

# Research on the Financial Performance of CECEP Wind- power Corporation Based on Harvard Analytical Framework

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**Abstract.** The paper has an analysis on the performance of the CECEP Wind-power Corporation from strategy, accounting, financial and prospects based on the Harvard Analytical Framework. The PEST analysis is adopted in the strategy. In accounting, there is an analysis of the important operating activities ratio of CECEP Wind-power Corporation; besides, the fairness of accounting information is verified according to the audit opinion in the past few years. As for the financial, there is an analysis of its debt-paying ability, operation capability, profitability and growth ability these four aspects. In view of the prospect, the future of the company is predicted through the analysis of the strategy and the industrial development tendency in the future. Through the study, it is found that, the profitability of the company is stronger while there is a growing space for its debt-paying ability and operation capability compared with the average level of the market. The wind power industry where the company engages still keeps a higher growth with a promising prospect. The company could improve its operation capability by improving its operation and management mode and management structure; reduce the operating risk through the seasoned new issue and convertible bond and upgrade the discourse power of the company in the industry through rapid and stable extension.

**Keywords:** Financial Performance; CECEP Wind-power Corporation; Harvard Analytical Framework.

## 1. Introduction

Along with the endless need for energy from all countries around the world and the increasingly deteriorating destruction of traditional thermal power to the environment, wind power, as a necessary part of clean energy, has been more and more valued by all countries; and it has been continued to be favored by the policies of various countries. At the bottom downstream of the wind power industry, wind power generation operators also embrace development opportunities, so many quality enterprises spring up, such as CECEP Wind-power Corporation, Three Gorges Power, Long Yuan Power, and Jiangsu New Energy. It also triggers a discussion among many scholars. Liu and Dang (2022) suggest that we should break through the existing regulation mode of the fixed on-grid price of renewable energy power in China to set the proportion between the consumption and the quota for the renewable power [1]. Xia et al. (2022) find that ASEAN countries' wind power LCOE is 0.05-0.094 US dollars (kwh), which is higher than the average level in the world[2]. Liu and Chen (2012) find the following through SWOT analysis and the combination of the wind power resource in the province and the features of the industry, including the development strength of Jiangsu wind power industry: the abundant wind power and the full industrial chain and its weakness: the disordered development of wind power facilities and the relatively lagging power grid construction in the wind power area [3]. Zhou (2019) introduces and analyzes the 4 crucial factors for the economy of wind power projects based on the risks of multi-aspects of wind power project, electricity price, electricity quantity, infrastructure investment and interest rate [4]. Yan (2020) finds that the overall value-added ability of wind power listed companies with power storage in China is better than those without the power storage [5]. Liu (2015) proposes some pertinent suggestions and strategies that government should enhance the preferential value-added tax policies for wind power, levy wind energy resource use tax at the right time, add the tax transfer payment of the central government [6]. Li (2016) makes some suggestions for the companies in the wind power industry, including reasonably controlling costs, optimizing capital structure and improving asset liquidity [7]. Zhang (2010) find that all

abilities of Tianwei Baobian are poor, and the current investors should withdraw the investment as soon as possible [8]. Lai (2017) proposes thinking to solve the financing constraints from the external and internal these two aspects with the typical case of the financial issue of listed CECEP Wind-power Corporation by the profound analysis of the formation mechanism of current financing difficulties of new energy enterprises and the sorting of the overall financing problems of new energy enterprises [9]. Zhao et al. (2021) find that contract electricity price mode is good for motivating the enthusiasm of wind power investors and maintaining their profit to push the healthy and sustainable development in the wind power industry under the power spot market [10].

Based on the Harvard Analytical Framework, the paper has analysis on the CECEP Wind-power Corporation from the four sections, including the strategy, accounting, finance and prospect. The strategy is adopted with PEST model to have a macro analysis on the impact of CECEP Wind-power Corporation from the analysis of politics, economy, society and technology these four aspects. As for accounting, there would be analysis on its cashflow indexes to verify whether the accounting information is reliable or not with the reference of its audit opinion. In the finance, there is analysis on the profitability, operation capability, debt-paying ability and growth analysis by digesting important ratio; and the paper would select comparable companies to calculate the average level for comparison to find out the possible financial risk. In view of prospect, the future development of CECEP Wind-power Corporation and the prospect of the industry is judged through the analysis of company strategies and its vision with the combination of strategic analysis.

