

Energy Efficiency Start-ups and Building Sector Innovation: A Case Study of Albania

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Abstract

This research work explores the awareness and development of energy efficiency start-ups in the building sector of Albania, a country undergoing significant energy transition and urban development. As buildings account for a substantial portion of energy consumption, innovative start-ups play a critical role in promoting sustainable practices and technologies. The study examines the current landscape of energy efficiency initiatives driven by start-ups, assesses stakeholder awareness and engagement, and identifies the regulatory, financial, and infrastructural challenges these enterprises face. Using qualitative interviews, and policy analysis, the paper highlights the gaps in institutional support and public understanding that hinder the growth of energy-focused start-ups. The findings underline the need for targeted incentives, clearer legal frameworks, and public-private collaboration to boost entrepreneurial activity in this vital sector. This case study of Albania offers broader insights into how emerging economies can better integrate start-up innovation into their energy efficiency strategies in the built environment

Keywords: Energy Efficiency Startups; Building Sector; Sustainable Practices; Technologies

1. Introduction

The global urgency to reduce energy consumption and carbon emissions has placed buildings at the center of sustainability agendas, particularly in developing and transitional economies. In Albania, the building sector accounts for a significant share of total energy use, underscoring the need for innovative approaches to energy efficiency [1-4]. Start-ups often characterized by their agility, technological creativity, and problem-solving capacity hold significant potential to address inefficiencies in this sector [5-9]. However, the ecosystem supporting energy efficiency start-ups in Albania remains underdeveloped, with limited public awareness, scarce financial incentives, and unclear regulatory guidance.

This study investigates the current state of awareness and institutional support for energy efficiency start-ups in Albania’s building sector. Central to the research are qualitative interviews with key stakeholders including entrepreneurs, policymakers,

university professors, and energy consultants which reveal both the opportunities and barriers faced by emerging ventures. In parallel, a comprehensive policy analysis examines the legal and regulatory framework shaping the energy efficiency and start-up landscape in Albania. Through this dual approach, the study identifies gaps between policy intentions and on-the-ground realities, particularly in terms of policy implementation, market incentives, and stakeholder coordination.

The findings contribute to the broader discourse on sustainable urban development by highlighting how policy environments and awareness levels influence innovation dynamics in the energy sector. By focusing on the Albanian context, the research provides a case-specific understanding that may inform strategies in other emerging economies facing similar transitional challenges.

2. Methodology

This research employs a qualitative methodology to explore the awareness, challenges, and policy context surrounding energy efficiency start-ups in the Albanian building sector. The study is grounded in two primary data collection methods: semi-structured interviews and policy document analysis.

A total of 8 semi-structured interviews were conducted with a diverse group of stakeholders which are as follows:

- Policy advisor from Ministry of Infrastructure and Energy of the Republic of Albania
- Members from Green Future Albania company
- Lawyer expert for renewable energy
- Professors in Energy Efficiency from Polytechnic University of Tirana, Albania.

Participants has been selected by using purposive sampling to ensure a representative mix of perspectives from both the public and private sectors. The interviews explored participants' perceptions of awareness, institutional barriers, market dynamics, and the effectiveness of current support mechanisms for energy efficiency start-ups.

The second component of the methodology involved an in-depth review of Albania's policy and legal documents relevant to energy efficiency, start-up development, and the building sector.

Key documents analyzed include:

- The National Energy Efficiency Action Plan (NEEAP) [10]
- The Law on Energy Efficiency (No. 124/2015) [11]
- Start-up Law (Law No. 118/2021) [12]
- National Strategy for Energy 2030 [13]
- Urban planning and construction codes relevant to green buildings

Policy analysis focused on identifying both the presence and implementation of incentives, legal clarity, institutional responsibilities, and alignment with EU directives. The documents were evaluated using content analysis to identify recurring themes, gaps, and inconsistencies that could affect start-up engagement in the energy efficiency space.

