Urban Doers Community

Frank Bold

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Shared Energy Management of the Tolštejn voluntary association of municipalities

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Abstract

Our project, "Shared Energy Management of the Tolštejn Voluntary Association of Municipalities," aims to drive urban transformation through a collaborative approach to energy management. This initiative focuses on reducing energy consumption, promoting renewable energy projects, and cutting CO2 emissions in energy-positive districts.

The Tolštejn association consists of six municipalities and the town of Varnsdorf, located in the economically disadvantaged Ústí nad Labem region of the Czech Republic, which is grappling with various socio-economic challenges. Acknowledging the region's heavy reliance on coal, Tolštejn recognises the pivotal role of the energy sector in its sustainability efforts. Implementing energy management is seen as a crucial initial step for public administrations.

The project confronts several urban challenges, primarily the resistance from those who profit from the existing fossil fuel paradigm. The central conservative government often sides with these vested interests, posing significant obstacles. Employing a bottom-up approach, we strive to overcome the influence of the wealthy and powerful.

Due to the small size of the municipalities and the resource demands of individual energy management, a shared approach has been adopted. This allows for meaningful comparisons between municipalities and the development of a comprehensive energy strategy with economies of scale. To facilitate this, the municipalities have appointed a shared energy manager responsible for data collection, designing energy-saving measures, assessing project plans, and coordinating with energy suppliers on behalf of all members.

Our ambitions align with the goals of the Green Deal, aiming to achieve its objectives at a micro-regional level. We aspire to generate one-third of our energy from self-sustaining sources, enhance building efficiency, and significantly reduce our carbon footprint.





Key experiences from our initiative include effective engagement with a conservative, anti-progressive population. We have mastered the art of 'cultural translation,' bridging the communication gap between local realities and broader environmental goals. This has involved finding common arguments and communicating in a language that resonates with the local community.

Broader adoption of our practices involves understanding the locality and thematic elements, ability to adjust the language, and motivating a rather conservative audience. The future of our initiative is promising, with clear plans for enhancing building efficiency, establishing new energy sources, implementing the concept of electricity sharing, promoting electro mobility, broadening the active local community, and supporting environmental education through our Sustainable Energy and Climate Action Plan (SECAP).

Key Lessons:

1. Sustainable transformation is a puzzle:

Transitioning from fossil fuels to green energy means environmental change and socio-economic revitalisation. Energy aspect, although crucial in this specific project, is just a piece of a larger puzzle that requires that each piece fit in a greater whole. It is crucial to see the transformation, especially on the local level, in the bigger picture. Biodiversity, water management, socio-economic issues, geographical aspects, or local culture are of the same importance, if we want to achieve real transformation.

2. Bottom-up approach has the potential to change status quo:

The transition is met with resistance from those benefiting from fossil fuel dependency, including centrist conservative government factions. Employing a bottom-up approach and engaging local communities directly can help counteract this resistance.

Communicate with local language:

Effective communication with local citizens requires an understanding of their language and cultural and historical context. The success of the initiative depends on bridging the gap between local realities and broader environmental goals, an example of the importance of 'cultural translation'.

4. Empower through education

Engaging and educating different segments of the population—children, workers, and local leaders—through targeted educational materials and co-financing civic projects empower citizens to be active participants in the transition.

5. Only clear planning can lead to a desired goal

The existence of a comprehensive plan, such as the Sustainable Energy and Climate Action Plan (SECAP), with clearly defined medium-term targets, provides a structured and measurable approach to achieving energy efficiency, introducing new energy sources, and promoting sustainable practices such as electro-mobility and environmental education.





UNLOCKING THE POTENTIAL OF URBAN TRANSITION

In our project, we perceive the concept of urban transformation through the opportunities created to help strengthen the resilience and facilitate the path to sustainable behaviour for citizens or communities living both in the rural and urban areas. Since our project is focused more on the rural part, but using tools typical for urban transformation (e.g. technical advancements and innovations), we decided rather to work with the term "Rurban transformation".