## **2. Analysis Of The Cecep Wind-Power Corporation Based On Harvard Analytical Framework**

### **2.1 Strategic analysis**

#### **2.1.1 Politics**

As a necessary part of clean energy, there is great support for wind power in policy in China. National Development and Reform Commission and other 9 departments printed and issued *The 14th Five-Year Plan for Renewable Energy Development* on June 1, 2022. It was suggested that we should greatly develop wind and photovoltaic power, and the total installed capacity of wind power and solar power would reach 1.2 billion kw in 2030. China has been clarifying the integration of all the electricity generated by wind power into the national grid and the mechanism of electricity price allocation, which would further enhance the great support for the wind power development; and it is clarified that the wind power generation industry does not take part in the market competition in the form of law. Power grid companies make investments in the construction of transmission lines and substation facilities connecting wind farms, and the electricity generated by the wind power would be 100% purchased by power grid enterprises; and there is sufficient financial and tax support for the development and operation of the wind farm, including the preferential policy of 50% VAT refund on the sale of electricity produced by wind power and the policy that the national income handed over by the CDM project of wind power enterprises is allowed to be deducted in full before tax. All of these preferential policies are good for the operating enterprises of wind power generation with the embodiment in future performance.

#### **2.1.2 Economy**

Due to the too high investment cost of the wind farms and the relatively stable operation of the wind farms, there would be a lot of liabilities at the beginning of the construction of wind farms, so the interest expense plays a key role in the profitability of wind power generation industry. Take the wind farm with 100000 kw for example. It is supposed that the total investment is 800 million CNY with 80% of it from bank loans, the interest expense could be reduced by 6.4 million CNY per year for every one percentage point reduction in the loan market quotation. According to the Wind data,

the medium- and long-term loan interest rate over 5 years in recent years has been decreasing annually, which is good for the reduction of the interest expense for the operating enterprises of the wind farms.

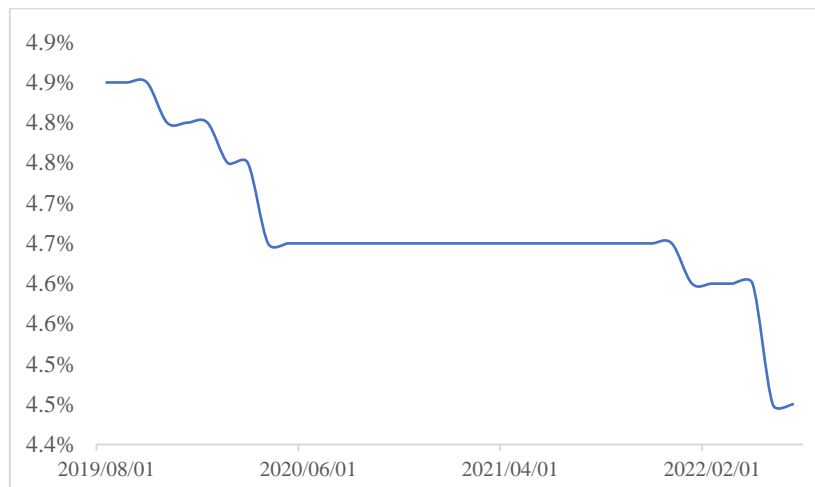


Figure 1. Medium- and long-term loan interest rate over 5 years

### 2.1.3 Society

Since the traditional thermal power plant seriously damages the environment and the coal and other resources are non-renewable, there are more and more appeals for clean energy in society. Compared with the restrictions of hydropower in regional scenarios, requirements for safety and environmental protection of nuclear power plants and the large occupancy of photovoltaic power, wind power generation has the innate advantage. In the areas with the advantages of high altitude, large wind volume and low land prices, such as Xinjiang and Qinghai, it could be built with large-scale wind power generation plants; and in the southeast coastal cities with high land prices and high demand for electricity, the offshore power plant could be built up to generate power without occupying the land. Therefore, wind power generation is more popular among local governments.

### 2.1.4 Technology

Along with the ceaseless development of wind power generation, the kWh cost of wind power is reducing. According to the data of IRENA, the kWh cost of global onshore wind power decreased from 0.09 USD/kWh in 2010 to 0.04 USD/kWh in 2020, with a decrease of 55.56%. The kWh cost of global offshore wind power also dropped from 0.16 USD/kWh in 2010 to 0.08 USD/kWh in 2020, with a decrease of 50%. The reduction of kWh cost would be good for the profitability of the operation of the wind farms, and it would boost the intention of wind power generation enterprises to have enlargement.

