

PUBLICATION

Workers' Participation in Restructuring
During Industrial Transition – a
comparative analysis

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Executive summary

This comparative report examines **workers' participation in restructuring during the green and digital transition in the energy sector**, drawing on national contributions from *Bulgaria, Malta, Montenegro, Poland, Portugal and Spain*. The findings show that the twin transition is advancing across all six countries, but unevenly and under different structural conditions. *Spain* and *Portugal* display relatively developed policy frameworks and stronger integration of renewable energy, digital infrastructure and industrial modernisation. *Bulgaria, Poland* and *Montenegro* face more direct restructuring risks linked to coal, lignite and fossil-fuel dependence, while *Malta's* transition is shaped by island-specific constraints, energy security and infrastructure limitations.

Across countries, green and digital policies are becoming increasingly interconnected through smart grids, digital metering, automation, data systems, predictive maintenance and energy-efficiency technologies. However, the democratic and labour-market dimensions of transition remain less developed than the technical and investment dimensions. Formal information and consultation rights exist, but in practice worker participation often occurs too late, after strategic decisions have already been made. Information is more common than consultation, and consultation more common than genuine influence over decisions.

The case studies confirm that transition outcomes depend strongly on the quality of participation. Where workers are involved early, trained properly and able to provide feedback, digitalisation and decarbonisation are more likely to improve efficiency, safety and acceptance of change. Where transition is imposed top-down, it may generate job insecurity, work intensification, mistrust and implementation failures.

The report recommends that social partners move towards anticipatory and continuous participation. This requires earlier consultation, collective bargaining on transition, joint monitoring committees, practical training strategies, participatory digitalisation, protection of vulnerable and indirect workers, and stronger capacity-building for trade unions and employee representatives. Fair restructuring requires workers to be treated as co-shapers of industrial change, not merely as recipients of its consequences.

Introduction

The European energy sector is undergoing a profound industrial transformation driven by the combined pressures of decarbonisation, digitalisation, technological modernisation and geopolitical uncertainty. The transition towards climate neutrality, initiated and accelerated through the European Green Deal and related EU policy frameworks, requires far-reaching changes in energy production, transmission, distribution, consumption and industrial organisation. At the same time, digital technologies — including smart grids, automation, data analytics, artificial intelligence, predictive maintenance, digital metering and cybersecurity systems — are reshaping the operational foundations of the sector. These two processes are increasingly interconnected. Digital technologies can support decarbonisation by improving energy efficiency, optimising infrastructure and enabling more flexible energy systems; however, they also transform work organisation, skills requirements, managerial control and the balance of power within companies.

The **RESPECT project** — *Restructuring and Social Participation for Employee Consultation & Transition in the Energy Sector* — starts from the premise that the **twin transition** is not merely a technological or environmental process. It is also a social, institutional and industrial relations challenge. The pathways of **green and digital transition** are not predetermined. They can generate new opportunities, including safer work, new professional profiles, improved efficiency, innovation and more sustainable industrial development. Yet they can also produce significant risks: job losses, restructuring of traditional occupations, regional inequalities, intensified work, skills mismatches, exclusion of older or lower-skilled workers, and weakening of collective representation if change is implemented without meaningful consultation.

For this reason, worker participation is central to the social sustainability of industrial transition. Information, consultation and participation rights are not only formal legal safeguards. In the context of restructuring, they are mechanisms through which workers and their representatives can anticipate change, assess its consequences, negotiate protective measures, influence implementation and contribute to more legitimate and effective decisions. The RESPECT project therefore focuses on the capacity of trade unions, employee representatives, employers and public authorities to ensure that restructuring processes in the energy sector are fair, transparent and socially negotiated.

This comparative report, *Workers' Participation in Restructuring During Industrial Transition*, synthesises the findings of six national contributions prepared in **Bulgaria, Malta, Montenegro, Poland, Portugal and Spain**. These countries differ significantly in the structure of their energy systems, their dependence on fossil fuels, the maturity of renewable energy deployment, the pace of digitalisation, the strength of industrial

relations institutions and their position within EU policy frameworks. Some national contexts are strongly shaped by coal phase-out and the restructuring of mining or thermal power generation. Others are marked by island constraints, energy security concerns, renewable energy expansion, industrial diversification, digital modernisation or the need to align national systems with EU accession and integration processes. This diversity makes the comparative perspective particularly valuable: it allows the report to identify both common patterns and nationally specific barriers to worker involvement.

The report is based on the methodological framework developed within the RESPECT project. The country-level research combined **desk research, quantitative survey evidence, semi-structured interviews and company-level focus groups or case studies**. *Desk research* covered national and sectoral regulations, public policies, strategic documents, available statistical data, research reports, social partner positions and company-level information where relevant. *Surveys* were used as a supporting instrument to capture perceptions of decarbonisation, digitalisation, restructuring, social dialogue and capacity-building needs. *Interviews* explored the perspectives of trade unions, employers' organisations, company representatives, works council actors, legal experts and other specialists. *Focus groups* and case studies provided more detailed insight into concrete processes of transition at company level, with particular attention to worker involvement in planning, implementation and monitoring of change.

The comparative analysis does not aim to rank countries or produce a uniform assessment of national performance. Rather, **it seeks to identify the institutional and practical conditions under which worker participation can contribute to fair restructuring**. The national reports show that formal frameworks for information and consultation exist in all country contexts, but their practical effectiveness varies considerably. In several cases (Bulgaria, Montenegro, Poland), social dialogue is present but remains concentrated on information-sharing or formal consultation after strategic decisions have already been made. In others (Malta, Spain Portugal), worker representatives are more visibly involved in negotiating accompanying measures, training, employment protection or adaptation plans, but still have limited influence over the initial design of transition strategies. A recurring question across the six countries is therefore whether employee involvement functions as an *ex post* corrective mechanism or as an anticipatory component of industrial decision-making. The comparative report is organised around this question.

The report is structured around a comparative analysis of public policies, implementation challenges, social dialogue practices, company-level case studies and policy recommendations. It first examines EU and national frameworks on green and digital transitions, including energy, climate, digitalisation, just transition and worker participation policies, with attention to their treatment of employment, skills and social

dialogue. It then analyses the practical implementation of twin transition policies, focusing on restructuring drivers, employment and working-condition effects, training needs and implementation gaps. A dedicated chapter assesses the role of social dialogue, collective bargaining and information, consultation and participation mechanisms at national, sectoral and company levels, including the capacity challenges faced by social partners. The case-study chapter identifies transferable lessons from different transition processes, including the importance of early consultation, joint monitoring, participatory digitalisation, employment safeguards, training and transparent communication. The final chapter formulates evidence-based recommendations for EU institutions, national governments, employers, trade unions and social partners, arguing that the success of the twin transition depends not only on technology, investment and regulation, but also on democratic workplace governance and the active involvement of workers as co-shapers of industrial change.

