



### REVIEWER'S REPORT

**Manuscript No.: IJAR- 57633**

**Title: DECARBONIZATION PATHWAYS IN THE ELECTRICITY SECTOR: TARK?YES STRATEGIC RESPONSE TO THE EUROPEAN GREEN DEAL**

**Recommendation:**

**Accept**

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality	Yes			
Clarity	Yes			
Significance		Yes		

**Reviewer Name: Dr. Ashish Yadav**

### *Detailed Reviewer's Report*

**Reviewer's Comment for Publication.**

Acceptance Comment are mentioned below suitable for the paper titled “DECARBONIZATION PATHWAYS IN THE ELECTRICITY SECTOR: TARK?YES STRATEGIC RESPONSE TO THE EUROPEAN GREEN DEAL”

**Reviewer Comments: Accept**

**Reviewer Comments –**

The manuscript presents a timely and policy-relevant analysis of electricity sector decarbonization in the context of the European Green Deal and the Carbon Border Adjustment Mechanism (CBAM). The study effectively highlights Türkiye's strategic transition toward a low-carbon energy system while addressing both environmental sustainability and international trade competitiveness. The paper is well-structured, logically organized, and contributes valuable insights into energy transition strategies in emerging economies.

**1. Introduction**

The introduction clearly establishes the global significance of electricity sector decarbonization and successfully connects the European Green Deal and CBAM with Türkiye's energy transition policies. The objectives of the study are well defined, and the rationale for focusing on Türkiye is convincing. The background information provides strong contextual relevance and demonstrates the importance of aligning national energy strategies with international climate commitments.

**2. Literature Review**

The literature review is comprehensive and adequately covers existing studies on renewable energy integration, nuclear power, energy storage technologies, hydrogen applications, carbon pricing mechanisms, and emissions trading systems. The review effectively identifies the research gap concerning Türkiye's strategic adaptation to CBAM and its transition from compliance-driven policies

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toward a holistic decarbonization framework. The references used are relevant and support the theoretical foundation of the study.

### 3. Solution Approach

The manuscript adopts a systematic and well-defined analytical approach to evaluate global decarbonization pathways and Türkiye's strategic response. The discussion on renewable energy expansion, the Akkuyu Nuclear Power Plant, energy diversification, and the proposed domestic Emissions Trading System (ETS) demonstrates strong policy integration. The approach successfully combines international policy analysis with national energy planning perspectives, making the study both practical and academically valuable.

### 4. Results and Discussion

The results and discussion section provides meaningful insights into Türkiye's progress toward its 2053 Net Zero target. The analysis of renewable energy capacity growth, future solar and wind targets, and the role of nuclear energy in reducing carbon emissions is clearly presented. The discussion effectively explains how the implementation of Climate Law and ETS mechanisms can reduce CBAM-related risks while strengthening economic sustainability and energy security. The interpretation of findings is logical, relevant, and supported by current policy developments.

### 5. Conclusion

The conclusion successfully summarizes the major findings of the study and reinforces the strategic importance of electricity sector decarbonization for Türkiye. The manuscript clearly demonstrates that integrating renewable energy, nuclear power, carbon pricing mechanisms, and policy reforms will be critical for achieving long-term sustainability and maintaining international trade competitiveness. The recommendations are practical and aligned with current global energy transition trends.

The manuscript offers an important contribution to the fields of sustainable energy policy, electricity sector decarbonization, and climate governance. The topic is highly relevant, the analysis is comprehensive, and the conclusions are well supported. The paper is suitable for publication in its present form.