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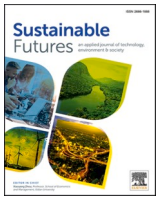

Unjust transitions? Class experience in Portugal's coal phase-out and the limits of climate governance

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ABSTRACT

The closure of Portugal's two coal-fired power plants in 2021 marked the largest emissions reduction in the country's history but directly affected around 450 workers. This paper examines the experiences of workers from the Sines and Pego plants through a Just Transition framework. Drawing on a qualitative case study based on 13 semi-structured interviews, the analysis explores how class experience and identity were disrupted by the transition. The impacts extended beyond economic loss related to the end of jobs or careers, triggering grief, burnout, and loss of social status, particularly among men whose identities were closely tied to industrial labour. The analysis combines Just Transition guidelines with an intersectional understanding of class experience to argue that policy design failed to address not only the governance of the process, but also the self-defining dimensions of work. These gaps undermined the legitimacy of the transition and fuelled resentment toward climate policy; resentment with potential political consequences in both territories. This may have important policy implications: a Just Transition cannot be reduced to compensation and retraining schemes; it must also account for how transitions are experienced, who is seen, and whose voices are heard in deciding what a low-carbon future looks like.

1. Introduction

In Oscar Wilde's book *The Picture of Dorian Gray*, when Gray finally confronts his portrait after years of trying to hide it, he sees that the image has become grotesque, forcing him to confront the consequences of his own actions. A similar argument can be made about the way the concept of Just Transition is used and about the way former coal-fired power plants workers see themselves and their life's prospects.

James Hansen argued 15 years ago that "Coal-fired power stations are death factories" (*in* The Guardian, February 15, 2009) and that we should close them. This call is supported by academic studies, coal-fired power stations are notably among the largest sources of greenhouse gases [1,2] and toxic air pollutants worldwide, significantly impacting air quality, climate, and public health [3,4].

Climate action may reshape labour markets, which raises the need to ensure transitions are socially just. While the concept of a *Just Transition* has become a guiding principle in climate governance [5,6], its implementation is often approached too narrowly, privileging economic compensation over deeper social dimensions such as identity, recognition, and time [7]. Poorly designed transitions risk delegitimising climate policy and fuelling political backlash [8,9].

This article examines these dynamics through the case of Portugal's coal phase-out, which closed the country's two coal-fired power plants in 2021, representing the biggest emission cut ever, but affecting about 450 workers' jobs and prospects. While framed as a *just transition*, empirical research on workers lived experiences remains scarce, a gap repeatedly noted in recent literature [6,10,11].

We thus depart from the following research question: How did workers from Portugal's coal plants perceive the justice of the transition process, and what does this reveal about the limits of current climate governance frameworks?

In this paper, because of the polysemic use of the concept hampers the use of an ontological definition, we understand Just Transition as both a normative policy agenda following the ILO Guidelines [12] and an analytical framework grounded in energy justice [13]. We adopt a complex realist approach [14] to capture the class experience of the transition [15], and we draw on scholarship on masculinities at work to attend to identity and status loss in deindustrialization [16–18]. This paper contributes to ongoing debates on equitable transitions by using a case study to bridge climate governance literature with sociological perspectives on class and gender.

We adopt a comparative case study design, examining the closures of

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the Sines and Pego coal-fired power plants. While Sines was closed following corporate and market decisions within a government decarbonisation agenda, the Pego plant ceased operations with the expiration of a power purchase agreement. These different closure rationales were faced with distinct policy responses. The paper examines whether such differences translated into divergent perceptions of justice among workers, or whether shared governance failures produced convergent class experiences across both sites.

We define the field of Just Transitions and the experience of class in Section 2. Section 3 presents our methods, namely the selection of the interviewees and coding methodology used. In Section 4 we present the results of the interviews, namely the workers' experiences of the closures. Section 5 focuses on the discussion of these results and finally, in Section 6, we present our conclusions.

2. Literature review

2.1. Just transitions: frameworks

The concept of a Just Transition emerged from labour movements in the late 20th century as a response to the tension between environmental protection and workers' rights [19–21]. This historical origin remains relevant because it frames justice not only as distributive but as deeply tied to labour identity and social dialogue, dimensions central to our analysis of Portugal's coal phase-out.

However, the trajectory of Just Transition has been neither linear nor uncontested. As Stevis and Felli [22] highlight, the concept is polysemic and conflictual. While it began as a strategy to protect workers from the adverse impacts of environmental regulation, it has expanded to include broader considerations of social justice, including intergenerational and environmental equity. In this expanded framework, *Nature* itself has been recognized as a subject of justice, alongside workers and local communities [23]. Such contestation raises fundamental questions regarding the scope of justice: *what* is justice, for *whom*, and *who decides*?

This conceptual plurality has resulted in varying interpretations and applications of Just Transition. On the one hand, narrow interpretations focus on compensatory measures for workers in carbon-intensive sectors; on the other hand, more expansive views advocate for a transformational approach encompassing decolonial, feminist, and eco-socialist principles [24–26]. This tension between limited and expansive frameworks reflects deeper power asymmetries in transition processes, where actors contest not only the distribution of benefits and burdens but also the fundamental terms of engagement [27].

Academic engagement with Just Transition accelerated in the 2010s, particularly within the fields of sustainability transitions and socio-technical systems. Scholars such as Geels [28] and Geels & Schot [29] developed the Multi-Level Perspective and Transition Management approaches, which have been widely used to analyze the dynamics of systemic change. However, these frameworks have been criticized for their technocratic focus, often neglecting the political dimensions and justice implications of transitions [23,30].

Morena et al. (23)argue that much of the socio-technical transition literature depoliticizes Just Transition by prioritizing governance and technological innovation over the historical struggles of labour movements. This critique calls for a reintegration of political-economy considerations into the analysis of sustainability transitions, ensuring that questions of justice, power, and agency are not subordinated to managerial or market-based solutions.

While the conceptual debates surrounding Just Transition remain unsettled, several analytical frameworks have been proposed to evaluate the justice dimensions of transition processes. Sovacool et al [31] offer a comprehensive model, grounded in the energy justice scope, with four dimensions of justice: i) Distributive, concerning the equitable allocation of costs and benefits; ii) Procedural, focusing on inclusive and transparent decision-making processes; iii) Recognition, stressing the visibility and rights of marginalized groups; iv) Cosmopolitan justice, addressing global interdependencies and externalities. Their framework may serve as an analytical referential, offering evaluative criteria for assessing the justice content of transition processes, as distinct from normative policy prescriptions such as those developed by the International Labour Organization (ILO).

