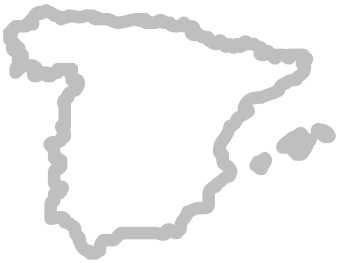
Towards a just transition for workers in the built environment in Europe

Building materials and on-site construction sectors

Annex I: Country fiche - Spain

ECORYS

Answering tomorrow's challenges today



Country Fiche

Spain

Towards a just transition for workers in the built environment in Europe

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1. At a glance[1]

Strengths and Opportunities

• Opportunities in construction sector:
  ○ Decarbonisation of Spain's construction sector presents significant opportunities for workers, especially through large-scale retrofitting and sustainable building initiatives. It is expected to create 33,000 to 88,000 new jobs annually, with over 460,000 direct jobs linked to retrofitting by 2030.
  ○ This transition requires massive upskilling, particularly for EQF 3–5 workers (e.g., installers, technicians) and EQF 6–8 professionals (e.g., engineers, architects), in areas such as energy efficiency, renewable systems (e.g., heat pumps), BIM, and circular construction. While Spain is experiencing severe labour shortages and a very low interest among young people to enter the sector, construction can be seen as a "profession of the future," as it will be in high demand in the future and will offer skilled jobs once modernised. The transition provides a chance to improve the image of the sector through greener, more technological jobs appealing to youth and women.
  ○ Collective bargaining coverage is strong at the sectoral level, ensuring protections like wage standards and safety regulations. Spain's favourable political climate enables strong collaboration between trade unions, government, and companies on just transition policy. Geographically, regions with older building stock (e.g., Castile and León, Asturias, Extremadura) will see increased demand for retrofit workers while urban hubs also have significant retrofit needs (e.g., Madrid, Catalonia) and will also concentrate high-skilled roles. Next to collective bargaining, there is strong presence of dedicated skills development institutions (e.g., Fundación Laboral de la Construcción, Fundación CEMA). Training for migrants may also be facilitated due to migrants coming from Latin America and having Spanish as their native language. Projects such as In2C have taken place to integrate third country nationals into the construction sector, and to overcome cultural differences and language barriers.
• Opportunities in materials sector:
  ○ Decarbonisation of Spain's cement supply chain offers meaningful opportunities for workers, particularly through the deployment of alternative fuels, digitalised kiln operations and, in the medium term, Carbon Capture Utilisation and Storage (CCUS) infrastructure. This transformation is already generating new technical job families (AF/logistics, control-room operators, predictive maintenance specialists, carbon-capture technicians) and tends to improve working conditions by reducing manual heat-exposed tasks. Collective bargaining coverage is strong through the "Derivados del Cemento" agreement. Additionally, joint social dialogue structures such as Fundación CEMA (Cement and Environment Labor Foundation) aim to reinforce Health and Safety and training commitments. The transition presents especially strong prospects for workers in plants attracting PERTE (Proyectos estratégicos para la recuperación y transformación económica/

[1] The core construction sector is assessed in detail in all ten countries, while the depth of analysis varies in the building material industries, with the one or two biggest industries (measured by volume of material output produced in tons) analysed per country. For Italy, the Netherlands, Czechia, Denmark and Ireland, the analysis focuses on either steel or cement, depending on which material has the highest output. Germany, France, the United Kingdom, Poland, and Spain are subject to a deeper analysis, including steel or cement and an additional industry (either timber or glass) selected based on its importance in material output.

Strategic projects for economic recovery and transformation) investment (e.g., CEMEX Morata de Jalón/Alcanar; Votorantim Alconera/Toral), where retraining workers translates into more stable long-term employment.

- Decarbonisation in the flat glass chain is creating opportunities aligned with electrification, higher recycled glass (cullet) use and high-performance glazing demand driven by EU construction policies. Furnace rebuilds and process upgrades generate skilled employment in maintenance, process engineering and quality control, while electrification improves air quality and reduces heat stress for workers. Sectoral collective bargaining provides wage and safety guarantees during technological shifts, and in regions where investment is flowing, upskilling into more specialised technical roles can support greater job stability.

