



ACTION PLAN

DeCarb – Supporting the clean energy transition of coal-intensive EU regions



DeCarb
Interreg Europe



STARA ZAGORA REGIONAL ECONOMIC DEVELOPMENT AGENCY
BULGARIA

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* The content of this document is based on collected useful experience and good practices from the Stara Zagora Economic Development Agency as Lead Partner in the DeCarb project co-funded by INTERREG Europe. The proposals have been identified as good practices from other partner countries and regions in the project and based on the needs of the coal regions in Bulgaria.

I. General information and background

1.1. General Information

Project	DeCarb – Supporting the clean energy transition of coal-intensive EU regions
Partner organisation	Stara Zagora Regional Economic Development Agency
Other partner organisations involved (if relevant)	N/A
Country	Bulgaria
NUTS2 region	BG34 Southeastern Region (Yugoiztochen)
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II. Background

Stara Zagora is the sixth-largest city in Bulgaria, and the administrative capital of the homonymous Stara Zagora Region. The region is situated in the South-central part of Bulgaria (see Figure 1). Stara Zagora is the administrative centre of Stara Zagora District, part of Yugoiztochen Planning Region. The Yugoiztochen Planning Regions includes total of 4 districts – Stara Zagora, Burgas, Yambol and Sliven. Stara Zagora, the center of Stara Zagora district is situated about 231 kilometres (144 mi) from Sofia, in the historic region of Thrace.



The city is in an area of a transitional continental climate with a considerable subtropical influence. The average yearly temperature is about 13 °C. The Region covers 11 municipalities.



Figure 1 Yugoiztochen (Southeast) Planning Region and Stara Zagora District

By population, the district of Stara Zagora ranks fifth among the other districts in Bulgaria - 333265 people. This is 4.5% of the country's population.

The district of Stara Zagora shows stable growth in the economic sector. Between 2007 and 2017, gross regional value added in the region increased by a record 113%, employment increased by nearly 10 points to 70.1% amid minimal unemployment, and average wages of BGN 1,021 came second only to the capital city of Sofia. In 2017, GDP per capita reached BGN 17.6 thousand - second in the country (after BGN 30.3 thousand for Sofia), registering an 8% growth compared to the previous year.

Stara Zagora, in a nutshell, is the champion of Bulgaria in growth and is in the top 3 of the best places to live in the country.

Stara Zagora district - the energy heart of Bulgaria

Good economic performance comes at a certain price - the area is strongly focused on industry and energy is a leading sector. At the same time, Stara Zagora is home to a fast-growing industry with large representatives of the mechanical engineering, food and electronics industries in the country, and the newly established Zagore economic zone has the potential to attract more investors and create new jobs.

In the last ten years, the economy of Stara Zagora has shifted its focus towards industry, whose share in value added has increased by 14 points to 65.6% of the total. The key factor for this is the launch of the two US owned coal plants - ContourGlobal Maritza Iztok 3 (2009) and AES Galabovo (2011). Together with the state-owned Maritza-Iztok 2, Brickel and Bulgaria's largest coal mining company Mini Maritza-Iztok, they generated revenues of almost 2.5 billion BGN in 2017 alone. The Maritza-Iztok energy complex employs a total of 30,000 people, and together with the accompanying services, there are twice as many employees.

This sector also is responsible for the high wages in the region, which continue to rise in parallel with the average for Bulgaria. While gross wages in the district increased by 8.9% compared to the previous year and reached BGN 1021, in the energy sector salaries reached BGN 2298 in 2017. The mining industry in Stara Zagora also offers competitively priced remuneration for the country - an average of BGN 1019, which puts the district in fourth place after Sofia (city and district) and the port of Varna.

In terms of economic growth, the last ten years have been very good for Stara Zagora. However, the next 10 will be key years and very difficult ones. By 2030, there will be major changes in the energy sector of the EU Member States. This will affect the country and the region significantly. According to the regulations, Bulgaria may use emission quotes, but eventually the cost of these quotes will become six times higher, thus making electricity generation from coal into unprofitable activity. The current situation is that the quotas have started to rise significantly even now, which questions the survival of the Energy complex Maritza Iztok altogether and will be followed by a serious economic and demographic crisis.

Therefore, early planning is very crucial for the Region to cope with the challenges of the clean energy and coal phasing out. The clean coal opportunities are identified to be the first step along the long and rough path of decarbonization, mitigating the consequences this will have on the economics of the region, country, and the entire energy sector of Bulgaria.

Stara Zagora coal sector – overview

Yugoiztochen Region is situated in the south-eastern part of Bulgaria with Stara Zagora being the administrative center of Stara Zagora District, part of the region. The region is often referred to as “The Energy Heart” of Bulgaria. The region hosts a coal mine and 3 (three) big coal power plants that produce electricity, and one combined thermal and electric coal power plant.

They are forming the Maritsa Iztok Energy Complex. The Maritsa Iztok Energy Complex is the biggest energy complex in South-East Europe with significant importance not only on regional but also on national level. The complex is in a large lignite coal basin, which includes several mines, enrichment plants, a briquette plant and possesses its own railway system.