Key public policies and regulations on green and digital transitions

Across the six RESPECT countries — Bulgaria, Malta, Montenegro, Poland, Portugal and Spain — green and digital transitions are driven by a combination of EU-level frameworks, national strategies, sectoral regulations and company-level implementation processes. Although the countries differ significantly in energy mix, institutional capacity, industrial relations systems and exposure to fossil-fuel restructuring, their policy trajectories are increasingly converging around three broad objectives: **decarbonisation of energy production and consumption, digital modernisation of energy systems, and adaptation of the workforce to new technological and environmental requirements.**

From the perspective of the RESPECT project, these policies are not analysed only as technical or environmental instruments. They are also understood as frameworks that structure industrial restructuring and determine the scope for worker information, consultation and participation. The comparative analysis therefore asks not only which green and digital policies exist, but also whether they integrate employment, skills, working conditions and social dialogue considerations in a meaningful way.

EU-level framework for green and digital transition

The common policy background for the six countries is provided by the **European Green Deal** and the EU objective of achieving climate neutrality by 2050. For EU Member States participating in the project — Bulgaria, Malta, Poland, Portugal and Spain — this framework is translated into binding and semi-binding obligations through the **Fit for 55 package, energy efficiency and renewable energy legislation, emissions reduction objectives, electricity market reforms and national energy and climate planning.** For Montenegro, which is not an EU Member State but is closely aligned with European

integration processes, EU climate and energy policy also constitutes a key external reference point and a strategic benchmark for national reforms.

[The European Green Deal](#) has two implications for the energy sector. First, it accelerates the reduction of dependence on carbon-intensive fuels and promotes renewable energy, energy efficiency, electrification, hydrogen, renewable gases and circular-economy approaches. Secondly, it reframes restructuring as a just transition challenge. In regions and sectors dependent on coal, gas, oil refining or other carbon-intensive activities, decarbonisation implies not only technological investment but also employment transition, regional restructuring and the need for social protection. This is particularly visible in Bulgaria and Poland, where coal-related activities remain socially and politically significant, but it is also relevant for other countries where energy infrastructure, refining, electricity distribution or energy-intensive operations are being reorganised.

The EU digital transition framework, including the [Digital Decade agenda](#) and related national digital strategies, provides the second pillar. In the energy sector, digitalisation is associated with smart grids, smart meters, data platforms, automated monitoring, predictive maintenance, digital customer services, artificial intelligence, cybersecurity and advanced analytics. These technologies are increasingly presented as enablers of decarbonisation, because they support better energy management, integration of renewables, demand response, flexibility and efficiency. At the same time, they affect work organisation, occupational profiles, skills, managerial control, data governance and the balance between efficiency and worker autonomy.

The EU legal framework on worker involvement is equally relevant. **[Directives on information and consultation, collective redundancies, cross-border conversions, mergers and divisions](#)** and **[European Works Councils](#)** establish minimum standards for employee representation in restructuring and transnational company change. The challenge is, however, not only legal transposition, but also enforcement, timing, access to meaningful information and the capacity of worker representatives to engage with complex technological, environmental and economic decisions.

[National green transition strategies and energy-sector restructuring](#)

National energy and climate plans constitute the main strategic instrument through which EU climate objectives are translated into country-level pathways. In all EU Member States covered by RESPECT, these plans define targets relating to emissions reduction, renewable energy, energy efficiency and security of supply. However, their practical implications differ substantially.

In Bulgaria, the green transition is structured by the *Integrated National Energy and Climate Plan*, the long-term greenhouse gas emissions reduction strategy, the *National*

Programme “Bulgaria 2030”, the Recovery and Resilience Plan and Territorial Just Transition Plans. The Bulgarian case is strongly shaped by coal dependency and the future of coal regions, especially around major mining and power-generation complexes. Public policy combines decarbonisation, renewable energy development, energy efficiency and regional support, but implementation is constrained by slow administrative procedures, regulatory gaps and insufficient integration between green and digital strategies.

Malta’s green transition is shaped by EU commitments, *the National Energy and Climate Plan* and national strategies addressing renewable energy, energy efficiency, greenhouse gas emissions reduction and energy security. Malta’s policy framework reflects its specific structural constraints as a small island state: limited land availability, high population density and dependence on imported energy. These constraints limit large-scale renewable deployment and increase policy attention to offshore renewables, storage technologies, grid upgrading, energy efficiency and security of supply. The Maltese case therefore illustrates how the green transition is mediated by territorial and infrastructural limitations.

Montenegro’s energy policy is framed by the country’s European integration trajectory, its dependence on hydropower and lignite-based generation, and its need to modernise energy infrastructure. The energy sector remains central to the country’s economic development and energy security. Hydropower plays a major role, while the Pljevlja thermal power plant remains a key source of electricity and a central decarbonisation challenge. The national direction is linked to renewable energy expansion, regional market integration, energy efficiency, infrastructure investment and compliance with European climate and energy policies. Montenegro’s transition is therefore shaped by both domestic development needs and the requirement to align progressively with European standards.

In Poland, the updated *National Energy and Climate Plan* defines ambitious targets for emissions reduction, renewable energy and energy efficiency, while also signalling a gradual phase-out of coal. It operates alongside *Poland’s Energy Policy to 2040*, the forthcoming strategy for the transformation of the heating sector and work on hydrogen policy. The Polish framework is characterised by a tension between the scale of decarbonisation required by EU objectives and the persistence of a coal- and gas-dependent energy system. National legislation, including the *Energy Law*, *the Renewable Energy Sources Act*, *the Capacity Market Act* and *the Energy Efficiency Act*, provides the regulatory basis for the sector, while recent amendments to the *Energy Law* introduce both green and digital elements, such as digitalised grid connection procedures and new rules for hydrogen-related infrastructure.

Portugal presents a comparatively developed and diversified policy architecture. The green transition is framed by the *Climate Framework Law, the 2050 Roadmap for Carbon Neutrality and the 2030 National Energy and Climate Plan*. These instruments define objectives relating to carbon neutrality, emissions reduction, renewable energy, energy efficiency, electrification, energy poverty and just transition. In the electricity sector, *Decree-Law No. 15/2022* reorganises the National Electricity System and provides a framework for production, storage, self-consumption, energy communities, aggregation, markets, networks and consumer protection. Portugal's policy framework also gives significant attention to green hydrogen, renewable gases, electric mobility, public transport decarbonisation and industrial decarbonisation.

