

Regional Profile

Zasavje, Slovenia

Initiative for coal regions in transition

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Zasavje, Slovenia

GENERAL INFORMATION

Country: Slovenia

Region Name: Zasavje (Central Sava
Statistical Region)

Region NUTS2 code: SI01

Region NUTS3 code: SI015

Main urban centres in the region:

Hrastnik

Litija

Trbovlje

Zagorje ob Savi



Regional socio-economic profile

General description of the socio-economic profile of the region

Zasavje is Slovenia's smallest statistical region by surface area, covering only 485 square kilometers. It has the second smallest population of Slovenia's regions, with 57,204 residents as of early 2021¹. With a population density of 117 inhabitants per square kilometre, it was the third most densely populated region. This region, encompassing the municipalities of Trbovlje, Zagorje ob Savi, Hrastnik, and Litija, has a notable industrial heritage, particularly in coal mining in Trbovlje, Zagorje ob Savi, and Hrastnik, while Litija is more rural in character. Despite efforts to diversify, the region continues to face significant socio-economic challenges. According to the information from the Zasavje Regional development agency, Litija joined the Zasavje region in the financial perspective 2021-2027. Although Litija is not a mining municipality, it is statistically and developmentally part of the region, and therefore it needs to be included. The Regional Just Transition Plan distinguishes between the core impact area, which includes the municipalities of Zagorje ob Savi, Trbovlje, and Hrastnik, and the broader impact area, which includes Litija.

Economically, the Zasavje region lags behind the national average. In 2020, the GDP per capita was EUR 12,174, which is 45.4% lower than the national average, which is EUR 22,312, making it the lowest in Slovenia. There is a very high level of daily commuting out of the region to the capital, Ljubljana, and other economic hubs like Maribor, with 53.1% of the working population commuting outside the region. This significant outflow of workers, primarily to the more prosperous Osrednjeslovenska region, impacts the local GDP per capita as economic activities and incomes are generated elsewhere. In 2020, the GDP per capita in Slovenia varied significantly, ranging from 54.6% of the national average in the Zasavje region to 144.2% in the Osrednjeslovenska region. However, the region experienced above-average economic growth in 2019, indicating some progress. The average monthly gross earnings in 2021 were EUR 1,790, also below the national average by 9.1%.

Employment in Zasavje is characterized by a high rate of labour migration, with 53.1% of employed residents working outside the region. Despite the low local employment rate (52.2%), the unemployment rate, based on the Labour Force Survey (LFS), is relatively low at 4.1%, indicating that many residents find employment

opportunities elsewhere. The region's employment landscape is heavily influenced by its industrial past, with over a third of its gross value added coming from manufacturing, mining and quarrying, and other industries. CO2 emissions remain notable in the region primarily because of its main economic activities. The increased daily commuter traffic, where most employees travel to work in other Slovenian cities, contributes significantly to this high CO2 burden. Poor ventilation in certain basins exacerbates the issue, alongside the CO2-intensive production processes of key companies in the area, such as Steklarna Hrastnik – Special d.o.o., Steklarna Hrastnik – Vitrum d.o.o., IGM Zagorje, Komunala Trbovlje, and TKI Hrastnik.

Educational attainment in the Zasavje region is relatively low, with 25.1% of residents aged 15 and older having only basic education or less, and only 20.0% holding tertiary qualifications. This educational disparity contributes to economic challenges, as higher educational attainment is often linked to better job prospects and higher incomes.

Socially, the region faces significant issues, including the highest at-risk-of-poverty rate in Slovenia. Energy poverty is also a growing concern due to rising energy prices outpacing income growth. Demographically, the region is confronted with substantial challenges marked by population contraction due to declining birth rates and high out-migration, particularly among younger residents seeking better job opportunities in urban centers like Ljubljana and Maribor. The municipalities of Trbovlje, Zagorje ob Savi, and Hrastnik, which have an industrial heritage, experience economic stagnation and demographic decline as younger populations move away. Litija, which is more rural in character, also faces population decline and aging, although it benefits somewhat from its proximity to Ljubljana. This demographic shift has led to an aging population, with the average age in the region at 43.4 years, slightly below the national average of 44.5 years. The age structure is skewed, with a higher proportion of older residents, impacting the region's economic vitality and increasing the demand for healthcare and social services.