3. Data Analysis

Data from interviews and policy documents were analyzed thematically. A coding framework was developed inductively to capture emerging themes such as regulatory challenges, market awareness, financing access, and institutional coordination. Triangulation between interview insights and policy content enhanced the validity of the findings.

Figure 1 depict the analysis results of the first questionnaire which correspond to the question “How would you describe the current landscape for energy efficiency startups in Albania?”

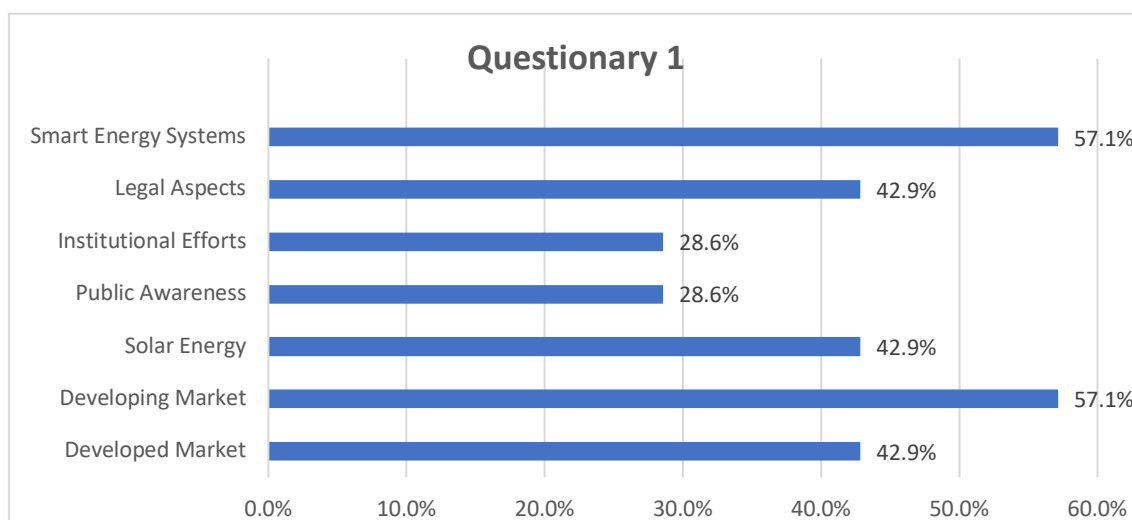


Figure 1. Current landscape of the energy efficiency in Albania

Figure 2 will be focused on the analysis of the second questionnaire that correspond to the question “What are the main challenges faced by energy efficiency startups in Albania?”

