

Addressing Modern Slavery and Labour Exploitation in Solar PV Supply Chains

Procurement Guidance



About the authors



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Helen leads the Modern Slavery and Human Rights support services within Action Sustainability and is the organisation's centre of knowledge in combatting modern slavery. In 2018 she was named a Top 100 influencer in this space, and more recently, she was part of the technical authoring committee and panel for the new British Standard BS25700 - Organisational Responses to Modern Slavery. She now leads the UK drafting committee responsible for turning it into an ISO standard.



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Purpose of this guide

This guidance highlights the modern slavery and labour exploitation risks and impacts in the solar photovoltaic (PV) supply chain, then outlines critical steps to address these issues throughout the commercial life cycle. It offers insights into effective solar PV procurement due diligence, with practical tips and guidance for implementation.

This guide focuses on solar PV; however, the content is transferable and could be used to support responsible sourcing strategies for other renewable energy technology.

Readers of this guide should be aware of the following:



- ➔ This guide **provides best practice** procurement advice that goes beyond minimum compliance with the UK Modern Slavery Act 2015.
- ➔ **You cannot claim assurance of zero forced labour** or modern slavery in your supply chains simply because you follow the guidance. However, if you follow the guidance, you can say you're aligned with procurement best practices for solar PV.
- ➔ You **can't address modern slavery** and labour exploitation in the solar PV supply chain **through a simple tick box**, compliance-based approach. A strategic approach is essential.
- ➔ This **guidance aligns** with [ISO 20400:2017 Sustainable Procurement - Guidance](#), [BS 25700: Organizational Responses to Modern Slavery - Guidance](#), [OECD Due Diligence Guidelines for Responsible Business Conduct](#), and the United Nations Guiding Principles on Business and Human Rights ([UNGPs](#)).
- ➔ This guidance signposts other collaborative initiatives, such as the Solar Stewardship Initiative ([SSI](#)), the [Responsible Minerals Initiative](#) and the Solar Energy Industries Association ([SEIA](#)).

This guidance is designed to **support** you in your due diligence - it won't give you all the definitive answers you seek. Your approach must be integrated into a broader due diligence and sustainable procurement governance framework.

This guide is for organisations of all sizes, in any country, across both the public and private sector, targeting:

- Anyone involved in the procurement of solar PV - from solar farms to small solar PV installers, or products which contain solar PV, such as lighting rigs or welfare cabins.
- Anyone who influences any element of the procurement cycle of solar PV - from designers and specifiers to contract managers and supplier relationship managers.

We recommend you read the entire guide to understand the challenges, drivers, and current landscape - this will help inform a more strategic approach.



About this guide



Purpose of this guide

Addressing modern slavery and labour exploitation - At a glance



Guide Section



Guidance Themes



Call to Action



Potential Stakeholders

Why does my organisation need to address this issue?

Introduction to key drivers including legal compliance, reputational risk, client requirements, ESG & investor confidence and supply chain resilience.

Identify, understand and communicate why addressing modern slavery and labour exploitation in solar PV is essential for your business.

The board, C-suite, CSO, executive team, ESG steering committee, business and human rights functions, senior leadership, commercial/procurement professionals, category managers, budget holders, senior decision-makers.

How does modern slavery and forced labour fit into sustainability?

Sustainability impacts through the lifecycle of solar PV. Considering design, manufacturing including materials sourcing, installation, maintenance and end of life. An introduction to modern slavery and forced labour.

Ensure that key stakeholders involved in the procurement of solar PV understand the wider social, economic, and environmental impacts of solar PV. This will inform a more balanced and effective procurement strategy.

Category managers, procurement/commercial professionals.

What does the solar PV market look like?

Size of the market, composite materials and manufacturing process of solar PV, global manufacturing capacity.

Monitor the market and growing global capability of solar PV manufacturing. Use this market knowledge to inform the development of long term sourcing strategies and strategic relationships with manufacturers who are willing to provide supply chain transparency.

Category managers, procurement/commercial professionals.

What should I consider when procuring solar PV?

Traditional business need requirements, environmental impacts, innovation and alternative technologies and supply chain transparency to support risk assessments.

Consider demand management initiatives, embodied carbon and the opportunity for circularity when understanding the need for solar PV.

Specifiers, senior leadership, energy stakeholders, carbon stakeholders, category managers, procurement/commercial teams, sustainability/human rights teams.

Where is the risk of modern slavery and labour exploitation in solar PV?

Using the double materiality approach, understanding the nature of risk through the value chain.

Evaluate risk in relation to individuals within the supply chain as well as risk to your organisation.

Risk teams, head of procurement/commercial, category managers, sustainability/human rights teams.

How important is leverage in addressing risks of modern slavery and labour exploitation?

What should you consider when evaluating your leverage, how can you increase your leverage, the role of collaboration as a mechanism to increase leverage.

Understand the leverage you have to address modern slavery and labour exploitation. Where you have insufficient leverage to affect change, consider how you can increase your leverage.

Category managers, procurement/commercial teams, contract managers, sustainability/human rights teams.



Purpose of this guide

Addressing modern slavery and labour exploitation - At a glance



Guide Section



Guidance Themes



Call to Action



Potential Stakeholders

What should go into my procurement / category strategies?

Developing your procurement / category strategies to address modern slavery and labour exploitation. Focusing on the whole procurement cycle of plan, source and manage.

Ensure your strategies consider the whole procurement cycle - Plan, Source and Manage. Don't focus solely on sourcing requirements.

Specifiers, senior leadership, energy stakeholders, carbon stakeholders, category managers, procurement/commercial teams, sustainability/human rights teams.

What should I include in my suppliers qualification process (SQ)?

Using the SQ process to understand supply chain policy, compliance, transparency, auditing and certification, recruitment and employment practices, training and capacity building and supplier monitoring.

Utilise evidence - based questions in the supplier qualification process - this will enable you to understand the supplier's awareness of the risk of modern slavery, and what actions they are taking to mitigate these risks.

Specifiers, senior leadership, energy stakeholders, carbon stakeholders, category managers, procurement/commercial teams, sustainability/human rights teams.

What should I include in my tendering process?

Using the tendering process to set expectations relating to transparency, minimum standards, audits, processes and selecting suitable contract clauses.

Develop tender questions and select contract clauses that support due diligence activity through the duration of the contract.

Specifiers, senior leadership, energy stakeholders, carbon stakeholders, category managers, procurement/commercial teams, sustainability/human rights teams.

Are there any standards i can use in my sourcing requirements that address modern slavery and labour exploitation?

Standards that cover modern slavery management system requirements, ethical employment conditions and embodied carbon evidence.

Select standards that support due diligence in modern slavery and labour exploitation. Don't just rely on the certificate as evidence, request other evidence as certificates can easily be falsified.

Specifiers, category managers, procurement/commercial teams, contract managers.

What role does contract management play in the due diligence process?

Tips for contract management.

Embed discussions on modern slavery and labour exploitation due diligence into the standard contract management agenda for solar PV.

Category managers, procurement/commercial teams, contract managers, sustainability/human rights teams.

Should I undertake supply chain mapping and auditing?

The role of supply chain mapping, data to collect, sources of supply chain data, the role of social audits, how to select a suitable auditor.

The use of supply chain mapping, research, auditing, technology, and standards should be utilised within the due diligence process to increase transparency, verify information, and drive continuous improvement to address modern slavery and labour exploitation.

Category managers, procurement/commercial teams, contract managers, sustainability/human rights teams, compliance/assurance teams.



Purpose of this guide

Addressing modern slavery and labour exploitation - At a glance



Guide Section

What does due diligence look like?

Should my organisation have a policy that addresses this issue?

What additional support is out there to help with identifying transparent supply chains?

What happens if i cannot gain insight into how the supply chain is managing the risk?



Guidance Themes

Outline of a due diligence process which covers policy, risk assessment, developing strategies and monitoring and managing the outcomes.

Information that should be included in a good policy and an overview of remediation and what activities can be included as part of remediation policies.

The role of technology platforms and third party assessment organisations.

Decision tree that runs through the process providing an overview of the due diligence process and what you should do as you gain further information.



Call to Action

Develop a due diligence process for modern slavery and labour exploitation and embed this within your management systems and procurement processes.

Your policy should clarify your approach to identifying, preventing, mitigating, and remediating modern slavery and labour exploitation in your extended supply chains.

Invest and commit resource to maximise the potential for success in applying due diligence activities through your procurement process.

You need a time bound plan to identify and move to alternate sources / suppliers and who can provide robust data and assurance IF :

- **Supplier refuses to provide information on the source of polysilicon, or other key components in the solar PV supply chain**
- **Supplier is not able to provide data on social audits conducted and resulting findings, and no commitment to do this in the future.**



Potential Stakeholders

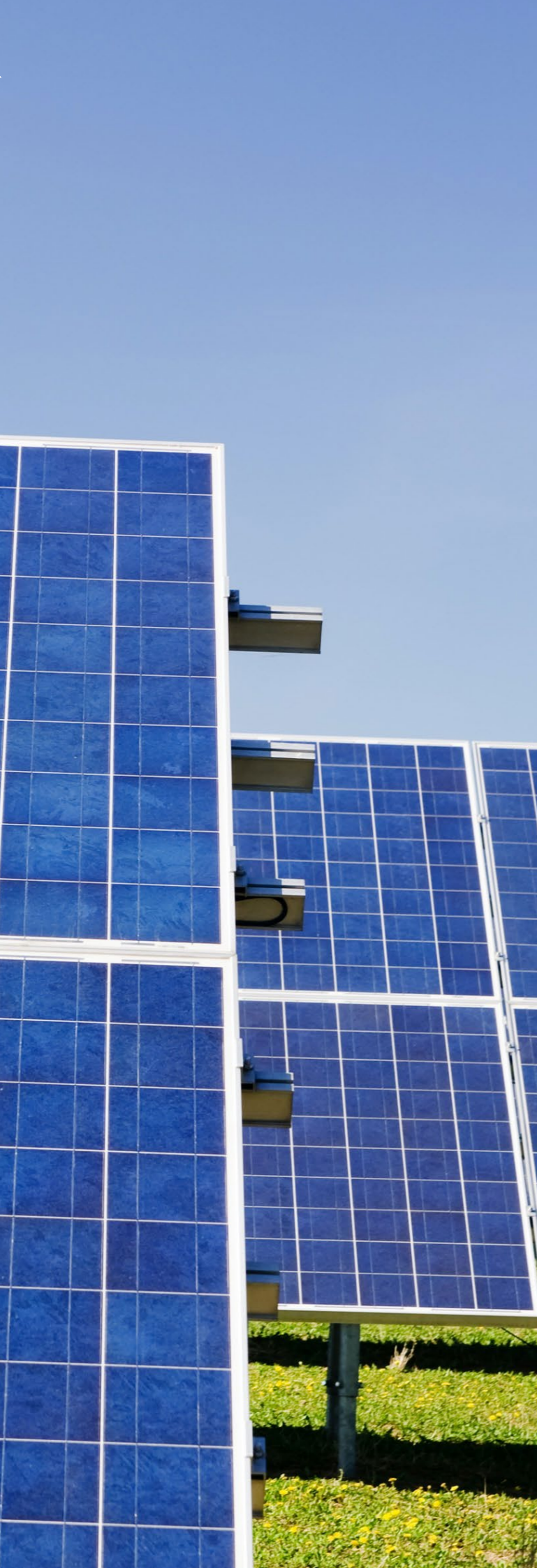
Risk teams, head of procurement/commercial, category managers, sustainability/human rights teams.

Senior leadership, sustainability/human rights teams, heads of procurement/commercial.

Category managers, procurement/commercial teams, contract managers.

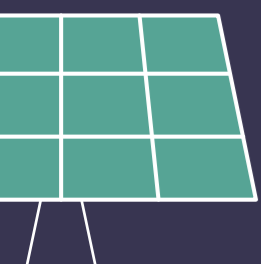
Senior leadership, sustainability/human rights teams, heads of procurement/commercial.





Part One
Solar PV





Solar at a Glance



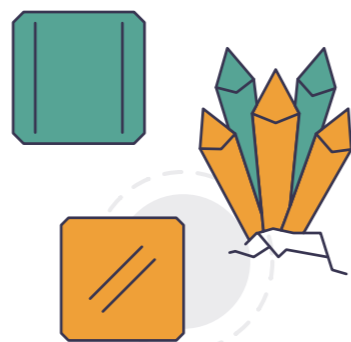
Solar PV

Predicted to be the main electricity source in Europe by **2050**



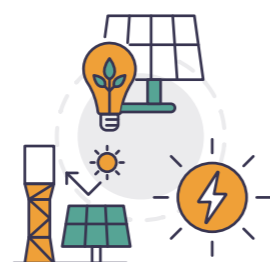
Solar PV – Manufacturing Components

Polysilicon, wafer, cells, and modules.



Solar PV – Key Materials

Silicon, Quartz, Glass, **Aluminium,** Copper, Lead, Silver, Tin, and Zinc



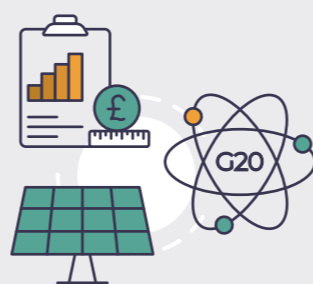
Solar PV Uses

Lighting, Signalling (traffic, rail etc), **Welfare cabins,** Solar windows, Ventilation and cooling systems, HVAC, Wastewater treatment plants, EV charging stations, Water purification, Boats and ships, **Off grid power,** Greenhouses, Solar-powered remote monitoring stations for weather, Environmental and scientific applications.



Global Solar PV Manufacturing Capability

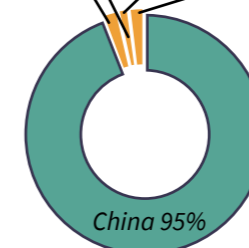
China, India, Taiwan, South Korea, USA, Germany, Malaysia & Vietnam.



Value of G20 Solar PV Imports at Risk of Modern Slavery

\$14.8 billion in 2022

Malaysia 1%
Germany 2%
Qatar <1%
US 2%



Polysilicon

95% of solar PV modules rely on polysilicon.

Polysilicon Sources

Graph reference: Rystad



China's Dominance

Has the largest market share in every stage of solar panel manufacturing, exceeding **80%** in 2022.



Global Polysilicon Supply

Polysilicon manufacturers in XUAR account for approximately **35%** of the world's solar grade polysilicon supply (down from 45%)



Embodied Carbon

Every polysilicon plant in XUAR is **100%** powered by coal.



