A peep at photovaltic industry out of the difference in downstream performance between 2021 and first-half of 2022

Yuqi Jing

2022-06-22

Things in the world have been changing, and everything is happening quietly, just the gray line of grass snakes, which is sometimes imperceptible.

On May 17, the National Energy Administration released national electricity industry statistics from January to April. Photovoltaic power generation won the first place in newly installed capacity with 16.88GW, an increase of 138% year-on-year. Among them, 3.67GW was newly installed in April, an increase of 110% year-on-year and 56% month-on-month.

After the first quarter, demand continued to be strong. While the industry is booming, various industrial data released one after another are intriguing.

Against the background of strong demand, prices in all links of the industrial chain have begun to rise. Although this happened last year, this year is different.

In 2021, photovoltaic prices soared due to the shortage of silicon materials. Several times, the price of silicon was too high, driving up the downstream cost, resulting in a slowdown in the construction demand for terminal power stations, an imbalance between supply and demand, and a price tug-of-war. The batteries and components sandwiched in the middle are difficult for prices to rise at the same time.

However, in 2022, while silicon soared, the downstream also rose simultaneously, and the price of components even exceeded 2 yuan/W. Power station investment enterprises are abnormal and choose to start construction at a high component price.

In 2022, it was still the king of silicon. Even if the demand is high, the profitability of photovoltaic links varies greatly. The leading photovoltaic components have changed owners, and overseas demand has recovered.

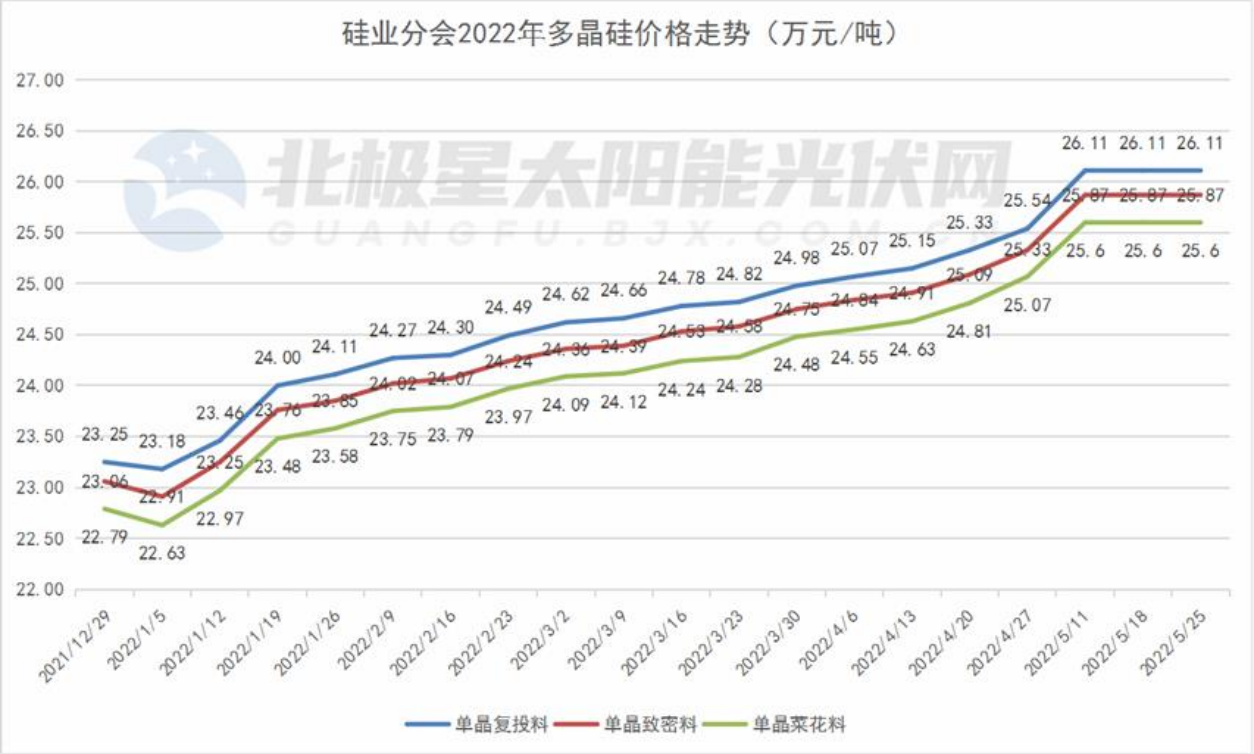
These events reflect the "change" and "content" of the photovoltaic industry in 2022.

