Equity Research
July 9, 2020

CGN Power

Largest pure play in global nuclear power market

Resuming Coverage

Investment positives

We resume coverage of CGN Power-H share with an OUTPERFORM rating and a target price of HK$2.32, implying 9.7x 2020e P/E and 9.4x 2021e P/E. We initiate coverage of CGN Power-A share with an OUTPERFORM rating and a target price of Rmb3.84, implying 18.0x 2020e P/E and 17.7x 2021x P/E..

Why an OUTPERFORM rating?

IRR high and fuel cost stable for nuclear-generated electricity; large upside in domestic nuclear installation and market share of power generation from nuclear technology. The portion of nuclear in power generation in China remains markedly lower than the corresponding global averages (4.8% vs. 10%), which suggest large upside.

CGN Power is the largest nuclear power operator in China by installed capacity, and its senior managers mostly have more than 20 years of experience in the nuclear power industry

Operating efficiency ahead of peers; return rate steady. The firm's above-average utilization hours and lower-than-average cost demonstrate its operating efficiency, and we believe this will enhance the return rate of its nuclear power projects.

How do we differ from the market? We are upbeat on CGN Power's operating efficiency and project management capability

Potential catalysts: New project approval; interest rate cuts.

Financials and valuation

Our EPS forecast is Rmb0.21 for 2020 and 0.22 for 2021, a CAGR of 4.0% over 2019–2021.

Our DCF target price for CGN Power-H is HK$2.32, implying 9.7x 2020e P/E and 9.4x 2021e P/E, and 1.1x and 1.0x P/B, offering 35% upside. CGN Power-H is trading at HK$1.72 as of market close July 7 Beijing time, implying 7.2x 2020e P/E and 7.0x 2021e P/E.

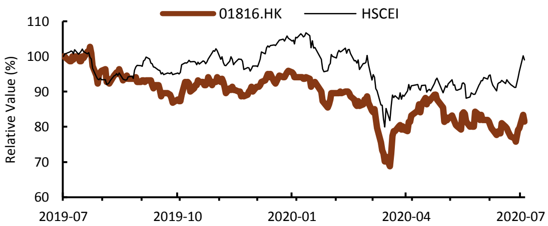
Our DCF target price for CGN Power-A is Rmb3.84, implying 18.0x 2020e P/E and 17.7x 2021e P/E, and 2.0x and 1.9x P/B, offering 20% upside. CGN Power-A share is trading at RMB3.20 as of market close July 7 Beijing time, implying 15.0x 2020e P/E and 14.7x 2021e P/E.

Risks

Power demand lower than expected; electricity tariff cut; nuclear fuel cost fluctuation; end of preferential policy on tax rate; risk of interest rate and currency exchange rate; delays in construction of new power stations; safety issues beyond company's control; licensing for new nuclear power company.

Resume at OUTPERFORM

Ticker	003816.SZ	01816.HK
CICC investment rating	* OUTPERFORM	* OUTPERFORM
Last close	Rmb3.20	HK$1.72
CICC target	Rmb3.84	HK$2.32
52wk price range	Rmb5.25~2.80	HK$2.18~1.43
Market cap (bn)	Rmb143	HK$158
Daily value (mn)	Rmb221.63	HK$41.06
Shares outstanding (mn)	50,499	50,499
Free float (%)	5	22
Daily volume (mn sh)	72.05	24.45
Business sector		Utilities



(Rmb mn)	2018A	2019A	2020E	2021E
Revenue	50,828	60,875	66,638	68,789
(+/-)	11.4%	19.8%	9.5%	3.2%
Net profit	8,702	9,466	10,771	10,983
(+/-)	-9.0%	8.8%	13.8%	2.0%
EPS	0.17	0.19	0.21	0.22
BPS	1.41	1.78	1.92	2.05
DPS	0.07	0.08	0.09	0.09
CPS	0.56	0.61	0.67	0.71
P/E	8.8	8.2	7.2	7.0
P/B	1.1	0.9	0.8	0.7
EV/EBITDA	12.4	10.3	9.1	8.9
Dividend yield	4.3%	4.9%	5.7%	5.8%
ROAA	2.4%	2.5%	2.8%	2.8%
ROAE	12.9%	11.9%	11.7%	11.1%

Source: Wind, Bloomberg, Corporate filings, CICC Research

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Financial summary

Financial statement (Rmb mn)	2018A	2019A	2020E	2021E
Income statement				
Revenue	50,828	60,875	66,638	68,789
COGS	-28,504	-35,471	-38,116	-39,643
Selling expenses	102	79	86	89
Administrative expenses	3,383	4,063	4,447	4,591
Other ops income (expense)	-1,695	-2,416	-3,105	-3,240
Operating profit	14,945	16,588	19,333	20,080
Finance costs	6,001	7,698	8,065	8,065
Other income (expense)	-46	-33	0	0
Profit before income tax	14,899	16,555	19,333	20,080
Income tax	1,218	1,770	2,506	2,825
Minority interest	4,979	5,320	6,057	6,273
Net profit	8,702	9,466	10,771	10,983
EBITDA	26,189	30,831	35,339	36,040
Recurrent net income	8,799	9,465	10,770	10,982
Balance sheet				
Cash and bank balances	15,208	19,572	11,088	10,760
Trade and bill receivables	6,649	8,153	8,465	8,743
Inventories	5	3	3	3
Other current assets	33,526	34,196	38,242	39,647
Total current assets	55,388	61,923	57,798	59,154
Fixed assets and CIP	285,475	296,195	305,449	310,385
Intangible assets and others	27,693	29,857	30,864	32,040
Total non-current assets	313,168	326,052	336,313	342,426
Total assets	368,556	387,975	394,112	401,579
Short-term borrowings	34,591	37,011	26,263	26,263
Trade and bill payables	22,797	26,471	28,444	29,583
Other current liabilities	3,236	3,536	3,791	3,908
Total current liabilities	60,625	67,018	58,498	59,755
Long-term borrowings	188,128	176,847	181,347	178,347
Other non-current liabilities	6,677	8,817	8,817	8,817
Total non-current liabilities	194,805	185,663	190,163	187,163
Total liabilities	255,430	252,681	248,662	246,918
Share capital	45,449	50,499	50,499	50,499
Retained profit	24,769	38,314	45,247	51,863
Shareholders' equity	71,115	89,802	96,735	103,351
Minority interest	42,011	45,492	48,715	51,310
Total liabilities & equity	368,556	387,975	394,112	401,579
Cash flow statement				
Pretax profit	14,899	16,555	19,333	20,080
Depreciation & amortization	7,982	10,270	12,117	12,365
Change in working capital	1,969	7,982	-1,953	-360
Others	3,560	-4,208	4,310	3,944
Cash flow from operations	28,410	30,599	33,807	36,028
Capital expenditure	-20,165	-21,307	-21,307	-17,247
Others	3,783	6,670	0	0
Cash flow from investing	-16,382	-14,637	-21,307	-17,247
Equity financing	0	12,402	0	0
Bank borrowings	1,884	-9,631	-3,748	-3,000
Others	-12,794	-15,594	-17,236	-16,110
Cash flow from financing	-10,910	-12,823	-20,984	-19,110
Foreign exchange gain (loss)	168	78	0	0
Net changes in cash	1,285	3,216	-8,484	-328

