



JUSTEM

D4.2

Recommended policies and project pipelines



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ABOUT

Energy transition plans may challenge the social ecosystem of the regions where coal is still king: if energy transition plans don't consider local factors, they may cause higher unemployment rates, aggravated energy poverty, and economic migration. Energy poverty is already a big challenge today in the EU, with coal-dependent regions generally being more affected by the issue.

In the spirit of the EU principle to “leave no one behind” in the transition, JUSTEM addresses the energy transition planning through a double-sided approach: (1) it helps regional authorities to develop ‘just’ energy transition plans that are sensitive to regional impacts such as job losses and energy poverty; and (2) it helps citizens build their capacity and find their place in a greener economy.

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PROJECT PARTNERS

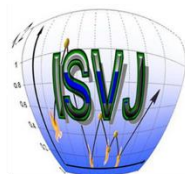


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ABBREVIATIONS

EU	European Union
GHG	Greenhouse gas
JT	Just transition
KPI	Key performance indicator
MA	Managing Authority
NECP	National Energy and Climate Plan
NGO	Non-government organization
OSS	One-stop-shop
RES	Renewable energy sources
TJTP	Territorial just transition plan
ICT	Information and communication technology
SME	Small and medium enterprises

EXECUTIVE SUMMARY

This report presents two outputs of the JUSTEM project - policy recommendations and project pipelines, aimed at improving JT policy and its implementation in 6 pilot regions: Stara Zagora (Bulgaria), Istria (Croatia), Western Macedonia (Greece), Silesia (Poland), Jiu Valley (Romania), and Asturias (Spain). The proposed policies and projects are based on our findings from JUSTEM's citizen deliberation activities in order to effectively address citizens' needs and aspirations.

The report contains a summary of our recommendations for the EU, national, regional, or local policies, many of which are presented in detail in Annex 1. Similarly, we briefly introduce the 35 project fiches, which are presented in full in Annex 2.

The proposed policies and projects will have multiple and large-scale impacts, including mobilized investments, energy and emission savings, new employment opportunities, and others. We observe four recommended areas of action common to all regions: (1) Energy efficiency in buildings; (2) Renewable energy in buildings; (3) Community empowerment and participation; and (4) Social inclusion and employment. A large part of our policies and projects focus on energy renovation of residential buildings. Additionally, many target energy communities, one-stop-shops, information campaigns, and reskilling. Support to vulnerable groups, including those experiencing energy poverty, is a key priority.

Our policy proposals have been implemented or are in the process of being implemented by governments as they update key documents, such as National Energy and Climate Plans (NECPs), JT Fund programmes, and local and regional strategies. Additionally, the large-scale promotion of our project fiches is expected to result in actual investments that would transform the regions in the next years.

JUSTEM

1. INTRODUCTION

Citizen participation is critical to ensuring just transition (JT) in coal regions. Unfortunately, citizens often have little knowledge about JT and play a passive role in the process, resulting in unfounded opposition and many missed opportunities to improve their well-being.

In this document we present the **policy recommendations and project pipelines** developed and communicated within JUSTEM project. Our goal is to **improve the JT policy definition and implementation** in the coal regions, by addressing the needs and activating the citizens, specifically in Stara Zagora (Bulgaria), Istria (Croatia), Western Macedonia (Greece), Silesia (Poland), Jiu Valley (Romania), and Asturias (Spain).

Based mainly on (1) our assessment of the current situation and policy frameworks in the 6 JUSTEM regions (Koasidis K., et al, 2023) and (2) our findings from the citizen deliberation activities - workshops, interviews, and surveys (Nikolaev A., et al, 2024), we developed actionable policy recommendations that were then translated into specific projects to be developed by public authorities, businesses, NGOs, and academia.

Each **policy recommendation** addresses a specific policy document, either at the EU, national, regional, or local level. The approach is illustrated below:

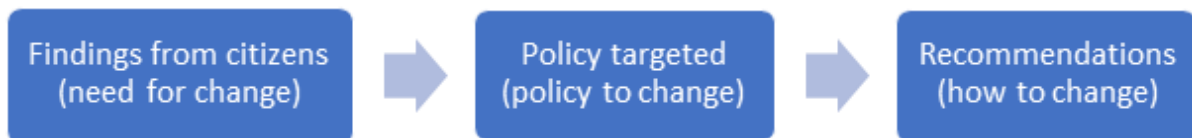


Figure 1: Policy recommendations development approach

When elaborating the recommendations, we considered the six criteria for good policy, namely relevance, coherence, effectiveness, efficiency, impact, and sustainability¹.

