

Article

Translation Features Of Green Energy And Climate Terminology

Mustafojeva Sarvinoz Xolmurodovna¹

1. Trainee Assistant, Department of Languages, Samarkand State Medical University

Abstract: This study presents a comparative analysis of the cognitive-semantic characteristics of green energy terminology in the English and Uzbek languages. The relevance of the research is explained by the growing significance of environmental issues, climate change, and the increasing demand for renewable energy sources. Therefore, the investigation of the formation, meaning, semantic structure, and cognitive representation of green energy terms has become an important area of linguistic research. The main objective of the study is to identify the semantic features, conceptual content, and cognitive foundations of green energy terms used in English and Uzbek. To achieve this goal, the linguistic nature of green energy terminology, its translation equivalents, term formation methods, and semantic classifications are analyzed. The research employs comparative-analytical, semantic, cognitive, and descriptive methods.

Keywords: green energy, terminology, cognitive linguistics, semantics, renewable energy, environmental terms, concept, translation, English language, Uzbek language.

Citation: Mustafojeva Sarvinoz Xolmurodovna. Scholastic: Journal of Natural and Medical Education. Translation Features Of Green Energy And Climate Terminology, 5(2), 88-91.

Received: 10th Jan 2026Revised: 22th Jan 2026Accepted: 1th Mei 2026Published: 11th Jun 2026

Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

1. Introduction

In the 21st century, environmental issues, global warming, and climate change have emerged among the most critical milestones confronting humanity. Driven by massive anthropogenic greenhouse gas emissions, the depletion of finite natural resources, and the severe ecological impact of conventional fossil fuels, the global community has increasingly pivoted toward the frameworks of a "green economy" and "green energy." Consequently, an extensive corpus of novel terms regarding ecology, energetics, and climate change has entered international scientific and academic discourse. Currently, English serves as the global lingua franca of science and technology, acting as the primary source for green energy and climate terminology. Conceptual units such as renewable energy, carbon neutrality, green economy, and climate resilience are actively deployed in global literature and are rapidly diffusing into other languages, including Uzbek. This rapid influx renders the structural taxonomy, semantic dimensions, and translational equivalence of these terms an essential object of linguistic inquiry. Green energy and climate terminology is characterized by a highly intricate semantic architecture. These terms signify not merely isolated technical or scientific mechanisms, but broad ecological, socioeconomic, and political concepts. Because many of these English terms are structured as complex noun compounds or metaphorical expressions, mapping them onto the Uzbek linguistic system triggers distinct translation challenges. Specifically, the existence of competing synonymous equivalents, a lack of standardized systemic uniformity, and the high velocity at which new concepts emerge further complicate the translational process. The purpose of this study is to classify these terms from a structural-semantic perspective and establish a systematic methodological framework for their translation into the Uzbek language.

2. Methods

This study utilizes a qualitative and contrastive linguistic research design to evaluate the translation of green energy and climate terminology from English into Uzbek. [1] The empirical material for this research was gathered from contemporary English-language scientific literature, environmental policy declarations, and media sources, alongside their corresponding translations in Uzbek academic journals and official environmental texts. [2]

The analytical framework consists of two primary axes:

Structural-Semantic Analysis: Examining the morphological and metaphorical composition of English source terms to determine how conceptual paradigms (such as the color metaphor "green") function.[3]

Comparative Translation Analysis: Classifying the rendered terms based on established translation typologies, namely structural calque (loan translation), morphological transliteration, and descriptive (paraphrastic) translation.[4]

The selected corpus of terms was systematically evaluated to measure how effectively each translation strategy preserves semantic precision, structural conciseness, and contextual clarity within Uzbek scientific prose.[5]

Results

The empirical investigation indicates that green energy and climate terminology constitute one of the most rapidly expanding lexical domains in contemporary applied linguistics. Born from the cross-disciplinary integration of ecology, economics, engineering, and digital technology, these terms rely heavily on semantic extension and metaphor.[6]

A prominent linguistic feature identified within this corpus is its conceptual metaphorical character. For instance, the term *carbon footprint* translates literally into Uzbek as *uglerod izi*. This unit functions as a conceptual metaphor quantifying the total greenhouse gas emissions caused directly and indirectly by human activity. Similarly, the constituent element *green* in compounds like *green economy*, *green technology*, and *green energy* undergoes a semantic shift where it denotes "ecologically sustainable," "non-polluting," or "environmentally friendly" rather than a physical color.[7]

The integration of these terms into the Uzbek lexical system occurs through three primary operational pathways, as classified in the tables below:[8]

Table 1
Transliteration and Loan Adaptation

English Source Term	Uzbek Transliteration	Conceptual Domain
<i>biomass</i>	biomassa	Organic energy sources
<i>ecology</i>	ekologiya	General environmental science
<i>hybrid technology</i>	gibrid texnologiya	Cross-functional engineering
<i>emission</i>	emissiya	Atmospheric discharge

Table 2
Structural Calque

English Source Term	Uzbek Calque Representation	Semantic Equivalence
<i>greenhouse effect</i>	issiqxona effekti	Literal structural replication
<i>climate change</i>	iqlim o'zgarishi	Direct semantic mapping
<i>renewable resources</i>	qayta tiklanuvchi resurslar	Morphological adaptation
<i>carbon footprint</i>	uglerod izi	Metaphorical transfer

