



Energy efficiency in the Polish residential building stock

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ABSTRACT

Pressured by the European Union, the Polish government has recently decided to accelerate coal phase-out. It is necessary to assess the state of the Polish energy market in the construction sector. To do so, a literature review and a focus group discussion were conducted. The Polish energy sector is under remarkable but fast transformation. Regarding energy efficiency, there is a large gap between practices, expectations and requirements. This paper should be interesting for the main stakeholders of the sector: architects and building owners or the Polish National Energy Conservation agency. This research aims to fill a knowledge gap regarding energy efficiency in the Polish residential building stock.

KEYWORDS

Energy sources, decarbonization, policies, building technologies, nearly Zero Energy Buildings, district heating.

PROBLEM

Pressured by the European Union, Poland recently agreed to accelerate coal phase-out. The goal is now to progressively shut down all coal mines by 2049. But in a country where the energy grid heavily relies on coal, the energy transition faces multiple challenges. Energy efficiency is at the center of political, economic and social concerns. In that context, the current and future trends of energy efficiency in the Polish residential building stock must be assessed and understood.

OBJECTIVE / HYPOTHESIS

1. Provide a snapshot of the current state of energy efficiency in the Polish residential building stock.
2. Conduct a literature review and a focus group discussion to identify the main parameters influencing energy efficiency and perform a SWOT analysis.

AUDIENCE

Architects, building designers and developers, Polish National Energy Conservation Agency, Polish Ministry of Environment.

RESEARCH QUESTION

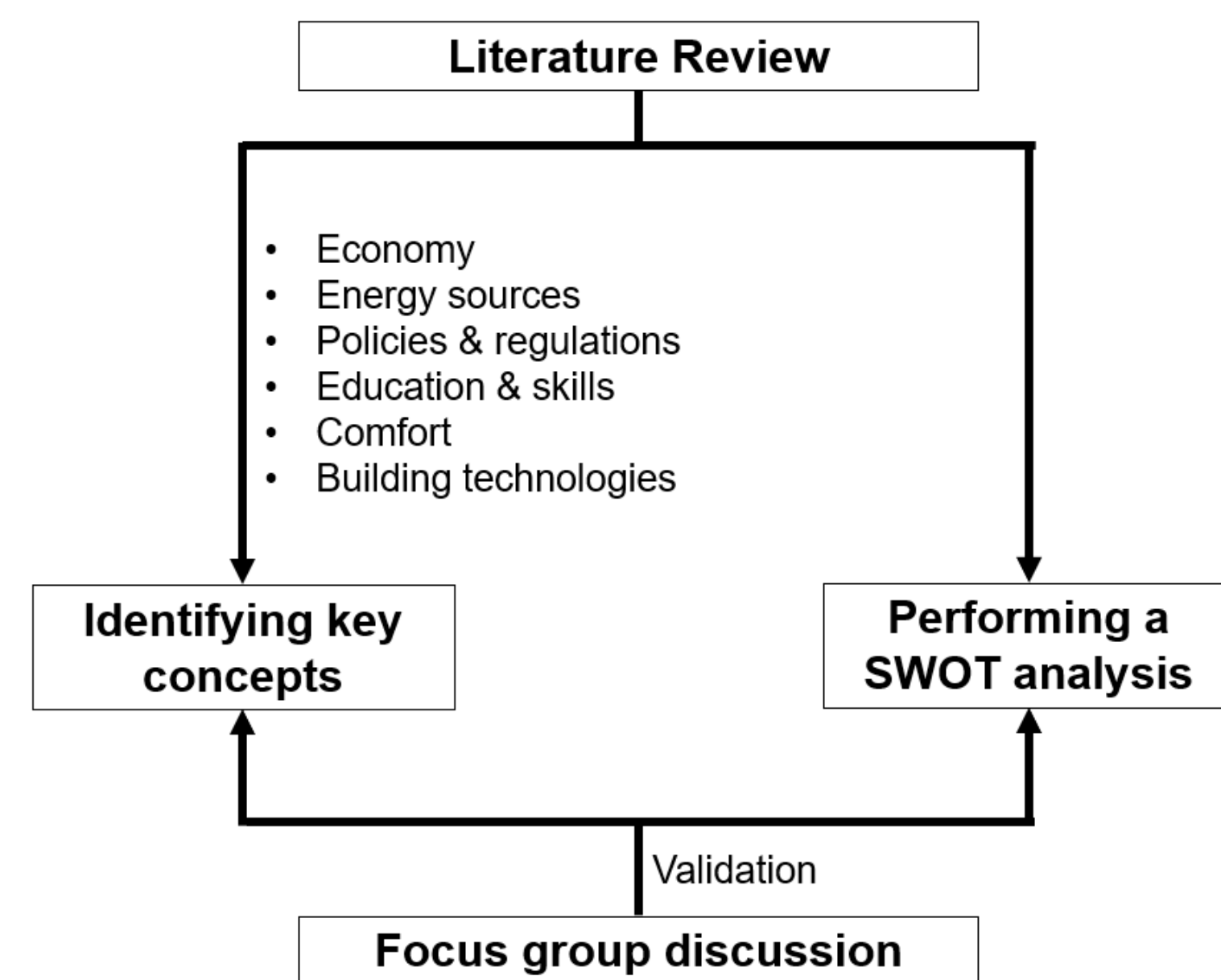
1. What are the main parameters that influence energy efficiency in the Polish residential buildings stock?
2. What are the strengths and limitations of the Polish energy sector?