We provided our recommendations in many forms / channels, including:

- policy briefs (available in Annex I)
- statements submitted during public consultations
- presentations at relevant events
- bilateral meetings or e-mail exchange with policy-makers.



¹ <https://www.oecd.org/en/topics/sub-issues/development-co-operation-evaluation-and-effectiveness/evaluation-criteria.html>

The **project pipeline** is a list of projects that can be in different stages ranging from conceptualisation to closure. In JUSTEM we focus on the initial stage of project concept. The concepts, in the form of project fiches, aim to support both the potential developers to start promising projects and Managing Authorities (MAs) of funding programmes to ensure that quality initiatives are supported.

PROJECT FICHE		JUSTEM	
Project title	Just Transition One-Stop Shops	Implementing actor	Additionally, CCS could carry out the following activities, be a link between different operators (public, business, civil society) and connect them and implement good practices from other countries, reporting on and feasibility studies for projects.
Sector	Local and regional authorities	Activities	Municipal and regional authorities. They can count on support from the Ministry for Regional Development and Public Works. The Managing Authority in charge of the programmes financing CCS. Study of other CCS around green-tender reworking, best practice sharing.
Location	Establishment of 'Just Transition one-stop-shops' in the regional level in the most affected towns in the region - Colindava and Bacău	Expected results	Partner possibilities for integration with the CCS reform envisaged under the National Recovery and Resilience Plan. Setting up administrative staff which will be responsible for handling CCS. Organising of procedures, securing resources, publicity. Hiring and equipping an office.
Project purpose	Higher level of reemployment, through awareness of all affected parties. Increased investment in the region due to facilitated processes.	Expected contribution(s) and impact(s)	Bridge the information gap is key to achieving the energy transition in a just way that could both support those most affected and attract investment in the region. Measures are envisaged and of the services of stakeholders could include the possibility of local institutions, resulting in a facilitated transition process.
Beneficiaries of the project	The CCS in the region may be established by the regional authority or municipality of Bacău, while the other two CCS - by the municipal authorities in Colindava and Bacău. The efficient work would be ensured by establishing partnerships with both the business and entrepreneurial sectors from the following capabilities: Private : Additionally, in CCS monitoring Committee, or wide range of operators, need to take part - regional, regional, local authorities, NGOs, SMEs, large companies. The main issue for the just energy transition in Bulgaria is related to the lack of information on the process itself. The energy transition is seen as a threat rather than an opportunity. There is a need for the most affected citizens and small firms to have easily accessible information about the opportunities ahead of them. The CCS would provide information on green jobs, employment, investments etc. in CCS opportunities, participation in energy communities, etc. to help them participate in the transition and feel included. It will support citizens' access to: <ul style="list-style-type: none"> - Funding and training programmes related to SMEs for individual and energy efficiency programmes, energy communities, etc. - Academic courses throughout the country. - Banking courses, grant schemes, training courses, mentoring or partnership with the academic sector as well as with centres for vocational training, reemployment centres and others. - Employment opportunities, developments for jobs (the region according to the applicable) and/or training in partnership with small/medium enterprises, large enterprises, SME Centres and others. At the same time, the CCS will support businesses with information on their own opportunities, open tenders and offers and assistance in accessing them, as well as: <ul style="list-style-type: none"> 2. Wider access to public funds. The CCS will also serve as the main support unit for Just Transition Fund projects by providing information and assistance throughout the process and the development of the project concept.		
Project relevance and need	<ul style="list-style-type: none"> - Funding and training programmes related to SMEs for individual and energy efficiency programmes, energy communities, etc. - Academic courses throughout the country. - Banking courses, grant schemes, training courses, mentoring or partnership with the academic sector as well as with centres for vocational training, reemployment centres and others. - Employment opportunities, developments for jobs (the region according to the applicable) and/or training in partnership with small/medium enterprises, large enterprises, SME Centres and others. At the same time, the CCS will support businesses with information on their own opportunities, open tenders and offers and assistance in accessing them, as well as: <ul style="list-style-type: none"> 2. Wider access to public funds. The CCS will also serve as the main support unit for Just Transition Fund projects by providing information and assistance throughout the process and the development of the project concept.	Source of funding or financing	Total budget for 2 years operation: 10,000 EUR for 2 years. Further equipment for 10,000 EUR. 10,000 EUR for 2 years in Bacău / Colindava. After 2 years, the CCS will be self-sustaining by collecting service fees. The Just Transition Fund, The Climate Fund.
		Implementation schedule	Start of formalisation of the process: 15/2024. Start of project activity: 15/2024. Project completion: 1/2026.
		Sustainability	After 2 years, the CCS will be self-sustaining by collecting fees for its services. The impact on the SMEs is expected to increase in the coming years and the CCS will have an impact of useful support.
		Duplication	Each CCS project can be implemented in the remaining 7 municipalities of Bacău region, in order to avoid double mapping, efficiency the transition out of coal.