Weaknesses and Threats

- Challenges in construction sector:
  - Decarbonisation demands large-scale upskilling across all qualification levels. Training access is uneven, especially for EQF 3–4 workers and migrants. Working conditions remain difficult, with persistent safety risks and job instability.
  - Severe labour shortages due to image and safety issues continue to affect the sector. While collective bargaining coverage is strong at the sectoral level, union representation is weak in SMEs which are dominant in the sector, limiting protections.
  - Regional variations exist. Retrofit demand will rise in regions with older housing stock (e.g. Castile and León, Extremadura), while high-skilled roles will concentrate in urban centres (e.g. Madrid, Catalonia). Further, Canary and Balearic Islands face intense tourism-driven construction pressure and dependence on external labour, exacerbating regional inequalities. As the construction activity has been high for years/decades putting pressure in local ecosystems, it could be expected that the situation in these regions of intense tourism could shift in the medium-term.
- Challenges in materials sector:
  - The cement transition also creates significant adjustment pressures. Skills requirements are expected to rise sharply, particularly for older or lower-qualified workers who risk exclusion if reskilling is not rapid enough. A combination of high energy and CO_2 prices and growing import volumes is also intensifying competitiveness constraints, thereby putting less-modernised sites at greater risk of downsizing or closure, particularly coastal plants directly competing with imported steel. Geographically, this may widen disparities between “future-proofed” upgraded facilities and lagging ones that struggle to secure investment.
  - The flat glass transition also creates vulnerabilities, most notably due to import pressure (the sector is not covered by the Carbon Border Adjustment Mechanism (CBAM)), which increases the risk of plant closures, as seen in Guardian Llodio (Álava). Electrification and advanced quality-control technologies raise qualification thresholds, which may disadvantage workers without tailored retraining pathways. Regional exposure is high, as many towns rely on single large furnaces for employment; where investment is absent or delayed, restructuring could concentrate job losses locally despite national just-transition tools.
  - In construction building materials sectors, the danger exists that it will be moved to Northern Africa, where costs but also just transition protections are lower.

Key organisations

- CCOO del Hábitat (Comisiones Obreras, Trade Union Confederation of Workers' Commissions of Housing)
  - Trades represented: construction and building materials, extractive activities, specialised crafts, and a broad set of urban and personal services, from cleaning and gardening to private security, home care and domestic work
  - Tactics: Sector-specific advocacy, collective bargaining, policy engagement.
  - Role in Just Transition: Ensures worker protections in green jobs, promotes fair wages and safety standards.
  - Blockers: Limited representation in SMEs; challenges in reaching migrant and informal workers.
- UGT FICA (Federación de Industria, Construcción y Agro, General Union of Workers in Industry, Construction and Agriculture)
  - Trades represented: Industry, construction, agriculture.
  - Tactics: Collective agreements, training advocacy, inclusion campaigns.

- Role in Just Transition: Supports retraining and inclusion of vulnerable groups (e.g. migrants, older workers).
- Blockers: Fragmented training systems, limited reach in micro-enterprises.

- Fundación Laboral de la Construcción (Labour Foundation of Construction)
  - Trades represented: Broad construction sector (onsite, technical, managerial).
  - Tactics: Training programmes, safety promotion, sector analysis.
  - Role in Just Transition: Central in upskilling workers for energy efficiency, BIM, and circular construction.
  - Blockers: Training access gaps for low-qualified and migrant workers; underfunded programmes.

Key initiatives and partnerships

- PERTE de la Industrialización de la Vivienda (Strategic projects for economic recovery and transformation in the industrialisation of housing)
  - Led by the Spanish Ministry of Housing and Urban Agenda, this strategic project brings together public sector, businesses, and NGOs to accelerate green housing production.
  - Focuses on industrialised, energy-efficient, and inclusive construction, creating opportunities for upskilling and employment.
- Fundación Laboral de la Construcción (Labour Foundation of Construction)
  - Acts as a bridge between employers and unions, offering training, safety programmes, and sector modernization.
  - Partners with academia, public institutions, and participates in EU projects (e.g. Construction Blueprint) to align workforce skills with green and digital transitions.
  - They have 52 operational training centres, 23 preventative training centres and 21 PPE (Personal protective equipment) rooms.
  - In 2024, over 110,000 people were trained, with 12,000 courses delivered and 4.3 million hours of training completed.
- Welcome Work & Tent España
  - These initiatives involve labour organisations (e.g. Fundación Laboral) and NGOs focused on refugee integration, supporting inclusive labour market access in green construction.
  - Provide vocational training, language support, and employer engagement to address labour shortages and promote climate-resilient employment.
  - The construction sector employs 1.3 million people in Spain, around 7% of workers.
- Women Can Build / FemCon
  - Joint efforts between civil society, unions, and training bodies to promote gender inclusion in technical and green roles.
  - Tackle climate and labour equity by increasing women's participation in sustainable construction.
- Labour unions and climate organizations often cooperate on joint issues. Environmental NGOs participate in roundtables, training, and awareness events with trade unions. They provide environmental and technical expertise, helping shape collective bargaining. Furthermore, NGOs complement unions by raising awareness and extending outreach.