Despite the last coal mine and coal power plant having closed by 2015, the transition is incomplete, posing further economic and environmental challenges. Efforts are underway to decarbonize the economy and expand renewable energy sources, aligning with the EU's 2030 energy and climate targets. However, the region's slow annual growth rate (0.04% from 2011-2020) underscores the need for economic development and diversification and the creation of new, sustainable job opportunities.

1. <https://www.stat.si/StatWeb/en/News/Index/10690>

Regional coal+ industry profile			
Coal mining			
Type of coal (e.g. hard, lignite/brown, peat, oil shale)	Lignite		
Type of coal extraction (e.g. surface or deep mining)	Deep mining		
Number of operating coal mines	0		
Production of coal [Mt annual]	0	Year of prod. data:	
		2024	
Main coal mining enterprises			
Name	Ownership	Number of employees	Year of employee data
Trbovlje-Hrastnik Coal Mine –closed in 2015	Public	0	2024
Total level of employment in coal mining (in the region)		0	2024

Regional coal power plant profile		
Coal power plants		Year of data
Number of coal power plants	0 (Trbovlje Coal Power Plant closed in 2014)	2024
Installed capacity [MW]	0	2024
Share of coal in regional power generation mix [%]	0	2024
Main coal power plant operators		
Name	Ownership	Year of employee data
Trbovlje Coal Power Plant (closed in 2014)	Public	2024
Total level of employment in coal power plants (in the region)		0

Regional and local transition strategies and plans

Status and timeline of coal transition / phase-out

Phase-out in the Zasavje region has already occurred since all the coal mines and coal power plants were closed by 2015, which puts it ahead of the national phase-out ambition of 2033. Slovenia announced its 2033 national coal phase-out date in January 2022.

The exit from coal in the Zasavje region began in 1999 when a referendum did not support the construction of the third block of the Trbovlje Thermal Power Plant. The coal mine was closely linked to the power plant, relying on it for coal consumption. Consequently, following the referendum decision, the decision to close the mine was made. The

closure works in the mine started in 2005, with mining activities ceasing in 2013. In 2014, the Trbovlje Thermal Power Plant ceased operations. By 2020, all necessary closure and remediation works were completed. This marked the region's complete transition away from coal, putting Zasavje ahead of the national timeline for coal exit, which aims for a complete phase-out by 2033. The closure process involved comprehensive efforts, including retraining programs and redevelopment initiatives, to support the local workforce and promote sustainable economic activities in the region².

2. Zasavje Regional development agency

Current regional strategies and plans for transition

The primary objective of the **Slovenian Development Strategy 2030**³ is to provide a high quality of life for all through balanced economic, social and environmental development which takes into account the planet's limitations and creates conditions and opportunities for present and future generations.

The transition to a low-carbon circular economy is one of the priority development goals for the entire economy. Specifically, in the corresponding vision, digital excellence and the circular economy are mentioned as drivers of economic development. One of the activities planned to help achieve this vision is by promoting innovation, the use of design and information and communications technologies to develop new business models and products which use raw materials and energy more efficiently. In addition, adaptation to climate change is foreseen, by replacing fossil fuels through the promotion of EE and the use of RES in all areas of energy use, while harmonising interests in cross-cutting areas: water – food – energy – ecosystems.

The Slovenian Development Strategy 2030 was the basis for the drafting of **Slovenia's EU Cohesion Policy Programme 2021–2027**⁴. In order to achieve the objectives set out in the strategy, areas where main challenges have been identified and have been prioritised:

- fostering productivity growth, including the development of relevant skills, accelerating the transition to a low-carbon circular economy;
- strengthening the resilience of the healthcare system and the financial sustainability of social security systems;
- strengthening the development role of the state and its institutions

Under the second prioritised area, Slovenia will use the available Programme funding to achieve maximum impact on the supply of clean, accessible and secure energy, building regions and cities resilient to climate change. This was transposed to the programme's Priority 3: Green transformation for climate neutrality, that has seven (7) specific objectives:

1. Promoting energy efficiency and reducing greenhouse gas emissions
2. Promoting renewable energy in accordance with Renewable Energy Directive