In Spain, the *Integrated National Energy and Climate Plan 2023–2030* is the central planning instrument. It is complemented by *Law 7/2021 on Climate Change and Energy Transition, the Just Transition Strategy, the Renewable Hydrogen Roadmap, the Recovery, Transformation and Resilience Plan*. The Spanish framework combines decarbonisation, electrification, renewable expansion, storage, energy efficiency, reduction of external dependence and industrial development. It is particularly intensive in regulatory terms and creates strong pressure on companies to respond simultaneously to climate targets, security of supply, ESG requirements, grid availability, permitting, market competition and social expectations.

Digital transition strategies in the energy sector

Digitalisation policies are generally less sector-specific than green transition frameworks, but their implications for the energy sector are increasingly concrete. Across the six countries, digitalisation is framed through national digital strategies, recovery and resilience plans, public administration digitalisation, cybersecurity frameworks and energy-sector regulations on smart infrastructure.

Bulgaria's main digital policy document is "*Digital Transformation of Bulgaria 2020–2030*", which provides an overarching framework for digital infrastructure, 5G and broadband development, digital public services, innovation, research, skills and the use of data and new technologies. The Bulgarian national report explicitly links digitalisation with decarbonisation, indicating that digital technologies are expected to support energy efficiency, resource management and smart networks. The Recovery and Resilience Plan is an important funding source for digitalisation and modernisation of production and energy processes.

In Malta, digitalisation is supported by the *Recovery and Resilience Plan and the Digital Strategy 2021–2027*, which aims to reduce the digital divide, strengthen digital skills and improve digital public services. Within the energy sector, digital tools include automated monitoring, digital data management, smart technologies and advanced analytics

designed to improve efficiency and resource use. Malta's policy framework clearly treats digitalisation as an enabler of environmental and operational objectives, but also recognises challenges related to skills shortages and uneven digital adoption across economic sectors.

In Montenegro, digitalisation is framed more generally as a pathway to productivity, transparency, optimisation and competitiveness. In the energy sector, future prospects include investment in infrastructure, digitalisation, energy efficiency, smart grids and storage technologies. The country's policy agenda is less institutionally dense than those of EU Member States, but digital transformation is increasingly seen as part of the modernisation required for European integration and energy-system resilience.

In Poland, digitalisation of the energy sector is visible in several areas: grid connection procedures, dynamic contracts requiring advanced ICT and data analytics, smart metering, telemetry, network diagnostics, digital back-office systems, automated monitoring, drones, forecasting tools and the gradual exploration of artificial intelligence applications. The Polish report also shows that digitalisation is uneven across sectoral segments. It is more advanced in large energy and gas companies than in parts of coal mining, where planned phase-out and financial constraints limit the scope of digital investment.

Portugal provides one of the most detailed regulatory frameworks for the digitalisation of energy. Horizontal digital policies include the *Digital Transition Action Plan, Portugal Digital strategy*, public administration digital transformation instruments and PRR-related coordination mechanisms. At sectoral level, smart grids and metering data are regulated through instruments such as the *ERSE Smart Grid Services Regulation* and rules on measurement, reading and data availability. These instruments create the basis for remote readings, consumption information, digital services, self-consumption, decentralised renewable production, flexibility and demand response. *Cybersecurity* is treated as a key condition for digital transition, given the growing dependence of energy networks, electric mobility, gas, data platforms and critical infrastructure on digital systems. Artificial intelligence is also emerging as a policy and operational issue in demand forecasting, network optimisation, predictive maintenance and asset management.

In Spain, energy digitalisation is closely linked to smart grids, meters and sensors, facility automation, predictive maintenance, demand aggregation, advanced data management, cybersecurity and artificial intelligence applied to efficiency and operations. The Spanish framework creates a double pressure: the transformation of the energy mix and the modernisation of organisational and technological capacities. Digitalisation is therefore

not treated as a separate administrative agenda, but as an operational component of energy-sector competitiveness, decarbonisation and security of supply.

Comparative synthesis

Across the six countries, green and digital transition policies share a common direction but differ in maturity, integration and social embeddedness. Spain and Portugal show relatively developed and diversified policy frameworks, combining decarbonisation, renewables, hydrogen, electrification, smart grids, data governance and digitalisation. Poland and Bulgaria are more strongly marked by the social and industrial consequences of coal-related restructuring, while also developing new instruments for renewables, hydrogen, energy efficiency and digital infrastructure. Malta's policy pathway is strongly influenced by island-specific constraints, imported energy dependence and infrastructure limitations. Montenegro's transition is shaped by renewable potential, fossil-fuel dependence, infrastructure modernisation needs and gradual alignment with European standards.

A common pattern is the increasing convergence of green and digital agendas. Smart grids, data systems, remote metering, predictive maintenance, cybersecurity, hydrogen infrastructure, energy storage and digitalised permitting show that the twin transition is becoming operationally interdependent. However, this integration is not always matched by integrated social governance. Employment, skills and social dialogue are recognised in many policy documents, but often remain less developed than technical and investment objectives.

Country	Main green-transition framework	Main digital-transition framework	Dominant policy emphasis
Bulgaria	INECP, long-term emissions strategy, Bulgaria 2030, RRP, Territorial Just Transition Plans	Digital Transformation of Bulgaria 2020–2030, RRP-supported digitalisation	Coal-region transition, energy modernisation and digital infrastructure
Malta	NECP, renewable energy, energy efficiency and energy-security policies	Digital Strategy 2021–2027, NRRP, digital public services and skills	Energy security, island constraints, smart technologies and workforce adaptation
Montenegro	European alignment, renewable expansion, hydropower, energy efficiency and infrastructure reform	Digitalisation as part of infrastructure and business modernisation	Energy security, renewable potential and EU integration
Poland	Updated NECP, Energy Policy to 2040, heating-sector transformation, hydrogen strategy, energy legislation	Digitalised energy procedures, smart infrastructure, ICT systems, telemetry and analytics	Coal and gas transition, security of supply, digitalisation of infrastructure
Portugal	Climate Framework Law, Carbon Neutrality Roadmap, NECP, electricity-system	Digital Transition Action Plan, Portugal Digital, smart grid regulation,	Integrated decarbonisation, smart grids, data and system flexibility

	reform, hydrogen and renewable gases	cybersecurity and AI strategies	
Spain	NECP 2023–2030, Climate Change Law, Just Transition Strategy, Hydrogen Roadmap, Recovery Plan	Digital Spain Agenda, smart grids, automation, AI, cybersecurity and data systems	Renewable expansion, electrification, hydrogen, digital operations and strategic autonomy

The central policy conclusion is that green and digital transition frameworks are increasingly sophisticated, but their democratic and labour-market dimensions remain uneven. The RESPECT perspective therefore requires a shift from policy frameworks that treat workers mainly as recipients of restructuring towards frameworks that recognise workers and their representatives as actors in transition governance. This implies earlier access to information, more substantive consultation, stronger links between investment and skills policy, and the inclusion of worker participation as a condition of effective, fair and socially sustainable industrial transformation.