Hotspots of a Transition in the Construction Sector

Spain

Legend

On-site construction:

Expected job creation

Building materials:

Cement

Modernisation of production site and reskilling of workers

Glass

Closure and/or repurposing with redundancy plans

Not covered in the analysis: steel and timber (see footnote 1).

2. The broad construction sector

The construction sector today

Economic indicators (2023)	Employment (2023)	Workforce characteristics

Construction (NACE F):
• Number of enterprises: 418,214
• Average employment size: 3.2
• Value added (million € per year): 52,426 (3.8% of GDP)
• Net turnover (million € per year): 188,644
 	
Architectural and engineering activities; technical testing and analysis (NACE M71):
• Number of enterprises: 109,597
• Value added (million € per year): 13,940 (1.0% of GDP)
• Net turnover (million € per year): 35,640
	• Total employment in the construction sector: 1,350,153
	• The Spanish construction sector is a vast and complex ecosystem, dominated by small and medium-sized enterprises (SMEs), 99% of companies, with 90% being micro-enterprises employing fewer than 10 people.
		• Age:
		  ○ The sector is ageing rapidly. Average age rose from 37.3 years (2007) to 45.1 years (2022).
		  ○ 35.3% of workers are aged 50 and above.
		  ○ Only 9% of workers are under 30, with youth participation declining from 15.1% since 2012.
		• Gender:
		  ○ Women make up 8.8% of the workforce (2023), up 21.8% since 2012.
		  ○ Higher female representation in civil engineering (13.2%) and technical/administrative roles.
		  ○ Women tend to work in white-collar jobs, be more educated, earn 15% more on average, and are concentrated in Madrid, Catalonia, Andalusia, and Valencia.
		• Education Levels:
		  ○ 52.6% of workers have lower secondary education or less (EQF 1–2).
		  ○ 24% have higher education (EQF 6–8), compared to 29.6% in the overall economy.
		  ○ There's a mismatch between education levels and the skills needed for green construction roles.
		• Nationality:
		  ○ 22.9% of workers are foreign nationals.
		  ○ Largest migrant groups are from Latin America (43%) and Europe (26.4%).
		  ○ Migrants are concentrated in low-skilled, manual roles, especially in southern Spain.
		• Specific recruitment of groups (women, youth):
		  ○ Pact4Youth: aims to attract young people through dual training, career guidance, and sector image improvement.
		  ○ Women Can Build and FemCon: promote female inclusion in technical and managerial roles
		  ○ Welcome Work and Tent España: support migrant entry into construction through vocational training, language support, and skills recognition

		○ The TándEM project. Funded by the EU Next Generation Programme under Spain's Recovery, Transformation and Resilience Plan: the project provides training and employment opportunities in building retrofits and renewable energy installation to 61 vulnerable individuals, including migrants, unemployed youth, and women. ○ Zaragoza hosts an additional 29 participants.' How Madrid's TándEM Project is creating good green jobs in construction for underrepresented groups - C40 Cities

The legislative framework for decarbonisation and its impacts on workers

Decarbonisation policies and emission timelines and targets

• NECP – National Integrated Energy and Climate Plan (2021–2030): Sets targets for a 23% reduction in GHG emissions from 1990 levels, 42% renewable energy in final consumption, and 39.5% improvement in energy efficiency. Includes measures for building retrofits, professional training, and energy audits.
• ERESEE – Long-Term Strategy for Building Rehabilitation (2020): Aims for full building decarbonisation by 2050 through cost-effective retrofits, heat pump deployment, and intersectoral collaboration. Forecasts deep rehabilitation of 7.1 million dwellings by 2050.
• PREE Programme 2021–2026 (Energy Renovation of Buildings): Allocates €300 million to support rehabilitation projects that achieve ≥30% primary energy savings. Encourages adoption of energy-efficient technologies and materials.
• State Housing Plan (2018–2022): Promoted affordable, energy-efficient rental housing. Supported by EIB financing and national funding to expand access to sustainable dwellings.
• Spanish national renovations plan as part of the EPBD Implementation: Targets energy renovations in buildings, focusing on zero emission goals and supporting vulnerable households in the transition.
• 2030 targets:
  ○ 1.2 million dwellings to be rehabilitated.
  ○ 23% reduction in GHG emissions (compared to 1990).
  ○ 42% renewable energy in final energy consumption (compared to 1990).
  ○ 39.5% improvement in energy efficiency (compared to 1990).
• 2050 targets:
  ○ 7.1 million dwellings to undergo deep renovations.

