



Joint study on COVID-19 impact & opportunities for DeCarb regions



DeCarb additional activities – Activity A1

Developed by SZREDA

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Executive Summary

This joint study report compiles and analyses the territorial data provided by project partners for the purposes of identifying: a) ways in which the pandemic has affected/delayed the transition to green energy, and b) good practices that can contribute to the design of recovery and resilience policies pertaining to decarbonisation. The report is structured as follows:

- Section 2 introduces the rationale of the DeCarb project, presenting key information about its objectives, the consortium, and expected outputs and results.
- Section 3 focuses on A1 activity details, focus, and timeline.
- Section 4 presents a summary of the thematic research conducted on: a) how the pandemic has socio-economically affected coal-dependent regions in the EU, b) the aspects of the decarbonisation process that were most affected, and c) responses by the European Commission and partnership countries.
- Section 5 analyses the aggregated results of the questionnaires provided by DeCarb partners. The questionnaire forms, complete with partners' responses (percentages), are provided in ANNEX A.
- Section 6 presents a SWOT profile for each DeCarb partner/region. Then the epilogue follows with some main conclusions from the analysis and some policy recommendations.



1 Introduction

1.1 Overview

The Interreg Europe project "DeCarb – Supporting the clean energy transition of coal-intensive EU regions" aims to support its partnership and involved stakeholders to join forces, exchange experiences and initiate efforts on how to transition from the carbon-intensive economy period towards the clean energy future. The overarching goal is for participating regions to secure sustainable growth, economic and societal stability, and a role in the 2030 EU energy mix.

The currently (as of 2022) on-going project is an extension of the initial Interreg Europe (3rd call) DeCarb project, having been approved under the Interreg Europe Covid-19 call. The reason for this extension is that the COVID-19 crisis has aggravated pre-existing unfavourable conditions in the DeCarb participating regions, pertaining to unemployment and financial difficulties, leading to serious socio-economic challenges that partners need to readily address with novel and targeted policy interventions. The ongoing pandemic has endangered the territorial plans for low-carbon transition and economic diversification, as coal phase-out investments from the public and private sector have currently stalled; even worse, the ensuing economic downturn has exercised additional social pressure on coal-dependent communities (e.g. employee layoffs and further increase of unemployment).

Table 1: DeCarb COVID-19 call partnership

Partner Organisation		Country
Stara Zagora Regional Economic Development Agency	SZREDA	Bulgaria (BG)
Lodzkie Region	LODZKIE	Poland (PL)
ENEREA Eszak-Alfold Regional Development Agency	ENEREA	Hungary (HU)
South-West Oltenia Regional Development Agency	SWOLTENIA	Romania (RO)
Local Government Association of Western Macedonia	PEDDM	Greece (EL)
Energy Agency of Savinjska, Saleska and Koroska Region	KSENA	Slovenia (SI)
Extremadura Energy Agency	AGENEX	Spain (ES)



2 DeCarb COVID – 19 Activity A1

2.1 Activity description

Decarb (COVID-19 call) activity A1 prescribes the delivery of a “joint study on COVID-19 impact and opportunities for DeCarb regions” with elements of a SWOT analysis, focusing on: a) the impact of COVID-19 on each partner’s regional socio-economic state of play and just transition initiatives, b) the existing policy gaps and socio-economic factors that have possibly increased vulnerability of the decarbonisation process to the COVID-19 crisis, c) regional policy initiatives and socio-economic characteristics that can provide solutions and new opportunities for just transition in the region, and d) best practices exchanges to increase the resilience of DeCarb regions against future crises.

To that end, this report, developed by PEDMM, analyses the answers that project partners provided, by employing a questionnaire form that enabled them to: a) better survey the socio-economic impact of COVID-19 on DeCarb regions (e.g. layoffs, drop in energy demand, drawbacks in diversification), and b) identify common policy gaps and recovery & resilience pathways (incl. digital & green growth approaches, risk management & energy citizenship for resilient transitions).

2.2 Links to subsequent DeCarb activities

The results of the survey, which constitutes the salient part of Activity A1, will be complemented by the “stakeholder meetings” on pressing territorial needs (Activity A2); the results of both activities are anticipated to be utilized in the DeCarb workshops (Activities A3 and A4).



3 Thematic Background

This section provides a summary of the thematic background pertaining to this study, to facilitate understanding of the connection between the issues raised and the responses of the DeCarb partners.

3.1 Socio-economic impact of COVID - 19 on coal-dependent EU regions

With regards to the energy sector and the ongoing transition to a low carbon economy, which entails phasing-out coal and other fossil fuels and shifting the emphasis to energy sources with no carbon footprint, the COVID – 19 pandemic and the economic crisis that followed have had a considerable impact on the pre-pandemic situation. The economic crisis further exacerbated the already (mostly) weak economic situation of coal regions and has highlighted the, at times, insufficient diversification in economic activities (and energy production, in particular). This has led to significant regional socio-economic problems, as the reduction in energy demand has primarily impacted the coal industry due to its lack of competitiveness. Although this has in a number of cases accelerated the decarbonisation process, it has also led to a rise in the unemployment rates and has had an adverse impact on regional social cohesion, raising questions about the feasibility of a Just Transition for these regions. Indicatively, some areas that have been considerably impacted by the pandemic, included in the issues raised in the questionnaire, are listed below:

Energy Demand

The introduction of lock-down measures and the economic slowdown that ensued all over Europe has led to reduced energy demand. The coal value chain was hit particularly hard, with the coal production registering a 5% decrease globally in 2020, its largest drop since the Second World War. The effect was even more severe in EU, which registered a 20% reduction in its coal production¹. Thus, regions reliant on coal mining and energy production, which were already facing considerable economic issues of structural nature and were amidst a challenging decarbonisation process, have been deeply impacted by the pandemic.

¹ <https://www.iea.org/data-and-statistics/charts/world-total-coal-production-1971-2020>



Employment

Large numbers of workers have been laid-off in the energy sector, temporarily or permanently. For example, in Bulgaria, labour market conditions deteriorated and uncertainty rose². In Poland, the growing number of Covid-19 cases among miners caused the suspension of the operation of ten mines for 3 weeks. In Greece, large numbers of workers in the private sector, whose employment contracts have been suspended due to shutdowns of businesses, as well as self-employed people are struggling as their available income has been significantly reduced during the pandemic. These developments, themselves the result of the economic crisis and the increasing shift away from coal, have put a significant strain on local communities.

RES Investments

The pandemic, especially at its initial stages, has led to a lower demand for oil³ and therefore a reduction in the oil prices, thus weakening the motivation for additional RES investments. Consequently, energy companies focused on RES are likely to be severely affected by the COVID-19 crisis, slowing down their growth; this is particularly problematic for newer and smaller businesses, which have poorer access to capital required to smooth over transitory shocks.

CO₂ emissions

Positive impacts have also been noted; the decreased economic activity, the increased digitalization of services and products and the need to work remotely during the pandemic has led to a reduced consumption of fossil fuels and consequently to reduced CO₂ emissions and improvements in air quality. In specific cases, this may also help to mitigate some of the financial impact, as energy companies will need to acquire fewer CO₂ emission allowances.

² Covid-19 in European Cola regions, European Commission

³ <https://www.kearney.com/web/answers/article/?/a/how-has-covid-19-impacted-oil-and-gas-industry-and-what-does-this-mean-for-the-future>



3.2 Employing a SWOT analysis approach for decarbonisation opportunities

The rationale of the **SWOT** method is to guide future action by matching **S**trengths with **O**pportunities, in order to ward off potential **T**hreats and overcome harmful **W**eaknesses. This method enables decision makers to be realistic about what they can attain and where to focus for achieving the largest impact, considering aspects that may not have been previously examined or discussed in depth. SWOT analysis comprises four categories of data:

Strengths: This category examines the intrinsic assets of DeCarb regions, including the areas where the region performs particularly well, as well as the state of its resources; it specifically presents how COVID – 19 empowered existing characteristics in the DeCarb regions, in order to support decarbonisation progress. Strengths differ from opportunities in that the latter is external and territories have no control over the presence/frequency of these aspects.