At a more normative level, the ILO has played a pivotal role in operationalizing Just Transition. Its Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All [12] created a policy framework, structured around social dialogue, social protection, decent work, and gender equality. These guidelines represent a consensus among labour organizations on the policy areas required to ensure that environmental sustainability is pursued alongside social justice [32,33].

Similarly, national and regional actors have developed complementary strategies. The European Trade Union Institute (ETUI) has focused on the distributive impacts of climate policies, the employment consequences of decarbonization, and the resilience of local economies [34]. These initiatives underscore the continued relevance of labour-oriented approaches to Just Transition, while also revealing divergences in emphasis and strategy.

Governance processes play a central role in determining the outcomes of Just Transitions. Wang & Lo [35] argue that democratic regimes are generally better equipped to facilitate inclusive governance arrangements, although power asymmetries persist. They further note that the meaning of Just Transition is often contingent upon the interests and power positions of specific actors, reinforcing the need for critical engagement with governance frameworks.

At the international level, the Paris Agreement [36] formally introduced Just Transition as a guiding principle for climate action, committing parties to consider "the imperatives of a just transition of the workforce and the creation of decent work and quality jobs". Subsequent policy developments, such as the Solidarity and Just Transition - Silesia Declaration [37], have reinforced this commitment, emphasizing participatory governance and social dialogue.

The European Union has incorporated Just Transition into its climate strategy through the European Green Deal [38], the European Climate Law [39], and the Just Transition Mechanism [40]. While these initiatives represent significant progress, critiques remain regarding their reliance on green growth paradigms and market-based mechanisms [41]. In Portugal, the National Energy and Climate Plan[1] and the Climate Law[2] also commit to a "just, democratic, and cohesive transition".

Social protection systems are increasingly recognized as fundamental enablers of Just Transition. The Employment Outlook [42] stresses the risks of job losses and income reductions, particularly for low-skilled workers in carbon-intensive sectors. Social protection, including income support and retraining programs, are essential for mitigating these risks and securing public support for climate policies [43–46].

There is growing consensus that climate change constitutes a new social risk, necessitating the development of eco-social policies [10,47]. Such policies are critical for addressing the triple injustice of climate change: that its effects are most severe for those least responsible for emissions, that mitigation policies often impose disproportionate burdens on vulnerable workers and communities, and that transitional benefits are not equitably distributed [46].

Our study builds on this extensive literature by examining how workers perceive justice when transitions disrupt not only employment but also identity and social status. In doing so, we extend debates on equitable transitions by introducing temporal justice, a dimension rarely addressed in existing frameworks [48].

[1] Plano Nacional Energia e Clima 2030 (PNEC 2030) - Resolução Do Conselho de Ministros n.º 53/2020, de 10 de Julho.

[2] Lei de Bases Do Clima, Lei n.º 98/2021, de 31 de Dezembro.

This historical perspective is not merely descriptive; it serves our argument that current governance approaches risk repeating past patterns of exclusion, particularly when transitions are framed as technical and accelerated rather than negotiated and inclusive.

2.2. The experience of class

The idea of a just transition is about class, more so if you consider its labour roots. It is about creating a policy framework ensuring that the working class does not bear alone the costs of a transition to a low carbon economy. This is not the first *transition* to affect the working class, the actual creation of the modern working class was more a *transformation* - "The Great Transformation" - according to Polanyi [49].

In the book Class After Industry, David Byrne [15] draws on his work with coal communities in the UK that were affected by the deindustrialization in the Thatcher years - a clear *transition* - to understand how class is lived. Byrne is clear to position the post-industrial societies within the capitalist mode of production: industrial production was simply moved elsewhere, but the class experience is present as in other capitalist nation; if anything "post-industrial capitalism is capitalism on steroids" (p. 19) and the "possibility space within which class is expressed" changes (p. 35). Going back to Polanyi, Byrne describes the post-industrial with the term "great if partial" transformation, because there is still a working-class living wage to wage, but the class experience has changed from the capitalist-welfare age and at level place rustbelts were created (p. 3). Since the way class if lived has changed in these places, he defies the more structuralist ways of understanding class and moves to a closer focus, a complex realist approach, noting that individuals themselves are complex systems, and that class should be understood by more than a collective actor. For each individual, class is taken as his/her position in the class structure and class identity should be recognized as a personal system of beliefs and motivations (p. 6).

Therefore, Byrne challenges further studies within the complex realist approach [14], to understand class beyond their jobs or earnings, and to do so understanding where they live, the family history, the education and their life experiences - their stories. He proposes an intersectional view on class, considering place and space in class dynamics, but also how class interacts with gender, ethnicity and other social divisions.

In this paper, while intersectionality is understood as attentive to the co-constitution of multiple axes of inequality, the empirical analysis is deliberately bounded to class experience and gendered identities as they are lived in highly masculinised industrial labour contexts. Other axes of social differentiation, like race and ethnicity, are not systematically examined, given the empirical configuration of the two Portuguese coal plants and the limits of the interview material.

Mcdowell [50] also discusses the transition from manufacturing to service jobs and its effect on working-class men. She argues that deindustrialization and consequent job loss results on economic insecurity and loss of the traditional male breadwinning role. For men affected by these transitions, their masculinity becomes *redundant*, since the traditional masculinities, tied to manual labour and physical strength are undervalued in service and knowledge economies. The unemployment and precarious work that follows the deindustrialization, destabilizes the sense of self and of identity of these men, that was formerly grounded in stable and skilled labour (p. 138). Later, Mcdowell [51] clarifies that the connections between the social construction of masculinity and labour market participation "have long been recognized as a central element of capitalist societies". Estes [52] identifies the same sense of self and identity crossing race in the black workers sanitation strike in 1968 in Memphis, when the workers used the slogan "I am a Man!", to demand recognition for their dignity and humanity, not only because of race, but also as a gendered dispute on what it means to be a man, i.e. as their role as breadwinners.

Feminist and gender scholars have argued that men and masculinity should be addressed specifically, because by recognizing their gendered identities, there is a "dispute on male claims to represent humanity" and because there is a need to understand male gender identities [53]. Therefore, although labour is central in understanding class, examining gender identities is also necessary.

Within this gendered approach to labour, we understand that there is a specific type of masculinity in industry work, the "tough men" [54]; and that, besides work, there are micro rituals performed, such as "drinking with friends, talking about work, striking, fighting or degrading managerial staff". The work in factories may have been often boring, but there the mythology of productive labour gives some men benefits – family wage, labour solidarity -, and the working-class and masculine identity [55]. In her pivotal book *Masculinities*, Connell [16] clarifies that masculine solidarity networks are constructed inside labour work (p. 263), and that working-class solidarity as also been constructed on masculinity (p. 273). The same masculine space, homosocial bonding and limited emotional range was found in trade unions by Williams [56].