But the question also came. Will the price increase in all links of the industrial chain continue? What is the reason why power station investment enterprises choose to start construction at a high component price? How will the industrial pattern of photovoltaic evolve in the future?

01 Component "Anomaly"

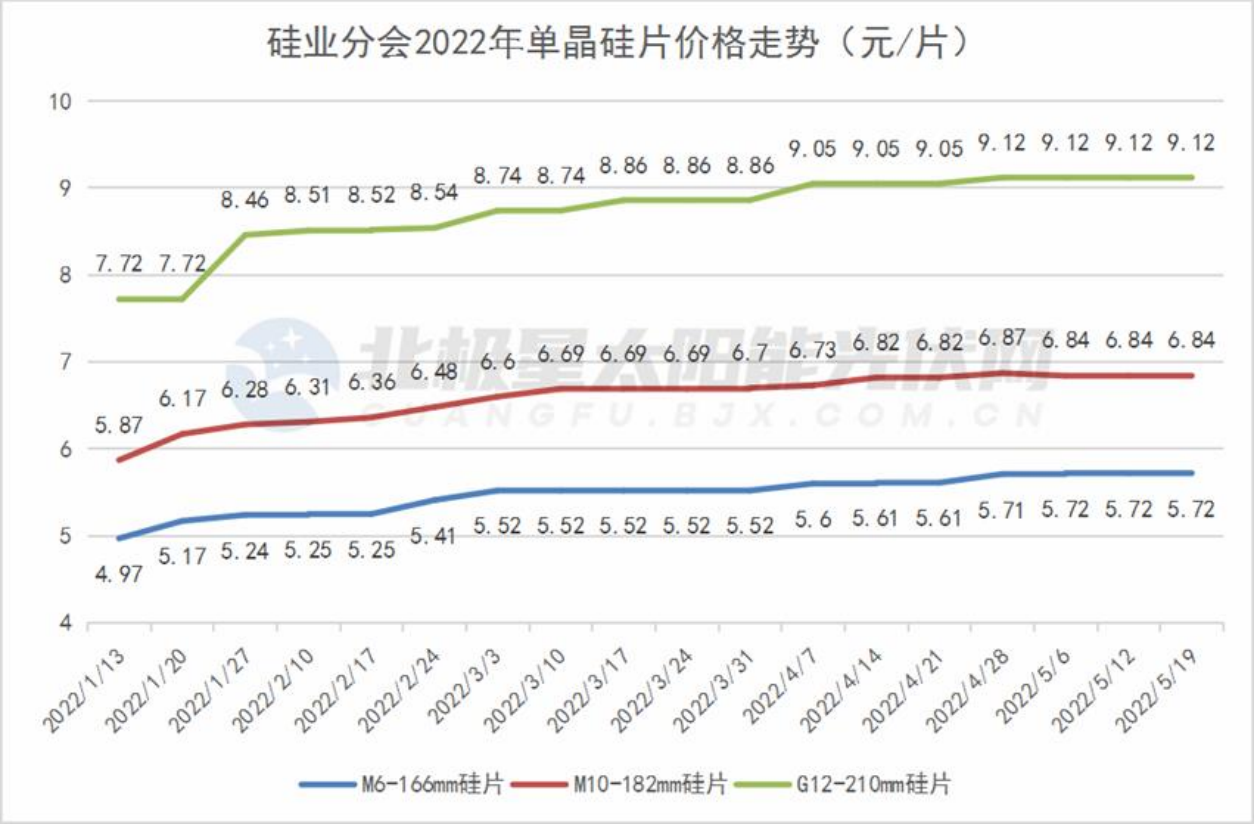
Friends who know something about the photovoltaic industry should be clear that due to the mismatch between supply and demand, the supply of silicon materials exceeds the demand, and the price will rise throughout 2021. The price rose from 85,000/ton at the beginning of the year to 270,000/ton, an increase of 217%. At the end of 2021, under the combined effect of silicon displacement expectations and year-end rush loading, the price of silicon fell to 230,000/ton.