Impacts on the construction industry

• **(Expected) impacts on the construction sector and investments:**
  ○ Investment surge in retrofitting and green housing: Spain plans to rehabilitate 1.2 million dwellings by 2030 and 7.1 million by 2050, supported by national and EU funding (e.g. €1 billion via NRRP, €300 million via PREE).
  ○ Shift to sustainable and digital construction methods: Decarbonisation policies are accelerating adoption of modular and prefabricated construction, passive design, BIM, and circular practices, requiring new technologies and cleaner production processes across the supply chain. There is also evidence showing a shift toward timber construction and timber prefab systems are growing rapidly.
• **(Expected) impacts on employment, skills and activity of on-site construction workers:**

- Labour demand and job creation: Retrofitting and renewable energy installations are expected to generate 33,000–88,000 new jobs annually, with 460,000 direct construction jobs linked to retrofitting by 2030. Labour shortages are a key bottleneck.
- Skills transformation and upskilling needs: Over 600,000 EQF 3–5 workers (e.g. installers, technicians) and 30,000 EQF 6–8 professionals (e.g. engineers, architects) will require upskilling in energy efficiency, heat pumps, BIM, and circular construction. Migrants and older workers face barriers to accessing training.
- Changing working conditions and safety risks: Climate adaptation measures (e.g. heat-related work restrictions related to worker safety and application of materials and products) and industrialised construction methods will reshape site practices. While some changes improve safety and reduce physical strain, enforcement gaps and extreme weather events still pose risks.

Towards a Just Transition for Construction Workers

Just transition vision in construction

- **Collective agreements**:
  - Sectoral Collective Agreement for Construction (2021 Reform): Abolished temporary "junk contracts" and mandated reassignment or retraining after project completion. Strengthens job stability and supports transitions into green roles.
  - The General Collective Agreement for "Derivados del Cemento" (VIII/IX updates 2023–2025) covers concrete/precast & allied trades.
  - VI Acuerdo estatal sobre materias concretas y cobertura de vacíos del sector cementero: statewide sector agreement for cement manufacturing and clinker
  - Convenio Colectivo Estatal de la Industria, la Tecnología y los Servicios del Sector del Metal (CEM): statewide umbrella CBA that covers metal industries including steelmaking
  - XXII Convenio colectivo de ámbito estatal para las industrias extractivas, industrias del vidrio, industrias cerámicas y para las del comercio exclusivista de los mismos materiales (2021-2024): covers glass
  - IV Convenio colectivo estatal del sector de la madera: agreement covers timber/wood
- **Country-level policies for just transition**:
  - 2021 Labour Reform: Enhances job security by limiting subcontracting chains and promoting retraining. Reinforces collective bargaining coverage and worker protections. This impacted first and foremost the construction sector which traditionally dealt with long subcontracting chains.
  - PNIEC (2021–2030): While primarily focused on climate targets, it includes provisions for professional training and energy poverty mitigation, indirectly supporting a just transition. It also includes specific measures to decarbonise housing.
- **Just transition considerations in relevant policy debates:** in development/advanced. Spain is considered an EU reference case by other unions for integrating just-transition principles. It has good foundational policies and active programmes, but gaps remain in training access, enforcement, and SME engagement.

<table>
<tr><th colspan="2">Labour implications of the decarbonisation agenda</th></tr>
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- **Labour rights challenges**:
  - **Fragmented transitions across trades:** Workers are not consistently moving between trades (e.g. from general construction to renovation or from HVAC to insulation). Transitions are hindered by lack of formal requalification pathways, especially for low-skilled and migrant workers. For example, traditional cement and brick workers may face displacement as the sector shifts to prefabrication and low-carbon materials, but without targeted retraining, they risk unemployment.
  - **Limited mobility across the supply chain:** There is no indication that there is movement from on-site construction to building material/industries (e.g. steel, glass, timber). Instead, workers are circulating within the same construction sub-sectors (e.g., between sites and employers).
- **Geographical distribution of the implications:**
  - Castile and León, Asturias, Extremadura: High demand for retrofit workers due to older building stock; limited training infrastructure.
  - Tourism reliant regions and islands (Balearic, Canary): High activity and labour mobility where workers are moved from other Spanish regions for large projects, especially off the touristic season.
  - Madrid, Catalonia, Valencia: Concentration of high-skilled roles in design, planning, and energy modelling; better access to training but still facing shortages.
  - Andalusia, Murcia (Southern Spain): Vulnerable due to climate risks, high share of migrant workers, and limited access to green job pathways.

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<tr><th>Benefits for workers brought by the green transition in the construction sector</th><th>Disadvantages for workers brought by the green transition in the construction sector</th></tr>
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- Job creation: Decarbonisation is expected to generate 33,000–88,000 new jobs annually, especially in energy rehabilitation and sustainable construction.
- Improved working conditions: Adoption of modular and industrialised construction can reduce physical strain and improve safety.
- Increased attractiveness of the sector: the transition is an opportunity to improve working conditions and thereby increase the attractiveness of the sector.