Weaknesses: Weaknesses comprise territorial attributes and lack of resources that work against a successful outcome. In this case, these elements put up additional barriers for territorial authorities considering developing and implementing interventions/measures for decarbonisation.

Opportunities: It includes the external factors, such as those attributed to the pandemic, which can give a region a competitive advantage to promote decarbonisation. This aspect of the SWOT analysis is used to identify areas in which DeCarb regions could expand their activities based on their strengths.

Threats: Threats refer to the current, unfavourable impact of the pandemic that can jeopardize DeCarb regions' endeavours to foster decarbonisation in the short and medium term.

As it can be inferred from the above, these four core categories can also be grouped into two:

- a) Internal: Strengths and Weaknesses, which outline existing territorial specificities
- b) External: Opportunities and Threats, which refer to external (enabling or inhibiting) factors.

In this context, a preliminary (non-exhaustive) presentation of potential Strengths, Weaknesses, Opportunities and Threats pertaining to the participating regions has been included in the questionnaire to be completed by partners (Annex A), based on a corresponding literature review. In particular:

Strengths may include any progress already made by territories as concerns the diversification of their economies away from coal, access to just transition funds, large scale investments underway or planned, and successful reskilling and workforce reorientation initiatives.



Weaknesses can include the lack of economic diversification, structural economic problems (low innovation index, aging population, high unemployment rate), gaps in the risk management of the current decarbonisation plans, and lack or regional reskilling initiatives for the local workforce.

Opportunities may entail the easier access to EU funding sources, as well as increased consensus and policy momentum towards mitigating climate change impact and RES utilization in particular.

Threats may include the risk of further deterioration of the economic situation in the region (skilled workforce migrating to different areas, increase in the long-term unemployed, reduced investments as a result of the pandemic), and delays in the decarbonisation process and skill retraining initiatives.

3.3 Examples of policy responses by the European Commission and partnership countries

Following the outbreak of Covid-19, an EU-wide discussion has taken place regarding the recovery of the economy from the effects of the pandemic and improving its resilience to similar future crisis.

The European Commission addressed through large-scale support programmes the deteriorating socioeconomic conditions in EU countries due to COVID-19. NextGenerationEU⁴ is a recovery package designed to support reforms and investments; its aim is precisely to mitigate the economic and social impact of the pandemic, and eventually make EU economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the post-pandemic green and digital transitions. SURE⁵ is a support programme to provide temporary support to mitigate unemployment risks in an emergency; it is designed to assist EU countries in covering the increased levels of public spending needed to preserve employment during the pandemic. Specifically, national governments apply for EU support, which is made available in the form of loans on favourable terms, to fund national short-term work schemes and similar measures, that shield people from unemployment and loss of income.

⁴ https://europa.eu/next-generation-eu/index_en

⁵ https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/financial-assistance-eu/funding-mechanisms-and-facilities/sure_en



Partnership countries have correspondingly responded to the pandemic with relevant support and relief measures. For instance, in Bulgaria⁶, tax return, salary and liquidity support was given to companies. In Hungary, loan payment suspending until the end of year and tax relief were also provided, as well as increased spending for smart grid development for transmission system operators and distributors. In Greece,⁷ apart from tax suspension, special-purpose compensation measures for private-sector workers were introduced, along with subsidies for rent payment. In Spain, measures such as job protection to employees needing to take care of dependent persons, as well as social security benefits for workers, were implemented.

⁶<https://home.kpmg/us/en/home/insights/2020/03/tnf-bulgaria-tax-return-tax-payment-deadlines-postponed-covid-19> Bulgaria: Tax return, tax payment deadlines postponed (COVID-19)

⁷ https://www.ey.com/en_gr/tax/tax-alerts/covid-19-emergency-tax-measures-adopted-in-greece

4 Analysis of questionnaire data

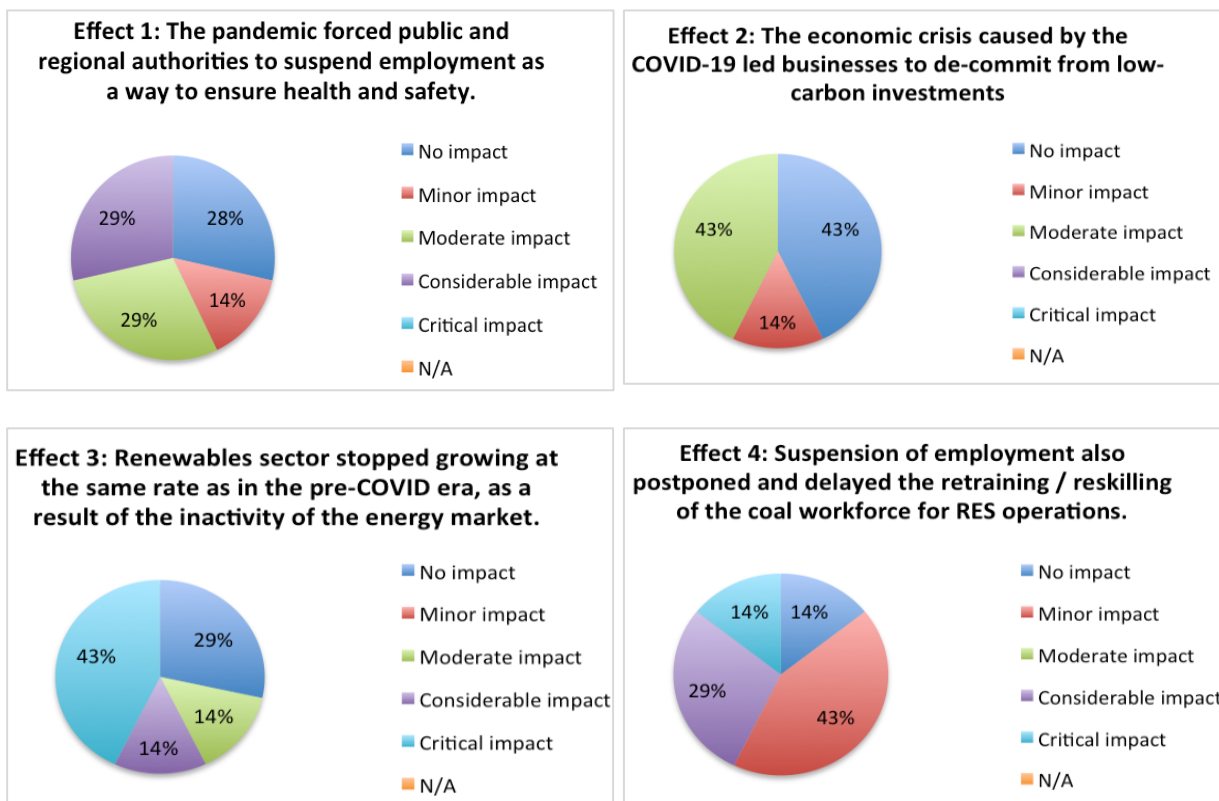
All seven partners have provided data as prescribed by the guidelines included in the methodology that was distributed by the PEDDM in January 2022; the data collection process took place in June 2022, and the analysis was completed by SZREDA in July 2022.

