

**POWER INDUSTRY**
**December 16, 2022**
**PHHA LAI THERMAL POWER JOINT STOCK COMPANY (HSX: PPC)**

<b>Market price (VND/share)</b>	<b>13,250</b>	<b>Recommendations</b>
<b>Target price (VND/share)</b>	<b>9.183</b>	<b>SELL</b>
<b>Consensus</b>	<b>-30.7%</b>	

**Transaction information 09/12/2022**

Market price (VND)	13,250
52 weeks high (VND)	24,450
52 weeks low (VND)	11,200
Number of listed shares	326,235,000
Number of outstanding shares	320,613,054
30-day Avg volume (shares/day)	104,950
Market cap (VNDbn)	4,262
TTM EPS (VND)	1,168
TTM P/E (x)	15.75x

**Business Overview**

Company name	Pha Lai Thermal Power Joint Stock Company
International name	Pha Lai Thermal Power Joint-Stock Company
Address	Km 28 National Highway 18, Pha Lai, Chi Linh City, Hai Duong Province
Main revenue	Producing and trading in coal power
Main risk	Maintenance and preventive maintenance work

We initiate coverage on PPC with an SELL rating and TP of VND9,183, based on FV2022 target P/E of 9.1x. We see PPC as a relatively defensive pick with visible earnings growth (16% over FY22-23F) and stable profitability (ROE >7%) among the rising cost-push inflation and tightening capital market. Potential re-rating catalysts include:

**INVESTMENT THESIS:**

- 1. The higher power output of thermal power plants mobilized due to the La Nina effect is expected to weaken from the beginning of 2023.** In case of less favorable hydrological conditions, the water level in the hydroelectric reservoirs will decrease. Then thermal power plants: coal-fired and gas-fired power plants can be mobilized higher by EVN to replace the decline in hydropower output in 2023F.
- 2. Without using financial leverage,** PPC is a rare enterprise in the industry that does not use debt because (1) the company does not have new investment projects and (2) prioritizes using its own capital to invest.
- 3. Highest dividend yield in the industry thanks to using most of profit after tax to pay dividends.** The enterprise uses most of the after-tax profit to pay dividends in the period of 2018-2021, which is PPC that does not plan to reinvest in the above period. PPC has the highest dividend yield in the industry with an average of 13.6% for the period 2018-2021.

**INVESTMENT RISKS :****1. Risk of input materials**

Political and economic instability leads to high input material prices: Specifically, the price of imported coal of Vinacomin has increased by about 30-35% over the same period in the first 6 months of 2022 (currently at \$90 USD). / ton). This leads to an increase in coal prices by 30-35% to 2.1 million/ton, after the maintenance period of 2019-2021 at 1.6 million/ton.

**2. Investment risk and fixed asset repair**

Outdated factories and equipment often need to be repaired: Because Pha Lai 1 factory includes 4 units, which have been invested and put into operation from 1983 - 1986, along with the 1st line of this factory. have been operating for 39 years, are in a state of serious deterioration. Therefore, when an overhaul is needed, it will affect the company's revenue and after-tax profit because Pha Lai Thermal Power Joint Stock Company is a power producer, the units operate continuously for 24 hours / 1 day, only stop according to the maintenance and overhaul cycle.

**3. Risks due to weather factors**

In addition, the generating sets are also affected by weather factors, due to the increased influence of the condenser cooling circulating water temperature and changes in the technical characteristics of the furnace coal, affecting the efficiency of the furnace. heat capacity of the unit and affects the combustion of fuel in the combustion chamber and heat transfer efficiency.

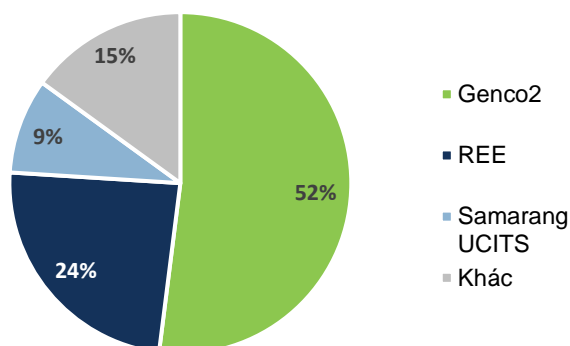
## I. BUSINESS OVERVIEW

### 1. History of formation and development

- 1982: Established on April 26, 1982 under the decision of the Ministry of Electricity under Power Company 1.
- 1983-1984: Two units 1 and 2 of Pha Lai 1 Factory were put into operation
- 1985-1986: Two units 3 and 4 belonging to Pha Lai 1 Factory were put into operation.
- 1995: Became a dependent accounting unit of General Electricity of Vietnam.
- 2001-2002: Two units 5 and 6 belonging to Pha Lai 2 Factory were put into operation.
- 2005: Pha Lai Thermal Power Plant was transformed into a joint stock company with independent accounting.
- 2006: Officially listed on HNX with stock code PPC
- 2007: On 26/01/2007, shares of Pha Thermal Power Joint Stock Company were officially traded on Ho Chi Minh City Stock Exchange with the offering price of 105,000 VND.

### 2. Shareholder structure

**Cơ cấu cổ đông tại ngày 09/12/2022**



The shareholder structure is quite concentrated with Power Generation Corporation 2 currently holding 51% of the shares and together with Pha Lai Thermal Power Plant significantly increases the capacity of Vietnam's power system to meet the increasing demand for electricity. , to step up the national electrification program . In addition, the second largest group of shareholders belongs to REE Energy Limited with the ownership rate of 23.72%; while Samarang UCITS with a total ownership rate of about 8.8%.

*Nguồn: PPC, Nhóm tổng hợp*

### 3. Company structure

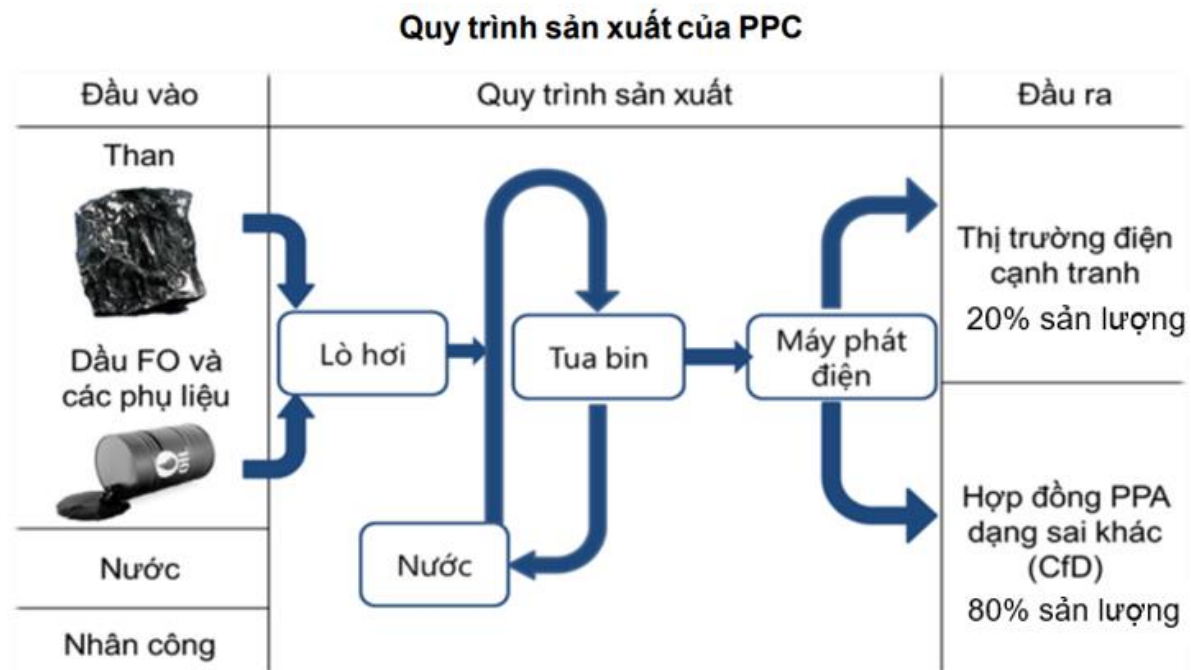


<b>Nhà máy Nhiệt điện Phả Lại 1</b> Sản xuất, kinh doanh điện than	<b>Nhà máy Nhiệt điện Phả Lại 2</b> Sản xuất, kinh doanh điện than	<b>29% CTCP Nhiệt điện Hải Phòng</b> Sản xuất, kinh doanh điện than
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PPC currently owns 1 associate company and 2 power plants. In which, both Pha Lai 1 and Pha Lai 2 plants are in operation, producing and trading electricity - this is the main business activity of PPC. Associate company Hai Phong Thermal Power Joint Stock Company with the ownership rate of 29.02%

## II. BUSINESS ACTIVITIES

### 1. PPC .'s coal-fired power production and business value chain



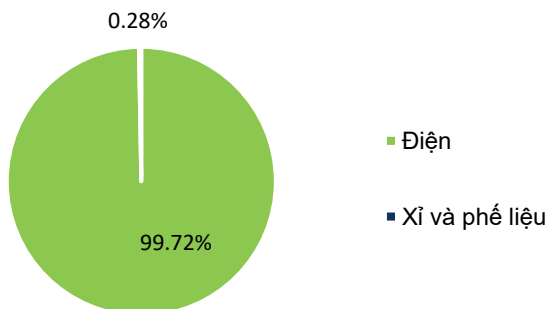
**Raw materials:** PPC's main production material is mixed coal (between domestic anthracite coal and imported sub-bituminous coal)

**Production:** PPC's power generation process is relatively simple. Specifically, coal is burned creating heat that heats the water in the boiler. The water is heated, converted into steam, which turns the steam turbine, which drives the generator.