Coal mine sites in the region	Coal-fired power plants	Coal-fired power plants	Coal-fired power plants	Coal-fired power plants
Type of coal: Lignite - Mine type: Open-pit mining - Production (Mt): 30,34 - Years of operation: 68	Maritsa Iztok 1 (AES Galabovo Power Plant) – international company - Type of coal: lignite - Capacity (MW): 670 - Years of operation: 57	Maritsa Iztok 2 (national company) Type of coal: lignite - Capacity (MW): 1586 - Efficiency (%) 90 - Years of operation: 53	Maritsa Iztok 3 (Contour Global) – international company - Type of coal: lignite - Capacity (MW): 908 - Efficiency (%) 90 - Years of operation: 41	Brikel Jsc. (national private company) - Type of coal: lignite - Capacity (MW): 120 - Years of operation: 59

Energy Statistics

Primary energy production in the country satisfies around 50% of the gross domestic energy consumption with relatively unchanging structure in recent years and in dynamics stemming from consumption.

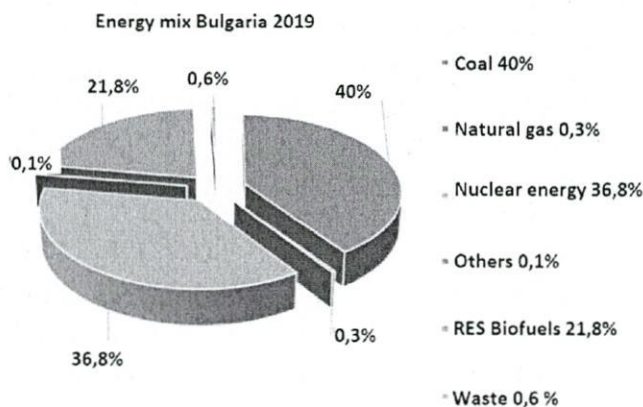


Figure 2 Primary Energy Production Structure (2019) General Data (source: ME, Bulgaria)

The current policies and measures in the energy sector of the country can be summarized in the following priority axes: efficient use of local energy resources, increasing interconnection, increasing the flexibility of the national energy system. Bulgaria is taking into account the heavy dependence on coal for electricity production and for the expected great impact on the economic and social sector on Regional and National level and currently gravitates towards full use of the existing local coal capacities in the country, respecting the environmental requirements and providing a source of electricity for the next 60 years. The use of local coal reserves has a future as a stabilizing source of energy. Locals using indigenous coal provide about 48% of the electricity generation and are the guarantor of Bulgaria's energy security and the competitiveness of the Bulgarian economy. These 3 Coal Power Plants, situated in the Region of Stara Zagora are highly important power generation capacities for the Bulgarian power system and are the main provider of balancing services for the system, which is why they are a major factor for the country's electricity security. This determines the role of indigenous coal as a strategic energy resource in terms of the country's energy and national security.

II. Action Plan Drafting process

2.1. Information about DeCarb Project



DeCarb project is funded by the Interreg Europe Programme, 3rd call for projects. It falls under the topic “Low carbon Economy”. The project targets a very present and challenging topic – the decarbonization in coal regions and transition to low carbon economy with perspective towards social and economic aspect. The project allows coal regions, along with RES regions to exchange good practices and inspiration to affect the targeted policy instruments to boost and speed up the decarbonization process.

The low-carbon energy shift of EU economies will have a profound economic & social impact on regions extensively involved in coal value chains. It is however acknowledged that this transition needs to be fair; EC’s “Clean Energy For All Europeans” package was set in place to speed the clean energy transition and growth & job creation. To this end, DeCarb will support public authorities to initiate efforts, join forces, and exchange experiences to a) identify growth strategies to mitigate the impact of decarbonization, b) make the most of EU funds & financing tools, and c) promote public dialogue on conflicting interests.

DeCarb project consortium consists of 9 partners from 9 European regions, with SZREDA being the Lead partner for the consortium. The consortium is built in a manner to allow maximum exchange of experience and regional impact of project implementation. The partnering regions (countries) are as follows:



Stara Zagora Regional Economic
Development Agency (BG)



Lodzkie Region (PL)



Eszak-Alfold Regional Energy Agency
 Nonprofit Ltd. (HU)



South-West Oltenia Regional Development
 Agency (RO)



Ministry for Economic Affairs and Energy,
 State of Brandenburg (DE)



House of Energy (DK)



Regional Association of Local Governments
 of Western Macedonia (GR)



Energy Agency of Savinjska, Saleska and
 Koroska Region (SI)



Extremadura Energy Agency (ES)

In the context of the Green Deal and the Fit 55, DeCarb project and respectively the Action Plans, elaborated by the project partners are becoming a very important tool to prepare the regions for the just transition and the long process of decarbonization.

SZREDA started the DeCarb project back in 2018 with close to zero knowledge on the Eu policies for decarbonization at the local and regional levels.

The project Activities slowly but surely changed the mindset of the policymakers and laid the foundation for decarbonization policies in the coal region of Stara Zagora.

DeCarb project allowed the coal region Stara Zagora Regional Economic Development Agency to establish long-term relations with Horizon 2020 projects TRACER and Green DC, and also with EUKI project Forum of Mayors and WWF Bulgaria.