We perceive that our project contributes to the concept of rurban transformation in the current context in three ways. Firstly, it shows an example of an effective response to the energy crisis in small municipalities. Secondly, it applies the concept of positive energy districts and community energy to non-urban settings as well, contributing to the active engagement in energy transition of otherwise neglected regions. Thirdly, it demonstrates how even minor stakeholders with minimal resources can, through collaboration, meet the challenge of the transition to renewables and successfully begin the journey towards achieving the ambition of climate neutrality.

Our project called "Shared Energy Management of the Tolštejn Voluntary Association of Municipalities," is trying to facilitate energy transition in rurban areas through a collaborative and innovative approach to energy management. In the first step, our goal is to reduce energy consumption of residential buildings, support clean power sources and cut CO2 emission through an innovative shared approach in data management. In the second step, we will build on our experiences and upscale our effort to support energy independency of municipalities and more importantly, involve local citizens. Implementing energy management across these municipalities is seen as a crucial first step towards fostering a sustainable environment for all of them

Given the limited resources and high demands associated with individual energy management, the municipalities have decided to apply a shared approach. This strategy not only facilitates meaningful comparisons in the energy consumption between municipalities but also allows for the development of a comprehensive joint energy strategy that benefits from economies of scale. To execute this, the municipalities have appointed a shared energy manager responsible for data collection, designing energy-saving measures, assessing project plans, and coordinating with energy suppliers on behalf of all members.

The Sudetenland, a region marked by a history of severe turbulence, stands as a testament to the tests and struggles of man and time. Sluknov Spur in the north-western part of Bohemia, where all the involved villages are located, used to be a representative mark of Sudeten German culture. However, it was irrevocably altered by the sweeping currents of history, which had left several marks that are still presented in the minds of local citizens. Here, the word "community" does not evoke the warmth of shared purpose and mutual support but rather the cold efficiency of centrally planned objectives.

In the post-Iron Curtain era, the Sudetenland experienced rapid, chaotic modernisation, leaving a region of industrial decay. The economy's development stalled, marked by scars from World War II and geopolitical shifts. Its people, long subject to external pressures from distant capitals, have developed a sensitivity to directives issued without local consultation or acknowledging the local specifics. While often well-intentioned, these externally imposed objectives are seen as another instance of the region being dictated to them by a government unfamiliar with its unique challenges and aspirations. This perception reflects the Sudetenland's complex history and ongoing struggle for self-determination in the face of external influences.





In this light, the transformation of the Sudetenland is not just a matter of infrastructure and industrial development or economic revitalisation. It is an effort to reclaim the very essence of the concept of community, to foster the chance of understanding the concept of community and to show the sense and benefits of shared purpose and mutual support that has so long been absent. The challenge lies not only in achieving these goals per se, but also in doing so in a manner that respects the local context, ensuring that the voices of the local inhabitants are heard and heeded. This, perhaps, is the true essence of urban transformation in this storied and resilient region.



Šluknovský výběžek (Šluknov Spur) in Northern Bohemia Location of municipalities participating in shared energy management

Šluknovský výběžek (Šluknov Spur) in Northern Bohemia



Figure 1&2: Map of Šluknov Spur. Source: Frank Bold

CHALLENGES

Our project is not without its challenges.

Those who profit from the status quo vehemently resist the transition from fossil fuels. The centralist conservative government of our land often aligns with these vested interests, posing significant obstacles to our progress. We employ a bottom-up approach, yet we find ourselves contending against the wealthy and the powerful.

The urban challenges facing the Sudetenland are profoundly complex and deeply rooted in its tumultuous history. The region is indelibly marked by its German heritage, yet it is now populated by people whose ancestors were transplanted here, often forcibly, from other parts of the former Czechoslovakia and beyond. This population, disconnected from the land and its history, carries with it a legacy of displacement and rootlessness. Their children, in turn, have grown up in an environment devoid of true communal spirit, familiar only with the cynical calculations and oppressive uniformity of the communist totalitarian regime.

The Sudetenland's urban landscape drastically changed after the German population's expulsion. Communist-era brutalist architecture, insensitively imposed on the region, symbolised the regime's disregard for aesthetics and efficiency. Fueled by abundant coal, these structures showcased wasteful energy consumption and degraded the environment. Residents, living in inherited homes or impersonal totalitarian buildings, developed no connection to their surroundings. This disconnect led to widespread neglect of both private and public spaces. The resulting lack of engagement and responsibility has left lasting scars on the region's urban fabric, visible even today in the form of deteriorating buildings and neglected public areas.