Part One : Solar PV

Background

With global temperatures increasing and the effects of climate change becoming apparent in all corners of the world, the transition to a low-carbon economy is more urgent than ever.

Solar PV technology is vital in enabling this transition: it captures solar energy efficiently, producing low-carbon electricity and significantly reducing greenhouse gas emissions and dependence on fossil fuels.



Global investment in renewable energy has increased significantly since 2018⁽ⁱ⁾ and the International Energy Agency projects a 450% growth in demand for solar energy by 2030.⁽ⁱⁱ⁾

This shift to renewable energy is urgent, but all actors involved in this transition must address the negative impact of human rights violations linked to the sector.

Evidence and allegations from sources such as Sheffield Hallam University's *'In Broad Daylight: Uyghur Forced Labour and Global Supply Chains'*⁽ⁱⁱⁱ⁾ have exposed how the solar PV industry is vulnerable to forced labour - a form of modern slavery. This is reflected in the *Global Slavery Index 2023*^(iv) which states that US\$14.8 billion of solar PV imported by the G20 are at risk of containing materials, including polysilicon, produced using modern slavery. This inherent risk in the solar PV industry is also reflected in actions taken by the US Customs and Border Protection in their *Uyghur Forced Labour Prevention Act*.

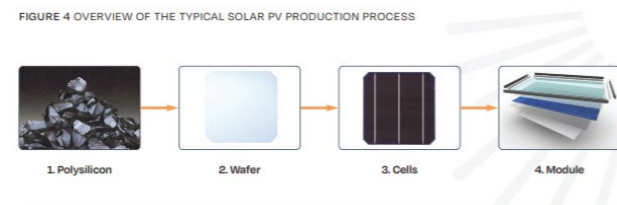
Current state of solar

Solar PV is one of the fastest growing renewable technologies and is *expected to be the main electricity source in Europe by 2050*^(v). Investments in solar PV are set to exceed that of oil production for the first time ever, with *more than \$1.7trn set to be funnelled into clean energy solutions in 2023*^(vi).

Solar PV supply chains.

Solar PV consist of small photovoltaic cells that contain a semiconducting material, usually silicon. Polysilicon, a high-purity form of silicon, is a crucial material in the solar PV supply chain.

Polysilicon is melted to produce ingots in a highly energy-intensive process. The ingots are then sliced into wafers, converted into solar cells and put together into solar panels or modules.



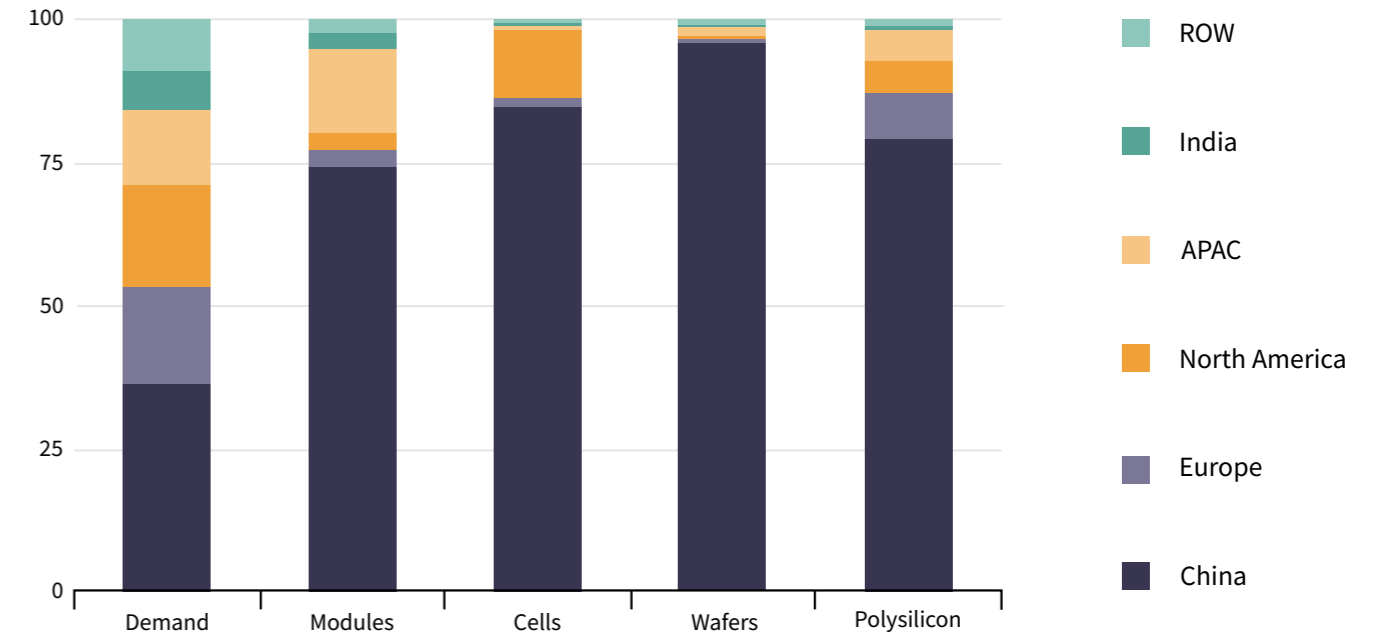
Currently, 95% of solar PV modules rely on polysilicon^(vii) due to its abundance, stability and excellent semiconductor properties.

Part One : Solar PV

Solar PV manufacturing capability

China has developed its solar PV manufacturing capacity over the last decade and has the largest market share in every stage of solar panel manufacturing, *exceeding 80% in 2022*^(viii).

Solar PV manufacturing capacity by country and region, 2021



Polysilicon manufacturers in the Xinjiang Uyghur Autonomous Region (XUAR) of China, *account for approximately 35% of the world's solar-grade polysilicon supply (down from 45%). Every polysilicon plant in this region is 100% powered by coal*^(ix), resulting in polysilicon with high embodied carbon. China's share of global polysilicon, ingot and wafer production is projected to *reach nearly 95% by 2025*^(x). In 2022, other regions of China, outside of the XUAR, represented an additional *54% of the polysilicon market share*.

Other countries

China dominates the solar PV manufacturing and raw material market; however, other countries are slowly building their own manufacturing capabilities. The following provides an overview of data published by *Grandview research in 2023*^(xi) related to predicted manufacturing capacity market share growth through 2029. Note that the expected growth outside China is based on a very low market share baseline.



Part One : Solar PV

Country	Contributory Factors
India	Major growth market, driven by government incentives and the country's strong commitment to renewable energy. The report predicts that India will have the highest compound annual growth rate.
North America	Continued growth, driven by increasing demand for renewable energy and government incentives.
Japan	Will continue to be a major player, driven by high levels of investment in renewable energy and government policies promoting renewable energy.
Europe	Modest growth, driven by government incentives and increasing demand for renewable energy

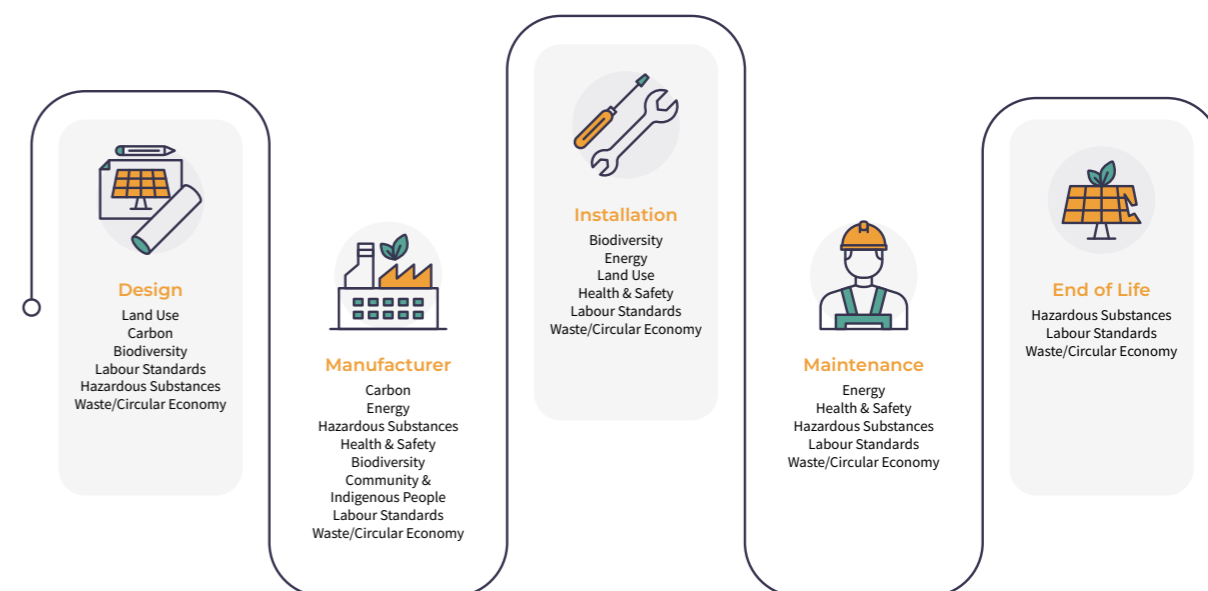
Other countries with emerging manufacturing capability include Malaysia, Vietnam, and South Korea.

Call to action

Monitor the market and the growing global capacity for solar PV manufacturing. Use this market knowledge to inform the development of long-term sourcing strategies and strategic relationships with manufacturers willing to provide supply chain transparency.

Part One : Solar PV

The figure below provides an overview of these key sustainability considerations throughout the lifecycle of solar PV.



Call to action

Ensure that key stakeholders involved in the procurement of solar PV materials understand the broader social, economic and environmental impacts of solar PV. This will inform a more balanced and effective procurement strategy.

Sustainability impacts in the solar supply chain

The sustainability impacts of solar PV and other renewable energy technology supply chains are complex and varied.

Modern slavery and labour exploitation are the key focus areas of this guide. However, other issues must be considered when developing and implementing a sustainable procurement strategy for solar PV. These considerations include but are not limited to biodiversity, land rights, embodied carbon, pollution and the circular economy – from raw material extraction to end-of-life product stewardship.

Sustainable Procurement

“Procurement that has the most positive environmental, social and economic impacts possible over the entire life cycle.”

[ISO 20400:2017](#)



A just transition

As more and more countries and organisations commit to Net Zero, the demand for renewable and low-carbon energy grows. At the same time, there's a growing awareness of and concern for [the negative impact of decarbonisation on workers and communities worldwide.](#)^(xii)

These negative impacts include modern slavery and labour exploitation in the extraction, processing (including manufacturing) and disposal of minerals and metals, including cobalt, polysilicon, lithium, aluminium, and steel - essential components in many renewable technologies, including electric vehicles, wind turbines, solar PV, hydrogen fuel cells and batteries. Modern slavery and labour exploitation risks are also high in the waste management/recycling sector - a key consideration when considering end-of-life management.



Part One : Solar PV



Renewable energy is key for the transition to a low carbon economy, but companies' human rights policies are not yet strong enough to ensure this transition is fast and fair

[Solar Sustainability Best Practices Benchmark, Solar Power Europe](#)

A [just transition](#)^(xiii) refers to the process of moving towards a low-carbon economy in a way that promotes social justice, fairness and equity for workers and communities that may be adversely affected by the transition, both up and down the value chain.

The goal is to leave no one behind - whether regarding workers' rights in the supply chain or creating employment opportunities for those currently working in the fossil fuel sector, whose jobs may be at risk.

Modern slavery and labour exploitation in the solar PV supply chain

The solar PV industry has been identified as particularly vulnerable to forced [labour](#)^(xiv) - a form of modern slavery.

Forced labour is defined by the International Labour Organisation (ILO) as, 'all work or service which is exacted from a person under the menace of any penalty and for which the said person has not offered himself voluntarily'. It involves situations where individuals are coerced or compelled to work against their will using threats, violence or other forms of coercion. ILO provides 11 indicators of forced labour, but the presence of just one indicator in a given situation may imply the existence of forced labour.



One of the key materials in the solar PV supply chain associated with forced labour is polysilicon, a component typically derived from quartz on which [95% of solar modules worldwide rely](#)^(xv)

[Evidence](#)^(xvi) has been published indicating there may be state enforced for labour in XUAR in the entire solar PV supply chain, and therefore deep rooted in international markets. The allegations of systematic abuse against the Uyghur & Kazakh citizens in the XUAR were [acknowledged by the UN in 2022](#)^(xvii), declaring some actions may constitute international crimes and in particular crimes against humanity.

Part One : Solar PV

The issue of forced labour and labour exploitation in the solar PV supply chain isn't unique to polysilicon or the manufacturing facilities in the XUAR. It's a widespread problem in regions around the world where solar PV raw materials and components are extracted, processed or manufactured - especially in countries with poor labour standards or where the exploitation of workers is common.



Allegations of human rights abuses and labour exploitation are widespread in international mineral supply chains. ['The mining of copper, nickel, and zinc used in solar PV is in some cases associated with decreased access to water for local communities, increased instances of mining related illnesses and environmental pollution. Energy storage technologies frequently built in tandem with solar projects are also at risk of contributing to child labour, abuses of indigenous rights, and corruption through their cobalt and lithium supply chains.'](#)^(xviii)

Industry collaboration



The challenge of forced labour is too big, and its myriad of root causes too complex, for national government or other stakeholders to address on their own

[ILO - Forced Labour Report](#)

The challenge of modern slavery and labour exploitation in the solar PV industry is too big and complex for organisations to tackle alone. Instead, a collaborative approach is required. We must harness our combined procurement leverage and collaborate with other networks and initiatives to drive real change. At the time of writing, key industry collaborations established to help develop more responsible solar PV supply chains include

- [Solar Stewardship Initiative \(SSI\)](#) - A solar-specific sustainability programme designed to develop supply chain transparency and strengthen confidence in how, where and by whom products and solar components are manufactured. It aims to establish and provide access to verifiable information on both current value chain transparency and overall ESG performance in the solar value chain.

A roadmap sets out the initiative's next steps, with the full roll-out of the SSI verification scheme in December 2023. Work on a product traceability standard will start in January 2024.

SSI is supported by 30+ sponsors and 60+ leading organisations along the whole solar value chain, including major EU and global players from the PV manufacturing side (polysilicon, ingot/wafer, cell, module, and inverter production), project developers and utilities. These organisations include five of the top ten PV module suppliers globally and the leading solar project developers across Europe, including the UK.



Part One : Solar PV

The SSI approach is supported by leading international financial institutions, who will contribute to its development.