Financial ratios	2018A	2019A	2020E	2021E
Growth ability				
Revenue	11.4%	19.8%	9.5%	3.2%
Operating profit	5.2%	11.0%	16.6%	3.9%
EBITDA	9.5%	17.7%	14.6%	2.0%
Net profit	-9.0%	8.8%	13.8%	2.0%
Profitability				
Gross margin	43.9%	41.7%	42.8%	42.4%
Operating margin	29.4%	27.2%	29.0%	29.2%
EBITDA margin	51.5%	50.6%	53.0%	52.4%
Net margin	17.1%	15.5%	16.2%	16.0%
Liquidity				
Current ratio	0.91	0.92	0.99	0.99
Quick ratio	0.91	0.92	0.99	0.99
Cash ratio	0.25	0.29	0.19	0.18
Liabilities / assets	69.3%	65.1%	63.1%	61.5%
Net debt / equity	167.3%	126.8%	126.9%	117.6%
Return				
RoA	2.4%	2.5%	2.8%	2.8%
RoE	12.9%	11.9%	11.7%	11.1%
Per-share data				
EPS (Rmb)	0.17	0.19	0.21	0.22
BPS (Rmb)	1.41	1.78	1.92	2.05
DPS (Rmb)	0.07	0.08	0.09	0.09
Cash flow per share (Rmb)	0.56	0.61	0.67	0.71
Valuation				
P/E	8.8	8.2	7.2	7.0
P/B	1.1	0.9	0.8	0.7
EV/EBITDA	12.4	10.3	9.1	8.9
Dividend yield	4.3%	4.9%	5.7%	5.8%

Source: Corporate filings, CICC Research

Company description

China General Nuclear Power Co., Ltd. (abbreviated as CGNPC) is the largest nuclear power developer and operator in China in terms of installed capacity, and is the sole platform for the final integration of the nuclear power generation business of China General Nuclear Power Group, the controlling shareholder. As of the end of 2019, the company has 27.14 GW of nuclear power plant in operation, accounting for more than 55% of national total. The company strives to become a leader in the development and application of new technologies for nuclear power, maintain its leading position in China's domestic nuclear power generation, and strive to become a global name in nuclear power plant supply and operation.

Contents

Figures

Reasoning in full

IRR high and fuel cost stable for nuclear-generated electricity; large upside in domestic nuclear installation and market share of nuclear power generation. We estimate the internal return rate of (IRR) third-generation nuclear power units is currently above 13%, higher than that of offshore wind power, PV bidding, hydropower and thermal power projects in 2020 (11.0%, 10.0%, 7.6%, and 5.2%). Natural uranium, which accounts for half of nuclear fuel cost, is strictly regulated by the government, and its price has been more stable than coal price in recent years. The portion of nuclear in power generation in China remains markedly lower than corresponding global averages (4.8% vs. 10%), which suggests large upside.

CGN Power has more nuclear power installations than its domestic peers, and its senior managers mostly have more than 20 years of experience in the nuclear power industry. It currently manages 27.1GW in-operation installed nuclear capacity, translating to a domestic market share of 55%. The firm mainly introduces technologies from France, and continues to explore innovations to reduce the cost of operation and maintenance.

Operating efficiency ahead of peers; return rate steady. In 2019, CGN Power's in-operation nuclear units outperformed nine-tenth of the world's nuclear units in 72.22% of WANO indices. Meanwhile, the firm's above-average utilization hours and lower-than-average costs demonstrate its operating efficiency, helping enhance the return rate of its nuclear power projects.

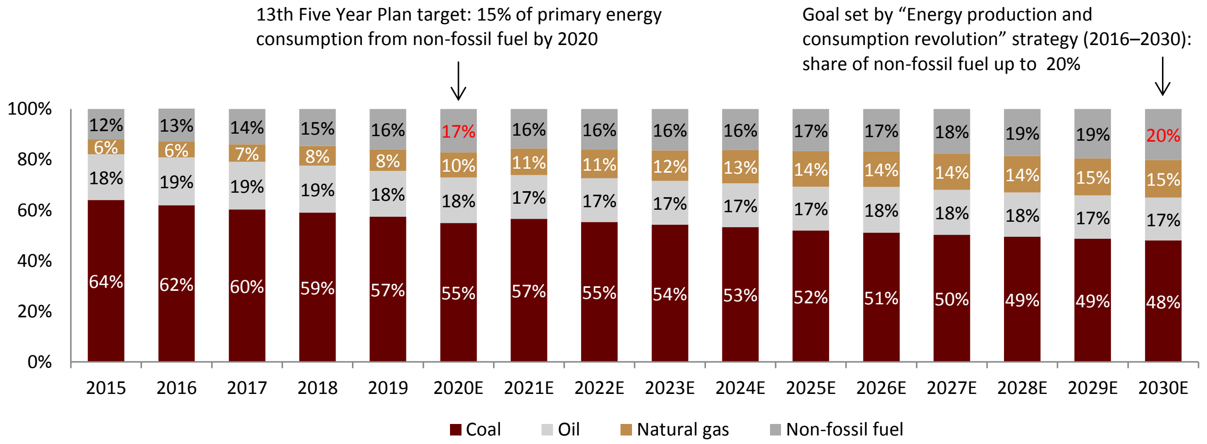
Domestic nuclear power: Few installations, high returns, and stable costs

Nuclear power: Strong growth potential in China

China is shifting towards green energy as a part of efforts to reduce carbon emission. China during the 2015 United Nations Climate Change Conference in Paris promised to cut its carbon emission per unit of GDP by 60–65% compared with 2005 levels by 2030, and to cap its emission volume before end-2030. Assuming utilization of coal, petroleum, and natural gas peaks in 2020, 2030 and 2035, we estimate the portion of petroleum, coal, natural gas, and non-fossil fuels in total energy consumption will reach 18%, 55%, 10% and 17% in 2020, and 16%, 42%, 16% and 26% in 2035. Clean energy should account for the largest portion of power generation.

Portion of nuclear in power installation and generation remains low in China. China's nuclear power industry was established in the 1980s, and entered a rapid boom in 2008. China had 47 in-operation nuclear power units with installed capacity of 48.76 GW as of end-2019, and nuclear power generation in 2019 totaled 348.7 TWh. Over 2009–2019, domestic nuclear power installation and generation grew at CAGRs of 18.3% and 17.4%. However, the portion of nuclear in power generation in China remains markedly lower than corresponding global averages (4.8% vs. 10%), which suggest large upside.