This solidarity among industry men seems to be so important, that is forged in labour and remains even after deindustrialization. This was found by Fine [57], that followed men after their motor car factory closed, discovering that the homosocial bounds developed in the factory remained even after 20 years, with monthly lunches and annual meetings of over 200 former employees; it was a really a "big factory family". Other authors also found that hegemonic masculinities were maintained through male homosocial heterosexual interactions [58]; that managerial social practices use those masculinities treating "men as men" [59]; and that this discourse of brotherhood can alienate other men and women, "undermining solidarity and constraining collective action" [60].

It seems obvious, yet necessary, to state that emotions are social, having different expressions as per each one's "social station" [61] - social class, race, sexual orientation, religion and nationality -, and therefore are also gendered. That is to say that there is no *natural* emotion pallet for men, the gender construct is complex and is better understood through core gender identity - the conventional categories of men/male/boy -, the gender roles - behaviours, thoughts and emotions prescribed as appropriate -, and sexual orientation [62]. Research demonstrates that there are more gender differences in the expression of emotions than in the experience of emotions [63] and that men are less inclined to express "powerless" emotions, such as fear and sadness [64].

This experience of dislocation is not only emotional, it is also systemic. The Treadmill of Production theory [65,66] positions both environmental degradation and labour precarity as outcomes of a capitalist system that prioritizes growth over social and ecological well-being. From this perspective, transitions such as coal plant closures may be driven less by concern for people or planet than by the logic of capital reorganization.

Similarly, Bellamy Foster's theory of the metabolic rift [67] argues that capitalism produces a double alienation: workers are estranged from their labour, and society is estranged from nature. In highly masculinized industrial settings, where identity, pride, and community are forged through labour, this double alienation may be very apparent.

Class is central to any just transition analysis, but the experience of class is lived in distinct ways by individuals, being felt beyond merely jobs and earnings, but also as the story of each individual and the place where they live, and it should be understood as intersectional, since it interacts with gender and ethnicity. Specifically, in industrial labour, locus, class and masculinity have a close dynamic, creating a gendered role in labour, and a specific masculinity in industrial work, that as implications on the identity of the men.

Nevertheless, access to voice is not evenly distributed across the working class. Within restructuring processes, those in subcontracted or in precarious positions may be less visible and harder to engage, reflecting power asymmetries in labour markets [68] and homosocial solidarities that can both sustain belonging and obscure inequalities [60].

These narratives of class and gendered identity are not only sociological observations; they are central to recognition justice within Just Transition frameworks. Recognition justice requires that the lived experiences, identities, and knowledges of affected workers are recognised in policy design [13,30]. By unveiling how industrial labour shaped masculine status, social belonging, and emotional well-being, this empirical study contributes to expanding recognition justice beyond tokenistic participation, toward a deeper understanding of identity loss and its political implications.

Finally, building on energy justice and the ILO's normative guidelines, we bring distributive, procedural and recognition justice into dialogue with temporal justice to debate how the pace of the transition shapes the perceived fairness. We then combine this with an intersectional class lens attentive to gendered identities in industrial workplaces, which is crucial for understanding the emotional and status dimensions that workers described in our cases.

3. Methodology

3.1. Research design

This paper explores the perceptions of former coal plant workers following the decommissioning of Portugal's two coal-fired power plants in 2021. The Sines and Pego plants were chosen as case studies because they were not only the country's only coal-fired power plants but also among the largest emitters. They played a significant role in local and regional employment, the economy, and community life. Following a previous paper focused on the stakeholders [69], namely European Commission, government, companies, municipalities and unions, the present study aims to capture workers' perspectives on the closures process and on the energy transition from a Just Transition framework perspective.

Our study addresses three questions: How do former workers narrate the meaning of their work and careers before closure? How did they perceive and experience the closure process, including whether it was just and why? What have been the consequences for employment, income, and emotional wellbeing? These questions justify a qualitative design centred on workers' accounts.

Following Yin's approach to case study research [70], this study examines contextual conditions to shed light into the social processes experienced by workers at decommissioned coal plants. The research focuses specifically on the narratives of these workers, aiming to understand their perceptions of the plant closures and their views on whether the transition was just, and why. This is an explanatory case study, intended to understand workers' perspectives on the closure process and on justice in this energy transition. It builds on a previous paper, which analysed the discourses of the stakeholders involved in the same case studies.

In addition, the analysis is informed by a complex realist approach to class [14,15]. Accordingly, we made the analytical decision to prioritise workers' narratives as accounts of lived class experience situated in their specific *locus*, biographies, and labour trajectories, rather than treating class as a fixed structural category. The analysis therefore attends to how individual life courses, attachments to place, and gendered work histories may shape the meanings attributed to the closure process, while recognising that these narratives are embedded within broader institutional and political–economic conditions that shape transition governance.

The research adopts a multiple case design, examining the two coal-fired power plants in Portugal decommissioned in 2021. We analyse the similarities and differences between the two cases. The dual case design also enabled an explicit comparative strategy. Interviews and coding procedures included attention to site-specific narratives, enabling us to examine variations in the pathways of the closures.

The source of the data is interviews with workers of the Sines and Pego coal-fired power plants. For content analysis, we used Bardin's [71] methodology, focusing on enunciation analysis. This involved examining each interview, observing style, recurrences, thematic emphasis, response ambivalence, alibis, rhetorical figures, and participant reductions and conjunctions.

Following the structural-functionalist tradition, we used semi-structured interviews to balance comparability with flexibility [72]. The interview script included the same core questions posed uniformly to all participants. However, the interviewer had the flexibility to clarify questions or pursue relevant paths opened by interviewees [73].

3.2. Data collection and analysis

At the time of its closure in 2021, the Sines power plant was operated by EDP Produção and employed 328 workers, with 109 directly employed by EDP and 219 working for service providers [74,75]. The workforce was largely male (87%), had an average age of 50 years, and most had an education level of lower secondary or high school. Most employees reside in the municipalities of Sines and Santiago do Cacém.

Owned by a consortium of three companies, the Pego power plant maintained an energy purchase agreement with the National Energy Network. At the time of closure, it employed 125 direct workers, supported by 59 technical service providers and 30 general service workers [74]. As in Sines, the Pego workforce was predominantly male (86%), with an average age of 51.1 years, and had a high school education as the most common qualification level. Most employees lived in the Abrantes municipality.