The SSI will progressively become a multi-stakeholder initiative with civil society and non-industry stakeholders participating in its governance.

- **Solar Energy Industry Association (SEIA)** - SEIA launched the [Solar Supply Chain Traceability Protocol](#), designed to enable procurers to trace the provenance of products and components through the value chain. The protocol - developed by the solar industry - can be used by any organisation looking to understand the level of transparency related to the due diligence requirements in their solar PV supply chains.
- **Ultra Low-Carbon Solar Alliance** - The alliance comprises companies across the solar PV value chain and other stakeholders committed to expanding market awareness and deploying ultra-low carbon PV to accelerate reductions in solar supply chain GHG emissions.

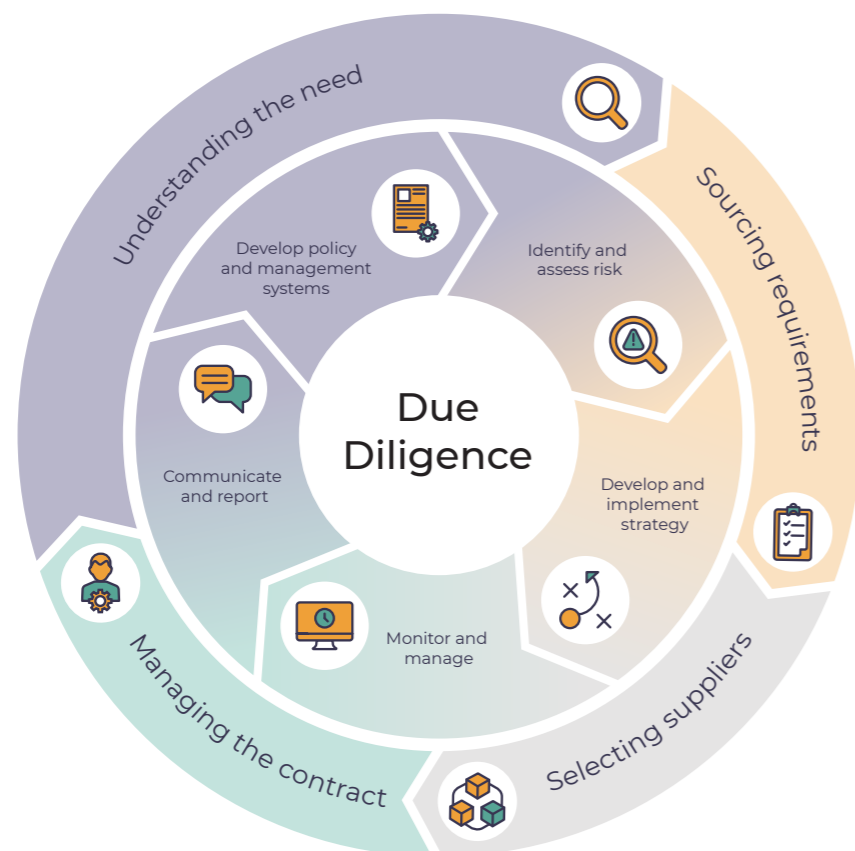


Part Two Procurement Guidance

Part Two : Procurement Guidance

Procurement guidance

The following diagram illustrates where the stages of due diligence align with the procurement process.



Due diligence activities should be integrated into all stages of the procurement process. Enabling activities, explained in part three of this guide, should underpin your due diligence framework.

Don't underestimate the time and resources required to understand the need for solar PV and to identify and assess risks and potential impacts. This work will influence your entire procurement approach (from sourcing to contract management).



Understanding the need

At the beginning of any procurement process, understanding business needs is essential. Traditional business considerations include quality, performance, local regulations, warranties, financial viability, demand management and life cycle costing. However, when evaluating the need for solar PV, additional consideration must be given to the following aspects:

- Environmental impacts - These should include impacts throughout the lifecycle, including those associated with carbon emissions, resource use and waste generation. To support a circular economy approach, you can look for low-carbon production methods and recycled and recyclable components.

Part Two : Procurement Guidance

- Innovation - Consider alternative solar technologies that don't rely on polysilicon or other high-risk components. Technology is evolving with the development of thin film and perovskite alternatives; however, these technologies are still in the early stages of development and are not yet commercially viable compared to existing solar PV technology.

Don't assume that alternatives to polysilicon will have zero risk of modern slavery or labour exploitation. You still need to do your due diligence. Don't forget to consider wider environmental risks as well.



- Lifecycle impacts - Consider lease versus purchase, maintenance / repair versus replacement, or simply buying less in the first place?
- Modern slavery and labour exploitation risk and transparency - Consider the need and ability to achieve transparency as far down the relevant tiers of the supply chain as possible. This allows you to evaluate the level of modern slavery and labour exploitation risk and design appropriate due diligence strategies, including collaboration, sourcing requirements and supply chain monitoring.

In understanding your needs, you must also consider the market's maturity, your policy requirements related to modern slavery and labour exploitation, the risks associated with solar PV and the leverage you have, to address these risks. These considerations help inform your procurement strategies.

Call to action

Consider demand management initiatives, embodied carbon and the opportunity for circularity when understanding the need for solar PV.

Recognising the risks of modern slavery and labour exploitation

Recognising and identifying where the risks of modern slavery and labour exploitation lie in your supply chain is a crucial building block for effective due diligence - it will inform all subsequent activities. You must also recognise that risk identification and assessment is not a one-off, singular activity - risks will change and evolve over time.

Risk should be considered from the two key perspectives below:

Modern slavery and labour exploitation risks for people in your extended supply chain - As a starting point, recognise that modern slavery and labour exploitation are likely to exist in your extended PV supply chain and that some element of due diligence and/or remediation will be required.



Part Two : Procurement Guidance

Organisational risk - This can take the form of legislative, supply security or reputational risk. Based on academic [research](#),^(xix) solar PV companies have been named, allegedly at risk of using forced labour in XUAR. Such exposure creates immediate reputational damage. This reputational risk flows up the value chain as clients are linked to forced labour in their extended supply chains.

How to identify and manage risk

The potential for risk of modern slavery and labour exploitation should be highlighted at the beginning of the procurement process when deciding to invest in solar. Next, you need to refine the risk, identify its location in the supply chain, and consider how to mitigate it. Remember, it's essential to expand your risk assessment to encompass lower levels of the supply chain than you might traditionally focus on.



When undertaking any due diligence activity relating to modern slavery and labour exploitation, several risk factors should be considered. [BS 25700 - Organisational Responses to Modern Slavery](#)^(xx) identifies these factors as:

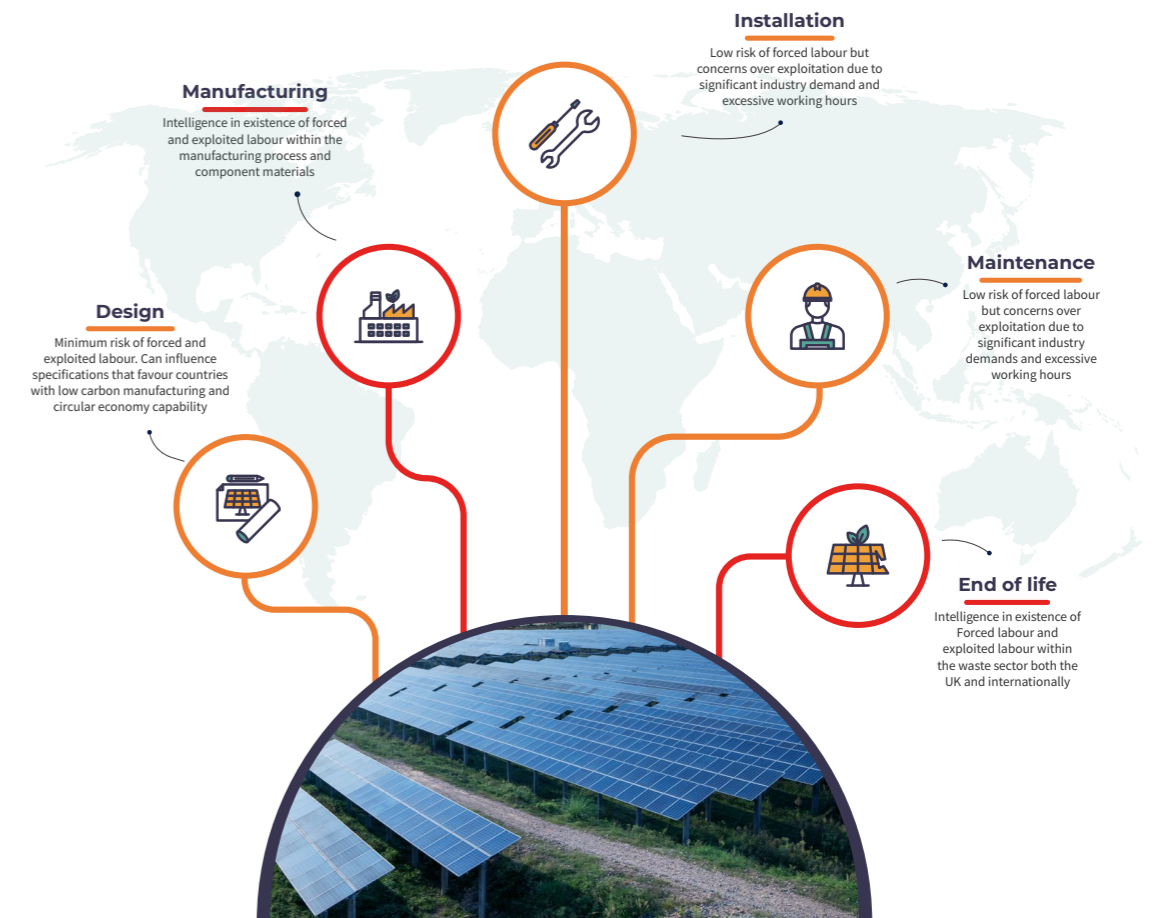
- 1) **Geographical risks**, such as country context and compliance with local, regional, or international labour standards; a high prevalence of modern slavery and/or labour rights violations; the strength of government legislation to combat modern slavery; conflict zones and social acceptance of exploitation. Helpful resources include:
 - Global Slavery Index - <https://www.walkfree.org/global-slavery-index/>
 - 'List of Goods Produced by Child Labor or Forced Labor' - <https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods>
 - International Labour Organization Forced Labour Observatory - <https://www.ilo.org/flodashboard/>
- 2) **Workplace risks**, such as worker demographics and health and safety violations.
- 3) **Bribery and corruption**, considering local laws, culture and common practice concerning the use of bribes within local business. A good source of information is [CPI 2020: Trouble in the top 25 countries - News - Transparency.org](#).
- 4) **Sector risks** - For example, is this sector known to be at high risk for labour exploitation or modern slavery? See resources under geographical risk.
- 5) **Labour supply chains**, such as the use of transient and temporary labour, subcontractors and labour supply chains, or an abundance of low-paid or low-skilled work.

Part Two : Procurement Guidance

In assessing the risk of modern slavery and labour exploitation in the supply chain, a risk profile must be developed based on inherent risk (the level of risk before putting any mitigations in place) before evaluating your procurement leverage and opportunity to do more with the supply chain to mitigate this risk.

Risks in solar PV supply chains

When procuring your solar PV, consider risks across the whole life cycle from design to end of life. This is particularly important when developing your procurement approach. The figure below demonstrates where the risks and impacts lie.



GREEN	Low risk of modern slavery and labour exploitation within the supply chain.
AMBER	Some risks that need investigation but could be mitigated through contract requirements and contract management processes.
RED	An inherent risk with no existing processes in place to address the issue. Can cause significant harm to individuals in the supply chain and severe reputational and litigious risk to your organisation.



Part Two : Procurement Guidance

Design

Risks at the design stage are low. However, the potential to influence sourcing, operational, maintenance and end-of-life solutions at the design stage is significant. By specifying products with low embodied carbon - or ones that incorporate the principles of a circular economy - designers can help reduce the risk of modern slavery and labour exploitation. Remember - manufacturing in countries categorised as high-risk for modern slavery is often heavily reliant on coal as sources of energy.

Manufacturing

The inherent risk is high in the extraction and processing of raw materials, the manufacture of the components and the assembly of PV in the supply chain. The inherent risk to your reputation is also high.

Installation & maintenance

Installation and maintenance require skilled workers who've been trained and accredited. The main risk here involves labour exploitation. With a significant increase in demand and a shortage of qualified installers, individuals can fall victim to excessive working hours and poor working conditions. When drafting your contracts for the supply and installation of solar PVs, as a bare minimum, you should include the requirement to comply with labour laws. Consider including contract clauses relating to labour standards and ensure there is a process of verification.

End of life/circular economy

The waste sector is considered high risk. The UK has seen cases of modern slavery in the waste sector, and reports of exploitation and human rights breaches have emerged from India and Africa, where technology often finds itself at the end of its life.



Call to action

Evaluate risk to individuals within the supply chain as well as risk to your organisation.

Using leverage to mitigate risk.

Once you've identified the inherent risks, you need to consider what leverage you have or could develop to mitigate those risks through the procurement process.

Leverage is about using your influence, negotiation power and resources to achieve a specific outcome.



Part Two : Procurement Guidance

Traditionally, leverage in procurement is determined using financial indicators (mainly contract value). These parameters should be expanded to include broader issues, including:

- 1) **Length of relationship** - Are you buying solar PVs as one-off purchases or part of a programme of work that includes longer-term relationships with suppliers?
- 2) **Place in the supply chain** - Are you the ultimate client who will be utilising the solar PVs? Are you a broker, installer, designer, or manufacturer?
- 3) **Reputation/trust** - Is your organisation strategically important to your supply chain? Do the supply chain members like working with you, and are the relationships mutually beneficial?
- 4) **Innovation** - Do you have funds or ambitions to support innovation and continuous improvement in the supply chain?
- 5) **Market maturity** - Is the market fragmented and immature in understanding and responding to the issues of modern slavery and labour exploitation?
- 6) **Collaboration** - Are you part of a collaborative initiative or group tackling modern slavery and labour exploitation issues in the solar PV supply chain?
- 7) **Resilience** - Do you have the freedom and flexibility to move supply chains if unsatisfied with your supply chain's approach to addressing the risk of modern slavery and labour exploitation?
- 8) **Responsibility** - How responsible are you for modern slavery and labour exploitation labour practices in the supply chain - causing, contributing, or linking?

