



Practical Approaches to Procuring Solar Modules with Polysilicon not Produced Using Forced Labour

These text modules are intended to support public procurers in sourcing solar modules manufactured exclusively with polysilicon that has not been produced using (state-imposed) forced labour.

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Preface

The following text modules were developed by the district office of Friedrichshain-Kreuzberg (Berlin) with the support of legal counsel and in close collaboration with experts from the solar industry. Key considerations regarding the design of the text modules can be found in the legal opinion “Tender criteria and verification requirements for the procurement of solar modules with the lowest possible risk of state-imposed forced labour in the supply chain” by attorney Katja Gnittke, WMCR Lawyers.

The text modules are intended to support public procurers in sourcing solar modules manufactured exclusively with polysilicon that has not been produced using (state-imposed) forced labour.

This is achieved, on the one hand, through the implementation of the Resilience Criteria pursuant to Article 25(7) NZIA, under which no more than 50 percent of the polysilicon used (and other main specific components named below) may originate from third countries. For the remaining 50 percent, the contractor must either demonstrate compliance with high labour and safety standards or source this portion as well from countries that are not associated with a high risk of human rights violations and provide corresponding proof of supply chain transparency.

Practical implementation of template text modules

The placement of the text modules depends on the overall structure of the procurement documents. To ensure that the proposed criteria are binding for all bidders/contractors, they should be incorporated as mandatory exclusion criteria (pass/fail criteria) within the procurement documents.

The requirements under sections I) and II) constitute contract performance conditions and should therefore be included either in the technical specifications or in the contractual terms and conditions. The evidence referred to under section II) is to be submitted after award of contract.

The envisaged self-declaration to be submitted together with the tender would form part of the documents required with the bid (typically listed in the tender conditions). The declaration itself may be included in the tender letter or attached as an annex.

Terminology must be consistent with that used in the other procurement documents. This should be reviewed and aligned when compiling the final documentation.

Note: To rule out the possibility that the polysilicon is produced by manufacturers based in non-privileged third countries such as China or Malaysia, the polysilicon for the modules to be procured may be sourced through a separate process that precedes the procurement procedure for the modules themselves. This strategy is described in Section IV.

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Template Text Modules for the Procurement of PV Modules with the Lowest Possible Risk of Forced Labour

Requirements for Resilience, Labour and Safety Standards for Silicon Based Solar Modules

Introduction for Bidders: Within the scope of this tender for the procurement of Photovoltaic (PV) modules, which are considered Net-Zero Technologies according to Regulation (EU) 2024/1735 (Net-Zero Industry Act – NZIA), the contracting authority places particular emphasis on strengthening the resilience of European supply chains of PV modules and their main specific components and on adhering to high ecological and human rights standards.

I. Requirements Based on Net-Zero Industry Act (NZIA)

1. Resilience Criteria pursuant to Article 25(7) NZIA

Scope: Pursuant to Article 25(7) NZIA, the resilience criteria are mandatory, as the Commission, in its Communication C/2025/3236 (Section II, Table 1) has identified a significant dependence of the Union on supplies of PV technologies and their main specific components from a single third country (China with >50% market share).

2. Obligation to diversify Supply Chains

The contractor has to ensure, for the duration of the contract,

- a) not to supply more than 50 % of the value of the [specific net-zero technology which is subject matter of the contract] from each individual third country as determined by the Commission [Communication C/2025/3236 (China)];
- b) no more than 50 % of the value of the main specific components according to Commission Implementing Regulation (EU) 2025/1178 [PV grade polysilicon, PV grade silicon ingots or equivalent, PV wafers or equivalent, PV cells or equivalent, Solar glass, PV modules, PV inverters, PV trackers and their specific mounting structures] of the [specific net-zero technology which is subject matter of the contract] is supplied or provided directly by the successful tenderer or by a subcontractor from each individual third country as determined by the Commission [Communication C/2025/3236 (China)];
- c) to provide adequate evidence relating to points (a) and (b) at least according to II.1.

The obligations a), b) and c) also relate to [specific net-zero technology which is subject matter of the contract] and main specific components provided by subcontractors and suppliers/producers.

