning Appeals and Public Consultations for sites in England, Wales, and Scotland.

1.2.4 I have over 25 years' experience as a Safety and Environmental Management Consultant with 5 years' experience as an Accident Investigator. I have considerable experience with Lithium-Ion technologies spanning BESS, Rail, Vehicle, and Aircraft fitted systems and have designed and assessed safety systems for Lithium-Ion systems against a variety of industry-based standards.

2.0 Safety Concerns Raised

2.1.1 How Safe Are Solar Panels? **Appellant Response:** Solar Panels and their components, including the photovoltaic (PV) modules, are subject to fire resistance testing in accordance with the IEC/EN 61730 standard. Recent data acquired through a freedom of information (FOI) requests indicated that approx. 171 incidents occurred in 2024[1]

[1] 37 of the 49 FRS consulted responded, as such the incident rate can only be approximated.

[QBE flags rising fire risks from solar panels | Insurance Business refers, see also Appendix A], with the following distribution by type:

- Residential installations accounted for most fire incidents involving solar panels, with 97 recorded incidents.
- Commercial properties 27 recorded incidents.
- Ground-mounted installations recorded 17 incidents
- Industrial properties recorded 10 incidents.

From the data it is not possible to determine if all the ground mounted incidents related to 'commercial solar farms', but adopting a worst-case scenario this is assumed to the case. Recourse to the Department of Energy Security and Net Zero (DESNZ) Renewable Energy Planning Database (REPD) shows that there are over 7000 commercial solar farms in the UK, as of Dec 2025. Using this it is possible to extrapolate the level of residual risk as 0.0024 (or 2.4E-03) [this being 17 incident per annum/ 7000 sites] incidents per annum or 0.00000027 (or 2.7E-07) per hour. In layman's terms this equates to a worst case **1 fire every 416 years**.

2.1.2 What are PFAS? **Appellant Response:** PFAS are a class of chemical compounds. PFAS are used in several industries for their unique properties, notably their ability to create coatings that are highly water repellent. PFAS are extremely persistent within the environment, not breaking down over time. Certain PFAS compounds have been linked to human health issues–notably low infant birth weights, increased risk of certain cancers, and thyroid issues. As a result of their persistence and toxicity, those PFAS compounds that pose a significant risk have been banned from use and production and subsequently replaced with safer alternatives.

2.1.3 Do solar panels contribute to PFAS contamination? **Appellant Response:** PFAS are not customarily used in solar panels as safer and more effective alternatives have already been developed [Facts-about-solar-panels--PFAS-contamination-47485.pdf refers, see also Appendix B]. Moreover, no studies have shown the presence or leaching of PFAS from PV panels, whilst in active use or at the end of their life. Solar Panels comprise three main component parts:

Self-Cleaning Coat: A self-cleaning coating on the exterior of the solar panel helps reduce dust, pollen, and snow adhesion, extending both the power output and the lifetime of the panel. Multiple self-cleaning coating options are available on the market, most of which use of non-hazardous silicon-based chemistry. Confusion comes from the fact that some other commercialized self-cleaning coating options do make use of PFAS-based chemicals, however even those do not degrade under normal use.

Adhesives: Solar panels are sealed from the elements to maximize power output and lifetime. While PFAS chemicals can be found in certain adhesives, they are not typically used in sealant adhesives for solar panels. Instead, solar adhesives are based on

silicone polymers, which have no health impacts and are remarkable stable, presenting no environmental impacts.

Substrate: The Solar panel Photo-voltaic (PV) modules are housed in a weather-resistant substrate that offers additional protection from the elements. The thin-film PV units use glass as the substrate, while crystalline silicon PV units use a polymer substrate, which has led to concerns over the potential PFAS use in solar panels. The most common polymer used in silicon PV units is Tedlar, a weather resistant polymer that is not a PFAS compound and makes no use of PFAS in the manufacturing process.

3.0 Summary and Conclusions

3.1.1 Given the safety concerns raised and the responses provided, it is concluded that the relative residual risk posed by the Solar Panels, either through an incident involving fire or release of toxins, notably PFAS, to the environment is highly unlikely.

Appendix A – Solar Panel Fire Risk

Property · QBE flags rising fire risks from solar panels

QBE flags rising fire risks from solar panels

Fires involving solar panels have risen at twice the rate of new installations over the past two years

Property

By Josh Recamara

Nov 04, 2025 / Share

QBE has warned that solar panel-related fires are increasing at almost twice the rate of new installations across the UK, heightening loss exposure for property insurers and risk managers as renewable energy adoption accelerates.

According to QBE's Freedom of Information (FOI) analysis, fire services responded to 171 solar panel fires in 2024, up 60% since 2022. Over the same period, installations rose just under 30%. The insurer said the data points to the emerging issues of installation quality, maintenance and system reliability as key loss drivers.