The [UN Guiding Principles on Business and Human Rights](#) describe three ways any organisation could be involved with human rights impacts. These are:



- a. **Cause** - You are directly causing the adverse impact and are thus responsible for taking steps to prevent or remediate the impact. For example, your organisation may own or run a factory that uses exploited labour.
- b. **Contribution** - You contribute or could contribute to adverse human rights impacts. For example, your organisation may ask a supplier to find the cheapest possible labour for a project and ignore evidence of worker exploitation. Or your organisation may knowingly set unrealistic cost targets and delivery timeframes for a supplier that can only be met using exploited labour.
- c. **Linkage** - You are not causing or contributing to an adverse human rights impact, but you are linked to one through your operations, products, or services (including financial ones). In other words, your organisation may be connected to modern slavery through the activities of another organisation with which you have a contractual or strategic relationship.

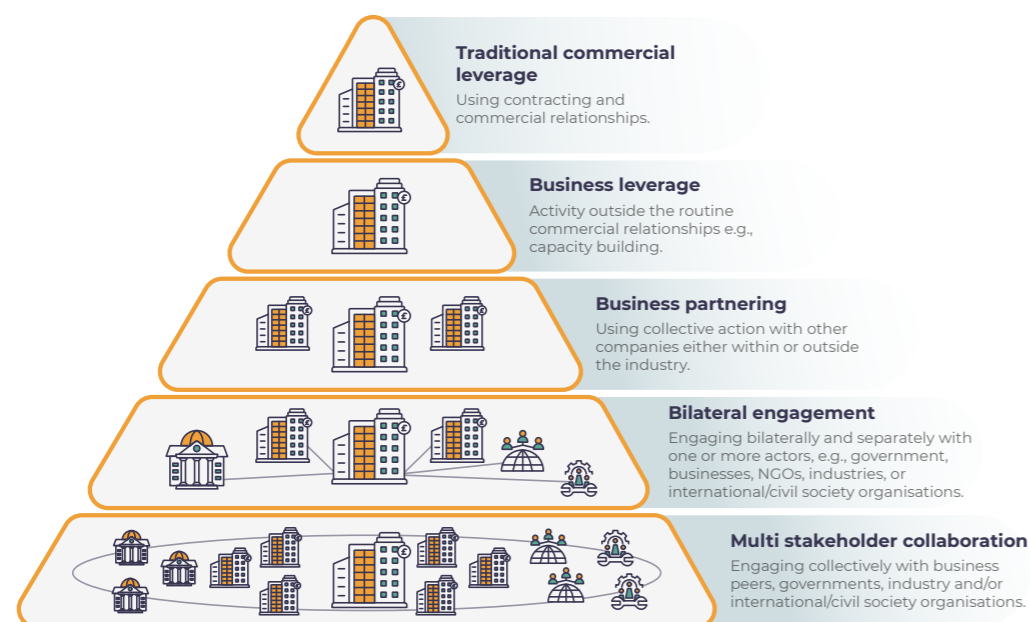
Understanding your level of involvement with the issue can help you utilise your existing leverage or increase it for your procurement/category or organisational strategies.



Part Two : Procurement Guidance

Once you understand how much leverage you have, you need to consider how best you can use or increase this leverage and work with your supply chain to mitigate any identified risks.

A report by the Shift Project, *'Using leverage in business relationships to reduce human rights risks'*^(xxi) outlines five ways that leverage can be used and/or increased. Once you have considered your risk and leverage, use this knowledge to inform your procurement strategy. The following diagram from the Shift Project report illustrates how you can increase your leverage from traditional commercial leverage to engagement in multi-stakeholder collaborations.



The inherent risk of modern slavery and labour exploitation in solar PV supply chains means that even if your leverage sits at the traditional commercial level, you must consider ways to increase it. Collaboration plays a vital role here.



Call to action

Understand the leverage you have to address modern slavery and labour exploitation. Where your leverage is insufficient to affect change, consider how you can increase it.

Part Two : Procurement Guidance

Developing a procurement/category strategy

Once you've identified the risks, understood the market and supply chain, and considered your leverage, you can develop your procurement approach. This may be a procurement or category strategy or even a corporate strategy that outlines your organisational approaches to addressing risk.

Regardless of your organisation's size - whether you're an SME with minimum leverage or a major developer - you need a procurement/category strategy to address these risks and impacts. These strategies will differ depending on how much leverage you have.

Your strategy needs to consider the entire lifecycle of the procurement process - from understanding the need to the contract management phase. It should identify opportunities throughout this process to address issues of modern slavery and labour exploitation in the solar PV supply chain.

The following table provides an example of procurement/category strategy requirements relating to your leverage level.



Part Two : Procurement Guidance

Minimum Leverage

Maximum Leverage

	Minimum Leverage	Maximum Leverage
Pre-engagement	<ul style="list-style-type: none"> Set a level of expectation around ethical labour standards at the policy level. Adopt a question set that raises awareness and allows for transparency in the procurement process. Utilise emerging standards that provide transparency and due diligence support. Prepare to engage with clients to support supply chain transparency initiatives, understand what information they require, and prepare suppliers to engage themselves in the issues. 	<ul style="list-style-type: none"> Set a level of expectation around ethical labour standards at the policy level. Investigate the market and opportunities to increase influence. Encourage due diligence requirements. Engage with the supply chain to set expectations of transparency and disclosure. Consider life cycle impacts and opportunities to reduce labour impacts during manufacturing. Engage internal stakeholders to ensure that labour standards are considered within the procurement cycle. Tie in ESG, modern slavery and human rights reporting and financial models. Establish a collaborative approach to identifying and addressing issues of forced labour, labour exploitation and unethical labour. Identify budget and resources to undertake due diligence requirements, including prequalification, contract management requirements such as supply chain mapping, document verification and social audits, if possible. Consider partnership arrangements/consolidated spending to increase leverage over multiple developments.
Sourcing	<ul style="list-style-type: none"> Make transparency part of the supplier qualification (SQ) process, e.g., modern slavery statement provision and review. Set minimum standards, e.g., SSI code of conduct commitment. Embed a question set that determines the current process for engaging in this topic and set the expectation that contracts will require continuous improvement. 	<ul style="list-style-type: none"> Ensure that contract requirements embedded in the procurement process place responsibility for due diligence at the appropriate level of the supply chain. Set key performance indicators (KPIs) for transparency data requirements and embed these in contract requirements. Embed standards in sourcing requirements that mitigate the risk of modern slavery and labour exploitation.
Selection	<ul style="list-style-type: none"> Apply weightings that favour transparent supply chains but, at a minimum, commit to providing transparency data. 	<ul style="list-style-type: none"> Apply weightings that favour transparent supply chains but, at a minimum, commit to providing transparency data.
Management	<ul style="list-style-type: none"> Set KPI around transparency data. 	<ul style="list-style-type: none"> Establish consistent updates on supply chain mapping for solar panel provision. Ensure a process is in place for social audits and review as part of the contract management process. Where validation is not feasible, tie into targets for increased level of supply chain transparency. The role of verification in this guidance is to provide details about data that can be requested from the supply chain.



Part Two : Procurement Guidance



Call to action

Ensure your strategy considers the whole procurement cycle - plan, source and manage. Don't focus solely on sourcing requirements.

Sourcing requirements and selecting suppliers

All previous stages of the procurement process (understanding the need, developing a strategy, identifying risk) influence what is required during the supplier qualification and tender stage.

Supplier qualification

Supplier qualification is crucial in helping identify and select suppliers who prioritise due diligence in addressing modern slavery and labour exploitation. It also indicates to the market that due diligence is a prerequisite, which may prompt broader behaviour change.

Sourcing and supplier selection requirements should also include interconnected sustainability issues, such as embodied carbon, end-of-life, and disposal considerations.



This section outlines specific prequalification criteria and helpful guidance.

Policy and commitment:



Ensure that suppliers demonstrate a clear commitment to eradicating modern slavery and labour exploitation in their supply chains. Suppliers should be required to provide a comprehensive policy statement outlining their approach to addressing modern slavery and labour exploitation in their supply chain. This should go beyond mere adherence to laws and international standards.

Compliance with laws and standards:



Verify that suppliers comply with local labour laws and adhere to internationally recognised standards for fair and safe working conditions. These may include certifications such as ISO 45001 for Occupational Health and Safety, SA8000 for Social Accountability, or other relevant industry-specific standards.

Part Two : Procurement Guidance

Transparency and disclosure:



Require suppliers to disclose relevant information about their supply chains, including the tiers, locations and identities of subcontractors involved in the production process. This information helps you assess the potential risks of modern slavery and labour exploitation, enabling you to address such issues proactively. If a supplier cannot provide this information, this can be included as part of the tendering process and embedded in your contract requirements.

Social audits and certifications:



Request suppliers to provide evidence of social audits conducted by independent third-party auditors. These audits should evaluate labour practices, identify potential risks and confirm compliance with ethical standards.

Recruitment and employment practices:



Ensure that suppliers have transparent and ethical recruitment/employment practices. This may include verifying that suppliers provide fair wages and working hours, maintain appropriate employment contracts and don't use forced or child labour. Suppliers must demonstrate their commitment to diversity, inclusion, and equal opportunities within their workforce. If you identify a risk of slavery or exploitation further down the supply chain, these requirements should be cascaded and evidenced through the supplier's own supply chain selection and due diligence processes.

Training and capacity building:



Encourage suppliers to provide training and capacity-building programs to enhance staff and supply chain awareness of modern slavery and labour exploitation. Suppliers should also be expected to demonstrate their commitment to continuous improvement in this area.

Subcontractor/supplier monitoring:



Stress the importance of suppliers having robust systems in place to monitor high-risk suppliers and subcontractors' adherence to ethical labour practices. Suppliers should be able to demonstrate how they ensure that their supply chain meets the standards outlined in the prequalification requirements.



Part Two : Procurement Guidance

The following table provides model questions and responses to help you assess your suppliers' responses in the prequalification process.

Supplier selection/prequalification question set.

Question	<p>We are committed to addressing modern slavery and labour exploitation in the solar PV supply chain. Please provide details of your due diligence approach to this issue.</p>
Basic Response	<ul style="list-style-type: none"> • Produce a modern slavery statement every year and publish it, or there is no legal requirement to publish a statement. • No supporting policies or documents relating to forced or exploited labour risks, either at an organisational level or in the associated supply chains. • No mention of solar PV as a risk or understanding of the supply chain. • No mention of how the organisation works with others (e.g., contractors and the supply chain) to manage risks.
Acceptable Response	<ul style="list-style-type: none"> • High-level policy outlining a commitment to addressing modern slavery and labour exploitation. • Detailed modern slavery statement that aligns with Government guidelines. • High-level commitment to addressing modern slavery and labour exploitation. • Training provided to key staff on modern slavery and labour exploitation in solar PV supply chains. • Identification and acknowledgement of risk in the solar PV supply chain. • An organisational action plan that includes training, supply chain engagement, monitoring and reporting and continuous improvement plans relating to solar PV supply chain transparency. • Evidence of supplier communications relating to modern slavery and labour exploitation in solar PV supply chains.
Good Response	<ul style="list-style-type: none"> • (Specific) policy commitment describing a detailed approach to addressing modern slavery and labour exploitation in solar PV supply chains. • Evidence of a history of modern slavery statements that provide details relating to risk and due diligence activities that illustrate increasing maturity. • Policy commitments follow an effective due diligence structure, i.e., prevention, identification, mitigation, and remediation. References to frameworks used, such as the UN Guiding Principles on Human Rights & Business, OECD, BS 25700. • Evidence of collaboration with the supply chain to identify and mitigate risks. • Evidence of structured monitoring, measurement, and management approach with clear and tangible engagement commitments. • Evidence of established and structured approach to materials sourcing and provenance (materials mapping). • Evidence of standards such as ISO 26000, ISO 20400, BS 25700, SA 8000, BES 6001 and EPEAT for Solar. • Evidence of social audits having been conducted with high-risk supply chain, focusing on modern slavery and labour exploitation.



Part Two : Procurement Guidance

Call to action

Utilise evidence-based questions in the supplier qualification process. This will enable you to understand the successful supplier's awareness of the risk of modern slavery and their actions to mitigate these risks.

Tender requirements

To mitigate the risks associated with modern slavery and labour exploitation in solar PV supply chains, you should incorporate specific tendering requirements that prioritise addressing these issues.

Tendering requirements establish expectations for the successful supplier's ongoing due diligence through the lifetime of the contract. Consider how you can incentivise the successful supplier. You could develop procurement weightings that incentivise suppliers to:

- provide a mapped supply chain, conduct ethical audits, and evidence improvements,
- consider alternatives to polysilicon,
- provide closed-loop solutions that extend the life of critical components, and
- favour low-carbon production methods.

This section outlines key considerations and offers helpful guidelines:

Clear policy:

Add your policy to your tender documents, highlighting your commitment to eradicating modern slavery and labour exploitation in the supply chain. This should outline your expectations from suppliers and subcontractors regarding labour practices, human rights, and adherence to relevant legislation. Here, you can state your commitment to sourcing from supply chains that can evidence no links to Uyghur Region labour schemes.

Supplier eligibility criteria:

Define specific eligibility criteria that requires suppliers to demonstrate their commitment to ethical labour practices and human rights. These criteria should include compliance with local labour laws, certification of fair and safe working conditions, adherence to international standards, and evidence of responsible supply chain management. At this point, standards can be introduced.

Part Two : Procurement Guidance

Due diligence documentation:

Request relevant due diligence documentation from suppliers to evaluate their compliance with legal and ethical standards. This may include social audits, certifications, employment policies, recruitment practices, training programmes, and measures to identify, prevent and mitigate modern slavery and labour exploitation. Suppliers should be required to provide evidence to support their responses.

Supply chain mapping:

Outline the need for suppliers to provide detailed supply chain information, including the identity and location of subcontractors involved in the production process. This information should relate specifically to sources of solar PV materials provided as part of your procurement requirements. If these are not available, then embed a requirement to produce solar PV supply chain maps through the life of the contract.

Labour monitoring and reporting:

Include provisions that require suppliers to implement systems for monitoring and reporting on labour practices within their supply chains. Suppliers should be expected to report any concerns and their efforts to address and remediate any issues. This helps to create a culture of accountability and continuous improvement.

Collaboration and remedy:

Stress the importance of collaboration between your organisation and the successful supplier to address any instances of modern slavery or labour exploitation that may emerge during the contract. Suppliers should be encouraged to develop effective remediation plans and engage in ongoing dialogue to prevent future occurrences. Where remediation is not possible, the tendering requirements should allow the suppliers to work with you to identify alternative supply sources in line with your policy requirements.

Non-compliance consequences:

Clearly state the consequences for non-compliance with the tendering requirements related to modern slavery and labour exploitation. This could include disqualification from the tender process or contract termination should the suppliers fail to undertake due diligence or support your efforts to undertake due diligence.