**Product:** PPC's main business product is electricity.

**Distribution:** PPC's electricity is consumed by EVN through 2 main channels: Differential PPA Contract (CfD) accounting for 80% of electricity produced and sold in the competitive electricity market accounting for the remaining 20%.

### Revenue structure in 2021



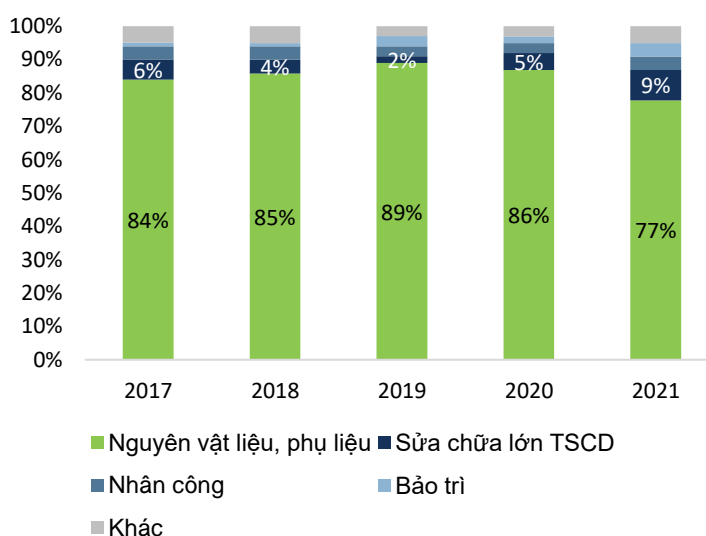
The company's annual revenue mainly comes from electricity production accounting for 99% of total revenue (excluding financial revenue), other revenue comes from selling ash and slag with low value, accounting for 0.2%- 0.4% per year. Revenue fluctuates along with electricity production output and selling price every year. The 6 units at Pha Lai 1 and 2 factories take over all PPC's production activities.

Source: PPC, Aggregate Group

### a, Input materials: Coal supply is protected, coal prices are high due to strong global demand

Due to the characteristics of the thermal power industry, the cost of input materials accounts for the highest proportion in the production cost structure. At PPC, this cost accounts for an average of 84% of total production costs in the period 2017 - 2021. Major repair costs of fixed assets are next with a proportion of approximately 9% in 2021, mainly (1) costs to repair Pha Lai 1 plant, which has been operating for nearly 40 years, and (2) costs to repair unit S6 Pha Lai 2.

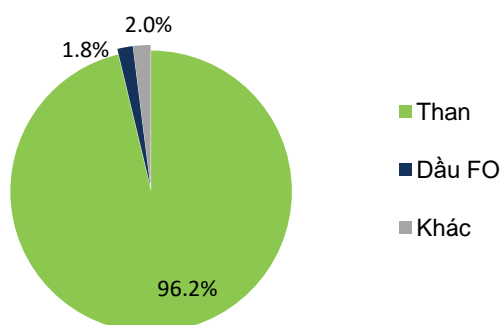
### Production and business costs by factor



Source: PPC, Aggregate Group

### Coal (~95% cost of Materials) PPC has available coal supply from Vinacomin and Northeast Corporation

### Fuel cost structure 2021

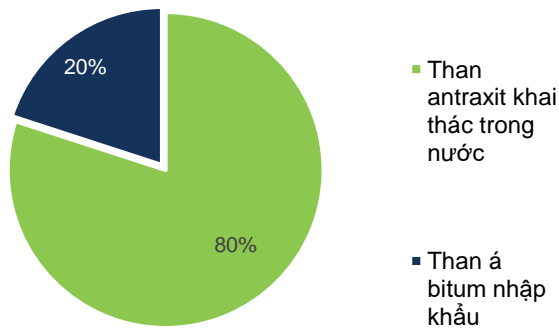


Coal costs account for the largest proportion, about 96% of the fuel cost structure in 2021. In addition, in the production process, FO oil (additive for coal-fired power process) accounts for 1.8% and oil DO, along with other raw materials such as limestone, engine oil, turbine oil, lubricating oil, etc., account for 2.0% of the value of raw materials in 2021.

Source: PPC, Aggregate Group

PPC signed a long-term contract for coal fuel source with two major domestic suppliers, Vietnam Coal and Mineral Industries Group (TKV) and Dong Bac TCT. ensure PPC's annual coal demand for 90%. From 2020, PPC will no longer sign long-term contracts to supply coal, but as a subsidiary of EVN, coal supply is always guaranteed.

**PPC .'s mixed coal source**



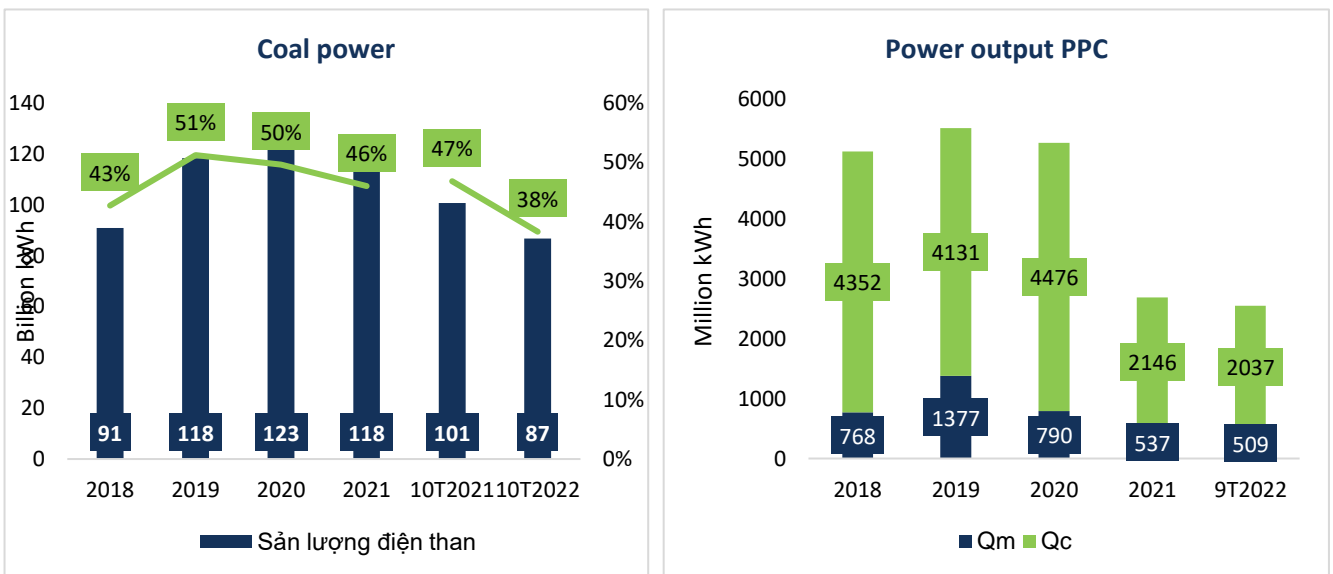
The company receives coal from TKV and the Northeast is coal mixed from anthracite coal exploited domestically and imported sub-bituminous coal, with a mixing ratio of 20% imported coal / 80% domestic coal to ensure the following criteria: calorific value to be compatible with plant operating configuration

Although benefiting from being able to buy coal at a cheaper price than in the world market, PPC and many thermal power plants are subject to control over the supply of raw materials and power output from TVK and the System

