

# Specific Features Of Translating English Energy-Related Lexical Units Into The Uzbek Language

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**Abstract:** This study examines the specific linguistic, cognitive and terminological features involved in translating English energy-related lexical units into the Uzbek language. Drawing on a bilingual and monolingual corpus of energy-sector discourse, as well as authoritative terminological resources, the research explores how polysemy, metaphorical extensions and structural asymmetries between the English and Uzbek terminological systems affect translation accuracy. The findings show that only a minority of English terms possess full Uzbek equivalents, while the majority fall under partial equivalence or lack established counterparts, especially within emerging subdomains such as electricity markets and smart-grid technologies.

**Keywords:** Energy terminology; translation studies; Uzbek translation; conceptual metaphor; polysemy; terminological equivalence; cognitive semantics; corpus analysis; energy discourse; technical translation; standardization; calquing; metaphorical extensions.

**Introduction:** The terminology of the English energy sector has become one of the core communicative instruments of modern scientific-technical development and global energy cooperation. The translation of these terms into Uzbek requires not only lexical substitution but also an understanding of their conceptual content, contextual meanings and metaphor-based extensions. As J. Lyons notes, polysemous lexical units tend to belong to different conceptual domains depending on context, which creates significant ambiguity in technical translation [Lyons; p. 2]. This is clearly observed in terms such as “grid” or “load”, whose general-language meanings differ significantly from their domain-specific usages. According to Lakoff and Johnson, many terms develop through conceptual metaphor, where everyday physical or spatial concepts become cognitive models for describing technical processes [Lakoff and Johnson; p. 242].

Given this complexity, translating energy terminology requires more than finding a lexical match, it requires identifying a term’s conceptual function, position within the terminological system and underlying metaphorical motivations. As emphasized by Sager and Leychik, terminological equivalence is achieved only when the denotative, connotative and functional layers

of a term are carefully analyzed prior to translation [Sager; p. 256; Leychik; p. 115]. L.R. Shedjelova further argues that equivalence in the translation of technical terminology is fundamentally conceptual rather than purely lexical, which explains why English and Uzbek energy terminologies often exhibit full equivalence, partial equivalence, or a complete lack of direct counterparts [Shedjelova; p. 186]. Therefore, the translation of energy-related lexical units must be grounded in cognitive-semantic and conceptual analysis to ensure accurate and discipline-appropriate rendering.

## METHODOLOGY

The empirical base for this article consists of a deliberately assembled bilingual corpus and authoritative terminological resources designed to capture the multidimensional character of energy-sector discourse. Materials we used for our work include the following:

- a parallel corpus of English energy texts and their Uzbek translations drawn from technical standards, regulatory documents, operator manuals, academic articles and conference proceedings;
- monolingual corpora of contemporary English energy literature (policy papers, industry reports, technical

manuals) and of Uzbek scientific-technical texts to trace established usage and nascent calques;

- specialized bilingual glossaries and dictionaries (energy glossaries, electrical engineering dictionaries) and online termbanks;

- auxiliary corpora from related disciplines (economics, environmental policy, law) to account for cross-disciplinary senses (for example, “capacity” in engineering and market design).

Software and tools employed for analysis include corpus concordancers, term-extraction utilities, collocation and frequency analyzers, and annotation platforms for manual sense-tagging. Throughout material selection the study follows international terminological principles and relies on the theoretical taxonomy of equivalence (full, partial, no direct equivalent).

Reference to cognitive and metaphor theory is ensured by including source texts that instantiate metaphorical formations (“grid”, “load”, “bottleneck”, “islanding”, “blackout”) so that both denotative and metaphor-based uses are represented in the dataset, as recommended by Lyons, Lakoff and Johnson [Lyons; Lakoff and Johnson; p. 242].

Methodologically the study combines corpus-based terminology with cognitive-semantic and terminological equivalence analysis. The procedure proceeds in four stages.

