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COMPARATIVE ANALYSIS OF COGNITIVE FRAMING IN ENGLISH AND RUSSIAN MEDIA REGARDING GREEN ENERGY AND ITS IMPACT ON PUBLIC PERCEPTION AND POLICY-MAKING

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Abstract

This study examines the cognitive framing of green energy in English and Russian media, focusing on dominant conceptual metaphors, lexical choices, and framing strategies. A corpus of 100,000 words, equally divided between the two languages, was analyzed using frame semantics and conceptual metaphor theory. Findings indicate that English-language media often frame green energy as a source of innovation and economic growth, employing metaphors like "green energy is the future." Conversely, Russian media frequently depict green energy as a risky and costly endeavor, using metaphors such as "green energy is a risk." These divergent framings have significant implications for public perception and policy-making in their respective contexts.

Keywords: green energy discourse, cognitive framing, conceptual metaphors, English media, Russian media

Introduction

The shift toward renewable energy is a global necessity, as fossil fuel consumption contributes to climate change, environmental degradation, and resource depletion (IPCC, 2023). The United Nations reports that global CO_2 emissions must decline by 45% by 2030 to limit warming to 1.5°C above pre-industrial levels (UN Climate Report, 2023). However, the success of the transition to green energy depends not only on technological advances and policy changes but also on public perception and discourse (Stibbe, 2015). Language plays a fundamental role in shaping public attitudes toward renewable energy. Media narratives, political rhetoric, and public discourse can either encourage or discourage the acceptance of green technologies.

This study investigates how English- and Russian-language media construct the discourse of green energy through cognitive framing and metaphorical representations.

Research Questions and Hypothesis

To achieve the goal of understanding how linguistic framing influences the perception of green energy, this study aims to identify and analyze the dominant cognitive structures, conceptual metaphors, and discourse strategies used in English- and Russian-language media. By examining these linguistic patterns, the research seeks to determine how green energy is portrayed—as a technological advancement and economic opportunity in some contexts or as a financial risk and uncertain experiment in others. Additionally, the study aims to explore the broader implications of these linguistic differences on public attitudes, policy decisions, and investment trends in the renewable energy sector. Ultimately, the findings will contribute to the development of more effective communication strategies for promoting green energy initiatives in different cultural and political environments.

To achieve this goal, the study addresses the following key questions:

1. RQ1: How is the concept of green energy framed in English and Russian media?

This question examines whether green energy is portrayed as a positive innovation, a financial burden, a political challenge, or an ecological necessity in each linguistic context.

Previous research suggests that in Western media (e.g., UK, US, EU sources), green energy is often linked to technological progress, economic benefits, and corporate responsibility (Stibbe, 2015; Lakoff, 2010).

In contrast, studies on post-Soviet energy discourse indicate that Russian media frequently emphasize economic risks, energy security concerns, and government control over renewable energy adoption (Molodtsov, 2021; Smirnov, 2019).

2. RQ2: What conceptual metaphors are dominant in each linguistic discourse?

This question investigates how metaphors shape cognitive perception of green energy. Metaphors are powerful linguistic tools that influence how people understand abstract concepts such as sustainability and energy transition (Lakoff & Johnson, 1980).

English discourse often employs progress-oriented metaphors, such as:
"Green energy is the future" (suggesting inevitability and advancement).
"Renewable energy is a bridge to sustainability" (implying a smooth and necessary transition).
In contrast, Russian media often utilize uncertainty-focused metaphors, such as:
"Green energy is an experiment" (implying risk and unpredictability).
"Energy transition is a barrier" (suggesting economic and logistical difficulties).
This contrast highlights how different linguistic communities conceptualize the urgency and feasibility of green energy adoption.
3. RQ3: How do these linguistic differences affect public perception and policy-making?
Media discourse directly influences public opinion, political decisions, and corporate strategies. Studies show that positive framing of renewable energy in English-language media correlates with increased public support and policy implementation (European Commission, 2023; IPCC Report, 2022).
In Russia, where fossil fuel industries dominate the economy, government-controlled media often frame green energy as an external influence or economic risk (Levada Center, 2023). As a result, public support for renewable energy remains lower than in the EU or US, and policy measures favor traditional energy sources such as oil, gas, and coal (Molodtsov, 2021).

Hypothesis

Based on prior research and preliminary corpus analysis, this study hypothesizes that:
English-language discourse frames green energy as a source of innovation, economic growth, and environmental responsibility. This framing aligns with Western sustainability policies, such as the EU Green Deal, which promotes green energy as both a moral obligation and an economic advantage (European Commission, 2023). Studies on US and UK media coverage also indicate that journalistic narratives emphasize green energy as an investment opportunity rather than a challenge (Lakoff, 2010; Stibbe, 2015). Russian-language discourse frames green energy as a costly and uncertain endeavor that requires state regulation.

This aligns with Russia's geopolitical energy strategy, which prioritizes fossil fuel exports and energy security over renewable energy investment (Smirnov, 2019).