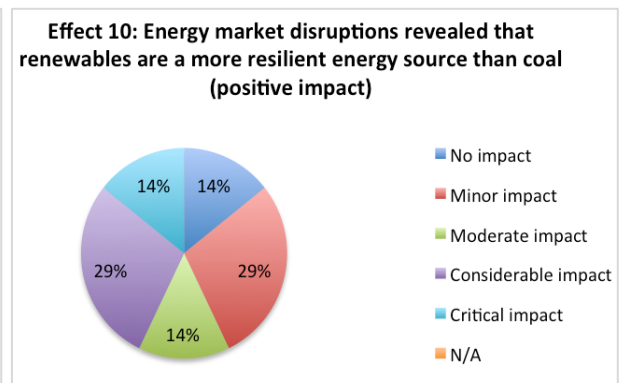
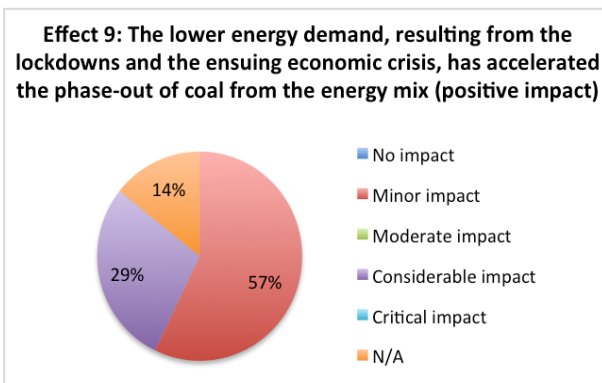
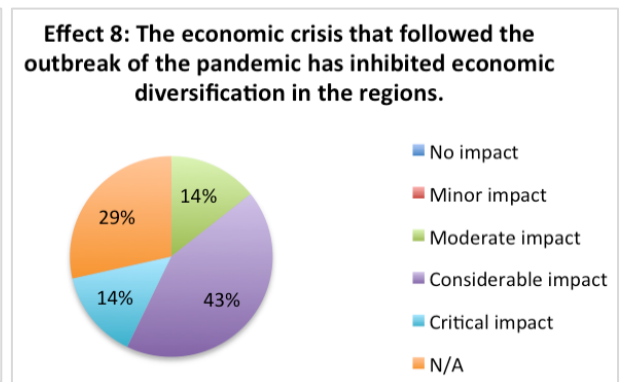
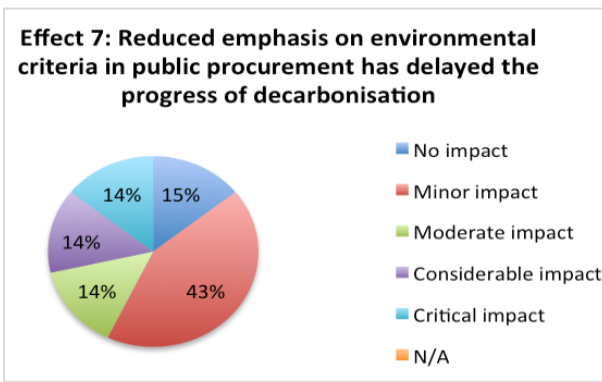
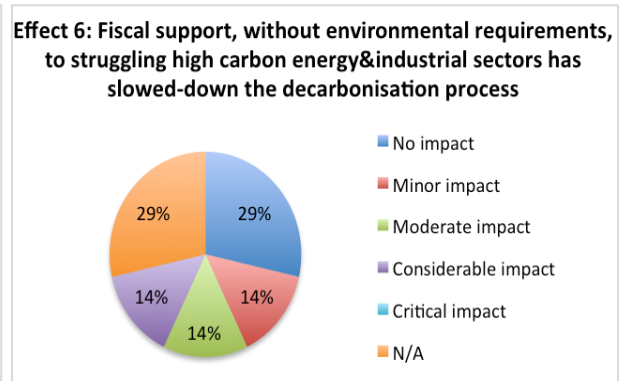
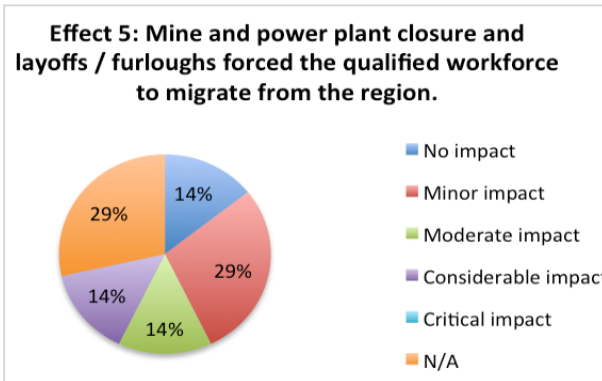
The aim of questionnaire developed (Annex A) was to assess the impact of Covid-19 on the transition to green energy, and identify good practices that can contribute to the design of recovery and resilience policies pertaining to decarbonisation in partnership regions.

4.1 Socioeconomic implications of COVID – 19 in DeCarb territories

COVID-19 impact

Partners identified the major effects of the COVID-19 crisis, which may have been impacting (positively or negatively) regional economic activities, social cohesion and just transition initiatives. The results are shown in the graphs below for each effect separately.





According to the results, the most serious negative impact of COVID-19 crisis on most of the regions has been that the renewables sector stopped growing at the same rate as in the pre-COVID era, as a consequence of the inactivity of the energy market (effect 3). Furthermore, the economic crisis that followed the outbreak of the pandemic has inhibited economic diversification in the regions (effect 8).



The positive impacts from COVID-19 crisis are: a) the energy market disruptions revealed that renewables are a more resilient energy source than coal (effect 10) and it has been considered an impactful one, while b) the lower energy demand, resulting from the lockdowns and the ensuing economic crisis, which has accelerated the phase-out of coal from the energy mix (effect 9) it had a minor impact.

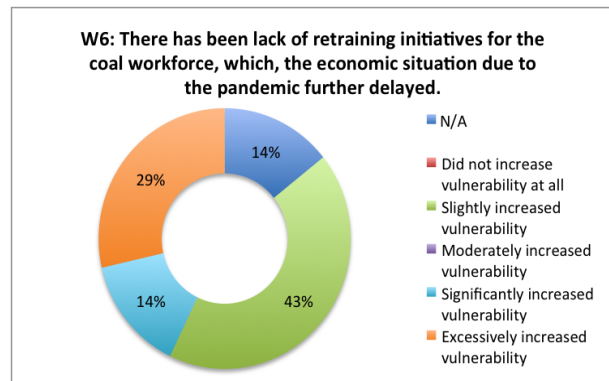
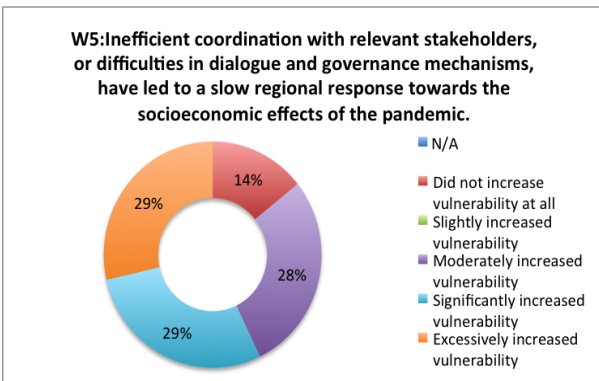
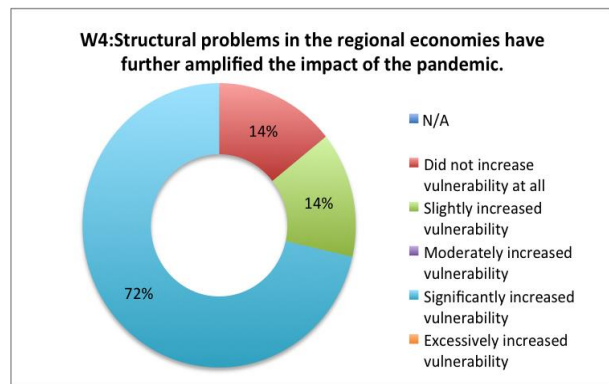
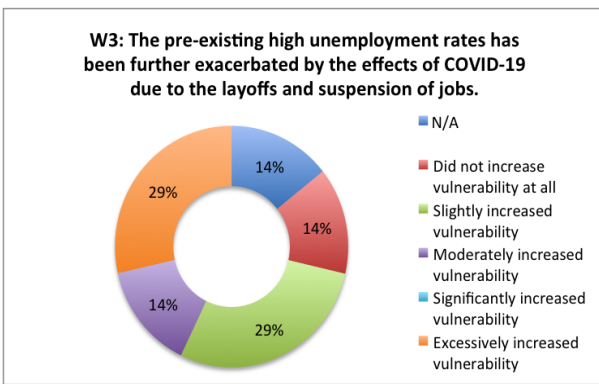
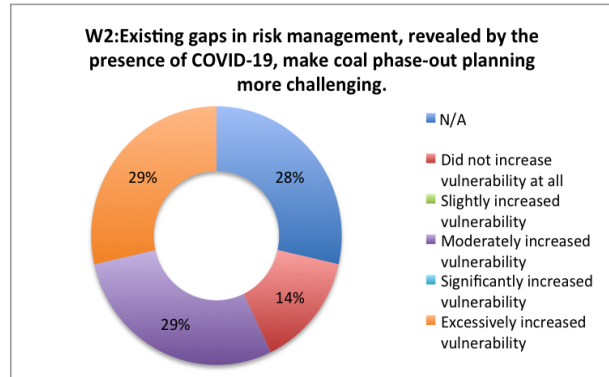
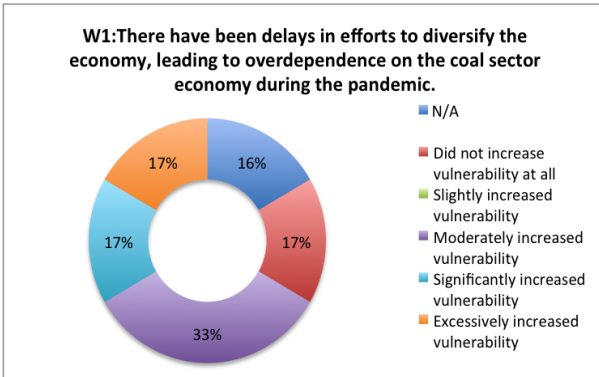
Partners also provided the following remarks regarding impacts on the decarbonisation process in their regions during the COVID-19 crisis:

1. The energy production decreased significantly, leaving unused resource capacities.
2. COVID - 19 led to further deepening of social gaps and social exclusion.
3. During the pick of pandemic there was decrease in the number of social contacts and hence a decrease in a car traffic.
4. CO₂ emissions downfall during pandemic will be followed by a significant surge of the greenhouse emissions, following the economic stagnation.

Besides the common issues and challenges, there also differences between the DeCarb regions. These differences will be presented in chapter 6 with a territorial analysis of the specific characteristics (strengths, weaknesses, opportunities and threats), based on the partners' responses for each region.

Weaknesses

Partners also rated a list of pre-existing characteristics (weaknesses), to determine which policy gaps and socioeconomic characteristics of each region increased its vulnerability to the COVID-19 crisis, in terms of coal phase-out. The results for each characteristic are shown in the graphs below.



The most prominent characteristics that have further amplified the impact of the pandemic and increased vulnerability in the DeCarb regions are shown to be a) the inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms that have led to a slow regional response towards the socioeconomic effects of the pandemic (moderately to excessively), and b) the structural problems in the regional economies (such as low innovation, aging population). These results highlight the importance of more efficient coordination between stakeholders (from stakeholder consensus building workshops, to formal mediation processes, to industry association conferences).

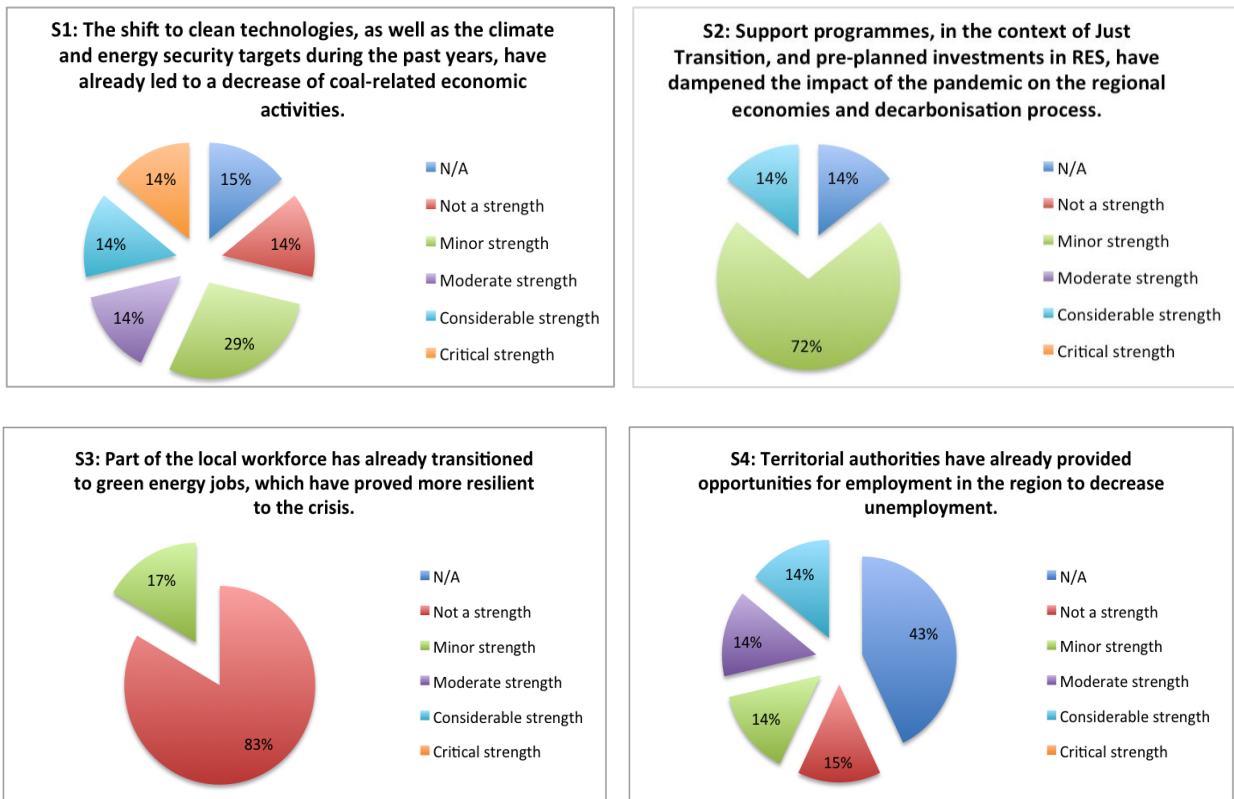
Additionally more effective policies are needed to tackle the structural problems of such regions (boost innovation, reduce regional inequalities, benefits for young population to move to these regions).

In the case of KSENNA, in particular, additional characteristics that played a role in the increase of the vulnerability of their region during the pandemic were: the lack of qualified/specialised energy workforce, the increase of CO2 emission coupons prices, the increased peak energy consumption and the lack of participation of third parties in the energy transition.

