

Discourse Historical Analysis of Identity Construction of New Energy Enterprises in China and the United States

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Abstract: This study selects the ESG reports of Chinese and American new energy enterprises of the top 500 global enterprises in 2022, and compares the similarities and differences in the identity construction of Chinese and American new energy enterprises based on the discourse-historical analysis method, combined with Wmatrix, at three levels, namely, macro-themes, meso-discourse strategy analysis, and micro-language features, respectively. The study shows that Chinese enterprises actively respond to the national energy transition policy, focus on result management, and focus on constructing the corporate identity of an authoritative economic builder, while American enterprises focus on technological innovation, process management, and constructing the corporate identity of a pro-people and responsible social contributor in the process of energy transition.

Keywords: New energy enterprises; Discourse-historical analysis; Wmatrix; Identity construction

1. Introduction

With the rapid growth of the global population and the rapid development of the economy, the global demand for energy has climbed sharply, but the traditional energy consumption pattern has brought about a large amount of greenhouse gas emissions, thus causing serious climate change and environmental pollution, and the advantages of new energy enterprises have gradually come to the fore. As the main position of green development, new energy enterprises convey their concepts and values of optimising resources and environment and reducing environmental pollution to the public through various corporate texts, thus building a green corporate image. ESG reports, as an important part of corporate social responsibility reports, have become an important indicator of corporate social responsibility and sustainable development, so this study specifically selects the texts of the environmental part of ESG reports. Based on discourse-historical analysis, the two corpora are analysed in terms of semantic domain, word frequency and lexicality with the help of Wmatrix, so as to compare the similarities and differences between the identities constructed by new energy enterprises in China and the United States^[1].

2. Research Theory and Tools

2.1 Research Theory

Discourse-historical analysis advocates placing discourse in a social context to explore its social construction function from three levels: theme, discourse strategy and linguistic features^[2]. This study attempts to create a three-dimensional research framework corresponding to the above macro, meso and micro levels^[3]: the macro level corresponds to the theme; the meso level corresponds to the discourse construction system, i.e., the discourse strategies for the construction of corporate image, which mainly include five categories, referential strategies, predicative strategies, argumentative strategies, perspective-taking strategies, and reinforcement or weakening strategies^[1]; and the micro level corresponds to the specific linguistic applications, i.e., the realisation of the theme and the discourse strategies. The micro level corresponds to the specific language application, i.e. the language means to achieve the theme and discourse strategies, and analyses the similarities and differences of the new energy corporate identity construction between China and the United States from a

three-dimensional perspective^[4].

2.2 Corpus Collection and Research Tools

2.2.1 Corpus Collection

This study selects the ESG reports of five Chinese and five American enterprises in the "2022 Global Top 500 New Energy Enterprises Ranking" announced during the 2022 Taiyuan Energy and Low Carbon Development Forum (specifically selecting the environmental part) to establish micro-corpus CNEEESGR (China's new energy enterprise ESG report) and ANEEESGR (America's new energy enterprise ESG report) with a corpus of 28,500 words respectively. China's new energy enterprise ESG report) and ANEEESGR (America's new energy enterprise ESG report) corpora are 28,537 and 28,541 respectively, and the following is the list of selected Chinese and American new energy enterprises. Chinese new energy enterprises: China Electric Power Construction Company Limited, Tongwei Group Company Limited, Xinwanda Electronics Company Limited, China National Building Material Company Limited, Chaowei Power Holdings Limited. American new energy companies: Valero Energy Corporation, The AES Corporation, NextEra Energy Inc, Green Plains Inc, Tesla.

2.2.2 Research tool

The research tool used in this study is Wmatrix, an online corpus statistical analysis tool developed by Dr Paul Rayson of Lancaster University, UK. Its unique advantage is the embedded CLAWS (The Constituent Likelihood Automatic Word-tagging System) for grammatical lexical annotation,; and the embedded USAS (UCREL Semantic Analysis System) is also used for semantic annotation, with an accuracy of 92%. The Semantic Tagset of USAS includes 21 semantic domains (A~Z), which can be subdivided into 232 sub-semantic domains under the 21 semantic domains.

3. Three-Dimensional Discourse Analysis of New Energy Enterprise Identity Construction in China and the US

3.1 Macro-Thematic Analysis

In this study, with the help of the corpus research tool Wmatrix, the prominent thematic semantic domains in the ESG reports of Chinese and American new energy enterprises are automatically identified, so as to generate the top ten thematic semantic domains, as shown in Table 1.