Key challenges and results of twin transition policies implementation

The implementation of twin transition policies in the energy sector is producing visible organisational, technological and social effects across the six RESPECT countries. At the same time, the evidence from the national reports shows that **implementation remains uneven, incomplete and strongly mediated by national energy structures, institutional capacity, investment conditions and the quality of social dialogue**. The twin transition is therefore not a single linear process. In some countries it is primarily experienced as decarbonisation and the restructuring of carbon-intensive activities; in others, it is more visible as digitalisation, automation and technological modernisation of energy infrastructure. In most cases, however, the two processes increasingly converge in practice, particularly through smart grids, monitoring systems, digital metering, data analytics, predictive maintenance and digital tools for energy efficiency.

From the perspective of the RESPECT project, the central challenge is that the **technological and regulatory dimensions of transition are advancing faster than the participatory and social dimensions**. The national reports confirm that energy-sector companies are investing in renewable energy, infrastructure modernisation, digital systems, automation and operational efficiency. Yet the involvement of workers and their representatives in shaping these processes is often limited, reactive or concentrated on the implementation phase rather than the strategic design phase. This creates a gap between the policy ambition of a just and inclusive transition and the practical experience of workers, who frequently perceive transition as a top-down process.

Uneven advancement of twin transition across countries

The advancement of the twin transition varies substantially across national contexts. **Spain and Portugal** appear as relatively advanced cases in terms of regulatory

architecture, renewable energy expansion and the integration of digital technologies into energy systems. *Spain's* national contribution describes a transition that is already underway, with digitalisation identified as particularly widespread and decarbonisation progressing under the influence of investment, regulation, permitting procedures, talent availability and social acceptance. The Spanish energy sector is characterised by the expansion of renewables, smart grids, renewable hydrogen, storage, electrification, digitalised operations and new data management models. *Portugal* also shows a high level of policy and technological integration, particularly through smart meters, smart grids, renewable energy investment, hydrogen, advanced biofuels, electric mobility and the conversion of energy infrastructure.

Poland and Bulgaria represent cases where the implementation of the green transition is more directly associated with structural dependence on coal and related employment risks. *In Poland*, the main implementation challenges concern the historically conditioned dependence of the energy system on coal, limited grid flexibility, the growing but contested role of gas as a transitional fuel, uncertainty around nuclear energy and hydrogen, high investment needs, and the difficulty of reconciling EU decarbonisation objectives with domestic energy security concerns. *In Bulgaria*, the national report similarly identifies coal dependence, political instability, slow reforms, weak coordination between climate, energy and digital policies, limited national resources and significant regional risks in coal-dependent areas.

Malta and Montenegro illustrate different forms of structural constraint. *In Malta*, the twin transition is shaped by the country's small size, limited land availability, dependence on imported energy, high population density and the need to balance decarbonisation with security of supply. Digitalisation and automated monitoring are increasingly used to improve efficiency and environmental performance, but implementation is affected by organisational resources, coordination across policy domains and skills shortages. *Montenegro* faces the challenge of modernising a relatively concentrated energy system based mainly on hydropower and lignite-based thermal generation. Its transition is shaped by renewable potential, infrastructure needs, EU integration, limited financial capacity and the strategic role of the Pljevlja thermal power plant in national energy security.

Across the six countries, digitalisation often appears more immediately visible at workplace level than decarbonisation. This is because digital tools are introduced directly into work processes, production planning, monitoring, communication, data reporting and customer service. Decarbonisation, by contrast, may be experienced more indirectly through investment strategies, emissions targets, restructuring of assets or gradual changes in the energy mix. This does not mean that decarbonisation is less important;

rather, its workplace effects are often mediated by corporate strategies and public policies, while digitalisation directly modifies daily tasks and organisational routines.

Employment effects and restructuring risks

The employment effects of the twin transition are ambivalent. National reports consistently show that green and digital transition can create new jobs and professional profiles, particularly in renewable energy, grid modernisation, hydrogen, digital infrastructure, cybersecurity, data analytics, maintenance and energy efficiency. At the same time, these opportunities coexist with serious risks for workers in carbon-intensive, routine, older or less digitally advanced occupations.

The clearest restructuring risks concern coal-related activities in **Bulgaria, Poland and Montenegro**. *In Bulgaria*, the gradual reduction of coal mining and the future of the Maritsa East complex pose significant employment and regional stability challenges. Trade unions highlight the risk of unemployment, social insecurity and regional economic decline if coal-related restructuring proceeds without sufficient guarantees, retraining and alternative employment. *In Poland*, the transformation of coal mining and coal-based power generation has already required protective instruments in some segments, but uncertainty remains regarding the pace of coal phase-out, the role of gas and the ability to generate equivalent employment opportunities in new energy activities. *In Montenegro*, the future of coal-based generation is a key policy challenge because of the continued importance of the Pljevlja thermal power plant for energy security and employment.

In Spain and Portugal, restructuring risks are more closely associated with the transformation of industrial assets, refining, energy infrastructure, and the shift towards new low-carbon activities. *The Spanish* report indicates that while the transition brings efficiency and productivity gains, it is also linked to internal restructuring and perceived redundancies. *The Portuguese* report emphasises risks related not only to job losses, but also to the deterioration of working conditions, devaluation of existing qualifications, forced mobility, intensification of digital work, exclusion of subcontracted workers and income loss.

Malta's evidence suggests a somewhat different pattern. The national report indicates that organisations often treat workforce development as the main mechanism for managing transition, with training aimed at enabling workers to retain their current jobs. This points to a more adaptation-oriented model rather than a restructuring model based primarily on redundancies. However, even in this case, stakeholders identify skills development, communication and worker involvement as necessary conditions for ensuring that transition does not disadvantage parts of the workforce.

Effects on working conditions and job quality

The effects of twin transition on working conditions are not uniform either. On the positive side, **digitalisation and technological modernisation can improve operational safety, reduce risky manual tasks, support better maintenance, increase efficiency and improve access to information.** *In Spain*, positive results include industrial modernisation, improved safety in some processes, new professional profiles and opportunities associated with low-carbon activities. *In Malta*, real-time monitoring systems, automated controls and data-driven decision-making tools are associated with improved efficiency and operational performance. *In Portugal*, smart grids and digital metering support more active system management and consumer participation.

However, the same processes may also generate new pressures. **Digital tools can intensify work, increase monitoring, require continuous availability, produce new administrative burdens and demand constant upskilling.** In several national reports, workers and trade unions express concern that digitalisation may be used not only to support sustainability but also to reorganise work, reduce labour costs or increase managerial control. *The Polish* case study of the NEPTUN programme, discussed in detail elsewhere in the report, is particularly illustrative of this risk: a digital tool designed to improve work organisation may produce frustration, additional administrative work and tensions if it is implemented without sufficient testing, training and worker participation.