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- Job displacement: Workers in carbon-intensive roles (e.g. cement, brick, steel) may face job loss without clear requalification pathways.
- Training access gaps: Low-skilled, migrant, and older workers often lack access to inclusive and tailored training programmes and are at risk of falling behind during the transition.
- Climate-related risks: Outdoor workers face increased health risks due to extreme heat, with limited enforcement of safety measures.
- Regional inequalities: Southern regions face higher vulnerability due to climate impacts and limited access to green job opportunities.

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<tr><th>Ways to reinforce these</th><th>Ways to reduce these</th></tr>
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- Promote career visibility and progression pathways to attract new entrants.

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- Develop requalification pathways for displaced workers in carbon-intensive roles.

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• Scale up modular and occupation-specific training, especially for EQF 3–5 workers.	• Provide hands-on training for migrants and older workers. • Enforce climate adaptation measures (e.g. heat-related work restrictions). • Invest in regional training centres and job creation in vulnerable areas.

Workers groups most affected

- **Professional groups in the core construction business and supply-chain who have the highest environmental footprint and how these are affected:**
  - Cement and brick manufacturing: High CO_2 emissions; workers in these sectors face displacement as production shifts to low-carbon materials and prefabrication.
  - Steel and glass production: Energy-intensive processes; gradual transition to cleaner technologies may reduce traditional roles.
  - Timber: Lower footprint but increasing demand for sustainable sourcing and processing skills.
- **Groups where most training is needed and what kind of training:**
  - EQF 3–5 workers (installers, technicians): Training in energy-efficient renovation, heat pump installation, insulation, solar PV systems, and digital tools (BIM, CAD).
  - Migrant workers: Language support, certification recognition, and hands-on vocational training in green construction techniques.
  - Older workers: Practical, non-digital-heavy training in sustainable construction methods and safety practices.
- **Gaps in skills development:**
  - Renovation skills: More funding needed for modular, occupation-specific training in insulation, selective demolition, heat pump deployment, and building maintenance.
  - Digital construction tools: Investment in BIM and CAD training, especially for SMEs and older workers.
  - Inclusive training access: Funding for multilingual, flexible programmes targeting migrants, youth, and women.

Workers positively affected	Workers negatively affected
• Skilled tradespeople in renovation and energy efficiency: High demand for roles such as HVAC technicians, insulation installers, and retrofit specialists due to large-scale building rehabilitation targets. • Engineers, architects, and BIM specialists: Increased opportunities in planning, design, and digital	• Manual labourers in carbon-intensive industries: Workers in cement, brick, and steel production face displacement as the sector shifts to low-carbon materials and prefabrication. • Older workers with low digital skills: May struggle to adapt to new technologies and

construction tools (e.g. BIM, energy modelling) as sustainable building practices become mainstream.	green practices without tailored, hands-on retraining. • Migrant workers in low-skilled roles: Often lack access to formal training, certification, and language support, limiting their ability to transition into higher-skilled green jobs.

Existing protection mechanisms

- **Existing mechanisms to protect or reinforce labour rights/conditions during the transition:**
  - 2021 Labour Reform (Royal Decree-Law 32/2021): Aimed to curb high temporary employment by simplifying contract types and promoting indefinite contracts, notably the fixed-discontinuous contract (contrato fijo-discontinuo). Abolished temporary "junk contracts" and introduced mandatory reassignment or retraining after project completion, improving job stability for both direct and subcontracted workers.
  - Law 32/2006 on Subcontracting in the Construction Sector (LSCS): Regulates the responsibilities within subcontracting change and inter alia limits subcontracting to three levels, aiming to reduce exploitation and improve accountability in labour conditions.
  - Sectoral RED Mechanism: A government-activated system designed to prevent job losses during periods of permanent sectoral transformation by allowing companies to temporarily reduce working hours or suspend employment contracts.
  - Tarjeta Profesional de la Construcción (Professional Construction Card): closely linked to training in occupational risk prevention that is available to all workers in the construction sector. This tool also certifies: Experience in the sector, professional qualifications, training received.
  - Royal Decree-Law 8/2024: Royal Decree-Law 8/2024 establishes a paid leave of up to four calendar days for employees in Spain when extreme weather or other adverse meteorological phenomena (following a red or amber alert from the state weather agency) prevent safe access to the workplace, with the possibility of extension if conditions persist.
  - Royal Degree 4/2023: Spain has binding collective agreements that require companies to change work schedules and conditions when official heat- and cold-weather alerts are issued, by adjusting shifts within 72 hours, with lost hours compensated (70% recovered by workers, 30% covered by employers). These rules are reinforced by annual Heat and Winter Campaigns, introduced because summer-hour infringements keep increasing and workplaces without worker representation continue to show much higher accident rates. The southern autonomous communities plan uses the jornada continua, meaning that work is carried out continuously before 3pm to avoid exposure to heat during the hottest period of the day. Employers have also pledged to ensure that reduction in working time is respected and report any violations to labour authorities
- **Existence of gender-/age group-/workers group-specific measures**: Next to promotion mechanisms like Women Can Build or Welcome Work, there were not specific protection measures identified.
- **The role of trade unions/construction businesses in professional development (and implementation costs):**