Part Two : Procurement Guidance

Contract clauses

When setting tender requirements, you should identify contractual requirements that will drive the required due diligence behaviour from the supply chain. Contract clauses can be seen as a mechanism to drive compliance; however, poorly worded clauses can incentivise behaviour that goes against the contract’s desired outcome. Avoid using contract clauses requiring assurance that no modern slavery or labour exploitation exists in your solar PV supply chain. This contract requirement is impossible to enforce and demonstrates a lack of understanding of the market risks.

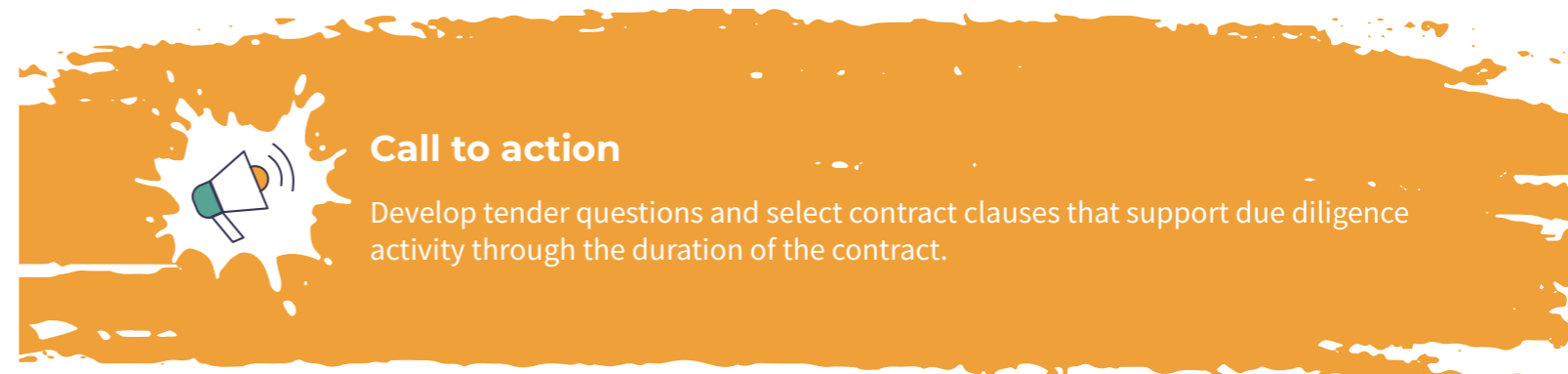
Here are two examples of contract clauses to support due diligence and obtain data from the supply chain concerning human rights:

- ‘Buyer and Supplier each covenant to establish and maintain a human rights due diligence process appropriate to its size and circumstances to identify, prevent, mitigate, and account for how each of Buyer and Supplier addresses the impacts of its activities on the human rights of individuals directly or indirectly affected by their supply chains, consistent with the 2011 United Nations Guiding Principles on Business and Human Rights. Such human rights due diligence shall be consistent with guidance from the Organisation for Economic Co-operation and Development for the applicable party’s sector (or if no such sector-specific guidance exists, shall be consistent with the 2018 OECD Due Diligence Guidance for Responsible Business Conduct (the “OECD Due Diligence Guidance”).’ Source: [ABA: Balancing Buyer and Supplier Responsibilities: Model Contract Clauses to Protect Workers in International Supply Chains, Version 2.0](#)

- ‘[Buyer and Supplier each] [Supplier] shall and shall cause each of its [shareholders/partners, officers, directors, employees,] agents and all subcontractors, consultants and any other person providing staffing for Goods or services required by this Agreement (collectively, such party’s “Representatives”) to disclose information on all matters relevant to the human rights due diligence process in a timely and accurate fashion to [the other party] [Buyer].’ Source: [ABA: Non-Financial Reporting and the Model Contract Clauses, Version 2.0](#)
- In 2022 the [responsible contracting toolkit](#) was launched to provide clauses supporting effective due diligence. These offer valuable clauses to help you implement requirements in line with emerging due diligence legislation.

By providing contract clauses like these, you are setting the foundation for due diligence and disclosure and establishing the requirement to provide the critical information needed to understand the nature of the solar PV supply chain from which you are sourcing your products.

You can find the full suite of human rights contract requirements [here](#).



Call to action

Develop tender questions and select contract clauses that support due diligence activity through the duration of the contract.



Part Two : Procurement Guidance

The following table provides model questions and information that can be used to assess your suppliers responses in the tender process. This builds on the supplier selection/prequalification question set.

Tender question set.

Question	<p>We are committed to addressing modern slavery and labour exploitation in the solar PV supply chain. Please provide details of actions you will be taking to identify and address modern slavery and labour exploitation in the solar PV supply chain.</p>
Basic Response	<ul style="list-style-type: none"> • Response provides details of a responsible sourcing policy. • Commitment to undertake internal awareness training on modern slavery and labour exploitation
Acceptable Response	<p>Commitment to:</p> <ul style="list-style-type: none"> • Provide sourcing data to the client that will provide you, the client, with solar PV manufacturers. • Review the applicability and suitability of schemes such as the SSI. • Raise awareness within the supply chain. • Provide data in relation to audits and/or compliance.
Good Response	<p>Commitment to:</p> <ul style="list-style-type: none"> • Provide sourcing data to the client, including supply chain mapping. • Support supply chain mapping activity beyond Tier 1 to identify where solar PV components are manufactured and understand sources of raw materials. • Provide a collaborative environment for all supply chain partners to discuss collective due diligence activity (suitably resourced). • Provide social audit information where available, either commissioned or utilising information gathered from SSI, SEIA, RBA etc. • Investigate innovative solutions that address the issues of modern slavery and labour exploitation with examples such as polysilicon replacement, low-carbon supply chains or end-of-life and circular economy initiatives. • Monitor the level of transparency achieved in the supply chain and set targets for increasing that level through the life of the contract.



Part Two : Procurement Guidance

Using standards in your procurement requirements

Standards are part of a broader toolkit to support due diligence activity. They provide validated data and intelligence that support your due diligence strategy and response.

It is important to remember that standards are only one tool to support your due diligence activity. They do not provide all the answers, so due diligence is still required.



Standards that support human rights due diligence activity include:

- [SA 8000](#) - A global standard workplaces and organisations must meet to gain certification. Sets clear definitions of forced or compulsory labour and human trafficking, sets out the requirements of certified organisations, explains the standard's intent and gives guidance to organisations on how to implement the guidance effectively, including worker interview strategies to pick up on risks.
- [ISO 20400](#) - Guidance standard for organisations, independent of their activity or size, on integrating sustainability within procurement, as described in ISO 26000. Intended for stakeholders involved in, or impacted by, procurement decisions and processes.
- [BS25700](#) - Organisational Response to Addressing Modern Slavery - Guidance. Provides a framework for organisations to use in setting up their organisational approach to recruitment, labour standards and due diligence activity within the supply chain.
- [BES 6001](#) - Framework for the organisational governance, supply chain management and environmental and social aspects that must be addressed to ensure the responsible sourcing of construction products. Glass is one product certified under this standard.
- [ISO 26000](#) - Social Responsibility. A standard developed to help organisations effectively assess and address [social responsibilities](#) that are relevant and significant to their mission and vision; operations and processes; customers, employees, communities, and other [stakeholders](#); and environmental impact.
- [Supplemental Validated Audit Process](#) (SVAP) on forced labour by the Responsible Business Alliance (RBA). Assessment programme based exclusively on identifying the risk of forced labour at an employment site (e.g., factory) or labour provider (e.g., labour agent or recruitment agency).
- [EPEAT](#) for solar - Globally recognised and independently validated environmental, social and governance (ESG) and low-carbon standards and eco-labels for solar panels and inverters. It looks at the environmental performance of the supply chain in the solar PV production and component process, covering areas such as

Call to action

Select standards that support due diligence in modern slavery and labour exploitation. Don't just rely on the certificate as evidence - request other evidence, as certificates can easily be falsified.



Part Two : Procurement Guidance

climate change mitigation, sustainable use of resources, reduction of chemicals of concern and corporate ESG performance. While this does not address the issues of modern slavery and labour exploitation specifically, the standard's requirements favour more ethical supply chains, as polysilicon from XUAR is high in embodied carbon due to its 100% reliance on coal-powered polysilicon plants.

Managing the contract

Due diligence activities should be integrated into the way you manage your contracts. For example, if you're asking your suppliers to conduct social audits on modern slavery or labour exploitation, or to map their supply chains, incorporate this into your contract management. The data and case studies you collect throughout the delivery of the contract can then be used to monitor and inform your decision-making and may influence future solar PV tenders.

Contract management top tips

Here are some top tips to consider:

- 1) Select an appropriate **contract owner**. The right person in your organisation should own due diligence requirements. The requirement to undertake due diligence and understand the solar PV supply chain should be separate from the contract managers responsible for the successful delivery of the solar PV project.
- 2) Set a **collaborative** tone. The supply chain may need your support in accessing data from their supply chain, understanding the data, or making decisions on the data received. Help your suppliers - work with them and recognise your ultimate responsibility for due diligence instead of adopting a compliance-focused approach.
- 3) Speak regularly. Best practice is to **embed the contract requirements** into your contract management process. Speak to your suppliers at least quarterly (especially at the beginning of the contract) and include discussions about their due diligence activities and any changes to market conditions.
- 4) **Review risks regularly**. Don't just review the risk of modern slavery and labour exploitation in your solar PV supply chain at the outset. This should be an ongoing process.
- 5) Engage and educate. Although you manage the contract requirements, use the contract management process to **upskill and develop the supply chain** capability and capacity to address modern slavery and labour exploitation in solar PV supply chains. This may include training courses, mentoring, process improvement and the standardisation of data and reporting requirements, among other actions.

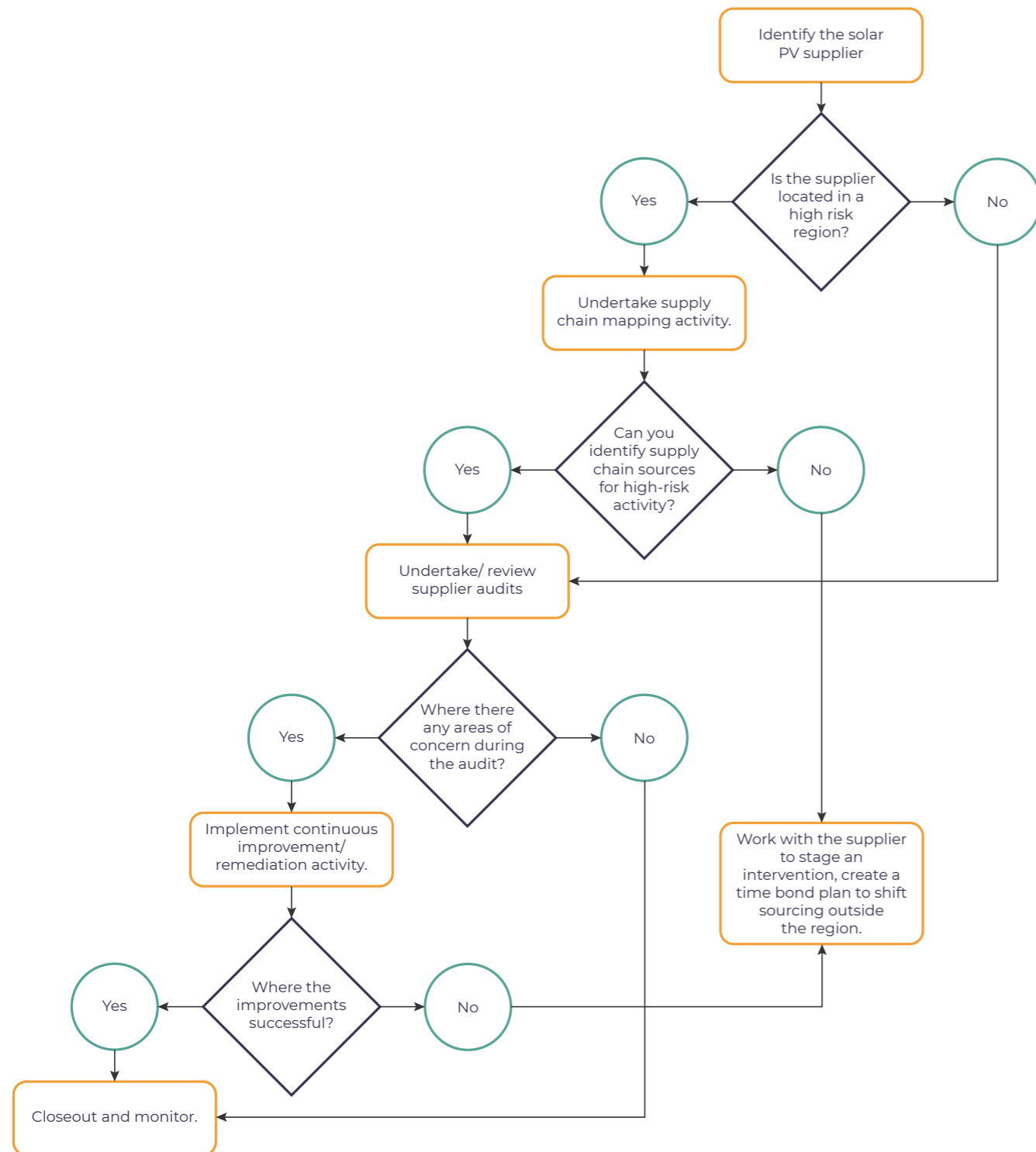
Call to action

Embed discussions on modern slavery and labour exploitation due diligence into the standard contract management process.



Part Two : Procurement Guidance

Making decisions in contract management



The role of contract management is to undertake due diligence and understand where remediation activities are required, either through additional investment or the implementation of continuous improvement plans. You must be proactive and prepared to make decisions.

Part Two : Procurement Guidance

Call to action



You need a time-bound plan to identify and move to alternative sources/suppliers who can provide robust data and assurance IF:

- A supplier refuses to provide information on its source of polysilicon or other vital components in the solar PV.
- A supplier is not able to demonstrate or willing to work towards a low-risk supply chain.
- A supplier cannot provide data on social audits conducted and resulting findings and does not commit to doing so in the future

The role of verification and transparency

Supply chain mapping

A consistent approach to data collection is essential when mapping supply chains.

In the US, the [Uyghur Forced Labour Prevention Act](#) requires solar PV organisations to provide evidence to border forces that products entering the US have not been mined, produced or manufactured wholly or in part in the Uyghur Region. To support this requirement, [SEIA](#) created a [solar supply chain transparency protocol](#).