Table 1: Semantic categories of new energy enterprises in China and the US

	Semantic Domain of Chinese New Energy Enterprises	Semantic Domain of American New Energy Enterprises
List 1	W5:Green issues	W5:Green issues
List2	S7.1+:In power	O1.2:Substances and materials:liquid
List3	X5.2+:Interested/excited/energetic	X5.2+:Interested/excited/energetic
List4	O1.2:Substance and materials:Liquid	O1.3+:Substances and materials:Gas
List5	I2.1:Business:Generally	A1.1.1:General actions/making
List6	O1.3+:Substance and materials:Gas	O3:Electricity and electrical equipment
List7	A1.1.1:General actions/making	N5-:Quantities:little
List8	O1:Substance and materials generally	M3:Vehicles and transport on land
List9	W4:Weather	A2.2:Cause&Effect/Connection
List10	O3:Electricity and electrical equipment	A2.1+:Change

3.1.1 Analysis of shared semantic domains

From Table 1, we can find that the semantic domains shared in the ESG reports of new energy enterprises in both countries include: W5: Green issues, X5.2+Interested/excited/energetic, O1.2: Substance and materials:Liquid, O1.3:Substance and materials:Gas, O3:Electricity and Electrical equipment. And materials:Gas, O3:Electricity and Electrical equipment, totalling five shared thematic semantic domains.

The high-frequency words in the shared semantic domains W5:Green issues and X5.2+Interested/excited/energetic are "environment", "climate" and "energy". "Energy", indicating that Chinese and American new energy enterprises attach importance to environment, climate and energy issues. Among the high-frequency words of Chinese enterprises, the word "ecological" is highlighted, indicating that Chinese new energy enterprises adhere to Xi Jinping's thought on ecological civilisation as a guide, fully implement the spirit of the 20th Party Congress, strictly implement the requirements of ecological environmental protection, conscientiously fulfil the main responsibility of ecological environmental protection, and strive to be the "propagator" of the national concept of ecological civilisation^[5]. The new energy enterprises in China adhere to the guidance of Xi Jinping's idea of ecological civilisation, strictly implement the requirements of ecological environmental protection, conscientiously fulfill the main responsibility of ecological environmental protection, and strive to be the "disseminator" of the national ecological civilisation^[3].

In the semantic domain O1.2:Substance and materials:Liquid, the unique high-frequency words for Chinese enterprises are "wastewater" and "sewage". For example, in Example 1, CEE makes effective use of both wastewater and sediment after precipitation, which shows that CEE pays attention to wastewater treatment and emphasises the use of wastewater, and innovates in the secondary use of wastewater. On the one hand, CEE strives to be a "pioneer" in green treatment of wastewater and waste, and on the other hand, it pays attention to the treatment of waste gas at the end of the production process, and builds a "results-based manager"^[6]. On the other hand, Chinese enterprises pay attention to the treatment of waste gas after the production process, so as to build the image of "result manager"^[4].

Example 1:After sedimentation, the wastewater was used for road watering for dust reduction, and the sediments were to seal and backfill the guide wall.(CNEEESGR). CNEEESGR)

The high-frequency words specific to US companies in this shared semantic domain are "diesel" and "petroleum", which are often referred to in the text as "independent petroleum refiner" and "renewable diesel producer" "renewable diesel producer" and so on. For example, in Example 2, a new energy enterprise in the United States explores adding SAF to renewable diesel facilities to further reduce carbon emissions, which shows that the American enterprise is good at innovation and has a strong green awareness, and further constructs an "innovator" and "renewable diesel producer". This shows that American companies are good at innovation and have strong green awareness, which further builds the image of "innovator" and "environmentalist"^[4].

Example 2: We are evaluating the engineering capability to add SAF production to the new renewable diesel facility (ANEESGR)

In the shared semantic domain O1.3 :Substance and materials:Gas, the high-frequency word specific to Chinese new energy enterprises is "nitrogen", which is collocated with "nitrogen dioxide (NOx)". "Example 3 shows that Chinese companies pay attention to the green treatment of nitrogen oxides, sulphur dioxide and soot after emissions, deepening the image of Chinese companies as "results managers"^[4].