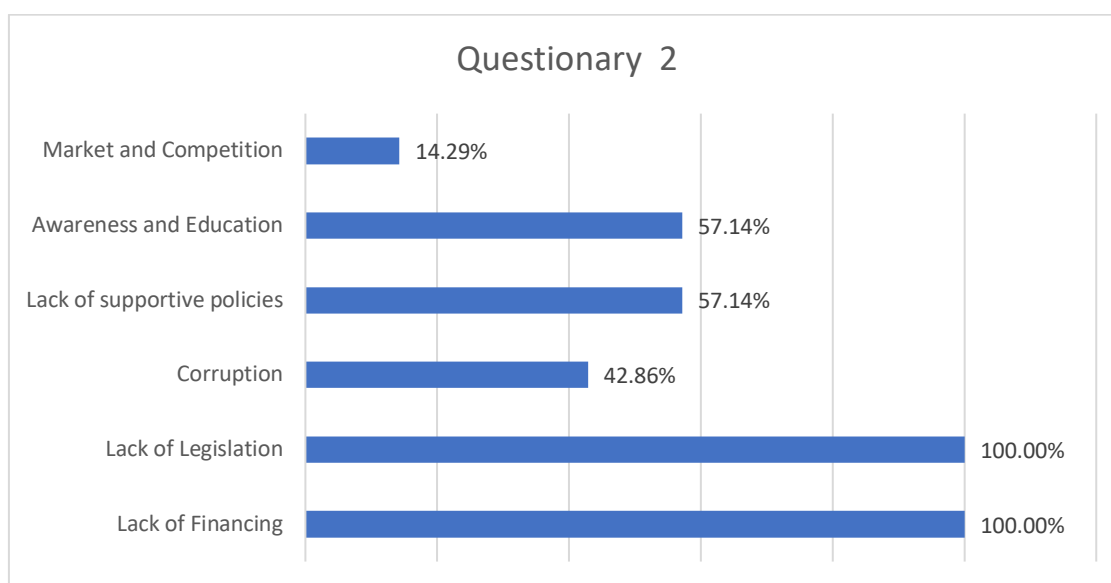


Figure 2. The main challenges faced by energy efficiency startups in Albania

The analysis results of the questionnaire 3 has been depicted in the Figure 3 and focused on the question “What are the main growth opportunities in the energy efficiency sector in Albania?”

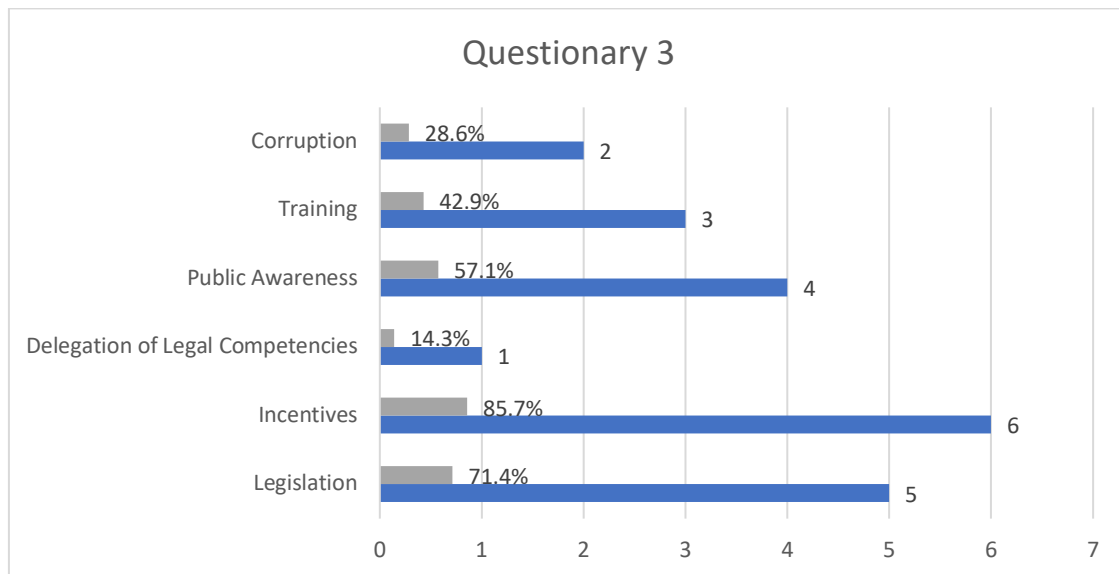


Figure 3. The main growth opportunities in the energy efficiency sector in Albania

Figure 4 show the analysis results of the questionnaire 4 which correspond to the question “What measures do you think are necessary to encourage the development of energy efficiency startups in Albania?”