Part Two : Procurement Guidance

The protocol includes a range of data to ask for as part of due diligence activity. This includes:

- 1) Factory location
- 2) Factory certification
- 3) Factory capabilities
- 4) Audit and inspection reports
- 5) Human resources information, such as numbers of employees and labour recruitment policies
- 6) Factory owners/corporate information
- 7) Production reports indicating when production took place to make the final product
- 8) Records indicating where raw materials (used to make the material or the product) were received

Desk-based research is essential in mapping suppliers and identifying risks across solar PV value chains. Sheffield Hallam University (SHU) recently published an evidence brief on desk-based research strategies. While the brief focuses on identifying forced labour in the XUAR, the strategies are also relevant to understanding the broader solar PV supply chain.

Below is a summary of the strategies. For more detail, see brief 5 of the [SHU evidence brief series](#).^(xxii)



Part Two : Procurement Guidance

The document references data to be collected, including:

- 1) Registered names of your suppliers in the local language
- 2) Suppliers' parent companies, subsidiaries and sister companies and their locations

Sources for data, including:

- 1) Custom records
- 2) General Web research
- 3) Corporate websites and designated supplier lists
- 4) Corporate annual reports

In addition to the requirements from questionnaires and desk-based research, other opportunities exist for obtaining data in connected areas, such as carbon assessments. Carbon assessment certificates can provide manufacturing sites and country information relating to key stages of the production process. These certificates are issued for

- Polysilicon
- Ingots
- Wafers
- Cells
- Modules
- Glass & Temper
- EVA (Ethylene-vinyl acetate)
- PET (Polyethylene terephthalate)

Collating this information will give you more insight into the supply chain, helping inform the mitigation activities you will undertake throughout the procurement process. The following table provides one way to organise data to build a profile of your solar PV supply chain.



Part Two : Procurement Guidance

Solar PV Transparency Data Sheet												
Action Sustainability												
Solar brand	Technology (e.g. monocrystalline)	Module production site	Does the manufacturer have evidence of due diligence activity in their extended supply chain?	Wafer production site	Does the manufacturer have evidence of due diligence activity in their extended supply chain?	Cell production site	Does the manufacturer have evidence of due diligence activity in their extended supply chain?	Ingot production site	Does the manufacturer have evidence of due diligence activity relating to polysilicon supply chain?	Polysilicon Source	Is there evidence of due diligence activity relating to mine locations and labour standards?	Comments



Part Two : Procurement Guidance

Once you understand your supply chain, your questions can be more specific. For example, if you are sourcing from the XUAR, the questions should specifically address the inherent risk of Uyghur forced labour. Sheffield Hallam and Unison outlined potential questions in [Clean Dirty Energy](#).^(xxiii)

Their recommended question set includes the following:

- 1) Has your company or any of your suppliers participated in any state-sponsored poverty alleviation campaigns in the XUAR?
- 2) Has your company or any of your suppliers benefited from Xinjiang Aid or City Pairing Programmes? If yes, which ones?
- 3) Has your company or any of your suppliers accepted any labourers from the XUAR?
- 4) Has your company or any of your suppliers participated in any land corporatisation schemes in the XUAR?
- 5) Does your company or any of your suppliers engage with the Xinjiang Production and Construction Corps?
- 6) Please also answer if any of your suppliers are involved in these practices?
- 7) Is your company directly paying its employees or are your employees paid through a state programme?
- 8) Are ethnic minority workers (especially those from the XUAR) provided with equitable housing? Are they monitored by special guards or required to participate in mandatory ideological training?
- 9) Are employment contracts signed between the direct employees and the company or are they employed through a government contract?
- 10) Do Uyghur workers have freedom of movement during their leisure time?
- 11) Do Uyghurs have the same holidays and are they able to return home for those holidays?
- 12) If your company has a factory in Xinjiang, have you considered relocating from Xinjiang? If so, what are your plans?

Sheffield Hallam University and Unison's report advises that, if a supplier's responses indicate that they operate or source from the XUAR, request that they develop a plan to end operations or sourcing from that region. Their report then advises that, the relationship should be terminated if the supplier refuses to implement a plan. Note that due diligence should continue to be conducted when sourcing from another region or an alternative supplier.

Auditing

This part of the guidance focuses on the role of desk-based research, social auditing, and certifications and how they can support 1) gaining transparency, 2) checking due diligence processes and 3) uncovering conditions.

The challenges regarding auditing and gaining reliable information from the solar supply chain have been well publicised.

Part Two : Procurement Guidance

In general, auditing has limitations. For instance, social audits provide only a snapshot of the workplace at a particular time and place and do not provide a genuine picture of daily conditions. Many examples of falsified documents and concealment of violations can also be found.



Audit is one part of a much bigger due diligence process, it is important to use effective communication as a means of development and transparency with suppliers.

[Adam Whitfield - Achilles](#)

More specifically, auditors are not allowed free access to facilities or workers for solar [PV components](#) from the XUAR. Auditors identifying problems in this region have faced intimidation and arrest. For these reasons, all credible auditors have exited the area meaning that auditing is not an option in XUAR and cannot form part of an effective due diligence strategy.

Outside the XUAR, forced labour transfers in final assembly and component manufacturing across China are increasingly high risk; look out for unwillingness to provide information or participate in semi or unannounced audits.

It is crucial to note that if supply markets shift from existing regions to areas such as Germany, the US and India, auditing must still be conducted as part of an effective due diligence process to continue to monitor transparency and labour practices.

The role of social auditing

Auditing is insufficient to ensure that the solar PV supply chain is free of modern slavery and labour exploitation. Whether conducted by the client or organisations further down the supply chain, when carried out correctly, social audits help to build relationships and address issues collaboratively.



Part Two : Procurement Guidance

Top tips when planning a social audit outside XUAR:

Select an accredited, local auditor with industry experience	<ul style="list-style-type: none"> • Look for qualifications such as RBA, amfori, SA8000, ISAE 3000. • Find an auditor from the region or local area to avoid reliance on translators. • A local auditor can provide context and an understanding of on-the-ground issues and see things that aren't 'typical'.
Monitor auditor ethics	<ul style="list-style-type: none"> • Consult the Association of Professional Social Compliance Auditors (APSCA). • Ensure audit companies have zero tolerance ethics policies and processes to ensure independence.
Conduct the audit unannounced	<ul style="list-style-type: none"> • Reduces preparation time to 'hide and fix'. • Be aware, however, that an unannounced audit is not fool proof; delay tactics can still be used, e.g., a fire alarm going off. • Or conduct semi-announced audits, where the site is given a window of 4-6 weeks for the visit.
Listen to workers' voices	<ul style="list-style-type: none"> • Select auditors with experience interviewing vulnerable stakeholders. • Conduct one-on-one interviews if possible and as close as possible to the start of the audit. • Give preference to female auditors when interviewing female workers. • Technology can be used to gain insights from workers. • Be aware that some sites may ban the use of mobiles; in these instances, hand out cards for workers to take home and use the technology outside the workplace. Ensure these are available in multiple languages. (Note: worker voice is not allowed in China). • Where possible, provide workers' rights training.
Use technology	<ul style="list-style-type: none"> • Prepare for the audit using intelligence reports, google searches and QR codes for worker questionnaires. • Consider trialling: <ul style="list-style-type: none"> • Facial recognition to identify child workers. • Videos, drones, and smart glasses to give clients visibility. • Voice recognition and auditor tracing to monitor bribery, corruption, and independence.
Take the client along on the audit	<ul style="list-style-type: none"> • Bring them along so they get real insights and can increase their leverage to remediate issues. • Provide training or capacity building alongside or in advance of the audit.
Consider what evidence to look for	<ul style="list-style-type: none"> • Worker information, such as name, salary, bank records for wage payments, working hours, ethnicity, recruitment records, signed contracts. • Company information, such as total number of workers, products produced, goods and services procured, supplier details. • Annual reports.
Reviewing audit reports	<ul style="list-style-type: none"> • Be suspicious of exemplary audit reports with minimal non-conformances or recommendations for improvement, especially if there are other indicators, such as a lack of transparency data or the expression of public concern relating to modern slavery and labour exploitation. This could indicate audit fraud.



Call to action

Supply chain mapping, research, auditing, technology and standards should be utilised within the due diligence process to increase transparency, verify information and drive continuous improvement to address modern slavery and labour exploitation.



Part Three : Enabling Activities

Enabling activities

Addressing modern slavery and labour exploitation in solar PV supply chains should be integrated into your procurement process. However, the level of success achieved does not depend solely on sourcing requirements. To maximise the impact of your procurement, you must:

- Understand and communicate the **business drivers** for addressing the issue.
- Ensure that a **due diligence process** is developed and embedded in the procurement process.
- Set a clear **policy** direction on what your organisation is committed to addressing concerning modern slavery and labour exploitation in solar PV supply chains.
- Establish a **remediation** policy and strategy as part of due diligence and procurement requirements.
- Invest in resources that **support transparency requirements**, including technology platforms and engaging third-party support services.



Part Three Enabling Activities



Part Three : Enabling Activities

Business drivers – why it matters

Your motivation to take steps to combat modern slavery and labour exploitation in your solar PV supply chain will depend on what type of organisation you are, your stakeholders and the markets in which you operate.

1. Victim first

Ultimately the purpose of due diligence is to identify and support victims of modern slavery and labour exploitation. All other business drivers should not lose sight of the victims first approach to addressing modern slavery and labour exploitation, ensuring that individuals are given safe and fair access to remediation.

2. Legal compliance

Governments across the globe are enacting and strengthening laws to hold businesses accountable, promote transparency and safeguard the rights and well-being of workers.

The map below provides a snapshot of existing and upcoming legislation relating to modern slavery and human rights due diligence.

Key Legislation & Regulations Across The World



Part Three : Enabling Activities

Regardless of where your business is based, the changing legislative landscape will impact your international supply chains.



Disclosure legislation and due diligence legislation are two distinct, but mutually supportive approaches.

- Disclosure legislation focuses on transparency, requiring you to publicly disclose information about what actions you've taken to prevent and address modern slavery and labour exploitation.
- Due diligence legislation goes beyond transparency and requires you to conduct thorough assessments and take tangible steps to prevent and mitigate the risks of modern slavery and labour exploitation.

Sanctions for non-compliance with legislation are increasing, including financial penalties, seizures, administrative sanctions, and legal proceedings. The UK's Modern Slavery Act allows victims to apply for compensation, and a notable rise has been observed in civil litigation involving victims of slavery or exploitation, holding clients accountable for abuses deep in their supply chains.

In August 2022, Bloomberg reported that three gigawatts of [solar modules were being held at the US border](#) because of the US's [Uyghur Forced Labor Prevention Act](#).

Aligning your due diligence approach with the UN Guiding Principles on Business and Human Rights will provide a solid foundation on which to demonstrate how you are identifying, mitigating, and managing the risks of slavery and labour exploitation. It will also help you meet growing legislative requirements.

3. Reputational risk

Companies and investors recognise that being associated with unethical practices, such as labour exploitation, can damage their brand image and stakeholder trust. The report 'In Broad Daylight' named solar PV companies allegedly using Uyghur forced labour in Xinjiang. Almost immediately, public, and private sector clients across the globe were 'named and shamed' in the international media.

[Volkswagen - German Supply Chain Due Diligence Act](#)



Under the German Supply Chain Due Diligence Act, a Berlin-based rights group challenged Volkswagen on the extent of their due diligence to prevent forced labour in their Xinjiang-based supply chain.

This followed Sheffield Hallam University's publication of a report on the links between large automotive manufacturers and risks of forced labour in Xinjiang.

'While BMW and Mercedes-Benz do not have their own plants in Xinjiang, researchers at Sheffield Hallam University and others have [documented links](#) between the carmakers' suppliers and companies with operations in or near the region.' Source: Reuters, [VW audits Xinjiang plant as rights group pressures car makers](#).

Part Three : Enabling Activities

4. Meeting client requirements and gaining a competitive advantage

Since 'In Broad Daylight' and the Uyghur Forced Labour Prevention Act were published and enforced, solar PV buyers have intensified their scrutiny of suppliers, demanding more information and assurance on due diligence activity. Some UK public sector clients have paused solar PV procurement pending further investigation, while clients are generally worried about the reputational risks associated with forced labour in their supply chains.

Solar PV providers demonstrating full traceability and transparency across their supply chain can use this as a competitive differentiator.



Transparency of supply chains is paramount. Equipment purchasers, electricity end-users, and other stakeholders demand transparency for reasons ranging from sustainability to corporate social responsibility to import compliance. In this environment, manufactures must have the proper systems in place to meet stakeholders needs and build trust

[Solar Energy Industry Association \(SEIA\) Traceability Protocol](#)

5. Investor confidence/environmental, social and governance (ESG)

ESG refers to three key factors used to measure the sustainability and ethical impact of an organisation's operations: its environmental practices, social impact and governance policies.

As investors increasingly prioritise ethical considerations and social responsibility, they demand greater transparency and assurance from companies to mitigate risks associated with modern slavery and labour exploitation.



The number of new [ESG regulations introduced globally](#) has increased by 155% in the last decade. According to [PwC's Global investor survey](#), 79% of investors stated that how a company manages ESG risks and opportunities was an important factor in their decision-making

Part Three : Enabling Activities

'More than two-thirds of UK and US CEOs are concerned about supply chain human rights', *Supply Management*, 10 July 2023. <https://www.cips.org/supply-management/news/2023/july/more-than-two-thirds-of-ceos-concerned-about-supply-chain-human-rights-/>



6. Supply chain resilience

As the global demand for clean energy solutions continues to rise, safeguarding the continuity of solar PV supply chains and minimising disruptions is critical. By conducting due diligence, you can identify vulnerabilities, mitigate supply chain disruptions, and enhance the overall resilience of your solar PV procurement - ultimately protecting your operations and reputation.



Call to action

Identify, understand and communicate why addressing modern slavery and labour exploitation in solar PV supply chains is essential for your business.

What is due diligence?

The UN Guiding Principles on Human Rights and Business define due diligence as an

'ongoing risk management process to identify, prevent, mitigate, and account for how adverse impacts are addressed in the organisation and business associates.'

Simply put, due diligence is about understanding the risks and focusing efforts on prevention, transparency and remediation.

Due diligence, from a modern slavery perspective, is a set of comprehensive and proactive actions you're taking to identify, prevent, and mitigate the risks of modern slavery and labour exploitation in your business and its value chain.