The project fiches are aligned with the needs of the citizens in the coal regions in transition, i.e. creating new jobs, promoting entrepreneurship, supporting reskilling, providing a better living environment, alleviating energy poverty, etc.

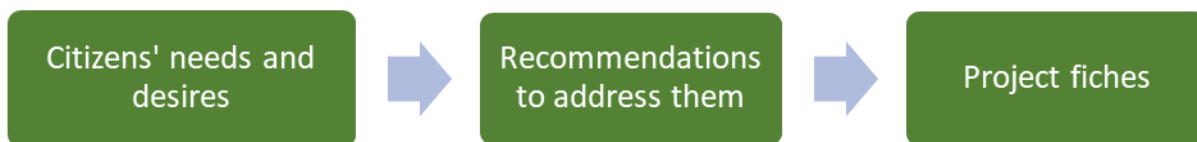


Figure 2: Project pipeline development approach

We developed the project pipelines for each of the 6 JUSTEM regions in coordination with the MAs and potential project developers - SMEs, NGOs, local authorities, etc. - to better understand and address their needs, concerns, and aspirations in the potential project areas.

2. POLICY RECOMMENDATIONS

The following sections summarise our recommendations at the EU level and for each of the 6 JUSTEM countries. The policy briefs in Annex I provide additional detail.

EU-level policy recommendations

- Promote bottom-up approaches to policy design and implementation that support active citizen participation.
- Support territories to manage and monitor the positive and negative impacts of transitions away from coal.
- Encourage Member States to sufficiently address energy poverty in the implementation of just transitions.
- Enable investments in social and cultural just transition projects to "reshape" identity and create cohesion.

Policy recommendations for Bulgaria

- Support large-scale energy renovation of existing housing by providing financial incentives for households in accordance with their socioeconomic vulnerability.
- Introduce integrated smart energy infrastructure measures in buildings to empower those at risk of energy poverty to better manage their energy costs, by providing financial incentives and capacity building for behaviour change of homeowners.
- Promote renewable energy communities involving vulnerable citizens in situation (or at risk) of energy poverty, aiming to reduce the burden of energy bills and to increase self-consumption and energy sharing.
- Ensure that energy transition policies prioritise the needs of vulnerable citizens and provide targeted support for affected households, by upscaling supportive frameworks and expanding effective mechanisms as a social safety net in the transition away from coal to protect citizens against the expected increase in energy poverty.
- Involve civil society organizations in the three Just transition sub-committees (for the three Bulgarian coal transition regions) to enable citizen participation in the suggestion of JT projects.
- Align the selection criteria for the Just transition projects with CEE Bankwatch Network's "Guidelines for selecting just transition projects".

Policy recommendations for Croatia

- Organise periodic information workshops or short educational seminars for students on the importance of JT and trends in the energy sector.
- Organise theoretical and practical workshops that will include the installation process of heat pumps, photovoltaic power plants and other RES.
- Organise open days and information workshops for citizens to raise awareness about the importance of JT and collect citizen feedback.
- Promote energy communities through the use of the Technology and Innovation Incubator and provide additional support for technologies and entrepreneurial processes aimed at combating energy poverty.

Policy recommendations for Greece

- Design training and reskilling programmes and reorient their curricula towards the energy transition, by exploiting existing skills of the workforce, supporting local training centres, and establishing monitoring mechanisms that ensure reskilling initiatives have a positive impact.
- Support R&I initiatives to boost local employment alongside the green transition, especially on priority areas of the lignite regions such as renewable energy, ICT, or smart and sustainable agriculture, while establishing research valleys to align with the TJTP.
- Engage regional stakeholder groups in the design and implementation of the transition, by establishing appropriate co-creation processes that promote energy democracy and co-ownership, for example through regional energy communities.
- Develop a detailed spatial plan to clearly define areas for installation of PVs in order to respect protected areas (e.g., Natura 2000) and avoid caveats related to grid saturation (including potential grid expansions).
- Restore the mining lands, while infrastructure closing down (e.g., mines, plants) can be exploited as tourist attractions and areas of industrial heritage.
- Prioritise quick win actions to boost morality and ensure public support in the transition.