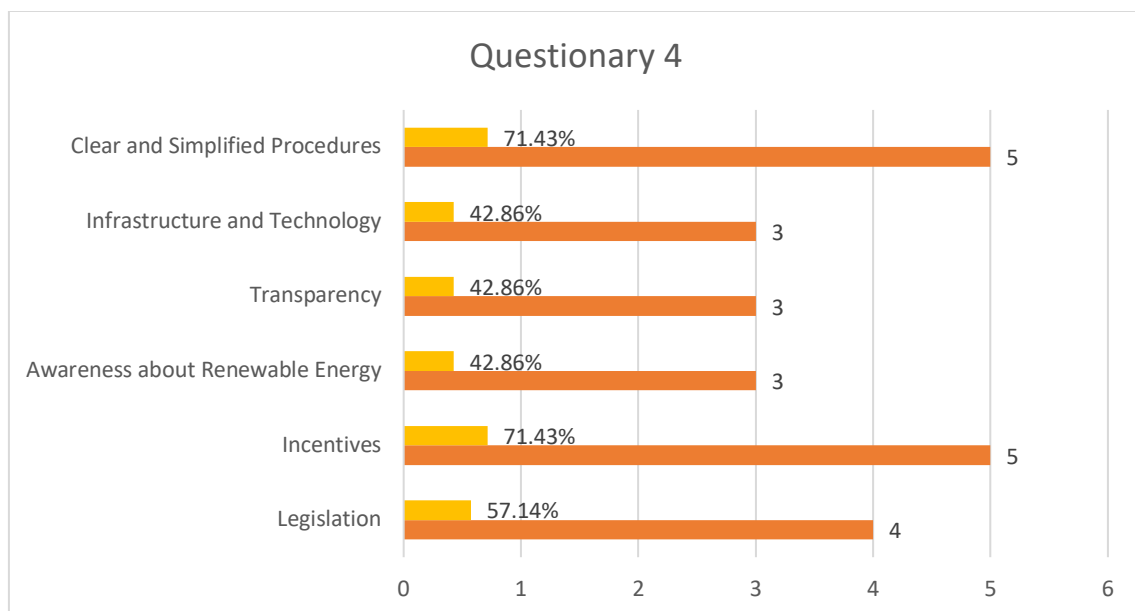


Figure 4. The necessary measures to encourage the development of energy efficiency startups in Albania?

The questionnaire 5 has been focused on the question “Can you provide examples of how energy efficiency startups have contributed to economic development in other countries or regions?”. Figure 5 depict the analysis results of the questionnaire 5.

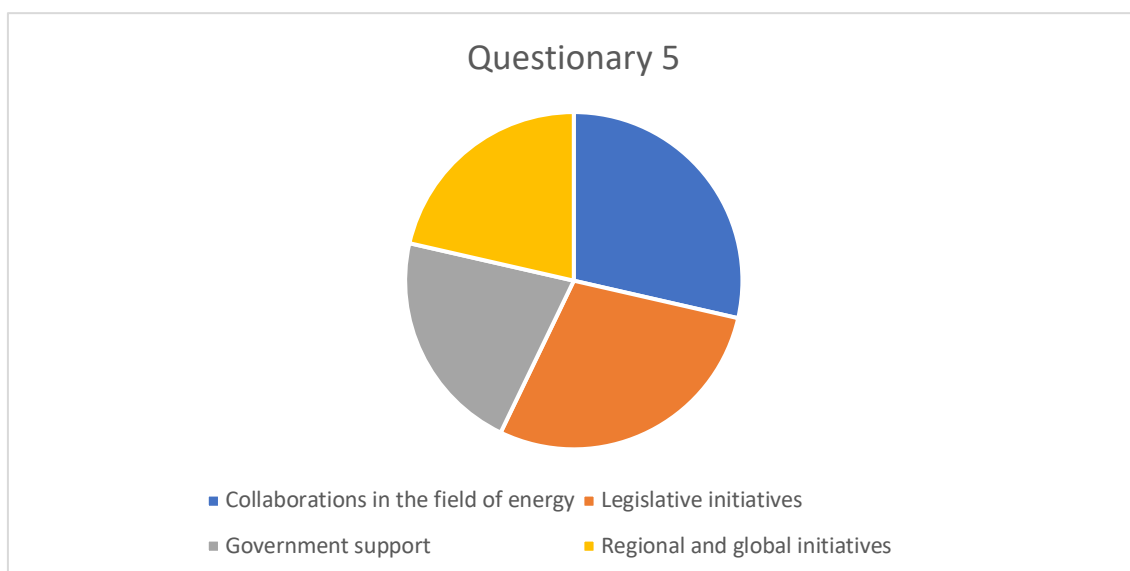


Figure 5. How energy efficiency startups have contributed to economic development in other countries or regions

The last questionnaire analysis has been focused on the question “Could you suggest any other individual or organization we should talk to in order to gain further knowledge on this topic?”