Dispatch Center. electricity *Nguồn: Nhóm tổng hợp*

### World coal prices soar, leading to limited demand for coal-fired power plants

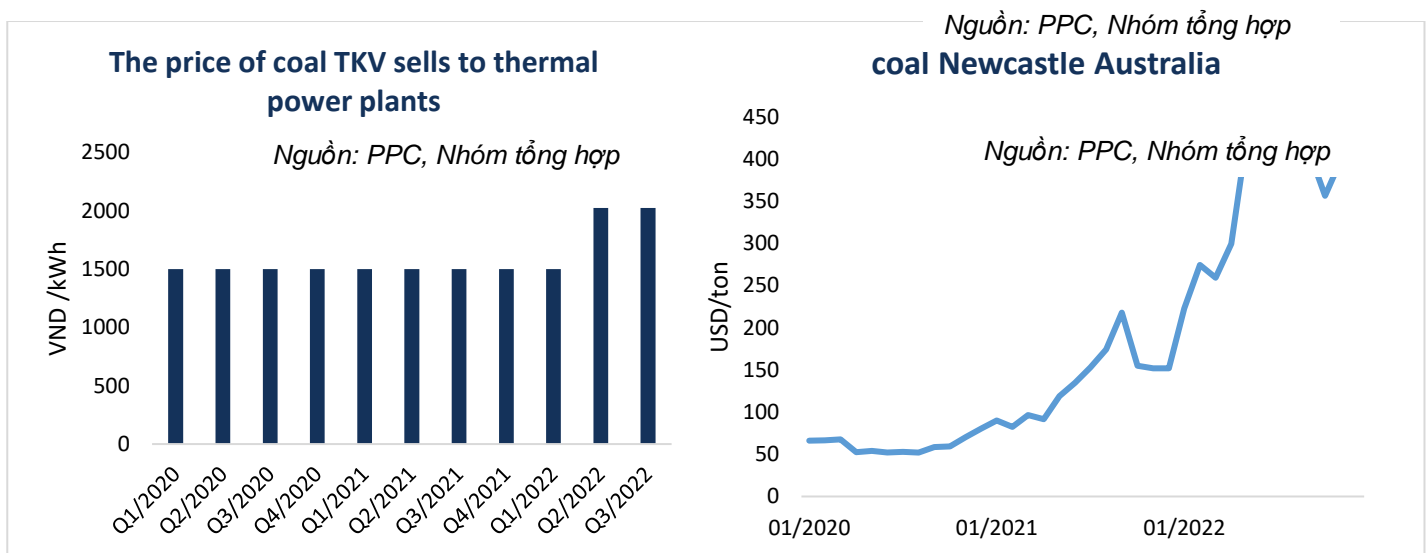
The lack of gas since the beginning of 2022 in the EU has increased the demand for coal-fired power plants, and the complete ban on Russian coal imports into the European Union (EU) from August 2022 has caused global coal prices to fluctuate. continue to peak. Meanwhile, the domestic coal price remained unchanged, leading to loss-making coal businesses, causing a local shortage of coal at many thermal power plants, in addition, the La Nina effect promoted hydropower output. increased sharply to 82.4 billion kWh (+36YoY%), mobilized coal power output decreased significantly. Specifically, in the



first 10 months of the year, coal power output only reached 86.6 billion kWh, (-14% YoY), but still played an important role and accounted for the highest proportion (38.3%) in the output structure. electricity.

The high cost of coal power generation due to the sharp increase in world coal prices from 2021 leads to a decrease in A0's coal-fired power output: PPC 2021's power output is only 2,965 million kWh (-51%) YoY).

Imported coal price of Vinacomin has increased by about 30-35% over the same period in the first 6 months of 2022 (currently at 90 USD/ton). Specifically, the domestic coal price has started to increase since May 2022 following the new coal import mechanism, leading to an increase in the price of PPC's raw materials by about 30-35% to 2.1 million/ton, before that. In the period of 2019-2021, coal price will remain stable at 1.5-1.6 million/ton.



Source: Tradingview, Aggregate Team

China's actions to open up its economy will keep coal prices expected to remain high, however, 2023F coal prices are expected to fall from the 2022 peak as coal-fired power plants in China take the lead. Europe returned to activity and the Russia-Ukraine war situation reduced tensions.

According to Genco2 and Genco3, there has been no further adjustment in coal prices. On the other hand, coal prices at Australia's Newcastle port and HBA Indonesia coal prices - the two main coal exporters of Vietnam have shown signs of cooling down from the peak, at \$398/ton. We believe that the domestic coal price will remain stable at the current price level because the domestic coal price usually increases every 2-3 years.

## b, Production process

**Power output dropped sharply due to low operating capacity, outdated factory, need of major repair ( predicted to have a slight increase in 2022 but not significant:)**

**Pha Lai 1 factory** consists of 4 units with a total capacity of 440 MW invested and put into operation from 1983 - 1986. In which, the first line of the plant has been in operation for 39 years and



has expired its business operation period. economy and is in a state of serious deterioration, in recent years, the Electricity of Vietnam has regularly invested funds to repair, renovate and upgrade equipment. On the other hand, Power System Dispatch Center (A0) sets a year plan with low power output for coal-fired power plants, so PPC's 2021 planned power output is 4,403 million kWh, down 24% compared to 2020. In which, Pha Lai 1 factory had to switch from running in the background to running back and the planned output of this factory decreased by 56% compared to 2020.

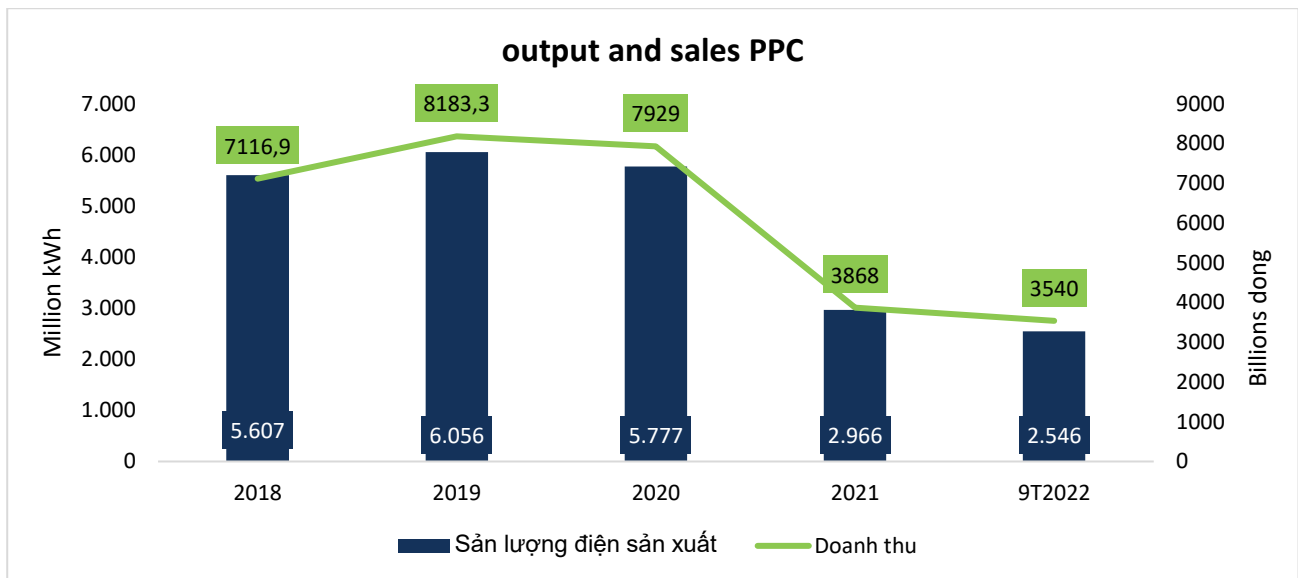
**Pha Lai 2** factory consists of 2 units with designed capacity of 600MW which were invested and put into operation in the years 2001 - 2002. In March 2021, unit S6 was shut down for major upgrades and repairs- This has caused significant impact on the power production capacity of Pha Lai thermal power plant. Moreover, due to the characteristics of Pha Lai Thermal Power Joint Stock Company as a power producer, the units operate continuously for 24 hours / 1 day, only stopping according to the maintenance and overhaul cycle, so when the maintenance is completed, significant impact on PPC's revenue. The sharp decline in output and revenue in the period from 2018 to 2021 is generally due to many factors:

Due to the impact of the Covid-19 pandemic on the production situation. The supply of coal for power production is forecasted to be in short supply due to the supply difficulties of suppliers of Vietnam Coal and Minerals Corporation (TKV) and Dong Bac Corporation. In the face of difficult industry situation, A0 has also lowered the rate of power output paid by contract (ratio  $\alpha$ ) of thermal power plants from 85% to 80%, thus the contract output (Qc) of PPC delivered in 2021 is very low (Qc of 2 factories is 3,238 million kWh, down 32% compared to 2020).

Block 5 has been overhauled and put into stable operation, but many times the electricity market has not mobilized and mobilized at low capacity. The high proportion of solar power in the system (about 25%) has caused an overcapacity situation in the noon time frame and a lack of capacity in the evening peak hours (18h-20h). This affects the production process of PPC, causing the factory to adjust the capacity up and down as well as to shut down and start the unit continuously. This increases the power generation costs of the plants because the start-up of thermal power plants is expensive and increases the risk of problems for the plants.