3. Developing smart energy systems, grids and storage outside the Trans-European Energy Network
4. Promoting climate change adaptation and disaster risk prevention and resilience, taking into account eco-system based approaches
5. Promoting access to water and sustainable water management
6. Promoting the transition to a circular and resource-efficient economy
7. Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution

Finally, in the Programme, Just Transition Fund (JTF) investments are based on Annex D of the Country Report – Slovenia 2020 and the National Strategy for a Coal Exit and Restructuring of Coal Regions in line with Just Transition Principles. Two coal regions eligible under the Just Transition Fund have been identified, each having a different investment strategy, mentioned later in the Territorial Just Transition Plan (TJTP) of the Zasavje Region. Slovenia's Recovery and Resilience Facility plan⁵ (worth EUR 2.7 billion in grants and loans) covers 50 investment streams and 36 reforms (49% of the plan will support climate objectives and 20% of the plan will foster the digital transition). Within the context of green transition:

- The plan includes key reforms to unlock renewable energy potential and sustainable mobility, which are essential steps to decarbonise the energy, transport and building sector.
- The green transition is supported through investments of over EUR 229 million in renewable energy, energy efficiency and sustainable renovation of buildings, including schools.
- EUR 344 million will be invested into adaptation to climate measures, wastewater collection and provision of drinking water.
- With an investment of EUR 708 million, the plan supports sustainable mobility.
- The plan also includes reforms and investments of EUR 45 million to accelerate the transition to a circular economy.

Specifically, green transition plays a pivotal role in speeding up the transition to a low-carbon circular economy mentioned above as one of the priority Development goals. The plan also contributes to achieving the goals of the Integrated National Energy and Climate Plan of the Republic of Slovenia (NECP) and the commitments to achieve climate neutrality by 2050 by supporting reforms and investments in the following areas:

3. <https://www.gov.si/assets/ministrstva/MKRR/Strategija-razvoja-Slovenije-2030/Slovenian-Development-Strategy-2030.pdf>

4. https://evropskasredstva.si/app/uploads/2024/02/Program-EKP-2021-27_SI_Razlicica-4.2.2_1.12.2022-eng-celota.docx

5. <https://www.gov.si/assets/organi-y-sestavi/URS00/Dokumenti/Nacrt-za-okrevanje-in-odpornost/Nacrt-za-okrevanje-in-odpornost-julij-2021.zip>

- energy efficiency, the use of renewable energy sources and sustainable mobility,
- transition to circular business models,
- adapting to the inevitable consequences of climate change and improving public services in drinking water supply and wastewater discharge and treatment.

In addition, digital transformation of the economy and the public sector and public administration is crucial for Slovenia's long-term development and competitiveness. With the planned reforms and investments, the aim is to strengthen and modernise the digital infrastructure and support the development of advanced technological solutions and next-generation services.

Completing the circle of key development strategies and plans, the Slovenian Government adopted the **Slovenian Smart Specialisation Strategy (S5)**⁶, which identifies ten (10) priority areas where Slovenia achieves a critical mass of knowledge, capabilities and competences, thus possessing innovative potential for positioning on global markets; although all are relevant to just transition, three stand out, the first, stressing the importance of 'Smart buildings', the second highlighting the "Networks for transition to a circular economy" and the third pointing out the importance of "Factories of the future".

In accordance with EU legislation, on February 27 2020, the Government of the Republic of Slovenia adopted the comprehensive **National Energy and Climate Plan of the Republic of Slovenia (NEPN)**⁷, an action-strategic document for the period up to 2030 (with a view to 2040) that sets goals, policies and measures on five dimensions of the energy union (1. Decarbonisation, 2. energy efficiency, 3. energy security, 4. internal market, 5. research, innovation and competitiveness.)

The **National Strategy for Coal Exit and Restructuring of Coal Regions**⁸ – a long-term national strategy for the restructuring and development transition of the coal region – includes a timetable for a just transition for the early closure of the Velenje Coal Plant (PV) and the abandonment of the use of coal in Šoštanj Power Plant (TEŠ). In addition, a separate document was prepared targeting the specific regions, including a Regional plan for the Savinjska-Šaleška region, and a Regional plan for the Zasavje region.