Policy recommendations for Poland

- Integrate energy poverty as a horizontal objective across all thematic areas of Śląskie 2030 strategy – economy, society, environment, and spatial planning.
- Provide targeted financial and institutional support to elderly people, low-income households, and people with disabilities to ensure access to affordable and sustainable energy.
- Ensure access to vocational training and new job opportunities for workers leaving the coal sector, with a special focus on women’s economic activation.
- Prioritise large-scale building retrofits and thermomodernisation programs to reduce energy demand and prevent future energy poverty.
- Stimulate the development of green industries, micro-enterprises, and local energy cooperatives to create sustainable jobs and reduce dependence on fossil fuels.
- Encourage young people to stay in the region and support them in their entrepreneurial development. Create specific programmes and initiatives aimed at young people to enable them to develop their businesses and become involved in emerging economic sectors related to the energy transition.
- Increase the involvement of non-governmental organisations (NGOs) in public consultation processes and the energy transition. NGOs can play an important role in informing local people about the changes that will take place and engaging them in discussions about the future of coal regions.

Policy recommendations for Romania

- Implement financial support mechanisms to ensure that vulnerable households and communities can participate in the energy transition, reducing both economic and environmental burdens.
- Promote large-scale refurbishments of multifamily residential buildings (insulation, windows, heating and cooling systems, etc.) through grants and low-interest loans.
- Deploy smart meters and energy management systems to empower consumers to monitor and optimize their energy consumption.
- Support the development of renewable energy communities, ensuring that vulnerable households benefit from locally generated solar energy. This will reduce energy bills, promote self-consumption, and encourage energy sharing within communities.

- Develop climate awareness narratives and communication campaigns tailored to the region's cultural and socio-economic specificities.
- Establish strategic partnerships between universities, research centres, and local administrations to maximise the impact of educational and research institutions in the Jiu Valley.
- Strengthen the administrative and financial capacities of local governments in Jiu Valley.
- Modernise road and rail transport infrastructure, focusing on creating fast and secure links with the main economic centres in the Western Development Region.
- Develop alternative and sustainable sources of income for the cities, beyond reliance on government subsidies.
- Integrate energy poverty as a cross-cutting subject within legislation.



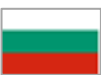

Policy recommendations for Spain






- Identify specific actions to alleviate the impact of existing popular narratives opposing the green transition process, with a specific target to young people and most vulnerable groups. Transition from a coal region identity to a new one.
- Encourage promotion of local (energy) communities, to re-establish, following a bottom-up approach, local structures led by citizens, from where rebuild local actions on social, economic and environmental domains.
- Support multi-governance by facilitating and establishing horizontal, light, stable and inter departmental structures, able to perform activities like data and information sharing or integrated actions planes.
- Promote a network of Local Desks acting as OSSs to support local authorities, SMEs, and local entities in projects ideation, proposal preparation and overcoming administrative procedures for incoming and open calls for proposals.
- Integrate the green transition and the local identity into a common narrative. Promote the narrative via the communication channels used by young people.





3. PROJECT PIPELINES

We developed 35 project fiches (see Annex 2) altogether for the 6 JUSTEM regions. A summary of the projects is presented in the below table:






Table 1: Project pipelines for the 6 JUSTEM coal regions in transition






Country	Project title	Description & Estimated budget	Expected results
 (BG)	Support for the energy renovation of multifamily residential buildings	The goal is to improve buildings energy performance, improve living conditions and fight energy poverty. Key activities: selection of buildings, development of documentation, support for application, selection of contractors, implementation of renovations and evaluation of results. Budget: ca. EUR 336.15 mln. (13,500 apartments)	<ul style="list-style-type: none"> • Energy savings: 14.9 GWh/y • GHG emission savings: 97.7 ktCO₂ eq./y • Improved building management & maintenance • Employment opportunities.
	Battery Recycling Facility	The project focuses on the growing need for recycling of batteries, driven by the rapid expansion of photovoltaic parks, the rise of electric vehicles and the increasing use of batteries in appliances, by establishing recycling facilities. Budget for the first 2 years (investment and operation): EUR 1,180,000	<ul style="list-style-type: none"> • Long-term employment for 10+ people. • Provision of raw materials for battery production. • Limited release of hazardous chemicals and avoided extraction and processing of materials for new batteries. • Reduced costs for battery production
	Renewable heat supply in a multifamily building	The project involves collective action by residents of a high energy performance multifamily building (18 dwellings) to improve heating and hot water supply. It includes installation of a VRF, individual heat pumps for hot water, and a stand-alone photovoltaic system with battery storage. Estimated budget: ca. EUR 310,000	<p>Expected results 18 dwellings:</p> <ul style="list-style-type: none"> • Renewable energy production: 220 MWh/y • GHG emission savings: 17.5 tCO₂eq./y • Share of RES in heating and DHW production: 95%.
	Just Transition One Stop Shops	The project aims to establish "Just Transition One-Stop Shops" in Stara Zagora, Galabovo, and Radnevo. OSS will provide information on alternative employment, investment opportunities, participation in energy communities, etc. to help citizens participate in the transition. Budget for the first 2 year of operation: EUR 105,000	<ul style="list-style-type: none"> • Support those most affected while attracting investment to the region. • Enhance the credibility of local institutions • Energy savings: 2.5 GWh/y • Renewable energy production: 2.5 GWh/y