Figure 1: CICC outlook for structure of China's energy generation (2017–2035)



Source: National Bureau of Statistics, provincial government websites, CICC Research

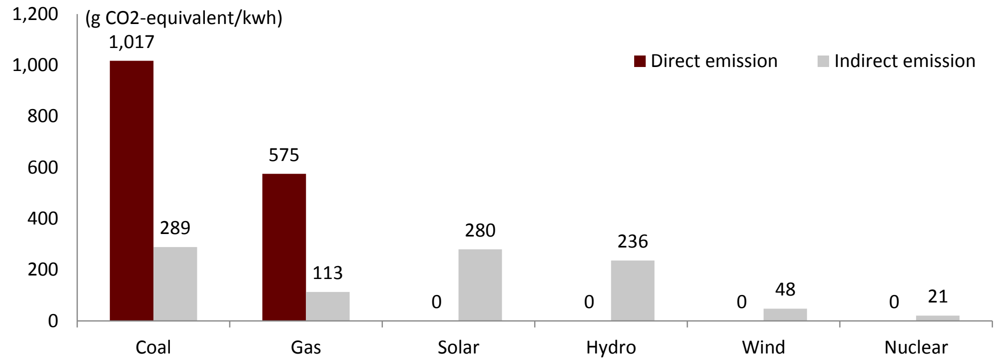
Figure 2: Provinces' coal consumption and coal control targets (2015–2020)

(million tonne)

Province	2015 actual	2016 actual	2017 actual	2018 actual	2019 target	2020 target	13th FYP cut
Shanghai	47	46	46	n.a.	44	45	5%
Jiangsu	272	280	266	262 (target)	257	248	9%
Zhejiang	138	139	143	142	136	131	5%
Shandong	409	409	382	n.a.	36mn tonne cut in 2019-2020	368	10%
Guangdong	166	161	172	168	n.a.	165	1%
Henan	237	232	227	220	209	206	15%

Source: National Bureau of Statistics, provincial government websites, Wind Info, CICC Research

Figure 3: Greenhouse gas emissions from different types of power generation



Source: World Nuclear Association, CICC Research

Nuclear power: Stable cost yet solid return

Steady return of nuclear power projects. As shown in Figure 6, listed nuclear power operators generally have a ROE of over 10%, only behind hydropower firms such as Yangtze Power, but ahead of listed companies in wind power, PV, and thermal energy. We estimate internal return rate (IRR) of third-generation nuclear power units is currently above 13%, higher than that of offshore wind, Solar (bidding 2020), hydropower (large) and coal-fired power (with coal at 535rmb/ton) (11.0%, 10.0%, 7.6% and 5.2% respectively) as well as PV parity projects after 2021 (11.1%).

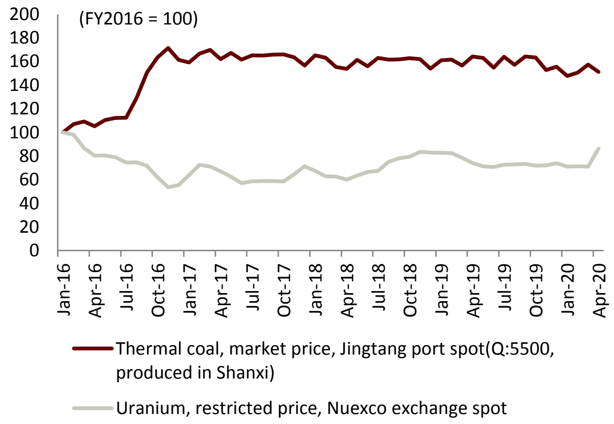
Strict government regulation on nuclear fuel supply helps ensure stable supply. Nuclear fuel cost mainly refers to spending on purchases of natural uranium (which accounts for half the cost), uranium conversion/enrichment services, and fuel assembly processing. The Chinese government applies tight control over nuclear fuel assets, and only three companies are allowed to import uranium. Moreover, the uranium purchase, conversion, and processing contracts normally have a 10-year period, which helps ensure stable supply.

Figure 4: Return rate of different power generation projects (utility scale projects)

Key assumptions	Onshore Wind (Grid parity 2020)	Coal-fired (Coal @535RMB/ton)	Hydro (Large)	Solar (Bidding 2020)	Offshore wind	Solar (Grid parity 2021)	Nuclear (Hualong One)
Capacity (MW)	50	1,000	10,200	20	50	20	1,150
Unit CAPEX (RMB/KW)	8,000	4,000	9,804	3,500	18,000	3,000	16,292
Total CAPEX (RMB mn)	396	4,000	100,000	70	891	60	18,736
Equity ratio	20%	20%	20%	20%	20%	20%	20%
Interest rate	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
Depreciation period	15	20	25	15	15	15	60
Utilization hour	2,200	4,500	3,814	1,200	3,000	1,200	7,884
Annual generation (MWh)	108,900	4,500,000	38,900,000	24,000	148,500	24,000	9,066,600
Curtailment ratio	0%	0%	0%	1%	0%	1%	0%
Power sales ratio	97%	95%	99.5%	97%	97%	97%	95%
Annual sales (MWh)	105,633	4,275,000	38,705,500	23,280	144,045	23,280	8,613,270
On grid tariff (RMB/kwh, VAT excl.)	0.34	0.33	0.27	0.37	0.73	0.33	0.36
Equity IRR	**4.6%**	**5.2%**	**7.6%**	**10.0%**	**11.0%**	**11.1%**	**13.3%**
Project IRR	**4.0%**	**4.4%**	**6.0%**	**8.1%**	**6.7%**	**8.7%**	**8.2%**

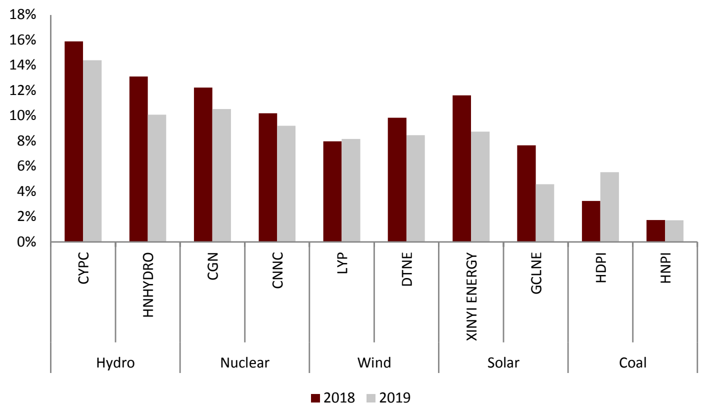
Source: NDRC, China Electric Power Planning & Engineering Institute, China Renewable Energy Engineering Institute, CICC Research