4.2 Policy opportunities for fortifying green energy transition in light of future crises.

Strengths

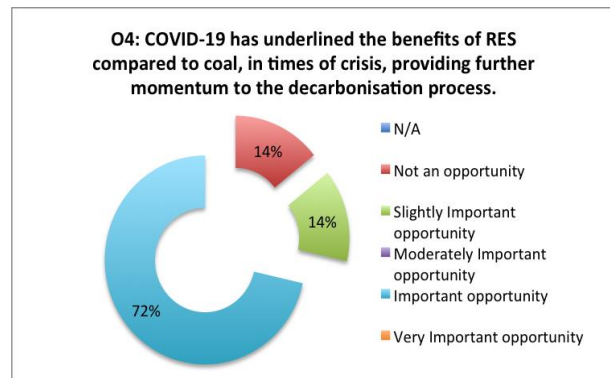
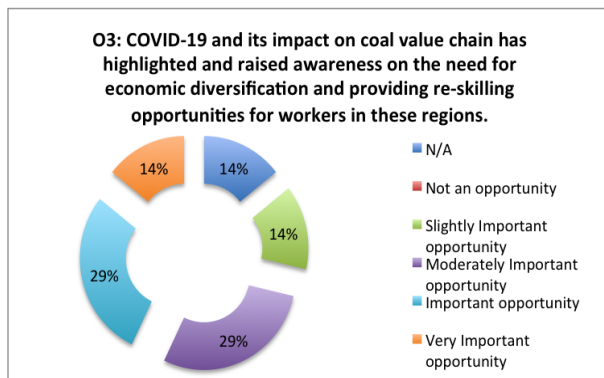
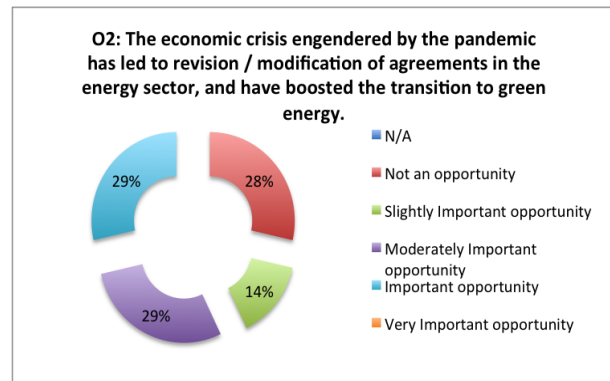
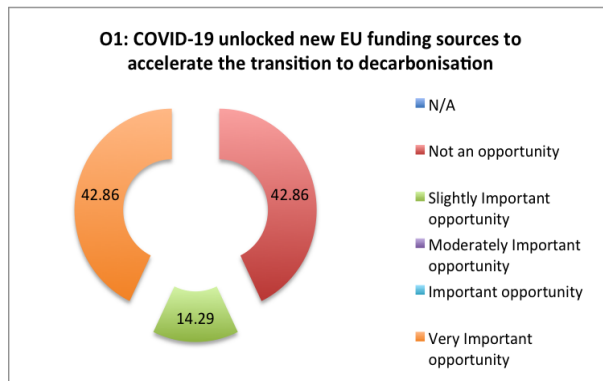
In order to identify which pre-existing policy initiatives and socioeconomic characteristics of each region were instrumental in mitigating the impact of the COVID-19 crisis on decarbonisation, partners rated a list of factors (strengths):

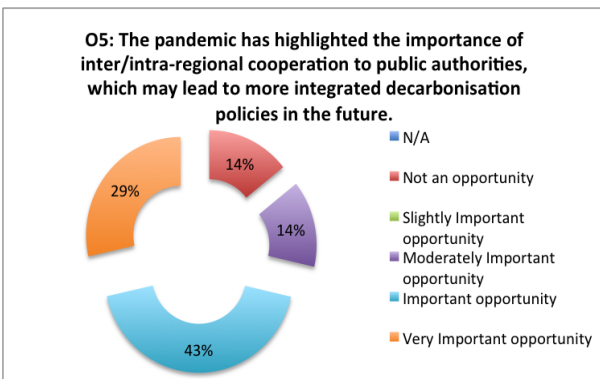


The results are revealing that overall there has not been any significant factor that alleviated the impacts of the COVID-19 pandemic crisis on the decarbonisation process. It's only in particular territories that some of the aforementioned strengths played a role in mitigating the impacts. This is shown in more detail in the per region analysis in Section 6.

Opportunities

In order to determine whether the COVID-19 crisis has unlocked new pathways for just transition and decarbonisation in DeCarb regions, partners were required to rate a list of options (opportunities).





The most important opportunity that could lead to new pathways for the transition to the decarbonisation is the fact that the pandemic has highlighted to public authorities the importance of inter/intra-regional cooperation, which may lead to more integrated decarbonisation policies in the future (O5). Also important are the realisation of the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process (O4), as well as the increased awareness on the need for economic diversification and provision of re-skilling opportunities for workers in such regions, especially in times of crisis (O3).

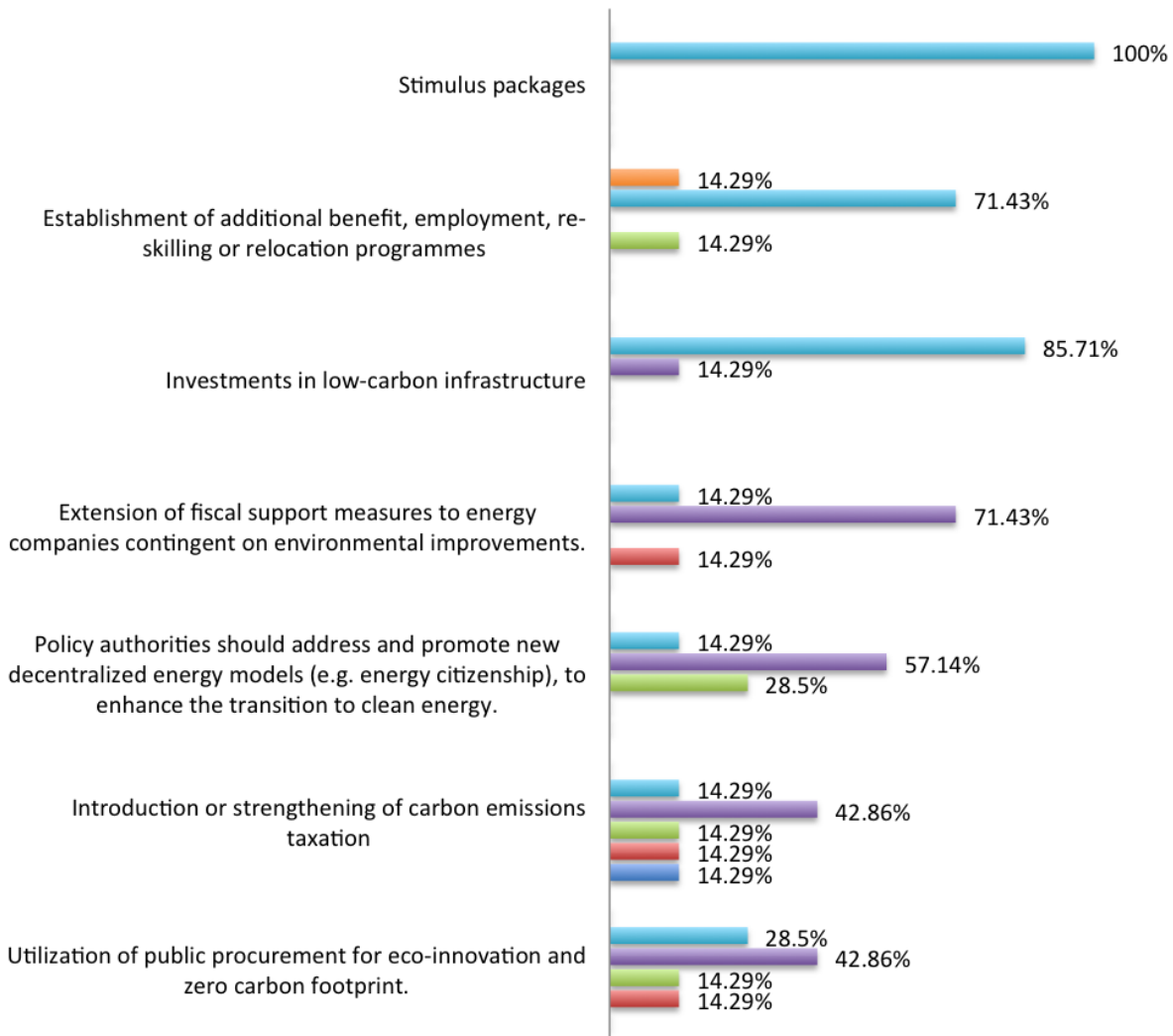
Additional opportunities that some of the partners identified as prominent for their territory were: the under spending of local municipal budget, awareness of the importance of self-sufficiency, the increased level of virtual transnational cooperation, funds in form of RRP and the acceleration of the national energy transition process related to securement of higher national self sufficiency.