In addition, the natural weather conditions of 2022 have also been one of the impacts on thermal power plants and equipment, especially the increased influence of circulating water temperature to cool the condenser and changing the technical characteristics of the coal fired furnace, affecting the thermal efficiency of the unit and affecting the fuel combustion in the combustion chamber and heat transfer efficiency.





*Nguồn: PPC, Nhóm tổng hợp*

**It is expected that in 2022** , after the temporary Covid epidemic has been well controlled by the state, the economy gradually enters a normal trading state, the Company is expected to focus on improving production and business capabilities, increasing production production volume, with a reasonable output target compared to the financial situation, machinery and equipment, increased by 36.3% compared to 2021. With this target, PPC can achieve this target. .

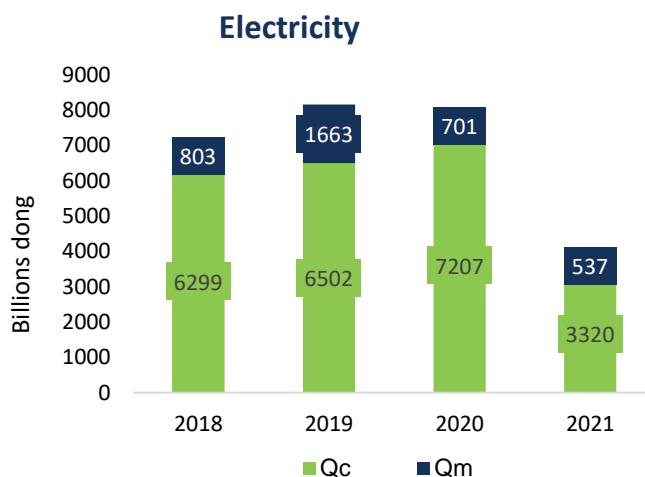
### **Bright prospects from accelerating Pha Lai 3 factory investment project and a number of other investment projects**

The company carries out a series of investment projects related to environmental protection. In which, Pha Lai Thermal Power Joint Stock Company has asked the Provincial People's Committee to allow the construction of Pha Lai 3 Thermal Power Plant with the scale of building a 600 MW coal-fired thermal power plant, the new plant consumes about 1.59. million tons of coal/year on a campus of 50 hectares, belonging to the company's land area being managed and used. The total investment capital of the factory is 20,709 billion VND. The plant is expected to be built in 2023 and completed in 2026.

This is an extremely important project in the current context when the S6 generating set is shutting down. Evaluation, with more modern technology, it is expected that this plant can bring higher profitability due to lower coal consumption rate and is located in an important position in the center of the cluster of industrial parks, the price is high. production is estimated at 1,361 VND/kWh on average.

Including a number of other investment projects, PPC also strengthened the management and operation of power units, ensuring that the main unit S5 Line 2 operates safely, stably, continuously and efficiently. Line 1 is always available for generation according to the mobilization of the electricity market. At the same time, quickly coordinate with the consulting unit to speed up the selection of a contractor to repair the turbine generator unit S6 Line 2 to be put into operation soon.

**c, Output consumption: Growth potential from two main markets, the contract mechanism and the competitive electricity market.**



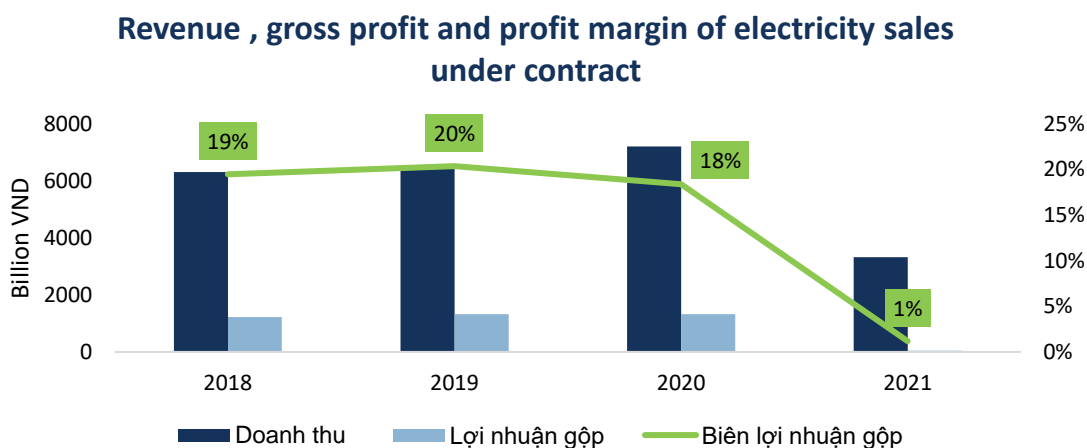
PPC's electricity output serves two purposes, including self-production (production electricity) and selling electricity in the market. PPC's main source of income is from selling electricity to EVN. Revenue from electricity sales usually accounts for over 99%, the rest is from other products. In which, PPC sells electricity through two main channels: Contract Mechanism (accounting for 80% of commercial power output) and the remaining 20% in the competitive electricity market.

*Nguồn: PPC, Nhóm tổng hợp*

### Contract Mechanism (PPA) - High and stable source of income from selling electricity to EVN

The company's revenue and profit increased steadily thanks to EVN's high demand for electricity. The electricity selling price under the contract is calculated according to Circular 57/2020/TT-BCT. Accordingly, the selling price of electricity to EVN is calculated by the fixed price (based on fixed costs and operation and maintenance costs) plus variable prices (based on input costs of raw materials and fuel). Therefore, the additional input costs will be transferred to the costs in calculating the electricity selling price for EVN.

With the form of payment under the power purchase and sale contract, the contract price will always ensure that the business operates at a steady profit. Therefore, although the price of input materials increased, it did not affect the company's profit much. In addition, the high proportion of contracts will help PPC always operate effectively when both production lines of the enterprise have signed power purchase and sale contracts with EVN. Pha Lai 1 signed a contract from 2019-2023 while Pha Lai 2 has a contract signed in the period 2020 -2031.



*Source: PPC, Aggregate Group*

Since EVN is the only power buyer in the market today from power generation companies, the ability to impose prices on power generation companies is high. However, the increase in the retail price of

domestic electricity will be a factor that reduces EVN's ability to impose prices on PPC during the negotiation of the power purchase agreement.

### **Competitive electricity market - Highly competitive challenge from businesses in the same industry**

The competitive electricity generation market was officially operated from July 1, 2012; competitive wholesale electricity market operating from January 1, 2019. Up to now, the number of factories directly involved has increased approximately 3.5 times to 108 factories, with the total installed capacity increasing by about 3.35 times equivalent to 30,940MW, an average increase of 13.12%/year in volume. capacity of factories directly participating in bidding in the electricity market.

STT	Factory Name	Installed capacity
first	An Khanh	100 MW
2	Cam Pha	660 MW
3	Cao Ngan	110 MW
4	Coastal	2400MW
5	Hai Phong	1200MW
6	Mao Khe	440 MW
7	Mong Duong	2280MW
8	Na Duong	100 MW
9	Pha Lai	1040 MW
ten	Quang Ninh	1200 MW
11	Uong Bi MR	630 MW
twelfth	Vinh Tan	1822 MW
13	Crappy	1200 MW
14	Son Dong	220 MW

The factory located in Pha Lai has a convenient location for transporting coal as the main fuel by both railways and rivers (near Vang Danh and Mao Khe coal mines and near the confluence of six rivers), facilitating the import of fuel. materials at a cheaper price due to savings on transportation costs. However, from a competitive perspective, PPC also faces a challenge to compete with both coal-fired power enterprises and renewable energy enterprises. As for coal-fired power, it is a series of enterprises about to increase capacity through plans to upgrade units and complete projects such as Thai Binh 2 Thermal Power, Nghi Son 2 Coal Thermal Power Plant, Van Phong Thermal Power Plant, etc. Dakmil 2 Hydropower Plant... PPC's electricity output sold in the competitive market accounts for 20% of the total output. Although accounting for a small part, it also significantly affects PPC's profit margin.

According to statistics of EVNNLDC, since the electricity market started operating, the ceiling price of the electricity market (SMPcap) has only been at VND 846.3/kWh. We consider this to be a challenge

for PPC when the average thermal power production cost is high, making it difficult to compete with hydropower plants with low production costs. However, from the second half of 2022, electricity prices in the competitive market have improved significantly, at the highest point, the price reached 1756 VND/kWh. In the event that input coal prices continue to stay at the current high level in the near future and the dry season is about to return, the selling price on the CGM market will stay at a high level. This will reduce pressure on PPC's profit margin in the near future.