- CCOO del Hábitat and UGT FICA negotiate sector-wide agreements and advocate for training access, safety standards, and inclusion. They also participate in EU-funded projects like Construction Blueprint to align training with green transition needs.
- Larger firms invest in in-house training and innovation, while SMEs rely on external associations like Fundación Laboral de la Construcción. Implementation costs can be high and present a large barriers for SMEs.

Specific measure #1	Specific measure #2
• Tarjeta Profesional de la Construcción (Professional Construction Card) • The Tarjeta Profesional de la Construcción (TPC) is a professional card issued by Spain's Fundación Laboral de la Construcción (FLC). It certifies mandatory OSH training, acts as a digital CV, and helps prevent fraudulent safety certificates while improving transparency and worker protection in the construction sector. • Implemented across Spain's construction industry, the TPC is used to verify OSH compliance and professional experience. It supports safer working conditions and is set to link with pension and labour mobility tools under the VII National Sectoral Collective Agreement.	• Registro de Empresas Acreditadas • The Registro de Empresas Acreditadas (REA) is a mandatory register for all construction companies operating in Spain. It ensures that both main and sub-contracted firms comply with labour, social security, and OSH obligations under Law 32/2006 on subcontracting in construction. Companies must demonstrate that their workers have appropriate training and that they maintain stable, legal employment relations. • Implemented in Spain's construction sector, the REA promotes transparency in subcontracting chains, helping prevent illegal or unsafe employment practices. By requiring accreditation for participation in construction projects, it strengthens worker protection, ensures fair competition, and complements mechanisms such as the TPC card in advancing decent work during the green transition.

3. The construction material supply chain

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<tr><th colspan="3">In focus: Decarbonising construction building material – cement</th></tr>
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- **Cemento Molins**
  - Net revenue: ~€2.57 bn, ~€569 million in Europe (2024)
  - Production capacity in Europe: 1.8 million tones of Portland cement
- **Holcim**
  - Net turnover: ~€29bn, ~€388 million in Europe (2023)
- **Cementos Portland Valderrivas**
  - Net turnover: ~€614bn (2023)

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- **Cemento Molins**
  - Workforce: ~6600 employees, ~2700 in Europe (2024)
- **Holcim**
  - Workforce: ~ 63 448 employees, ~700 in Spain (2023)
- **Cementos Portland Valderrivas**
  - Workforce ~1000 employees in Spain
- Relevance of enterprise in construction supply-chain (how much of the material is used in construction)
  - ~56% of cement is used in building (residential & non-residential) and ~44% in public works/civil engineering

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- Cemento Molins: between 3 and 20% are women depending on the role, with the highest proportion found in managerial positions.

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- **Title and main features of key decarbonisation policies:**
  - Spain's PNIEC 2023–2030: raises national climate ambition (e.g., -32% GHG vs. 1990; 48% RES final energy; 81% renewable power by 2030), explicitly backs industrial decarbonisation PERTE and CCUS for hard-to-abate sectors like cement.
  - Oficemen 2050 roadmap (2025): -42% CO_2/t cement by 2030; -83% by 2040; net-negative across the value chain by 2050. Oficemen is an association of cement producers.
- **Existence of collective bargaining agreements**: The General Collective Agreement for "Derivados del Cemento" (VIII/IX updates 2023–2025) covers concrete/precast & allied trades.

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- **(Expected) impacts on the supply chain:**
    - Competitiveness gap: Spanish cement producers face a growing competitiveness gap with neighbouring countries, especially North Africa. This is due to higher costs in Spain for electricity, labour, and CO_2 emissions.
    - Declining exports and rising imports: Cement exports dropped by 8.3% to 4.8 million tonnes. Imports surged by 37%, reaching 1.3 million tonnes, mainly due to cheaper production abroad.
    - Carbon Border Adjustment Mechanism (CBAM): CBAM is expected to help level the playing field by imposing financial obligations on imports starting in 2026.
    - Decarbonisation targets: Cement kilns must reduce CO_2 emissions by 44% by 2030 and 83% by 2040, achieve net negative emissions by 2050. This requires €300-500 million per plant for carbon capture, storage, and transport technologies.
- **(Expected) impacts on employment, skills and activity levels of workers in the materials industry**:
    - Skills: surge in kiln/AF operators, waste-fuel logistics, process digitalization, CCUS operations & CO_2 logistics, LCA/EPD specialists.
    - Some alternative materials may be carcinogenic such as Crystalline Silica, cold fly ash, Ground Granulated Blast Furnace Slag, Calcined Clays (LC^3 Cements), Recycled Construction & Demolition Waste (CDW)