Figure 5: Global uranium price vs. steam coal price



Source: IMF, Wind Info, CICC Research

Figure 6: ROE comparison among listed IPPs (2018–2019)



Source: Corporate filings, Wind Info, CICC Research

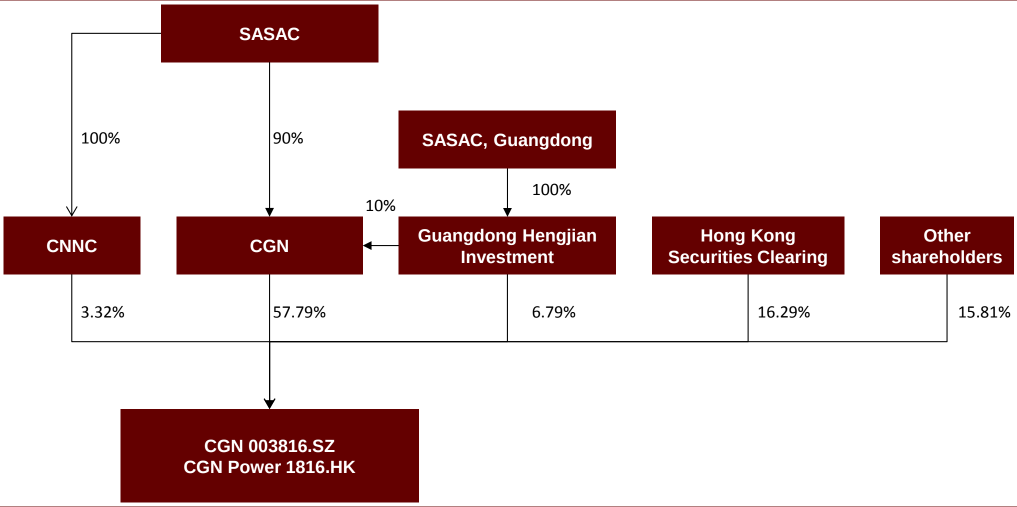
Largest pure play in nuclear power sector

CGN Group's only platform for nuclear power business consolidation

CGN Power is CGN Group's only platform for nuclear power business consolidation. Its major shareholders are CGN Group (90% stake held by the State-owned Assets Supervision and Administration Commission [SASAC]), Hengjian Investment (owned by Guangdong SASAC), and China National Nuclear Corporation (100% held by SASAC).

As of end-1Q20, CGN Power had 24 in-operation nuclear power units (27.1GW) and another six approved units (6.9GW) (including the Hongyanhe unit jointly operated with China State Power Investment Corporation). It has a market share of more than 50% in the domestic nuclear power market, and we see it as the largest pure play in the global nuclear power market. The firm seeks to become the world's top supplier of nuclear power supply and services.

Figure 7: CGN Power's equity structure (as of end-1Q20)



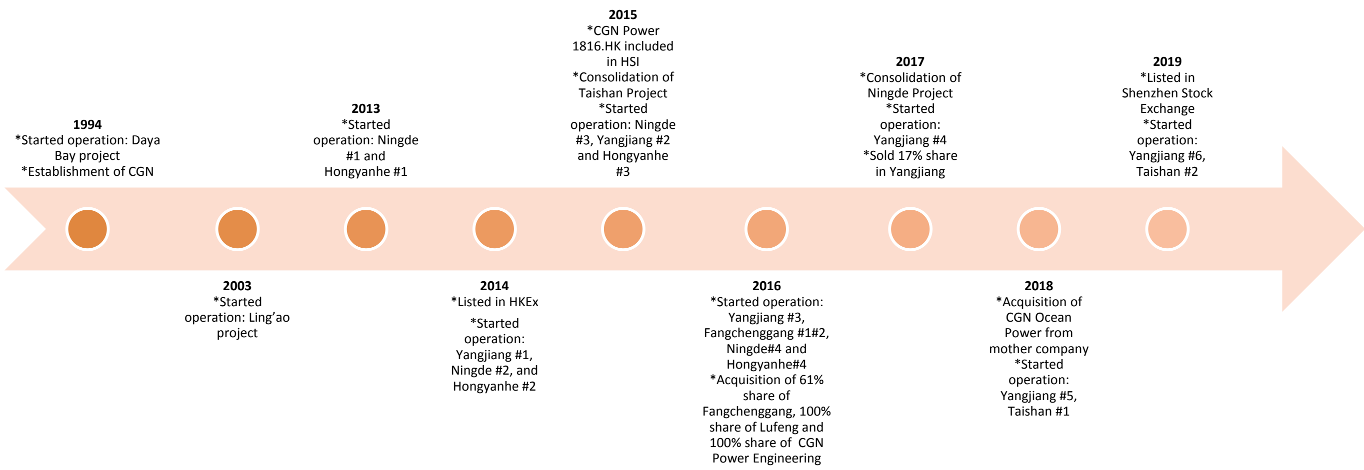
Source: Corporate filings, CICC Research

Figure 8: CGN Power's nuclear units in operation and under construction (as of FY19)

Unit	Province	Date of operation (A/E)	Capacity (MW)	Type	CGN share
In operation					
Daya Bay#1	Guangdong	Feb-94	984	M310	75%
Daya Bay#2	Guangdong	May-94	984	M310	75%
Ling'ao #1	Guangdong	May-02	990	M310	100%
Ling'ao #2	Guangdong	Jan-03	990	M310	100%
Lingdong #1	Guangdong	Sep-10	1087	CPR1000	100%
Lingdong #2	Guangdong	Aug-11	1087	CPR1000	100%
Yangjiang #1	Guangdong	Mar-14	1086	CPR1000	59%
Yangjiang #2	Guangdong	Jun-15	1086	CPR1000	59%
Yangjiang #3	Guangdong	Jan-16	1086	CPR1000	59%
Yangjiang #4	Guangdong	Mar-17	1086	CPR1000	59%
Yangjiang #5	Guangdong	Jul-18	1086	ACPR1000	59%
Ningde #1	Fujian	Apr-13	1089	CPR1000	46%
Ningde #2	Fujian	May-14	1089	CPR1000	46%
Ningde #3	Fujian	Jun-15	1089	CPR1000	46%
Ningde #4	Fujian	Jul-16	1089	CPR1000	46%
Hongyanhe #1	Liaoning	Jun-13	1119	CPR1000	45%
Hongyanhe #2	Liaoning	May-14	1119	CPR1000	45%
Hongyanhe #3	Liaoning	Aug-15	1119	CPR1000	45%
Hongyanhe #4	Liaoning	Sep-16	1119	CPR1000	45%
Fangchenggang #1	Guangxi	Jan-16	1086	CPR1000	61%
Fangchenggang #2	Guangxi	Oct-16	1086	CPR1000	61%
Taishan #1	Guangdong	Dec-18	1750	EPR	70%
Yangjiang #6	Guangdong	Jul-19	1086	ACPR1000	59%
Taishan #2	Guangdong	Sep-19	1750	EPR	70%
Under construction					
Hongyanghe #5	Liaoning	2021	1119	ACPR1000	45%
Hongyanghe #6	Liaoning	2022	1119	ACPR1000	45%
Fangchenggang #3	Guangxi	2022	1180	Hualong One	61%
Fangchenggang #4	Guangxi	2022	1180	Hualong One	61%
Huizhou #1	Guangdong	2025	1150	Hualong One	46%

Source: Corporate filings, CICC Research

Figure 9: History of CGN Power



Source: Prospectus, company website, CICC Research

Ample project reserves. Controlling shareholder CGN Group has received approval for the construction of Taipingling No.1 and No.2 units in Huizhou and it plans to consolidate the two units into CGN Power. CGN Group also has project reserves in Cangnan, Taishan Phase II, and Lingwan, all of which the parent company plans to consolidate into CGN Power in the future. We think the ample project reserves will sustain long-term growth for CGN Power.