### **Positive output prospects come from many factors**

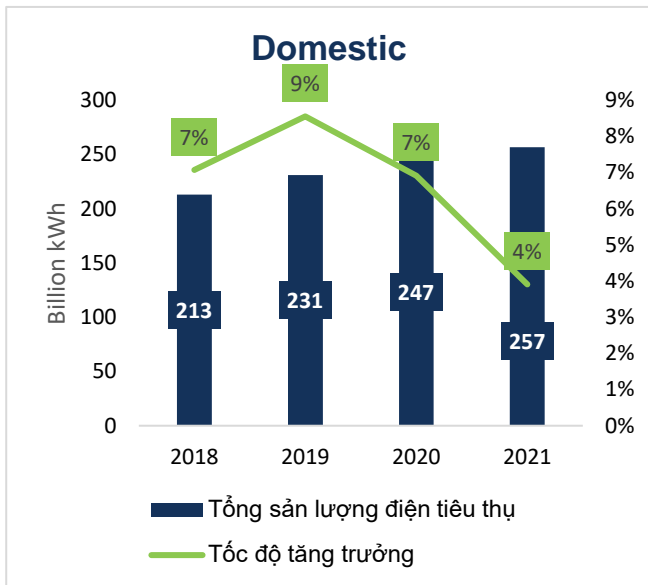
*The demand for electricity is increasing, the supply is not enough*

In the current situation of increasing electricity demand and especially in the context that our country still has to import electricity from China and Laos with the proportion of 1.2% compared to the total electricity consumption of the country, commercial electricity of the industry Electricity in general as well as the thermal power industry in particular will always have a guaranteed output market. In the next 5 years, electricity demand will still grow at about 8.5%/year.

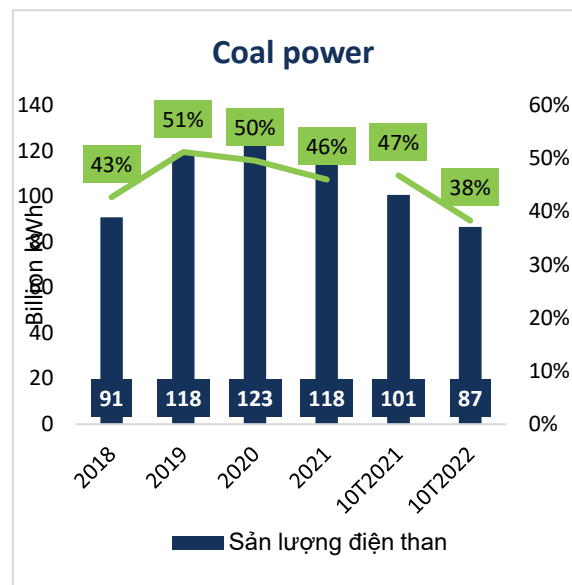
*Thermal power still plays an important role in total mobilized capacity*

Coal power output in recent years accounted for 45%-50% of the total output of the whole system, equivalent to 140-160 billion kWh per year.

According to the power plan 8, by 2030 coal power output will still account for a high proportion of the total expected mobilized output. In particular, thermal power will be prioritized until 2023 to replace hydroelectricity production due to the depletion of hydroelectric potential in our country and the negative impacts of the construction of hydroelectric plants on the natural ecosystem.



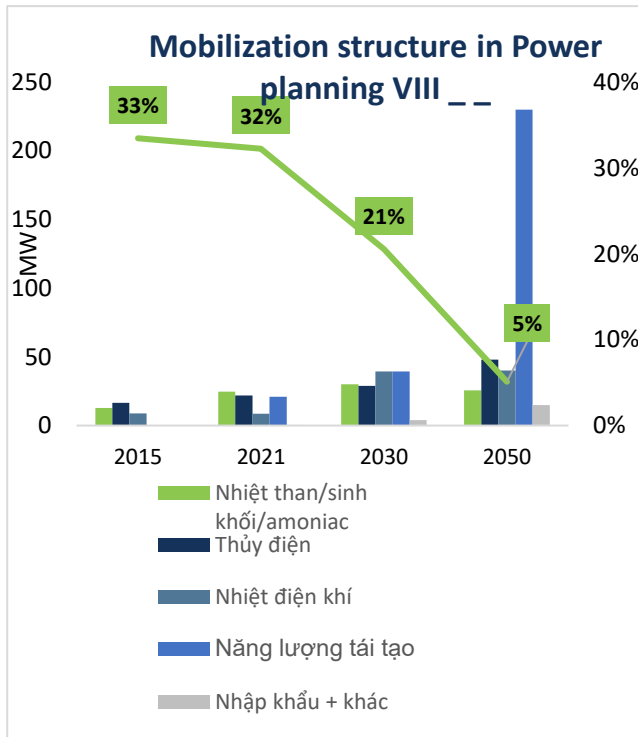
Nguồn: EVN, Nhóm tổng hợp



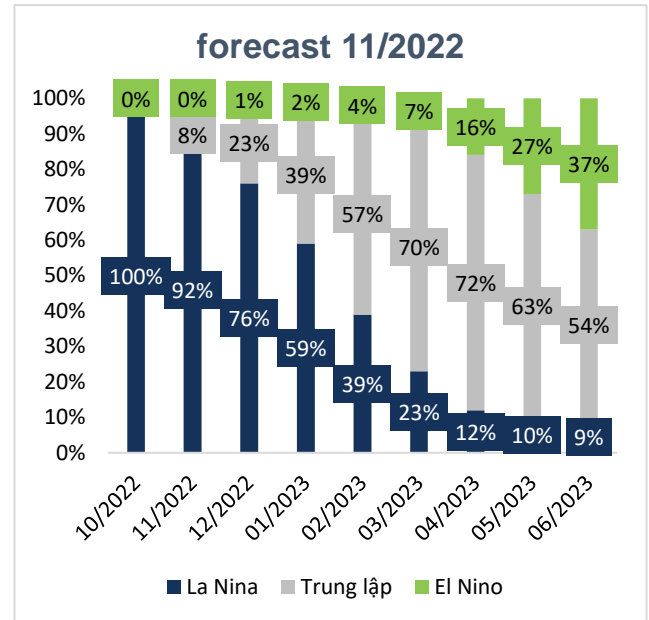
Nguồn: EVN, Nhóm tổng hợp

On the other hand, other energy sources in the Northern region do not have enough expansion potential to meet the electricity demand in the future. The reality shows that, while hydropower resources are becoming exhausted, the North does not have much potential to develop renewable energy such as solar, wind, etc. Therefore, renewable electricity is not easily replaced. replace the role of coal-fired power plants, at least in the northern region. Due to the fact that PPC still dominates in the North with a capacity of 2 plants of 1040 kWh, it ranks first among thermal power plants in the North.

Thermal power is expected to be mobilized higher thanks to the weakening La Nina effect NOAA (National Oceanic and Atmospheric Administration of the United States) released forecast November 2022 that hydrological conditions may be poor. more favorable in 2023. The La Nina phenomenon lasts about 30 months by the end of 2022 and is statistically equivalent to the period 1950-2019 (except for the 42-month La Nina period from July 1998). to December 2001). In case of less favorable hydrological conditions in 2023, the water level in hydroelectric reservoirs is expected to decrease. Then thermal power plants: coal-fired and gas-fired power plants can be mobilized higher by EVN to replace the decline in hydropower output in 2023F.



Nguồn: Bộ công thương, Nhóm tổng hợp



Nguồn: NOAA, Nhóm tổng hợp

### III : ANALYSIS OF THE FINANCIAL SITUATION

**Revenue dropped sharply due to reduced output due to the impact of the Covid pandemic and factory incidents.**

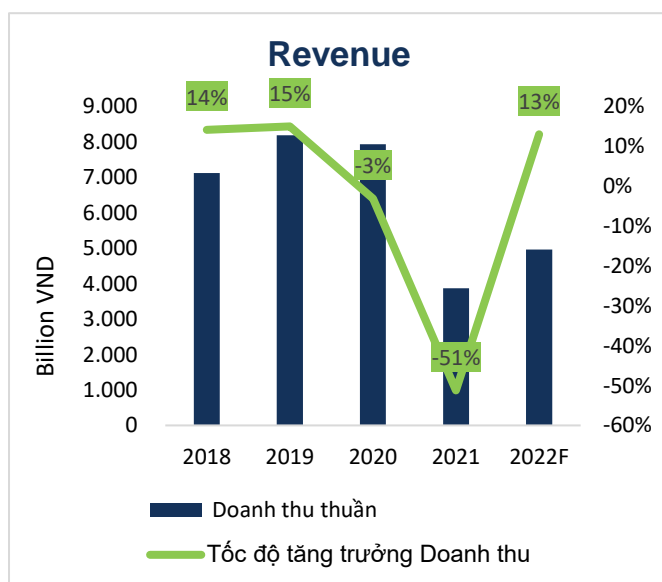
Revenue from 2018-2021 experienced strong fluctuations, average revenue growth decreased by 6.3%. Specifically, in 2021, revenue decreased to 3,868 billion, down 51.22% compared to the previous year. The cause comes from the impact of the Covid-19 epidemic, which has caused production to shrink. In addition, 2021 is the year when many incidents about PPC's plants and equipment occur. Unit S5 stopped working for overhaul and repair from the beginning of October 2021 to mid-December 2021 and many lines and equipment of other units were also in a degraded state, it was time to replace. potential risks of damage, incidents, affecting the operating performance of the plant. With such difficulties, the electricity output sold under the contract assigned to the two lines is only 75% of the electricity price option.

