

# Hai Phong Thermal (HND)

## Benefiting from dry weather

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Power & Construction Material Analyst

Le Thanh Cong

conglt@kbsec.com.vn

**HND should make higher power output amid power shortage in 2020**

Hai Phong Thermal Power JSC (HND: Upcom) is one of the largest coal-fired power plants in Vietnam with a capacity of 1,200 MW and an annual average sold output of 7 billion kWh. The surging demand for power and slow construction progress of some major coal power plants amid the lack of power in many localities would help existing power plants, including HND to raise production efficiency.

**Steady debt payment each year would reduce interest expenses and power business results**

Each year HND pays VND1,800 billion in loan principals, which reduces VND100 billion in interest expenses for the next year and improve business performance. The company expects to pay off all debts by the end of 2022, hence robust cash flow and better ability to pay dividends. We estimate HND's average dividend yield at 23% in the next five years.

**Risks**

There are three main risks to HND operations: 1) Weather risk; 2) risk of shortage of coal input materials; and 3) risk of electricity price changes after negotiation with Vietnam Electricity (EVN).

**We recommend to BUY HND shares**

We recommend to BUY HND shares at a target price for 2020 of VND22,500 apiece, 31.6% higher than the closing price on June 29, 2020.

**Buy** initial

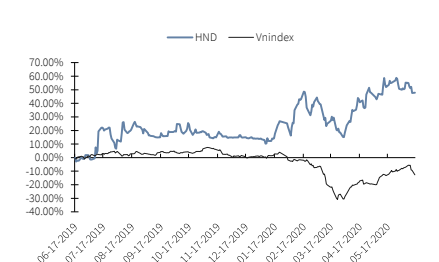
<b>Target price</b>	<b>VND22,500</b>
Total return	31.6%
Current price (Nov 22, 2019)	VND17,100
Consensus target price	VND23,500
Mkt capitalization (VNDbn)	8,550

<b>Trading data</b>	
Free float (%)	14.03%
Avg trading value (3M)	3.37
Foreign available (%)	0.04%

<b>Share price performance</b>				
<b>(%)</b>	<b>1M</b>	<b>3M</b>	<b>6M</b>	<b>12M</b>
<b>Absolute</b>	-2.7%	18.4%	29.9%	47.9%
<b>Relative</b>	0.7%	9.3%	-14.0%	-12.7%

**Forecast earnings & valuation**

Fiscal year-end	2017A	2018A	2019F	2020F
Revenue (VNDbn)	9,095	9,527	11,301	11,349
Growth rate (%)	414	450	1,240	1,354
Gross profit (VNDbn)	396	425	1,173	1,281
Gross profit margin (%)	791	850	2,345	2,562
Net profit (VNDbn)	37.6%	7.5%	175.9%	9.2%
Growth rate (%)	22.3	20.7	7.5	6.9
EPS (VND)	1.7	1.5	1.4	1.3
EPS growth (%)	8.0%	7.8%	19.7%	19.8%



Source: FiiPro, KB Securities Vietnam

## Overview

### Establishment and development

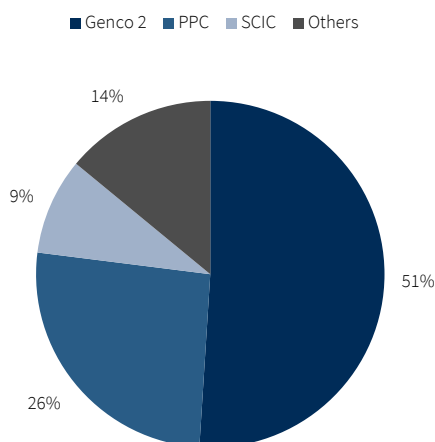


### Establishment and development

HND was founded on September 17, 2002 with a total charter capital of VND3,000 billion funded by five founding shareholders including: Vietnam Electricity (EVN): 77.5%, Vinacomin – Power (TKV): 10%, Vietnam Insurance Corporation: 2.5%, Vinaconex: 5%, and Lilama Corp: 5%. Hai Phong Thermal Power plant started construction in 2015 and all four generating units of the plant were officially put into operation in 2014. As of 2019, the plant electricity output for sale hit 50 billion kWh.

Power Generation Corporation 2 (Genco 2) is the current parent company of HND with 51% ownership, and other major shareholders include Pha Lai Thermal Power (PPC) with 26%, State Capital Investment Corporation (SCIC) with 9%, and other shareholders with 14%.