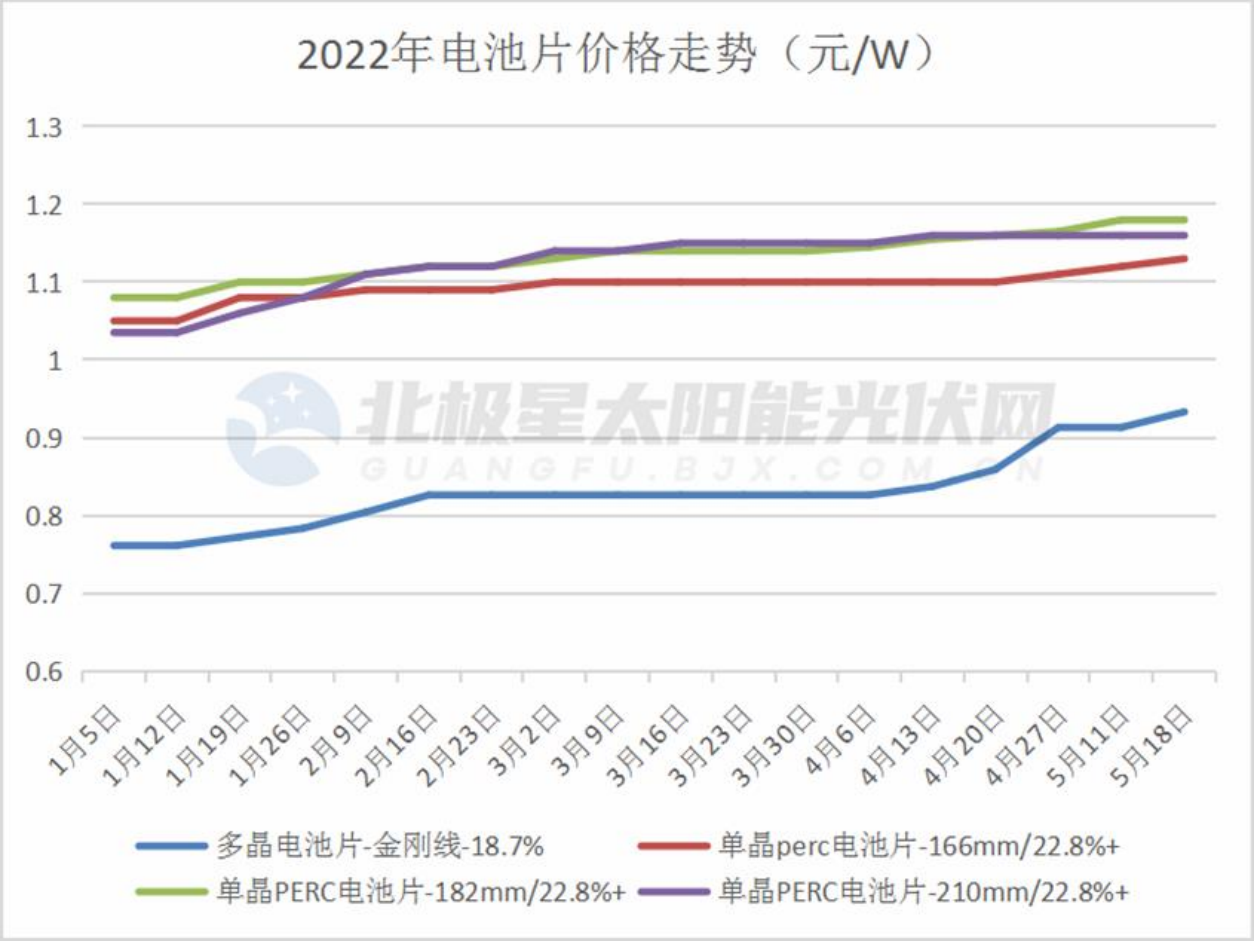
In 2022, downstream demand continued unabated, and silicon prices rose again. From the beginning of the year to May 11, silicon rose 16 times in a row, and the price reached 260,000 yuan/ton. Since then, silicon has remained high for three consecutive weeks, and the price has remained at about 260,000/ton.