Despite numerous announcements of investment and development projects intended to mitigate the social and economic impacts of the closures, these initiatives had yet to materialise at the time of the fieldwork. Meanwhile, the workers and communities have already been affected by the loss of major regional employers. In Sines, only direct employees were retained by the company, leaving indirect and subcontracted workers on unemployment benefits. In Pego, the government established an *ad hoc* fund, launched a retraining program, and secured new jobs for half of the affected workers in a forthcoming renewable energy project. However, this fund, which was scheduled to end in 2025, was not articulated with social security, and the unemployment benefits and pension had to be resolved by government decree [69].

The European Just Transition Mechanism, which promised to promote new businesses and employment opportunities, was delayed. While the plants closed in 2021, the fund intended to support these transitions only became available in 2024.

This article is part of a wider research in which the case studies of Pego and Sines were comprehensively examined, though document analysis, interviews with stakeholders and workers and a reconstitution of the chronology leading to the decommissioning of these power plants [69]. The plants closed in the same year but for different reasons: in Pego, the government did not renew the energy licensing contract, whereas the Sines plant was decommissioned following the company's decision to close due to adverse market conditions.

Thirteen interviews were conducted in April 2024: six with former workers from Sines and seven from Pego. All interviews were conducted face-to-face and lasted between 30 and 45 min. The interviews were digitally recorded and transcribed verbatim. We obtained informed consent, ensured confidentiality and anonymisation, and remained attentive to emotional sensitivity during fieldwork. Prior to each interview, participants received a clear and comprehensive explanation of the study objectives, their rights, the voluntary nature of participation, and the confidential handling of all data. The informed consent statement was read aloud, explicitly accepted by each interviewee, and recorded in audio format; these recordings were later transcribed and stored securely in accordance with ethical standards and the principles of confidentiality and data minimisation.

We used purposive sampling to ensure variation across site (Sines, Pego), gender, tenure, role, and post-closure outcome (e.g.: job loss, absorption in company group, absorption in other company, early

retirement). We combined this with snowball recruitment, with initial contacts via unions leaders, and onward referrals of other individuals; union membership was neither a selection criterion nor a defining characteristic of the sample: to our knowledge, only one of the interviewees from Sines was unionised, and several participants had no prior involvement in union activities. Snowball sampling was used to diversify access across roles, tenure, gender, and post-closure trajectories in both case studies. Since this is qualitative research based on two case studies, our aim was conceptual richness rather than statistical representativeness. Accordingly, saturation guided the final sample size once additional interviews covered the same themes repeatedly and no longer offered new conceptual insights [76].

The interview script was the same for all workers and focused on the following areas: i) the worker's career trajectory within the power plant; ii) tasks they found most and least interesting; iii) when and how they were informed of the plant's closure and their initial responses to this news; iv) their views on the closure decision; v) their perception of whether the process was just and suggestions for improving its justice; vi) the closure's impact on their employment and income; vii) any compensation received, including unemployment subsidy, and the challenges they faced in finding new employment; viii) the support they felt from the unions; ix) their current employment status, including sector, job satisfaction, and current income level; x) any financial or emotional impacts they experienced following the closure; and xi) sociodemographic information, such as education level (in 2019 and 2023), gender, age, marital status, parental status, household composition, and the role of their income in supporting the family. Finally, interviewees were invited to share any additional comments they felt were important.

The interviews were transcribed and analysed using thematic analysis, enabling the identification of recurring subjects and key themes across respondents. We used MaxQDA software to code the interviews and to generate variables from the sociodemographic data collected. As mentioned, we used the content analysis tools proposed by Bardin [71], an explicitly inferential method that links textual indicators to ensure valid claims about the conditions of production and meaning. The procedure followed three phases: [1] Pre analysis (floating reading, corpus definition, and initial hypotheses/indicators) [2], Exploration (coding, categorisation, and, where necessary, enumeration), and [3] Treatment and inference (analytical synthesis and justified interpretation). We constructed the category construction with criteria of exclusivity, homogeneity, pertinence, objectivity, and productivity. We organised the coding system into Dimensions (e.g., Career Trajectories; Positive/-Negative Aspects; Sense of Community; Closure Perceptions; Justice; Employment and Income; Emotional Consequences) and derived inductively.

The table below characterizes each respondent and their corresponding interview code (Table 1).

The corpus comprises 13 valid interviews, seven from Pego, and six from Sines. The variables gathered point out that the mean age of the respondents was in the range of 46–67 years; 15.4% were women, in line with the percentage of women workers in the facilities; 23.1% of respondents had higher education. Most of the interviewed workers had secondary education, were married and had children; their income was not the sole income in the family, but the most important; they had started to work at the power plant >20 years ago; and although only the Pego workers lost their jobs as the result of the closing, all workers had a significant income reduction. The women interviewed did not have managerial or operational jobs, they were involved in administrative or health and safety tasks and earned lower wages than the men interviewed. These figures profile the qualitative interview corpus; they are not population estimates.

In April 2025, we conducted two interviews with the local employment offices of Abrantes and Sines (Institute for Employment and Vocational Training - IEFP), which were involved in the decommissioning processes of the power plants, to better understand the current employment situation of the workers. The interviews were transcribed and analysed alongside documents provided by IEFP officers.

Table 1
Characterization of respondents.

Worker	Plant	Gender	Age range	Type of work	Interview code
1	Sines	Male	40–49 years	Instrumentation and Control Technician	WS1
2	Sines	Male	40–49 years	Control Room Chief	WS2
3	Sines	Male	40–49 years	Control Room Operator	WS3
4	Sines	Male	40–49 years	Mechanical Technician	WS4
5	Sines	Male	50–59 years	Control Room Chief	WS5
6	Sines	Female	> 60 years	Administrative and Clerical Staff	WS6
7	Pego	Male	> 60 years	Mechanical Technician	WP7
8	Pego	Female	40–49 years	Safety Officer	WP8
9	Pego	Male	> 60 years	Control Room Operator	WP9
10	Pego	Male	50–59 years	Plant Engineer	WP10
11	Pego	Male	> 60 years	Plant Manager	WP11
12	Pego	Male	50–59 years	Control Room Operator	WP12
13	Pego	Male	50–59 years	Control Room Operator	WP13

3.3. Limitations

In the present paper, intersectional analysis is limited to class experience and gendered identities; this delimitation reflects an analytical choice grounded in the research questions and the available data, rather than a claim about the irrelevance of other forms of inequality in energy transitions.