4.3 Best practices to be implemented as a pathway to recovery, in the context of the partners’ decarbonisation efforts.

The third and last part of the questionnaire form consists of one item, which lists a number of policy practices that could provide pathways to recovery and resilience in the context of the on-going decarbonisation process; respondents were also asked to provide additional best practices.

Best practices for recovery and resilience to decarbonisation

■ N/A
 ■ Very effective solution
 ■ Effective solution
■ Moderately effective solution
 ■ Slightly effective solution
 ■ Not an effective solution



The most effective solution to recovery and resilience for DeCarb regions according to the unanimous response of all partners, as seen also in the graph above, is the stimulus packages to support job creation in green sectors. Other prominent solutions include:



- Investments in low carbon infrastructure (e.g. energy storage, smart grids, long-distance power transmissions, carbon capture facilities, and renewable energy deployment).
- Establishment of additional financial benefits, employment, re-skilling or relocation programmes to help coal workers move to new jobs and the extension of the fiscal support measures to energy companies' contingent on environmental improvements.
- Extension of fiscal support measures to energy companies contingent on environmental improvements.
- Policy authorities should address and promote new decentralized energy models (e.g. energy citizenship) to enhance the transition to clean energy.

Apart from the best practices listed in the questionnaire, the partners suggested some according to their expertise and experience such as:

- Promotion of local boutique tourism
- Revitalisation of degraded areas into recreation ones
- Centralisation of energy sector
- Establishment of local centre for modern technologies and entrepreneurship



5 SWOT profile of each partner/region

In this section, the SWOT profile of each partner/region is presented according to the responses given. Each characteristic that was rated being considerable and critical is merged into the predominant category and the moderate ones into the secondary category.

5.1 AGENEX

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
<ul style="list-style-type: none"> ➤ The shift to clean technologies, as well as the climate and energy security targets during the past years, has already led to a decrease of coal-related economic activities. ➤ Support programmes, in the context of Just Transition, and pre-planned investments in RES, have dampened the impact of the pandemic on the regional economies and decarbonisation process. ➤ Territorial authorities have already provided opportunities for employment in the region to decrease unemployment. 	<ul style="list-style-type: none"> ➤ Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic. ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, has led to a slow regional response towards the socioeconomic effects of the pandemic.
Secondary	
N/A	N/A



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ COVID-19 unlocked new EU funding sources to accelerate the transition to decarbonisation. ➤ COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process. ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. 	<ul style="list-style-type: none"> ➤ The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions. ➤ Energy market disruptions revealed that renewables are a more resilient energy source than coal (positive impact).
Secondary	
N/A	<ul style="list-style-type: none"> ➤ The pandemic forced public and regional authorities to suspend employment as a way to ensure health and safety.



5.2 SZREDA

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
N/A	<ul style="list-style-type: none"> ➤ There have been delays in efforts to diversify the economy, leading to overdependence on the coal sector economy during the pandemic. ➤ Existing gaps in risk management, revealed by the presence of COVID-19, make coal phase-out planning more challenging. ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, has led to a slow regional response towards the socioeconomic effects of the pandemic. ➤ Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic.
Secondary	
N/A	N/A



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ COVID-19 unlocked new EU funding sources to accelerate the transition to decarbonisation. ➤ COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions. ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. ➤ The economic crisis engendered by the pandemic has led to revision / modification of agreements (e.g. purchase of energy from third countries, intergovernmental) in the energy sector, and have boosted the transition to green energy. ➤ COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process. 	<ul style="list-style-type: none"> ➤ Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market. ➤ Reduced emphasis on environmental criteria in public procurement has delayed the progress of decarbonisation. ➤ Energy market disruptions revealed that renewables are a more resilient energy source than coal (positive impact). ➤ During the Covid-19 the energy production decreased significantly, leaving unused capacity of resources. ➤ CO2 emissions downfall during pandemic will be followed by a significant surge of the greenhouse emissions, following the economic stagnation. ➤ The COVID-19 led to further deepening of social gaps and social exclusion.
Secondary	
N/A	N/A



5.3 SW OLTENIA RDA

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
<ul style="list-style-type: none"> ➤ The shift to clean technologies, as well as the climate and energy security targets during the past years, has already led to a decrease of coal-related economic activities. 	<ul style="list-style-type: none"> ➤ There has been lack of retraining initiatives for the coal workforce, which, the economic situation due to the pandemic further delayed.
Secondary	
N/A	N/A
<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions. 	<ul style="list-style-type: none"> ➤ The pandemic forced public and regional authorities to suspend employment as a way to ensure health and safety. ➤ Suspension of employment also postponed and delayed the retraining / reskilling of the coal workforce for RES operations. ➤ The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions. ➤ The lower energy demand, resulting from the lockdowns and the ensuing economic crisis, has accelerated the phase-out of coal from the energy mix.
Secondary	
N/A	N/A



5.4 PEDDM

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
N/A	<ul style="list-style-type: none"> ➤ The pre-existing high unemployment rates, as a result of the economic slow-down in regions undergoing decarbonisation has been further exacerbated by the effects of COVID-19 due to the layoffs and suspension of jobs. ➤ There has been lack of retraining initiatives for the coal workforce, which, the economic situation due to the pandemic further delayed. ➤ Existing gaps ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, have led to a slow regional response towards the socioeconomic effects of the pandemic. ➤ Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic.
Secondary	
N/A	N/A



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. 	<ul style="list-style-type: none"> ➤ The pandemic forced public and regional authorities to suspend employment as a way to ensure health and safety. ➤ Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market. ➤ Suspension of employment also postponed and delayed the retraining / reskilling of the coal workforce for RES operations. ➤ Fiscal support, without environmental requirements, to struggling high carbon energy and industrial sectors has slowed-down the decarbonisation process ➤ Reduced emphasis on environmental criteria in public procurement has delayed the progress of decarbonisation ➤ The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions. ➤ Energy market disruptions revealed that renewables are a more resilient energy source than coal. (positive impact)
Secondary	
N/A	<ul style="list-style-type: none"> ➤ The economic crisis caused by the COVID-19 led businesses to de-commit from low-carbon investments (e.g. investments on renewables). ➤ Mine and power plant closure and layoffs / furloughs



	➤ Dismiss of redundant workforce.
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5.5 KSSENA

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
<ul style="list-style-type: none"> ➤ Strengths identified in this region were that: <ul style="list-style-type: none"> - During pandemic the coal demand was high. - Just transition mechanism triggered the decarbonisation. - Energy transition started during the pandemic period. 	<ul style="list-style-type: none"> ➤ Existing gaps in risk management, revealed by the presence of COVID-19, make coal phase-out planning more challenging. ➤ The pre-existing high unemployment rates, as a result of the economic slow-down in regions undergoing decarbonisation has been further exacerbated by the effects of COVID-19 due to the layoffs and suspension of jobs. ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, has led to a slow regional response towards the socioeconomic effects of the pandemic. ➤ There has been lack of retraining initiatives for the coal workforce, which the economic situation due to pandemic situation further delayed. ➤ Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic.
Secondary	
<ul style="list-style-type: none"> ➤ Territorial authorities have already provided opportunities for employment in the region to decrease unemployment. 	N/A



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ COVID-19 unlocked new EU funding sources to accelerate the transition to decarbonisation. ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. ➤ COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process. ➤ Additional opportunities were: the under spending of local municipal budget, awareness of the importance of self- sufficiency, the increased level of virtual transnational cooperation, funds in form of RRP's and the acceleration of the national energy transition process related to securement of higher national self sufficiency. 	<ul style="list-style-type: none"> ➤ Suspension of employment also postponed and delayed the retraining / reskilling of the coal workforce for RES operations. ➤ The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions ➤ Mine and power plant closure and layoffs / furloughs forced the qualified workforce to migrate from the region. ➤ The lower energy demand, resulting from the lockdowns and the ensuing economic crisis, has accelerated the phase-out of coal from the energy mix (positive impact).
Secondary	
<ul style="list-style-type: none"> ➤ The economic crisis engendered by the pandemic has led to revision/modification of agreements (e.g. purchase of energy from third countries, intergovernmental) in the energy sector, and have boosted the transition to green energy. ➤ COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions. 	<ul style="list-style-type: none"> ➤ The pandemic forced public and regional authorities to suspend employment as a way to ensure health and safety. ➤ Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market. ➤ Fiscal support, without environmental requirements, has slowed-down the decarbonisation process.