The Agency has actively participated in the drafting of the Territorial Just Transition Plan for Stara Zagora Coal Region now being prepared and sent to the European Commission for feedback.

To achieve the project objective, every partner contributed with its expertise and best practices from the partnering regions to bring the knowledge on green energy and decarbonization closer.

Through Interregional Workshops and Study visits and Good Practices database, the partners gathered immense knowledge, transferable among the partners.

2.2. About this Action Plan

What is an Action Plan in terms of the Interreg Europe Programme?

Action Plan is a document providing details on how the lessons learned from the cooperation will be implemented to improve the policy instrument that is addressed within the region. It specified the nature of the actions to be implemented, their timeframe, the players involved, the costs (if any), and funding sources (if any).

This Action Plan gives direct recommendations for measures that will significantly boost decarbonization and mitigate its social and economic impact. The identified policies should be targeted and accordingly support the dissemination of innovative solutions on decarbonization and economic and social mitigation along with new green policy approaches and models that would lead to the long-term goal of carbon neutrality.

The current Action Plan consists of the detailed description of 2 key actions and guidance for their practical integration to the policy instrument addressed.

The Action Plan aims to impact:

- Investment for Growth and Jobs programme
- European Territorial Cooperation programme
- Other regional development policy instrument

2.3. Action Plan Summary

In this Action Plan Stara Zagora Regional Economic Development Agency presents a package of actions to address decarbonization, with a focus on economic and social impact mitigation. The Action Plan is developed under the DeCarb Project, funded by Interreg Europe.

All project activities were focused towards decarbonization and mitigation of the negative impact this process would have on the economic and social life in the coal regions. Special focus of the Action Plan is given to the added value for entrepreneurs and increasing consumer satisfaction with the consulting system in each region. DeCarb will create change by changing rules and policies in favor of decarbonization and the progress of the regional economy.

Recommendations in this action plan are based on the following project activities performed during Phase 1 of project's duration (1/06/2018 – 31/05/2021):

Interregional exchange of experience

3 Kick off meeting – Stara Zagora, Bulgaria, 2018

Hosted by LP, first meeting was an introduction in the project implementation: presentation of the coal regions and energy mixes of the participating regions, partners' projects. Work plan and next steps.

Interregional workshop on the large-scale introduction of renewables in partners' energy mixes (A3.1)

Hosted by partners from AGENEX, Extremadura, Spain. An input paper on Large Scale Renewables and Solar power in the energy mix was provided and is available on the project's website: <https://www.interregeurope.eu/decarb/library/>

Study visit on land restoration in partners' territories (A3.2)

Hosted by Cottbus, Brandenburg, Germany in November 2019. An input paper on Land restoration was provided and is available on the project's website: <https://www.interregeurope.eu/decarb/library/>

Interregional workshop on labour re-skilling needs in economies affected by decarbonisation (A3.3)

Hosted by Aalborg, Denmark and carried out in September 2021, after being organized in 2020, but canceled in the last minute due to COVID-19 lockdown announced in March 2020 all around Europe. An input paper was provided and is available on the project's website: <https://www.interregeurope.eu/decarb/library/>

Study visits on the potential of "cleaner coal" and Carbon Capture and Storage technologies (A3.4)

2 online study visits hosted by KSENA, Slovenia and ENEREA Hungary in September/October 2020. COVID-19 situation did not allow organizing an on-site meeting, therefore the partners organized the visits online. An input paper was provided and is available on the project's website: <https://www.interregeurope.eu/decarb/library/>

Stakeholders' meetings

Six (6) Stakeholders Meetings were carried out in the duration of the project implementation.

1st Stakeholders' meeting – conducted on 23.11.2018 aiming to identify all stakeholders to work on the project and how they shall contribute to the project's Action Plan.

2nd Stakeholders' meeting – conducted on 31.05.2019 with main topic the low-carbon economy transition to be carried out in the region and how this process should be fair and just, especially concerning the social aspect – labor reskilling, economic diversification, clean cola alternatives and RES.

3rd Stakeholders' meeting – conducted on 28.02.2020 – Just transition Green Deal and how it will affect the project implementation and the Action plan to be developed.

4th Stakeholders' meeting – conducted on 2.07.2020 in partnership with TRACER Horizon2020 project with main topic discussion of the Action Plan and its actions.

5th Stakeholders' meeting – conducted on 20.11.2020 with main topic discussion of the Action Plan and its actions.

6th Stakeholders' meeting – conducted on 11.02.2021 with main topic territorial plans for just transition and how they link and build on DeCarb project and the Action Plan.

Main stakeholders' groups:

- Local and Regional Authorities;
- Energy and climate experts;
- NGO representatives;
- Maritsa East Energy complex representatives;
- Trade Unions representatives;
- Business and employment organizations;
- Academia;

More than 70 people were able to increase their capacity, related to decarbonization and mitigation of the decarbonization consequences on social and economic development of the coal region.

In addition to being the essential part of the Stakeholders' meetings and brainstorm on the Action Plan, the selected stakeholders were able to attend the Interregional workshops and Study visits to further increase their capacity. Stakeholders were actively included in the process of project implementation by providing also information on good practices to be submitted to the Interreg Europe platform.

