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A solar PV supply chain without forced labour

A position paper from the European Solar Manufacturing Council (ESMC)

SUMMARY ESMC strongly condemns all forms of forced labour. This position paper explains ESMC's position against forced labour, presents improvements to the proposed European regulation and includes recommendations to ESMC's members on how to use due diligence to discover and act against forced labour as well as to completely refrain from suppliers and sub-suppliers from the Xinjiang province in China.

Forced labour is a violation of basic human rights and is prohibited in the vast majority of jurisdictions around the world. At present, approximately 28 million people are subjected to forced labour and the solar industry is not exempt from this problem. According to the Global Slavery Index 2023, the manufacturing of solar panels is the fourth most prevalent product category exposed to forced labour (together with electronics, garments, and palm oil).¹

This means that the solar industry must proactively work at all levels to eradicate forced labour from our supply chains.

ESMC urges European legislators to adopt legislation that prohibits the sale of products made with forced labour as soon as possible. In awaiting the legislation, the EU must act urgently to prevent products made with forced labour from entering the European market. Some of the measures that should be considered:

- I. Close cooperation with U.S authorities to avoid re-routing of Xinjiang products to Europe.
- II. Safeguard measures and different forms of support to European industries.

This is a position paper made by ESMC's Working Group on Forced Labour and Socially Sustainable Supply Chain.

¹ [Global Slavery Index](#)

CONTEXT

ESMC is an European PV manufacturing industry association with the purpose of fostering growth and innovation and promoting socially and environmentally sustainable practices along the full photovoltaic value chain in Europe. In this position paper, we explain our position against forced labour, present improvements to the proposed European regulation on forced labour and recommendations to our member organisations on how to work proactively to avoid exposure to forced labour in their supply chains.

FORCED LABOUR IN THE XINJIANG PROVINCE

Forced labour² is a violation of basic human rights and is prohibited in the vast majority of jurisdictions around the world³. It is widespread all over the world, but for the solar PV manufacturing industry, the problem is most prevalent in Asia, especially in the northwestern Xinjiang province of China⁴. According to various reports from independent research institutes and international organisations, local ethnic groups, in particular the Uyghur population, have been subjected to severe suppression. It ranges from mass surveillance to arbitrary detention and forced labour in work camps, linked to governmental programmes aimed at the assimilation of ethnic groups.

There is clear evidence that it is not just about assimilating one ethnic group, but the Chinese government intends to completely wipe out the Uyghur minority and other ethnic groups. As an example, two-thirds of the mosques and graveyards in Xinjiang have been completely demolished or subjected to major destruction, the Uyghur language is banned from schools, no books have been published in Uyghur language in the latest years and under the "*becoming family*" policy, government representatives reside in Uyghur households to identify any activities considered unlawful. Children are kidnapped from their families and placed in families far from home to be raised as Han Chinese. A significant proportion of Uyghur women are subjected to sterilisation so that the Uyghur population will gradually decrease and be replaced by Han Chinese.⁵ Despite its

² "All work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily" (The ILO Forced Labour Convention, 1930 No. 29).

³ Examples: Universal Declaration of Human Rights (1948). International Covenant on Civil and Political Rights (1966). Labour Convention (1930). Abolition of Forced Labour Convention (1957). The European Charter of Fundamental Rights (2009). Directive on preventing and combating trafficking in human beings and protecting its victims (2011).

⁴ L. T. Murphy, E. Nyrola, In broad daylight: Uyghur forced labour and global solar supply chains, Sheffield Hallam University

⁵ The French documentary "Chine – Le drame ouïghour" (2022).

official designation as the "*Autonomous Uyghur Region of Xinjiang*" the region is far from autonomous. It has been transformed into a police state where no citizen is truly safe.

ESMC fully concur with the condemnation of the world community of the Chinese state repression in Xinjiang expressed among others by the United Nations, governments and the EU, human rights organisations and the International Trade Union Confederation. Several national parliaments, such as those in France, the US, the Netherlands, and the UK, have labelled the treatment of Uyghurs as genocide.