Fig 1. HND – Shareholder structure (%)

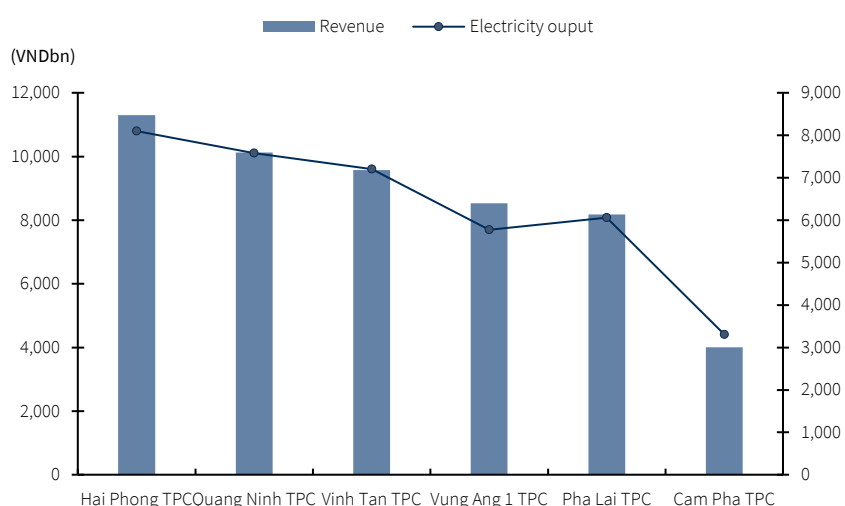


Source: Hai Phong Thermal Power, KB Securities Vietnam

HND has a capacity of 1,200 MW with annual power output of 7 billion kWh

Hai Phong thermal power plant is one of the largest thermal power plants in the North with a capacity of 1,200 MW. Annual power sales and output reach 10,000 billion and 7 billion kWh, respectively. The plant has four generator units, each unit has a capacity of 300 MW. The two units S1 and S2 officially went into operation for the first time in 2011, while the two units S3 and S4 officially operated in 2014. The plant distributes electricity through the 220 kV and 110 kV transmission lines for the Northern Delta region, one of the two largest electricity consuming regions in the country. The total power output sold in 2019 by HND was over 50 billion kWh.

Fig 2. Some coal-fired plants – Revenue and power output (VNDbn, kWh mn)



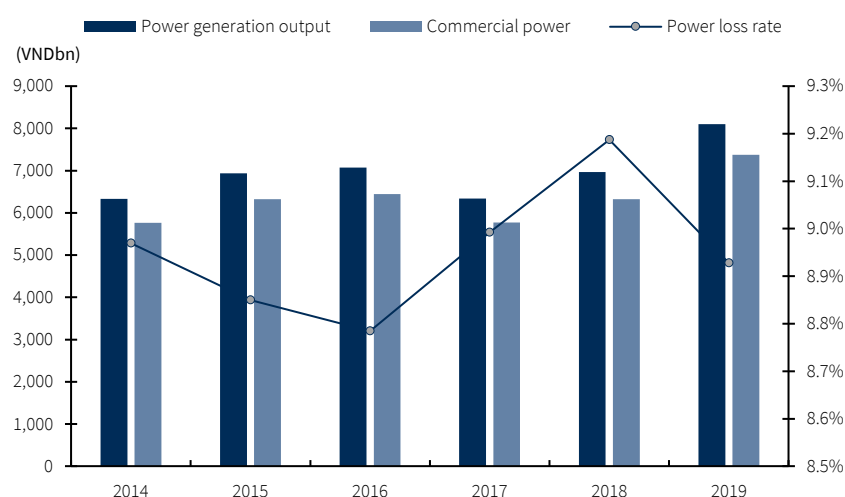
Source: Hai Phong Thermal Power, KB Securities Vietnam

## Business operations

**HND is a coal-fired plant generated with four 4x300MW units**

Hai Phong Thermal Power Plant is a coal-fired thermal power plant generated with coal-fired technology using a subcritical boiler and four generating units with a total capacity of 4x300 MW. The power generation cycle of the plant consists of two main equipment which are a boiler and a turbine. Each generator has a power transmission system including two switchyards – 220kV and 110kV. In 2019, HND exceeded its design capacity with electricity output up to 8.1 billion kWh, and sold 7.4 billion kWh of electricity, while the plant's self-consumed power reached 8.9% of the total output and 3.75 million tons coal.

**Fig 3. HND – Annual power output**



Source: Hai Phong Thermal Power, KB Securities Vietnam

**Anthracite coal and fuel oils are the main input materials**

HND uses supercritical steam generators (superheated steam parameters are 175 kg/cm<sup>3</sup> and 541oC). The plant uses Anthracite coal 5a1 (70%) and 6a1 (30% exploited from Hong Gai – Cam Pha coal mine to generate electricity and fuel oils to start the furnace. Generated power is distributed by Vinacomin and Dong Bac Corp. Coal will be supplied daily by ship and unloaded into the plant's coal storage. The plant's coal demand is about 9,000–10,000 tons per day, or 3.3 million tons per year. Coal would be stored in HND within about one month, longer than most coal-fired power plants.

**HND ensures environmental protection activities**

HND always adheres to environmental protection protocols. Each year the plant generates about 1.2 million tons of fly ash and bottom ash, which are consumed by five partners to produce construction materials. In addition, the plant is also equipped with an electrostatic precipitator with 99.67% dust filtration efficiency, a flue-gas desulfurization system using wet limestone spray technology to separate SO<sub>x</sub> in exhaust fumes with efficiency of over 90%.