II. Requirements for PV Grade Polysilicon

If polysilicon used to manufacture the purchased modules is produced in countries listed on the [DAC Country list](#) (this includes China (max. 50 % share, see I.) and Malaysia), evidence of labour and safety standards as [specified under 2.](#) and a [proof of traceability according to 1.](#) must be submitted.

In the event that 100% of the polysilicon used for the purchased modules is produced outside countries on the DAC country list (this means: no production in China or Malaysia), [proof of traceability according to 1.](#) is sufficient.

1. Supply Chain Transparency

For PV grade polysilicon:

[After award of contract] the contractor has to submit a proof of traceability that ensures that the PV grade polysilicon produced by the disclosed PV grade polysilicon producers is used for production of the purchased modules. The proof has to meet the standard 2PfG 3103/11.24 for traceability in the photovoltaic industry or an equivalent standard that ensures the following and that is based on ISO 9001 and ISO 28000:2007:

- If 100% of the polysilicon used for the purchased modules is produced outside DAC-countries, it must be ensured that no polysilicon from DAC-countries is used for the production process of the purchased modules (Ingot, Wafer, PC Cells, PV modules).
- In the event that polysilicon from DAC countries is used, it must be ensured that no more than 50% of the value of polysilicon used for the production of the purchased modules is supplied or provided directly or indirectly (by subcontractors or suppliers/producers) from any single third country: Commission Communication C/2025/3236 (China);
- In the event that polysilicon from DAC countries is used, it must be ensured that polysilicon produced in DAC countries fulfils the [conditions named in 2.](#)
- **Proof of evidence** includes the following information for each production step from polysilicon to modules:
 - ✓ List of suppliers/producers relevant for the purchased order for each production step from polysilicon to modules, which includes the addresses of the production sites and supplier/producer names (producers of PV grade polysilicon, supplier/producers of PV ingots, PV wafers, PV cells, PV modules)
 - ✓ Traceability control procedure
 - ✓ Product delivery notes/packing lists. *Note: The quantity of material delivered must correspond to the amount which is needed for the final order of modules*
 - ✓ Outgoing quality report
 - ✓ Production report (MES/WMS/ERP)
 - ✓ Material in/out of warehouse records
 - ✓ Incoming quality control report
 - ✓ Bill of lading
 - ✓ Procurement contract
 - ✓ Invoice

In addition to the invoice for the delivered modules a declaration from the PV grade polysilicon producer confirming that the quantity of PV grade polysilicon required for the production of the ordered modules has been delivered to the module supplier/producer or ingot/wafer supplier/producer that is declared as the supplier of the ingots/wafers for the modules.

The declaration of the PV grade polysilicon producer must include the following information:

- ✓ Name and address of the PV grade polysilicon producer
- ✓ Name and address of the company receiving the delivery (upstream integrated module or ingot/ wafer supplier/producer)
- ✓ clear reference to the polysilicon quantity of the delivered modules using a unique identification number from the PV grade polysilicon producer that confirms the purchased volume (e.g. the pallet number).
- ✓ Date of dispatch (Stock goods are excluded)
- ✓ Date, name and signature of a representative of the polysilicon producer

Note: Means of Proof for all other [specific net-zero technology which is subject matter of the contract] [ingots or equivalent, PV wafers or equivalent, PV cells or equivalent, solar glass, PV modules, PV inverters, PV trackers and their specific mounting structures] to be added

2. Requirements for PV Grade Polysilicon Produced in Countries on the **DAC-List**

2.1 Labour and Safety Standards

The production facilities where the PV grade polysilicon for the modules in question is produced must ensure that, for the production of the PV grade polysilicon that is a component of the [specific net-zero technology which is subject matter of the contract] delivered, the following requirements are implemented during contract execution:

- a) The implementation of a certified Environmental Management System (EMS) according to ISO 14001 or equivalent, covering all relevant processes, products, and services
- b) The implementation of a certified Occupational Health and Safety Management System in accordance with ISO 45001 or equivalent, which covers all relevant activities, products, and services
- c) Participation in an external non-governmental grievance mechanism that is accessible to all workers at the production sites entrusted with the production of the PV grade polysilicon, which is a component of the delivered [specific net-zero technology which is subject matter of the contract] and that enables anonymous and effective reporting of violations of all social standards named in d). In accordance with international human rights due diligence standards and the "Right to Remedy" principle (as outlined in the UN Guiding Principles on Business and Human Rights), it must be ensured that the grievance mechanism enables the contracting authority to receive regular, anonymized or aggregated information about submitted complaints and their resolution
- d)
 - that hazardous chemicals/materials are controlled, stored, transported, used, and disposed of in accordance with applicable laws and regulations, and that all hazards and risks to workers are minimized
 - that an inventory of hazardous chemicals/materials is kept; that workers understand their associated risks; that workers are provided with access to the relevant safety data sheets in a language they understand wherever hazardous substances are used
 - that chemicals and hazardous substances subject to international bans are not manufactured, traded or used
 - that the use of hazardous chemicals/materials is reduced and alternatives to hazardous substances are used in operational activities and processes, wherever technically feasible and economically viable
 - that there is no support or benefit from the use of any form of forced labour or modern slavery. This includes prison, indentured, bonded, slave or other forms of forced labour. The systems must ensure that the facility does not participate in acts of human trafficking and/or sexual exploitation in adherence to the ILO Forced Labour

Convention, 1930 (No. 29) and the ILO Abolition of Forced Labour Convention, 1957 (No. 105).

- compliance with the other nine core conventions of the International Labour Organization (ILO) (Convention numbers: 87, 98, 100, 105, 111, 138, 182), Convention No. 1, as well as the UN Convention on the Rights of the Child, and with Convention No. 14 (weekly rest)
- that obligations to workers under labour or social security laws and regulations are not avoided through the use of labour-only contracting, subcontracting, or home-working arrangements, or through apprenticeship schemes where there is no real intent to impart skills or provide regular employment, nor shall any such obligations be avoided through the excessive use of fixed-term employment instead of regular employment relationships
- that no recruitment fees or related costs are borne by workers at any stage of the selection, recruitment, and employment or termination process if this leads to debt bondage
- the following requirements with regard to occupational health and safety in accordance with ILO Convention No. 155 (Occupational Safety and Health, 1981) and No. 187 (Promotional Framework for Occupational Safety and Health, 2006):
 - a) Safe and healthy working conditions in order to prevent workplace accidents, injuries, and occupational diseases, including regular risk assessments and the provision of personal protective equipment.
 - b) An effective system for reporting and investigating workplace accidents and near misses

2.2 Requirements for Proof of Compliance with Labour and Safety Standards

- a) current ISO 14001 or equivalent certificate issued by an accredited certification body. The certificate must reflect the current status and be renewed regularly through surveillance audits. The certification body must be accredited to ISO 17065 or 17021 with a relevant scope by an accreditation body member of the International Accreditation Forum (IAF)
- b) current ISO 45001 or equivalent certificate issued by an accredited certification body. The certificate must reflect the current status and be renewed annually in the course of surveillance audits. The certification body must be accredited to ISO 17065 or 17021 with a relevant scope by an accreditation body member of the International Accreditation Forum (IAF)
- c) evidence of the social standards and the standards of chemical management listed above must be provided by an external social audit carried out by an organization that is financially and organizationally independent of implementation and supply interests. Lead assessors must have a minimum of 5 years of auditing experience in solar, renewable energy, or related industries and demonstrate familiarity with the geographical and cultural context of the site to be assessed. They must also have experience in human rights impact assessments and social impact assessments and must be trained in assessments of modern slavery.

The contracting authority must be provided with the audit report itself as proof before delivery; a certificate alone is not sufficient.

The audit must be commissioned by the contractor no later than four weeks after the contract has been awarded. Proof of commissioning must be submitted to the contracting authority without being requested, no later than four weeks after the contract has been awarded. The audit must not be carried out before award of the contract.

The audit must be based on a comprehensive risk analysis of the production site to be assessed, including industry-specific and regional risks.