In recent years, the Chinese assimilation policy has also acquired an economic dimension. Besides being the largest province in China, Xinjiang also has the country's largest resources of coal, oil, and gas as well as China's — and the world's — largest production of metallurgical grade silicon and polysilicon. As of 2020, Xinjiang accounted for 45 percent of the world's solar-grade polysilicon supply and the rest of China an additional 30 percent. Further on in this paper, we'll see that this figure has gone down to 35 percent, but it has to be taken into consideration that the total global production of polysilicon has gone up.

According to the report "*In Broad Daylight*" (2021)⁶ from Sheffield Hallam University 11 Chinese companies are directly engaged in state-sponsored forced labour programmes. An additional 90 companies — Chinese and international — are mentioned in the report whose supply chains were affected by forced labour. According to the report, 2.6 million minoritised citizens are placed in job farms and factories in the Xinjiang province through state-sponsored "surplus labour" initiatives, i.e., forced labour programmes. Sheffield Hallam University recently updated the findings from Xinjiang in the report "*Over-Exposed*" (2023)⁷ stating that the repression in the region rather has increased than declined. None of the companies directly involved in the government's forced labour programmes have changed their recruitment methods or shown any resistance to the Chinese government's labour programmes. As before, independent audits, free trade unions, and scrutiny from the world outside China are made impossible in Xinjiang.

The reports from Sheffield Hallam University have shed light on the complexity of addressing this issue. In view of the reports, it has become clear that the PV solar industry requires, on one hand, the implementation of internal rigorous methodologies, and on the other, external mechanisms to

⁶ L. T. Murphy, E. Nyrola, *In broad daylight: Uyghur forced labour and global solar supply chains*, Sheffield Hallam University

⁷ A. Crawford, L. Murphy, *Over-exposed: Uyghur region exposure assessment for solar industry sourcing* Sheffield Hallam University

ensure those methodologies are standardised and consistent within the industry. Only in this way can we ensure that responsible suppliers are shielded from the allegations.

ESMC believes that it's impossible to conduct independent business operations with respect to labour rights and human rights in the Xinjiang province. Therefore, we urge our members to thoroughly examine every step of their value chains. If there are links to the Xinjiang province in the form of raw materials or product deliveries or any other dependencies, those connections should be re-examined and ultimately exited with the proper care for human rights.

Until the early 21st century, Europe had been a front-runner in the PV manufacturing industry. However, a combination of subsidies and the availability of low-cost labour, which regrettably included exploitative practices such as forced labour, prompted a significant shift in the solar sector to China. This shift left Europe heavily reliant on China across the entire supply chain, spanning from silicon production to wafer manufacturing and PV module assembly. ESMC is resolute in its advocacy for reducing this dependency and revitalising a substantial portion of the PV industry within Europe. We wholeheartedly commend and support initiatives such as the European Green Deal, Net Zero Industry Act, Temporary Crisis Framework, REPowerEU, and the EU Solar Strategy. These endeavours share a common objective: to decarbonise Europe and fortify sustainable manufacturing within the continent. ESMC has, together with other stakeholders, proudly co-founded the European Solar PV Industry Alliance (ESIA), with the target of 30 GW of European production all along the value chain by no later than 2025. While these initiatives are undoubtedly pivotal, we recognise the pressing need for more targeted actions against forced labour, particularly at a regulatory level.

REGULATORY ACTION MATTERS

In 2022, the Uyghur Forced Labor Prevention Act (UFLPA)⁸ was enacted in the USA. Under this law, all goods either entirely or partially produced in Xinjiang are assumed to be the result of forced labour and are thus prohibited from entering the US market unless proven otherwise. Since its implementation, over 5000 shipments have been detained at US ports, many of which are related to the solar PV industry.⁹ After the enactment of UFLPA, solar companies have tried to find new supply chains in order to avoid exposure to forced labour. Some companies have cut their ties to Xinjiang altogether and others have bifurcated the business into separate production for the US

⁸ [Uyghur Forced Labor Prevention Act](#)

