

Survey of Clean Energy Industry Based on Information Analysis Method

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Abstract

This study was conducted to examine the worldwide interest in the clean energy industry and to make recommendations for the development of this industry. The authors conducted a survey and research using Internet open source data in informatics methods to produce relevant results to support the depth of related work. Based on the valid findings, a discussion is carried out to give suggestions for the development of the clean energy industry in China at several levels.

Keywords

Informatics, Clean Energy, Trend Analysis, Development Proposal

1. Introduction

Clean energy is an important resource needed for the development of contemporary society [1] [2]. It is important to actively cultivate and develop clean energy industry to reduce energy and resource consumption and achieve green development of production [3] [4].

Informatics is a new discipline that studies the regularity of the representation, acquisition, processing, transmission and use of information [5]. In it, information is considered as an object of study and computers and other technologies are considered as research tools, with the main aim of improving human information functions [6]. Internet statistics is an important method of informatics analysis that can help to understand the development of related professions [7].

By using the above-mentioned methods as tools to conduct macro analysis of

the development of the clean energy industry and the state of the industry, it helps to obtain various types of high-value research reference information in order to grasp the development trends of the industry in general and plan the industrial layout [8].

2. Tools and Methods

Google Trends is a free keyword trending tool that allows users to track SEO trends, search popularity and Google rankings for any given time period. Google Trends extracts data from Google searches allowing users to compare the frequency of search terms with other similar keywords, between geographic regions or language barriers. Google Trends data can be sorted by real-time focus or by specific ranges [9] [10] [11].

Baidu index is a data analysis platform based on Baidu's massive internet user behavior data, which is one of the most important statistical analysis platforms in the modern internet and even the whole data era, and has become an important basis for many enterprises' marketing decisions since its release [12] [13]. The main functional modules of Baidu Index are: trend research based on individual words, demand mapping, opinion manager, and crowd portrait; general trends are based on industry, geographical distribution, crowd characteristics, and search time characteristics [14] [15].

360 index is a big data presentation platform based on the massive user data of 360 products, which can be searched by keywords to quickly obtain the popular trends, understand the real user needs, and understand the attributes of the keyword search crowd [16] [17].

3. Tools and Methods

3.1. Analysis Based on Google Trends

The authors used the Google Trends tool to analyze the data from 2004 to the present, using "clean energy" as a search term, and the corresponding results can be seen in **Figure 1**. The results are shown in **Figure 1**, *i.e.*, the overall search trend for this field is increasing globally, which directly indicates that the attention to clean energy is increasing worldwide.

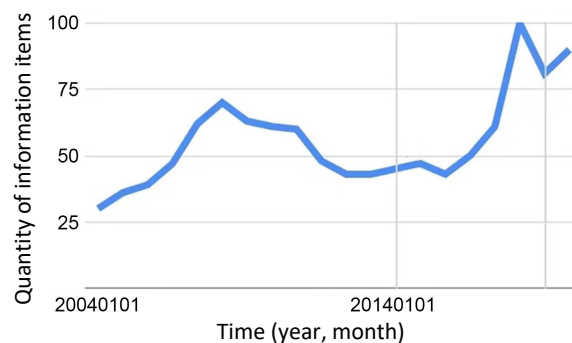


Figure 1. Results of analysis based on "Google Trends".

From the analysis of the results of the country to examine, the top ten countries concerned about the heat are: Australia, Nepal, Singapore, the United States, Canada, the United Arab Emirates, Kenya, Germany, the Philippines, Austria. On the one hand, this shows the importance of the developed countries for the development of the industry; on the other hand, it also shows that the energy support for the less developed countries is also tilted from the application of clean energy.

3.2. Analysis Based on Baidu Index

Using the Chinese term “清洁能源” as the search term, the time span is 20110101-20230521, as seen from the results of **Figure 2**, the data shows the level of attention and continuous change of the Internet users to the keyword search. It is based on the search volume of Internet users in Baidu, and the weighting of the search frequency of each keyword in Baidu web search is scientifically analyzed and calculated with the keyword as the statistical object. According to the different data sources, the search index is divided into personal computer search index and mobile terminal search index.

As can be seen from the above graph, the number of related searches is generally on the rise, which directly illustrates the importance that China, as the world’s largest developing country, attaches to the clean energy industry and shows the corresponding national commitment.

3.3. Analysis Based on 360Index

Using the Chinese term “清洁能源” as the search term, the time span is 20130111-20230521, and the results in **Figure 3** show that the level of attention to this issue on the Chinese web is steadily increasing, and such results are corroborated with the results analyzed by the Baidu index, which directly indicates that Chinese people are highly concerned about clean energy.