**HND is one of the first plants to participate in the competitive power generation market**

HND is one of the first plants to participate in the competitive power generation market from July 1, 2012 according to the Resolution No. 30/DTDL-TTDL dated May 15, 2012 of the Electricity Regulatory Authority, supported by EVN and A0. The company's annual generation rate on the competitive power generation market of the plant accounts for about 20%. In 2019, the output generated on the competitive market of HND reached 1.75 billion kWh, or 24% of the plant's output for sale, gaining VND2,204 billion in revenue and VND480 billion in earnings.

## Business performance

**2019 earnings increased by 2.8 times on revenue up 18.6% YoY**

2019 revenue reached VND11,301 billion, up 18.6% YoY, gross profit margin was 14.6%, down 0.9% from 15.5% last year. The ratio of general and administrative expenses to revenue was maintained at 1.4%. Earnings hit VND1,173 billion, 2.8 times higher than in 2018. HND's profit saw a sudden increase because 2018 was the last year to allocate exchange rate difference expenses from the time of factory foundation (VND299 billion).

**Total assets tend to decrease due to fixed assets depreciation**

Fixed assets and short-term receivables accounted for the largest proportion in HND asset structure, equal to 66% and 18% respectively. HND's total assets are expected to go down further on the annual depreciation of fixed assets. Total assets as of December 31, 2019 were VND12,664 billion, down VND1,106 billion or -8% YoY.

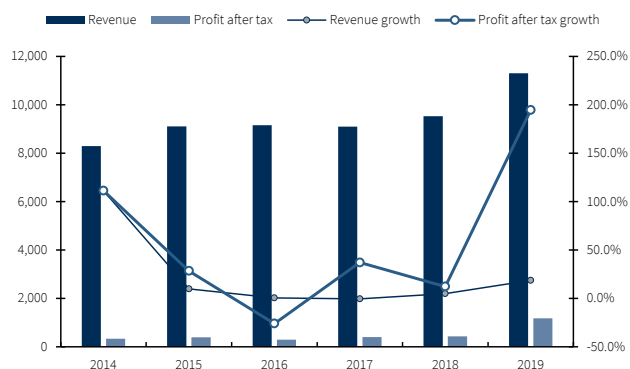
**Debt indicators are considerably improved, and the company expects to clear all debts by 2022E**

As of December 31, 2019, the indicators related to debt, which are liabilities/total assets and long-term liabilities/total assets, both fell sharply to 41% and 16% from 51% and 28% recorded from late 2018. Short-term debt/total assets ratio inched up 16% from 14%, mainly due to the decrease in total assets of the plant. HND's debt downtrend would remain with an annual debt payment of VND1,800 billion. Most of HND's short-term loans are actually long-term loans but matured within 12 months. It is expected that by the end of 2022, HND will completely pay off all loans, reducing interest expenses and improving business results.

**2019 ROA & ROE recorded a sharp increase thanks to strong business performance**

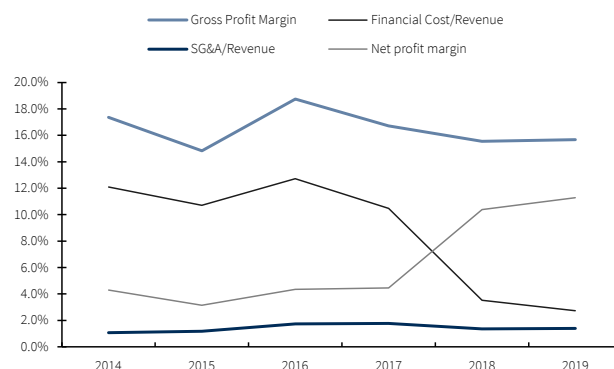
Given a sharp increase in 2019 earnings, ROE and ROA surged to 20% and 9%, from 8% and 3% respectively in 2018. The continuous repayment of loans and cash dividends also narrowed the total scale. assets, also improving these 2 indicators.

Fig 4. HND – Earnings & revenue



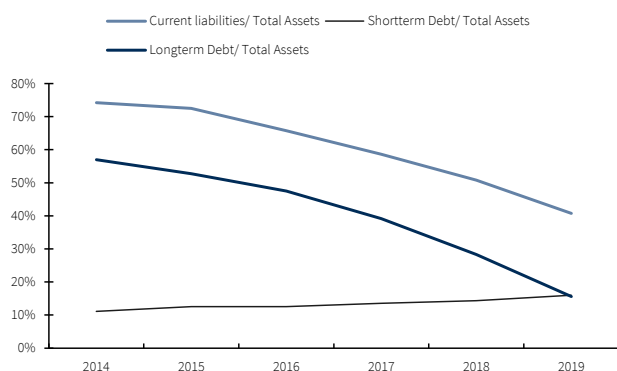
Source: Hai Phong Thermal Power, KB Securities Vietnam

Fig 5. HND – Financials



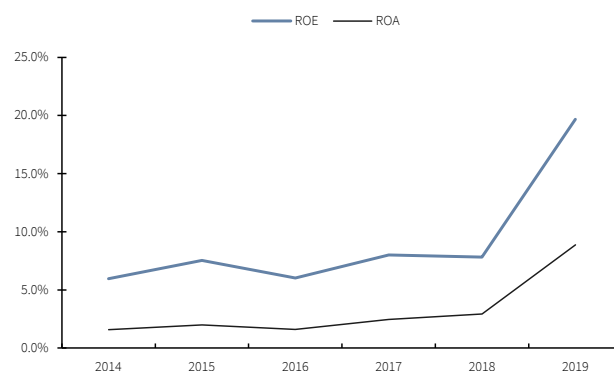
Source: Hai Phong Thermal Power, KB Securities Vietnam