⁹ [See updated statistics at U.S. Customs and Border Protection](#)

market and for the rest. According to the report *Over-Exposed* the dependency of polysilicon from Xinjiang has dropped from 45 to 35 percent and is expected to fall even more during 2023. If this trend continues, UFLPA is a good example of the effects of regulatory action, but we need to be vigilant on supplier companies bifurcating their supply chains to be sure that products are not tainted with forced labour. Thus, ESMC strongly encourages the EU and European legislators to diligently draft laws banning products linked to forced labour. We commend EU efforts like the Directive on Corporate Sustainability due diligence, which pushes major companies to scrutinise their supply chains, and the proposed Regulation on the prohibition of products made with forced labour.¹⁰ The intentions of those legislations are to increase transparency in the value chains and ultimately ban products made with forced labour, but we are afraid those initiatives will not be effective enough to address the root causes of forced labour. Therefore, we advocate for both rigorous and effective laws and an intensified industry commitment to eradicate forced labour throughout the PV supply chain.

IS EUROPE A DUMPING GROUND?

It is also worth mentioning that when Xinjiang-exposed modules are prevented from entering the US market, Chinese exporters apparently have diverted their surplus to the currently under-regulated European market that allows these modules to enter unabated. Presently, there is an excess of 40 GW of Chinese-made PV modules on the European market, equivalent to the entire 2022 installation volume in Europe. This further depresses prices and undermines a more sustainable European solar module production. This begs the critical question: How much longer will Europe tolerate becoming a destination for solar panels produced with forced labour; a dumping ground?

¹⁰ [Regulation on the prohibition of products made with forced labour \(COM \(2022\) 453\)](#)

ESMC POSITION ON EU´S PROPOSED BAN ON FORCED LABOUR

As mentioned, we welcome the European Commission's initiative to prohibit the sale of products made with forced labour. However, we strongly advocate for an even more robust regulation that unequivocally bans the sale of all products made with forced labour, leaving no room for loopholes.

To achieve this, we propose the following measures:

1. A BAN SHOULD BE A BAN (ART 3)

The European Commission currently places the burden of proof on European member states to establish a product's connection to forced labour, which can lead to a protracted, costly, and suboptimal process. We advocate for a clear import ban on products originating from regions where state-sponsored forced labour is known to occur. Ideally, we'd like to see regulations more in line with the U.S. Uyghur Forced Labor Prevention Act (UFLPA). In the absence of UFLPA-like legislation, EU legislators should amend the proposal to make it easier to ban products or parts of the value chain made with forced labour. This should include the possibility of prohibiting entire categories of products or specific components originating from regions like Xinjiang, with the ban enforced until proven otherwise.

2. DATABASE (ART 11)

It is essential that the proposed database over risk-areas and products exposed for forced labour is set up as soon as possible by the European Commission. The database should be based on independent and verifiable information and conduct its work of the principles of transparency and, e.g., publish all open investigations. It should also be subject to continuous revision. The database should work in close cooperation with ILO, industry partners, civil society, academia, third countries and other relevant stakeholders.

3. REVERSED BURDEN OF PROOF (ART 3, ART 11)

We agree with the co-Rapporteurs of the European Parliament on the proposed reversed burden of proof obligating the economic operators in cases of suspected forced labour to prove the opposite.

4. INVESTIGATIONS (ART 4, ART 5)

When investigations on suspected forced labour is carried out, the product or part of products deriving from a suspected region should by default be denied entry to the European market. Investigations should also be used as a process where companies and member states reach out to workers with the purpose of improving working conditions, enabling remediation and access to justice.

5. DUE DILIGENCE OBLIGATIONS (ART 4 (6))

We support the requirement on economic operators to carry out due diligence in order to identify, prevent, mitigate and bring to an end the use of forced labour among own operations as well as all thorough the supply chain as requested in the Corporate Sustainability Due Diligence Directive and in this proposed regulation. We ask for the maximum possible transparency in the due diligence process, and the fact that a company carries out due diligence should not work as an excuse for a member states authority to open up investigation when necessary.

6. THE UNION NETWORK AGAINST FORCED LABOUR PRODUCTS (ART 24)

It´s important that the proposed Union Network Against Forced Labour Products will have the mandate to also collaborate with third countries, international organisations and industry representatives when necessary. The Network should have the appropriate funding and capacity.