Good practices

During the Interregional workshops, Study visits, Stakeholders' meetings and one on one communication between stakeholders and project team numerous good practices were identified and submitted to the Interreg Europe Programme.

More than 25 good practices were identified so far. These good practices serve as a foundation of the present Action Plan and the Action Plans developed by the rest of the Partners.

List of Good Practices

<https://www.interregeurope.eu/decarb/good-practices/>

<u>Promoting a level of regional awareness on the importance of sustainable mobility, Slovenia</u>	<u>SAŠA Business Incubator - one of the most active and successful Slovenian business incubators, Slovenia</u>
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<u>New municipal office for regional restructuring and economic development, Slovenia</u>	<u>Green Hub Denmark – A Public-Private Partnership as Key Driver for Decarbonising North Denmark</u>
<u>Increased Business between Green European SMEs through Green Living Labs with Public Challenges</u>	<u>Green Transition in Danish SMEs through Low Carbon Business Models and Financial Implementation Aid</u>
<u>Revitalization of the degraded areas along the local lakes related to the coal-mining activity</u>	<u>Public letter, about the views of the local authorities on the conditions for the just transition</u>
<u>MinGenTec – Mining and Generation Technology – Made in Germany</u>	<u>Innovative energy conservation technology at coal-fired power plants</u>
<u>Bełchatów - Recultivation of open cast mining</u>	<u>Competence Centre on climate change mitigation in energy-intensive industries (KEI)</u>
<u>Institute for low-CO2 industrial processes</u>	<u>Frauenhofer Institute for Geothermal Energy and Energy Infrastructure</u>
<u>Regional strategy towards a green and circular economy for Extremadura by 2030</u>	<u>Energy-saving system in the kindergarten in Rogów</u>
<u>Geothermal energy as a key factor of development of the City of Uniejów</u>	<u>National Law to promote electric self-consumption</u>
<u>Public Support Scheme to finance RE</u>	<u>Using geothermal energy to heat the City of Uniejów</u>
<u>Renewable energy sources in the Regional Fund for Environmental Protection and Water Management</u>	<u>Ecological heating appliances for families in Stara Zagora to improve air quality</u>
<u>Investment in energy efficiency measures in Trakiya University, Stara Zagora, Bulgaria</u>	<u>Production of smokeless stoves by Bulgarian startup</u>
<u>Promoting hydrogen-based transportation among the public</u>	

III. Policy context

3.1. Strategic documents

Name of the policy instruments addressed in the Action Plan

Regional Plan for Development of South-Eastern Regions 2021 - 2027, Programme" Regional development 2021-2027

Originally planned Policy Instrument to be influenced by the DeCarb project is Regional Plan for Development of South-Eastern Regions 2021 – 2027, through The Operational Programme (OP) "Regions in Growth" 2014-2020 comprises 6 Thematic Objectives (TOs), aiming to realize at regional level the National Regional Development Strategy (NRDS) 2012-2022, covering all six NUTS 2 level areas in Bulgaria. The OP places a strong emphasis on energy efficiency and environmental protection, putting in place an integrated approach for sustainable development (mostly urban) and increased cohesion. The shift towards a low-carbon economy is addressed by TO4.

DeCarb was envisioned to address:

Thematic Objective 4: Supporting the shift towards a low-carbon economy in all sectors

Investment Priority 4c - Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector

Reasons for improvement

The OP pursues increased energy efficiency and share of renewables in the energy mix (NRDS sets the target at 16%), to support growth & development; it does not however address two crucial emerging issues:

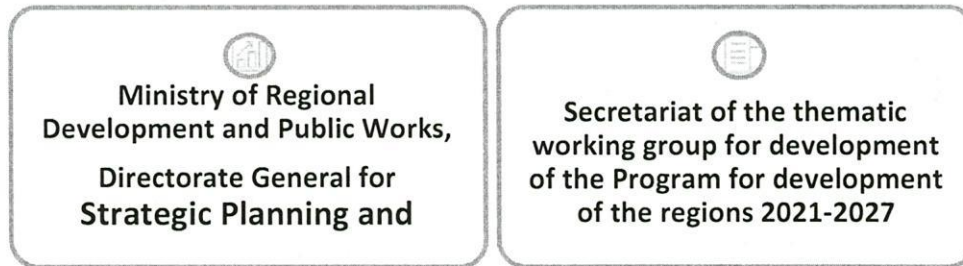
- For at least half the country, coal/lignite activities are a very strong component of regional economies; the phasing out of coal (prescribed by the Clean Energy for All Europeans package) will have profound impact on development & cohesion progress
- Technical and operational expertise on renewables is still low, hampering the transition of the workforce towards the clean energy sector

With the progress of the DeCarb project the programme period of the Policy Instrument originally targeted (2014 – 2020) had to be changed to the next programme period: 2021 – 2027. The end of the programme period 2014 – 2020 left no funds available to be redirected to Actions under the current Action Plan. COVID-19 also led to reallocation of the last available funds under the Operational Programmes towards measures to mitigate the negative impact of COVID-19 to SMEs.