Fig 6. HND – Debt indicators



Source: Hai Phong Thermal Power, KB Securities Vietnam

Fig 7. HND – ROE & ROA



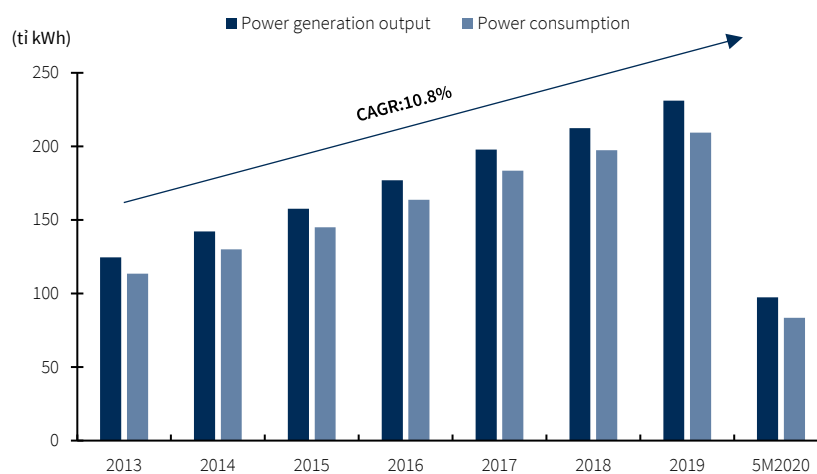
Source: Hai Phong Thermal Power, KB Securities Vietnam

## Investment viewpoints

**Demand for electricity in Vietnam is very high and grows quickly every year**

Vietnam is a developing country with an average annual GDP growth rate of 6.5%, hence a great demand for electricity which continuously surges every year. Power consumption in 2013–2019 grew 10.8% per year. Sold power output in 2019 was 209.4 billion kWh, up 8.85% YoY. Electricity output for sale in the first five months of 2020, though affected by the Coronavirus pandemic, hit 83.1 billion kWh, up 1.8% YoY.

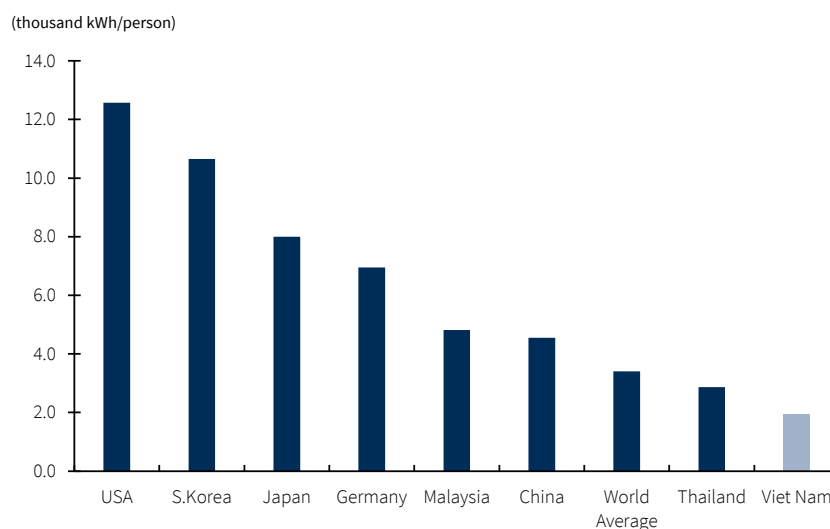
Fig 8. Vietnam – Consumed power every year (billion kWh)



Source: Vietnam Electricity, KB Securities Vietnam

The average electricity consumption per capita of Vietnam in 2017 reached 1.9 thousand kWh / person, which is quite low compared to developed countries in the world such as 12.6 thousand kWh in the US, 10.7 thousand kWh in South Korea, or other developing countries in Southeast Asia such as Malaysia 4.8 thousand kWh, Thailand 2.9 thousand kWh and the world average 3.4 thousand kWh.