The **effect of decarbonisation on job quality is equally mixed.** New low-carbon activities can generate skilled employment and improve long-term sectoral sustainability. Yet the closure or conversion of fossil assets can also produce uncertainty, mobility pressures and the risk that workers with sector-specific qualifications will be displaced. The national reports suggest that the quality of transition outcomes depends less on the technology itself than on the governance of change: the timing of information, the availability of training, the presence of negotiated safeguards and the willingness of employers to involve workers before implementation.

Skills, training and public support

Skills and training constitute one of the most recurrent challenges across all national reports. **The twin transition requires new technical, digital, environmental and regulatory competencies.** Workers need to operate digital systems, understand data-driven work environments, adapt to automated processes and develop competencies relevant to renewable energy, hydrogen, storage, electric mobility, cybersecurity and energy efficiency. Worker representatives also need new forms of expertise: knowledge of climate policy, digital regulation, restructuring law, collective bargaining strategies and the capacity to analyse company transition plans.

The Bulgarian report identifies a shortage of qualified personnel with digital and green skills, insufficient adaptation of the education system and an urgent need for retraining in coal-dependent regions. *The Maltese* report similarly emphasises that the introduction of new technologies generates demand for competencies in digital systems, data management and automated technologies, and that training must evolve throughout workers' careers. *In Spain*, the availability of technical talent is identified as one of the conditions for successful transition, while insufficient training, especially for vulnerable groups, is identified as a risk factor. *Portugal's* national contribution points to the need for certified professional retraining, equal access to training and stronger institutional knowledge about direct, indirect and subcontracted employment effects. *Montenegro's* report also identifies insufficient employee training, skills shortages and limited access to reskilling opportunities as central problems.

Public support mechanisms are uneven. In some cases, transition funds, recovery plans and sectoral programmes support investment and training, but workers often report that support is insufficient, fragmented or not targeted enough. The *Spanish* evidence indicates that a significant part of respondents considered available support insufficient, especially in relation to training, outplacement and accompaniment. In *Malta*, training is the most commonly reported support measure, but stakeholders still call for more systematic workforce preparation. In *Montenegro*, respondents indicate that support accompanying digitalisation and decarbonisation remains insufficient, especially for those expected to adapt to new workplace requirements.

Implementation gaps

The national reports point to several common implementation gaps. The first is the gap **between strategic ambition and administrative capacity**. Energy and climate plans often set ambitious objectives, but implementation is slowed by permitting procedures, regulatory uncertainty, insufficient coordination between public institutions, limited administrative capacity and delays in access to funding. This is particularly visible in Spain, Portugal, Bulgaria and Poland, though it takes different forms in each country.

The second gap concerns **investment and infrastructure**. The twin transition requires large-scale investment in grids, storage, renewable generation, hydrogen, digital systems, cybersecurity, energy efficiency and workforce development. In *Poland*, the grid's lack of flexibility is a major barrier to the integration of renewable energy. In *Malta*, limited land availability and imported energy dependence constrain decarbonisation options. In *Montenegro*, infrastructure modernisation and limited financial capacity remain central challenges. In *Bulgaria*, investment is uneven and often concentrated in selected sectors, while the real economy, especially smaller enterprises, lags behind.

The third gap relates to **policy integration**. Green and digital policies are increasingly presented as linked, but they are not always implemented as an integrated governance framework. *Bulgaria's* national report explicitly points to insufficient coordination between energy, digitalisation and climate policies. *Malta's* report identifies governance challenges caused by the cross-cutting nature of transition, as policies relating to energy, transport, construction and other sectors fall under different institutions. *Montenegro's* report similarly suggests that environmental and digital reforms are often implemented separately, limiting comprehensive planning and worker participation.

The fourth gap concerns **worker participation**. Across the national reports, workers are often informed about changes after strategic decisions have already been made. Consultation tends to be more developed on traditional employment matters than on sustainability and digitalisation strategies. Participation is stronger during the labour adaptation phase than during strategic diagnosis and investment decision-making. This pattern is particularly clear in *Spain*, where information, consultation and real participation received progressively lower evaluations. *Malta's* evidence points to a communication lag, with organisations often treating communication as post-hoc notification. *Montenegro's* report similarly concludes that workers frequently experience workplace transformation as imposed rather than jointly managed.

Comparative typology of implementation patterns

The evidence allows for a tentative typology of implementation models across the six countries. **Spain and Portugal** can be described as cases of relatively advanced policy-driven and company-driven transition, with strong technological and regulatory momentum but continuing challenges regarding effective worker influence and training. **Poland and Bulgaria** represent cases of carbon-intensive restructuring under high social and political sensitivity, where the green transition is inseparable from employment protection, regional stability and energy security. **Malta** represents a structurally constrained but operationally adaptive model, where digitalisation and efficiency measures are advancing but require stronger coordination, communication and workforce involvement. **Montenegro** reflects an EU-alignment and infrastructure-modernisation model, where transition potential is significant but constrained by fossil-fuel dependence, institutional capacity and limited participatory mechanisms.

Across these different models, a common conclusion emerges. Twin transition policies are generating tangible results: renewable energy expansion, digitalisation of infrastructure, improved operational efficiency, new professional profiles, energy-efficiency measures and the gradual emergence of low-carbon industrial strategies. Yet these results remain fragile where they are not accompanied by social governance. The main implementation challenge is therefore not only to accelerate green and digital transformation, but to embed it in participatory institutions capable of anticipating

employment effects, negotiating safeguards, supporting skills development and ensuring that workers are not merely recipients of change but active participants in its design and implementation.

Social dialogue in the context of twin transition

The comparative evidence from the six national reports confirms that social dialogue is widely recognised as necessary for a just and effective transition, but its practical influence on strategic decisions remains uneven and often limited. Across the six countries, social partners generally accept the inevitability of green and digital transformation, although they attach different priorities to it. Trade unions tend to emphasise employment security, social protection, retraining, prior consultation and the prevention of deterioration in working conditions. Employers and business organisations usually underline competitiveness, regulatory stability, investment certainty, administrative simplification, technological neutrality and flexibility in adapting business models. Public authorities, in turn, are expected to mediate between climate objectives, energy security, economic competitiveness and social cohesion. The main dividing lines therefore do not concern whether transition should take place, but how fast it should proceed, how its costs should be distributed, and whether workers can influence the design of restructuring or are merely informed about it after key decisions have already been made.

Sectoral social dialogue and collective bargaining

Sectoral social dialogue and collective bargaining have considerable potential in the energy sector because many transition challenges are not confined to single companies. Coal phase-out, renewable energy expansion, digitalisation of grids, hydrogen development, restructuring of refining and gas infrastructure, and the introduction of smart technologies all create sector-wide effects. However, the national reports show that sectoral bargaining on twin transition remains uneven and often underdeveloped.