Moreover, with the introduction of the Green Deal and national strategic documents such as Recovery and Resilience Plans and Energy and Climate Plans it was obvious that the Actions proposed in the Action Plan should address the Policy instrument for the new programme period.

Ways to improve the policy instrument

The following organizations have been identified within the project as stakeholders relevant and able to influence the operational program at national level:



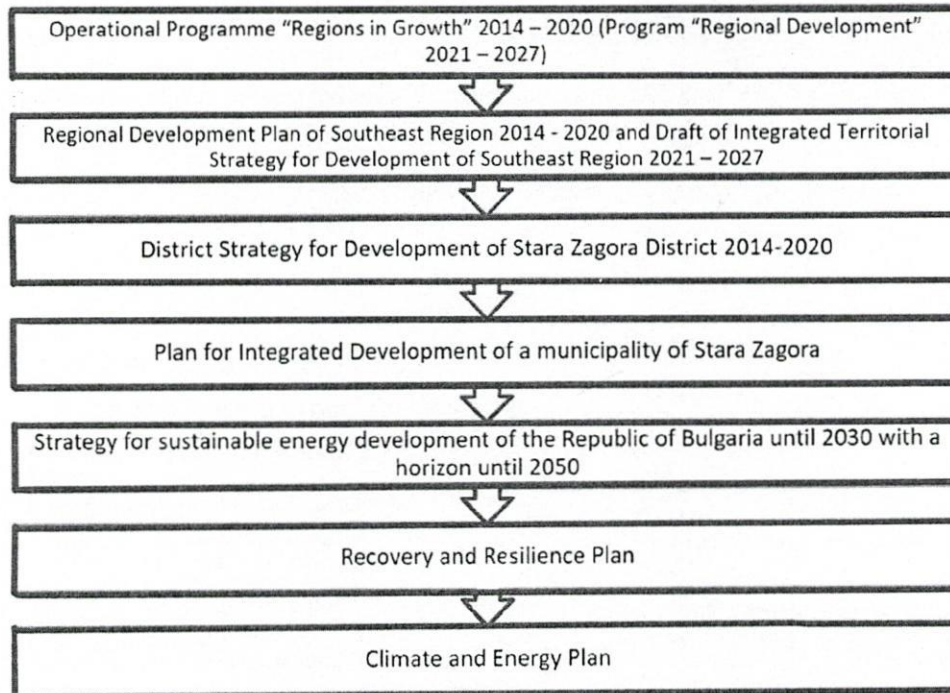
The stakeholder group in the first phase of the project took an active part in the policy study process in the different regions, through field visits, seminars, studies and partner meetings. Stakeholder representatives also participated in discussions, evaluation of the conclusions and lessons learned from the on-site visits, receiving and analyzing feedback from companies regarding the operational program.

The main role of stakeholders was to participate in the process of drafting an Action Plan to improve the operational program, as a tool for implementing policies to encourage start-ups. The policy will be improved based on the good practices identified and shared during the project implementation and interregional cooperation. The main approach, identified during the exchange of experience was to find the most fitting actions that could also be transferred to the identified Policy instruments. It was crucial to be able to obtain enough information for the provisioned actions from the region sharing the good practice.

The Action plan is designed to find solutions in energy efficiency for public, private and industrial buildings, land restoration as a crucial part of the development of post/mining regions and ensure lands are suitable for diverse economic activities. Last but not least one very important conclusion was drawn after researching the strategic documents present on local, regional and national level / the need of specific measures to focus on the emerging of the energy citizenship (energy communities).

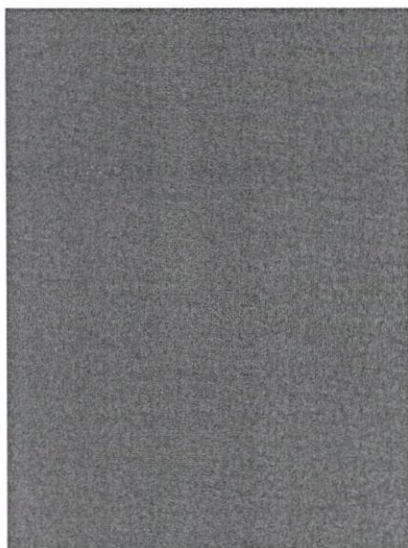
Strategic documents

To conduct a comprehensive analysis and present extensive, realistic and adequate actions, the work on this Action Plan includes detailed research that includes as a basis the following strategic documents:



IV. Details of the key actions envisaged.

4.1. Key Action 1:	Energy efficiency based on RES and energy storage in public buildings in Stara Zagora Region
Context of the proposal	<p>This action comes directly from the OP Regions in Growth 2014 – 2020 and mainly Investment Priority 4c – the need to support energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings in the new period of Programme" Regional development 2021-2027. Such action shall be also in compliance with Directive 2018/844.</p> <p>Identifying energy efficiency in public as a key action in the current Action plan is due to several factors. Increasing energy efficiency in Bulgaria is an extremely important step toward decarbonisation of the region. Analyses show extremely unfavorable energy performance of the building stock in Bulgaria - both public and private buildings.</p> <p>In Bulgaria there was already a very well implemented campaign on energy efficiency of households' buildings, with around 250 residential buildings being renovated. Nevertheless, the focus on the public buildings was not enough on the previous programme period. The analysis show that more concrete</p>



The existing programming tools have tried to tackle energy efficiency in the previous programming period, but mostly focusing on industrial energy efficiency by purchasing new equipment (via OP Competitiveness 2014 - 2020) and also starting the refurbishment of the household buildings (via OP Regions in Growth 2014 - 2020). The energy efficiency of public buildings as of the first draft of the new Programme Regional development 2021 – 2027 is mainly focused on replacement of heating and cooling systems with newer equipment. These measures do not tackle the role of RES and energy storage and the importance they have on the energy efficiency of the future which makes the current action very much needed.

