

RENEWABLE ENERGY EDUCATION FOR SUSTAINABLE ENERGY TRANSITION

SUMMARY

Renewable energy education is a critical enabler of the sustainable and solar energy transition, supporting the development of skilled human capital and informed stakeholders. However, gaps in structure, accessibility, and delivery limit its effectiveness, particularly in developing contexts. This paper examines renewable energy education with emphasis on capacity building, skills development, and knowledge dissemination. Using a qualitative and analytical approach informed by literature and training practices, the study identifies limitations in curriculum integration, training infrastructure, and alignment with industry needs. The findings emphasise the importance of structured and inclusive educational approaches to strengthen participation and support the long-term sustainability of renewable energy systems.

KEYWORDS

Renewable energy education, energy transition, capacity building, skills development, solar energy

FIELD OF APPLICATION FOR THE FINDINGS

Renewable energy education and training, capacity development, solar energy systems

ADDRESSED AUDIENCE

Researchers, educators, policymakers, and renewable energy practitioners

1. INTRODUCTION

The transition towards sustainable energy systems is a global priority driven by the need to address climate change, enhance energy security, and promote sustainable development. While advancements in solar and renewable energy technologies continue to accelerate, the availability of skilled human capital remains a critical constraint.

Renewable energy education plays a central role in addressing this gap by equipping individuals with the knowledge and competencies required to support the development, implementation, and maintenance of renewable energy systems. However, in many contexts, education and training systems have not evolved at the same pace as technological developments, resulting in a mismatch between workforce skills and industry demands.

This paper focuses on renewable energy education as a key component of the sustainable and solar energy transition, with particular emphasis on capacity building and workforce development.

2. APPROACH

The study adopts a qualitative and analytical approach to examine renewable energy education and its role in the energy transition. The analysis draws on relevant literature, existing educational frameworks, and insights from renewable energy training practices.

Particular attention is given to curriculum design, accessibility of training opportunities, and alignment with industry needs. The study also considers the role of institutional collaboration and stakeholder engagement in strengthening renewable energy education systems.

3. RESULTS AND DISCUSSION

The analysis indicates that renewable energy education is essential for developing technical competencies and supporting broader participation in the energy transition.

Key issues include limited institutional capacity, insufficient integration of renewable energy topics into formal education curricula, and a lack of standardised training frameworks. In addition, disparities in access to education and training opportunities continue to affect participation in the renewable energy sector.

This paper contributes by providing a structured perspective on renewable energy education as a key enabler of the sustainable and solar energy transition.

The findings suggest that effective renewable energy education should extend beyond technical instruction to include awareness, adaptability, and long-term capacity development.

4. CONCLUSION

Renewable energy education is fundamental to the sustainable and solar energy transition, providing the foundation for developing the skills required to support renewable energy systems.

Strengthening education and training systems is essential to ensure effective participation in the energy sector. Enhancing curricula, improving access to training, and fostering collaboration among stakeholders will support the continued growth and sustainability of renewable energy systems.

The study highlights the importance of prioritising renewable energy education within broader strategies aimed at achieving long-term sustainability goals.