- **Country-level policies for just transition in the building material sector:**
    - No specific just transition policies in the cement sector specifically, but Spain's Estrategia de Transición Justa and the Instituto para la Transición Justa (ITJ) fund restructuring, retraining and diversification in affected regions, which may also include the cement sector.
    - Zonas de Transición Justa (ZTJ) — The Instituto para la Transición Justa (ITJ) maps 15 ZTJs across 197 municipalities (Asturias, León, Palencia, Teruel, parts of Andalucía, A Coruña, etc.). Suppliers/installers in these municipalities can tap training/business-support schemes.
    - There are regional schemes (e.g., Andalucía's 2024 decree for industrial ecosystems in Almería, Cádiz, Córdoba).

- **Changes/trends in terms of labour rights and existing challenges:**
    - The entire industry is impacted by high energy costs and strong competition from imports.
    - Shift in skills and job profiles: The sector is moving from traditional fuel handling to alternative fuel management, with maintenance roles increasingly focusing on mechatronics and process automation. Laboratory roles are also expanding to cover life cycle assessment (LCA) and environmental product declaration (EPD) data management.
- **Geographical distribution of the implications**:
    - Factories are widely distributed throughout Spain, mostly situated along the coast and around Madrid. Regional schemes may be able to protect workers (e.g., Andalucia).

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<tr><th>Key hotspot for transformation #1</th><th>Key hotspot for transformation #2</th></tr>
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- CEMEX Morata de Jalón (Zaragoza) / Alcanar (Tarragona)
- CEMEX's PERTE-funded project in Morata de Jalón (≈€9.4 m grant on €20.9 m capex) to decarbonise clinker; the Minister highlighted CEMEX Alcanar moving toward 60% alternative fuels. Expected to avoid ~12,161 tCO_2/yr at Morata.
- Impacts:
  - Up-skilling from "kiln operator" to digital process operator
  - More ETS/CO_2 reporting tasks added to shop-floor jobs
  - Predictive maintenance and automation to mechanics to mechatronics
  - Older workers risk exclusion if re-skilling is slow
  - Retrofit periods bring short spikes of contractor jobs, not permanent jobs
- CEMEX involves its workforce through existing social-dialogue structures and company-level commitments to upskilling, with operators expected to retrain for more digital and automated roles, and there is no indication of planned layoffs, though older or lower-skilled workers may face risks if reskilling is not adequately supported.

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- Votorantim Cimentos (Cosmos) — Alconera & Toral de los Vados
- CCUS pilot at Alconera (Badajoz) (early mover for Spain's cement CCUS), plus a CO_2 logistics MoU with Enagás (transport/liquefaction/storage). Plant-level convenio in Toral de los Vados indicates worker-management frameworks for transition.
- Impacts:
  - Creation of new CCUS job families (capture-unit, compression, solvent ops)
  - Training required in high-pressure and chemical handling safety
  - Higher technical barrier leads to skills gap risk for low-qualified workers
  - Those who re-skill become "future-proof", with a stronger job security
- Votorantim includes workers through formal collective agreements and is expected to introduce targeted training for new CCUS-related job families, with no publicly signalled redundancy plans, although the higher technical requirements may create skills-gap pressures for low-qualified workers unless reskilling is expanded.

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- **Benefits for workers:** safer, more technical jobs. decarbonisation pushes automation, control-room operations and preventive maintenance, reducing heat exposure and heavy manual tasks; firms report structured H&S committees and regular audits/training (e.g., 37.1 training hours/employee in 2023 at Holcim).
- **Disadvantages for workers**:
  - Closure/competitiveness risk in lagging plants: high power and CO_2 costs together with import pressure (imports +37% in 2024) increase risk at sites that cannot pivot quickly.
  - Higher compliance and cognitive load: shop-floor staff increasingly handle ETS/CBAM data and quality/traceability for alternative fuels.
  - Exposure shifts, new hazards: less heat/manual work, but more handling of respirable crystalline silica and chemicals from new processes/AF lines.