	<p>➤ Reduced emphasis on environmental criteria in public procurement has delayed the progress of decarbonisation.</p>
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5.6 ENEREA

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
N/A	N/A
Secondary	
<ul style="list-style-type: none"> ➤ The shift to clean technologies, as well as the climate and energy security targets during the past years, have already led to a decrease of coal-related economic activities. 	<ul style="list-style-type: none"> ➤ There have been delays in efforts to diversify the economy, leading to overdependence on the coal sector economy during the pandemic. ➤ Existing gaps in risk management, revealed by the presence of COVID-19, make coal phase-out planning more challenging. ➤ The pre-existing high unemployment rates, as a result of the economic slow-down in regions undergoing decarbonisation has been further exacerbated by the effects of COVID-19 due to the layoffs and suspension of jobs. ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, have led to a slow regional response towards the socioeconomic effects of the pandemic.



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process. ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. 	<ul style="list-style-type: none"> ➤ Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market. ➤ The COVID-19 pandemic has had a major impact on society and the economy, radically transforming people's lives. ➤ The context of the economic downturn (virus crisis) caused by the epidemic is complex and multifaceted, with direct and spill-over effects in the short, medium and long term.
Secondary	
<ul style="list-style-type: none"> ➤ The economic crisis engendered by the pandemic has led to revision / modification of agreements (e.g. purchase of energy from third countries, intergovernmental) in the energy sector, and have boosted the transition to green energy. ➤ COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions. 	<ul style="list-style-type: none"> ➤ The economic crisis caused by the COVID-19 led businesses to de-commit from low-carbon investments (e.g. investments on renewables). ➤ The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions. ➤ Energy market disruptions revealed that renewables are a more resilient energy source than coal. (positive impact) ➤ During the Covid-19 situation, there was a measurable decrease in the number of social contacts, and hence a decrease in car traffic during this period. ➤ In the long term, the crisis caused by the epidemic could lead to increased exclusion, widening gaps, deepening existing inequalities and creating new ones.



5.7 LODZKIE

<u>STRENGTHS</u>	<u>WEAKNESSES</u>
Predominant	
N/A	<ul style="list-style-type: none"> ➤ Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic.
Secondary	
N/A	<ul style="list-style-type: none"> ➤ There have been delays in efforts to diversify the economy, leading to overdependence on the coal sector economy during the pandemic. ➤ Existing gaps in risk management, revealed by the presence of COVID-19, make coal phase-out planning more challenging. ➤ Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, have led to a slow regional response towards the socioeconomic effects of the pandemic.



<u>OPPORTUNITIES</u>	<u>THREATS</u>
Predominant	
<ul style="list-style-type: none"> ➤ The economic crisis engendered by the pandemic has led to revision / modification of agreements (e.g. purchase of energy from third countries, intergovernmental) in the energy sector, and have boosted the transition to green energy. ➤ COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions. ➤ COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process. ➤ The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future. 	<ul style="list-style-type: none"> ➤ Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market. ➤ The Covid-19 led to the further deepening of social gaps and exclusion. ➤ During the pick of pandemic there was decrease in the number of social contacts and hence a decrease in a car traffic.
Secondary	
N/A	<ul style="list-style-type: none"> ➤ The economic crisis caused by the COVID-19 led businesses to de-commit from low-carbon investments (e.g. investments on renewables).



6 Lessons learnt

6.1 Discussion and conclusions

The questionnaire (provided by PEDMM) concerned the impact of COVID-19 on DeCarb regions. The most serious negative impact of COVID-19 crisis of the DeCarb regions has been the renewables sector that stopped growing at the same rate as in the pre-COVID era, as a consequence of the inactivity of the energy market. Furthermore, the economic crisis that followed the outbreak of the pandemic has inhibited economic diversification in the regions.

No pre-existing policy initiatives as well as economic and social characteristics of DeCarb regions have been identified as instrumental in mitigating the impact of the COVID-19 crisis on decarbonisation. Support programmes, in the context of Just Transition, and pre-planned investments in RES, have been evaluated to have minor strength in dampening the impact of the pandemic on the regional economies and decarbonisation process.

The most prominent characteristics that further amplified the impact of the pandemic and increased vulnerability in the DeCarb regions are shown to be a) the inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms that have led to a slow regional response towards the socioeconomic effects of the pandemic (moderately to excessively), and b) the structural problems in the regional economies (such as low innovation, aging population).

The stimulus packages to support job creation in green sectors are considered by the partners the most effective solution to recovery and resilience for DeCarb regions. Another valuable solution is supporting the transition to green energy despite a crisis by investing in low carbon infrastructure (e.g. energy storage, smart grids, long-distance power transmissions, carbon capture facilities, and renewable energy deployment).

These results highlight the importance of more efficient coordination between stakeholders (from stakeholder consensus building workshops, to formal mediation processes, to industry association conferences). The results should be utilized as a guideline for future policy making to increase the effectiveness and efficiency of the corresponding policy measures. Additionally more effective policies are needed to tackle the structural problems of such regions (boost innovation, reduce regional inequalities,



benefits for young population to move to these regions). Moreover, it is important going forward to focus on longer-term strategic objectives and investments based on strategies aligned to the EU's current policy priorities.

6.2 Potential policy solutions and pathways to recovery and resilience

A number of policy suggestions are presented in this section based on the reports of the partners and the analysis of the provided data along with common practices from literature. These are policy measures or long term priorities that public authorities in the DeCarb regions can incorporate to mitigate the impact of COVID-19 on their territories and, support their recovery from the crisis, boost their transition into green economy and bolster their resilience to future crises.

Policy measures

- Extension of fiscal support measures and deployment of green stimulus packages for energy companies contingent on environmental improvements, providing the opportunity to public administrations to actively manage and soften the transition from fossil fuels to low-carbon technologies.
- Revision of long-term agreements in the energy sector, due to the need for green energy development. Boosting support to energy efficiency and renewable energy would hasten countries' decarbonisation.
- Incentives for low-carbon consumption, investment and innovation (e.g. carbon capture use and storage), during the recovery through the removal of fossil fuel subsidies and commitment to carbon pricing.
- Refraining from weakening current environmental policies, in order to reduce policy uncertainty for energy companies.
- Preparation of a pipeline of low-carbon projects for the post-Covid recovery phase. Improving the understanding of economic and environmental impacts of green policy packages using quantifiable metrics will facilitate the design of more effective policies.
- Recovery packages and investment in low-carbon infrastructure (e.g. energy storage, smart grids, long-distance and cross-border power transmissions, carbon capture facilities, and renewable energy deployment) can contribute to successfully maintaining jobs and economic activity in the construction sector while contributing to reducing emissions.



Changes in the labour market

- Retraining and upskilling of workers in coal regions, with a focus on reducing skills mismatches in order to help them find jobs.
- Investment in coverage and quality of active labour market policies in the energy sector.
- Establishment of additional benefit and employment programmes to help people move to new jobs.



ANNEX A: Input documentation form with the accumulated percentages of DeCarb partners' responses

This is the input documentation form template for filling-in territorial data.