Country	Project title	Description & Estimated budget	Expected results
			<ul style="list-style-type: none"> GHG emission savings: 2.1 ktCO₂ eq./y
	Support for collective action for hot water and electricity in multifamily residential buildings	The project aims to motivate residents of energy-renovated multifamily buildings to take collective action for the installation of Building Integrated Renewable Energy Sources. Activities: development of procedures, selection of buildings, assisting homeowners with project applications, and choosing equipment installation companies. Budget: ca. EUR 92,000	<ul style="list-style-type: none"> PV energy production per building: 13.22 GWh/y GHG emission savings per building: 6412.5 tCO₂ eq./y Renewable energy for hot water in dwellings and for electricity in common areas; Decreased energy poverty; Increased capacity of residents to maintain and manage their buildings.
	Support for the deployment of smart energy meters in multifamily residential buildings	The project aims to support homeowners in multifamily residential buildings for the deployment of smart energy and water meters, aiming to promote behaviour change and reduce energy consumption, ultimately helping to alleviate energy poverty. Budget for an average multifamily building: ca. EUR 24,500 (equipment installation & maintenance for 10 years)	<ul style="list-style-type: none"> Estimated energy savings: 3.15 GWh/y per average building (16 apartments) Estimated GHG emission savings 1518.8 tCO₂ eq./y per average building
 (HR)	Energy renovation of family houses in Istrian County	The project aims to provide financial support for energy renovations to homeowners living in family houses with high energy consumption in the Istrian County area. Its goal is to alleviate energy poverty in regions most affected by the transition away from coal. Budget: EUR 25 mln.	<ul style="list-style-type: none"> Support to 3168 energy poor households 4752 new jobs 10.4 GWh/y primary energy savings 10.4 GWh/y renewable energy production
	200 solar roofs	The project will deal with the pressing problems of unemployment and economic recovery while contributing to the accelerated energy transition. The main goal is to map buildings, educate the population and install 200 solar roofs in the city of Labin (total approx. 1 MW) by 2028. Budget: EUR 1.5 mln for 2025-2028	<ul style="list-style-type: none"> 200 households taken out of energy poverty 200 new jobs 1.2 GWh renewable energy production 145 tCO₂ eq./y emission savings
	LA_BI(N)CI-KLETA	The project focuses on the development and expansion of the concept of	<ul style="list-style-type: none"> 20 new jobs




Country	Project title	Description & Estimated budget	Expected results
		"green and sustainable mobility" to encourage the inhabitants of the city of Labin to replace cars with bicycles and walking. Activities: prepare a study of bicycle pathways; literature on mobility & cycling; equip kindergartens with bicycles; arrange and construct bicycle pathways; introduce bike sharing. Budget: EUR 0.71 mln (2025-2027)	<ul style="list-style-type: none"> • 0.05 GWh primary energy savings
	LAB_IN LETRIKA	The main goal of the project is to introduce urban and suburban public transport lines in the City of Labin, offering a more accessible, cleaner and cost-effective transport option. The budget covers a charging station and garage for electric buses and purchase of 3 electric buses, 10 EVs for the city of Labin and city companies, 8 charging stations in parking lots. Budget: EUR 2.9 mln (2025-2028)	<ul style="list-style-type: none"> • 20 new jobs • 0.27 GWh renewable energy production • 0.27 GWh/y primary energy savings
	Establishment of Energy Communities in multifamily residential buildings in Istrian Region	Establishment of energy communities in multifamily residential buildings paired with PV installation to achieve energy savings, reduce GHG emissions, improve the living standard of households in Istrian Region affected by energy poverty, including alleviating energy poverty in areas most affected by the transition out from coal. Budget: EUR 0.16 mln	<ul style="list-style-type: none"> • 150 households taken out of energy poverty • 10 new jobs • 0.2 GWh/y primary energy savings • 0.2 GWh/y renewable energy production • 100 tCO₂ eq./y emission savings
	District heating in the town of Raša	The project features the construction of a district heating system powered by a geothermal heat pump (water-water or earth-water) in the town of Raša. The mini-DHS will connect two to three public or publicly owned residential buildings to a shared engine room. It will replace the previous coal-based technology with a renewable energy source, serving as a model for future installations in other areas. Budget: EUR 0.5 mln	<ul style="list-style-type: none"> • 8 households taken out of energy poverty • 5 new jobs • 0.06 GWh/y primary energy savings • 0.06 GWh/y renewable energy production • 1 tCO₂ eq./y emission savings
 (GR)	Re-opening the railway connection from Thessaloniki to	The goal of this project is connecting the main urban centres of Western Macedonia with Thessaloniki. The activities include assessing the current	<ul style="list-style-type: none"> • Estimated energy savings: 527,000 MWh/y • Estimated GHG emission savings: 89,000 tCO₂ eq./y