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- **Existing mechanisms to protect or reinforce labour rights/conditions**:
  - Sectoral and company collective bargaining
  - 2021–22 labour reform (RDL 32/2021): strengthened permanent hiring, ERTE use, and created the Mecanismo RED to avoid layoffs in structural shocks while prioritising training for affected workers.
- **The role of trade unions/construction businesses:**
  - Bipartite sector foundation: Fundación CEMA—created by Oficemen + CCOO + UGT FICA, drives social dialogue, H&S culture and environmental transition programs in the cement industry.
  - Public co-funding of training: companies can finance worker upskilling through FUNDAE (training credits/bonificaciones on social-security contributions), reducing implementation cost to firms while workers retrain for new tasks (AF handling, digital SCADA, CCUS basics).

In focus: Decarbonising construction building material – flat glass

• **TVITEC**
  ○ Turnover: 200 million (2023)
• **AGC Flat Glass Ibérica SA**
  ○ Information on production, turnover and Spanish operations are limited
	• **TVITEC**
	  ○ Workforce: 600 employees
	• **AGC Flat Glass Ibérica SA**
	  ○ AGC Global: ~57,600 employees globally. Unclear how many in Spain
	• Relevance of enterprise in construction supply-chain (how much of the material is used in construction)
	  ○ No numbers for Spain, in the EU it seems to be about 80% of flat glass going into the construction sector.
		• No reliable public information on age, gender, education levels, nationality in the sector

- **Title and main features of key decarbonisation policies:**
  - Spain's PNIEC 2023-2030: -32% GHG vs 1990 by 2030, more electrification, efficiency & green hydrogen for industry. Affects glass production through decarbonisation of industry.
  - PERTE de Descarbonización Industrial (national grant/loan scheme for manufacturing): 2024–2026 calls open; aid lines for high-efficiency & low-carbon process upgrades, self-consumption, electrification, etc.
- **Existence of collective bargaining agreements**: Spain has a state-level sectoral CBA covering "industrias extractivas, industrias del vidrio y cerámicas, y comercio exclusivista" (Extractive industries, glass and ceramics industries, and exclusive trade)
- **(Expected) impacts on the supply chain:**
  - Energy shift: greater electricity and hybrid furnaces

- Input mix: more recycled cullet (Saint-Gobain Avilés cullet sorting) to cut melt temps and emissions; quality control investments.
- Strong, policy-driven demand for high-performance glazing (low-E, solar control, triple/IGU)'
- Import competition: Since glass is until now not covered under CBAM, cheap imports not affected by ETS may provide large competition for the Spanish glass sector.

- **(Expected) impacts on employment, skills and activity levels of workers in the materials industry:**
  - Volume of labour:
    - Decarbonisation projects (furnace repairs/rebuilds, PV, cullet systems) sustain or create skilled jobs short-term
    - Closures/restructuring (e.g., Guardian Llodio; Saint-Gobain Sekurit Avilés) cause localized job losses.
  - Working conditions:
    - Potential heat-stress reduction with higher cullet and electrification
    - Better air quality versus fossil-only melting

- **Country-level policies for just transition in the building material sector:** No specific ones for the flat glass sector, but general ones (see cement section)

- **Changes/trends in terms of labour rights and existing challenges:**
  - Job cuts may happen more frequently if cheap imports are taking over the Spanish flat glass sector.
  - There are currently no signs of movement towards other sectors.

- **Geographical distribution of the implications:** Factories are large and distributed all over Spain. Impacts may most be felt in the surrounding areas of the factories.

Key hotspot for transformation #1	Key hotspot for transformation #2
Álava (Llodio): Guardian announced closure of Llodio plant (171 jobs), citing furnace damage/costs; unions largely dispute rationale; mobilisations and legal action ensued.	Avilés (Asturias): In July 2025, a serious failure in the main float furnace at the La Maruca site pushed the plant into a critical situation, raising near-term employment and continuity risks while the company evaluates repairs/investment. Asturias is already a nationally recognized just-transition region (post-coal/steel), with specific institutions and plans (e.g., the Asturias Observatory for Just Transition), so there are existing frameworks that could be mobilized for glass-sector workers. Asturias transition programmes already target construction workers affected by coal and steel decline and offers retraining of the construction workers.

- **Benefits for workers:**
    - Improved working conditions of glass industry if sufficiently electrified and new methods are adopted.
    - More job security in areas where investment flows.
    - Potential upskilling into higher-paid roles.
- **Disadvantages for workers:** Displacement risk from site closures or pauses during rebuilds.
- **Existing mechanisms to protect or reinforce labour rights/conditions:**
    - Sectoral CBA with wage review clauses and social dialogue.
    - PERTE/Just-Transition tools couple investment with training and regional support packages.
- **The role of trade unions/construction businesses:**
    - UGT-FICA / CCOO Industria / ELA negotiate CBAs and oppose abrupt closures (e.g., Guardian Glass). They also push for retraining and redeployment of workers.
    - Companies co-fund training and shoulder part of implementation costs (e.g., furnace repairs, PV, cullet systems) with PERTE aid.