The snowball approach may have introduced self-selection bias; to mitigate this, we triangulated interview proposals across several workers to diversify recruitment pathways. Despite numerous efforts to interview subcontracted workers, we were unable to arrange such interviews, therefore, perspectives of subcontracted workers remain under-represented despite targeted outreach. We believe that this difficulty was not incidental, since the few subcontracted workers we were able to address expressed fear of speaking, even under conditions of anonymity, while others indicated that the emotional impact of the closure was still too intense. Rather than interpreting this solely as a methodological shortcoming, we believe it should be treated as analytically meaningful.

All interviewees were employees of the primary company operating the plants, excluding those from contracted firms or in precarious employment. Subcontracted workers either expressed fear of voicing concerns, even with assurances of anonymity, or indicated they were too emotionally affected by the closure to discuss it. Additionally, the number of women interviewed is low but in similar proportion to the number of women in the plants, reflecting the highly masculinized nature of the sector. Finally, as with all qualitative case work, inference is analytical and not statistical; the discussion is based in textual indicators and context, not population estimation.

4. Case study results

4.1. Worker's experiences of the closure of thermoelectric plants

Before presenting the workers' experiences of the closing of the power plants, it is important to offer information about the current situation of these workers. For this purpose, we rely on the information and documents provided by the local employment offices that were responsible for accompanying the situation of the workers.

In Sines, most of the direct workers were absorbed by other companies within the EDP group, except for six individuals who have chosen to pursue other activities. The majority of those who lost their jobs following the decommissioning of the Sines power plant had been employed by subcontracted firms. The local employment office supported 128 workers in this situation, offering training in soft skills, logistics, health and safety, and even customer service. According to the interviewee, these individuals eventually found employment in sectors such as tourism, maintenance, or through temporary work agencies. However, no detailed information was provided regarding the number of people employed in each of these areas. The local employment office did not have information on the number of individuals who retired or entered pre-retirement following the closure of the Sines power plant.

The situation of the former Pego power plant workers was different, as all workers were dismissed. The local employment office estimated that approximately 350 people lost their jobs as a result of the plant's decommissioning, including both direct employees and those working in businesses that depended on the plant's operation. However, the office formally accounted for only 125 direct workers and 89 subcontracted workers. As of now, only six of the 75 workers who were promised employment by the new energy company (Endesa) have actually been hired. An additional six found jobs with other firms, one person retired, and another emigrated for work. The remaining 74 individuals are still receiving support from the Portuguese government's *ad hoc* Just Transition Fund and are engaged in further training.

4.1.1. Labour and work identity

The statements collected from workers at the Pego and Sines coal-fired power plants reveal a deep connection between labour and identity. Most workers began their careers at the plants at a young age and remained there for decades, evolving from entry-level to highly specialized roles. Some started as subcontracted workers before being integrated into the company's permanent workforce. This trajectory reflects not only the stability of employment but also a professional growth and technical expertise.

> *"I came in 1988... 1987... no, it was earlier, 1984, if I'm not mistaken. Honestly, I can't be exact. So, I was at the construction site. I was at the site in Sines. Later, I moved to the site here at the Pego plant, where I worked in the earthworks section." – WP12.*

The majority of workers stayed until the very last day of the plants' operation. Their accounts stress their attachment to the plant and their sense of responsibility, particularly during the final operational days, which were marked by a sense of sadness and ritual.

> *"And then, later on, I ended my career there as the supervisor of thermal plants, in a... in a control room, operating the machine, right? It was right up until the closure, until the very last day, and that's it, that's how my life there came to an end." – WS4.*

Many workers spoke with passion about the nature of the work itself, emphasizing the intellectual and technical challenges of operating complex systems.

> *"I liked everything. I really did, I liked everything. There isn't a single thing I can point to that I didn't enjoy. I liked everything – I liked the plant, and I enjoyed the technological challenge." – WS1.*

> *"That was an enormous array of temperatures, pressures, a series of equipment, and curves to control, and I felt comfortable in that bit of a stressful environment. I don't know why—I handled it well, thank God. Then, the whole world of the control room with all those buttons fascinated me. It was incredible, really something. And when I visualized the control room and was pressing a button or doing some kind of mixing, it felt like a video game, like I was playing right there." – WP13.*

This enthusiasm illustrates the strong sense of technical mastery and identity tied to industrial work, reinforcing how skill and control shaped masculine status within the plant—a dimension central to our intersectional class lens.

The plants provided not only technical satisfaction but also social stability. Workers consistently emphasized the above-average salaries, long-term job security, and the sense of community they found among colleagues. The metaphor of a "factory family" was used, with workers referring to their colleagues as brothers and friends.

> *"I became part of a big family. The team was incredibly close, with amazing camaraderie and mutual support - truly a real family. In practice, over these 20-some years, I spent more time at the plant than with my own family. Even now, we're still great friends, and we continue to get together, meet up, exchange ideas, and catch up." – WS1.*

> *"Did I enjoy it? I enjoyed it a lot. I worked in this field for 38 years. It was very good." – WS6.*

Shift work was the most cited negative aspect. Workers described its long-term impacts on physical health, emotional well-being, and family life. Even after the plant's closure, many continued to suffer from disturbed sleep patterns and the psychological effects of years of rotating schedules.

> *"Shift work is extremely tough... even today, I still have the Ghost of the Shifts with me." – WS2.*

In addition to shift work, the increasing bureaucratization of tasks and rigid departmental structures were sources of frustration for workers in their final years of employment (WP8 and WP10).

> *"There was great rigidity between departments and within departments regarding the introduction of changes. All of this crystallized into a terrible environment." – WP10.*

While the technological work itself often conferred a strong sense of skill and masculine pride, the solidarity between workers also formed part of their gendered identity. Newcomers, particularly younger workers, were integrated into teams in an informal paternalistic way and the shared rhythm of shifts, which reinforced a collective identity. Managerial staff was remembered not only for their authority but for their willingness to bend rules and support workers personally, increasing the sense of camaraderie and mutual care.

4.1.2. Perceptions of justice and governance in the energy transition

These accounts are presented below using the four justice dimensions of our framework -distributive, procedural, recognition and temporal - to make explicit the link between workers' narratives and our analytical lens.

Workers of both Pego and Sines described the closure of the thermoelectric plants as sudden and poorly planned. Rumours circulated before any official decisions, but many employees did not take them seriously, as they had heard similar conversations before and given that the plants remained profitable and had undergone many improvements. In Pego, hopes were high that the production contract would be renewed or that the facility could transition to biomass. In Sines, while the closure had been announced publicly for 2025 or 2030, many believed the date would be postponed.

> *"I remember it clearly. It was when António Costa, the Prime Minister, during his inaugural speech, said that the plant would be shut down. I*

hadn't realized, though, that my position would end in 2021, which was when the PPA [operating license] for the plant was set to expire." – WP11.