Fig 9. Vietnam – Consumed power per capita in 2017s

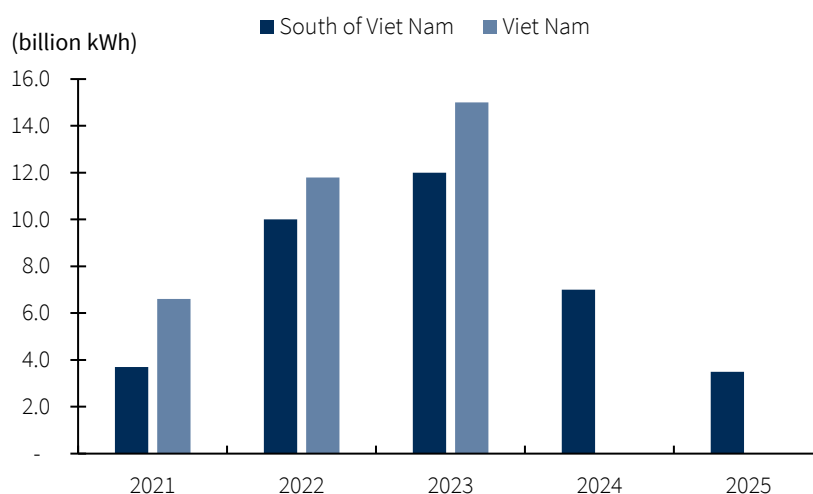


Source: International Energy Agency, KB Securities Vietnam

## Severe power shortage

According to the Vietnam Power Development Master Plan 7, the system capacity should reach 21,651 MW, 38,010MW, and 36,192MW in 2016–2020, 2021–2025 and 2026–2030 periods. However, a recent report released by the Ministry of Industry and Trade showed the total capacity of new power plants to be put into use is 17,000MW lower than expected in the master plan, most of which was generated by coal-fired power projects in the South. The Ministry of Industry and Trade forecast that Vietnam would lack 6.6 billion kWh electricity in 2021, 11.8 billion kWh in 2022, and 15 billion kWh in 2023. We believe that the power shortage would help thermal power plants like HND to be required to generate more power with higher efficiency.

Fig 20. Vietnam – Lacking power output



Source: Vietnam Electricity, KB Securities Vietnam

## HND has a favorable geographical position

HND is located in a key economic triangle combining Hanoi, Hai Phong, and Quang Ninh. This area has a monumental number of factories and FDI enterprises, so its demand for power only ranks second only after the Southeast. Not to mention that the plant is right in Hai Phong, where electricity demand has increased sharply after Vingroup put its Vinfast basement here.

## Hai Phong thermal power plant is one of the largest coal-fired power plants that operate stably in the North

HND, which can generate 1,200 MW of power each year, is one of the largest and most modern coal-fired power plants in the North. Most of its specifications are better than average. The rate of self-consumed power in 2019 of HND was only 8.9%, lower than the average rate of over 9%. The indexes of real efficiency, coal consumption rate and heat consumption rate were 38%, 0.46 kg/kWh and 9,855 kJ/kWh, respectively, all lower than other peers. In 2019, HND operated stably with high availability factor at 89.6%, 7,845 available hours and low malfunction rate at 1.4%. In 2019, the plant only had 8 problems and had to stop the unit, most of which were boiler issues.



Table 11. Vietnam – Some technical diameters of thermal powers in 2019

	HND	QTP	PPC	NCP
Capacity (MW)	1200	1200	1080	600
Unit derating factor (UDF)	8.9%	9.5%	9.7%	11.9%
Real Efficiency	38%	35.9%	N/A	N/A
Coal usage rate (kg/kWh)	0.46	0.52	N/A	0.63
Heat rate (kJ/kWh)	9,855	10,498	10,875	N/A
Weighted equivalent availability factor	89.6%	88.8%	90.4%	57.2%
Unplanned outage factor	14%	7.8%	3.1%	N/A
Planned outage factor	9.0%	3.4%	6.6%	N/A
Equivalent hours (hours)	7,845	7,780	7,916	5,011

Source: KB Securities Vietnam

### Adverse weather conditions for hydro power plants benefits thermal plants like HND in the first half of 2020

The *El Nino* continued to cause unfavorable conditions for hydropower plants such as Hoa Binh Hydropower and Son La Hydropower, which disclosed the amount of water flowing into the reservoirs reached many-year lows. By the end of 1Q20, many hydro plants in the Central Highlands only generated 15% of electricity output target for the whole year. Water reserves in many plants hit dead storage capacity. This situation will help coal-fired power plants like HND to be mobilized with higher efficiency. EVN President Duong Quang Thanh required 12 coal-fired power plants of EVN this year to operate over 7,000 hours, equal to an availability factor of 80%. Accordingly, HND plans to produce a large power output of 8.15 billion kWh this year, equivalent to 2019's.

5M20 power output of the whole system was 75.83 billion kWh, up 2.05% YoY, of which hydro plants made 11.6 billion kWh, down 36.5% YoY, and thermal plant generated 45.33 billion kWh, up 17.56% YoY. HND's estimated 5M20 output reached 3.7 billion kWh, up 7% YoY, completing 46% of the year plan. HND would continue to be mobilized with higher power output of 726 million kWh and 741 million kWh in June and July respectively.