Country	Project title	Description & Estimated budget	Expected results
	prominent cities in W. Macedonia	status of the existing railway infrastructure in the region; restoring non-functional and unsafe sections of the railway network; restarting the railway itineraries from Edessa to Florina and from Amyntaio to Kozani. Budget: EUR 190 mln	
	Installing heat pumps in energy poor households	The purpose of this project is to install heat-pumps in selected 6,000 energy poor households to cover their energy needs in the absence of a cheap and efficient district heating system. Budget: EUR 27 mln	<ul style="list-style-type: none"> • Estimated energy savings: 41.8 GWh/y • Estimated GHG emission savings: 16.4 ktCO₂ eq./y
	Supporting clean electricity generation through energy community	This project aims to support energy communities install PV power plants to produce clean and affordable energy in the region of Western Macedonia, decreasing fossil fuels dependence and ensuring access to affordable energy for local citizens. Budget: EUR 20 mln. (30 MW plants, EUR 66,000 per community).	<ul style="list-style-type: none"> • Estimated renewable energy production: 46.5 GWh/y • Estimated GHG emission savings: 18.3 ktCO₂ eq./y
	Establishing a regional energy poverty observatory and advisory office in W. Macedonia	This project aims to create an office that will monitor the progression of energy poverty in the region and provide assistance to citizens on actions and tips to save energy, and also help them benefit from any national or regional initiatives aimed at alleviating energy poverty or financing energy efficiency investments.	<ul style="list-style-type: none"> • Energy savings from behavioural changes could trigger up to 20% energy reductions at the household level.
	Energy refurbishment of public schools	Improving the energy efficiency of 100 public schools in Western Macedonia, in order to reduce energy costs and improve the comfort conditions for students. Budget: EUR 10 mln	<ul style="list-style-type: none"> • Estimated energy savings: 5 GWh/y • Estimated GHG emission savings: 1.75 ktCO₂ eq./y
 (PL)	Advising the energy poor in the process of thermo-modernisation of buildings to reduce fuel and	This project aims to support energy-poor households to implement projects reducing energy demand for heating of buildings and eliminating fossil fuel sources. The activities include identification of energy-poor people	<ul style="list-style-type: none"> • Energy savings: 18 GWh/y • Energy production from renewable sources: 2 GWh/y • Reduction in GHG emissions: 4 ktCO₂eq./y

Country	Project title	Description & Estimated budget	Expected results
	energy consumption	and offering them “guided hand” support during the entire investment process. Budget: ca. EUR 0.4 mln	
	Re-skilling of employees working in the mining sector	The project aims to support re-skilling of current employees in the mining sector. The core activity is a review of the currently available offer related to the acquisition of new knowledge and competences in order to facilitate the finding of a new career path and to complement it. Budget: ca. EUR 0.19 mln	<ul style="list-style-type: none"> • Preparation and dissemination of information material to raise awareness of the need for re-skilling by gaining new competencies. • Training of at least 100 workers in the mining sector.
	Thermomodernisation of multifamily buildings	The project involves the thermal modernization of at least 400 multi-family buildings in Silesia by replacing inefficient heating systems, installing renewable energy sources and improving energy efficiency. Budget: ca. EUR 36 mln.	<ul style="list-style-type: none"> • Estimated energy savings: 28 GWh/y • Estimated energy production from renewable sources: 1.5 GWh/y • Reduction in greenhouse gas emissions: 14 ktCO₂eq./y
	Thermomodernisation of single-family buildings and elimination of coal-fired heat sources	The project includes selection of buildings and allocation of subsidies for thermomodernisation of at least 150,000 single-family buildings in Silesia, replacement of inefficient heat sources, installation of renewable energy technologies. Budget: ca. EUR 2,8 bln.	<ul style="list-style-type: none"> • Energy savings: 1755 GWh/y • Energy production from renewable sources: 120 GWh/y • Estimated reduction in greenhouse gas emissions: 710 ktCO₂eq./y
	Training for employees of social care centres	The project aims to increase knowledge of social care workers about possible ways to support families affected by energy poverty with the process of thermo-modernisation of buildings and changing heating methods. Budget: ca. EUR 84,000	<ul style="list-style-type: none"> • Training of 100 social workers • 500+ surveys and advisory services in the poorest households • Assistance in carrying out 20 investments related to thermal modernisation of residential buildings
	Increasing women's labour activity	The aim of the project is to activate professionally the women living in the Silesian Voivodeship through an information campaign, including meetings, trainings and career advisory services. Budget: ca. EUR 36,000	<ul style="list-style-type: none"> • Outreach to women through, among others, social media, NGOs and educational and childcare facilities