When the closures were officially announced, they were met with disbelief and a lack of time for preparation. Workers reported feelings of panic, particularly fearing the dissolution of the strong community bonds they had built over the years.

"I went into a panic. I went into a panic because I was going to leave, I was going to leave that family I had found." – WS1.

"Yes, I had to talk to my wife. I spoke with her when I received the news. Then came the shock, the initial shock, and we tried to make sense of it, then started trying to understand. So, now what? What do we have to do, right? What can we do, because I'm 59 years old. And what's it going to be like?" – WP9.

These reactions signal a failure of procedural and temporal justice: workers lacked timely information and adequate lead-time to prepare, amplifying feelings of vulnerability.

Workers recognized that the closures were tied to broader energy transition policies. However, no interviewee expressed a positive personal view about the closures. The perception was that these decisions prioritized environmental goals and political image over the social and economic consequences for workers and communities.

"These guys are crazy. Did they want to look good in the picture, or save the planet? The planet... what other planet is there? Is Portugal a planet and everyone else is somewhere else?" – WP7.

Several respondents questioned the global effectiveness of Portugal's closure of coal-fired plants, particularly when other nations continued operating and opening similar facilities. Many described the closures as rushed and unfair.

"The impression is that there was a lot of haste here, and while not disregarding the ecological issue, which is indeed important, it is a global one. The point is that, like it or not, it shouldn't have to be the poor [Portugal] who... how should I put it, to set the example!" – WS3.

"I think there should have been real consideration given to whether the transition was truly just, as the term suggests... What I believe is that this transition should have been handled in a different way" – WP11.

Concerns about increased dependence on imported energy, job losses, and the economic destabilization of entire regions were recurrent themes. Workers argued that the closure would drive Portugal to buy more expensive electricity, often still derived from coal, from other countries.

"Something really needs to be done, but I just think that with this very nice name they came up with, right, 'just transition' - a just transition can't be only about technology, can it? We have to consider the human aspect as well." – WP9.

Here, the worker explicitly calls for recognition justice, stressing that human and social aspects were overlooked by technological and ecological priorities.

Only one worker from Pego referred to the process as "just," citing government income support. All others described the process as unjust, abrupt, and lacking transparency. Direct workers sensed that the perception of injustice was particularly strong among subcontracted workers, who often performed the same work as permanent employees, but received lower wages and weaker protections.

"It was a massacre for those people [subcontracted workers] in their 50s. There are people who weren't earning more than I was, even though they were doing the same type of work. They are excellent workers." – WS2.

Workers repeatedly emphasized that the government had not communicated adequately or engaged them in the process. There was no consultation on the use of Just Transition Mechanism funds announced by the European Commission.

"All I know is that a fund of €110 million was allocated to CIMAL, the Intermunicipal Community of Alentejo Litoral, to minimize or mitigate as much as possible the impact of the closure of the Sines thermal power plant. I don't know where that €110 million is." – WS1.

Union presence was one of the few institutional elements perceived positively. Even among those who were not unionized or had not previously participated in union activities, the unions were praised for their role in informing and supporting workers.

"Yes, yes, absolutely, they were incredible." – WP8.

A recurring demand was for more time - time to prepare families, to plan retraining, and to gradually implement the closures. "Time" was cited as essential for a truly just transition.

"I thought they should have extended the plant's operating time. Those extra years wouldn't have made a difference for the planet, would they?" – WS6.

Despite the differences in the closure processes, workers in both Sines and Pego articulated what can be argued to be similar perceptions of injustice. In Pego, where an *ad hoc* public fund and retraining programmes were established, workers nonetheless described the closure as abrupt, emphasising the lack of meaningful consultation and uncertainty about their lives once the temporary measures expired. In Sines, where most direct workers were absorbed in the company group, resentment seemed to focused less on income loss and more on the devaluation of their labour.

4.1.3. Emotional and social impacts of transition

The emotional and psychosocial toll of the plant closures was profound and long-lasting. Many workers reported experiencing burnout, sadness, and psychological distress, triggered not only by the sudden job loss but also by the symbolic dismantling of their professional identities. Revisiting the physical spaces of the plants remained a painful reminder of a life and community left behind.

"I shed many tears over the closure of the power plant. Many, many, many. Even today, I can tell you something else: when I leave Sines and head, for example, to Porto Covo, and you see São Torpes? I can't even look at the power plant on the left side. OK, let's forget it. It's very, very hard." – WS1.

Such emotional responses underscore the depth of identity loss, aligning with the argument that transitions affect not only material conditions but also self-definition and belonging.

Sleep disturbances were commonly reported, with workers describing episodes of insomnia, stress-induced waking, and cognitive difficulties. In some cases, the emotional distress translated into medical issues that interfered with their ability to function or pursue new qualifications. These emotional effects were still present at the time of the interviews, conducted four years after the closures, as evidenced by the fact that six interviewees cried during their testimonies.

"I'm one year away from finishing my mechanical engineering degree, but the doctor told me to stop. Because I can't focus; I read and can't retain anything at all. I'm in my thirties and can't sleep. I recently had a test done at the hospital... I wake up 246 times during the night. So, everything - my body, my state of mind - is completely destroyed." – WP12.

The disruption extended to family life. Many workers reported having to renegotiate their roles at home and adapt to new family dynamics under increased stress. In some cases, the loss of routine and professional purpose caused tension in relationships and disrupted previously stable family patterns.

"I can't plan anything; I just can't plan. Ah, are we going on vacation here or not? No. Plan for what? We never know what's going to happen tomorrow, right?" – WP9.

There was a shared sentiment of missing both the technical nature of their former work and the strong camaraderie with colleagues. This longing was not only for a job but for a form of belonging and shared identity forged over decades. Workers continued to organize social gatherings post-closure, trying to preserve a sense of community despite their changed circumstances.

"Imagine that you perform maintenance on the electronic systems of an Airbus, right? You're highly specialized, and then you're asked to sit on a bench, for example, in a bicycle shop, inflating tires. For me, it was that kind of shock." – WS1.

The mismatch between previous high-skill roles and current administrative or precarious work contributed to feelings of stagnation, professional demoralization, and loss of purpose. Most workers from Sines were reassigned to simpler, unrelated tasks, while Pego workers -despite income support - remained unemployed or in mandatory retraining. Of the few employed by the renewable energy company, only a minority expressed satisfaction with their new positions, and even then, more due to the new work culture than to the job content.

These psychological and emotional challenges reflect the social embeddedness of industrial labour and its role in shaping personal and collective identity. The depth of mourning for the closure of the plan attests that the transition processes did not adequately consider these dimensions, leaving workers to navigate not only economic displacement but also emotional dislocation.