"Solar technology is an essential part of the UK's clean energy transition, but the rapid pace of deployment is cause for concern for risk management," said Adrian Simmonds, practice leader for property risk solutions at QBE. "Our analysis shows fires involving solar panel fires have risen at twice the rate of new installations over the past two years. Safe solar panel installation and maintenance are essential to reducing fires."

Property and underwriting implications

Most fires in 2024 occurred in residential properties (97 cases), followed by commercial buildings (27), highlighting that domestic adoption - often with limited inspection regimes - represents a growing exposure for home and SME underwriters.

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QBE's findings showed the majority of incidents began in the inverter or panel itself, components known for high heat output and sensitivity to poor installation. For insurers, these failures present both direct property damage and potential liability risks, particularly where uncertified contractors are used.

As solar panels become standard features on commercial and industrial buildings, QBE warns of complex claim scenarios involving business interruption, subrogation, and warranty disputes. Larger systems with integrated battery storage add further risk, with batteries already linked to more than 1,300 fire incidents nationally in 2024, the company said.

Strengthening risk controls

Meanwhile, QBE advised underwriters and brokers to review policy wordings and risk surveys for properties with renewable systems, ensuring that installation certification, inspection schedules, and fire safety provisions are in place.

For property owners, the insurer recommended annual maintenance checks, the use of MCS-accredited installers, and ensuring accessible fire isolation switches. Post-storm inspections are also essential, as damaged panels and exposed wiring can increase fire potential.

Appendix B – Solar Panels and PFAS

"Clean Energy in Michigan" Series, Number 12

Facts about solar panels: PFAS contamination

By Dr. Annick Anctil, Michigan State University

Q: Do solar panels contribute to PFAS contamination?

Multiple states have raised concerns about PFAS contamination from solar farms, largely citing academic research on how PFAS could *potentially* be used in photovoltaic (PV) solar panels.[1] The fact is that PFAS is *not* customarily used in solar panels because safer, effective alternatives have already been developed and commercialized. Moreover, no studies have shown the presence or leaching of PFAS from PV panels—either while they are in active use or at the end of their life (e.g., in a landfill).

Anatomy of a solar panel

These three parts of a solar panel cause confusion about the presence of PFAS.

Self-Cleaning Coat

A self-cleaning coating on the top of a solar panel helps reduce dust, pollen, and snow adhesion, extending both the power output and the lifetime of the panel.[2] Multiple self-cleaning coating options are available on the market, many of which make use of non-hazardous silicon-based chemistry.[3] Confusion comes from the fact that some other commercialized self-cleaning coating options do make use of PFAS-based chemicals, although even those do not degrade under normal use.

Adhesives

PV panels are sealed from the elements to maximize power output and lifetime. While PFAS chemicals are found in certain adhesives, such as carpentry glues, they are not typically used in sealant adhesives for solar panels.[4] Instead, solar adhesives are based on silicone polymers, which are well known for their lack of negative health impacts and remarkable stability.[5]

Substrate

PV modules are housed in a weather-resistant substrate that offers additional protection from the elements. Thin-film PV units use glass as the substrate, while crystalline silicon PV units use a polymer substrate, which has led to the rumors of

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The Clean Energy in Michigan series provides case studies and fact sheets answering common questions about clean energy projects in Michigan.

Find this document and more about the project online at graham.umich.edu/climate-energy/energy-futures.

potential PFAS use in solar panels. The most common polymer used in silicon PV units is Tedlar, a weather resistant polymer that is *not* a PFAS compound itself and makes no use of PFAS during its manufacturing process.[6] Far more common materials, like those used in construction projects and weather resistant fabrics, present a higher risk of PFAS exposure than PV. In fact, a recent study found that these more common materials release PFAS under conditions where solar panels do not, indicating that PFAS exposure risk may be higher sitting on outdoor furniture, for example, than living next to a solar farm.[7]

What is PFAS anyway?

Per/Poly Fluoro-Alkyl Substances, PFAS for short, are a class of chemical compounds. PFAS are used in several industries for their unique properties, notably their ability to create coatings that are highly water repellent.

PFAS are extremely persistent within the environment, not breaking down over time. Certain PFAS compounds have been linked to human health issues–notably low infant birth weights, increased risk of certain cancers, and thyroid issues. As a result of their persistence and toxicity, those PFAS compounds that pose a significant risk have been banned from use and production, and subsequently replaced with safer alternatives.

It's important to note that not all PFAS compounds are dangerous. Some PFAS compounds, such as Teflon, are much more stable and present no risk to human health under normal conditions of use.[8]

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