Too often, due diligence efforts concentrate on the higher links of the supply chains, where leverage and visibility are greatest, rather than on those higher risk informal actors operating at the lower links. This needs to change

[ILO - Forced Labour Report](#)

Part Three : Enabling Activities

But who is included in 'your value chain?' It's not just who you contract with. It includes your extended supply chain - all those involved in the extraction of raw materials, the conversion to the finished product and the logistics and transportation of the product before it reaches you. It also includes end-of-life options, requiring you to consider modern slavery and labour exploitation risks in the waste and recycling sector.

Due diligence myth busting



1. Myth: Due diligence is a one-time event

Fact: Due diligence is an ongoing and dynamic process that requires continuous monitoring and evaluation. It's not a one-off task. It's a proactive approach that should be embedded into your operations and supply chain management processes.

2. Myth: Due diligence is only necessary for high-risk regions.

Fact: Modern slavery can occur in any industry or geographical location. While specific industries or regions are considered higher risk, due diligence should be conducted across all categories of spend. For example, you can't claim there's no forced labour or exploitation risk because your supply chain is not based in the Xinjiang Uyghur region.

3. Myth: Due diligence is the sole responsibility of procurement or supply chain departments.

Fact: Due diligence is a shared responsibility that requires collaboration across various departments, including procurement, legal, human resources, and corporate social responsibility. A multidisciplinary approach must be taken to identify and mitigate risks effectively.

4. Myth: Due diligence is too costly and time-consuming.

Fact: Implementing robust due diligence processes may require upfront investment and resources, but can you afford not to do it? Ultimately, it will save costs by preventing reputational damage, legal liabilities, and business disruptions.

5. Myth: Audits provide all the answers.

Fact: Audits are just one piece of the puzzle and can't single-handedly address the complex issue of modern slavery.

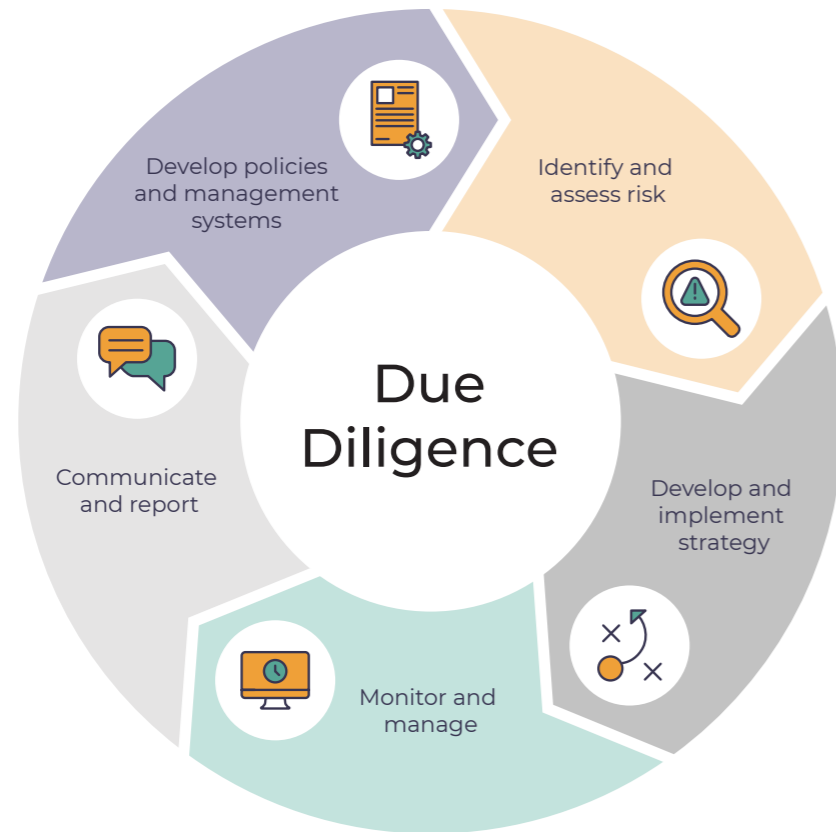
6. Myth: Due diligence can be demonstrated through public statements on zero tolerance of modern slavery and labour exploitation.

Fact: Due diligence is about recognising that modern slavery and labour exploitation will emerge somewhere in your supply chain. The key to due diligence is to identify the risk and take action to prevent it or find it and fix it.



Part Three : Enabling Activities

This graphic illustrates the key stages of any due diligence process *(based on the principles outlined in the OECD Due diligence guide for responsible business conduct)*



- 1) Develop policies and management systems** - Once you've identified, understood, and communicated the business case, you should incorporate modern slavery and labour exploitation requirements into your organisational policies and processes, including those related to procurement or sustainable procurement. This will provide a solid foundation on which to build an effective governance structure. It will also demonstrate your commitment to stakeholders.
- 2) Identifying and assessing risk** - You need to determine where the risk to people may lie in your solar PV supply chain and its potential impact. Is it a risk to life through mining in hazardous conditions? Or is it a risk around workers' rights in processing raw materials? Understanding the risk and potential impact is critical in helping inform your procurement strategies and their implementation.
- 3) Develop and implement strategies** - Once you've identified the risks of modern slavery and labour exploitation in your solar PV supply chain and the potential impact on people, you must develop strategies to address and mitigate these risks over time. These strategies will reflect the nature of procurement in your organisation and could include a procurement strategy, a category strategy or an organisational strategy related to purchasing solar PV.
- 4) Monitor & manage** - Obtaining accurate and reliable data on what's happening in your supply chains is critical. This can be done through your suppliers and by collaborating with other partners. Audits play a particular role but should not be relied on as the sole source of information. Examples of monitoring tools include worker audits, social audits, and surveys to determine whether your supply chain is doing what they claim to be doing.

Part Three : Enabling Activities

- 5) Communicate and report how the impacts have been addressed** - If you find instances of modern slavery or labour exploitation, communicate this to your stakeholders. Tell them what you found, how you discovered it and what remediation you're implementing. This is essential to ensure continuous improvement and to help avoid future cases.



What makes a good policy, and why do I need one?

Incorporating an understanding of modern slavery and labour exploitation into your policies and systems provides a solid foundation on which to build your due diligence. Your policy should clarify your approach to identifying, preventing, mitigating, and remediating modern slavery and labour exploitation in your extended supply chains. This must be underpinned by a resilient governance framework with well-defined roles and responsibilities/accountabilities across your organisation and supply chain. It should set out your ambition and demonstrate your commitment to tackling this issue.

Depending on the size and maturity of your organisation, you may have a modern slavery policy or multiple policies that reference modern slavery. These may be labelled as sustainable procurement, ethical sourcing or human rights.

Features of a good policy to address modern slavery and labour exploitation include the following:

- Specific to your organisation - not a one size fits all approach.
- Supported by a robust governance structure with defined roles and responsibilities across your organisation and supply chain.
- Clarifies the importance of a company-wide approach and that modern slavery and labour exploitation concerns all departments, not just procurement.
- Includes links to related policies, e.g., sustainable procurement, ethical labour, human rights, responsible sourcing, recruitment, and payment/wages.
- Defines modern slavery and includes references to forced labour and labour exploitation.
- Includes an explicit commitment to address modern slavery/forced labour in extended supply chains.
- Links to legislative and government policy requirements as a minimum.
- Clear leadership at the highest level in your organisation, with a named executive sponsor who is ultimately responsible for policy implementation.



Part Three : Enabling Activities

- References categories of spend that you've identified as having a high risk of modern slavery, such as solar PV.
- Outlines the steps you're taking to prevent, identify, mitigate, and remediate modern slavery and labour exploitation.
- Alignment with [UN Guiding Principles](#) or [OECD due diligence guidance](#).
- Outlines the process for remediation within the supply chain.
- Links to interdependent policies such as carbon or climate adaptation to demonstrate an understanding of the risk of modern slavery and labour exploitation in renewable technologies, such as solar, wind and batteries.

You can use this list to help you evaluate your supply chains' own policies.

Good practice would be to include information about your organisation's approach to due diligence, including requirements relating to:

- Supply chain transparency
- The need for evidence of social auditing
- Collaborative standards
- Steps your organisation will take if solar panels are sourced from high-risk regions .

FOUNDATIONS

When considering solar PV, boards and senior leaders should consider human rights as well as climate, environment and cost. They need to understand the bigger picture to ensure that informed and balanced decisions are made.



At the beginning of the decision-making process, you should:

- 1) Raise awareness within senior leadership teams** - Board members, senior leaders and management must understand the nature of the solar supply chain, its inherent risks and the drivers for your business to address these issues.
- 2) Demonstrate leadership** - Your senior leadership team should clarify that procurement decisions must favour ethical supply chains alongside cost and environmental benefits.
- 3) Allocate resources** - Your procurement teams should evaluate the current market, including suppliers and their approach to transparency. You should also seek to understand your clients' commitment to and aspirations towards transparency.

Part Three : Enabling Activities

Remediation as part of your policy and strategy

Your approach to remediation should be included in both your governance and policy requirements. Should instances of modern slavery and labour exploitation be found, remediation mechanisms should be in place.

Remediation

As defined by BS25700, remediation involves:

- Remedial actions and processes aimed at identifying and stopping the occurrence of modern slavery as well as preventing future occurrences.
- Processes and actions aimed at providing a remedy to individuals or groups harmed by an organisation's activities.



There is no one-size-fits-all approach to effective remediation; however, remedial procedures should prioritise the victims' needs and concerns. Any support offered should be done through direct consultation with the victims. Ideally, this consultation would be done via expert third parties who can act impartially (as your organisation may be directly or indirectly linked to the harm caused) and who have the required expertise to conduct a victim-centred response. Also, recognise that financial support can help victims but is never the only solution.

At a process level, remediation can be linked to continuous improvement and supplier selection.

When selecting suppliers, you must evaluate their approach to remediation and how it is embedded in their management systems. Look for evidence of a process that includes:

- 1) Opportunities for stakeholders and the individuals affected to review the appropriateness of remediation activity.
- 2) Commitment to continuous improvement in addressing activities that cause or contribute to modern slavery or labour exploitation.
- 3) Use of NGOs or local support for supplier development.
- 4) Solutions that empower workers - upskilling them to understand their rights, encouraging collective bargaining and enabling freedom of association.
- 5) Inclusion of workers in the application of remediation activities.

You may be significantly removed from the instances of abuse; however, opportunities to remediate can still be incorporated into your organisational strategies. One solution could involve partnering with civil society organisations or governments to remedy any identified breaches. These activities could include:

- 1) Funding programmes or projects designed to benefit the affected communities.
- 2) Supporting and/or funding collaborative initiatives designed to improve solar PV supply chain labour standards.



Part Three : Enabling Activities

Best practice remediation involves refraining from terminating relationships with suppliers where modern slavery or labour exploitation is found or with suppliers who fail to provide evidence of due diligence. Immediate contract termination does not support the welfare of the individual victims: it doesn't offer insights as to why the situation occurred, nor does it prevent future occurrences.

Encouraging open, honest dialogue with the supplier and working collaboratively is vital to an effective remedy.

However, remediation is impossible when dealing with state-imposed forced labour as there is no way to support the individuals or work collaboratively with the supply chain.

Where due diligence is impossible due to a lack of transparent information, you must consider if, when or how to source from an alternative supply chain.



Call to action

Your policy should clarify your approach to identifying, preventing, mitigating, and remediating modern slavery and labour exploitation in your extended supply chains.

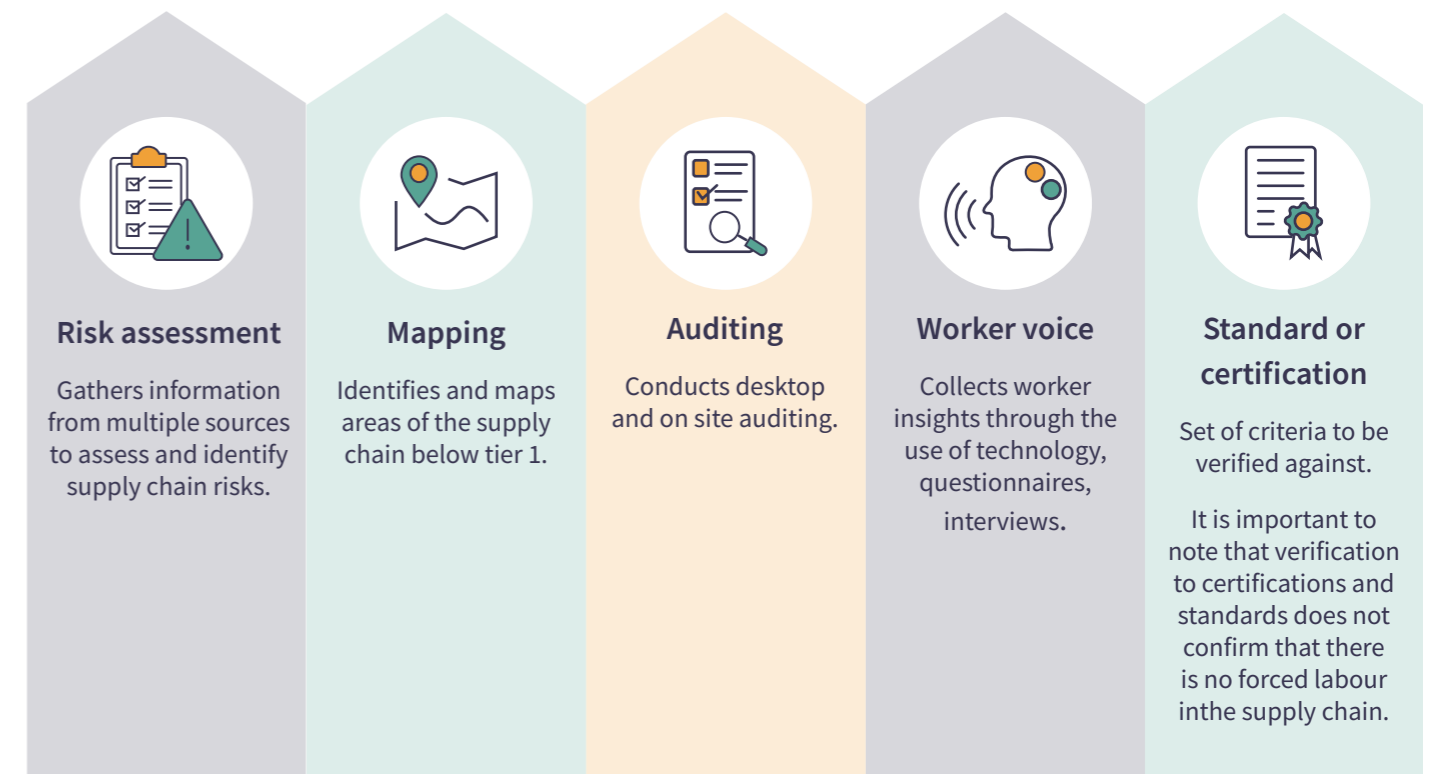


Part Three : Enabling Activities

Supply chain transparency and verification: where to get support

Many services on the market claim to support supply chain mapping, risk identification and management. Notably, these solutions, like auditing, are not a one-stop shop to ensure that solar PV supply chains are free of modern slavery and labour exploitation. Services in this space should complement other activities throughout the due diligence process.