Another urban challenge our project addresses is the lack of resources and expertise in individual municipalities to manage energy effectively. The six municipalities and the town of Varnsdorf have pooled their resources to appoint a shared energy manager.

Furthermore, the project tackles the shortage of skilled professionals needed for energy assessments. By collaborating with the local High School of Industry, we provide students with hands-on experience in energy management. Students conduct building assessments, identify energy optimisation opportunities, and actively participate in creating smart metres, thereby improving the consumption monitoring system at a reduced cost. This initiative not only helps develop the next generation of energy experts but also involves the community in sustainable practices, thus addressing the challenge of public engagement and education in energy efficiency.

Overall, our project is designed to overcome significant urban challenges by fostering cooperation among municipalities, enhancing local expertise, and promoting sustainable energy practices.

Only in the past decade has there been a gradual and painstaking effort to foster genuine local communities and initiate community-driven projects. The field of energy has been a pivotal area for this transformation. Efforts to reduce the region's astronomical energy consumption and work towards local self-sufficiency are beginning to bear fruit. These initiatives symbolise a broader renaissance, as the community slowly reclaims its sense of identity and purpose. The proverbial roses are beginning to bloom, as local engagement grows and the once neglected landscape starts to heal and flourish under the care of its inhabitants.

MEETING THE GREEN DEAL AMBITIONS AT MICRO-REGIONAL LEVEL

The main ambitions of our initiative are profoundly aligned with the goals of the Green Deal, albeit with an aspiration to fulfil these objectives not merely as a nation but as a micro-region. Our aims include achieving one-third of our energy from self-sustaining sources, enhancing building efficiency, and markedly reducing our carbon footprint. In a bigger picture, our project build its ambitions on the well known-concept of the 4D's in energy transition - Decarbonisation, Decentralisation, Digitalisation, Democratisation.

Facilitation of Energy Transformation in Rural context

The primary ambition of the project is to facilitate the energy transformation of small rural municipalities by promoting a cooperative approach to energy management, thus helping to develop self-sustaining and energy efficient communities.

We want to show that the concept of community energy as a key tool to support energy transition from a bottom-up perspective can be applied in different contexts. Although the REpowerEU package has set the goal of having a Renewable Energy Community in every European city over 10,000 inhabitants, we aim to highlight the important role both in rural areas but also in geographically very fragmented areas. The Czech Republic has over 6250 municipalities with an average size of 1600 inhabitants per municipality. So if we want to bring a scalable energy transition solution for the Czech Republic, we should start from smaller players first, not build the whole idea on concepts of Positive Energy Districts in big cities that simply cannot be replicated in the other 6000 municipalities.





Enhance energy self-sufficiency and resilience

This goal is related to our long-term endeavour and will definitely require a lot of further work. However, we are trying to connect to be able to actually undergo a successful energy transformation involving the widespread adoption of renewable energy sources at the local level such as rooftop solar, wind, and biomass or biogas stations. These will not only reduce the carbon footprint but also foster energy independence not only for the involved municipalities, but for the whole region. By achieving a significant portion of our energy needs locally, local municipalities will not be so exposed to external energy market fluctuations and disruptions as witnessed in 2022 in reaction to the Russian aggression on Ukraine - thereby securing a stable and sustainable energy supply. Unlike larger cities, these municipalities lack the resources to establish dedicated staff for energy management to be able to prepare respective plans and measures. The project aims to bridge this gap by introducing shared energy management practices that are both economically viable and environmentally sustainable.

In the long-term vision, the project aspires to significantly lower CO2 emissions and contribute to the creation of energy-positive neighbourhoods. This ambition aligns closely with the broader goals of the Green Deal, aiming to generate one-third of energy from self-sustaining sources, enhance building efficiency, and significantly reduce the overall carbon footprint at a micro-regional level.

Support the democratisation of energy

We strive to ensure that the principle of democratisation is reflected throughout the energy transition process of the municipalities involved. The key challenge in the Czech Republic will be to find a way to bridge municipal energy into community energy, which is built on the principle of democratic control of resources and equity. Our project has the ambition to be a pioneer in this respect not only at the regional but also at the national level. This involves educating and empowering local stakeholders, including residents, businesses, and local authorities, to take active roles in the energy transformation process. The creation of business models for effective energy community operations and strategies to prevent energy poverty are also essential components of this ambition.

