

CRITERIA FOR COGNITIVE-SEMANTIC LEARNING OF GREEN ENERGY
TERMS IN ENGLISH AND UZBEK LANGUAGES

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Annotation: *This article examines the main criteria for the cognitive-semantic study of green energy terms in English and Uzbek. It analyzes the semantic structure, conceptual features, and national-cultural aspects of terms in this field, together with the mechanisms of their formation in the two languages. The semantic field, conceptual categories, and processes of metaphorical and metonymic meaning formation are identified as the key criteria of analysis, along with the cognitive modeling and frame-based classification of terms. The results help reveal the regularities of environmental and energy terminology formation in English and Uzbek and contribute to improving modern terminological systems.*

Keywords: *Green energy, green energy terminology, cognitive semantics, concept, term, semantic field, conceptosphere, frame, metaphor, metonymy, comparative analysis, English language, Uzbek language, renewable energy.*

Green energy is one of the most pressing topics at the intersection of economics, ecology, and politics today. Concepts such as solar panels, wind turbines, hydrogen fuel, and carbon neutrality reflect humanity's changing relationship with nature, and each new field brings with it its own system of terms and meanings. English leads internationally in this domain, while Uzbek is at the stage of adopting, mastering, and adapting these terms. When comparing terminology across languages, the basis for comparison should not be the term itself but the underlying concept or frame, since different languages may name the same reality differently while the concept behind it remains shared.

Comparative analysis is best carried out in two stages: first identifying the shared concept (the onomasiological stage), then studying how each language names it (the semasiological stage). Since English is an analytic language and Uzbek an agglutinative one, their means of term formation differ significantly — English relies mainly on compounding, while Uzbek relies on suffixation and *izafet* (*izofa*) constructions — and this typological difference must be taken into account in comparative analysis. Within the cognitive approach to terminology, developed in the works of S.V. Grinev and V.M. Leychik, a term is treated not as a static label but as a dynamic phenomenon that emerges through cognition — the result of a mental concept becoming a verbalized sign — and this dynamic view offers the most effective basis for studying the language of the newly emerging field of green energy.

For translation and standardization purposes, it is useful to distinguish three types of equivalence between English and Uzbek terms, illustrated in Table 1.



Table 1. Typology of equivalence between English and Uzbek terms

Equivalence type	Definition	Example
Full equivalence	Concept, motivation, and form fully match	carbon footprint = carbon footprint
Partial equivalence	Similar concept, different motivation or form	smart grid $\approx$ smart network
Zero equivalence (lacuna)	No stable target-language unit clearly covers the concept	net zero $\rightarrow$ net zero / zero emissions

Zero equivalence, or lacunae, deserves special attention, since it is precisely here that the expressive resources of a language are tested. Lacunae may be lexical (no target-language unit exists and the concept is conveyed only through description), partial (several competing variants exist, with none fixed as the norm), or metaphorical (the concept is expressed, but its original metaphorical motivation is lost in the target language). Each type calls for its own solution — coining a new term, standardizing one of the existing options, or restoring the metaphor.

The criteria examined also have a cultural-cognitive dimension. In English, the adjective green in green energy carries associations of ecology and permissiveness, while its Uzbek counterpart, yashil, evokes images of nature, greenery, and renewal; since both languages associate the color with positive environmental values, the term green energy transfers naturally between them. However, color symbolism does not always align across languages — for example, the scope of ko‘k (“blue/green”) in Uzbek differs from that of blue in English — which shows that translating color-based terms requires particular care, since a term carries cultural association as well as concept.

This analytical framework has clear practical value. It helps align term pairs in bilingual dictionaries and terminological databases while assessing their conceptual and metaphorical compatibility; it guides translators in choosing between a calque, which preserves metaphorical motivation, and a descriptive solution, which preserves conceptual clarity; and it provides a basis for standardization by favoring the variant with greater transparency of internal form, field-appropriate motivation, and brevity.

Conclusion: Thus, a cognitive-semantic approach — built on a shared conceptual basis, a clear typology of equivalence, a differentiated treatment of lacunae, and attention to cultural connotation — provides a reliable framework for comparing green energy terminology in English and Uzbek. Such analysis not only reveals the regularities of term formation in the two languages but also creates a solid foundation for compiling bilingual terminological dictionaries, improving translation practice, and standardizing the rapidly growing vocabulary of the green energy field.



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