In coal-dependent contexts such as **Bulgaria and Poland**, sectoral dialogue is strongly linked to employment protection and social safeguards. Trade unions focus on the consequences of mine closures, restructuring of coal-fired generation and the protection of regions dependent on carbon-intensive activities. *In Poland*, pressure from trade unions in mining and power generation contributed to the introduction of statutory safeguards for workers whose jobs are lost as a result of the energy transition. This demonstrates that organised labour can influence protective instruments when restructuring risks are sufficiently visible and politically salient. At the same time, the Polish case also shows that sectoral dialogue is weaker in areas where the transformation is less clearly defined, such as gas, digitalisation or new technologies.

In Spain and Portugal, sectoral social dialogue is more closely related to the broader transformation of industrial models, renewable energy, digitalisation, hydrogen, grid modernisation and energy-intensive value chains. The *Spanish* report stresses the importance of bipartite and tripartite social dialogue in anticipating and managing change, while the *Portuguese* report emphasises the need for collective bargaining, impact assessment and worker involvement before closures, conversions, digitalisation of networks or major technological reorganisation. In both cases, collective bargaining is viewed as a mechanism for translating strategic transition objectives into practical guarantees on training, mobility, employment protection and working conditions.

In Malta and Montenegro, sectoral structures appear less developed or less central to the national evidence. In *Malta*, the small scale of the economy and the role of public or essential-service organisations make company-level and institutional dialogue particularly important. In *Montenegro*, the challenge lies in strengthening the capacity of social partners and ensuring that social dialogue becomes part of transition planning, rather than being limited to post-decision communication.

Company-level information, consultation and participation

The most consistent comparative finding concerns the hierarchy between information, consultation and participation. **Across the national reports, workers and their representatives are more likely to receive information than to be substantively consulted, and more likely to be consulted than to participate in decision-making.** In this sense, the problem is not simply the absence of communication, but the limited transformative power of communication when it does not allow workers to influence strategic choices.

The Maltese national report shows this pattern clearly. Respondents reported higher satisfaction with information and consultation arrangements than with opportunities to participate directly in organisational decision-making. Worker participation tends to be stronger during implementation than during the design and decision-making phases of transition initiatives. This suggests that formal mechanisms may exist, but their capacity to shape transition measures remains limited.

In Montenegro, company-level social dialogue is also predominantly reactive. Employees are frequently informed about decisions only after they have been made, and respondents report limited involvement in designing and implementing transition strategies. This weakens trust and limits the capacity of organisations to anticipate resistance or identify operational risks.

In Poland, company-level dialogue also depends heavily on the willingness and strategy of the employer. Trade union representatives assess their influence on twin

transformation as limited. They see their role mainly as ensuring that decisions do not negatively affect employees, rather than as co-managing company transformation. Digitalisation is more frequently raised at company level than decarbonisation, especially because workers fear its potential impact on repetitive office work and older employees. The Polish case study of the NEPTUN programme confirms the risks of top-down digitalisation: insufficient consultation with users and worker representatives contributed to implementation problems, additional workload and frustration.

Portugal's case study of the former Matosinhos refinery shows the consequences of insufficient anticipation. The closure was accompanied by union opposition and public mitigation mechanisms, but worker participation occurred mainly after the strategic decision had been taken. As a result, social dialogue functioned more as a reactive instrument than as a preventive mechanism. The case illustrates the importance of prior information and consultation before irreversible business decisions, especially where closures, reconversions or territorial employment effects are involved.

The Spanish case provides a similar diagnosis. The national report distinguishes between strategic diagnosis, investment decision, operational implementation and labour adaptation. Worker participation is stronger in the labour adaptation phase and weaker in the initial diagnosis and decision phases. Survey indicators reflect this hierarchy: information scores higher than consultation, while actual participation receives the lowest assessment.

Role and capacity of trade unions and employers

Trade unions play a crucial role in articulating the social risks of transition. Across the reports, they insist that decarbonisation and digitalisation must be linked to job protection, retraining, income security, occupational mobility, social impact assessment and protection of working conditions. However, they also face significant capacity challenges. The twin transition requires technical knowledge of energy systems, climate policy, digital technologies, data governance, automation, cybersecurity, artificial intelligence and restructuring law. Without access to such expertise, trade unions may be confined to reacting to employment consequences rather than influencing technological or investment choices.

Employers generally recognise the need for skills adaptation and communication, but often approach worker participation from a managerial or efficiency perspective. In *Bulgaria*, the employer perspective stresses that information, consultation and participation rights should be balanced with the effectiveness of management decisions and should not create excessive administrative burdens. In *Spain* and *Portugal*, employers emphasise regulatory predictability, competitiveness, administrative simplification and access to finance. In *Malta*, employers and institutions

are encouraged to improve communication throughout the implementation process and ensure that transition initiatives include opportunities for worker feedback. These positions show that employers do not necessarily reject social dialogue, but often define it as a condition for smoother implementation rather than as a mechanism of shared strategic governance.

Main gaps in worker participation

The comparative evidence points to five recurring gaps. First, information is often provided too late to allow alternatives to be developed. Secondly, consultation frequently concerns the consequences of decisions rather than the decisions themselves. Thirdly, participation in strategic planning remains weak, especially in digitalisation and technological investment. Fourthly, collective bargaining has not yet fully incorporated the twin transition as a systematic agenda covering training, job redesign, data use, monitoring, automation and employment guarantees. Fifthly, vulnerable groups — older workers, workers in routine jobs, subcontracted workers and workers in affected territories — are not always sufficiently included in transition governance.

These gaps confirm the central premise of the RESPECT project: existing information, consultation and participation frameworks are necessary but not sufficient. The challenge is to move from compliance-oriented dialogue to anticipatory, problem-solving and decision-influencing participation. This requires social dialogue to be embedded at all levels: national strategies, sectoral transition frameworks, company investment decisions and workplace implementation.

In comparative terms, social dialogue in the twin transition is strongest where it combines early information, substantive consultation, negotiated safeguards, training rights, social impact assessment and monitoring mechanisms. It is weakest where transition is implemented as a top-down managerial or policy process, with workers informed only once strategic choices have become irreversible. The evidence from the six countries therefore suggests that fair industrial transition depends not only on the presence of social dialogue institutions, but on their capacity to influence the timing, content and social outcomes of restructuring.

Case studies and best practices

The RESPECT methodology required each national contribution to include a company-level case study, or a closely related sectoral example, in order to examine how the twin transition is implemented in practice and how workers are involved in processes of restructuring, technological change or decarbonisation. The purpose of this chapter is not to present six isolated descriptions, but to identify comparative lessons from concrete

transition processes. The case studies differ in scope and maturity. Some concern integrated green and digital transformation; others focus primarily on decarbonisation, digitalisation or restructuring associated with the transition. They also differ in their assessment: some illustrate relatively constructive practices, while others are better understood as cautionary examples showing what happens when participation is late, weak or limited to information after strategic decisions have already been made.