5. Discussion

While Just Transition has become a normative commitment in European climate policy [77], workers' accounts suggest a significant gap between policy discourse and lived experience. Most respondents described the closure process as abrupt, lacking transparency, and socially difficult. Workers had no participation in the decision-making and felt discarded rather than supported.

These findings resonate with critiques by Morena et al [23] and Healy & Barry [30], who warn that Just Transition is often depoliticized and reduced to managerial governance, neglecting its labour roots and the need for democratic control. Sen et al [78] argue that environmental taxes alone are insufficient to drive renewable energy transition unless accompanied by robust environmental governance. In both Sines and Pego, transition governance failed to include unions or municipalities meaningfully, illustrating Wang & Lo [35] argument that power asymmetries shape the outcomes of governance processes. This governance gap is consistent with findings by Cavalheiro et al [79], who demonstrate that effective public governance is a foundational driver of sustainable development, mediating the relationship between economic growth, social well-being, and environmental performance.

The distinction between direct employees and subcontracted workers reveals another layer of injustice, confirming that narrow interpretations of justice, like focusing solely on compensating permanent staff, reproduce class fragmentation and invisible precarious workers [80]. This fragmentation and the shattered solidarity between direct and subcontracted workers in both factories and call centres alike in Portugal had already been documented by Duarte [68]. It therefore calls for broader, recognition-based approaches that account for all labour arrangements within industrial labour reality. It is also important to note that the experiences of the precarious workers emerge in this study through mediated narratives, recounted by the permanent employees. We believe that this mediation should be understood as another class division, since the fact that subcontracted workers are spoken off, rather than speaking for themselves, reflects the unequal distribution of institutional voice. Class experience, in this sense, may not only differentiated in material terms, but also in who is able to narrate injustice.

Moreover, the closure processes at both Sines and Pego cannot be considered just transitions if assessed against the ILO Guidelines [12], according to workers' accounts. Specifically, there was no process of informed and ongoing consultation with the workers; no specific gender policies were implemented; the social protection instruments deployed were not customized; and the support from the Portuguese Environmental Fund was not designed in coordination with the social security mechanisms, which discouraged some workers who were afraid of losing their unemployment benefits or retirement pensions. Furthermore, the policy measures intended to promote job creation, namely those under the European Just Transition Mechanism, were delayed, resulting in unemployment, particularly among subcontracted workers. Even if the promised jobs had been delivered, other studies acknowledge that jobs are insufficient [11], which highlights the necessity of integrating social policies - such as housing, healthcare, education, and gender equality - into the planning and governance of a just transition.

One would expect that the different closure processes, the different territories, the different policies implemented, and the different outcomes in Pego and Sines would have led to different reactions from the workers. But that didn't seem happen. In both cases, workers described what seems to be the same anxiety during the closures, the same deep mistrust in the climate policies that framed them, and the same sense of mourning after the plants shut down. This apparent alignment in how the transition was felt and perceived shows that, beyond the differences in implementation, there was a somewhat shared experience of exclusion and emotional dislocation that cut across both territories. Importantly, this convergence emerged as an empirical finding rather than an analytical assumption.

In this sense, the comparison between Sines and Pego strengthens rather than weakens the argument that different institutional pathways can nonetheless produce similar perceptions of injustice when they are governed through technocratic, top-down processes. This finding aligns with critiques that emphasise governance style and temporality as central drivers of perceived injustice in energy transitions [22,30].

The empirical findings confirm Byrne's [15] analysis of transformed class experience in post-industrial capitalism. For the workers interviewed, working at the power plant was not merely a source of income but the foundation of identity and social belonging. As in Mcdowell's [50] analysis of deindustrialization, job loss brought more than only material insecurity; it also caused a destabilization of their masculine roles and personal narratives. This is particularly evident in the ways workers described their roles as very stimulating in the technical, intellectual, and personal arenas.

The industrial workplace served as a masculine space where control, competence, and camaraderie defined social status, echoing the "tough men" identity [54] and Connell's [16] notion of *hegemonic masculinity* built around labour. These masculine solidarities extended beyond the closure of the plants, with workers maintaining homosocial bonds through annual reunions and monthly lunches, as found in Fine's [57] "factory family". However, as Roychowdhury [60] argues, such bonds may also hide inequalities and hinder larger solidarity, particularly with subcontracted workers and women.

The intensity of emotional responses captured in the interviews highlights the often-overlooked affective dimension of structural change. Following Hochschild [81], we understand that emotions are socially situated and gendered. Male workers in this study struggled to express vulnerability, often doing so only when recounting personal crises or breakdowns. Six participants cried during interviews, including the two women interviewed, and many described symptoms of stress, burnout, and disrupted sleep, confirming findings by Timmers et al [64] and de Coster & Zito [63] on gendered emotional expressions.

Yet these emotions may not be merely personal responses; they may be also political. As Gough [10] argues, climate transitions generate new social risks that must be addressed through eco-social policies. The

failure to support these workers adequately -psychologically, socially, and economically - exposes the limits of transition policies that ignore the severance in each person identity that these processes may trigger. These dimensions should be considered when designing "just transitions".

A recurring theme across testimonies was the lack of time: time to prepare, to retrain, to plan family futures. This perception of temporal injustice points to a deeper issue, transitions that are too fast for people to adapt, especially when not accompanied by governance mechanisms, communication and social protection are not desired, and there is a need for eco-social policies [44,46]. While urgency is required in climate action, the perception that Portugal's transition was "too fast" and "for show" suggests a mismatch between environmental objectives and social realities. Stevis & Felli [22] had worn to the temporal questions within a just transition and Sanz-Hernández [82] found the same problems with the reduced temporal negotiations in the coal Spanish region.

These feeling of identity loss, grief, and status degradation should be in the scope of public governance. Recognition justice is not about measuring emotions, it is about policies that prevent misrecognition and exclusion from decision-making processes [83,84]. From a governance perspective, our findings suggest that many of the emotional and identity problems described by workers emerged not as inevitable psychological effects of the closures, but as consequences of procedural exclusion and lack of preparation time. Therefore, we believe recognition could be operationalised with deliberative and participatory governance mechanisms that institutionalise workers' visions and not just a *fait accompli*. In previous studies, we have argued for the need of tripartite social dialogue with binding effects, even at regional level [69]. Such mechanisms go beyond "listening better" by enabling a more inclusive decision-making and recognising workers as subjects of transition rather than objects of compensation [30,85].