The proposed 3 component action will be focused on:

- RES and energy storage in public building.
- Energy saving measures;
- Charging stations, smart grids/digitalization of grids;

Relevance to the project

The significance of the measure for energy efficiency in terms of RES and energy storage was pointed out and demanded by stakeholders as part of the Stakeholder group meetings - public authorities, businesses and civic organizations. The importance of the introduction of this 3-component action in Bulgaria in the new context was also confirmed in the course of DeCarb project with two good practices. Energy-saving system in the kindergarten in Rogów, Poland presents the idea for passive kindergarten as the latest generation of energy-saving buildings. A good example is also identified in Stara Zagora, Bulgaria with Investment in energy efficiency measures in Trakiya University. A package of energy saving measures was undertaken at the university, in order to turn its building into a modern, sustainable and eco-friendly complex.

Why is this Key action needed?

The public building sector in Bulgaria is characterized by high energy intensity, as 93% of the building stock in the country does not meet the requirements for energy efficiency. Moreover, according to the review of non-renovated residential buildings by energy performance and energy consumption, 90% of non-refurbished buildings are characterized by the worst energy performance.

The RES and energy storage concept when tackling energy efficiency of public buildings in Stara Zagora region is very important. As of now the Energy efficiency and energy storage (including charging stations for electric vehicles and smart grids) has been foreseen in the latest draft version of Programme Regional development 2021 – 2027 but only as a statement that such actions should be planned based on bottoms-up approach – municipal strategies and development plans should focus of these topics and only then such actions will be implemented in

Key action proposal

Programme Regional Development 2021 – 2027 with concrete call and budget.

The bottom-up approach allows SZREDA, being a main regional structure, involved in the drafting of the municipal, regional and NUTS – 2 strategic documents to propose the Key action 1 to be included in all relevant local and regional strategic documents for it to reach the targeted Policy instrument.

It is here where the proposed Action 1 “Energy efficiency based on RES and energy storage in public buildings in Stara Zagora Region”, coming from DeCarb project shall significantly improve the targeted Policy Instrument.

The proposed action “Energy efficiency based on RES and energy storage in public buildings in Stara Zagora Region” will be focused on three main components as follows:

- RES and energy storage in public building.
- Energy saving measures;
- Charging stations, smart grids/digitalization of grids;

In the proposed Key Action it shall be foreseen that the applicant could select from one of the 3 components which to implement. However, when the funds are distributed bonus points/priority will be given to project proposals which target all components - RES and energy storage in public building, energy saving measures and charging stations and smart grids/digitalization of grids.

The proposed action targets Stara Zagora region and the public buildings on its territory, preferably a selected list of preselected applicants shall be included in the call for proposals, to ensure most direct impact of the Action.

The proposed action will have a direct impact on the decarbonization realizing at least 300 tones CO2 savings per annum. Having in mind that the heating/cooling of public buildings in Stara Zagora is heavily dependent on electricity/coming from coal/ and natural gas, the expected positive impact shall significantly speed up the process of decarbonization in the region and shall mark a pathway towards clean energy and low-carbon economy, since the proposed action can easily be modified and included in other Operational Programmes targeting energy efficiency in households and businesses.

The key action on “Energy efficiency based on RES and energy storage in public buildings in Stara Zagora Region” is proposed in accordance with the identified during DeCarb project needs of the country for introducing RES in energy diversification and decentralization, boosting energy savings, optimization of energy consumption and improving the energy performance of the public buildings in Stara Zagora region. It is aimed at setting the direction towards a low-carbon economy,

