



ENTRANCES

ENergy TRAnSitions from Coal and carbon: Effects on Societies

POLICY BRIEF

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UPPER STYRIA, AUSTRIA



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ENTRANCES PROJECT

ENTRANCES (ENergy TRANSITIONS from Coal and Carbon: Effects on Societies) is a three-year project funded by the European Union's Horizon 2020 research and innovation program. The project addresses the Social Sciences and Humanities (SSH) aspects of the Clean Energy Transition (CET) through the development of a theoretically based and empirically grounded understanding of cross-cutting issues related to social aspects of the transition in European coal and carbon-intensive regions and the formulation of a set of recommendations able to tackle these issues. To that end, 13 coal and carbon-intensive transition regions in Europe were studied using the same Multidimensional Analytical Framework (MAF), resulting in 13 case studies and an equal set of recommendations that reveal the complexity of the transition process and the impact in the daily life of local communities in its various dimensions.

EXECUTIVE SUMMARY

This policy brief was developed under the ENTRANCES Project and focuses on the results of the Upper Styria Region case study.

In Austria's Upper Styria region, a particularly large number of jobs depend on the steel industry, which will have to change enormously in the coming decades in order to become CO₂-neutral. As in many other regions of Europe, which are also dependent on fossil fuels due to mining, industry or power plant operation, the clean energy transition will also go hand in hand with economic, social and cultural transformation processes. Today, Upper Styria is a flourishing industrial region; its steel industry has gone successfully through restructuring in the 1980s and has addressed environmental concerns during this period. However, the big issue of energy provision and transition to zero carbon emission looms.

The industry is working on the energy transition, and residents of Upper Styria do not reject the energy transition. Expansion of renewables has nevertheless been proceeding slowly due to energy prices that were too low (prior to the Ukraine crisis), due to the ongoing promotion of fossil energies (fossil lock-in), or a lack of incentives to save energy. Social partnership and regional development agencies play an important and beneficial role in the clean energy transition – CET. Lack of coordination between the federal and the provincial governments, as well as between the nine Austrian provinces on energy transition has been highlighted in interviews. Socio-cultural challenges in Upper Styria around the energy transition concern neglect of housing renovation in favour of new individual housing construction and soil-sealing, a significant gender pay gap, deficits in local transport and care infrastructure (e.g. for elderly), and outmigration from main cities in the region.



INTRODUCTION TO THE CASE STUDY

Upper Styria is a highly industrialised region, situated in the province of Styria, Austria. Steel production has been playing a major role in the local economy for centuries. Today, the local industry is flourishing, innovative and searching for skilled labour. But the region is also one of the most important CO₂ emitters nationwide; e.g. the steelworks in Leoben Donawitz are in second position in terms of CO₂ emissions among Austrian industry and produce 3mio tons of CO₂ equivalents annually (data for 2021). The provision of energy and the transition to a zero emissions and renewable energy regime (“post hydrocarbons regime”) is therefore one of the main concerns not only for the local industry players but also for an important part of the local population.

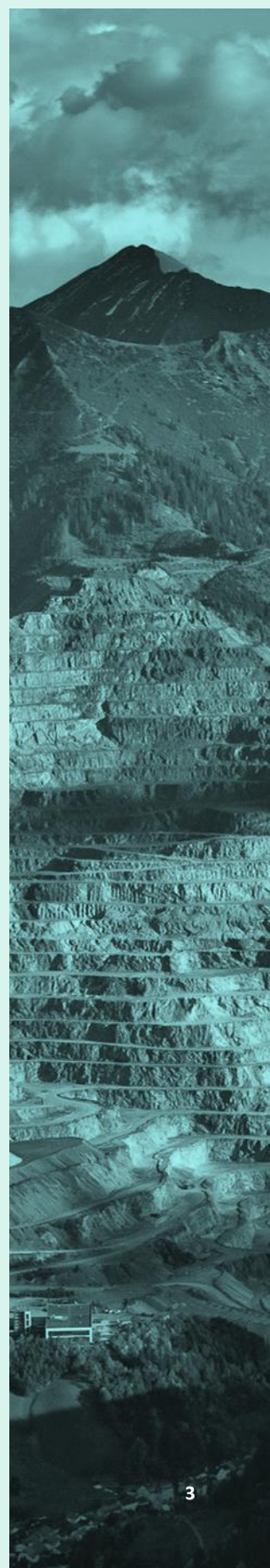
With this case study ENTRANCES explores the challenges faced by coal and carbon-intensive regions in transition, focusing on various socio-economic, socio-technical, socio-ecological, socio-cultural, socio-political, socio-psychological, and gender-related factors. It also examines the coping strategies that have emerged in recent years to address these challenges and investigates the variables that have influenced the emergence of de-territorialisation and the strategies that determine its success using a multidimensional analytical framework (MAF).