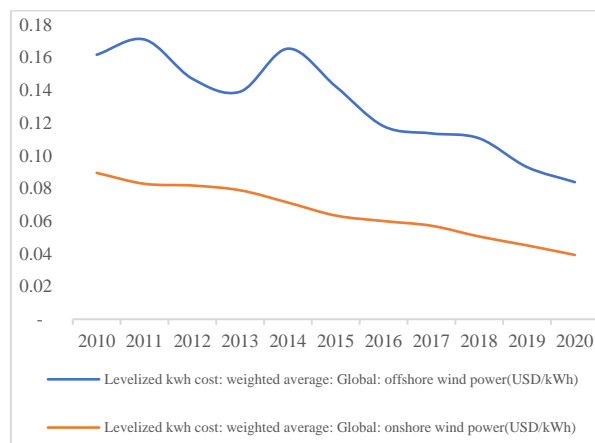


Figure 2. Global wind energy cost per kWh

The percentage of abandoned wind power is also changed. The percentage of abandoned wind power means the reduction of the utilization rate of wind machines. The main cause of the percentage of abandoned wind power is overcapacity in the power industry and the existing power operation management mechanism does not adjust to the need for a large-scale wind power grid. However, along with the technological development and the national attention to abandoned wind power, the national abandoned wind power was 16.9 billion kWh in 2019, with a year-on-year decrease of 10.8 billion kWh; the national average percentage of abandoned wind power was 4%, with a year-on-year decrease of 3%. There was a dual-reduction of national abandoned wind power and the percentage of abandoned wind power. It is expected that the percentage of abandoned wind power would be further decreased in the future with the continuous progress of technology, the increase of power demand after the epidemic, and the continuous improvement of the power operating system.

## 2.2 Accounting analysis

### 2.2.1 Analysis of important operating activities ratio

The calculation and analysis of the important ratios of operative activities of the wind farms could effectively verify the fairness of financial data. Combined with the particularity of the industry where wind farm operating enterprises engage, it is digested with four indexes to verify the authenticity of accounting data. Due to COVID-19, The cash flow from operating activities (NCFO) were decreased, but it was still a positive one, and there was a great increase in 2021 and 2022. Interest expense proportion went high for the increase of the construction in progress and several completed but not yet put into operation projects of the company, but it was still relatively stable. Account receivable/Assets had been stabled in the past few years. NCFO/OI had a great increase in the years except for 2020, which meant an increase in the operating income quality of the company.

**Table 1.** Comparison of operating activities ratio

	2019	2020	2021	2022E
NCFO (million)	768.96	415.3	1394.45	1409.18
Interest expense proportion	5.30%	5.67%	7.48%	10.66%
Accounts Receivable/Assets	15.40%	13.92%	13.36%	13.89%
NCFO/OI	37.49%	20.80%	31.63%	48.05%

### 2.2.2 Summary of audit opinions

Through the Q1 audit reports from 2019 to 2022 of CECEP Wind-power Corporation, no audit report had a qualified opinion on the financial report, which meant that the data in the financial statement of CECEP Wind-power Corporation was true and fair; and the financial mechanism of the company complied to the accounting standards, and the financial data had strong credibility.

## 2.3 Financial analysis

The financial analysis is mainly analyzed from debt-paying ability, operation capability, profitability and growth ability these four aspects. The main ratio of all abilities in the data from 2019 to 2021Q1 was selected to have a longitudinal comparison; and the Three Gorges Power (600905), Long Yuan Power (001289), Jiaze New Energy (601619), Zhongmin Energy (600163), Jiangsu New Energy (603693), CHINALCO (000862) were made as comparable objects. The total market value was calculated based on the closing price on March 31, 2022, and then the market average was weighted based on it, so as to have a horizontal comparison with CECEP Wind-power Corporation.

### 2.3.1 Analysis of debt-paying ability

Through the calculation of the indexes of the debt-paying ability of CECEP Wind-power Corporation and the combination of the data in the past few years, it could be found that the current ratio of CECEP Wind-power Corporation was stable in the years except for the slight decline in 2021,

and it was maintained to be about 1.4% in the past few years, which was higher than the market average 1.04%. The cash flow ratio was significantly higher than the market average though it had declined since 2019, which meant that the corporative operation was healthy. The debt rate had increased since 2019, but it fell down in 2022E, which was still higher than the market average. The equity multiplier was higher than the market average as the top among the comparable objects, which meant to have higher financial leverage and higher operating risk.