	<p>sustainable development and circular economy that the region of Stara Zagora has already engaged to follow, supporting the EU Green Deal.</p> <p>The importance of improving energy efficiency through RES and energy storage in Stara Zagora region is already recognized on a national level and included as a key objective in several national enactments. The measure is included in the Regional Development Plan of the Southeast Region for the period (2014 - 2020), confirming that energy efficiency and the introduction of new energy-saving technologies are important factors for achieving a competitive economy and environmental protection. The Strategy for Sustainable Energy Development of the Republic of Bulgaria until 2030 with a Horizon until 2050 Bulgaria identifies energy efficiency as a top priority and plans to achieve a reduction in primary energy consumption by 27.89% and a reduction in final energy consumption by 31.67%. Within pillar “Green Bulgaria” of the National Recovery and Resilience plan Bulgarian government sets a particular emphasis on energy efficiency and the need for facilitating and increasing the efficiency of investments in the energy efficiency of multifamily residential, industrial, and administrative buildings.</p> <p>All these strategic documents confirm the identified need for improving the energy efficiency of all kinds of buildings as a first step towards fulfilling the engagements set in the EU Green Deal. Thus, this key action is a cornerstone for the future energy development of Bulgaria and a decisive factor for improving Bulgaria’s economic and business environment.</p>
<p>Stakeholders involved</p>	<p>Local authorities, civic organizations, businesses, financial institutions/funds, administration representatives: Ministry of Energy, Ministry of Development and Public Works, the construction sector</p>
<p>Timeframe</p>	<p>2022 - ongoing</p>
<p>Costs</p>	<p>Stepping on the available information published in Long-term National Strategy for renovation of residential and non-residential buildings by 2050 the costs for renovation for non-residential buildings is estimated to be around 30 000 000 EUR per annum. Again, in the above quoted documents it is estimated that energy efficiency measures in non-residential buildings is estimated to be around 100 EUR per m2.</p> <p>At the time of the drafting of the Action Plan and based on the information obtain from official sources we shall propose the estimate of:</p> <ul style="list-style-type: none"> - 1,5 million EUR RES and energy storage in public building. - 1,5 million EUR for energy saving measures - 1,5 million EUR Charging stations, smart grids/digitalization of grids;

	<p>The costs for such actions are generally very substantial and the shown estimates should be considered as Phase 1 of such actions, to kick start the process of energy diversification, decentralization, and energy efficiency.</p> <p>Considering the investment situation and the changes regarding the use of the grant for projects in the field of EE, it is currently not possible to move from 100% grant financing to 100% financial credit. Considering the current economic situation, the state of the building stock, the consequences of the pandemic and energy poverty, in order for the action to have a significant contribution to the energy efficiency goals, it is necessary to continue grant support, up t 100% or 90% grant to 10% co-financing, with option to providing for combination with financial instruments. Project preparation measures (such as technical and energy audits) will be supported only by the grant, and for low-income earners a 100% grant is provided for all costs.</p>
<p>Funding</p>	<p>Programme “Regional Development” 2021-2027, National Recovery and Resilience Plan, Just Transition Fund</p>
<p>Expected Impact</p>	<p>Improved energy efficiency of the public buildings in Stara Zagora region will lead to lowering energy consumption, reducing emissions and air pollution. Energy efficiency, RES, energy storage and energy digitalization are considered a priority, given its importance for improving the region’ energy security by reducing dependence on energy imports, decreasing energy, creating more jobs, improving the air quality, reducing greenhouse gas emissions, and improving the quality of life of citizens. Saving energy is one of the fastest and most cost-effective ways to achieve the strategic goals of combating climate change, ensuring energy security and achieving sustainable economic and social development.</p>
<p>Next steps</p>	<ol style="list-style-type: none"> 1) SZREDA to Initiate meetings with responsible institutions and stakeholders on local and regional level, sending official letters with the proposed action to be included in the municipal and regional strategic documents. 2) SZREDA along with relevant stakeholders to define a specific framework, conditions for application and conditions of implementation of the Key Action and propose it to the managing authority of the Policy Instrument. 3) SZREDA to consult framework with stakeholders and policy makers as well as respective representatives from the managing authority of the Policy Instrument and follow up the process of inclusion of the action in the policy instrument;

KPI's	Number of buildings with increased energy efficiency, reduced energy consumption in megawatts; Saved CO2 emissions; installed RES capacity, installed charging stations, installed storage capacity;
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4.2. Key Action 2:	Post-mining land restoration in the Energy Complex Mini Maritsa East towards economic diversification
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Context of the proposal	<p>This action was identified to be applicable and transferable as a direct result from the study visit in Brandenburg Region, Germany by the Ministry for Economic Affairs and Energy of the State of Brandenburg on 6th - 7th November 2019, devoted to land restoration processes following the shutdown of coal driven activities in the region. Lusatia Region's experience clearly showed the great potential of recultivation and use of the mining landscape for economic diversification of the region. The recultivation technologies and reuse concepts from Lusatia can be a blueprint for other European coal regions, such as Stara Zagora Region.</p> <p>The Energy complex of Maritsa East in Stara Zagora region has an area of 240 sq. km of mining fields and power plants. As of now at least 100 sq. km can be used for industrial activities such as RES (solar and hydrogen) production, chemical plants, solar panels production etc. The only thing preventing the usage of this available land for economic diversification is the urgent need for land restoration.</p> <p>Bringing new investments into the region by providing land for new productions shall also have a very significant social impact by absorbing people dismissed from the mining complex and the coal power plants during the just transition.</p> <p>Therefore, land restoration to allow economic diversification of the Energy complex Maritsa East meets the very target of Decarb project by mitigating the social and economic impact of the decarbonization in Stara Zagora region.</p>
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Relevance to the project	<p>Along with the study visit in Brandenburg for land restoration, during the project implementation 2 good practices in support of the promotion of the idea for land restoration in Maritsa East energy complex to facilitate the economic diversification were recognized: <u>Revitalization of the degraded areas along the local lakes related to the coal-mining activity</u> in Vzhodna Slovenija and <u>Bełchatów - Recultivation of open cast mining</u>. The case of Slovenia shows the successful experience of the Šaleška lakes, which were created due to the sinkhole activities related to lignite mining, have been polluted for decades and are now being revitalized. What is more, the whole valley has become</p>
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Why is this Key action needed?

a great tourist attraction. The Polish example describes the reclamation of the Bełchatów opencast mine as the largest and the most spectacular reclamation project in the history of Poland.