This policy brief aims to identify policies or policy combinations that would effectively restore territorial and community ties in coal and carbon-intensive regions while promoting their transition to clean energy.

Key questions

Key Question1. What are the challenges faced by coal and carbon transition regions in different dimensions of change?

Key Question2. What are the emerging coping strategies and what policies could be more effective to address the identified challenges?



METHODOLOGY:

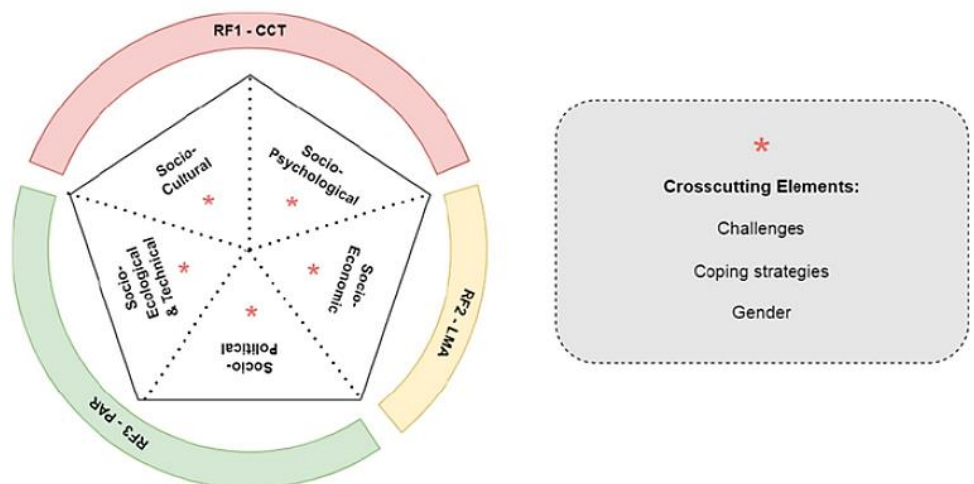


The ENTRANCES case studies were structured into multiple foci (Territorial Change, Structural Change and Clean Energy Transition) and respective units of analysis (Coal and Carbon Territory, Labour-Market Area and Political Administrative Region) to better address the scope of research. Additionally, a comprehensive Multidimensional Analytical Framework (MAF) consisting of five components: socio-cultural, sociopsychological, socio-economic, socio-ecological, and technical component, was adopted to study the complex and multidimensional dynamics in place.

Each component of analysis is supported by specific concepts and methodologies, as well as three cross-cutting elements: challenges, coping strategies, and gender dimension. The resulting challenges, as well as the gender dimension analysis, provide a very clear picture of the real situation in the region of analysis, accurately highlighting the problems related to the demographic, economic, social, cultural and political configuration. The initial results obtained from the different coping strategies generate new avenues for the discussion and recommendations presented in this policy brief.



Overview of the Multidimensional Analysis Framework: Research foci, components and crosscutting elements





CHALLENGES AND COPING STRATEGIES

CHALLENGE 1



Decarbonisation of steel industry

1

Research and Innovation (R&I) into new production technologies

R&I into new steel production technologies based on electricity and hydrogen is conducted and piloted. In particular, a switch to electric arc furnaces is underway and a pilot plant for hydrogen has been built at the site in Leoben-Donawitz. Involvement in national and EU funded R&I projects is actively pursued. First carbon neutral steel has been delivered to clients.

2

Energy saving

Energy saving measures are actively pursued by steel producer voestalpine and annual targets formulated (e.g. 2% energy saving per year).

3

Strategy & planning for decarbonisation of steel production

Voestalpine has developed concise and binding strategy documents to implement the phase-out of CO₂-intensive production by 2050 in an economically viable manner and with a view to the employees in a socially responsible manner. The desired outcome is the production of green steel (CO₂-neutral steel), and securing the production, the sites and employment in the case study region.

RECOMMENDATIONS

- The energy transition has to be speeded up and administrative procedures for renewables shortened.
- Sufficient provision with renewable energy must be secured.
- Grid infrastructure needs to be upgraded.
- Support for transformation and decarbonisation of the industry required.

DISCUSSION

The Austrian steel industry (voestalpine) is serious about decarbonisation, but it will be a long way to achieve it. Investment and transformation will need to be speeded up. However, the industrial upscaling of new technologies and the required volume of renewable energy will be very difficult to solve in the short run.



CHALLENGES AND COPING STRATEGIES

CHALLENGE 2



Soil sealing & housing renovation

1

Renovation

There is a lack of coping strategies for the renovation of housing. High-quality renovation of existing housing in main municipalities would be required, to make these attractive places to move to (besides the current argument of lower rents).

2

Energy efficiency measures

Energy efficiency measures have been devised by the government, and advisory bodies, e.g. in the form of energy agencies are available. The measures need to be targeted at the lower income classes, so as to avoid abandonment of housing and energy poverty.