With the expectation of coal-fired power mobilization growth when the economy recovers production activities, the units are repaired and operating normally, we expect the electricity output produced at PPC to reach 3,400 million kWh in 2022. revenue reached 4,966 billion, equivalent to 13% growth compared to 2021

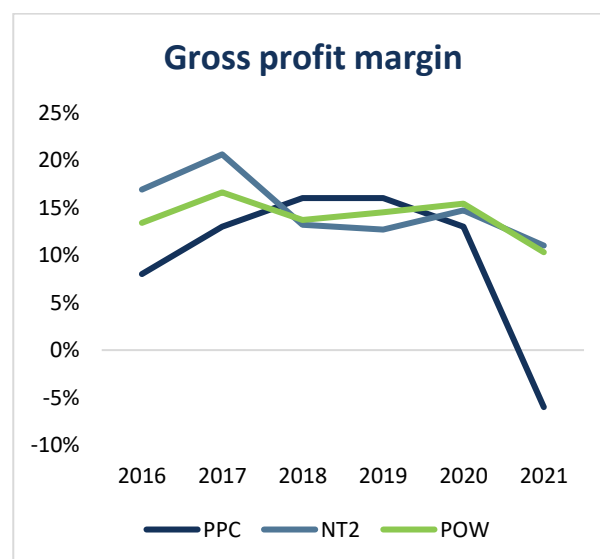
**Gross profit margin maintained at a high level due to stable input costs controlled by the state**

In the period 2018-2021, the average profit margin growth will reach 10%. PPC's profit margin can maintain high growth thanks to low production costs. The main raw material source is coal supplied by domestic enterprises by the Vietnam National Coal and Mineral Industries Group (TKV) and the Northeast Corporation, which the government stabilizes the selling price of coal. Therefore, it is not much affected by fluctuations in world coal prices. In 2020 and 2021, profit margin has a significant decrease equivalent to 12.7% and -6%. The reason is that in 2021, there is a large fluctuation in profit margin due to the decrease in output and revenue, so businesses have to bear large operating costs.

In 2022, 2023, we believe that profit margin will return to a high growth rate similar to 2019 when factories return to operation with stable capacity.



Nguồn: PPC, Nhóm tổng hợp

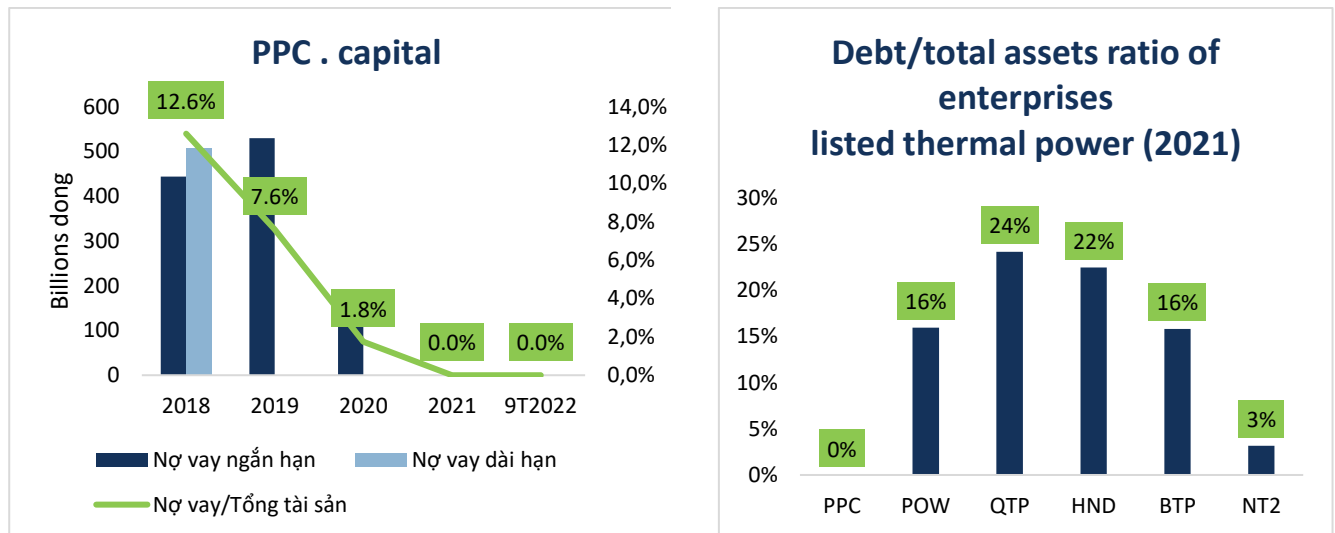


Nguồn: PPC, Nhóm tổng hợp



## D businesses with good capital management create advantages with much lower financial leverage than peers in the same industry

In the 2018-present period, PPC only performs maintenance, repair and maintenance of power units that are having problems with low investment, no new investment in units and factories, so there is no source of debt. long-term. While short-term debt also tends to decrease, mainly to finance working capital needs in 2018 the debt/total asset ratio is 12.6%, by 2021 the company will no longer be able to borrow money. use debt.

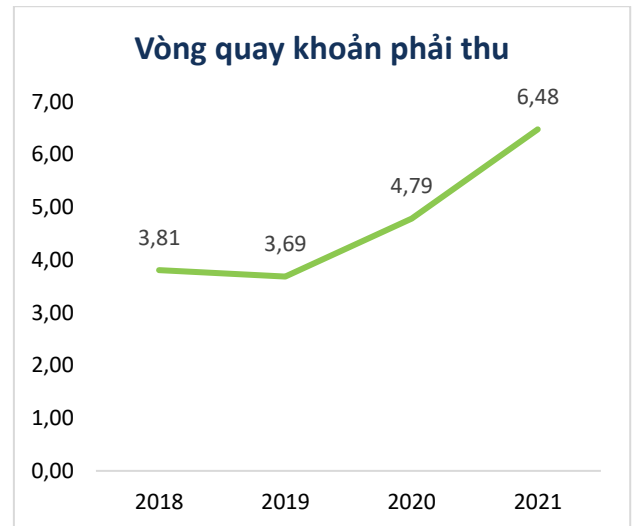


Source: Compilation group

Therefore, we believe that PPC's financial position is very safe, with the lowest debt ratio in the industry. Maintaining the current low debt-to-total assets ratio will help PPC be less pressured from debt costs and have the ability to mobilize and raise capital with low interest costs for the project. Another 3 is started in 2023.

## The asset structure is stable, the receivables turnover ratio is significantly improved

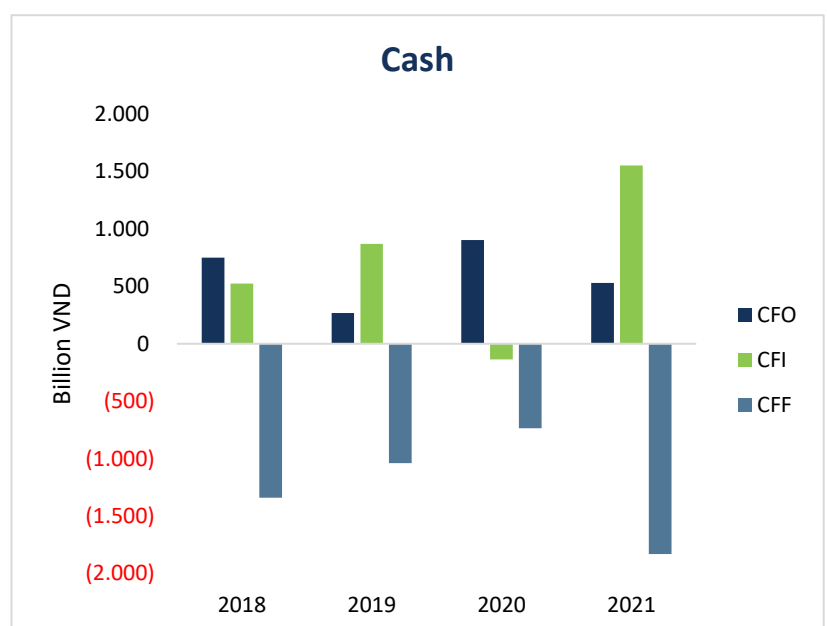
In the period 2018-2021, the total assets of enterprises tend to decrease, equivalent to an average decrease of 7.14%. In 2021, total assets will reach VND5,448 billion, down 24.68% compared to 2020. The proportion of short-term assets tends to decrease, the proportion of long-term assets tends to increase slightly. The reason is that receivables from EVN paid during the year decreased to 580 billion VND compared to 1456 billion VND from the previous year. As a result, EVN's receivables turnover ratio improved significantly. In 2021, this coefficient will reach 6.48 times, showing that enterprises are more effective in debt collection.