Data source: Polaris Solar Photovoltaic Network

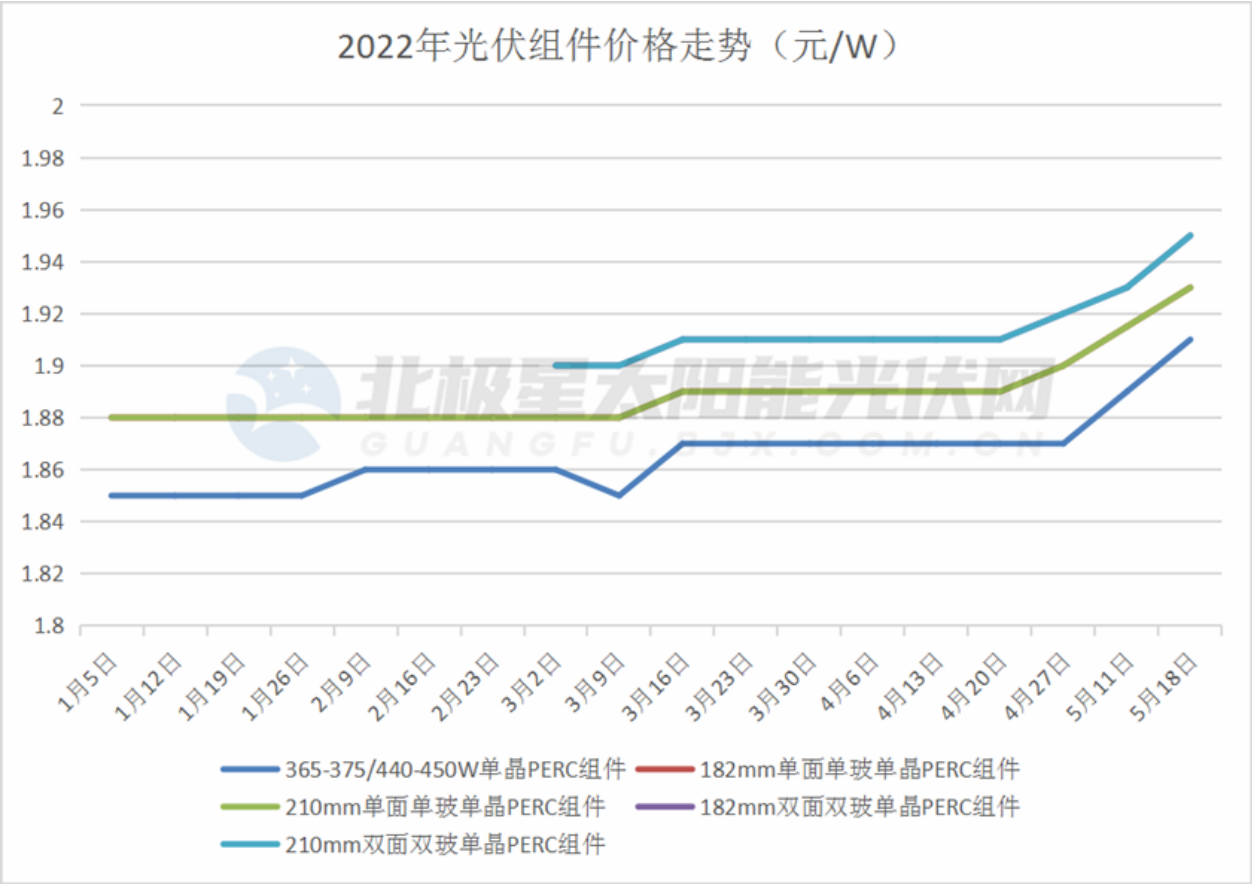
This can't help but recall the script of the photovoltaic price increase in 2021. Last year's storyline was a sharp rise in silicon, but it was difficult to effectively transmit it to downstream batteries and components; this year's price increase was also the case, and the price increase trend of silicon wafers and batteries was relatively flat.





Data source: Polaris Solar Photovoltaic Network

But on the component side, the plot is obviously different from last year. The price of components is not as weak as last year, but has increased significantly.



Data source: Polaris Solar Photovoltaic Network

So, what causes different performances downstream of the industrial chain? How do components gain voice?