Experienced management team

CGN Power's senior managers mostly have more than 20 years of experience in the nuclear power industry, and the company offers regular training programs for its employees.

According to the World Association of Nuclear Operators (WANO), the firm's in-operation units outperformed three-fourths of the world's nuclear power units in 76.39% of the WANO performance indices. Its Ling'ao No.1 unit as of December 31, 2019 has been in safe operation for 4,953 consecutive days (excluding overhauls).

Earnings forecast and valuation

Earnings forecast

We expect CGN Power's revenue and attributable net profit to grow 9.5% and 13.8% YoY to Rmb66.6bn and Rmb10.8bn in 2020, and rise 3.2% and 2.0% YoY to Rmb68.8bn and Rmb11.0bn in 2021.

Our key assumptions:

- **On-grid nuclear power sales:** We expect the firm's on-grid nuclear power sales from controlling units to rise 11% YoY in 2020 (mainly driven by units in Yangjiang and Taishan newly commissioned in 2H19), and to rise 2% YoY in 2021 (no plans for additional units commissioned in 2020).

  Nuclear power less affected by COVID-19 than other sources of electricity generation. In 1Q20, CGN Power's power generation from controlling units grew 6.6% YoY to 36.6bn kWh, implying a 4.84% decline YoY in utilization hours to 1,612 hours, due to the COVID-19 outbreak. Over the same period, national average power-utilization hours dropped 11.3%, and the utilization hours of thermal power and hydropower declined 12.7% and 9.5% YoY. National nuclear power utilization hours regained positive growth in March (0.9% YoY) and picked up by another 4.2% and 7.7% YoY in April and May. **We think nuclear units will benefit first from a recovery in electricity demand, together with CGN Power's potential rearrangement of unit overhauls in 2020. We thus estimate the firm's full-year utilization hours in 2020 at no lower than in 2019, in line with company's target set at beginning of the year.**

- **Nuclear power tariff:** We expect the firm's overall feed-in-tariff (FiT) to remain largely flat YoY at Rmb0.355/kWh in 2020 and 2021.

Figure 10: Key assumptions for profits and losses

Rmb mn	2017A	2018A	2019A	2020E	2021E
P&L					
Consolidated Capacity (MW)	16,994	19,830	22,666	22,666	22,666
(+/-%)	*7%*	*17%*	*14%*	*0%*	*0%*
Consolidated generation (GWh)		136,557	157,460	175,272	179,272
(+/-%)			*15%*	*11%*	*2%*
Consolidated power sales (GWh)	115,872	128,774	148,206	165,059	168,763
(+/-%)	*53%*	*11%*	*15%*	*11%*	*2%*
On grid tariff (RMB/kwh, VAT excl.)	0.359	0.358	0.356	0.355	0.355
(+/-%)	*-4%*	*0%*	*0%*	*0%*	*0%*
P&L					
Revenue	**45,633**	**50,828**	**60,875**	**66,638**	**68,789**
(+/-%)	*38%*	*11%*	*20%*	*9%*	*3%*
Cost of sales	-25,185	-28,504	-35,471	-38,116	-39,643
Gross profit	**20,448**	**22,324**	**25,404**	**28,522**	**29,147**
Gross Margin	*45%*	*44%*	*42%*	*43%*	*42%*
Selling expenses	-92	-102	-79	-86	-89
G&A	-2,283	-2,363	-2,579	-2,824	-2,915
R&D expenses	-774	-1,020	-1,483	-1,624	-1,676
Financial expenses	-6,107	-6,001	-7,698	-8,065	-8,065
Investment income	2,312	1,045	1,307	1,072	1,230
Operating profit	**14,207**	**14,945**	**16,588**	**19,333**	**20,080**
(+/-%)	*68%*	*5%*	*11%*	*17%*	*4%*
Operating profit margin	*31%*	*29%*	*27%*	*29%*	*29%*
Profit before tax	**14,168**	**14,899**	**16,555**	**19,333**	**20,080**
Tax	-1,444	-1,218	-1,770	-2,506	-2,825
Minority interest	-3,160	-4,979	-5,320	-6,057	-6,273
Net income	**9,564**	**8,702**	**9,466**	**10,771**	**10,983**
(+/-%)	*30%*	*-9%*	*9%*	*14%*	*2%*
Net margin	*21%*	*17%*	*16%*	*16%*	*16%*

Source: Prospectus, CICC Research

Cash flow and balance sheet

- As new projects enter operation, we expect the total debt-to-asset ratio to drop 2.0ppt and 1.6ppt YoY in 2020 and 2021 to 63.1% and 61.5%, and the net debt-to-asset ratio to fall 13ppt and 16ppt YoY to 203% and 187%.

- We expect capital expenditures to remain largely flat YoY at Rmb21.3bn in 2020 and edge down to Rmb17.2bn in 2021. We expect operating cash flow to rise 10.5% and 6.6% YoY to Rmb33.8bn and Rmb36.0bn with OCF dividend coverage of 7.7x and 8.1x.