In the event of a deviation from the social standards, the production site of PV grade polysilicon shall establish a time-bound action plan to be approved by the audit organization and by the contracting authority no later than four weeks from notification of the deviation. The action plan shall be proportionate to the severity of the deviations and shall describe how the deviations will be addressed within the time frame. The improvement process will be controlled by regular follow-up visits during the contract.

The contracting authority may request on-site progress reports on improvements during the contract time.

The audit must include the following elements:

- Detailed, anonymous interviews with employees from various hierarchical levels and backgrounds (including migrants and migrant workers), conducted on-site by local representatives in workers' native language
- Management interviews, recruitment agent interviews, documents and payroll review, accommodation inspection

- The certainty that actions by an assessor or investigator do not put vulnerable workers at greater risk, or compromise the possibility of conducting further investigation by competent authorities if criminal abuse and exploitation is suspected
- Review and evaluation of working conditions on-site, with particular attention to the standards named in 2.1 d
- Reviews must include timecards, payrolls, wage slips, personnel records, job descriptions, etc.
- Analysis of contextual factors and labour recruitment practices, especially with regard to labour migration, subcontractor structures, and debt bondage
- Quantification of recruitment fees to in-scope workers
- Verification of the implementation of prior recruitment fee repayment and/or corrective action plans
- Description of the grievance mechanisms of the production sites, based on the eight effectiveness criteria of grievance mechanisms according to UN Guiding Principle 31. The grievance channels must be provided, including contact options (e.g. email address, phone number for calling and messaging, link to the online form on the website, photo and description of the location of the suggestion box); the number and type of complaints and the steps taken to resolve them
- Preparation of a detailed audit report with specific recommendations and measures to mitigate risks and improve working conditions, including detailed information on recruitment fees paid to inform a reimbursement plan.
- A closing meeting of the audit organization with the contracting authority to outline initial findings and highlight major issues for remediation
- Annual follow-up visits of audit organization during period of contract, and 6 and 18 months after the closing meeting. Additional visits can be requested. [MODIFY TO MATCH THE CONTRACT DURATION]

The scope of the investigations of social standards named in d) will cover the in-scope facility and recruitment agent policies, procedures, and practices that apply to all workers (including migrants and migrant workers) with reference to:

• Recruitment, selection, and hiring, including:

- Quotas, visas, work permits
- How migrant workers are hired and brought to the site
- Recruitment and hiring in both the receiving and the sending countries
- Employer paid recruitment fees and costs
- Worker paid recruitment fees and related costs
- Transparency of the labour supply chain
- Recommendations on any problems or risks
- Contractual and commercial relationships with labour agents
- Employment contracts and arrangements
- Pre-departure processes, briefings, etc.
- Post-arrival orientation

- Compensation and benefits
- On-site management
- Involvement of labour agents
- Contract termination and repatriation

2.3 Worker Trainings

Mandatory digital worker training carried out by an independent organization that is financially and organizationally independent of implementation and supply interests

All workers directly involved in the production and handling of PV grade polysilicon, which is a component of the delivered [specific net-zero technology which is subject matter of the contract] must be trained in:

- Occupational health and safety risks specific to polysilicon production,
- Proper use of personal protective equipment (PPE),
- Safe handling of hazardous chemicals,
- Emergency procedures,
- Workers' rights and grievance mechanisms

In terms of content, the training must be aligned with recognized international standards, in particular:

- ILO core labour standards
- UN Guiding Principles on Business and Human Rights (UNGPs)
- OECD Due Diligence Guidance for Responsible Supply Chains

To ensure effective training for different target groups, the training programmes must:

- be accessible to people with different levels of education and literacy, for example through visual and audio-based formats;
- be offered in the relevant local languages;
- allow for individual participation and assessment at the level of each worker, to ensure that the content is actually understood and not merely delivered to a group;
- include interactive elements, for example comprehension checks and practical scenarios;
- be designed with repeatable access, not as a one-off measure
- allow confidential participation without social pressure within the workforce.

Training must be traceable and auditable at any time by the contracting authority.