Country	Project title	Description & Estimated budget	Expected results
 (RO)	Thermal Insulation of a Residential Building in Jiu Valley, Hunedoara County	The project aims to improve energy efficiency in a 4-storey residential building in Jiu Valley through thermal insulation and related energy-saving measures. Estimated budget: EUR 0.12 mln	<ul style="list-style-type: none"> Improved energy efficiency of the building, reducing energy consumption for heating by up to 40%. Energy savings: 150 MWh/y. GHG emission reduction: 100 tCO₂ eq./y. Enhanced thermal comfort. Reduced heating costs.
	Roof Solar PV Installation for Residential Buildings in Vulnerable Communities	The purpose of the project is to reduce energy poverty and promote the use of renewable energy in vulnerable communities by installing roof solar PV on residential buildings. The project aims to decrease electricity costs, improve living standards, and contribute to energy transition goals. Estimated budget: EUR 0.5 mln	<ul style="list-style-type: none"> Estimated annual savings of 30-40% on electricity bills for participating households. Annual renewable energy production of 500 MWh. Estimated reduction of 400 tCO₂ eq./y GHG emissions Improved living standards
	Energy Efficiency Upgrades for Public Schools in Jiu Valley	The project aims to improve the energy efficiency of public schools in Jiu Valley by upgrading insulation, heating systems, and lighting. This project will contribute to a better learning environment, decrease the schools' carbon footprint, and promote energy efficiency awareness among students and the community. Estimated budget: EUR 0.4 mln	<ul style="list-style-type: none"> 0.75GWh/y final energy savings per school Thermal comfort and better lighting conditions Reduction of 232 tCO₂ eq./y GHG emissions. Reduced energy bills.
	Training Programs for Green Jobs in the Energy Sector	The project aims to reskill and upskill workers from coal-dependent industries for employment in the growing renewable energy sector. The project will provide vocational training in green energy technologies such as solar panel installation, wind turbine maintenance, and energy efficiency auditing. Estimated budget: EUR 0.35 mln	<ul style="list-style-type: none"> 300 workers trained and certified for employment in renewable energy and energy efficiency sectors.
	Heat Pump Systems for an Energy Community of Residential Buildings	The project aims to establish a shared, energy-efficient heating system using heat pumps for a community of residential buildings. By fostering the con-	<ul style="list-style-type: none"> Reduction in heating costs by 30-40% for residents. Renewable energy production of 200 MWh/y through solar panels.

Country	Project title	Description & Estimated budget	Expected results
		cept of an energy community, the project will enable collective ownership and benefit-sharing among residents. Estimated budget: EUR 0.8 mln	<ul style="list-style-type: none"> Reduction of 150 tCO₂ eq./y GHG emissions. Enhanced thermal comfort and reduced energy poverty for residents of 4-6 buildings.
	Circular economy in the valorisation of tailings - sustainable solutions for JT	The aims at the implementation of sustainable circular economy solutions for the valorisation of tailings, contributing to the just transition in the Jiu Valley by regenerating the environment and creating new economic and social opportunities. Estimated budget: EUR 2.5 mln	<ul style="list-style-type: none"> Energy savings: 400 GWh/y Production of renewable energy: 100 GWh/y GHG emission savings: 70 ktCO₂ eq./y
	Design and Manufacturing of Energy Storage Systems for Residential Photovoltaic Installations	The project aims to produce Energy Storage Systems (ESS) that represent a promising solution for storing renewable energy and enhancing energy efficiency in residential settings. LFP battery-based ESSs aim to be a locally designed and manufactured alternative within the EU, addressing all existing market shortcomings. Estimated budget: EUR 1.6 mln	<ul style="list-style-type: none"> Estimated energy savings: 50 GWh/y Emission reduction: 15.3 ktCO₂ eq./y
 (ES)	Understanding/ The Asturian coal transition narrative	The main objective of the project is to address the sense of injustice felt by the citizens most affected by the closure of coal mines and the phasing out of TTPs. It aims to understand and change the dominant narrative around the "green" and "just" transition in Asturias with a focus on mitigating its impact on vulnerable groups, especially youth. Budget: EUR 219,000	<ul style="list-style-type: none"> Understanding the narrative, key drivers and affections. Analyzing and quantifying consequences and impacts. Addressing drivers to mitigate negative affections, shifting from resentment to opportunities. Finding ways to measure feelings of injustice, fairness and territorial pride.
	Making visible and accompanying the blinded (energy) poverty by local communities	The project aims to uncover and bring to light the existing hidden poverty. The particular activities include analysis of the Asturian poverty framework, identification and analysis of gaps that contribute to hidden poverty, development of new indicators and mechanism for better estimation, design measures	<ul style="list-style-type: none"> 100 energy poor citizens supported Energy savings: 381 MWh/y Renewable energy production: 330 MWh/y GHG emission savings: 38 tCO₂eq/y