7. SMES (RECITAL 18)

To proactively combat forced labour, especially among small and medium-sized enterprises (SMEs), the EU and member states should provide guidelines, make information readily available, and lessen scrutiny for the value chain segments not directly involved in import activities.

8. REMEDIATION OF VICTIMS

We would like to see clear provisions on remediation to affected victims on forced labour. Remediation could be both financial and non-financial compensation.

9. IT´S THE INDUSTRY

Lastly, we'd like to offer a linguistic observation with a concrete proposal. Both the draft proposal from the Commission and the report from the European Parliament consistently use the term "business"/"business organisations"/"business partners" when referring to, what we believe is meant to refer to, "industry" representatives. Representing the manufacturing industry, we believe it's vital for industry representatives to be distinctly recognised and appropriately labelled. Hence, we simply suggest consequently replacing the word "business" with "industry". E.g., instead of "business partners" use "industry partners". Instead of "business organisations" use "industry organisations".

CONCLUSION:

ESMC urges the EU and its member states to adopt a stringent regulation that leaves no room for forced labour within the solar manufacturing supply chain. By creating an environment free from forced labour, we can uphold the values of human rights, ethical manufacturing, and responsible industry practices. While we wholeheartedly support the European Green Deal, it is crucial that the climate transition aligns with Environmental, Social, and Governance sustainability, ensuring not only a carbon-neutral society but also one that is environmentally, socially, and governance-ally justifiable.

POLITICAL ACTION IN THE SHORT TERM

Regardless of the outcome, it will take time — 18 to 24 months — until the legislation is enforced. Considering both the urgency of the situation and the risk for the EU of becoming a dumping ground for unethically made solar modules, the EU must act immediately to combat forced labour. While awaiting formal legislation, we strongly urge the EU and its member states to take proactive measures to safeguard European solar manufacturing.

Our recommended actions in the short term are:

1. The EU should collaborate with the U.S. authorities, making use of “the U.S. Uyghur Forced Labor Prevention Act Entity List” as well as “the U.S. Department of Labor’s Register of Products Manufactured with Child or Forced Labor” in order to stop all Xinjiang-made solar material such as polysilicon, wafers, cells and modules.
2. Activate the EU procurements scheme to buy European modules.
3. Further implement Temporary Crisis and Transition Framework in the Member States.
4. Include 40% market share capacities for European-produced PV modules into the Net Zero Industry Act.
5. Include the bonus-point resilience system in the public procurements and auctions of the Net Zero Industry Act.
6. Leverage the new EU regulation, Foreign Subsidies Regulation, a new EU tool to tackle foreign subsidies that cause distortions and undermine the level playing field in the internal market.
7. The EU should also consider imposing trade defence measures against China.

Taking these immediate actions will help mitigate the risk of continued reliance on products potentially tied to forced labour, safeguarding European solar manufacturing, and ensuring a more ethical and sustainable industry.

DUE DILIGENCE IN SOLAR PV SUPPLY CHAINS - RECOMMENDATIONS TO ESMC'S MEMBERS

Here are ten important recommendations on how your company can discover — and address — links to forced labour in your supply chain.

1. ENGAGE ALL

Engage everyone in the company in the effort to proactively work against forced labour. The top management should be aware of all relevant governance documents and actively involve themselves in the work against forced labour. Employees should be aware of their rights and know how to report problems and risks of forced labour.

2. MAPPING

Map your supply base regularly. Identify potential high-risk suppliers. Make use of third-party tools and indexes on forced labour and other ESG aspects. Do not source any product/material at all from the Xinjiang province. Be vigilant on bifurcation which enables suppliers to continue sourcing from Xinjiang; re-routed supplies of material could be a sign of suppliers still dependent on forced labour.

3. SUPPLIERS CONTRACTS/CERTIFICATION

Adopt a code of conduct relevant to your practices, on which your suppliers must comply. Your suppliers must warrant that they will not use forced labour or any other abusive methods in the supply of goods and service to you.