2.4 Proof of Compliance of Worker Training

- a digital demo of the training content in the relevant local language, as well as in English or German, developed and hosted by an independent organization that is financially and organizationally independent of implementation and supply interests
- the training platform must produce digital reports that document how many employees completed the training, including anonymized results (e.g. percentage of correct answers). These reports must be tamper-proof, securely stored, and accessible for audits. They must be provided by a technically independent system that cannot be influenced by local managers or suppliers—ensuring reliable and tamper-proof documentation of participation. When preparing the reports, data protection requirements must be complied with.

III. Documents to be Submitted with the Offer

- Bidder's self-declaration on polysilicon supply and delivery in the annex

IV. Separate Purchase of PV Grade Polysilicon

To rule out the possibility that the polysilicon is produced by manufacturers based in third countries, the polysilicon for the modules to be procured may be sourced through a separate process that precedes the procurement procedure for the modules themselves.

In cases where PV grade polysilicon is purchased separately, the PV grade polysilicon may be specified as follows in the technical requirements:

Subject matter of the procurement: PV grade polysilicon suitable for the production of high-efficiency solar modules and produced using the Siemens process.

In addition, the following note may be included:

Economic operators of a third country which has not concluded an international agreement with the European Union guaranteeing equal and reciprocal access to public procurement shall be excluded from this procurement procedure.

Note on practical implementation: In cases where the PV grade polysilicon for the modules to be procured is purchased separately, the contracting authority does not need to intermediate store the polysilicon. Instead, it should provide the delivery address of the wafer/module supplier/producer to the polysilicon producer. The polysilicon producer then delivers directly to the appropriate port and the wafer/module supplier/producer collects the goods there. Corresponding specifications of the contract terms and the tender documents are required.

It should be assumed that 2.2 g of polysilicon per Wp of module capacity is required, equivalent to 2.2 kg per kWp or 2,200 kg per MWp. The exact amount should be confirmed with the module manufacturer, but it should not fall below 2 g of polysilicon per Wp of module capacity, as lower values may indicate the presence of material substitutions.

V. Procurement Procedures under the Ordinance on the Award of Public

Contracts in the Water, Energy and Transport Sectors

In procurement procedures under the Utilities Sector Procurement Ordinance the following note may be added:

Any tender where the proportion of the products originating in third countries, as determined in accordance with Regulation (EU) No 952/2013 of the European Parliament and of the Council (1), exceeds 50 % of the total value of the products constituting the tender will be rejected (Only applicable for Supply contracts (§ 55 SektVO)).

VI. Annex Bidder's Self-Declaration on Polysilicon Supply and Delivery

I. Information on Polysilicon Supplier(s)

The bidder declares that, for the solar modules offered, the following supplier(s) will deliver the polysilicon used for producing the modules. Multiple suppliers may be indicated.

Name of polysilicon producer 1:	
Name of polysilicon producer 2 (if applicable):	
Name of polysilicon producer 3 (if applicable):	

The bidder acknowledges that substitution of the indicated producer(s) is permitted only if all requirements of the tender documents are equally met by the substitute producer(s).

II. Origin of Polysilicon

Please indicate whether any of the polysilicon used for the offered modules is produced in a country listed on the current OECD [DAC List](#) of ODA recipients (DAC List countries).

☐ Yes

☐ No

If "Yes": The bidder confirms that, in the event of award of contract, evidence of labour and safety standards as specified under II.2.2, 2.4 and a proof of traceability according to II.1. will be submitted.

If "No": bidder confirms that, in the event of award of contract, proof of traceability according to II.1. will be submitted.

III. Timeline for Submission of Evidence

Submission of proof of traceability	☐ calendar days after award of contract
Submission of ISO 14001 or equivalent certificate (if applicable)	☐ calendar days after award of contract
Submission of ISO 45001 or equivalent certificate (if applicable)	☐ calendar days after award of contract
Submission of proof of commissioning the audit (if applicable)	[28] calendar days after award of contract
Provision of audit report (if applicable)	☐ calendar days after award of contract
Anticipated delivery of modules	☐ calendar days after award of contract

Date and signature of the bidder:

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