Research on Russian media rhetoric reveals that green energy is often presented as a foreign concept imposed by Western environmental agendas, leading to skepticism and policy hesitation (Molodtsov, 2021; Levada Center, 2023). According to a 2023 European Commission report, 81% of energy-related articles in Western media portray renewables positively, linking them to job creation, technological progress, and climate solutions. In contrast, Levada Center (2023) surveys show that 67% of Russian media articles discuss green energy as a challenge, emphasizing economic burdens, dependency on government funding, and technical inefficiencies. In a 2022 Pew Research Center survey, 72% of respondents in the UK and 69% in the US supported a rapid transition to green energy, reflecting the positive framing in their media. In Russia, only 33% of the population views green energy as a priority, largely due to the state-controlled media's portrayal of renewables as an economic risk (Levada Center, 2023). Countries with positive green energy discourse (e.g., Germany, the UK) have successfully implemented subsidies, incentives, and large-scale renewable energy projects.

In contrast, Russia has delayed major investments in wind and solar energy, citing economic concerns and dependence on fossil fuel revenues (Russian Ministry of Energy Report, 2023).

Literature review

The theoretical framework of this study is based on Frame Semantics (Fillmore, 1982) and Conceptual Metaphor Theory (Lakoff & Johnson, 1980), both of which provide insight into how language structures thought and perception. Frame Semantics posits that words and concepts are understood through mental structures (frames) that organize knowledge and shape interpretation. These frames vary across languages, leading to distinct representations of the same phenomenon. For example, in English-language media, the phrase "green energy investment" activates a frame of economic opportunity and progress, whereas in Russian media, the phrase "альтернативная энергетика требует субсидий" ("alternative energy requires subsidies") evokes a frame of financial burden and state dependency. Similarly,

Conceptual Metaphor Theory suggests that metaphors are not just linguistic expressions but fundamental cognitive tools that shape how people conceptualize abstract ideas, such as energy transitions. English discourse often frames green energy as an inevitable and positive transformation, as seen in expressions like "Green energy is the future". In contrast, Russian discourse frequently employs metaphors that highlight uncertainty and risk, such as "Зеленая энергетика – это риск" ("Green energy is a risk"), reinforcing skepticism toward renewables. By examining these frames and metaphors, this study aims to uncover how linguistic choices influence public perception, policy-making, and investment decisions in the green energy sector.

Methodology

To investigate the cognitive framing of green energy in English and Russian media, we employed a comprehensive methodological approach encompassing corpus design and three analytical techniques: lexical frequency analysis, frame analysis, and metaphor analysis. This multi-faceted methodology allows for a nuanced understanding of linguistic patterns and their implications for public perception and policy-making.

Corpus Design

A meticulously constructed corpus is foundational to robust linguistic analysis. In this study, we compiled a balanced corpus totaling 100,000 words, with 50,000 words each from English and Russian sources, spanning publications from 2018 to 2024. This timeframe captures recent trends and shifts in green energy discourse.

1. English-Language Sources: We selected reputable outlets known for their comprehensive coverage of environmental issues, including *The Guardian*, *BBC News*, reports from the *European Union Green Deal*, and *United Nations Climate Reports*. These sources provide diverse perspectives, from journalistic reporting to policy documentation.
2. Russian-Language Sources: Our Russian corpus comprises materials from prominent media and official publications such as *ТАСС* (TASS), *РБК* (RBC), *Коммерсант* (Kommersant), and reports from the *Ministry of Energy of the Russian*

Federation (*Минэнерго РФ*). These sources reflect both media narratives and governmental stances on energy matters.

The selection criteria ensured that all sources are authoritative and widely recognized, thereby enhancing the reliability and validity of our analysis. By focusing on high-quality texts, we aimed to minimize bias and capture a representative sample of green energy discourse in both linguistic contexts.

Analytical Methods

To dissect the corpus, we employed three interrelated analytical methods:

1. Lexical Frequency Analysis: This quantitative approach identifies the most frequently occurring terms related to green energy within the corpus. By examining word frequency patterns, we can infer the prominence of specific themes and concepts in the discourse. For instance, high frequencies of terms like "innovation" or "risk" may signal underlying frames of opportunity or caution, respectively. Such analysis provides empirical grounding for subsequent qualitative interpretations.
2. Frame Analysis: Building upon the principles of Frame Semantics (Fillmore, 1982), frame analysis investigates the cognitive structures that shape how information is presented and understood. By identifying recurring frames—such as economic opportunity, environmental responsibility, or financial burden—we can discern the dominant narratives in each media context. This method elucidates how language choices reflect and reinforce particular worldviews and policy orientations.
3. Metaphor Analysis: Rooted in Conceptual Metaphor Theory (Lakoff & Johnson, 1980), this analysis explores how metaphors function as cognitive tools that influence perception and reasoning. By identifying metaphors like "green energy is a journey" or "green energy is a risk," we can uncover implicit associations and attitudes embedded within the discourse. Metaphors often simplify complex issues, making them more accessible but also framing them in specific ways that can guide public opinion and policy decisions.
4. By integrating these methodologies, we aim to provide a comprehensive analysis of green energy discourse in English and Russian media, shedding light on the linguistic mechanisms that shape public understanding and policy development.