Overview of the national case studies

The Bulgarian case study concerns **Maritza East Mines EAD**, a state-owned lignite mining enterprise central to the national energy system and regional employment. The case examines how a coal-based company exposed to decarbonisation pressures can manage restructuring while protecting jobs, regional stability and workers' prospects for retraining and redeployment. It illustrates the core dilemma of just transition: reconciling climate objectives, energy security and social protection.

The Maltese case study analyses an **anonymised company operating critical water infrastructure**, including desalination, pumping and wastewater treatment. As these activities are highly energy-intensive, the case explores the interaction between decarbonisation and digitalisation through solar PV, energy-efficiency measures, energy recovery, sensors, telemetry, automated monitoring and business intelligence tools. It is a practical example of digital technologies supporting environmental and operational objectives.

The **Montenegrin** contribution presents a **sectoral case** rather than a single company study. It examines energy-sector transformation in a small economy dependent on hydropower and lignite-based generation, especially the strategic role of the **Pljevlja Thermal Power Plant**. The case highlights the importance of energy security, renewable potential, infrastructure modernisation, EU alignment and financial capacity, while also showing the risks of top-down transition with weak worker participation.

The **Polish** case study focuses on the NEPTUN digital system implemented in a gas distribution and infrastructure maintenance company from the former PGNiG, now within the **ORLEN group**. The system was intended to improve field-work planning, documentation, time recording, vehicle integration and monitoring. Although mainly a digitalisation case, it shows how technological change may fail when tools are poorly adapted to real working conditions and introduced without meaningful worker involvement.

The **Portuguese** case study concerns the closure of the former **Matosinhos Refinery**, part of the Petrogal/Galp group. It analyses a decarbonisation-related restructuring process involving the closure of a strategic industrial site and concentration of refining

activity in Sines. Although the digital dimension is only indirect, the case is highly relevant because it illustrates the employment, territorial and participatory consequences of restructuring when early social anticipation is weak.

The **Spanish** case study examines **Repsol** as an example of complex corporate transition combining decarbonisation and digitalisation. The analysed process includes emissions reduction, renewable fuels, hydrogen, energy efficiency, selective electrification, carbon capture and utilisation, renewable projects, automation, predictive maintenance and real-time data use. The case shows how transition can combine existing industrial assets, new value chains, digital capabilities and labour adaptation.

Country	Case study / sectoral example	Type of transition	Main objective of the case	Worker participation dimension	Overall assessment
Bulgaria	Maritza East Mines EAD	Primarily decarbonisation-driven restructuring, with digitalisation and automation as modernisation tools	To analyse the vulnerability of a coal-based enterprise and region to the green transition and identify conditions for socially just adaptation	Need for stronger consultation, retraining, social protection and involvement of workers in planning	Cautionary case of high transition risk where social dialogue is essential but insufficiently developed
Malta	Anonymised critical water infrastructure company	Integrated digitalisation and decarbonisation	To examine how digital monitoring, energy efficiency and renewable energy support sustainability in an energy-intensive essential service	Existing information and consultation mechanisms, but limited meaningful participation at planning stage	Relatively positive case, with operational benefits but need for deeper worker involvement
Montenegro	Sectoral energy transition, including hydropower and Pljevlja thermal power plant	Sectoral green and digital transition under EU-alignment and energy-security constraints	To assess transition challenges in a small fossil-fuel-dependent energy system with renewable potential	Transformation often perceived as top-down; need for genuine consultation and social impact assessment	Sectoral cautionary example of limited participatory governance
Poland	NEPTUN system in gas distribution and field maintenance	Digitalisation of work organisation	To assess a digital tool intended to streamline field work, documentation and time recording	Limited consultation with users and trade unions; weak feedback loops during implementation	Negative or incomplete implementation of digitalisation, useful as a failure-learning case
Portugal	Former Matosinhos Refinery / Galp	Decarbonisation-related closure and industrial restructuring	To analyse refinery closure, territorial impacts and just transition mechanisms	Participation mainly after strategic decision; union opposition and late mitigation measures	Cautionary case showing lack of social anticipation and weak preventive participation

Spain	Repsol	Integrated green and digital transformation	To analyse corporate transition involving emissions reduction, hydrogen, renewable fuels, digital operations and labour adaptation	Information, consultation and collective bargaining exist, but participation is stronger in labour adaptation than strategic design	Mixed but constructive case; transition advances, yet participation remains uneven
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Success and failure factors

The case studies show that the success of twin transition cannot be assessed only through technical targets such as emissions reduction, energy efficiency, cost optimisation or operational modernisation. From the RESPECT perspective, equally important are social outcomes: employment effects, working conditions, skills, job security, organisational trust and the actual role of workers in shaping change.

The main success and failure factors can be summarised as follows:

- **Strategic clarity and investment capacity.** The Maltese and Spanish cases show that transition is more likely to achieve its operational goals when it is embedded in a clear organisational strategy and supported by investment. In *Malta*, sustainability and efficiency objectives were linked to renewable generation, energy-efficiency measures and digital monitoring. In *Spain*, Repsol's transition combined technological investment, industrial diversification and decarbonisation. However, the *Portuguese* case shows that strategic clarity is insufficient if social anticipation is weak: the closure of the Matosinhos Refinery may have served business and environmental objectives, but it generated employment, territorial and social costs because workers were involved too late.
- **Fit between technology and real working conditions.** The *Polish* NEPTUN case demonstrates that digitalisation may fail when tools are not adapted to actual work processes. A system intended to streamline field-work planning and documentation instead increased administrative and cognitive burdens due to poor system stability, weak integration and insufficient adaptation to mobile work. By contrast, the *Maltese* case suggests that digital tools are more likely to be accepted when they clearly support operational monitoring, resource management and work organisation.
- **Meaningful training and skills development.** All cases confirm that skills are a decisive condition of transition. *Bulgaria* and *Montenegro* require retraining pathways for workers exposed to coal-related restructuring. *Spain* and *Malta* point to the growing demand for new technical and digital competences. *Poland* shows the limits of formal training when it is too short, generic and detached from real work situations. The distinction between formal training and effective competence-building is therefore central to transition quality.
- **Timing and depth of worker participation.** A consistent pattern across the cases is that information is more common than consultation, and consultation is more common than genuine participation. In *Spain*, workers were more involved in labour adaptation than in strategic investment decisions. In *Portugal*,

participation mainly followed the closure decision. In *Poland*, workers and trade unions were not meaningfully involved in designing the digital system. *Malta*, *Bulgaria* and *Montenegro* also point to the need for earlier and more structured participation.