Demonstrate scalable good practice

We believe that the concept of rurban energy transformation is applicable not only across other voluntary associations of municipalities or different regions in the Czech Republic, but also across Europe. In fact, shared energy management is a concept that is not directly dependent on the regulatory and legal environment of a given country, but is rather an example of local innovation and efficient resource management. Our ambition is therefore to develop and demonstrate a scalable approach to the current challenges that small municipalities face in the context of the energy crisis.

Form a supportive community through education

Another ambition is to foster well-educated and engaged local citizens that will actively strive to contribute to the joint efforts of municipal representatives, and perceive the project as "their own". Education is crucial in the process of empowering residents with the knowledge and skills, and importantly, enthusiasm necessary to participate actively in the region's transformation. In the next phase of our project, we aim to provide comprehensive educational programmes that cover multiple fields related not only to energy transformation, but to sustainable practices and environmental behaviour as well. These programmes will be audience-tailored, ensuring that children, adults, and the elderly all receive the information relevant for them to actively participate within their possibilities. We see





the current collaboration with local high schools as an important step that might create further opportunities in the future. Furthermore, we seek to cultivate a culture of community engagement, where residents feel a strong connection to their local environment and actively contribute to its improvement. This involves supporting community-driven projects and initiatives that enhance local infrastructure and public spaces, fostering a sense of ownership and pride among the population. In other words, we aim to apply a holistic approach and Green Deal principles on sustainable transformation together with the local community, and not despite that.



Figure 3: Revision of Smart Meters. Source: Michal Svoboda

Social and Economic Uplifting

If our previous ambitions are fulfilled, or if we are well on our way to fulfilling them, we would like to ensure that the energy transition and the application of the Green Deal principles bring positive economic benefits to the inhabitants of the Šluknov foothills and help to reduce the socio-economic challenges that the region is currently facing due to its turbulent history. We want to show that the development of local, democratically owned resources can bring a boost to new investment in the region, create local green jobs, and help alleviate energy poverty.

HOW WE CAN INSPIRE OTHERS

Innovative Approach to Energy Management of Municipalities

One key inspiring aspect of the Tolštejn project is its implementation of a shared energy management system among six municipalities in a region historically dependent on coal. This innovative initiative allows municipalities to compare data, share insights, and operate under a unified system and hierarchy. Such collaboration ensures that energy use is optimised across the board, promoting efficiency and reducing waste. By adopting this cooperative approach, the municipalities have significantly enhanced their energy resilience, showcasing how limited resources can be effectively managed through collaboration and common efforts to make positive change. This model allows for meaningful comparisons between municipalities and the development of comprehensive energy strategies with added value of data access, allowing to plan the further development. The concept of shared energy management is unique in the national context, but also not very common in the European context.





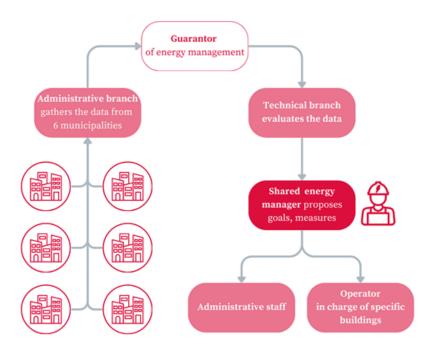


Figure 4: Shared Energy Management Scheme. Source: Frank Bold

Cultural Translation to local context

Our experience underscores the importance of cultural translation and flexible and open communication. In the Sudetenland, we have navigated significant cultural and historical complexities, learning to communicate the goals and benefits of our projects in ways that resonate with the local population. Engaging with the citizens and local authorities, who are often deeply conservative, has taught us the art of dialogue and persuasion. We have learned to communicate in a language that resonates with their lived realities. A significant challenge of the Green Deal is the dissonance between the 'social' language of workers, miners, and the blue-collar demographic of semi-forgotten regions and the sophisticated discourse of the "centre".