Fig 12. Vietnam – Lacking water amount vs annual averages

Fig 13. Vietnam – Power volume by generator types

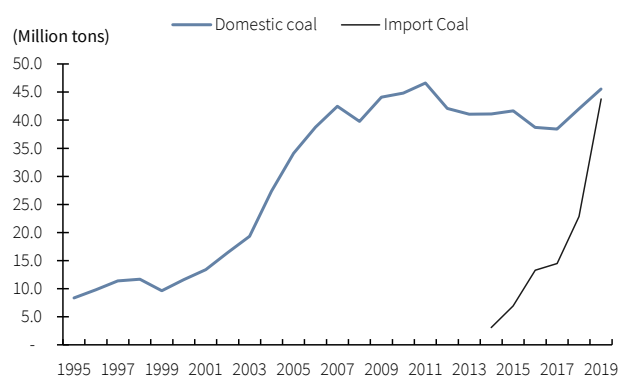
Source: Vietnam Electricity, KB Securities Vietnam

Source Vietnam Electricity, KB Securities Vietnam

### The coal shortage has basically been solved

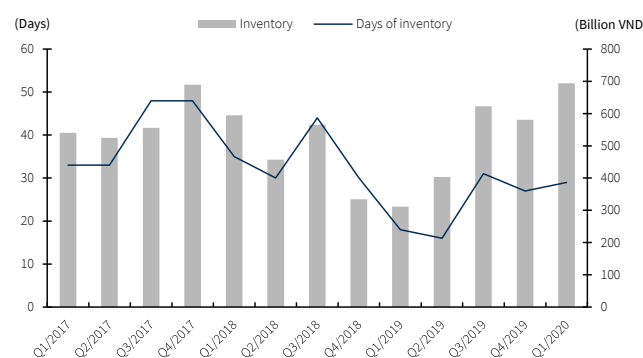
HND signed a contract to buy coal from the Vietnam National Coal and Mineral Industries Group (Vinacomin) within 40 years and from Dong Bac Corporation within five years. Accordingly, every year, Vinacomin and Dong Bac Corporation will supply 2.2 million tons and 1.1 million tons of coal, respectively. However, due to the increasingly difficult coal mining conditions due to the deep underground exploitation, the coal mining output of domestic units cannot meet the increasing demand of coal-fired thermal power plants, leading to a shortage of coal. However, up to now, the shortage of coal has basically been resolved as Vinacomin imported coal to meet the needs of domestic coal power plants. In addition, the Prime Minister has also allowed plants to import coal themselves, but must adhere to regulations and the import price is not higher than the listed coal prices of Vinacomin and Dong Bac Corporation. By the end of January 2020, the number of days of HND's coal reserve returned to its normal level of over 30 days.

Fig 14. Vietnam – Domestic and imported coal (bn tons)



Source: General Statistics Office, KB Securities Vietnam

Fig 15. HND – Value of stockpiles and days of stored

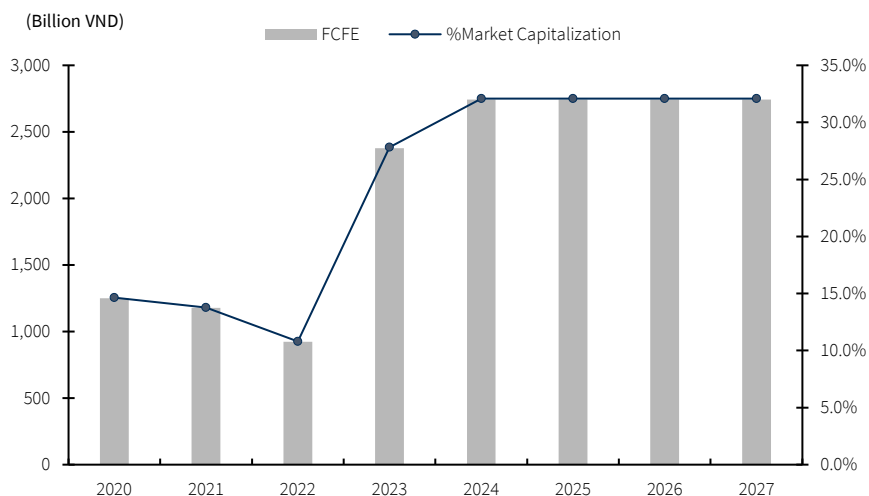


Source: Hai Phong Thermal Power, KB Securities Vietnam

### HND's free equity cash flow is strong, stable and will increase after paying off debts in 2022E

We estimated HND's cash flow from 2020 would reach VND2,800 billion, which would be spent to pay debts and dividends. As of March 31, 2020, the principal balance of HND was VND5,000 billion. Given the HND pays VND1,800 billion each year, it is expected that by 2021, the plan would pay off all loan principal, creating free cash flow for owner's equity, mainly used to pay dividends from 2023 onwards.