Source: PPC, Aggregate Group

### Stable financial health with always positive cash flow from operations

In general, cash flow from operating activities in the period 2018-2021 is positive, with an average growth of 0.44%, showing that the business is doing well. In 2019 there was a decrease in net cash flow from business activities due to a sharp increase in inventories and a high increase in occupied capital. By 2020, 2021 net cash flow will increase again due to good capital recovery policy, reasonable inventory reserve policy during the Covid 19 pandemic. Cash flow from investment activities grows unevenly. , mainly received from loan recovery, selling debt instruments of

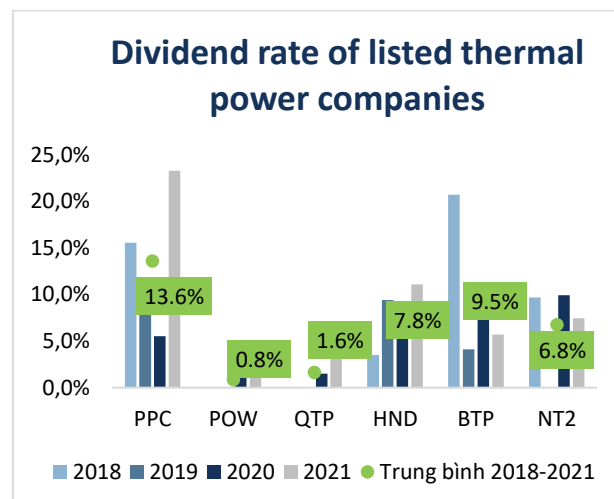
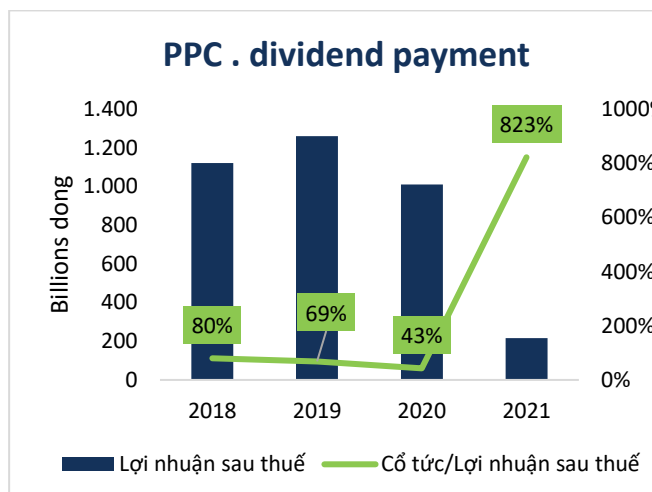


Nguồn: PPC, Nhóm tổng hợp

other units and some come from interest income on deposits, dividends, and distributed profits. Financial cash flow is mainly for dividend payment, owner's profit. PPC's dividend is always paid at a high level, specifically in 2021, up to nearly 1900 billion dong. This is an attractive and attractive number for investors.

### Highest dividend yield in the industry thanks to using most of the after-tax profit to pay dividends

We believe that PPC's dividend policy is very high when the company uses most (more than 100%) of profit after tax to pay dividends in the period 2018-2021.



Source: Compilation group

In 2021, this ratio will increase to 823%, which is due to the late recognition of dividends from 2020 and PPC's no plan to reinvest in the above period. Therefore, PPC has the highest dividend yield in the industry with the average period of 2018-2021 reaching 13.6%.

#### IV: FORECAST OF BUSINESS RESULTS

Targets	Projections	Assumption
<b>Revenue</b>	<b>4,966 billion (+13%YoY)</b>	<p>We expect PPC's electricity production to reach 3,400 million kWh in 2022 (+14.7% YoY), when the company continues to maintain the same level of output in Q4 as in Q3, reaching 850 million kWh thanks to (1) the demand for thermal power is mobilized in the last months of the year and (2) the domestic coal shortage problem is solved.</p> <p>CGM price in 9 months of 2022 is 1,478 VND/kWh, (+42% YoY). With the nationwide electricity demand continuing to recover, the CGM price can reach 1,500 VND/kWh in the last 3 months of 2022.</p> <p>The electricity price under the power purchase agreement in 2022 is estimated at 1,726 VND/kWh, the variable component increases sharply due to the increase in input fuel prices by 30-35%.</p>
<b>Expense</b>	<b>4,772 billion (+16%YoY)</b>	<p>We estimate based on the main input: coal (96% of production cost). Domestic coal price is sold at 2.1 million/ton from May 2022, coal consumption in 2022 is estimated at 1.9 million tons.</p>



**V: VALUATION AND RECOMMENDATION**

We use the P/E comparison method to determine PPC's target price. Comparative enterprises are listed companies that own and operate coal and gas thermal power plants. The average P/E trailing in the last 4 quarters of this group of businesses is 9.14 times.

We forecast PPC's 2022 revenue (including financial revenue) to reach VND4,959 billion (-9% of FY2022 and +13% of FY2021) and pre-tax profit of VND345 billion (+24% of FY2022 and + 95% TH2021). Profit after tax reached VND 322 billion (+49% in March 2021). Therefore, EPS forward for 2022 is 1,004 VND/share.

We determine the target price of PPC is **9,183 VND/share** , 30.7% lower than the closing price on December 9, 2022. Therefore, we recommend **SELL** for PPC stock.

**Compare P/E of some similar companies on December 9, 2022**

Stock code	Current price (VND/share)	Market capitalization (billion VND)	Revenue 2021 (billion VND)	NPAT 2021 (VND billion)	EPS trailing (VND)	P/E trailing (times)
POW	11 . 200	26 . 229	24 . 561	1 . 799	0.677	16 , 54
HND	13 . 200	6 . 600	9 . 026	455	1.677	7 , 87
QTP	13 . 300	5 . 985	8 . 571	578	1,840	7 , 23
NT2	27 . 650	7 . 960	6 . 150	534	2.936	9 , 42
BTP	13 . 400	811	1 . 213	127	2.876	4 , 66
<b>Medium</b>						<b>9.14</b>
PPC	13 . 250	4 . 248	3 . 868	216	1.168	11 , 35

**V I: SUMMARY OF BUSINESS REPORT**

Business activities (billion VND)	2019	2020	2021	2022F	College of Engineering	2019	2020	2021
<b>Net Revenue</b>	<b>8.183</b>	<b>7929</b>	<b>3868</b>	<b>4959</b>	<b>A. SHORT-TERM ASSETS</b>	<b>4,208.160.00</b>	<b>4,259.412.00</b>	<b>2,489.096.00</b>
- Cost of goods sold	6.905	6920	4102	4772	<b>I. Cash and cash equivalents</b>	<b>240,628.00</b>	<b>273.40.00,00</b>	<b>526.546.00</b>
<b>Gross profit</b>	<b>1278</b>	<b>1009</b>	<b>-234</b>	<b>187</b>	1. Money	10,628.00	23,400.00	26,546.00
- Selling expenses	0	0	0	0	2. Cash equivalents	230,000.00	250,000.00	500,000.00
- Enterprise management expenses	75	81	eighty seven	122	<b>II. Short-term financial assets</b>	<b>1,060,000.00</b>	<b>1,515,000.00</b>	<b>615,000.00</b>
Net operating profit	1203	928	-321	65	3. Held-to-maturity investment	1,060,000.00	1,515,000.00	615,000.00
- (Loss)/profit of financial transactions	307	284	476	279	<b>III. Short-term receivables</b>	<b>2,250.720.00</b>	<b>1,746.070.00</b>	<b>796,681.00</b>
- Other profits	first	2	21	0	1. Short-term receivables from customers	2,044.825	1,516,216	596,983
Profit before tax, interest	1542	1214	177	345	2. Prepayment to short-term sellers	290.00	8,844.00	12,626.00
get a loan					5. Short-term loan receivables	223.167.00	223.167.00	188,167.00
- Interest expenses	twelfth	3	0	0	6. Other short-term receivables	638.00	1,015.00	2,077.00
Profit before tax	1530	1211	177	345	7. Provision for short-term bad debts (*)	(18,200.00)	(3,171.00)	(3,171.00)
-CIT	269	200	7	3	<b>IV. Inventory</b>	<b>656,780.00</b>	<b>696.960.00</b>	<b>500,637.00</b>
- Tax deferred	0	0	-forty six	20	1. Inventories	752.373.00	792,156.00	582.756.00
<b>Profit after tax</b>	<b>1261</b>	<b>1011</b>	<b>216</b>	<b>322</b>	2. Provision for devaluation of inventories (*)	(95,592.00)	(95,196.00)	(82,119.00)
- Minority interests	0	0	0	0	<b>V. Other current assets</b>	<b>33.00</b>	<b>27,982.00</b>	<b>50.232.00</b>
NPAT of shareholders					1. Short-term prepaid expenses	33.00	642.00	840.00
CT Mother	1261	1011	216	322	2. Deductible VAT		27,340.00	39,131.00
EPS (VND)	3933	3153	674	1004	3. Taxes and other payables to the State	78,590.00	88,236.00	2,714.00
					4. Payable to employees	61,591.00	77,953.00	32,603.00
					5. Short-term expenses	50,389.00	5,689.00	5.558.00
					9. Other short-term payables	234.285.00	58,108.00	5,880.00
					10. Short-term loans and finance leases	126.554.00		
					11. Provision for short-term payables			
					12. Bonus and welfare fund	5.261.00	4,614.00	25,585.00