There are separate goals for the Zasavje region, with the strategy defining 5 goals, of which the third (Diversified and resilient local economy) is oriented towards circular economy ('Spreading sustainable and circular business models and solutions at all levels and in all business segments, including alternative circular economy financing models such as alternative banking, time banks, local currencies and crowdfunding' - OC 3.3.) and digitalisation (Investments in the digitisation of the economy and Industry 4.0. - OC 3.7.).

As part of the **Territorial Just Transition Plan (TJTP) of the Zasavje Region**⁹, measures are envisaged in four key areas:

- 1. Decarbonisation of the region** - Investments will be directed to projects that contribute to the reduction of greenhouse gas emissions and encourage the creation of new green jobs and the development of skills in the sustainable use of energy.
- 2. Sustainable, flexible and diverse economic development** - The funds of the Just Transition Fund will support productive investments in the economy, investments in research, development and innovation, pilot and demonstration projects, and projects that promote the start-up ecosystem and the development of economic and business infrastructure.
- 3. Highly motivated and qualified residents** - Just transition measures will promote projects in the public education system and the field of the labor market. This means, among other things, the development of accessible education, with an emphasis on general and special competences, and a focus on continuous career guidance and training of unemployed persons.
- 4. Improving the transport connectivity of the region** between different regions and/or neighbouring regions

The foundation for all regional and local transition strategies and plans in the Zasavje region is the Regional Development Program for the Zasavje Region (RRP 2021-2027)¹⁰ and the Action Plan for Zasavje Coal Region in Transition (ONPP)¹¹. These comprehensive documents provide a strategic framework for the region's sustainable development and economic diversification following the coal phase-out.

6. <https://www.gov.si/assets/vladne-sluzbe/SVRK/Slovenska-strategija-trajnostne-pametne-specializacije-S5-marec2022.pdf>

7. https://energy.ec.europa.eu/system/files/2020-06/si_final_necp_main_en_0.pdf

8. https://climate-laws.org/documents/national-strategy-for-coal-mining-and-restructuring-in-accordance-with-the-principles-of-a-fair-transition_b8be?id=national-strategy-for-coal-mining-and-restructuring-in-accordance-with-the-principles-of-a-fair-transition_9018

9. <https://pravilni-prehod-zasavja.si/wp-content/uploads/2023/11/Obmocni-nact-pa-pravilni-prehod-Zasavja.pdf>

10. <https://www.rra-zasavje.si/en/regional-development/regional-development-program-of-the-zasavje-region-2021-2027/>

11. https://pravilni-prehod-zasavja.si/wp-content/uploads/2023/11/ap_zasavje_final_maj2021.pdf

Due to Slovenia's system of local self-governance, which lacks a regional level of political decision-making, municipalities have dispersed plans and strategies. Therefore, it is recommended not to list each municipal plan in the document. Instead, the focus should be on the overarching RRP 2021–2027, which consolidates and guides the regional transition efforts.

The RRP 2021–2027 addresses key areas:

- Economic diversification and innovation: Promoting new industries and innovation to replace the coal-based economy, with a focus on green technologies and digital transformation.
- Social support and inclusion: Providing support for former coal workers through retraining programs, educational opportunities, and social services to facilitate their integration into new employment sectors.
- Environmental sustainability: Enhancing environmental protection through initiatives such as renewable energy projects, energy efficiency measures, and sustainable land use practices.
- Infrastructure development: Upgrading infrastructure to support new economic activities and improve the quality of life for residents.
- Community and cultural development: Strengthening community ties and cultural assets to foster a vibrant and attractive region for residents and visitors alike.

By centering on the RRP 2021–2027, the Zasavje region aims to create a cohesive and comprehensive approach to its transition, addressing the economic, social, and environmental challenges posed by the coal phase-out while leveraging new opportunities for sustainable development.

The last goal includes the ever-present concepts of digitalisation (6.4. Digitisation) and circular economy (6.7 Strengthening the circular economy) by promoting pilot projects in the field of circular economy and by raising awareness among the inhabitants of the region about the principles of the circular economy and introducing the circular economy as a new business model in organisations.

