



**BABES-BOLYAI UNIVERSITY CLUJ-NAPOCA,
FACULTY OF GEOGRAPHY**

Short Summary

DOCTORAL THESIS

**RENEWABLE ENERGY PROJECTS AND
PERIPHERALIZATION DYNAMICS IN NORTH-WEST
ROMANIA**

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Thesis' main goal: Uncover the complex relationship between peripheralization processes and renewable energy technology development.

Theories involved: Economic and political science theories of polarization and peripheralization, technological determinism and social construction of technology approaches.

Methodological approach: Mixed-Method relying on secondary large N data and primary questionnaire and interview data. Involving quantitative and qualitative approaches.

Thesis structure: First chapter introduces the main research puzzle and questions, presenting also the main theoretical model guiding the work. Further on, the broader institutional, territorial and policy context is introduced. Chapter 3 analyzes the impact renewable energy projects can have on socio-economic indicators applying a quasi-experimental research design. In chapter 4 I present local authorities' view on renewable energy projects deployed and possible influences of these projects on the local communities in terms of technological innovation. Last empirical chapter looks closely into the cases of two community owned renewable energy projects identifying the main innovation patterns and the impact on local political activism. Chapter 6 answers the main research questions and formulates a series of public policy proposals.

Summarizing thesis's contribution

The main contribution that this thesis makes to the field is to discuss and present the co-evolution of technology and peripheralization dynamics. At both theoretical and empirical levels, this thesis presents an argument for considering peripheralization and the development of renewables as connected processes that can have a strong impact on each other.

Theoretical contribution

From a theoretical point of view, the key contribution of this thesis is to have bridged the arguments of technological development theories and the theories of peripheralization. Building on the idea that technology is socially constructed and that it affects and is impacted by the host communities, I argue for the importance of an evolutionary model that looks into the ways in which REPs and peripheralization dynamics interact and form each other.

Because of this argument, the main theoretical model of this thesis considers the co-evolution of two processes accounting for the path-creation dynamics. It offers a different perspective on the ways in which peripheralization dynamics could be reversed adding to the debate the socially constructed character of technology. In this way, technology is not only a passive, independent element that could alter or improve the wellbeing of our communities, but it is an active tool through which communities can take action, appropriate means of production, improve their local socio-economic wellbeing, display innovative thinking and acquire political power. As such, the theoretical contribution can be divided in two distinct points:

- Understanding and improving the theoretical argument of peripheralization theories and theories of technological development. Relying on existing work on the subject, the current thesis discussed in detail main shortcomings of the existing arguments from each stream of theories and offered at the same time foundation for improvement of the existing theoretical ideas.
- Bridging the two theoretical perspectives in a co-evolutionary theoretical model that is both dynamic and flexible, and allows tracing the co-evolution of the two processes

throughout their interaction. The model argues that while society and technology interact, it is important to have a temporal understanding of that interaction, a position that allows observing phases of technology-induced changes as well as phases of socially induced changes. We can apply this model to different socio-technological settings since it is not restricted to the co-evolution of renewable energy technologies and peripheralization dynamics.

The novelty of the theoretical argument of the thesis relies in its cross-theoretical co-evolution model that allows for a dynamic representation of the main guiding principles that surround the technology-community relationship.

Empirical contribution

The main empirical contribution of this thesis is to unravel the complex relationship between rural communities and deployed renewable energy projects, by relying on a mixed-methods approach, by using different data sources and by applying a triangulation technique. Existing research on the relationship between renewable energy projects and host communities was quite often one-sided or lacking a normative understanding. Studies most often relied either on case studies or on national statistical data that take a “snap-shot” perspective upon the relationship. Throughout chapters three, four and five, this thesis employed different methodological perspectives relying on large-N comparative design, questionnaire based descriptive statistics or semi-structured interviews qualitative approaches to present the co-evolution of renewable energy projects development and peripheralization dynamics in North-West Romania. Based on the analyzed data, present work makes three important contribution to the field:

- Renewable energy projects have a limited impact on socio-economic indicators. Deployment of renewable energy project in rural communities fails to spur local employment, revenues to the local budget, improve the demographic situation or the

development of agriculture. These positive externalities are often overemphasized and should be re-evaluated if we discuss about possible impact of renewable energy projects.

- Technology proximity can lead to higher interest and possible engagement of local communities in technology replication and local ownership. While the deployment of a renewable energy project fail to produce an impact on socio economic indicators it led to a raising interests of the local communities in the new technology, an interest that can possibly translate in development of locally owned projects.
- Technology ownership can produce important benefits. Beginning with financial savings, a community owned project can also foster local innovation and political power display. As observed for the case of two communities that own renewable energy projects, engagement with the new technology can lead to locally rooted innovative action, important financial savings and increased participation in shaping the energy policies.

Renewable energy technology and renewable energy projects can become an important resource for promoting de-peripheralization and improving the situation of our rural communities. To benefit from this resource we have to understand the importance of making local communities an important factor in the implementation and usage of the new technology. Without engaging local communities in the process of technology development we simply fail to grasp the full potential offered by the renewable energy development.