To interpret this difference, we need to trace the origin by root. Obviously, the rise in commodity prices is caused by demand terminals, and photovoltaic components are no exception.

According to the data of the National Energy Administration, 13.21GW was newly installed in domestic photovoltaic in 2022Q1, an increase of 148% year-on-year, of which distributed accounts for nearly 70%; component exports were 41.30GW, an increase of 108.5% year-on-year.

There are two obvious highlights to pay attention to in this set of data: first, the growth momentum of distributed has increased after last year's boom; second, the component export data is very amazing.

Looking for the logic behind the highlights, we can find the answer.

02 High-level construction key: distribution and subsidy

First of all, let's take a look at distributed photovoltaic. Behind its popularity is related to the policies introduced.

In 2021, the state launched a county-level promotion policy. Under the endorsement of the policy, there has been a wave of distributed photovoltaic construction across the country. Not only is it, but it is actually extremely far-reaching, and it even reshapes the industrial pattern.

In the past, the investment and construction of photovoltaic was mainly centralized. This method of large-scale construction of power stations in deserts, mountainous areas and other open areas has obvious advantages and disadvantages.

The advantage is that the volume is large, and it is easy to expand capacity after forming a scale; the power generation is stable and can be directly connected to the grid and then transmitted to long-distance users. The disadvantages are the loss in the process of power transmission and the collaborative management of various equipment.

Although distributed photovoltaic is small, it is more flexible and has a wide range of application scenarios. It can be promoted in major scenic spots, industrial parks, commercial areas and residential areas.

The most critical advantage is in cost. Because distributed photovoltaic is based on existing buildings, the property rights belong to the owner. Therefore, there are no civil construction costs and construction costs. In particular, household distributed photovoltaic, basically does not need to be connected to the grid, and the power is produced and used by itself, saving the cost of boost stations and lines.

According to CITIC Construction Investment, the cost of centralized photovoltaic is about 4.17 yuan/W, while the cost of household distributed photovoltaic is only 3.19 yuan/W, with a huge gap.

You should know that the photovoltaic construction of MW and GW (1GW=1000MW=1000*1000KW=1000*1000W) levels has a huge impact on profits, not to mention that the price difference between the two is close to 1 yuan.

The huge cost difference has ignited enthusiasm for the construction of distributed power stations.

图表5： 集中式光伏电站单位投资成本显著高于分布式，差别主要体现在升压站、土地和送出线路成本

	集中式光伏投资成本拆分（元/W）	户用光伏投资成本拆分（元/W）
光伏组件	1.95	1.95
支架、基础	0.5	0.3
逆变器及箱变（并网箱）	0.2	0.24

请参阅最后一页的重要声明

6

	集中式光伏投资成本拆分（元/W）	户用光伏投资成本拆分（元/W）
集电电缆线路（交直流线缆、压块等）	0.2	0.1
其他电气（接地、调试等）	0.02	-
其他土建	0.1	-
建设用地费、耕地占用税	0.2	-
升压站	0.3	-
送出线路	0.3	-
其他费用（户用为二次倒运、安装、手续办理等）	0.4	0.6
总初始投资	**4.17**	**3.19**

资料来源：太阳能行业协会，西勘院，中信建投

In addition, the rising cost of electricity is also affecting the propulsion of distributed photovoltaic.

The Notice of the National Development and Reform Commission on Further Deepening the Market-based Reform of Coal-fired Power Generation's On the Market-based Electricity, issued on October 11, 2021, clearly mentioned that "the fluctuation range of the transaction price of coal-fired power generation market

will not exceed 10% from the current rise and no more than 15% in principle, and expand to the floating up and down. Then it will not exceed 20%, and the market transaction price of high-energy-consuming enterprises is not subject to a 20% increase.

Petrochemical, chemical, coal, smelting, building materials and other industries are all high-energy enterprises, which can rise by more than 20% of electricity prices, which undoubtedly increases the cost of enterprises.

Therefore, both homes and factories choose to install distributed photovoltaic from the perspective of cost savings.

It must also be mentioned that subsidies for distributed photovoltaic at all levels of government are also effective in *** demand.

Although in April 2021, the National Development and Reform Commission issued the Notice on Matters Related to the New Energy feed-in tariff policy in 2021 (Draft for Comments), which mentioned that the central government will no longer subsidize new centralized photovoltaic power stations, industrial and commercial distributed photovoltaic and newly approved land wind power projects from 2021.