Other local/municipal plans/strategies of relevance are¹²:

- Housing program of the Municipality of Trbovlje 2021–2026
- Analysis and directions of tourist activities in Trbovlje municipality
- Strategic plans in culture 2020–2025 (Trbovlje)

- Municipal development strategy for the period 2014–2022 (Trbovlje)
- Local energy concept (ZAGORJE OB SAVI and Trbovlje) (from 2012)

Principal actors in development and implementation of transition strategies and plans

At national level:

- **Ministry of Cohesion and Regional Development (Managing Authority):** coordinates and monitors the activities related to the implementation of the cohesion policy and reports to the government. It is responsible for the consistency of national development planning documents and the consistency of the national development planning documents with the development documents of the European Union and other international organisations. The Audit authority for the implementation of EU Funds is the **Ministry of Finance, Budget Supervision Office of the Republic of Slovenia**

At regional level:

- **Regional Development Agency (RDA) Zasavje:** carries out, in the public interest, tasks for the promotion of regional development and general development tasks at the regional level, with the aim of reducing the development gap of the region according to the Slovenian and European average, and also reducing development disparities within the region. RDA Zasavje carries out wider development tasks in the region, which include not only the achievement of objectives and priorities of the Regional Development Programme but also other measures and instruments that are necessary and essential for the development breakthrough of the region. RDA Zasavje along with regional structures establishes the conditions and elaborates key regional documents and so the basis for further development of the region in the current and future financial perspective.
- **Zasavje Just Transition Center:** in 2023, the Zasavje Regional Development Agency established the Zasavje Just Transition Center, for which it also obtained additional funds for technical assistance. The center is an information center, an entry point for all stakeholders in the restructuring of the region, and the main support structure in the implementation of just transition activities in the region. The purpose of the center is to carry out the following activities:

12. <https://www.trbovlje.si/>

- establishing local partnerships and networking for the needs of implementing projects or operations,
 - implementation of trainings and capacity building of project sponsors,
 - providing support in the preparation of projects (support in the development of project ideas, preparation of applications, investment documentation, etc.),
 - monitoring of project implementation and support in project management and recording of spatially and environmentally degraded areas (condition, optimal use, method and timeline of rehabilitation, etc.),
 - preparation of studies and analysis necessary for effective and timely implementation of the strategy and related programs, measures or projects.
- **Innovation and Development Institute of the University of Ljubljana (IRI UL):** is a research and development organisation that actively co-designs, creates and disseminates technological and societal solutions tailored to people and the environment. In line with their mission, they identify the needs of the economy, design and manage international research and development projects within the framework of EU programmes and support the implementation of project results into practice. In cooperation with industry, NGOs, government institutions and other non-academic actors, they create a bridge between university knowledge and the needs of society and the environment.

At the local level:

- Municipality Hrastnik
- Municipality Trbovlje
- Municipality Zagorje ob Savi
- Municipality Litija
- Museum of the Coal Industry of Slovenia
- Virtual mining museum
- Zasav Museum - Trbovlje
- Cement Plan Lafarge - Trbovlje

Key civil society organisations include:

- [Eko Krog](#): focusing on environmental protection, sustainability, and public health. Activities: advocacy against pollution, promoting renewable energy, and raising awareness about environmental issues.
- [Focus Association for Sustainable Development](#): focusing on sustainable development, climate change, and energy transition. Activities: promoting renewable energy, energy efficiency, and advocating for sustainable policies.

- [Youth Centre Trbovlje \(Mladinski Center Trbovlje\)](#): focusing on youth empowerment, education, and community development. Activities: Organising workshops, educational programs, and cultural events for young people in the region.