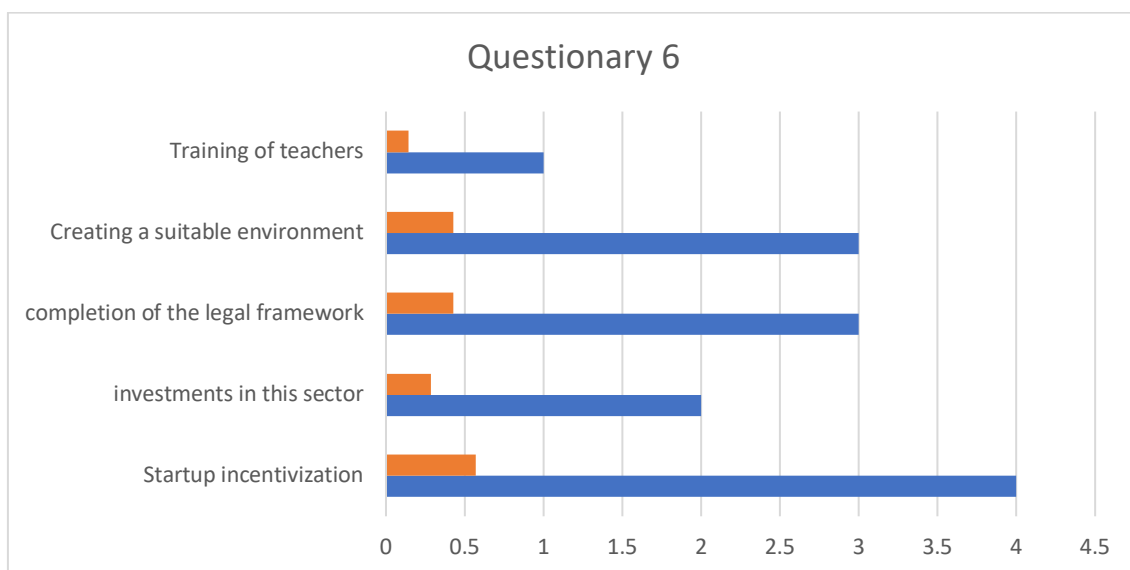


Figure 5. Suggestion of any other individual or organization for energy efficiency startup

The analysis revealed a significant gap between policy frameworks and practical support for energy efficiency start-ups in Albania’s building sector. While national strategies and laws exist to promote energy efficiency and entrepreneurship, stakeholders consistently pointed to challenges in implementation, including limited awareness of available incentives and complex regulatory procedures.

Interviews highlighted that start-up founders often struggle with accessing financing and navigating unclear legal requirements, which hinders innovation and market entry. Policymakers acknowledged these barriers but noted ongoing efforts to improve coordination and streamline support mechanisms.

4. Summary and Conclusion

This research work has been focused on the awareness and development of energy efficiency start-ups in Albania's building sector through qualitative interviews and policy analysis. Findings indicate that although Albania has relevant policies aimed at promoting energy efficiency and start-ups, there is a noticeable gap between policy intentions and on-the-ground realities. Start-ups face challenges such as limited awareness, regulatory complexity, and insufficient financial incentives, which restrict their growth and impact.

To foster a thriving energy efficiency start-up ecosystem in Albania's building sector, it is crucial to enhance policy implementation, simplify regulatory processes, and increase targeted awareness efforts. Strengthening collaboration between government, industry, and entrepreneurs will be key to unlocking innovation potential and advancing sustainable building practices. These insights provide valuable guidance for policymakers and stakeholders aiming to accelerate energy transition through entrepreneurial innovation.