However, 18 regions in Beijing, Zhejiang, Jiangsu, Guangdong and other provinces still provide distributed photovoltaic subsidies.

Just recently, according to CCTV News reports: On May 11, Premier Li Keqiang presided over an executive meeting of the State Council. The meeting proposed to allocate 50 billion yuan of subsidies to central power generation enterprises in the early stage and 20 billion yuan of capital through the state-owned capital operation budget. Injected 10 billion yuan.

At the same time, the construction period of rushing at the end of last year generally ended before the second quarter, which also affected the relationship between supply and demand to a certain extent.

To sum up, distributed costs and continuous subsidy policies are the key reasons why downstream power stations invest in starting construction at high component prices.

03 The confidence of price increase: components go to sea

The second highlight of photovoltaic installation is that compared with China, the larger increment of components in overseas markets.

Gai Xi data shows that the cumulative export volume of photovoltaic components in China from January to April 2022 was 53.72GW, +348% year-on-year. Compared with the installed capacity of 16.88GW in China, it is obvious that exports contribute more to the increment of components.

The EU is extremely dependent on natural gas. The recent situation in Russia and Ukraine has enabled Europe to accelerate the process of new energy substitution. According to the data, the export volume of components to some European countries was 23.86GW, up 132.4% year-on-year.

Delayed demand broke out in India and other regions due to the epidemic, and the escalation of domestic subsidies in Brazil led to the import of photovoltaic components.

China's photovoltaic industry has strong competitiveness in terms of cost, performance and supply chain, and even countries with an industrial foundation can hardly shake China's leading position in components. Some countries with a weak industrial base can only rely on imports.

China's global market share of photovoltaic components exceeds 50% all year round, and export trade accounts for a large proportion of revenue. According to the 2021 annual report, Longji Co., Ltd. (601012. SH), Crystal Energy (688223. SH), Jing'ao Technology (002459. SZ), celestial light energy (688599. SH) The overseas revenue of the four major photovoltaic component enterprises is 46.89%, 78.31%, 68.88% and 62.53% respectively. At the same time, foreign currency accounts receivable account for a large proportion.

In the context of the sharp depreciation of the RMB, domestic component manufacturers have increased RMB revenue through exports on the one hand, and exchange gains generated by the appreciation of foreign currencies have also increased profits on the other.

Through the above data, we can also find that the difference in the proportion of overseas business of each component enterprise directly affects the shipment ranking.

According to Sobi photovoltaic data, Jingke Energy ranked first in the first quarter of photovoltaic components shipped in 2022. According to the above, we can also see that Jingke's overseas business accounts for the largest proportion of the major giants. Similarly, LONGi shares, which account for the smallest export share, withdrew from the leading position and only ranked fourth.

It can be seen that under the premise of a surge in overseas demand, the overseas market layout of enterprises has a great impact on the future component competition trend.

中国光伏组件企业2022年1季度全球出货量榜单 数据来源：索比光伏网&索比咨询		
序号	企业	组件出货量 (单位：GW)
1	晶科能源	8.031
2	天合光能	8
3	晶澳科技	6.83
4	隆基股份	6.44
5	阿特斯	3.6-3.8
6	东方日升	3.5
7	正泰	2.3
8	尚德电力（无锡+常州）	2.08
9	环晟光伏	1.2
10	协鑫集成	1
10	亿晶光电	1
以上数据由索比光伏网&索比咨询根据上市公司公告与调研获取，仅供参考，不作为投资建议。		

Data source: Sobi Photovoltaic Network

To sum up, under the background of the outbreak of overseas demand, as a component link directly facing terminal demand, with obvious industrial

advantages, it controls the right to speak at the export side, and there are enough reasons and confidence to raise prices.

In the photovoltaic industry chain, in addition to components, which links have better profits and higher growth elasticity?

04 Low expected production capacity, exceeding expected demand

According to the photovoltaic first-quarter financial report released, we found more interesting phenomena. For example, silicon enterprises won the third place in net profit, leading Tongwei Co., Ltd. (600438. SH) topped the list of revenue and profit. Although the revenue of component enterprises has increased year-on-year, their profits are far from that of silicon enterprises.