Table 3
Descriptive and Explanatory Translation

English Source Term	Uzbek Descriptive Translation	Functional Meaning in Uzbek
<i>carbon neutrality</i>	uglerod chiqindilarining muvozanat holati	State of balanced carbon emissions
<i>sustainable development</i>	barqaror va ekologik xavfsiz rivojlanish	Stable and ecologically safe development
<i>net zero emissions</i>	zararli gaz chiqindilarini nol darajaga tushirish	Reduction of harmful emissions to zero

Discussion

The linguistic data show that the translation of ecological terminology requires the translator to balance literal lexical rendering against functional and conceptual accuracy. Environmental terminology is highly standardized internationally, meaning a single translational error can distort the entire scientific premise of a text.[9] The widespread success of structural calque demonstrates that direct compound mapping works efficiently when the target language possesses equivalent lexical slots (e.g., *climate change* → *iqlim o'zgarishi*). This approach preserves the conciseness required of scientific nomenclature while remaining harmonized with international systems. [10] Likewise, transliteration (Table 1) maintains cross-linguistic recognizability, which helps integrate Uzbek scholars into global academic networks. However, its disadvantage is that borrowed forms like *emissiya* or *biomassa* often remain obscure to the general public unless accompanied by context. [11] Conversely, descriptive translation (Table 3) becomes necessary when the Uzbek language lacks a direct structural or conceptual equivalent for a consolidated English unit.[12]

While terms like *carbon*

neutrality require multiple words to explain in Uzbek (*uglerod chiqindilarining muvozanat holati*), this method prevents semantic gaps.[13] The evident trade-off is that descriptive paraphrasing sacrifices lexical economy and breaches the traditional structural brevity expected of formal terminology.[14]

The data ultimately indicate that as a uniform global terminological system forms around climate issues, the Uzbek language relies on a hybrid approach—retaining international structural forms where possible, while deploying contextual expansions to anchor new environmental paradigms into local discourse.[15]

Conclusion.

From a lexicographical perspective, the analysis reveals that the representation of green energy and climate terminology within specialized dictionaries remains insufficiently systematized. Significant discrepancies and inconsistencies were observed between the translations and conceptual definitions of certain terms across different lexicographical sources. This divergence strongly highlights the urgent necessity of compiling dedicated, high-precision bilingual dictionaries focusing specifically on ecological and environmental nomenclature. Furthermore, the findings of this study underscore that the systematic investigation of environmental terminology carries profound academic value not only for general linguistics but also for translation studies and modern lexicography. Ensuring the precise and standardized application of ecological terms is directly correlated with enhancing the efficiency and clarity of international scientific communication. Consequently, future research must prioritize the deep linguistic analysis of emerging green energy domains, the formulation of standardized Uzbek conceptual equivalents, and the development of integrated electronic terminological databases to support scholars, translators, and policymakers alike.

References:

- [1] *English-Uzbek Dictionary of Environmental Terms*. Tashkent, Uzbekistan: Fan, 2021.
- [2] United Nations Environment Programme, *Global Environment Outlook (GEO-6): Healthy Planet, Healthy People*. Nairobi, Kenya: UNEP, 2022.
- [3] D. Crystal, *A Dictionary of Linguistics and Phonetics*, 6th ed. Oxford, UK: Blackwell Publishing, 2008.
- [4] S. X. Mustafojeva, "The actuality of distance learning and using webinar technologies in education," *International Journal of Scientific Researchers*, vol. 8, no. 1, pp. 781–784, 2024.
- [5] S. X. Mustafojeva, "Terminology as a basis for research in linguistics and scientific and technical translation," *Excellencia: International Multi-Disciplinary Journal of Education*, vol. 2, no. 9, pp. 114–120, 2024.
- [6] S. X. Mustafojeva, "Semantic and structural grouping of riddles in English," *Xorazm Ma'mun Akademiyasi Axborotnomasi*, vol. 223, no. 4, pp. 95–99, 2023.
- [7] S. X. Mustafojeva, *Business Lexicon of American and British English*. New York, NY, USA: Open Access Journals Incorporations, 2023.
- [8] S. X. Mustafojeva, "Improving all language skills by webinars," in *Proceedings of the International Scientific Conference on Opportunities to Use Advanced Foreign Experiences*, Tashkent, 2023, pp. 45–49.
- [9] J. Munday, *Introducing Translation Studies: Theories and Applications*, 5th ed. London, UK: Routledge, 2022.
- [10] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report*. Geneva, Switzerland: IPCC, 2023.
- [11] M. Baker, *In Other Words: A Coursebook on Translation*, 3rd ed. New York, NY, USA: Routledge, 2018.
- [12] L. Bowker, "Terminology and translation," in *Handbook of Terminology*, vol. 1, H. J. Kockaert and F. Steurs, Eds. Amsterdam, Netherlands: John Benjamins Publishing Company, 2015, pp. 345–365.
- [13] M. Fischbach, Ed., *Translation and Medicine*. Amsterdam, Netherlands: John Benjamins Publishing Company, 1998.
- [14] P. Newmark, *A Textbook of Translation*. New York, NY, USA: Prentice Hall, 1988.
- [15] Sh. S. Imomova, "Zamonaviy tilshunoslikda ekologik terminlarning o'zlashishi va kalkalash muammolari" (Problems of borrowing and calquing ecological terms in modern linguistics), *O'zbekistonda Xorijiy Tillar*, vol. 5, no. 2, pp. 62–69, 2023.