First, automatic term extraction and frequency analysis identify candidate lexical units and their dominant collocational patterns in the English corpus; concordance lines and collocates are then examined to determine domain-specific senses and to separate general-language from technical uses.

Second, each candidate is subjected to cognitive-semantic analysis to reveal metaphorical mappings, conceptual metaphors and metonymic extensions; this stage determines whether a unit functions primarily as a metaphor, as a terminologized metaphor, or as a purely denotative technical term.

Third, comparative terminological analysis against the Uzbek corpora, glossaries and standards is carried out to classify equivalence type (full, partial, absent) and to propose target strategies (calque, transliteration, definitional translation, or the creation of a new normalized term). Translational proposals are validated through expert consultation with subject-matter specialists, back-translation checks and consistency tests across the corpus (in line with Komissarov’s contextual concretization terminological consistency requirements).

Finally, pragmatic and inter-discursive suitability is

assessed by mapping each proposed equivalent across potential target discourses (engineering, market design, policy, public communication) to ensure the chosen rendering preserves both conceptual function and communicative appropriateness, as emphasised by Hyland, Bhatia and Newmark. Where relevant, the method records recommended annotation (first-use definition + short form) and a prescriptive consistency rule to be applied across the translated text.

## RESULTS

The corpus-based examination of English energy-related lexical units revealed three dominant patterns shaping their translation into Uzbek:

- 1) high polysemy and contextual sense-shifts;
- 2) widespread metaphorical and metonymic extensions;
- 3) structural asymmetry between the English and Uzbek terminological systems.

Frequency and concordance data demonstrated that terms such as “grid”, “load”, “capacity”, “peak”, “bottleneck”, “islanding” and “blackout” occur predominantly in metaphorically extended, domain-specific senses rather than in their general-language meanings. This confirms Lyons’s observation that polysemy is not merely a lexical property but a contextually activated semantic process, resulting in multiple conceptual mappings within technical discourse [Lyons; p. 2]. In the Uzbek corpus, however, these units often appear in literal or partially literal renderings, indicating that the metaphorical dimension of the source term is frequently lost or simplified. For instance, “grid” is still occasionally translated as “panjara” in non-specialist Uzbek texts, despite corpus evidence showing that its dominant sense corresponds to the technical concept “elektr tarmog’i”. Similar inconsistencies were recorded for “load”, which appears in Uzbek as “yuk”, “yuklama”, but in energy related context it gives the meaning of “elektr yuklamasi”, illustrating the lack of stabilized terminologized equivalents.

Cognitive-semantic analysis further showed that English energy discourse relies heavily on conceptual metaphors such as energy system as a network, power flow as physical movement and system stability as balance, which underlie terms like “flow”, “congestion”, “spillover”, “drop”, and “peak”. As Lakoff and Johnson argue, such metaphors function as cognitive operational models rather than stylistic devices, and the findings of this study support this claim [Lakoff and Johnson; p. 242]. In Uzbek translations, however, only a subset of these metaphors is preserved; others undergo semantic flattening or are

rendered through descriptive explanations. Terminologized metaphors such as “bottleneck” and “islanding” exhibit the highest rate of translation difficulty: the former is inconsistently translated as “torayish”, “cheklov nuqtasi”, “quvvat bo’g’ini”, while the latter often appears as “izolyatsiyalanish” without capturing the processual or system-level nuance revealed in English corpora. These discrepancies highlight the structural asymmetry identified by Sager and Leychik, who note that terminological systems differ not only lexically but conceptually [Sager; p. 256; Leychik; p. 115].

The equivalence classification revealed that only 31–36% of English energy terms in the corpus have full Uzbek equivalents, while 43–49% fall under partial equivalence, and 18–22% have no direct equivalents in existing Uzbek terminological resources. The highest proportion of non-equivalent units occurs in electricity market terminology (capacity market, demand response, ancillary services), in line with Shedjelova’s observation that conceptual non-alignment often emerges in fields undergoing rapid technological development [Shedjelova; p. 186]. In such cases, definitional translation and calquing were found to be the most consistent and conceptually adequate strategies, whereas literal translation frequently resulted in conceptual distortion. Back-translation and expert validation confirmed that translations preserving metaphorical-conceptual mappings (using “tirbandlik” for “congestion” in market and transmission contexts) received higher accuracy ratings from specialists compared to literal lexical matches.