RECOMMENDATIONS

- Tackle renovation of abandoned housing and provide spacious apartments for families, also as a strategy against outmigration from the region.
- Spatial planning should be decoupled from municipal decisions and decisions of individual mayors.
- Subjective decisions on spatial planning and land use must become objective by transferring decisions away from mayors and the municipal level.
- Zoning and land use plans for the construction sites of renewables must be revised and renewable expansion be facilitated.

DISCUSSION

The responsibility of local spatial planning is with the elected mayors and elected municipal councils in Austria, which has a strong impact on questions of the energy transition. Many spatial planning decisions are often influenced rather by personal relations of mayors or short sighted ideas of economic growth than overarching planning strategies. This has led to an enormous amount of sprawl all throughout Austria, where the yearly new land consumption is among the highest in all of Europe. The issue of soil sealing is connected in Upper Styria to lack of appropriate housing in main municipalities of the region. It has to be urgently addressed with renovation of abandoned housing, making these energy efficient and providing enough space for families. This should lead in future to reducing outmigration trends. Energy saving and energy efficiency measures are far less present in the debate on energy transition, than the expansion of renewable energy sources and production.



CHALLENGES AND COPING STRATEGIES

CHALLENGE 3



Better governance and framework conditions of the Clean Energy Transition (CET) in Austria

1

Coordination among climate and energy initiatives

Efforts have been taken to better coordinate public initiatives around climate and energy, e.g. in the frame of Climate and Energy Model-regions (KEM) and Climate Adaptation regions (KLAR) initiatives. However, between provinces and province-national level, the weak coordination on the energy transition persists.

2

Improving framework conditions for renewables

Legal and support measures have been taken by the government to expand renewable energies and for decarbonisation. To give some examples, we note that most importantly the Renewable Energy Expansion Act was approved in 2021, an Energy Efficiency Act was approved in 2023 (although in a somewhat downsized form), a fund has been established for decarbonisation of industry (e.g. steel, cement), support measures are in place for solar energy, for electric mobility, and for switching from oil and gas to more climate friendly heating. A coordination point for energy communities has been created.

RECOMMENDATIONS

- Regular coordination among provinces and national level on climate and energy issues has to be established.
- Grid infrastructure needs to be urgently upgraded in Austria to become fit for handling volatile renewable energy
- Energy-efficient building refurbishment must be driven forward
- New concepts such as energy communities and community tariffs need to be further developed

DISCUSSION

Weaknesses in coordination and cooperation across governance levels have been mentioned by interview partners as critical issues to be solved. They concern coordination and cooperation between the Austrian provinces, between provincial and national levels, as well as between public initiatives for climate and energy. Curing these issues is needed so as to speed up the CET. The expansion of renewable energy and the decarbonisation process has still high hurdles with regard to administrative procedures and the grid infrastructure. This will require large investment sums, as well as time for the administrative approval procedures and permits. The Austrian grid is currently not fit enough for dealing with renewable energy production that is coming online.



CHALLENGES AND COPING STRATEGIES

CHALLENGE 4



Behavioural change, communication, and social aspects of expansion of renewable energy & speeding up of decarbonisation

1

Behavioural change & communication for renewables, energy saving and decarbonisation

Climate and Energy Model-regions (KEM) are supported by the Austrian Climate Fund to stimulate the expansion of renewables and decarbonisation. In August 2023 in total 124 such model regions are in place, involving 1134 municipalities; in Upper Styria three such KEMs are established: Murtal, Murraum Leoben, and StadtLandSee. Energy agencies (e.g. Energieagentur Obersteiermark) and NGOs play an important role in informing society and educating the young on renewable energies and the energy transition.

2

Considering social aspects of the energy transition


Increases in energy prices have been tackled by federal and provincial governments, as well as municipalities with financial support measures to population with lower income.

RECOMMENDATIONS

- Novel, inspiring and targeted communication strategies for the Clean Energy Transition (CET) have to be developed: what is reported on the topic of energy transition and to whom is the communication directed have to be considered
- Behavioural change for the CET has to be brought about: continue good efforts of energy meetings, establish neighbourhood role models, CET expert meetings with companies, etc.
- A two-class-society in terms of the energy transition must be avoided, and the costs of the energy transition must be distributed in a fair manner
- Gender pay gap must be reduced, and targeted measures be taken for technology and gender-equitable education (including on energy).
- Technology education needs to start in early school education, and should be furthered by bottom-up initiatives.
- Children must be interested in and encouraged in technology and science regardless of their gender

DISCUSSION

Behavioural change among the population towards energy saving and a more positive attitude towards renewables (in particular wind energy) will also be needed to advance quicker towards decarbonisation. Austria still faces a delay in its decarbonisation efforts and is lagging behind other EU member states in reducing CO2 emissions. The social aspects of the energy transition have to be taken into account. Upper Styria region is marked by a high gender pay gap between male and female incomes, which has repercussions on the energy transition in the region.



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