Fig 36. HND – Estimated FCFE YoY

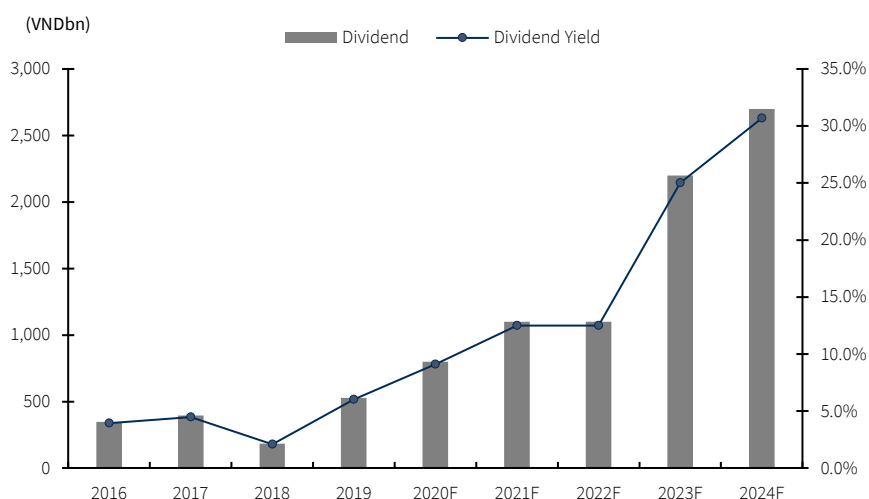


Source: Hai Phong Thermal Plant, KB Securities Vietnam

**HND cash flows would surge**

In the 2016–2019 period, HND only paid an average annual dividend of VND350 billion. Business performance was not really strong as HND still had a large amount of debt. However, we believe HND would gradually increase dividend payments to shareholders from 2020 as HND's results improve. HND could even achieve dividend payout of VND2200 billion per year when the company pays off all debts by 2023. The dividend rate of HND 11% in 2020 – 2022 and 25% – 30% from 2023.

Fig 47. HND – Estimated cash flows to pay dividends



Source: Hai Phong Thermal Plant, KB Securities Vietnam

## Risks

### Weather-related risks

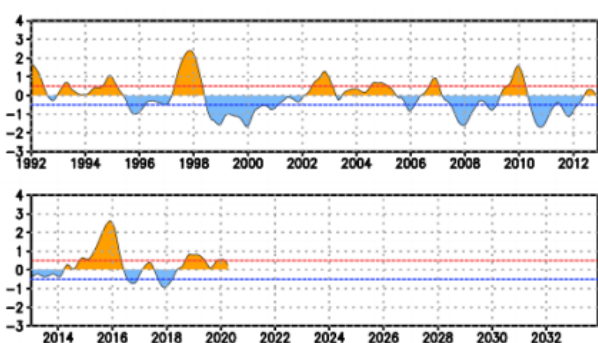
HND's mobilized electricity output is affected by weather. The National Load Dispatch Center (A0) usually prioritizes to mobilize electricity from hydropower plants as the production cost of hydropower is the cheapest among the types of power generation. Therefore, in the rainy season, which usually lasts from June to the end of October every year, the mobilized power output of thermal power plants is also lower than the rest of the year. Thermal power plants usually repair and maintain machineries in this season.

In addition, *La Nina* or *El Nino* can also make the rainy season of a year longer or shorter, thereby affecting the mobilized electricity output of thermal plants. For years with heavy rainfall, the temperature base will decrease, reducing the need for electricity for cooling equipment in power consumption units.

Since mid-2018, the *El Nino* with low impacts occurred, make the weather hotter and rain less. This raised the demand for power and reduced the power generation capacity of hydropower plants while increasing the capacity of other power generators including HND. However according to the US National Oceanic and Atmospheric Administration (NOAA), the *El Nino* ended when the ONI (Oceanic Nino Index – the main index used to observe the *El Nino* – *La Nina* phenomenon) decreased from 0.5 – the level when the *El Nino* happens to 0.3 – a neutral state in June–August 2019. The agency also expected the possibility of the stable state maintained until mid-2020 at over 60%. Accordingly, the possibility of *La Nina* occurring by the end of 2020– early 2021 is 40%. Based on this forecast, hydropower plants would escape the water shortage caused by *El Nino* and increase electricity generation, reducing prices in the competitive generation market while also lowering power generation demand of thermal power plants including HND.

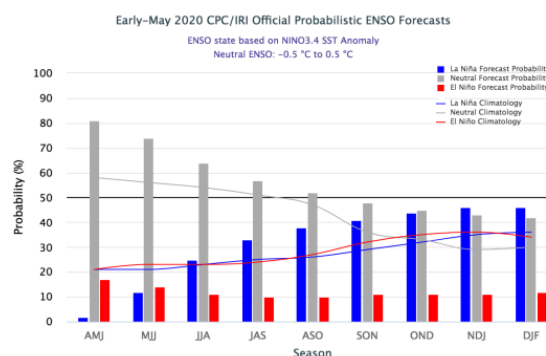
However, HND has the advantages of operating efficiency and convenient location, which may help to undermine the weather risks.

Fig 18. Global – ONI YoY



Source: NOAA, KB Securities Vietnam

Fig 19. Global – The possibility of weather phenomenon



Source: NOAA, KB Securities Vietnam

### Risks of unstable material inputs

The main material used by HND is anthracite 5a1 (70%) and 6a1 (30%) from Hong Gai – Cam Pha coal mine provided by the Vietnam National Coal and Mineral Industries Group (Vinacomin) and Dong Bac Corporation. However, Vietnam's coal reserves are declining, making it difficult to exploit due to deeper exploitation into the ground. Coal shortage became more serious in 2018–mid 2019. This heavily affected the operation of thermal power plants, and HND had even to close one generating unit temporarily. Until now the coal shortage has basically been resolved thanks to imported coal. However, there appears a risk of technical issue if the type of imported coal does not match the designed type.