Our unique proficiency lies in this 'cultural translation,' bridging the gap not merely linguistically but also culturally. Our experience is unique in this respect in that the local region is one of three coal regions in the Czech Republic that are now facing many Just Transition challenges and are therefore naturally reticent to make rapid changes. However, with the right naming of the problem and, in turn, value-added communication tailored to the local culture, even these regions can be turned into examples of positive deviance.

Importance of Partnerships

The project highlights the importance of partnerships in promoting positive changes in the energy sector. It is part of an initiative by the Association of Local Governments, the biggest municipal association in the Czech Republic representing over 2500 of small municipalities. The project is supported by the Frank Bold Society, an expert non-profit organisation dedicated to advancing energy sector improvements, and Community Energy Union, a national coalition for community energy, representing nearly 100 stakeholders from municipal, business, and community energy sector. Through these partnerships, the project ensures effective knowledge-sharing and implementation of successful practices both locally, nationally, and abroad. By incorporating lessons learned from international projects into local contexts, these efforts inspire others through effective knowledge dissemination and implementation strategies.





Collective planning for climate neutrality

The concept of joint planning and joint investment is not new to community energy on a European scale. At least in the practice of energy communities in Western Europe. On the contrary, in the Czech Republic and the Central and Eastern European region, where the concept of "community" has historically been poorly understood, this approach, still in neglected regions, is quite rare. Thanks to shared energy management and access to data, individual municipalities can assess which energy saving measures they should implement as a priority. This may include replacing public lighting, insulating buildings, optimising heating, etc. Conversely, they can also evaluate which joint projects they could invest in to gradually meet the goal of achieving one-third energy self-sufficiency. In their endeavour, the municipalities have collectively committed to achieving climate neutrality by the year 2050. This commitment is encapsulated in the Shared Sustainable Energy and Climate Action Plan (SECAP), which unites the small Sudeten municipalities under a common banner. The collective SECAP is a unique element in the national context and represents the commitment local municipalities have made to make an impact.

Shared Awareness Campaigns and Educational Initiatives

Among the most heartening of these collaborative efforts are the shared awareness campaigns and educational initiatives designed to engage and inform the public. For instance, the seminar "Democratic Energy" recently filled the grand communal hall in the village of Rybniště, attracting mayors, local entrepreneurs, and citizens alike. This remarkable turnout in a modest and economically challenged region underscores the profound interest and commitment of the local community when a topic is well-presented and resonates with their daily lives.

It is noteworthy that such collective action among villages in the Czech Sudetenland is a rarity. Traditionally, each village tends to navigate its own path independently. However, in the realm of energy management and sustainability, this unique and unified approach is setting a precedent. The success of these projects not only highlights the innovative spirit of the Tolštejn municipalities but also serves as a beacon of hope and inspiration for other regions. In conclusion, the array of projects undertaken by the Association of Municipalities of Tolštejn is characterised by a spirit of unity, innovation, and a shared commitment to a sustainable future.

NEXT STEPS?

Reach the Empowerment

Although one of the fundamental experiences we possess is the ability to adapt communication to the local audience, we have not yet reached the stage of empowerment, where citizens take ownership of the projects currently initiated by local municipalities and actively contribute to their realisation and development. We can achieve this through further activities in the field of educating local residents and developing customised educational programs. Thanks to the current collaboration with the local high school on creating energy audits, we can work with an already educated group of local young people interested in the topic of energy. We now need to build on these foundations and expand the mass of educated residents to the point where they develop the attitude of "how can I contribute?".







Figure 5: Local seminar on community energy in Rybniště; 26.6.2024. Source: Michal Svoboda

Grow to energy community

Shared data is the first step towards an energy community. In the autumn of 2024, we will begin testing the sharing of electricity between several municipal buildings and become an active customer. Gradually, we will expand the integrated energy infrastructure with additional sources, as well as technologies related to smart grid devices or tools enabling flexibility aggregation. We will strive to gradually transform the project into an energy community with the direct participation of citizens and their resources. Together, we will bridge the concept of municipal to community energy.