4. RAW MATERIAL TAGGING

Introduce unique QR codes or Manufacturing Execution System (MES) — or similar — to batches of raw materials, starting with monocrystalline- and polysilicon. Every time the material is processed, moved, or incorporated into a product, the action is logged onto a blockchain or Manufacturing Execution System (or similar). Every finished solar panel will have a comprehensive digital history, which can be accessed and verified by scanning its code.

5. AUDIT

Audit your suppliers regularly, with a focus on potential high-risk suppliers, on forced labour and other relevant ESG aspects. Apply third-party audit following established social audit protocols e.g., Responsible Business Alliance, SA8000 and polysilicon traceability protocols e.g., Solar Energy Industry Association Traceability Protocol. Auditors should be vetted and certified to conduct social audits. Make sure there is a right to unionise at workplaces and that all other relevant labour legislation is followed. Conduct regular interviews with a random selection of employees and/or union representatives to gauge work conditions, wages, and voluntariness of their employment. Establish mechanisms that make it easier for staff to report risks of forced labour and other irregularities. Building on existing examples, such as the Modern Slavery Act, it's recommended to either make available independent statements describing your actions to combat forced labour, or to clearly indicate where the statement can be found within your regular sustainability report.

6. WHISTLEBLOWER MECHANISM

Establish a secure platform for workers within your company and your supply chains to report unethical practices without fear of retaliation. One way to go is to establish internal hotlines/whistleblower mechanisms where employees can anonymously report risk for wrongdoing.

7. TRAINING AND CAPACITY BUILDING

Educate all relevant staff regularly in the work of identifying and addressing forced labour, especially with a focus on your governance documents and current legislation.

8. CORRECTIVE ACTIONS

Adopt a zero-tolerance policy towards forced labour. If evidence is found that a supplier uses forced labour, use your leverage to bring forced labour to an end, as recommended in the OECD Due Diligence Guidelines. If not possible the relationship with that supplier should be terminated. Remember, where it is not possible to carry out independent audit at all, as in the case of Xinjiang, you should suspend or terminate your engagement. "Participate actively in remediating affected workers."

9. STAKEHOLDER ENGAGEMENT

Maintain close dialogue with relevant actors in the field of forced labour; trade unions, human rights organisations and researchers. View criticism of your operations as

something constructive and an opportunity for improvement. In accordance with the EU Taxonomy's minimum safeguards, companies should not refuse to engage in stakeholder dialogue with an OECD National Contact Point or the Business and Human Rights Resource Centre (BHRRC).

10. LOBBY POLICYMAKERS AND SPEAK OUT PUBLICLY

Influence decision makers to achieve as rigorous and comprehensive legislation as possible. In Europe, this currently involves the EU's proposal for a regulation to ban products made with forced labour and to have the Due Diligence Directive implemented as well-functioning as possible. When possible, use opportunities to educate the public about force labour through speaking at public events.

Due diligence is an ongoing process that must always be carried out by the member companies of ESMC. These due diligence steps are recommendations based on best practices and are one way of carry out an important and integrated work to eliminate forced labour from your supply chain. You have also made a significant contribution to a fairer solar PV industry, free from forced labour. The advantage of this is that it will strengthen your quality work, and you will become a better company in all respects. This needs to be an ongoing process and an integrated part in your company's quality work.

RECOMMENDED READING: KEY DOCUMENTS

UNITED NATIONS UNIVERSAL DECLARATION OF HUMAN RIGHTS (UDHR)

The foundational document in international human rights law, it lays out rights and freedoms that every individual is entitled to, regardless of nationality, place of residence, or other status. [Link](#)

UN GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS

Establishes the responsibility of businesses to respect human rights and offers guidance on how to ensure that rights are not adversely impacted by business operations. [Link](#)

UNITED NATIONS GLOBAL COMPACT

The world's largest corporative sustainability initiative, according to themselves (i.e the UN). [Link](#)

INTERNATIONAL LABOUR ORGANIZATION (ILO) CONVENTIONS

Forced Labour Convention, 1930 (No. 29): Provides definitions and measures to eliminate forced labour. [Link](#)

ABOLITION OF FORCED LABOUR CONVENTION, 1957 (NO. 105)

Further focuses on the abolition of forced labour. [Link](#)

CHARTER OF FUNDAMENTAL RIGHTS OF THE EUROPEAN UNION.