Overall, the cases suggest that transition goals are most likely to be achieved when technical and social objectives are treated as interdependent. Decarbonisation and digitalisation produce better outcomes when combined with early consultation, practical training, social impact assessment, realistic planning, employment safeguards and worker feedback mechanisms. They are more likely to fail, or to be perceived as illegitimate, when implemented as top-down managerial projects with limited participation and weak adaptation to actual work processes.

Transferability of best practices in worker participation

The six cases do not provide one transferable model, as national contexts differ in energy systems, company structures, industrial relations, state capacity and transition maturity. They do, however, point to several transferable principles for strengthening worker participation in restructuring.

- **Anticipatory information and consultation.** The *Portuguese* and *Polish* cases show that when strategic decisions have already been made — refinery closure or digital tool design — worker participation is reduced to damage control. Consultation should therefore take place before irreversible decisions on closures, technological conversion, automation, digital monitoring or work reorganisation, and should be based on relevant economic, environmental, labour and territorial data.
- **Participatory digitalisation.** Digital tools that reshape work should be designed and tested with end-users, not only with managers or external providers. Workers should be involved in piloting, usability testing, risk assessment and post-implementation correction. The *Polish* case shows the risks of ignoring this principle, while the *Maltese* case suggests that digital tools are more accepted when workers understand their function and see operational benefits.
- **Training linked to transition plans.** Training should not be a late or generic measure, but should correspond to specific occupational groups, technologies and career pathways. The cases indicate the need for certified retraining in closure or conversion processes, practical digital training for new systems and continuous upskilling where technologies evolve.
- **Joint monitoring of implementation.** Worker participation should continue after decisions are announced. Joint employer-worker bodies could monitor

employment effects, work intensity, health and safety implications, skills gaps and corrective actions, turning consultation into a continuous governance mechanism.

- **Inclusion beyond the core workforce.** Restructuring affects not only direct employees but also subcontractors, supply chains and local territories. Just transition mechanisms should therefore cover indirect employment and dependent local economies, especially in coal regions, refinery closures and large infrastructure conversions.

The strongest comparative lesson is that fair restructuring requires worker participation before, during and after implementation. Workers must help assess risks and alternatives, shape training and mitigation measures, and monitor outcomes. Only such a full-cycle model can make the twin transition both operationally effective and socially legitimate.

Conclusions and recommendations

The comparative analysis confirms that the twin transition in the energy sector can only be socially sustainable if workers and their representatives are involved before, during and after restructuring decisions. Social partners should therefore move from a model of reactive consultation towards anticipatory and continuous participation. This requires stronger institutional routines, better access to information, more systematic use of collective bargaining and greater capacity on both sides to deal with complex technological, environmental and employment-related change.

1. Move from late consultation to anticipatory social dialogue

Social partners should ensure that information and consultation take place before strategic decisions become irreversible. This applies in particular to closures, conversions of industrial assets, automation, digital monitoring, restructuring of work organisation and large-scale decarbonisation investments. Employers should provide worker representatives with timely and meaningful information on expected employment effects, skills needs, work-organisation changes, investment plans and potential territorial impacts. Trade unions and employee representatives should use this information not only to react to decisions, but to formulate alternatives, propose safeguards and negotiate implementation conditions.

2. Integrate the twin transition into collective bargaining

Collective bargaining should become a more systematic instrument for managing green and digital restructuring. Social partners should develop clauses covering employment

guarantees, redeployment, retraining, occupational mobility, work reorganisation, data use, digital monitoring, health and safety, workload, subcontracting and protection of vulnerable groups. In particular, digitalisation should no longer be treated solely as a managerial or technical matter. Where digital tools affect work allocation, time recording, performance monitoring or autonomy, their design and implementation should be subject to consultation and, where appropriate, negotiation.

3. Establish joint transition and monitoring committees

At company and sectoral level, social partners should consider creating joint transition committees responsible for monitoring restructuring processes. Such bodies could review implementation problems, employment effects, work intensity, health and safety risks, training needs and the adequacy of mitigation measures. They should also provide a structured channel for worker feedback during implementation. This would transform participation from a one-off consultation exercise into a continuous governance mechanism and would help identify unintended effects early enough to correct them.

4. Link restructuring with effective skills strategies

Training should be embedded in transition planning from the outset. Social partners should jointly identify the occupational groups most exposed to decarbonisation, automation and digitalisation and agree on targeted training pathways. Training should be practical, job-specific and linked to real technological and organisational changes. It should include both technical and digital skills for workers and strategic, legal and analytical skills for worker representatives. Special attention should be given to older workers, workers in routine jobs, subcontracted workers and employees in fossil-fuel-dependent regions.

5. Promote participatory digitalisation

Digital tools should be designed, tested and evaluated with the involvement of end-users. Workers directly affected by new systems should participate in pilots, usability testing, risk assessment and post-implementation correction. This is particularly important where digitalisation concerns task allocation, reporting, monitoring, data management, predictive maintenance or algorithmic decision-making. Participatory digitalisation can reduce implementation failures, improve acceptance of new technologies and ensure that digital tools support rather than intensify work.

6. Strengthen the capacity of trade unions and employee representatives

Trade unions need stronger expertise to engage effectively with the twin transition. Capacity-building should cover climate and energy policy, digitalisation, artificial intelligence, cybersecurity, data governance, restructuring law, company investment strategies and social-impact assessment. Without such expertise, worker representatives risk being confined to negotiating consequences rather than influencing decisions. Employer organisations should also support capacity-building on participatory change management and fair restructuring, as better-informed worker representation can contribute to smoother and more legitimate implementation.

7. Include indirect and vulnerable workers in transition governance

Restructuring in the energy sector affects not only core employees but also subcontractors, suppliers, dependent services and local communities. Social partners should therefore broaden the scope of transition agreements to include indirect employment effects and territorial consequences. This is particularly important in coal regions, refinery closures, infrastructure conversions and essential services. Just transition mechanisms should avoid creating a divide between protected core workers and less protected peripheral workers.

8. Build transnational learning between social partners

The RESPECT case studies show that countries and companies face similar dilemmas despite different institutional contexts. Social partners should therefore use transnational cooperation to exchange model clauses, consultation procedures, training tools, case-study lessons and monitoring templates. Such cooperation is particularly valuable for trade unions and employer organisations dealing with new technologies, AI-based systems, energy infrastructure modernisation and decarbonisation-related restructuring.

Overall, social partners should treat worker participation as a practical condition for successful transition rather than as a procedural obligation. The twin transition will be more effective and legitimate where workers are recognised as co-shapers of change: able to identify risks, contribute operational knowledge, negotiate safeguards and monitor outcomes. Fair restructuring in the energy sector requires a full-cycle model of participation: early involvement before decisions, negotiated support during implementation and joint evaluation after change has taken place.

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Restructuring and Social Participation for Employee
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