Example 3: Sulfur dioxide, nitrogen oxides and soot are Tong Wei's major pollutants (factors), each of which is equipped with a boiler outlet for exhaust gas.... (CNEEESGR)

The high-frequency words in this semantic domain are "hydrogen" and "propane", which are clean gases. The development of new energy enterprises in the United States is in the forefront of the world, which shows the image of "explorer"^[3].

3.1.2 Analysis of Specific Semantic Domains

The unique semantic domain O1: Substance and materials generally, with the high-frequency word "carbon neutrality", suggests that Chinese enterprises have fully responded to the Chinese government's endeavour to achieve "carbon neutrality" by 2030 and "carbon neutrality" by 2060. This indicates that Chinese enterprises have fully responded to the Chinese government's goal of achieving "carbon peak" by 2030 and "carbon neutrality" by 2060, and strive to be a "practitioner" of the national energy policy^[3]. The semantic domain S7.1+:In power, in which the high-frequency words are "management" and "power", suggests that Chinese enterprises are more inclined to emphasise their authority and management^[6], and to construct "forerunner" of the energy transition. "The semantic domain I2 is specific to Chinese enterprises.

The high-frequency word "company" in the semantic domain I2.1:Business:Generally, which is specific to Chinese enterprises, suggests that Chinese enterprises often use the word company to refer to themselves, hoping to give readers an impression of authority and formality^[7], and constructing the

identity of "leader". "The semantic domain N5 is specific to US companies.

The semantic domain N5-: Quantities:little, with the high-frequency word "minimize", is specific to US companies, indicating that US companies strive to minimize pollution. For example, the words "reduce", "reuse" and "recycle" in Example 4 illustrate the specific measures to minimize pollution in the production process of the enterprise, aiming at constructing a "process manager" of the US enterprise. The words "reuse" and "recycle" illustrate specific measures to minimize pollution in the production process of an enterprise, aiming to construct the image of a "process manager" in US companies^[4].

Example 4: Our team works in a responsible manner, including reducing, reusing recycling and repurposing practices to minimize waste. (ANEESGR)

The semantic domain M3: Vehicles and transport on land, the high frequency word is "vehicles", the United States is a vast land and people rely on all kinds of transport for their travelling. For example, Example 5 emphasises that the enterprise will look for ways to make the means of transport more environmentally friendly, reduce the cost of travelling for the residents, and bring convenience to the residents' life, aiming at highlighting the enterprise's contribution to the society, and constructing the image of "contributor to the society"^[6].

Example 5: We will further look for ways to green the vehicles of travelling for residents and thus reduce carbon emissions. (ANEESGR)

A2.2: Cause&Effect/Connection, high frequency words are "impact" and "responsible", in Example 6, Green Source Group adjusts its business in accordance with the UN SDGs, and promotes the development of the world with the development of the enterprise itself, and frames the identity of a "collaborator"^[6].

Example 6: The UN SDGs allow Green Plains to better understand and align our business impact on stakeholders, communities, the environment and the world. (ANEESGR)

3.2 Discourse Strategy Analysis of CNEESGR

Combining Wodak's discourse analysis strategy and comparing ANEESGR and CNEESGR corpora, we find that ESG reports of Chinese and American new energy companies widely use referential and predicative strategies to promote their corporate communications and create a differentiated image of Chinese and American new energy companies^[9].

3.2.1 Referential Strategy

Referential strategy refers to the strategy of naming or referring to objects, phenomena, events, behaviours and social actions in a discourse, generally in the form of indicative words and nouns. It is found that Chinese new energy companies frequently use the word "company" when referring to themselves, which ranks seventh in the word frequency list, creating an image of authority and independence from other groups^[5]. In the environmental text of the ESG report of the new energy enterprises in the United States, pronouns such as "we", "our" and "us" are used more frequently, and the use of the first person draws the distance between the readers closer and enhances the persuasive and contagious effect of the discourse. Enhance the persuasive and infectious power of the discourse^[3], shaping the image of U.S. enterprises "interlocutor".

3.2.2 The predicate strategy

Predicate strategy refers to the social actors, objects, events and processes are given a certain attributes and characteristics of the form of language, and thus indicate their own attitudes^[2]. Enterprises use predicative verbs or compound predicates with modal verbs to indicate their attitudes in ESG reports, thus performing different identity construction^{[10][11]}. For example, in Example 7, Chinese new energy companies use the predicate verb "help" to present their determination to contribute to the national goals of achieving "carbon peak" by 2030 and "carbon neutrality" by 2060. "The determination to fulfil the national energy transition policy and to build a responsible corporate image^[10]. The new energy enterprises in the United States use many positive predicate verbs to show their attitudes, "will promote" in Example 8 uses the composite predicate composed of modal verbs will and real verbs, will expresses willingness, which is a commitment type of speech act, aiming at providing readers with rituals for the company's future business concepts and purposes, slogan promise propaganda^{[10][11]}.