Results and Discussion

The comparative cognitive-linguistic analysis of green energy discourse in English and Russian media yielded significant insights into how each linguistic community frames renewable energy. The findings are organized into three primary areas: **lexical frequency analysis, frame analysis,** and **metaphor analysis.**

Lexical Frequency Analysis

The lexical frequency analysis revealed distinct patterns in the terminology used by English and Russian media when discussing green energy.

Table 1: Top 5 Frequently Occurring Terms in English and Russian Media

Rank	English Media Term	Frequency	Russian Media Term	Frequency
1	Renewable	1,200	Альтернативная (Alternative)	1,100
2	Sustainability	950	Экологическая (Ecological)	900
3	Innovation	850	Инновация (Innovation)	700
4	Investment	800	Инвестиция (Investment)	650
5	Policy	750	Политика (Policy)	600

Note: Frequencies are per 50,000 words in each corpus.

Key Observations:

1. **English Media:**

The frequent use of “Investment” and “Policy” indicates an emphasis on economic opportunities and governance related to green energy.

2. **Russian Media:**

a) The term “Альтернативная” (Alternative) is more prevalent than “Возобновляемая” (Renewable), indicating a preference for framing green energy as an alternative rather than a mainstream solution.

b) The significant occurrence of “Экологическая” (Ecological) reflects environmental considerations, while "Инновация" (Innovation) and "Инвестиция" (Investment) highlight technological and economic aspects.

Frame Analysis

The frame analysis identified distinct cognitive structures in the portrayal of green energy within each media context.

Table 2: Dominant Frames in English and Russian Media

Frame Category	English Media Description	Russian Media Description
Economic Opportunity	Green energy as a driver of economic growth and job creation.	Green energy as requiring substantial financial support.
Environmental Necessity	Emphasis on green energy as essential for environmental protection.	Green energy as beneficial but secondary to traditional energy.
Technological Innovation	Focus on advancements and leadership in renewable technologies.	Green energy as experimental and not yet fully reliable.
Energy Independence	Green energy as a means to reduce reliance on fossil fuels.	Green energy as a potential threat to energy security.

Key Observations:

1. **English Media:**

a) Frames green energy positively, associating it with economic growth, environmental protection, and technological leadership.

b) Highlights renewable energy as a path to energy independence and sustainability.

2. **Russian Media:**

a) Portrays green energy as financially burdensome, requiring government subsidies.

b) Emphasizes the experimental nature of green technologies and potential risks to energy security.

Metaphor Analysis

The metaphor analysis uncovered contrasting conceptual metaphors that shape public perception of green energy in English and Russian media.

Table 3: Predominant Metaphors in English and Russian Media

Metaphor Category	English Media Example	Russian Media Example
Progress	"Green energy is the future."	"Зеленая энергетика – это риск. " ("Green energy is a risk.")
Journey	"Renewable energy is a bridge to sustainability."	"Переход на зеленую энергетику – это барьер." ("The transition to green energy is a barrier.")
Innovation	"Green energy revolution."	"Зеленая энергетика – это эксперимент." ("Green energy is an experiment.")
Conflict	"Battle against climate change."	"Борьба с зелёной энергетикой." ("Struggle with green energy.")

Key Observations:

1. **English Media:**

a) Utilizes metaphors of progress and journey, framing green energy as an inevitable and positive transition.

b) Employs innovation metaphors, depicting renewable energy as a revolutionary advancement.

2. **Russian Media:**

a) Uses metaphors that emphasize risk and uncertainty, portraying green energy as experimental and potentially problematic.

b) Employs conflict metaphors, suggesting a struggle or challenge associated with adopting green energy.

Implications of Findings

The divergent linguistic framings in English and Russian media have significant implications:

1. **Public Perception:**

a) In English-speaking contexts, positive framing may lead to greater public support for green energy initiatives.

b) In Russian contexts, emphasis on risks and uncertainties could result in public skepticism toward renewable energy.

2. **Policy-Making:**

a) Positive framing in English media aligns with proactive renewable energy policies and investments.

b) Cautionary framing in Russian media may contribute to conservative energy policies favoring traditional energy sources.

3. **International Cooperation:**

a) Understanding these linguistic differences is crucial for effective cross-cultural communication and collaboration on global energy initiatives.

These findings underscore the powerful role of language in shaping energy discourse and highlight the need for tailored communication strategies in promoting green energy across different cultural and linguistic landscapes.

Conclusion

The study reveals that English-language media predominantly frame green energy positively, emphasizing innovation and sustainability, while Russian media highlight economic risks and uncertainties. These contrasting frames influence public perception and policy approaches toward renewable energy. Recognizing these differences is crucial for developing effective communication strategies and fostering international collaboration in addressing global energy challenges.

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