Conflict of interests

We would like to confirm that there is no conflict of interests associated with this publication and there is no financial fund for this work that can affect the research outcomes.

References

- [1] Cohen, B., and Winn M.I. Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing* 2007; 22(1); 29-49.
- [2] Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 2014; 65, 42-56.
- [3] Dhoska, K., Bebi, E., Markja, I. et al. Modelling the wind potential energy for metallurgical sector in Albania. *Sci. Rep.*, 2024; 14; 1302.
- [4] Koysuren, O., Dhoska, K., Koysuren, H.N. et al. SiO₂/WO₃/ZnO based self-cleaning coatings for solar cells. *J. Sol-Gel Sci. Technol.*, 2024; 110; 183–203.
- [5] Dhoska, K. et al. Fabrication of Composite Materials for Self-Cleaning Coatings to Enhance Solar Cell Efficiency. In: *Dhoska, K., Spaho, E. (eds) Bridging Horizons in Artificial Intelligence, Robotics, Cybersecurity, Smart Cities, and Digital Economy*. ICITTBT 2024. Sustainable Economy and Ecotechnology. Springer, Cham. 2025
- [6] Dhoska, K., Bebi, E., Markja, I., Mustafaraj, G. Analysis of Energy Audit in the Architectural Design Office Located in Tirana. *Proceedings of the Joint International Conference: 10th Textile Conference and 4th Conference on*

- Engineering and Entrepreneurship*. ITC-ICEE 2023. Lecture Notes on Multidisciplinary Industrial Engineering. Springer, Cham. 2024.
- [7] Okashah, L.A., Han, D.Y., Almusawi, S.A. Sustainability of Societies in an Era of Rapidly Changing Technology. In: *Dhoska, K., Spaho, E. (eds) Bridging Horizons in Artificial Intelligence, Robotics, Cybersecurity, Smart Cities, and Digital Economy*. ICITTBT 2024. Sustainable Economy and Ecotechnology. Springer, Cham. 2025.
- [8] Mustafaraj, G., Dhoska, K. Comparison of Different Energy Efficiency Techniques Applied to Building Envelope and Air Conditioning Plants. *Proceedings of the Joint International Conference: 10th Textile Conference and 4th Conference on Engineering and Entrepreneurship*. ITC-ICEE 2023. Lecture Notes on Multidisciplinary Industrial Engineering. Springer, Cham. 2024.
- [9] Dorri A., Alcani M., Gjeta A. The Role of the Agriculture and Forestry Sectors in Greenhouse Gas Emission: The Case of Albania, *Journal of Integrated Engineering and Applied Sciences*. 2023; 1(2); 32-39.
- [10] Ministry of Infrastructure and Energy, Republic of Albania. (2015). National Energy Efficiency Action Plan 2015–2018. Tirana, Albania. Available from: <https://www.iea.org/policies/1957-national-energy-efficiency-action-plan-2010-2018> (Access Date 01 May 2025).
- [11] Republic of Albania. (2015). Law No. 124/2015 on Energy Efficiency. Available from: https://climate-laws.org/document/law-on-energy-efficiency-no-124-2015_7303 (Access Date 01 May 2025).
- [12] Republic of Albania. (2021). Law No. 118/2021 on Start-ups. Available from: <https://dwfgroup.com/en/news-and-insights/insights/2021/9/the-new-provisions-brought-by-law-decree> (Access Date 01 May 2025).
- [13] Republic of Albania. (2018). National Energy Strategy 2018–2030. Council of Ministers. Available from: https://climate-laws.org/document/national-strategy-of-energy-2018-2030_adcc (Access Date 01 May 2025).

Cite this article as: Cara R., Korsita B, Cara F. Energy Efficiency Start-ups and Building Sector Innovation: A Case Study of Albania, *Journal of Integrated Engineering and Applied Sciences*, 2025; 3(2); 229-235.