Figure 11: Cash flow statement, balance sheet, and key financials

Rmb mn	2017A	2018A	2019A	2020E	2021E
Cash Flow					
Net profit	9,564	8,702	9,466	10,771	10,983
D&A	7,235	7,982	10,270	12,117	12,365
Operating cashflow	**26,871**	**28,410**	**30,599**	**33,807**	**36,028**
Capital expenditure	-73,414	-20,165	-21,307	-21,307	-17,247
Investing cashflow	**-24,604**	**-16,382**	**-14,637**	**-21,307**	**-17,247**
Financing cashflow	**-435**	**-10,910**	**-12,823**	**-20,984**	**-19,110**
Cash and cash equivalent increase	1,671	1,285	3,216	-8,484	-328
Balance Sheet					
Bank balances and cash	12,387	15,208	19,572	11,088	10,760
Trade and bills receivables	6,455	6,649	8,153	8,465	8,743
Inventory	26,558	21,372	18,371	21,393	22,277
Total current Assets	**55,905**	**55,388**	**61,923**	**57,798**	**59,154**
Fixed Assets	274,433	285,475	296,195	305,449	310,385
Total non-current Assets	**301,396**	**313,168**	**326,052**	**336,313**	**342,426**
Total asset	**357,301**	**368,556**	**387,975**	**394,112**	**401,579**
Short-term borrowings	19,393	16,296	14,263	14,263	14,263
Trade and bills payables	17,345	18,247	22,602	24,287	25,260
Total current liabilities	**60,426**	**60,625**	**67,018**	**58,498**	**59,755**
Long-term borrowings	183,512	179,640	167,860	174,860	171,860
Total non-current liabilities	**195,975**	**194,805**	**185,663**	**190,163**	**187,163**
Shareholder's equity	64,848	71,115	89,802	96,735	103,351
Total liabilities and equity	**357,301**	**368,556**	**387,975**	**394,112**	**401,579**
Financial Ratio					
Debt Ratio	71.8%	69.3%	65.1%	63.1%	61.5%
Net debt ratio	321.7%	291.8%	216.3%	203.2%	187.6%
Current Ratio	0.9	0.9	0.9	1.0	1.0
Quick Ratio	0.5	0.6	0.6	0.6	0.6

Source: Corporate filings, CICC Research

Dividend payouts: We expect CGN's 2020 and 2021 dividend payout policy to remain stable, and its H-share dividend yield to remain attractive. According to the company's A-share listing commitment, on the premise of ensuring the company's normal operations and long-term business development, the annual dividend payout ratio will be no less than 30%. In addition, the company promises its 2020 dividend per share will increase moderately compared to 2019 (2019: Rmb0.076 per share, implying a 40.55% dividend payout ratio). The current A/H stock price implies 2020e dividend yields of 2.7% and 5.7%, we think H-share dividend yield remains attractive.

Valuation: DCF-TP of HK$2.32 for CGN Power-H and RMB3.84 for CGN Power-A

CGN Power-H is trading at HK$1.72 as of market close July 7 Beijing time, implying 7.2x 2020e P/E and 7.0x 2021e P/E. Given stable cash flows from nuclear power projects, we adopt the DCF methodology for H-shares. However, we use full-life cycle (construction-operation-decommissioning) DCF valuation as nuclear power units normally have clear life cycles.

- We assume that Hongyanhe No.5 and No.6, and Fangchenggang No.3 and No.4 units will start operation as scheduled in 2021–2022, and the service life of second- and third-generation units at 40 and 60 years with decommissioning fee of Rmb0.2/W. Year of consolidation of the Huizhou No.1 unit is not set yet.

- We estimate weighted average cost of capital (WACC) at 6.7%, assuming: risk-free interest rate and risk premium are 1.0% and 6.9%, beta at 1.35, and debt ratio and effective tax rate are 55% and 15%, after all in-progress projects are completed in 2022 (based on debt financing cost of 4.5%).

Our TP for H-share GNC Power is HK$2.32, implying 9.7x 2020e P/E and 9.4x 2021e P/E, and 1.1x 2020e P/B and 1.0x 2021e P/B, offering 35% upside.

We apply the same methodology for DCF valuation of CGN Power-A share. We estimate weighted average cost of capital (WACC) at 4.9%, assuming: risk-free interest rate and risk premium are is 2.5% and 6.2%, beta at 0.6. **Our TP for A-share GNC Power is RMB3.84, implying 18.0x 2020e P/E and 17.7x 2021e P/E, and 2.0x 2020e P/B and 1.9x 2021e P/B, offering 20% upside. CGN Power-A share is trading at RMB3.20, implying 15.0x 2020e P/E and 14.7x 2021e P/E.**

Figure 12: DCF – Free cash flow forecast

Free cashflow forecast (RMB mn)	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Net Revenue	66,638	68,789	71,169	73,349	73,905	72,412	74,087	72,623	73,754	73,811	72,962
YoY	*9.5%*	*3.2%*	*3.5%*	*3.1%*	*0.8%*	*-2.0%*	*2.3%*	*-2.0%*	*1.6%*	*0.1%*	*-1.2%*
EBIT	23,222	23,676	23,963	24,641	24,400	24,387	25,516	24,322	24,835	24,907	24,469
YoY	*12.9%*	*2.0%*	*1.2%*	*2.8%*	*-1.0%*	*-0.1%*	*4.6%*	*-4.7%*	*2.1%*	*0.3%*	*-1.8%*
EBIT Margin	*34.8%*	*34.4%*	*33.7%*	*33.6%*	*33.0%*	*33.7%*	*34.4%*	*33.5%*	*33.7%*	*33.7%*	*33.5%*
EBIT*(1 - t)	20,212	20,345	20,085	20,108	19,889	19,492	19,701	18,753	19,178	19,245	18,913
+ **Depreciation and Amortization**	12,117	12,365	12,828	13,209	13,285	12,088	12,157	11,852	12,118	12,070	11,896
- Change in working capital	-1,953	-360	-409	-354	-111	265	-241	200	-176	-7	129
- Capex	-21,307	-17,247	-15,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
Free Cash Flows	**9,069**	**15,103**	**17,504**	**29,963**	**30,063**	**28,846**	**28,617**	**27,805**	**28,119**	**28,309**	**27,939**
YoY	*-1.6%*	*66.5%*	*15.9%*	*71.2%*	*0.3%*	*-4.0%*	*-0.8%*	*-2.8%*	*1.1%*	*0.7%*	*-1.3%*

Source: Bloomberg, Prospectus, CICC Research

Figure 13: DCF valuation – H share

DCF Analysis (RMB mn)	
Enterprise Value	349,183
Net Cash/(Debt), Minority interests	-245,237
Equity Value	**103,945**
# of shares	50,499
Equity value per share (Rmb)	**2.06**
FX rate	0.8885
Equity value per share (HK$)	**2.32**

Source: Bloomberg, Prospectus, CICC Research

Figure 14: DCF – WACC calculation – H share

WACC calculation	
Tax rate	15.0%
Debt ratio	55%
Beta	1.35
Risk free rate	1.0%
Risk permium	6.9%
Equity cost	10.3%
Debt cost	4.5%
Debt cost (After tax)	3.8%
WACC	**6.7%**

Source: Bloomberg, Prospectus, CICC Research

Figure 15: Sensitivity table – H share

WACC								
		Beta						
		1.20	1.25	1.30	**1.35**	1.40	1.45	1.50
Debt cost	3.0%	5.6%	5.7%	5.9%	6.0%	6.2%	6.4%	6.5%
	3.5%	5.8%	6.0%	6.1%	6.3%	6.4%	6.6%	6.7%
	4.0%	6.0%	6.2%	6.4%	6.5%	6.7%	6.8%	7.0%
	4.5%	6.3%	6.4%	6.6%	**6.7%**	6.9%	7.1%	7.2%
	5.0%	6.5%	6.7%	6.8%	7.0%	7.1%	7.3%	7.4%
	5.5%	6.7%	6.9%	7.1%	7.2%	7.4%	7.5%	7.7%
	6.0%	7.0%	7.1%	7.3%	7.4%	7.6%	7.8%	7.9%