The idea for land restoration of ex-mining lands in Maritsa East energy complex was raised multiple times during the stakeholders' meetings. It is also envisaged in Reform 10: Establishment of a state-owned enterprise "Conversion of coal regions" of Bulgaria's recovery and resilience plan. It states that state-owned enterprises will be provided with the existing land and facilities from coal or energy state-owned companies, together with the adjacent infrastructure and land for carrying out the reclamation activities.

The region of Stara Zagora, Bulgaria is often referred to as "The Energy Heart" of Bulgaria. The region hosts a coal mine and 3 (three) big coal power plants that produce electricity, and one combined thermal and electric coal power plant. They form the Maritsa Iztok Energy Complex - the biggest energy complex in South-East Europe with significant importance not only on regional but also on a national level. The complex is in a large lignite coal basin, which includes several mines, enrichment plants, a briquette plant and possesses its own railway system.

The 3 Coal Power Plants, situated in the Region of Stara Zagora are highly important power generation capacities for the Bulgarian power system and are the main provider of balancing services for the system, which is why they are a major factor for the country's electricity security. This determines the role of indigenous coal as a strategic energy resource in terms of the country's energy and national security.

With the announcement of the Green Deal and its ambition to be a carbon-neutral continent by 2050 it became clear that the end of the mining era is inevitable. Along with the many questions about the future of the Maritsa East mining complex in economic, social and environmental aspects, an important problem still remains unsolved, namely what will happen with the post-mining areas, amounting to more than 240 sq.km.

The respective Energy complex Mini Maritsa East area is already being identified by possible investors as a very suitable for RES production, hydrogen production and storage, energy storage, chemical industry, alternative soil fertilizers, testing areas A clear decision is expected on what would be the future of the abandoned mining areas that meets all applicable requirements to attract investment and ensure economic diversification of the region.

The land restoration and the optimal use of the post-mining areas could contribute to boosting of the local economy, tourism, environment, and standard of living. In addition the mine reclamation would create useful

	<p>landscapes in the region of Stara Zagora that meet a variety of goals ranging from the restoration of productive ecosystems to the creation of industrial and municipal resources.</p>
<p>Key action proposal</p>	<p>The proposed action is targeting 100 sq. km of the area in the Energy Complex Mini Maritsa East.</p> <p>The proposed action covers:</p> <ul style="list-style-type: none"> - Performing of land restoration measures - including targeted actions towards complex engineering, reclamation, agricultural, forestry, landscaping, and other activities aimed at restoring the disturbed by mining terrains in the region of Stara Zagora and transforming them in accordance with the ecological conditions and the landscape in the area to meet the requirement for industrial usage. <p>After performing all prescribed activities for a proper recultivation of post-mining areas, the territory of the energy complex can be transformed into a combination of the following activities, guaranteeing the economic diversification of the region:</p> <ul style="list-style-type: none"> - the construction of carbon-neutral industrial zones based on industrial symbiosis approach - the creation of a green hydrogen hub in support of the chemical industry. - RES production (solar, biomass etc); - Solar panels production; <p>All possible land usage mentioned above has been proposed by stakeholders during SHM carried out within DeCarb project. The proposed new industrial activities have already been marked with high priority for the region in the Recovery and resilience plan and included in the Territorial Just Transition plan for Stara Zagora.</p> <p>The land restoration is the crucial first step towards economic diversification of the region in the light of the decarbonization and just transition.</p>
<p>Stakeholders involved</p>	<p>Ministry of Energy, Ministry of Regional Development and Public Works, local and regional authorities in Stara Zagora Region, companies working in the Maritsa East, trade unions, academia, local and national NGOs engaged with the topic</p>
<p>Timeframe</p>	<p>2022 - onwards</p>



Costs	The estimated cost for this action is 3 million EUR for 100 sq. km land restoration
Funding	National Recovery and Resilience Plan, Just Transition Fund
Expected Impact	<p>The intensification of the restoration process can be beneficial in many ways:</p> <ul style="list-style-type: none"> - biodiversity and ecosystems protection - increase of employment - creation of economically and environmentally viable territories - economic and energy diversification - potential for development of RES on the restored territories - the field for the construction of modern industrial zones on the post-mining territories
Next steps	<ol style="list-style-type: none"> 1) SZREDA to Initiate meetings with responsible institutions and stakeholders on local and regional level, sending official letters with the proposed action to be included in the municipal and regional strategic documents. 2) SZREDA along with relevant stakeholders to define a specific framework, conditions for application and conditions of implementation of the Key Action and propose it to the managing authority of the targeted Policy Instrument.
KPI's	Square kilometers restored post-mining territories, number of attracted investors, number of new jobs

V. Validation

Date: 26 May 2022

Signature: [Handwritten Signature]

Stamp of the organization: [Circular Stamp]

Angelina Boneva, Acting Director
General SPPRD