<p>DeCarb Interreg Europe</p> <p>European Union European Regional Development Fund</p>	
Activity A1: "Methodology for the development of the Joint study on COVID-19 impact & opportunities for DeCarb regions"	
RESPONDENT DETAILS	
Partner represented:	
Name:	
Position in the organisation:	
Email address:	
Part A: Impact Analysis	
Q1: What has been the impact of the COVID-19 crisis on your region in terms of economic activity, social cohesion and just transition initiatives?	
<p>Below is a list of potential COVID-19 effects that may have had a positive or negative impact on the transition to a low carbon economy. Please rate the impact of each effect for your territory, according to the following scale:</p>	
<p>1: "No impact "</p>	
<p>2: "Minor impact"</p>	
<p>3: "Moderate impact"</p>	
<p>4: "Considerable impact"</p>	

5: "Critical impact"							
"No opinion / N/A"							
Effects		1	2	3	4	5	N/A
	The pandemic forced public and regional authorities to suspend employment as a way to ensure health and safety.	28.5%	14.29%	28.5%	28.5%		
	The economic crisis caused by the COVID-19 led businesses to de-commit from low-carbon investments (e.g. investments on renewables).	42.86%	14.29%	42.86%			
	Renewables sector stopped growing at the same rate as in the pre-COVID era, as a result of the inactivity of the energy market.	28.5%		14.29%	14.29%	42.86%	
	Suspension of employment also postponed and delayed the retraining / reskilling of the coal workforce for RES operations.	14.29%	42.86%		28.5%	14.29%	
	Mine and power plant closure and layoffs / furloughs forced the qualified workforce to migrate from the region.	14.29%	28.5%	14.29%	14.29%		28.5%
	Fiscal support, without environmental requirements, to struggling high carbon energy and industrial sectors has slowed-down the decarbonisation process	28.5%	14.29%	14.29%	14.29%		28.5%
	Reduced emphasis on environmental criteria in public procurement has delayed the progress of decarbonisation.	14.29%	42.86%	14.29%	14.29%	14.29%	

	The economic crisis that followed the outbreak of the pandemic has inhibited economic diversification (e.g. tourism) in the regions.			14.29%	42.86%	14.29%	28.5%
	The lower energy demand, resulting from the lockdowns and the ensuing economic crisis, has accelerated the phase-out of coal from the energy mix. <i>(positive impact)</i>		57.14%		28.5%		14.29%
	Energy market disruptions revealed that renewables are a more resilient energy source than coal. <i>(positive impact)</i>	14.29%	28.5%	14.29%	28.5%	14.29%	
	Other Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other: Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2: Which pre-existing policy gaps and economic & social characteristics of your territory increased vulnerability to the COVID-19 crisis in terms of coal phase-out?

Below is a list of factors that may have been making your region's coal phase-out susceptible to delays during the COVID-19 crisis. This section aims to identify the most prominent of these; please rate how important or not is each factor below according to the following scale of classification:

<p>1: "Did not increase vulnerability at all"</p> <p>2: "Slightly increased vulnerability"</p> <p>3: "Moderately increased vulnerability"</p> <p>4: "Significantly increased vulnerability"</p> <p>5: "Excessively increased vulnerability"</p> <p>"No opinion / N/A"</p>						
Pre-existing characteristics	1	2	3	4	5	N/A
There have been delays in efforts to diversify the economy, leading to overdependence on the coal sector economy during the pandemic.	14.29%		28.5%	14.29%	14.29%	14.29%
Existing gaps in risk management, revealed by the presence of COVID-19, make coal phase-out planning more challenging.	14.29%		28.5%		28.5%	28.5%
The pre-existing high unemployment rates, as a result of the economic slow-down in regions undergoing decarbonisation has been further exacerbated by the effects of COVID-19 due to the layoffs and suspension of jobs.	14.29%	28.5%	14.29%		28.5%	14.29%
Structural problems in the regional economies (e.g. low innovation, aging population) have further amplified the impact of the pandemic.	14.29%	14.29%		71.34%		
Inefficient coordination with relevant stakeholders, or difficulties in dialogue and governance mechanisms, have led to a slow regional response towards the socioeconomic effects of the pandemic.	14.29%		28.5%	28.5%	28.5%	

There has been lack of retraining initiatives for the coal workforce, which, the economic situation due to the pandemic further delayed.		42.86%		14.29%	28.5%	14.29%
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part B: Potential Solutions
Q1: What pre-existing policy initiatives as well as economic and social characteristics of your region were instrumental in mitigating the impact of the COVID-19 crisis on decarbonisation?
<p><i>Below is a list of factors that could strengthen the transition to the decarbonisation as a result of the pandemic. This section aims to identify the most prominent of them. Please rate how important or not is each factor below according to the following scale:</i></p> <p>1: "Not a strength"</p> <p>2: "Minor strength"</p> <p>3: "Moderate strength"</p> <p>4: "Considerable strength"</p> <p>5: "D strength"</p> <p>"No opinion / N/A"</p>

Strengths	1	2	3	4	5	N/A
The shift to clean technologies, as well as the climate and energy security targets during the past years, have already led to a decrease of coal-related economic activities.	14.29%	28.5%	14.29%	14.29%		14.29%
Support programmes, in the context of Just Transition, and pre-planned investments in RES, have dampened the impact of the pandemic on the regional economies and decarbonisation process.		71.43%		14.29%		14.29%
Part of the local workforce has already transitioned to green energy jobs, which have proved more resilient to the crisis.	71.43%	14.29%				14.29%
Territorial authorities have already provided opportunities for employment in the region to decrease unemployment.	14.29%	14.29%	14.29%	14.29%		42.86%
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2: Has the COVID-19 crisis unlocked new pathways for just transition and decarbonisation in your region?

Below is a list of opportunities that could lead to new pathways for the transition to the decarbonisation. This section aims to identify the most prominent of them for each partner territory. Please rate how important or not is each factor below, according to the following scale:

1: "Not an opportunity"

2: "Slightly Important opportunity"

3: "Moderately Important opportunity"

4: "Important opportunity"

5: "Very Important opportunity"

"No opinion / N/A"

Opportunities	1	2	3	4	5	N/A
COVID-19 unlocked new EU funding sources to accelerate the transition to decarbonisation.	42.86%	14.29%			42.86%	
The economic crisis engendered by the pandemic has led to revision / modification of agreements (e.g. purchase of energy from third countries, intergovernmental) in the energy sector, and have boosted the transition to green energy.	28.5%	14.29%	28.5%	28.5%		
COVID-19 and its impact on coal value chain has highlighted and raised awareness on the need for economic diversification and providing re-skilling opportunities for workers in these regions.		14.29%	28.5%	28.5%	14.29%	14.29%

COVID-19 has underlined the benefits of RES compared to coal, in times of crisis, providing further momentum to the decarbonisation process.	14.29%	14.29%		71.43%		
The pandemic has highlighted the importance of inter/intra-regional cooperation to public authorities, which may lead to more integrated decarbonisation policies in the future.	14.29%		14.29%	42.86%	28.5%	
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part C: Best Practices
Which of the following practices could provide a pathway to recovery and resilience and should be integrated in the ongoing decarbonisation process?
<i>Below is a list of policies that could be identified as optimal solutions for resilience and recovery to decarbonisation. This section aims to identify the most prominent of them. Please rate how important or not is each factor below according to the following scale of classification:</i>
1: "Not an effective solution"

<p>2: "Slightly effective solution"</p> <p>3: "Moderately effective solution"</p> <p>4: "Effective solution"</p> <p>5: "Very effective solution"</p> <p>"No opinion / N/A"</p>						
Best Practices	1	2	3	4	5	N/A
Stimulus packages to support job creation in green sectors					100%	
Establishment of additional benefit, employment, re-skilling or relocation programmes to help coal workers move to new jobs.			14.29%		71.43%	14.29%
Investments in low-carbon infrastructure (e.g. energy storage, smart grids, long-distance power transmissions, carbon capture facilities, and renewable energy deployment).				14.29%	85.71%	
Extension of fiscal support measures to energy companies contingent on environmental improvements.		14.29%		71.43%	14.29%	
Policy authorities should address and promote new decentralized energy models (e.g. energy citizenship), to enhance the transition to clean energy.			28.5%	57.14%	14.29%	
Introduction or strengthening of carbon emissions taxation, to reduce pressures on public finances in the recovery phase.	14.29%	14.29%	14.29%	42.86%	14.29%	



Utilization of public procurement to promote eco-innovation and products with zero carbon footprint.		14.29%	14.29%	42.86%	28.5%	
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other : Please specify here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>