Enshrines certain political, social, and economic rights for European Union (EU) citizens and residents into EU law. [Link](#)

EUROPEAN CONVENTION ON HUMAN RIGHTS

The international convention to protect human rights and political freedoms for the member states in the Council of Europe. [Link](#)

OECD DUE DILIGENCE GUIDANCE FOR RESPONSIBLE BUSINESS CONDUCT

Offers practical guidance for companies on implementing the due diligence necessary to ensure responsible business conduct. [Link](#)

EUROPEAN COMMISSION DRAFT REGULATION ON PROHIBITING PRODUCTS MADE WITH FORCED LABOUR COM (2022) 453

The European Commission's proposal to law to ban products made with forced labour, issued Sept 2022. [Link](#)

CORPORATE SUSTAINABILITY REPORTING DIRECTIVE, EU 2022/2464

The directive requires companies to report on how their business model affects their sustainability, and on how external sustainability factors influence their activities. [Link](#)

EU FOREIGN SUBSIDIES REGULATION DISTORTING THE INTERNAL MARKET, COM (2021) 223

The regulation addresses distortions created by subsidies that are granted by non-EU countries to companies operating on the EU single market. [Link](#)

EUROPEAN COMMISSION DIRECTIVE ON CORPORATE SUSTAINABILITY DUE DILIGENCE COM (2022) 71

The aim of the Directive is to foster sustainable and responsible corporate behaviour and to anchor human rights and environmental considerations in companies' operations and corporate governance. The new rules will ensure that businesses address adverse impacts of their actions, including in their value chains inside and outside Europe. [Link](#)

GLOBAL SLAVERY INDEX 2023

A global index over different forms of modern slavery including forced labour. It has been set up by the human rights group Walk Free. [Link](#)

IN BROAD DAYLIGHT: UYGHUR FORCED LABOUR AND GLOBAL SOLAR SUPPLY CHAINS (2021)

Report from Sheffield Hallam University [Link](#)

OVER-EXPOSED: UYGHUR REGION EXPOSURE ASSESSMENT FOR SOLAR INDUSTRY SOURCING (2023)

Report from Sheffield Hallam University [Link](#)

RESPONSIBLE BUSINESS ALLIANCE, VALIDATED ASSESSMENT PROGRAM

A standard for onsite compliance verification and effective, shareable assessments conducted by independent, third-party firms [Link](#)

SOLAR ENERGY INDUSTRIES ASSOCIATION (SEIA) SOLAR SUPPLY CHAIN TRACEABILITY PROTOCOL

A set of recommended policies by the Solar Energy Industries Association designed to identify the source of a product's material inputs, and trace the movement of these inputs throughout the supply chain. [Link](#)

SA 8000

A leading social certification program, by Social Accountability International. [Link](#)

BUSINESS & HUMAN RIGHTS RESOURCE CENTRE

An organisation dedicated to advancing human rights in business and eradicating abuse. [Link](#)

ITUC GLOBAL RIGHTS INDEX

Depicts the world's worst countries for workers by rating 139 countries on a scale from 1-5 based on the degree of respect for workers' rights. [Link](#)

THE UYGHUR FORCED LABOR PREVENTION ACT (PUBLIC LAW NO. 117-78)

The United States prohibition on the importation of goods manufactured with forced labour in the People's Republic of China, especially from the Xinjiang Uyghur Autonomous Region, or Xinjiang. [Link](#)

UFLPA ENTITY LIST

A list of entities in Xinjiang that produce goods with forced labour. [Link](#)

U.S. DEPARTMENT OF LABOR ´S LIST OF GOODS PRODUCED WITH CHILD LABOR OR FORCED LABOR

The Bureau of International Labor Affairs (ILAB) maintains a list of goods and their source countries which it has reason to believe are produced by child labour or forced labour in violation of international standards. [Link](#)

This is a position paper presented by ESMC's Working Group on Forced Labour and Socially Sustainable Supply Chain in September 2023. For more information or inquiries on the content, contact ESMC Sustainability Policy Director Jens Holm, holm@esmc.solar.