Equity value per share (HKD)								
		Beta						
		1.20	1.25	1.30	**1.35**	1.40	1.45	1.50
Debt cost	3.0%	3.48	3.31	3.14	2.98	2.83	2.67	2.53
	3.5%	3.22	3.06	2.90	2.75	2.60	2.46	2.32
	4.0%	2.98	2.82	2.67	2.53	2.39	2.25	2.12
	4.5%	2.75	2.60	2.46	**2.32**	2.18	2.05	1.92
	5.0%	2.53	2.38	2.25	2.12	1.99	1.86	1.74
	5.5%	2.32	2.18	2.05	1.92	1.80	1.68	1.57
	6.0%	2.11	1.99	1.86	1.74	1.62	1.51	1.40

Source: Corporate filings, CICC Research

Figure 16: DCF valuation – A share

DCF Analysis (RMB mn)	
Enterprise Value	439,146
Net Cash/(Debt), Minority interests	-245,237
Equity Value	**193,908**
# of shares	50,499
Equity value per share (Rmb)	**3.84**

Source: Bloomberg, Prospectus, CICC Research

Figure 17: DCF – WACC calculation, A share

WACC calculation	
Tax rate	15%
Debt ratio	55%
Beta	0.6
Risk free rate	2.5%
Risk permium	6.2%
Equity cost	6.2%
Debt cost	5%
Debt cost (After tax)	3.8%
WACC	**4.9%**

Source: Bloomberg, Prospectus, CICC Research

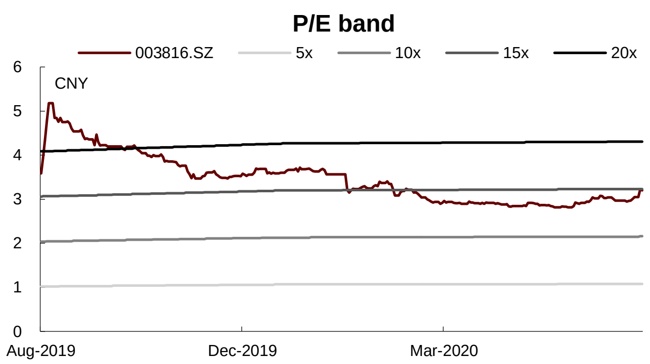
Figure 18: Sensitivity table – A share

WACC								
		Beta						
		0.45	0.50	0.55	**0.60**	0.65	0.70	0.75
Debt cost	3.0%	3.8%	3.9%	4.1%	4.2%	4.3%	4.5%	4.6%
	3.5%	4.0%	4.2%	4.3%	4.4%	4.6%	4.7%	4.9%
	4.0%	4.3%	4.4%	4.5%	4.7%	4.8%	4.9%	5.1%
	4.5%	4.5%	4.6%	4.8%	**4.9%**	5.0%	5.2%	5.3%
	5.0%	4.7%	4.9%	5.0%	5.1%	5.3%	5.4%	5.6%
	5.5%	5.0%	5.1%	5.2%	5.4%	5.5%	5.6%	5.8%
	6.0%	5.2%	5.3%	5.5%	5.6%	5.7%	5.9%	6.0%

Equity value per share (Rmb)								
		Beta						
		0.45	0.50	0.55	**0.60**	0.65	0.70	0.75
Debt cost	3.0%	5.34	5.13	4.93	4.73	4.54	4.36	4.18
	3.5%	4.99	4.80	4.60	4.42	4.24	4.07	3.90
	4.0%	4.66	4.48	4.30	4.12	3.95	3.79	3.63
	4.5%	4.35	4.18	4.01	**3.84**	3.68	3.52	3.37
	5.0%	4.06	3.89	3.73	3.57	3.42	3.27	3.13
	5.5%	3.78	3.62	3.47	3.32	3.18	3.04	2.90
	6.0%	3.52	3.37	3.22	3.08	2.94	2.81	2.68

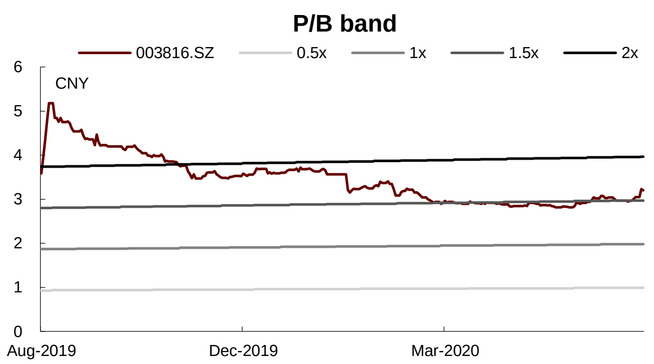
Source: Corporate filings, CICC Research

Figure 19: P/E band



Source: Wind Info, Bloomberg, CICC Research

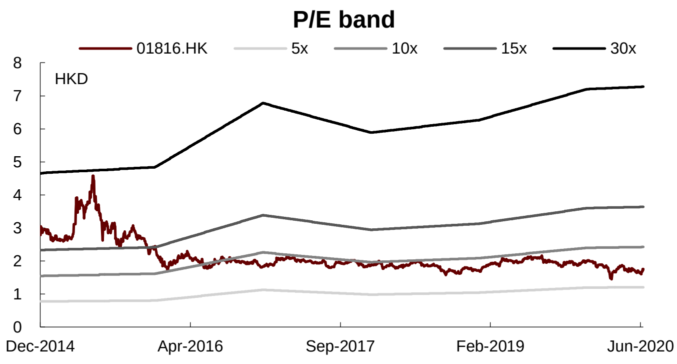
Figure 20: P/B band

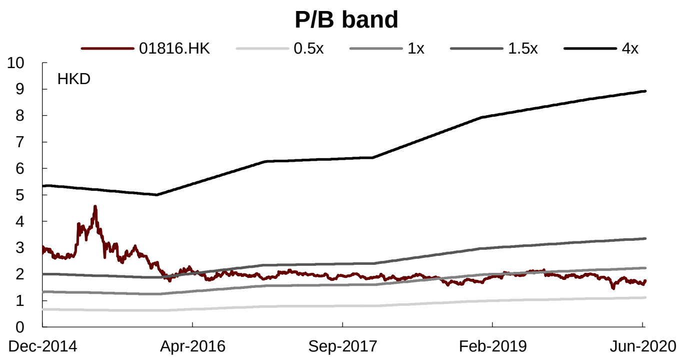


Source: Wind Info, Bloomberg, CICC Research

Figure 21: P/E band

Figure 22: P/B band





Source: Wind Info, Bloomberg, CICC Research

Source: Wind Info, Bloomberg, CICC Research

Figure 23: Valuations of comparable companies (as of market close 7th July 2020, Beijing time)