A. 一季度营收排行榜			
序号	证券简称	营业总收入（亿）	同比增长
1	通威股份	246.85	132.49%
2	隆基绿能	185.95	17.29%
3	特变电工	171.39	81.28%
4	天合光能	152.73	79.20%
5	晶科能源	146.81	86.42%
6	中环股份	133.68	79.13%
7	晶澳科技	123.21	77.12%
8	正泰电器	106.42	54.91%
9	大全能源	81.29	389.28%
10	阿特斯太阳能	79.37	10.88%
11	爱旭股份	78.27	160.25%
12	太极实业	68.26	55.46%
13	三峡能源	57.89	51.84%
14	上机数控	56.74	252.62%
15	东方日升	54.14	40.46%
16	阳光电源	45.68	36.48%
17	横店东磁	43.96	71.85%
18	吉电股份	42.90	22.24%
19	福斯特	38.84	38.02%
20	福莱特	35.09	70.61%
21	博威合金	33.26	58.40%
22	旗滨集团	30.63	4.79%
23	先导智能	29.26	142.41%

C. 一季度净利润排行榜			
序号	证券简称	净利润（亿）	同比增长
1	通威股份	58.22	552.03%
2	特变电工	43.19	86.65%
3	大全能源	43.12	640.84%
4	隆基绿能	26.53	6.04%
5	三峡能源	25.71	59.97%
6	中环股份	14.57	96.20%
7	晶澳科技	7.73	362.94%
8	正泰电器	6.85	305.08%
9	上机数控	6.55	108.15%
10	天合光能	5.78	133.47%
11	旗滨集团	5.22	-39.80%
12	吉电股份	5.18	-0.08%
13	晶盛机电	4.61	61.81%
14	福莱特	4.37	-47.88%
15	阳光电源	4.22	8.28%
16	晶科能源	4.01	66.39%
17	南玻A	3.88	-32.97%
18	横店东磁	3.63	40.54%
19	先导智能	3.46	72.50%
20	福斯特	3.40	-31.48%
21	美畅股份	2.85	49.16%
22	浙江新能	2.80	1029.76%
23	捷佳伟创	2.72	29.93%

Data Source: Black Hawk Photovoltaic

Silicon companies performed well in the first quarter. The market's biggest concern is still the price of silicon. Even if there will be a large number of production capacity releases in the future, the epidemic, downtime and other factors have made the expansion of production capacity less than expected.

Moreover, the climbing of silicon production capacity is a slow process, which can only be lower than expected.

Cailian News Agency, May 27, according to the data of the Ministry of Industry and Information Technology, the national output of polysilicon links was about 122,000 tons in March-April.

To observe the production, operation and shipment of silicon. At present, most silicon enterprises are in full production. Industry insiders predict that the domestic polysilicon production is expected to be about 62,200 tons in May, an increase of 7.2% month-on-month.

Most of the orders of silicon enterprises were signed in May, and some silicon enterprises faced the current situation of over-signing orders and no materials available.

Although the production capacity is lower than expected, the demand does exceed expectations, and this time we will focus on China.

Just recently, the National Energy Administration predicts that the new key new energy projects this year will drive the investment in solar power generation and onshore wind power plans to increase by 202.6 percent and 13.3% year-on-year.

According to the latest data from the National Energy Administration on May 30, 121 million kilowatts of photovoltaic power generation projects under construction are expected to be connected to the Internet for the whole year, an increase of 108 million kilowatts of photovoltaic power generation, an increase of 95.9% from the actual grid-connected capacity of the previous year.

108 million kilowatts, or 108GW, exceeded the expectations of previous major research institutions and media.

Against the background that the short-term production capacity of silicon materials is difficult to release and the demand for photovoltaic exceeds expectations, it can be inferred that the price of silicon materials remains strong.

05 Conclusion

Photovoltaic's use of "not dim off-season" in the first quarter of 2022 left a deep impression. Under the premise of high domestic and overseas demand, the heat of photovoltaic has increased unabated, which also gives a solid foundation for photovoltaic price increases.

For all aspects of the industry, there are "change" and "invariance". Between "change" and "unchanging", we strive to pursue the logic behind it.

For investment, everything in the past is a preface.