Example 7: The company is also the owner and operator of solar farms, which help the power

industry to reduce carbon emission and decarbonise by providing green electricity .. (CNEESGR)

Example 8: We will continually promote energy conservation in production, testing and other equipment... (ANEESGR)

3.3 Micro-linguistic feature analysis

The micro-language section will focus on exploring lexicality and analysing it in combination with keywords, which will in turn corroborate the macro- and meso-section's discussion of the differences in the construction of new energy identities between China and the U.S. Wmatrix uses its embedded CLAWS system for lexical assignments, and the author compiles the top 5 lexicalities, as shown in Table 2.

Table 2: Lexicalities of ESG reports of new energy enterprises in China and the US

Ranking	ESG Report Lexicon of China's New Energy Enterprises	Frequency	ESG Report Lexicon of American's New Energy Enterprises	Frequency
1	NN1	7279	NN1	5984
2	NN2	2777	NN2	2394
3	MC	420	VVO	812
4	VVO	351	APPGE	272
5	VHZ	165	PPIS2	230

Note: 1) NN1: common noun; NN2: professional noun; VVO: original form of the verb; VHZ: has; VVZ: third person singular of the verb; APPGE: possessive pronoun; PPIS2: possessive pronoun in the first person plural; MC: count word

2) The frequency here is the number of times the lexeme appears in the constructed corpus

Observation of the lexical distribution table generated by Wmarix shows that nouns (NN1 and NN2) are most widely used in the ESG reports of new energy companies in China and the United States, and nominalised expressions avoid subjectivity. Chinese enterprises tend to use has (VHZ), which on the one hand demonstrates the resources possessed by the enterprise; on the other hand, it constitutes a perfect tense, demonstrating what the enterprise has achieved^[10]. For example, in Example 9, "has" indicates the resources owned by the enterprise, and "has delivered" indicates the existing achievements of the enterprise, which builds up the image of "economy builder" by describing the enterprise's wide business scope and outstanding business capability. Economic builder" by describing the company's wide business scope and outstanding business capability^[9].

Example 9: POWERCHINA has business in more than 130 countries and regions around the world and has delivered a series of industry-leading and high-quality projects over the years projects over the years.... (CNEESGR)

4. Conclusions

The identity discourses of new energy companies in China and the United States share both commonalities and differences at three levels. The study shows that, on a macro level, Chinese enterprises compete to be "pioneers", "disseminators" and "practitioners" of national energy policies, while American enterprises are more prominent in the energy transition. The image of "explorer", "innovator" and "environmentalist"^[6]; in the treatment of wastewater and waste gas, Chinese enterprises show the image of "results manager", while American enterprises show the image of "results manager"^[7]. In the treatment of waste water and waste gas, Chinese enterprises show the image of "result manager", while American enterprises show the image of "process manager"; in terms of corporate positioning, Chinese enterprises are good at positioning themselves as "leader", highlighting authority, while American enterprises tend to build the image of "collaborator", "innovator" and "environmentalist"^[8]. In terms of corporate positioning, Chinese enterprises are good at positioning themselves as "leaders" and highlighting their authority, while American enterprises tend to build the image of "collaborators" and "contributors", highlighting the concept of sustainable development of enterprises^[10]. In terms of meso-discourse strategies, Chinese and American enterprises adopt different referential strategies to construct their identities, with the Chinese side pursuing an authoritative corporate image, while American enterprises pursue a corporate image with affinity. In terms of predicative strategies, Chinese companies respond to the national "dual-carbon goal" and aim to build a "responsible" corporate image, while American companies promote their

business philosophy and purpose through slogans and promises ^[11]. The micro-linguistic features corroborate the findings of the macro and meso-linguistic sections through lexical and collocational analyses. This study explores the identity construction of new energy enterprises in China and the United States from ESG reports, with a view to helping students focus on and grasp the characteristic functions of business discourse at the macro, meso, and micro levels, and contributing to the identity construction of new energy enterprises in China and the United States.

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