Our findings demonstrate that accurate translation of English energy terminology into Uzbek requires a conceptual, not merely lexical, approach. Terms must be interpreted within their domain-specific cognitive models, and metaphorical structures should be preserved or functionally reconstructed to maintain terminological precision. The analysis confirms that conceptual equivalence rather than formal correspondence is the principal determinant of translational adequacy in this domain.

## DISCUSSION

The findings of this study highlight the multidimensional nature of translating English energy-related lexical units into Uzbek and confirm that terminological equivalence in this field depends primarily on conceptual alignment, not formal similarity. The high incidence of polysemy and metaphorical extensions in English energy discourse demonstrates that literal translation strategies are insufficient for conveying the technical meaning of key terms. This supports Lyons’s assertion that polysemy is

context-dependent and that meaning emerges through discourse-activated conceptual domains rather than static dictionary definitions.

The predominance of conceptual metaphors in English energy terminology further complicates translation. As shown by Lakoff and Johnson, metaphors serve as fundamental cognitive mechanisms for structuring technical reasoning, not merely stylistic embellishments. This study confirms their claim: terms such as “congestion”, “peak”, “drop” encode processual, systemic and relational meanings that cannot be captured through literal equivalents. The tendency in Uzbek translations to simplify or omit these metaphorical layers indicates a conceptual gap between the two languages’ terminological frameworks. Such gaps support Sager’s and Leychik’s observations that terminological systems differ in their underlying knowledge structures, and therefore require translation solutions that preserve conceptual functions rather than merely replace lexical forms.

Another important point concerns the uneven equivalence distribution across subdomains. The particularly high proportion of non-equivalent or partially equivalent terms in electricity market terminology reflects the relatively recent development of this domain within the Uzbek context. This aligns with Shedjelova’s view that terminological asymmetry often emerges in rapidly evolving fields where conceptual innovations arise faster than local terminological standardization. As a result, translators are frequently compelled to rely on calques, descriptive renderings or newly coined terms strategies that, while necessary, risk inconsistency if not guided by systematic terminological principles.

The results reinforce the need for a translation approach grounded in cognitive-semantic analysis, domain expertise and terminological normalization. Translators must engage with the conceptual models that structure energy discourse in English and reconstruct these models in Uzbek through metaphor-preserving or functionally equivalent solutions. Moreover, the variability observed in Uzbek renderings indicates an urgent need for standardization efforts, particularly in emerging subfields such as energy markets and smart grid technologies. Establishing stable terminological norms in Uzbek would not only enhance translation quality but also support scientific communication, technical education and professional interoperability within the energy sector.

## CONCLUSION

Based on the above, it can be concluded that the standardization of terminology is essential not only for translation but also for the overall development of the

energy sector, as it ensures several key advantages. First, it guarantees intertextual consistency by enabling texts produced by different sources and authors to use uniform and clearly interpretable terms. Second, it simplifies scientific and technical communication, reducing the risk of misunderstanding among specialists, researchers, and students. Third, it supports national and international integration by promoting the use of terminology aligned with global standards, thereby facilitating the integration of Uzbekistan's energy sector into the global system. At the same time, the process of translating English energy-related lexical units into Uzbek is not merely a linguistic task but a complex undertaking closely connected with the accurate transmission of scientific concepts and the correct interpretation of energy policy and legal documents. Therefore, translation must account for lexical-semantic, structural-grammatical, metaphorical, and terminological features, as well as the contextual application of strategies such as calquing, transliteration, and definitional translation. Ultimately, striving for equivalence, standardization, and a unified terminological system enhances the quality of Uzbek energy texts and contributes to more effective international scientific information exchange.

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