**Table 2.** Comparison of solvency

	2019	2020	2021	2022E	2022 market average
Current ratio	1.42%	1.41%	1.19%	1.37%	1.04%
Cash flow ratio	51.31%	31.90%	34.10%	36.73%	27.03%
Debt rate	65.61%	68.07%	71.12%	69.96%	63.88%
Equity multiplier	2.908	3.132	3.463	3.329	2.793

### 2.3.2 Analysis of operation capability

Through the calculation of the operation capability of CECEP Wind-power Corporation, it could be found that all turnover rates of the company were lower than the market average, which meant that the operation capability was lagging behind other comparable objects in the industry. The accounts receivable turnover of CECEP Wind-power Corporation 2022E was 0.948, which was significantly lower than the average level of the market, 2.285. The current asset turnover was 0.616, which was lower than the market average, 0.802. However, the current asset turnover had been increasing in the past few years, which kept narrowing the gap with the market average. The non-current assets turnover and the total assets turnover were 0.147 and 0.119, which was slightly lower than the market average.

**Table 3.** Comparison of operation capacity

	2019	2020	2021	2022E	2022 market average
Accounts receivable turnover	1.133	0.898	0.867	0.948	2.285
Current assets turnover	0.579	0.506	0.525	0.616	0.802
Non-current assets turnover	0.137	0.116	0.120	0.147	0.197
Total assets turnover	0.111	0.094	0.098	0.119	0.158

### 2.3.3 Analysis of profitability

Through the calculation of the profitability of CECEP Wind-power Corporation, it could be found that both gross margin and net margin in 2022E were significantly increased. The increase in the gross margin should be owed to the decrease of kWh cost for the development of technology. The partial reason for the increase of the net margin was the increase in the gross margin; while the other part of the reason should be owed to the reduction of interest expense. It could be known from the observation of the data of other wind farm operating enterprises, both the gross margin and net margin of multiple enterprises increased in 2022. The gross margin of CECEP Wind-power Corporation was slightly higher than the industrial average, which meant that the profitability of the company was better than that of the industry. ROE and ROIC were relatively lower compared with the industrial average; the equity multiplier and debt ratio were significantly higher than the industrial average, so it indicated that there was still a shortage in the capital application of the company.

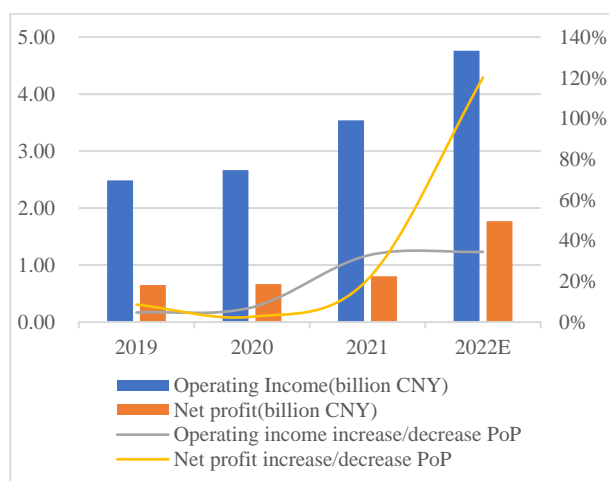
**Table 4.** Comparison of profitability

	2019	2020	2021	2022E	2022 market average
Gross margin	52.40%	52.09%	55.21%	59.83%	53.88%
Net margin	26.06%	24.94%	22.71%	37.17%	35.40%
ROE	7.94%	6.29%	7.20%	7.74%	9.23%
ROIC	5.66%	4.32%	4.59%	4.87%	6.37%

### 2.3.4 Analysis of growth ability

#### 1) Analysis on the operating income and profit

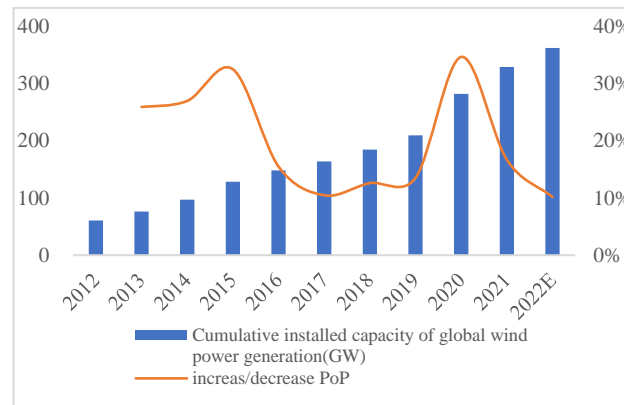
Through the comparison of the financial data of CECEP Wind-power Corporation from 2019 to 2022, it could be found that both operating income and the net profit achieved a huge increase, and the growth of net profit was significantly higher than that of the operating income. According to the data in 2022Q1, it would be expected that the CECEP Wind-power Corporation would achieve an operating income of 4.76 billion CNY and a net profit of 1.77 billion CNY in 2022, which indicated that the company would enter the period with rapid growth with a great improvement in the profitability.