**II. Long-term liabilities**

8. Loans and long-term  
financial lease debt

**B. OWNER'S CAPITAL 5,964,841.00 6,483,924.00 4.854,249.00**

**I. Equity 5,964,841.00 6,483,924.00 4.854,249.00**

1. Owner's contributed  
capital 3,262,350.00 3,262,350.00 3,262,350.00

- Common shares with  
voting rights 3,262,350.00 3,262,350.00 3,262,350.00

2. Equity surplus 11,693.00 11,693.00 11,693.00

4. Other capital of the  
owner 201,540.00 241.389.00 250,237.00

5. Treasury shares (\*) (87,388.00) (87,388.00) (87,388.00)

8. Development  
Investment Fund 795,808.00 910,550,000.00 1.201.170.00

11. Undistributed after-  
tax profit 1,780,838.00 2,145,331.00 216,188.00

- Accumulated  
undistributed NPAT at  
the end of the previous  
period 1,025,890.00 1,278,509.00

- Undistributed NPAT  
this period 754,948.00 866.822.00 216,188.00

**C. MINORITY**

**SHAREHOLDERS'**

**BENEFITS**

**TOTAL LIABILITIES &**

**EQUITY 7,255.635.00 7,233.703.00 5,448,566.00**



**V II: APPENDIX****1. Method of determining base electricity price (Pc)**

Source: [Circular 57/2020/TT-BCT method of determining electricity generation price, power purchase agreement \(luatvietnam.vn\)](https://www.luatvietnam.vn/circular/57/2020/TT-BCT-method-of-determining-electricity-generation-price-power-purchase-agreement)

Annual electricity sales are determined by the following formula:

Total revenue =  $Q_c \cdot P_c + Q_{smp} \cdot FMP$

$Q_c$ : electricity output under the Power Purchase Agreement, equal to 80% of the company's commercial electricity output

company (power output to the grid)

$P_c$ : electricity price according to the electricity purchase and sale contract corresponding to the output  $Q_c$

**$P_c$  = Fixed component purchase price + variable component purchase price**

Fixed component purchase price: determined by the enterprise and EVN in each business period

Purchase price of variable component electricity: determined annually according to variable cost factors during the business period

$Q_{smp}$ : electricity generation in the competitive market, equal to 20% of commercial electricity output of company

FMP: total market price of electricity

$FMP = SMP + \text{capacity rating (CAN)}$

SMP: market electricity price: this is the average price of electricity offered competitively in the electricity generation market

competitive, but must not be higher than the ceiling price of the electricity market determined by the Ministry of Industry and Trade and

announced annually (in 2022 is 1602 VND/kWh, 2021:

CAN: approved and published annually by the Ministry of Industry and Trade

**Thermal power plant** is a power plant in which the chemical energy of fuel (FO oil is used as a raw material to burn coal) turns into heat energy to provide heat for water. Water is heated, converted into steam, which turns a steam turbine, which drives a generator.

**Regarding the rate of electricity output paid according to the contract price (alpha ratio)** in 2022, in case the two parties have agreed in the power purchase contract, the rate specified in the contract shall apply. In case the two parties have not yet reached an agreement, the alpha option equal to 80% for thermal power plants and 90% for hydroelectric power plants shall be applied until the two parties reach agreement.

**Electricity price ceiling** : The ceiling of electricity market price (SMP cap) applied in the electricity market in 2022 is 1602.3 VND/kWh.

**2. Coal supply 2022**

The approved plan, in 2022, TKV will supply 43 million tons, of which coal is exported 1.8 million tons, coal sold domestically is 41.2 million tons (coal sold to power producers is 35 million tons). ). To get this output, raw coal

produced about 39.1 million tons and imported nearly 4.76 million tons more. Meanwhile, coal imports in the first 3 months of the new year reached nearly 7% of the plan, TKV said that it will increase the output of exploited raw coal to the maximum. However, this group also warned, without imported coal or imported coal slowly, it is difficult to supply 35 million tons of coal for power plants. In 2021, the volume of coal supplied by TKV to EVN's power plants is nearly 16.2 million tons, in 2022 it is expected to be more than 18 million tons.

**Ratio of mixed coal at thermal power plants :** coal-fired technology of domestic coal and imported coal at coal-fired power plants in Vietnam – Vietnam's coal is mainly anthracite with equivalent calorific value with bituminous and sub-bituminous coal from other countries (especially Indonesian coal) but with higher ash (non-combustible) and lower flammability (flammability).

Therefore, when used as fuel for power plants, it will lead to large coal consumption, high carbon content in ash, causing combustion chamber slag and the minimum load associated with burning oil (usually FO oil). . The consequences, in turn, are a lot of coal, ash and ash that are difficult to use to produce building materials, quickly damage the combustion chamber and increase the cost of fuel oil.

Through the experiment, which was implemented at Ninh Binh Thermal Power Plant, the mixing ratio of domestic coal and imported coal (sub-bitumen) of Indonesia is 5/95%, respectively; 10/90%; 15/85%; 20/80% and 30/70% resulted in a sharp decrease in ash from 24.54% to 20.31% and an increase in volatiles from 9.01% to 19.94%.

The mixing of domestic coal and domestic coal helps to increase combustion efficiency, boiler efficiency, reduce coal consumption, and at the same time can reduce many other costs such as auxiliary fuel oil, reduce power consumption for grinding. charcoal.... In particular, when the ash level decreases, ash will be an important source of raw materials for the production of building materials.

In particular, because there are not many specialized scientific topics for this field, factories should only mix with a maximum rate of 20% imported coal / 80% domestic coal to ensure safe operation.

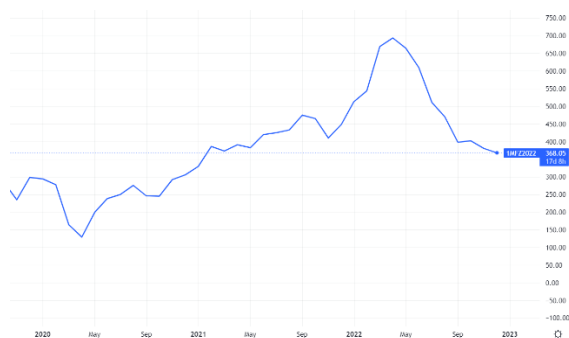
**Global and Vietnamese coal markets :** The coal trade has recently grown thanks to the convenience of sea transport, but coal export output has not increased rapidly, only fluctuating at 550 to 600 million tons/year. For many years now, Australia has always been the largest coal exporter in the world, accounting for over 35% (210 million tons in 2001) of coal exports. Following are China, South Africa, the United States, Indonesia, Colombia, Canada, Russia, Poland... Industrialized countries such as Japan, Korea, the Netherlands, France, Italy, the UK.. . has a huge demand for coal and is also a major coal importer.

In Vietnam, coal has many types and large reserves, mainly in Quang Ninh (90% of the country's coal reserves). Our country's coal reserves are estimated at more than 6.6 billion tons, of which the exploitable reserve is 3.6 billion tons (leading in Southeast Asia). Coal production and exports have increased rapidly in recent years.

### 3. fuel oil

(Fuel oil - FO) - also known as furnace fuel - is an auxiliary material for the coal-fired power process, or can replace coal. Despite a strong increase in the first quarter of 2022, the price of Singapore FO oil (the reference

price of input gas PV GAS supplied to gas power plants) has gradually cooled down to USD374/ton on November 30, 2022 (the level the lowest in the past 1 year).



1 month FO oil futures contract on SGX