### Risks from the re-negotiation

In the first phase of the plant's operation, HND had a relatively high price power purchase agreement to support the plant to repay the debt. By 2022, after paying off principal loans, HND may have to offer lower electricity prices after the negotiation with EVN. Currently, the electricity price negotiation preparations are being conducted by HND and expected to be completed in 2021. HND's business results will significantly affect the negotiation.

## Valuation

We forecast that HND's 2020 performance would improve further with revenue of VND11,349 billion and pre-tax earnings of VND 1,263 billion, up 0.4% and 7.7%, respectively, assuming that HND's sold electricity output will reach 8.15 billion kWh and coal consumption about 3.77 million tons. The company will also record revenue from exchange difference from 2017 worth VND156 billion in 2Q2020.

Table 20. HND – 2020E business performance

	2016	2017	2018	2019	2020F
Revenue	9,157	9,095	9,527	11,301	11,349
COGS	-7,799	-7,389	-7,935	-9,545	-9,571
Gross profit margin	1,358	1,706	1,592	1,756	1,778
Selling cost	0	1	2	3	4
General and administration cost	-107	-158	-169	-153	-157
Financial gain / (loss)	-947	-1,134	-973	-363	-266
Gain/ (loss) from affiliates	0	0	0	0	0
Profit before tax	304	415	452	1,243	1,358
Profit after tax	287	396	425	1,173	1,281

Source: KB Securities Vietnam

We use dividend discount model (DDM) to value HND's stock at a discount rate of 15%. The **Fair value of HND shares is VND22,500 apiece.**

We conclude that HND is one of the largest and most efficient thermal power plants in Vietnam. In 2020, the dry weather should continue to facilitate HND to generate electricity with high output. By the end of 2022, HND should clear all debts, thereby improving cash flow and ability to pay dividends by VND1,800 billion. However, investors should consider some risks including rainier weather in 2H.2020 and a correction in electricity prices sold to EVN. **We recommend to BUY HND shares with the target price for 2020 of VND22,500, 31.6% higher than the closing price on June 29, 2020.**

## KB SECURITIES VIETNAM RESEARCH

---

**Head of Research – Nguyen Xuan Binh**

binhnx@kbsec.com.vn

### **Macro/Strategy**

**Head of Macro & Strategy – Tran Duc Anh**

anhtd@kbsec.com.vn

**Macro Analyst – Thai Thi Viet Trinh**

trinhhtt@kbsec.com.vn

**Market Strategist – Le Anh Tung**

tungla@kbsec.com.vn

**Equity analyst – Tran Thi Phuong Anh**

anhttp@kbsec.com.vn

### **Equity (Hanoi)**

**Head of Equity Research (Hanoi) – Duong Duc Hieu**

hieudd@kbsec.com.vn

**Information Technology & Logistics Analyst – Nguyen Anh Tung**

tungna@kbsec.com.vn

**Property Analyst – Pham Hoang Bao Nga**

ngaphb@kbsec.com.vn

**Power & Construction Material Analyst – Nguyen Ngoc Hieu**

hieunn@kbsec.com.vn

### **Equity (Ho Chi Minh)**

**Head of International Research (Ho Chi Minh) – Harrison Kim**

harrison.kim@kbf.com

**Consumer & Retailing Analyst – Dao Phuc Phuong Dung**

dungdpp@kbsec.com.vn

**Oil & Gas & Fisheries Analyst – Nguyen Thanh Danh**

danhnt@kbsec.com.vn

## KB SECURITIES VIETNAM (KBSV)

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### Head Office:

Levels G, M, 2 & 7, Sky City Tower, 88 Lang Ha Street, Dong Da District, Hanoi, Vietnam  
Tel: (+84) 24 7303 5333 – Fax: (+84) 24 3776 5928

### Hanoi Branch:

Level 1, VP Building, 5 Dien Bien Phu, Ba Dinh District, Hanoi, Vietnam  
Tel: (+84) 24 7305 3335 – Fax: (+84) 24 3822 3131

### Ho Chi Minh Branch:

Level 2, TNR Tower Nguyen Cong Tru, 180-192 Nguyen Cong Tru Street, District 1, HCMC, Vietnam  
Tel: (+84) 28 7303 5333 – Fax: (+84) 28 3914 1969

### Saigon Branch:

Level 1, Saigon Trade Center, 37 Ton Duc Thang, Ben Nghe Ward, District 1, HCMC, Vietnam  
Tel: (+84) 28 7306 3338 – Fax: (+84) 28 3910 1611

### CONTACT INFORMATION

Institutional Client Center: (+84) 28 7303 5333 – Ext: 2656

Private Customer Care Center: (+84) 24 7303 5333 – Ext: 2276

Email: [ccc@kbsec.com.vn](mailto:ccc@kbsec.com.vn)

Website: [www.kbsec.com.vn](http://www.kbsec.com.vn)

## Investment ratings & definitions

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### Investment Ratings for Stocks

(based on expectations for absolute price gains over the next 6 months)

Buy:	Hold:	Sell:
+15% or more	+15% to -15%	-15% or more

### Investment Ratings for Sectors

(based on expectations for absolute price gains over the next 6 months)

Positive:	Neutral:	Negative:
Outperform the market	Perform in line with the market	Underperform the market

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