**Figure 3.** Operating income and net profit

#### 2) Analysis of the industry where the company engages

The industry where the company engages is greatly related to the development of the entire wind power industry. According to the data of GWEC, there would be a slide in the growth rate of world wind power cumulative installed capacity in 2022, but it would still maintain a higher ratio. Due to the lower utilization rate of the wind power resources around the world, the descending space for the kWh cost and the great support of all countries to the wind power industry, it would be expected that the operating enterprises of wind power generation would keep a quicker growth, and the industry where the company engages would have a promising future.



**Figure 4.** Cumulative installed capacity of global wind power generation

The company is in the middle status in the industry. The wind power generation industry in China is filled with state-owned enterprises, and the 5 companies in the leading status of the industry have more than 50% market share since the core competitiveness of the operating industry of wind power is the capital running ability and capital scale. According to the annual report in 2021, the market share of CECEP Wind-power Corporation was 1.57%, and it would be expected to maintain the current level for a long time due to the restriction of the capital scale.

## 2.4 Prospects analysis

According to the annual report in 2021, the future development strategy of the company would focus on the overseas market with a step-by-step implementation of the merger to enlarge the scale. There are most operating enterprises in wind power generation in China with keen competition in the industry, and most of the bid-winning enterprises are large-scale state-owned enterprises in China. Compared with the domestic market, the competition in the foreign markets is moderate. Focusing on the overseas market is good for the company to get rid of the keen competition in China so as to improve the profitability of the company, and it would further consolidate its status in the competition of the industry.

The company would attach importance to offshore wind power. In the past, the operating enterprises of wind power generation would choose to build up large-scale wind power generating farms in Xinjiang, Tibet, and Inner Mongolia due to the excessively high kWh cost of offshore wind power and the imperfect technologies. Along with the decreasing kWh cost and the continuous issue of relevant policies, offshore wind power has been the main profit growth point for the operating enterprises of wind power in the future. The offshore wind power could be built in the southern coastal cities with high power consumption because there is a closer distance with the power consumption area and there is a relatively high electricity price and less transportation loss. In addition, compared with onshore wind power, the power generation for one offshore wind power machine is higher, and it would not occupy land resources, so the southern coastal cities with limited land resources would prefer offshore wind power to photovoltaic power and other clean energies. Hence, the company choosing to focus on offshore wind power would meet the long-term development of the industry.

The wind power cost has been close to the one of thermal power, so the country has withdrawn the subsidized electricity price mode gradually. From 2021, the central government has no subsidy for such newly constructed projects as the approved onshore wind power and implements the average electricity price of grid power supply. The electricity price of the grid power supply of the new projects in 2021 was implemented as the benchmark price of local coal-fired power generation. While the high profit of wind power operating enterprises in 2021 and 2022 was caused by the “installation tide” in 2020 and before, there was still a large descending space for the wind power cost. Thus, in the future, the profit of the operating enterprises of wind power would be reduced by the descending electricity price caused by the “Average electricity price of grid power supply” in the future, and then

it would go high for the reduction of the cost. Consequently, seen from a long time, the profit of the company would be very optimistic.

### 3. Conclusion

Based on the Harvard Analytical Framework, the paper has an analysis on the financial performance of CECEP Wind-power Corporation, and the followings are the conclusions.

Firstly, according to the analysis of the operation capability of CECEP Wind-power Corporation, it is found that all turnovers are lower than the market average, and the ROE and ROIC are still lower, but the gross margin and net margin are much higher than the market average. It means that there still needs an improvement in the operation capability of the company, and the company should spare no effort to upgrade the management ability of all kinds of assets and strengthen the operating efficiency of all kinds of assets.

Secondly, the higher liability ratio of the company implies higher operating risk. The higher liability ratio than the market average indicates that the company's risk resistance would be weaker than the others when there is a crisis in the industry. Thus, the company could increase the proportion of its own capital in the capital structure with the new issue and convertible bond.

Thirdly, the industry where the company engages has a promising development prospect. In the future, the wind power generation industry would still maintain a higher growth speed. One reason is that the proportion of clean energy in the world energy would be increased gradually in the future. As a safe and efficient clean energy, wind power must be benefited from the tendency. Another reason is that, along with the continuously decreasing kWh cost and the percentage of abandoned wind power, there would be an increase in the profit. Hence, wind power would be more attractive than other investments. In the end, the wind power utilization in the world is still at a lower level, and there is still a vast of wind power resources that have not been utilized, so the enterprise should seize a good chance in the tendency and upgrade the core competitiveness.

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