ORIGINALITY

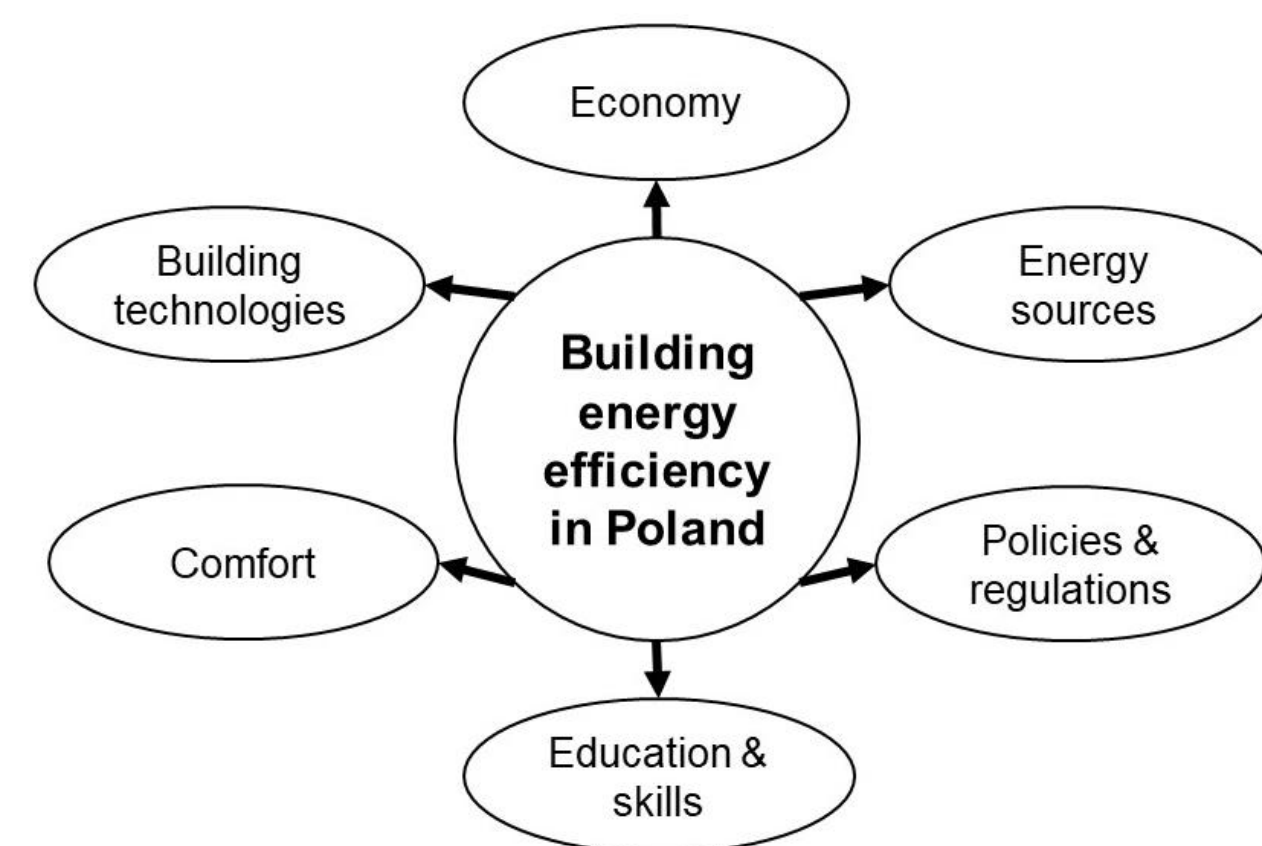
- Filling a knowledge gap regarding energy efficiency in Poland.
- Providing information on both current and future Polish regulations.
- Providing insight of experts on the current and future state of the energy efficiency market.
- Providing recommendations from experts on how to improve energy efficiency in Poland.

METHODOLOGY

- Literature review to key concepts influencing energy efficiency in the Polish residential building stock.
- SWOT analysis.
- Focus group discussion with experts to validate the results.



RESULTS



Strengths

- Progress in construction quality.
- Comeback to vocational training.
- Regulation stable and improving.
- Being part of the EU.

Opportunities

- Investment and governmental projects.
- Renewable energy sources having increasing popularity and potential.
- Increasing demand for good quality insulation.

Weaknesses

- No EPC and lack of audit.
- Reliance on coal with no carbon taxation and fuel poverty.
- Lack of technical skills.

Threats

- Cost of materials and market issues.
- Occupant behaviour wearing shorts during winter.
- Globalization of the coal market.

CONCLUSION

The Polish energy sector is under remarkable and fast-happening transformation. The market is rich and diverse with skilled labor and strong technologies, but its implementation faces financial and organizational difficulties. To face disparities between practices and expectations, recommendations can be made:

- Educate and raise awareness among the public and the stakeholders;
- Develop guidelines to improve and ease implementation of new technologies and regulations;
- Introduce more audits with strict certifications for auditors;
- Invest in energy efficiency research.

Resources

- Muresan, A. A., & Attia, S. (2017). Energy efficiency in the Romanian residential building stock: A literature review. *Renewable and Sustainable Energy Reviews*, 74, 349-363.
- Statistics Poland, 'Zużycie energii w gospodarstwach domowych w 2018 r.', p. 208, Dec. 2019.