Regional and local transition projects and initiatives

Notable ongoing and recent transition-related initiatives and projects

- [Project SOIL](#) - The project started in July 2022 and will end in June 2025. Zasavje Regional Development Agency was invited to participate in the project, as the Zasavje region, as one of the European mining regions, was selected as one of the case studies. In the case study, they have presented the state of the soil in the region, the activities and factors that have affected the soil in the past, which are still affecting the soil today and will be important for the state of the soil in the future. With the help of external experts from the University of Ljubljana, who know the region and the topic of soil well, they prepared and presented the situation in the field of soil in the Zasavje region at the workshop.
- The [Regional scholarship scheme](#) is an instrument of the region that is based on a partnership between employers, the bearer of the regional scholarship scheme (RDA Zasavje) and the state (Ministry of Labour, Family, Social Affairs and equal opportunities). The scheme is implemented based on the Scholarship Act and the Regulation about the co-financing of personnel scholarships.
- Zasavje Regional Development Agency was participating as a project partner in the [Interreg project entitled H2greenFUTURE](#), together with the lead partner, the National Institute of Chemistry. The project involved four other partners from Slovenia and Austria and was implemented within the Interreg Slovenia-Austria program and aimed at solving the challenges of climate change through the development and integration of green hydrogen technologies.
- The project [Ambitiously above the challenges](#) is a model of entrepreneurial training, within the framework of which potential entrepreneurs develop and realize their entrepreneurial idea. This is achieved through a comprehensive 4-month program that includes entrepreneurial training, mentoring and providing all-round assistance to participants in realizing their business idea. The project will take place between year 2023 and 2028 and will include 106 participants from the Zasavje region.

- Regional development agency Zasavje, led by BICC Sandanski from Bulgaria, has been actively participating in the [CompoWIN - More Skilled Hands for Hi-Tech Production](#) project consortium since the beginning of November, where organisations from Croatia, Estonia, Germany, and Slovenia also participate. The project lasted from 1 November 2020 to 31 October 2022.
- The region is actively involved in the H2GreenFUTURE Project, which aims to lay the foundation for a cross-border innovation ecosystem for the development of hydrogen technologies by addressing and involving all key stakeholders from the quadruple helix. Alongside the implementation of the pilot project, it will demonstrate the importance of knowledge and skills, a stable legal and regulatory environment, and the need for technology transfer capacities to establish a low-carbon economy in Slovenia and Austria. The project envisions the integration of clean hydrogen technologies to decarbonise the region's energy-intensive industry and serves as a foundation for accelerating Zasavje's energy transition. Designed as an integrated hydrogen ecosystem, the project aims to connect various regional stakeholders to increase the self-sufficiency of renewable energy and create an environment conducive to developing new business models in energy markets. Zasavje is one of the European regions that effectively utilised technical assistance for the development of hydrogen projects through the PDA II regions (Clean Hydrogen Partnership) and successfully prepared a proposal to establish a small hydrogen valley in the region.
- With the establishment of a solar power plant on its roof, the Hrastnik Elementary School became the first example of cooperative community self-sufficiency from renewable energy sources in Slovenia. With a power of approximately 300 kW, the electricity will be supplied to 16 apartments from the surrounding residential blocks, Hrastnik Municipality, a school and a swimming pool, a small commercial space and the premises of two commercial companies. The project was created and implemented with the cooperation of the Green Hrastnik Energy Cooperative, Hrastnik Municipality, NGO Focus organisation and the company Kisik.
- The municipality of Hrastnik, received the largest solar power plant in Slovenia, built by HSE (The State Holding Slovenske Elektrotrane). The country's largest electricity producer has completed the three-megawatt Prapretno solar power plant, the largest in the country. That facility was built on rehabilitated land on the site of the former landfill of the decommissioned thermal power plant Trbovlje.

Notable planned transition-related initiatives and projects

For the successful implementation of the just transition and further sustainable development of Zasavje, [three strategic projects](#) will be key, which are also defined as such in the TJTP of the Zasavje Coal Region.

The first of them is the [Center for demonstrations and training in the field of carbon-free technologies](#), which will be established in cooperation with the Chemical Institute in the craft-industrial zone Kisovec. The first scientific-research center in Zasavje will receive EUR 30 million of investment, and it will boast more than 1,600 m² of laboratory space. Two independent laboratories will operate within the center - the Laboratory for development, preparation and testing of batteries and the Laboratory for reaction engineering of carbon dioxide and hydrogen conversions. The center's program will include the development of high-tech research infrastructure, integration into international research streams, pilot testing of innovations for industry needs, education and training for carbon-free technologies. The center will thus take care of development and innovation in the field of carbon-free technologies, and this knowledge will then flow from laboratories to industry and the market.