Country	Project title	Description & Estimated budget	Expected results
		and actions to uncover and support citizens living in hidden poverty, build capacity and engage citizens. Budget: EUR 326,400	
	Network of Local Desks acting as OSSs to prepare projects and overcome administrative procedures	This project aims to support municipalities, SMEs and local entities in the preparation, management and technical and financial justification of funded projects – covering everything from ideation and application for funding to project execution and reporting. Budget: EUR 282,000	<ul style="list-style-type: none"> • 20 local entities supported • Energy savings: 4.142 MWh/y • Renewable energy production: 771 MWh/y • GHG emission savings: 973 t CO₂/y
	JT Observatory, incl. energy poverty monitoring	This project is about monitoring and assessing the JT process in Asturias, specifically addressing the energy poverty analytics. JT observatory will identify and define the proper set of KPIs, data collection procedures, data analytics, and data visualization. Budget: EUR 428,600	<ul style="list-style-type: none"> • Increase the “energy poverty alleviation” initiatives proposed by citizens as indicator or incremental justice feeling in the society
	Youth 2 Youth (Y2Y) Communication Channels. Keep the ball rolling	This project aims at engaging young people in the JT process, especially in communication and dissemination activities. Involving youth will ensure the use of new technology and social media channels, also using their own “language” and communication patterns. Budget: EUR 276,000	<ul style="list-style-type: none"> • Increase the “green” initiatives proposed by young people as indicator or incremental justice feeling in the youth.

4. CONCLUSIONS AND NEXT STEPS

We have elaborated **over 60 policy recommendations** (42 of which included in policy briefs) at EU, national, regional, and local levels, as well as **35 project fiches** for national, regional, and local projects. All of them contribute to JT by placing citizens at the centre of the process. Many policies and projects are associated with multiple and large-scale impacts, such as mobilized investments, energy and emission savings, and new jobs.

There are four areas of action common to (almost) all regions:

- Energy efficiency, especially in buildings;
- Renewable energy, especially in buildings;
- Community empowerment and participation; and
- Social inclusion and employment.

In terms of both policy and projects, the main focus of our suggestions is the energy renovation of residential buildings – a measure with serious contribution to energy poverty alleviation, job creation, reduction of fossil fuel consumption, and positive environmental impact. Other common measures include support to energy communities, development of one-stop-shops, information campaigns, and reskilling. In most measures, special emphasis is placed on the vulnerable groups.

On the other hand, many recommendations are not shared, due to the specific situation in each region. For example, a railway reopening in Western Macedonia (Greece) is proposed to improve the poor transport connectivity, a new transition narrative is needed in Asturias (Spain) to replace the existing dominant one, and a battery recycling facility is suggested for Stara Zagora (Bulgaria) in relation to the expected large-scale increase of battery production and use.

Our policy recommendations have been widely communicated to relevant policy makers and have been taken into account when updating key documents, such as National Energy and Climate Plans (NECPs), JT Fund programmes, and local and regional strategies. Similarly, the large-scale promotion of the project pipelines is expected to contribute to their adoption by both the potential developers and managing authorities. To ensure sustainability, coal regions would benefit from continuous monitoring and updating of policies and projects; JUSTEM has also taken a step in this direction.

It is necessary to continue the dissemination of our policy and project proposals beyond the end of JUSTEM, both within the 6 pilot regions and in other similar coal regions, in order to fully exploit their potential.

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