The matrix below contains a non-exhaustive list of solutions available in the market to support supply chain transparency and verification. Each solution has been mapped against the following service offerings:



NOTE: This guidance does not endorse any specific solution providers. The information presented has been gathered through desktop research. Your organisation must find the most appropriate solution based on your business needs.



Call to action

Invest and commit resources to maximise the potential for success in applying due diligence activities throughout your procurement process.

Part Three : Enabling Activities

Solution	Description	Risk assessment	Mapping	Auditing	Worker voice	Standard/certification
<i>Achilles</i>	<p>Achilles helps buyers find suitable suppliers, manage their relationships, and enjoy increased visibility and control over their entire supply chain.</p> <ol style="list-style-type: none"> 1. Ask suppliers all the right questions 2. Validate and audit suppliers 3. Monitor and analyse supplier information 		✓	✓	✓	
<i>BSI</i>	<p>British Standards Institute (BSI) delivers supply chain services and solutions, including advisory services, risk management, supplier verification auditing and BSI Connect Screen.</p>	✓		✓	✓	✓
<i>ChainPoint</i>	<p>ChainPoint is a software platform for monitoring and securing supply chains. Our customers use this software to manage and share product, process, and supplier information, from raw material to finished product.</p>		✓			
<i>Clean Energy Association</i>	<p>The Clean Energy Association provides a traceability program, going upstream all the way to raw materials and including key components, such as polysilicon, in combination with an independent audit of suppliers' own codes of conduct. This empowers importers to become equipped to meet local requirements to demonstrate that the product meets import laws by documenting the provenance of key materials.</p>			✓		
<i>Ecovadis</i>	<p>Ecovadis is a web-based collaboration tool for businesses, which allows procurement executives to access easy-to-use, dynamic scorecards and to monitor the sustainability performance of their trading partners as well as their continuous improvement actions.</p>	✓		✓		
<i>Elevate</i>	<p>ELEVATE designs, builds, and manages data-driven sustainability-linked programs with assessment, advisory, program management and analytics that drive positive impact.</p>	✓		✓	✓	



Part Three : Enabling Activities

Solution	Description	Risk assessment	Mapping	Auditing	Worker voice	Standard/certification
EPEAT for solar PV and inverters	<p>EPEAT helps government agencies, the private sector, educational institutions, and other organisations find and procure technology products that meet rigorous sustainability criteria. It is a global Type 1 ecolabel for electronics and is managed by the Global Electronics Council (GEC). EPEAT criteria address environmental and social impacts across the entire product lifecycle, from the extraction of resources and manufacturing through assembly, use and end of life. EPEAT's newly released criteria for embodied carbon will ensure that EPEAT-registered solar PVs emit less carbon during their production, contributing to lower Scope 3 emissions for purchasers of solar PVs or electricity from solar installations. Products that meet EPEAT criteria are identified on the public-facing website called the EPEAT Registry. Before becoming EPEAT-registered, an independent third-party certification and testing organisation must verify the product's conformance with EPEAT criteria. The US EPA have recently included an EPEAT solar category in recommendations for eco-labels.</p>					✓
Impactt	<p>Impactt deliver in-depth diagnostics services designed to uncover the root causes of issues happening in supply chains, using a beyond audit approach to develop change-focused solutions which maximise benefits for both workers and businesses.</p>	✓		✓	✓	
RBA	<p>The Responsible Business Alliance (RBA) is the world's largest industry coalition dedicated to corporate social responsibility in global supply chains. RBA founded the Responsible Minerals Initiative, which provides resources for companies addressing issues related to the responsible sourcing of minerals in their supply chains, including the Responsible Minerals Assurance Process (3TG and cobalt), Risk Readiness Assessment, Minerals Reporting Templates (3TG and cobalt), industry-wide grievance mechanism, Reasonable Country of Origin Inquiry data, RMI Learning Academy, public global smelter/refiner lists, and a range of practical guidance documents for industry.</p>	✓	✓	✓		



Part Three : Enabling Activities

Solution	Description	Risk assessment	Mapping	Auditing	Worker voice	Standard/certification
SA 8000	The Social Accountability 8000 Standard (SA8000) is the world's leading voluntary social certification program. It requires organisations to develop, maintain and apply socially acceptable practices in the workplace and supply chain. It relies on third party verification by certification bodies accredited by Social Accountability Accreditation Services (SAAS).	✓			✓	✓
Sayari	Sayari was awarded a \$7.8 million contract from US Customs and Border Protection (CBP) to support mitigation of ongoing global supply chain risks and ensure major US corporations comply with import regulations, including new directives like the Uyghur Forced Labour Prevention Act (UFLPA).	✓				
Sedex	Sedex's data insights and tools give visibility into your business, suppliers, and the sustainability performance of your supply chain.	✓	✓	✓	✓	
Sourcemap	Sourcemap is a New York-based company offering end-to-end supply chain visibility through its enterprise supply chain mapping and traceability software.	✓	✓			
SSI	The Solar Stewardship Initiative (SSI) is being designed to further develop supply chain transparency and strengthen confidence in how, where and by whom products and solar components are manufactured. It will work to establish and access verifiable information on current levels of transparency, and on overall ESG performance standards in the solar supply chain. The Solar Stewardship Initiative Roadmap sets a clear path forward.			✓		✓
Verisio	Verisio provides modern slavery management through an automated solution to mapping and assessing supply chain risk. They also conduct social compliance audits such as SMETA.	✓	✓	✓		
Verite	Verité is a global, independent, non-profit organisation providing research, consulting, training, and risk assessment services with a vision.	✓	✓			



References

This guide has been informed by desktop research of over 70 resources, interviews with various international organisations and experts in solar, and a dedicated project steering group.

Interviewees

We want to thank the following organisations, who kindly donated their time to be interviewed by the project team. Your knowledge and experience have helped shape the development of this guide.

Anti-Slavery Commissioner (Australia)	Romanac Consulting
City of Copenhagen	Science & Technology Facilities Council (STFC)
Clean Energy Buyers Association (CEBA)	Scottish Water
Coal Authority	Sheffield Hallam University
Defra	Shiva Foundation
Environment Agency	Sky
FES (installer partner for Scottish Water)	Slave Free Alliance
First Solar	Solar Power Europe / SSI
Global Electronics Council	SSE
Global Witness	Sustainable Purchasing
Government Property Agency (GPA)	Sustainable Supply Chain Alliance (infra)
JA Solar	Ultra Low Carbon Solar Alliance
Next Energy	University of Nottingham
NHS	Vistry
PS Phoenix	Wernick Hire
Responsible Business Alliance (RBA)	Willmott Dixon

Glossary

[Reference Document - BS25700 Organisational response to modern slavery - Guidance](#)

Due diligence

Ongoing risk management process to identify, prevent, mitigate, and account for how adverse impacts are addressed in the organisation and business associates.

[SOURCE: United Nations Guiding Principles Reporting Framework, modified]

NOTE: The UN Guiding Principles on Business and Human Rights stipulates that the primary purpose of human rights due diligence is the prevention of adverse impacts on people.

Forced labour

Work or service exacted from any person under the menace of any penalty and for which the person has not offered himself voluntarily.

NOTE: See BS ISO 26000, ILO Forced Labour Convention, 1930 (No. 29) [3] and the OECD Due Diligence Guidance for Responsible Business Conduct.

Human rights

Basic entitlement and freedoms that belong to everyone regardless of race, sex, nationality, ethnicity, language, religion, or any other status.

NOTE: Human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education and many more.

Lifecycle

Consecutive and interlinked stages of a goods or services system, from raw material acquisition or generation from natural resources to final disposal.

[SOURCE: ISO 14044:2006, 3.1, modified — The word ‘product’ has been replaced by ‘goods or services.’]

Organisation

Person or group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives.

NOTE 1: The concept of the organisation includes, but is not limited to, sole trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or

combination thereof, whether incorporated or not, public or private.

NOTE 2: If the organisation is part of a larger entity, the term ‘organisation’ refers only to the part of the larger entity within the scope of the compliance management system.

[SOURCE: BS ISO 37301:2021, 3.1]

Procurement

The activity of acquiring goods or services from suppliers.

NOTE 1: The procurement process considers the whole cycle, from the identification of needs to the end of a services contract or the end of the life of goods, including disposal.

NOTE 2: Sourcing is a part of the procurement process that includes planning, defining specifications and selecting suppliers.

Risk

Effect of uncertainty on objectives.

NOTE 1: An effect is a deviation from the expected. It can be positive, negative or both and can address, create, or result in opportunities and threats.

NOTE 2: Objectives can have different aspects and categories and be applied at different levels.

NOTE 3: The UN Guiding Principles on Business and Human Rights stipulate that risks should be understood in relation to people and not only the organisation itself.

[SOURCE: BS ISO 31000:2018, 3.1 modified]

Risk Assessment

The overall process of risk identification, risk analysis and risk evaluation.

[SOURCE: ISO Guide 73:2009, 3.4.1]

Slavery

Status or condition of a person over whom any or all the powers attaching to the right of ownership are exercised.

NOTE 1: As legal ownership rights are no longer asserted by exploiters, powers attaching to the right of ownership should be understood as constituting control over a person in such a way as to significantly deprive that person of their individual liberty, with the intent of exploitation through the use, management, profit, transfer, or disposal of that person.



Glossary

Typically, this exercise will be supported and obtained through violent force, deception and/or coercion.

NOTE 2: See Bellagio-Harvard Guidelines on the Legal Parameters of Slavery.

Stakeholder

A person or organisation that can affect, be affected by or perceive itself to be affected by a decision or activity.

NOTE: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1.

Subcontractor

Organisation or individual contracted by the supplier to perform a specific part of a contract.

[SOURCE: BS ISO 20400:2017, 3.29]

Supplier

An organisation that provides goods or services.

[SOURCE: BS ISO 20400:2017, 3.30]

Supply Chain

Direct and indirect relationships of organisations, people, processes, logistics, information, technology, and resources engaged in activities and creating value from sourcing materials through the delivery of products or services, which can span across multiple tiers.

NOTE: The supply chain might include vendors, subcontractors, manufacturing facilities, logistics providers, internal distribution centres, distributors, wholesalers, and other entities that lead to the end user.

[SOURCE: BS ISO 18788:2015, 3.71, modified]

NOTE: See also value chain.

Sustainable procurement

Procurement that has the most positive environmental, social, and economic impacts possible over the entire *life cycle*.

NOTE 1: Sustainable procurement involves the sustainability aspects (3.34) related to the goods or services and the suppliers along the supply chains.

NOTE 2: Sustainable procurement contributes to achieving organisational sustainability objectives and goals and to sustainable development in general.

Transparency

Openness about decisions and activities that affect society, the economy and the environment, and willingness to communicate these in a clear, accurate, timely, honest, and complete manner.

[SOURCE: ISO 26000:2010, 2.24]

Value chain

Process of value creation within a business model across different types of assets from inputs, activities, outputs, and outcomes.

NOTE 1: Types of assets can include finance, raw materials, factored goods, human resource, IP and relationships.

NOTE 2: Value chains can also be highly connected to form value ribbons, e.g., the travel industry connects travel agents to airports to airlines to hotels.

Victim

A person who is or was in situations of modern slavery.

NOTE 1: Many people who have experienced modern slavery prefer the term 'survivor' to describe their self-identity while regaining their freedom. This British Standard recognises survivors' self-identity, which can vary between people throughout their liberation process and that how they choose to identify cannot be assumed by others.

References

- (i) <https://www.iea.org/reports/world-energy-investment-2023/overview-and-key-findings>
- (ii) <https://www.nottingham.ac.uk/research/beacons-of-excellence/rights-lab/resources/reports-and-briefings/2022/march/the-energy-of-freedom-full-report.pdf>
- (iii) [In Broad Daylight Uyghur Forced Labour in the Solar Supply Chain | Sheffield Hallam University \(shu.ac.uk\)](https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight)
- (iv) <https://cdn.walkfree.org/content/uploads/2023/05/17114737/Global-Slavery-Index-2023.pdf>
- (v) <https://www.iea.org/reports/net-zero-by-2050>
- (vi) <https://www.edie.net/global-solar-investments-outpace-oil-and-gas-for-first-time/>
- (vii) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- (viii) [Solar PV manufacturing capacity by country and region, 2021 - Charts - Data & Statistics - IEA](https://www.iea.org/reports/solar-pv-manufacturing-capacity-by-country-and-region-2021-charts-data-statistics)
- (ix) [Over-Exposed | Sheffield Hallam University \(shu.ac.uk\)](https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight)
- (x) <https://www.iea.org/reports/solar-pv-global-supply-chains/executive-summary>
- (xi) [Solar PV Panels Market Size & Share Analysis \[2023 Report\] \(grandviewresearch.com\)](https://www.grandviewresearch.com/industry-analysis/solar-pv-panels-market-size-share-analysis-2023-report)
- (xii) <https://www.oecd.org/environnement/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf>
- (xiii) [Introduction to Just Transition: A Business Brief | UN Global Compact](https://www.un.org/development/desa/dest/2023/04/introduction-to-just-transition-a-business-brief)
- (xiv) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- (xv) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- (xvi) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- (xvii) <https://www.ohchr.org/sites/default/files/documents/countries/2022-08-31/22-08-31-final-assesment.pdf>
- (xviii) [https://media.business-humanrights.org/media/documents/files/Solar - Investor Snapshot 0.pdf](https://media.business-humanrights.org/media/documents/files/Solar_-_Investor_Snapshot_0.pdf)
- (xix) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- (xx) <https://www.bing.com/search?q=BS25700&form=ANNH01&refid=507e668a5c944b4089c1f4f389264c1a&pc=U531>
- (xxi) https://shiftproject.org/wp-content/uploads/2013/11/Shift_leverageUNGPs_2013.pdf
- (xxii) <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/evidence-briefs>
- (xxiii) [Purchasing Power | Key issues | UNISON National](https://www.unison.org.uk/our-work/purchasing-power)





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