The second strategic project as part of the just transition of Zasavje will be the **revitalisation of degraded areas** and the equipping of areas intended for economic and business infrastructure. In Slovenia, the largest concentration of degraded areas is precisely in Zasavje. As many as 42 such areas with a total area of 135.13 hectares were listed. The rehabilitation of degraded areas and the change of purpose enable the development of new business areas. In particular, the establishment of business incubators and communal equipment of the Zasava craft and craft-industrial zones will be important: OC Rudnik in Hrastnik, OIC Kisovec in Zagorje ob Sava and OIC Lakonca in Trbovlje. Only with appropriate communal equipment can business zones be made attractive for the development of micro, small and medium-sized and large companies, thus creating new jobs and limiting the outflow of personnel to neighbouring regions.

A third project of strategic importance will be the **reconstruction of the G2-108 road**, which connects Hrastnik with the Brick Bridge. After the reconstruction of the aforementioned road, Zasavje will be better connected with other regional centers in Eastern Slovenia and the planned third development axis. In addition, the reconstruction will relieve the existing road infrastructure and increase traffic safety. The reconstruction of the G2-108 road will be financed by a combination of refunds from the European Investment Bank and grants for investments in the public interest.

Finally, the City of Acrobats project has the potential to be a major private sector-led driver of diversification. The entrepreneurial campus (to be located on a former mining related site), combining cutting-edge technological and commercial infrastructure and shared services, will create new internationally competitive enterprises and innovative products. The initiative will be driven by Dewesoft (a large local data acquisition company) and the Katapult enterprise centre. However, it is important to note that the land, located in a degraded area, is owned by the Municipality of Trbovlje. The Municipality of Trbovlje will develop the utilities infrastructure for this business zone using funds from the Just Transition mechanism.

Regional and local transition challenges and opportunities

Nature and scale of key transition challenges

The Zasavje region in Slovenia is currently navigating significant challenges as it transitions to a carbon-free economy. One of the most pressing issues is the substantial gap between supply and demand in the labour market. This imbalance has been intensified by a persistent brain drain, where skilled individuals leave the region for better opportunities elsewhere, leading to population stagnation and decline. The local education system also falls short, as it is not aligned with the evolving needs of the job market, failing to equip students with the necessary skills for the transition.

This situation is further complicated by Zasavje's insufficient transport connections with other regions, hindering economic integration and growth. The lack of connectivity makes it difficult to attract investment and talent, further aggravating the situation. Increasing these problems is the region's non-diversified industry, which limits economic resilience and the ability to adapt to changing market conditions. This reliance on a few key industries, historically centered around coal mining and heavy industry, poses a risk to sustainable development.

Nature and scale of key transition opportunities

The Zasavje region in Slovenia has several key opportunities as it transitions to a carbon-free economy. One important area is the cooperation between the education sector and other development areas, such as demonstration centres, robotics, artificial intelligence, and the low-carbon circular economy. Aligning educational

programs with these fields can develop a skilled workforce ready to support the region's economic transformation. Collaborative initiatives between schools, universities, and industry players can create an environment that fosters research and practical applications, establishing Zasavje as a hub for sustainable technologies.

Involving major companies outside the energy sector is another significant opportunity. These companies are crucial stakeholders in ensuring a just transition by providing diverse employment opportunities and investing in local communities. Their participation can help diversify the regional economy and reduce dependence on traditional industries. Encouraging start-up development in various sectors can further stimulate economic activity and resilience. Supporting entrepreneurial ventures through funding, mentorship, and infrastructure can unlock new business models and innovative solutions for the region's unique challenges.

Investment in research and innovation, in line with the Slovenian strategy of smart specialisation, is also critical for Zasavje. Focusing on areas such as renewable energy sources (RES), hydrogen technologies, and sustainable practices can drive technological advancements and attract external funding. Sustainable tourism development offers another pathway for economic diversification. By leveraging its natural and cultural assets, Zasavje can attract eco-conscious visitors and create jobs in the tourism sector.

Increasing the share of RES in the final use of energy and advancing hydrogen technologies can position Zasavje as a leader in the green energy transition. These initiatives not only reduce carbon emissions but also enhance energy security and create new economic opportunities. Developing infrastructure for RES and hydrogen technologies can stimulate local economies, support the creation of highly skilled jobs, and promote sustainable development.

Overall, Zasavje's transition to a carbon-free economy is supported by opportunities in education, industry diversification, start-up growth, research and innovation, sustainable tourism, and green energy. By leveraging these opportunities, the region can achieve a resilient and sustainable economic future.

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