Company	Ticker	Trading currency	Mkt cap (USD mn)	Reporting currency	P/E			P/B			Dividend yield (%)		
					2019A	2020E	2021E	2019A	2020E	2021E	2019A	2020E	2021E
A-share													
HUANENG LANCANG RIVER HYDROPOWER*	600025.SH	CNY	10,011	CNY	12.7	16.2	12.4	1.3	1.2	1.2	3.9	3.1	4.0
SCTE*	600674.SH	CNY	6,039	CNY	14.4	15.4	14.2	1.6	1.5	1.4	3.5	3.3	3.6
HPI*	600011.SH	CNY	9,273	CNY	43.7	11.2	8.2	0.7	0.7	0.7	2.9	6.3	8.5
NMHD*	600863.SH	CNY	2,187	CNY	13.9	11.4	9.7	1.1	1.0	1.0	4.8	5.9	7.1
CGN*	003816.SZ	CNY	20,429	CNY	17.1	15.0	14.7	1.8	1.7	1.6	2.4	2.7	2.8
H-share													
GUANGDONG INV*	00270.HK	HKD	11,689	HKD	18.0	16.0	15.4	2.2	2.1	2.0	4.2	4.7	4.9
HKELECTRIC-SS*	02638.HK	HKD	9,016	HKD	30.0	26.7	25.9	1.4	1.4	1.5	4.0	4.0	4.1
CLP HOLDINGS*	00002.HK	HKD	24,786	HKD	41.3	16.4	15.3	1.8	1.7	1.6	4.1	4.1	4.3
HUANENG POWER*	00902.HK	HKD	9,263	CNY	26.4	6.7	4.9	0.5	0.4	0.4	4.8	10.5	14.2
CHINA POWER*	02380.HK	HKD	1,910	CNY	10.3	6.0	5.0	0.4	0.4	0.4	9.6	9.7	10.0
XINYI ENERGY*	03868.HK	HKD	2,230	HKD	19.4	16.1	13.5	1.7	1.7	1.8	5.3	6.8	7.7
CGN POWER*	01816.HK	HKD	20,406	CNY	8.2	7.2	7.0	0.9	0.8	0.7	4.9	5.7	5.8

*Note: CICC covers the companies marked * and we use our estimates, time weighted average forecasts used; the others represent market consensus*
Source: Wind Info, Bloomberg, Corporate filings, CICC Research

Risks

- **National power demand weaker than we expected, leading to reduced utilization rate of nuclear power units:** Although national policy supports consumption of power from nuclear sources, if national power demand is weaker than we expected, nuclear power units may be required to reduce output during certain seasons or periods, leading to lower-than-expected utilization hours and returns.

- **Policy risk of electricity price cut:** Premier Li Keqiang proposed a 5% reduction in industrial and commercial electricity prices until the end of this year during the government work report on May 22. According to a policy execution plan announced by the two major power grid companies, measures include promoting continuous increase in scale and portion of electricity market transactions and accelerating construction of the electricity spot market. If the current macro environment of tax reduction and fee reduction continues, nuclear power prices may face concession risks through increased participation in the electricity market.

- **Risk of fluctuations in nuclear fuel costs:** Nuclear fuel costs account for about 30% of the company's electricity sales costs. Although the company guarantees supply by signing a long-term contract for nuclear fuel supply, the price of nuclear fuel is affected by political and economic factors at home and abroad. Fluctuations in prices could lead to operational risks.

- **Risks of preferential policy adjustment:** At present, nuclear power still enjoys various preferential policies related to electricity consumption, electricity prices, VAT taxes, and income tax reduction and exemption. Subject to future policy changes, the company's profitability may be negatively affected.

- **Risk of interest rate fluctuations:** Changes in the macroeconomic environment, inflation, and the supply and demand of monetary funds throughout society would affect interest rates. The company's interest expenses in 2016–2019 accounted for more than 20% of the annual cash flow from operating activities. A rise in interest rates would significantly increase the company's financial expenses and negatively affect profitability.

- **Risk of exchange rate fluctuations:** According to relevant agreements, the company transmits some electricity from the Daya Bay Nuclear Power Plant to Hong Kong every year from 2019 to 2023 for settlement in foreign currency. In addition, the company makes loans through the overseas market. In addition, imports some raw materials, production equipment, and foreign employees are also settled in foreign currencies. Fluctuations in the exchange rate of the renminbi would expose the company to exchange risks and have an impact on financial data and operating performance.

- **Safety and quality of construction projects and risks of cost control:** During the long construction period of nuclear power, there may be problems of rising equipment, materials, and labor costs, as well as the extension of construction periods and rising costs caused by technical bottlenecks. In addition, nuclear power projects may be subject to opposition and resistance from local residents and environmentalists, resulting in the termination of projects or delay in the construction period.

- **Nuclear power project-operation safety risks:** Nuclear power plant reactors contain large amounts of radioactive materials, which may cause harm to the environment and personnel. Therefore, the operation of nuclear power plants is highly dangerous. Any accident around the world, even if not related to the company’s units in operation, may drag progress of ongoing projects. This could affect the company's performance and long-term development prospects.

- **Issuance of new nuclear power operation licenses to other companies:** Currently, only three companies in the country are eligible to become controlling shareholders of nuclear power plants. Potential new entrants have requirements they must satisfy, including: 1) holding more than 25% of the shares in other nuclear power projects; 2) 8 years of experience in nuclear power project construction and operation; and 3) a strong workforce with ample experience in nuclear power; and 4) solid financing capabilities. If qualified new companies obtain new operation licenses, they may lower nuclear industry's barrier to entry and intensify competition in electricity prices and talent acquisition.

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Explanation of Stock Ratings:

- OUTPERFORM: Our analysts expect the stock’s return to exceed the return of the corresponding CICC sector index over the next 6~12 months;
- NEUTRAL: Our analysts expect the stock’s return to be in line with the return of the corresponding CICC sector index over the next 6~12 months;
- UNDERPERFORM: Our analysts expect the stock’s return to be below the return of the corresponding CICC sector index over the next 6~12 months.

Explanation of Industry Ratings:

- OVERWEIGHT: Our analysts expect the sector to outperform the market by 10% or more over the next 6~12 months;
- EQUAL-WEIGHT: Our analysts expect the sector to end up between 10% below and 10% above the market over the next 6~12 months;
- UNDERWEIGHT: Our analysts expect the sector to fall behind the market by 10% or more over the next 6~12 months.

Distribution of ratings is available at https://research.cicc.com/footer/disclosures.

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