Develop a data driven holistic strategy towards regional sustainability

If we were to think beyond energy and the development of local renewable resources, we could apply the principles of cooperation and joint action in the energy sector to other areas - the circular economy, agriculture, water management, revitalisation of public places, or support for biodiversity. In principle, it would be a mistake not to use the current format of cooperation, but rather to expand it to include other stakeholders or areas for data sharing. If there is no data, there is nothing to measure, and if there is nothing to measure, it is impossible to evaluate and propose measures. It is in the application of this principle to other areas of local municipal management that there is huge potential for the project to grow in the long term. If we are to achieve climate neutrality in 2050, it will not be possible without collaboration and a holistic approach.

GOOD PRACTICE RECOMMENDATIONS

Data driven approach

If we are to achieve real transformation at the local level, a more holistic perspective on the climate transition should be applied, especially in rural-urban areas. What is even more important, and still very underdeveloped in the Czech Republic, is the data-driven approach. Our project is built on this approach. Although the project is still in its early stages, we have the ambition not only to maintain this approach but also to expand it to other areas, both horizontally in the energy sector and vertically into other areas relevant for achieving climate neutrality.





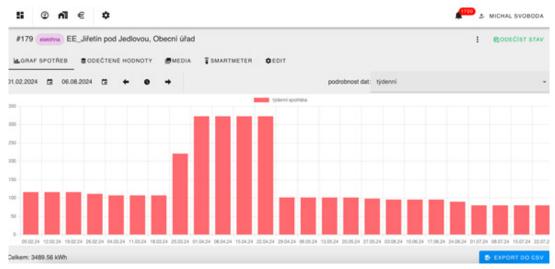


Figure 6: Municipal office consumption diagram in Jiřetín pod Jedlovou municipality. Source: Open Energoman Software

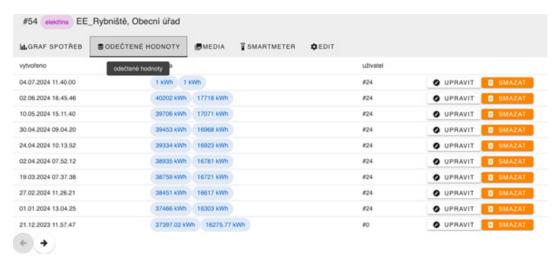


Figure 7: Consumption data from municipal office in Rybniště municipality. Source: Open Energoman Software

Respect the local context

If something is tragically failing at least at the national level in the Czech Republic in the area of implementing the Green Deal, it is precisely communication towards citizens. The government is unable to explain the concept well and understandably, and for this reason it is largely reduced to the issue of electro mobility. Our project tries to be an example of how the principles of the Green Deal can be applied at the micro-regional level, where pragmatism dramatically outweighs ideology. However, even in an environment that is at first glance hostile to the principles of the Green Deal, it is possible to achieve its practical application. And the key tool is precisely knowledge of the local context and social dynamics. We must come to terms with the fact that there are no copy-paste solutions. It is always necessary to adapt in some way. But if we stick to the principle of adapting the intentions to the local context, we have a chance of success.

Joint strategic planning

Joint strategic planning, especially in demographically diverse areas such as the Czech Republic, can be a real challenge, but is all the more necessary. Here we can fully apply the principle of "more heads, more knowledge". Achieving climate neutrality and transitioning solely to renewable sources seems like a daunting challenge if we face it individually. However, the common SECAP (Sustainable Energy and Climate Action Plan) and the commitment that municipalities have made in the project is an example that we should not be afraid of ambitious goals.





we just need to find the right partners.

GLIMPSE INTO THE FUTURE: ISLAND OF RE-SILIENCE

As we cast our gaze towards the future, the prospects of our initiative are indeed promising. We have a comprehensive plan for the gradual enhancement of building efficiency, the incremental establishment of energy sources, the promotion of electro mobility, and the support of environmental education. We have a Sustainable Energy and Climate Action Plan (SECAP) and clearly defined steps for the mid-term horizon.

Looking towards the future of our transformative project in the Sudetenland, we envision a region characterised by confident and functional communities, and at least partly self-sufficient and efficient in their energy use.

In the long term, we have a vision of the region as a "resilience island", which, thanks to a pragmatic approach focused on impact, will serve as a model for the energy transformation not only across regions in the Czech Republic, but also abroad. We believe that we have started the race well. At the same time, we are aware that we are not running a sprint, but a marathon. Therefore, we will strive to cross the finish line together.