Our study may strengthen the idea that Just Transition policies have to be more then only jobs [11]. Our findings indicate that policies which address employment without attending to occupational identity, skill recognition, and community belonging risk intensifying experiences of loss and demoralisation. It may be important to create policies that include formal acknowledgement of skills, the symbolic continuity of employment trajectories, and even collective spaces for narrating labour in post-carbon futures.

The idea of temporal justice is also important to consider operationalising. Time should be part of policy decisions regarding notice periods, a negotiated sequence of events, and, ultimately, the pacing of closures. This might have been meaningful to both Sines and Pego workers that linked their perception of injustice to the speed of the process.

In this sense, this energy transition may have failed to be perceived as just by the workers, not because it occurred, but because it was not governed in a way that allowed affected populations to feel involved, capable of adapting in such a time frame and heard. Echoing Mazzocchi [19] original claim, workers in Sines and Pego could adhere to the belief that they were treated "worse than dirt" in these transitions. This experience reflects not only a failure of procedural justice, but also the deeper conceptual pitfalls of the dominant transition discourse itself. As White [86] argues, the very notion of "transition" has been increasingly assimilated by technocratic frameworks obscuring power relations and the disruptive, conflictual nature of socio-ecological transformation. In this context, transition is framed as an apparently inevitable and technical process, rather than a contested terrain shaped by class struggle, historical injustice, and competing visions of the future.

The Portuguese coal phase-out exemplifies this disconnection. Rather than a truly just transition rooted in governance for transformation, workers encountered a top-down restructuring that dismissed their voices and undermined their sense of self, reinforcing feelings of abandonment.

Class experience also seems to matter for just transitions, because justice should not be reduced solely to income compensation or job replacement, as is more evident in the normative agenda. It encompasses recognition of how work structures identity and social belonging. If we disregard these dimensions we risk designing transitions that reproduce invisibility and exclusion, undermining their legitimacy. As Fraser [83] argues, recognition is a core component of justice, and our findings show that workers' narratives reveal a struggle for recognition as much as for redistribution. Integrating class experience into transition governance may be, therefore, important to ensure that policies address not only material losses but also the core identity of each subject. Moreover, from a recognition justice perspective, the uneven visibility of different worker categories, particularly subcontracted and precarious labour discussed earlier, does not seem to be external to transition governance, but rather one of its main effects.

Feelings of resentment may cause climate action to backfire and undermine community support for climate policies, reflecting forms of alienation similar to those identified by Hochschild [87] in US rust-belt communities. Backlash to climate action has been increasingly documented, with the legitimacy of such policies being called into question and often framed as unjust and undemocratic. This has led, in many cases, to the weakening, halting, or even reversal of implemented measures [88]. Some link this "green backlash" to the rise of right-wing populism, with real electoral consequences for these parties [89].

Interestingly, in Sines, the main populist right-wing party moved from being the fourth most voted in 2022 to second in 2024 and went on to win the 2025 general elections. A similar trajectory can be observed in Abrantes, where the same party rose from third place in 2022 to first in 2025. This observation should not be interpreted as evidence of a causal relationship. Rather, it points to an interpretive hypothesis: that experiences of procedural exclusion, misrecognition, and perceived injustice in transition processes may form part of the broader social conditions under which such political shifts occur. Establishing whether these dynamics translate into electoral outcomes would require dedicated comparative and longitudinal research beyond the scope of the present paper. Based on thirteen qualitative interviews, this study cannot determine the relative weight of the coal phase-out *vis-à-vis* other economic, cultural, or political factors shaping electoral behaviour at the local or national level.

6. Conclusion

The present study focuses on the mismatch between the institutional use of the concept of Just Transition and the perceptions of workers affected by the closure of coal-fired power plants in Portugal. The policy discourse, endorsed by European and national legislation, and the lived experiences of these workers appear to be divided by a significant rift.

Although notable efforts were made to deliver a just transition, such as the creation of new jobs and the implementation of *ad hoc* social protection measures [69], the necessary governance mechanisms were largely absent. In particular, the lack of social dialogue and the exclusion of workers from the decision-making process led to the perception of an abrupt and unjustified transition.

This exclusion of workers, as well as of unions and municipalities, from decision-making processes, together with the misalignment of social-protection policies, appears to contravene the principles of the ILO's Just Transition Guidelines. As a result, the process was perceived not as a just transition, but as an unjust one.

According to the accounts of permanent workers, precarious and subcontracted workers were even more affected, reinforcing the perception that the Portuguese labour market is marked by a deep divide between insiders and outsiders, with the latter bearing the main consequences of the transition. This reality may have important policy implications in designing the path toward a carbon-neutral economy, namely the need to consider class experience, gender dynamics, and the temporal dimensions of governance into transition planning.

Yes, class experience may matter, and gender seems to matter too.

Labour in highly masculinized workplaces, such as industry, is more than an economic occupation; it is identity-forming, socially embedded, and deeply gendered. These men lost more than their jobs and careers, they lost status in their communities, their role as breadwinners in their families, and their sense of purpose for themselves.

These affective dimensions of transition may not be peripheral, they are apparently central. Emotional grief, burnout, and identity loss were felt impacts reported by workers. These emotional responses are not only valid but are shaped by gender and class and must be recognized as components of any just transition framework.

This matters because recognition justice - that is, making visible and politically relevant the perspectives and identities of affected individuals and communities - is a cornerstone of equitable transitions. Without attention to class experience, transitions risk becoming technocratic processes that overlook the lived realities of those most directly affected.

Time is of the essence. Workers consistently reported having very little time to prepare themselves or their families for the closures. The speed of these transitions, driven by political timelines and what was perceived as symbolic climate gestures, produced the idea of temporal injustice. While the urgency of climate action is undeniable, it must not override participatory processes, especially when workers feel that their livelihoods and even their identities are at stake.

The comparison between the two case studies, Sines and Pego, demonstrates that the justice of an energy transition cannot be inferred from policy design alone. Even when the closure motives and support mechanisms differ, workers may experience transitions as unjust when governance processes fail to ensure participation, recognition, and adequate time to adapt.

Coming back to *The Picture of Dorian Gray*, these quasi-experiment case studies should serve as a cautionary tale. If "Just Transition" is experienced as a slogan rather than a meaningful governance process, it risks producing disillusionment and resistance among workers and communities, undermining public support for climate policies and potentially beneficiating right-wing populism, research pathways that may be relevant to future work. At the end of a transition, affected workers must be able to recognize themselves in the mirror. For policymakers responsible for low-carbon transitions, the Just Transition guidelines should function not as a rhetorical device, but as a concrete roadmap for delivering fair and socially sustainable outcomes.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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