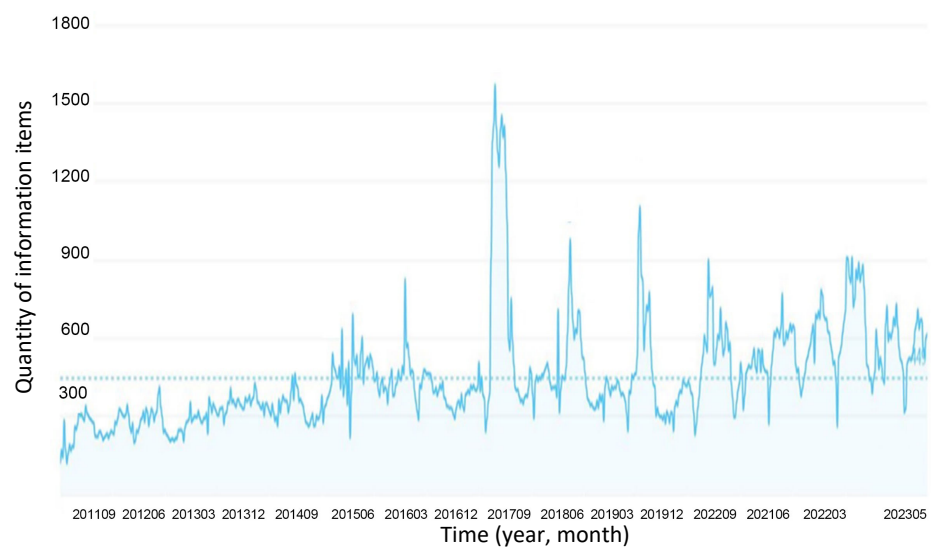


Figure 2. Results of analysis based on “Baidu index”.

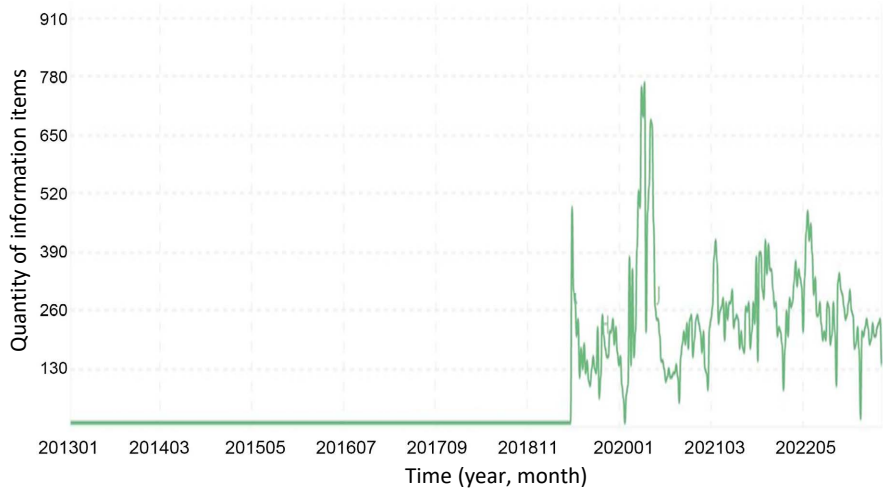


Figure 3. Results of analysis based on “360 index” (1).

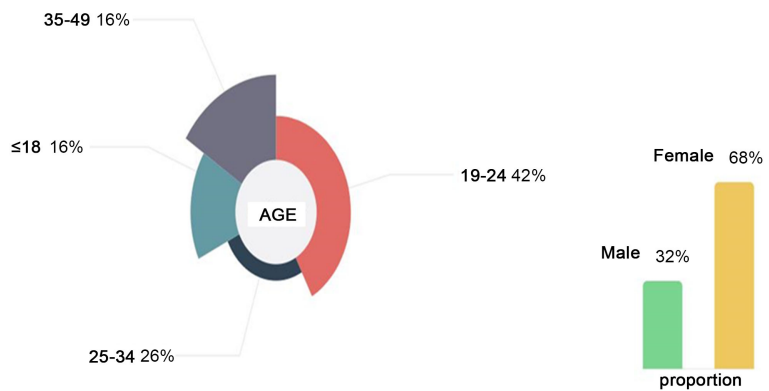


Figure 4. Results of analysis based on “360 index” (2).

And considering the followers from the age dimension, there is **Figure 4** which shows that the young and middle-aged group is highly concerned about this, which also shows that the clean energy industry will have the trend of developing vigorously in China. According to the results of the geographical analysis, the top ten provinces are: Guangdong, Jiangsu, Hebei, Fujian, Hubei, Shaanxi, Anhui, Zhejiang, Guangxi, and Qinghai. All of these regions are energy-consuming regions, so clean energy is highly valued in the industrial transformation and upgrading.

4. Conclusions

In the previous chapter, results based on extensive data support were obtained and the relevant conclusions can be summarized as follows:

4.1. China Has a Good Public Opinion Base for the Promotion of Clean Energy Industry

In terms of government administrative planning, the most direct feedback on whether the policy designation is effective comes from the effectiveness. Well,

from the current effectiveness, thanks to our effective and scientific policy, the promotion and popularization of new energy industry is successful, and the development of this work has received a lot of attention.

4.2. China Still Lacks in Promoting Clean Energy Industry

Examining from an international perspective, although China has achieved a great deal of support and attention in the field of clean energy industry, there are still aspects that need to be improved compared to other countries in the world. Internationally, there are relatively few reports involving the development of China's clean energy industry, and if China needs to occupy a dominant technological position in this field, then it should continue to promote the depth of scientific research and master the corresponding core technologies.

4.3. Propaganda for Deeper Promotion and Development of Clean Energy Industry Is Still Lacking

From the results of the previous analysis, it can be seen that the regions with high attention to clean energy are often the major energy-consuming provinces. The relatively low level of concern in other provinces also shows from one side that the development of this industry is utilitarian in all regions. However, the green upgrading of the industry is an inevitable trend, and the use of clean energy as an important part of it, deserves a high degree of attention around the world. Therefore, the publicity of this clean energy industry should be continued and carried out in depth.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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