

May 7, 2020



農銀國際

ABC INTERNATIONAL

ABCI SECURITIES COMPANY LIMITED

China Yangtze Power (600900 CH)

Market leader with the world's largest hydropower plant



China Yangtze Power (600900 CH)

Market leader with the world's largest hydropower plant

- China Yangtze Power (CYP) is a leader in an oligopolistic market controlling the world's largest hydropower station
- Characterized by strong cash inflow and high dividend payout
- Future commencement of the Wudongde and Baihetan power plants will boost CYP's 2020E/21E capacity by 22%/29%YoY.
- We estimate adjusted net profit to grow by 12% CAGR in 2019-2022E.
- Initiate with **BUY**. TP of RMB 20.00 implies 19.5x 2020E P/E and 2.8x 2020E P/B.

China Yangtze Power (CYP, or the Company): A leader in an oligopolistic market. China's hydropower is entirely controlled by the Chinese companies due to national security concern. Most of the hydropower plant operators are state-owned enterprises (SOEs); among the SOEs, China Yangtze Power (CYP) controlled 13% of the nation's installed capacity by end-2019; the Company also operates the Three Gorges power station, which is the world's largest hydropower plant. The power station is located on the Yangtze River, the largest and longest river in China

Characterized by strong cash inflow and high dividend payout. Hydropower operators usually generate a rather strong cash inflow because 1). Priority dispatch to state grid; 2). no feed-in tariffs implies faster cash collection. CYP's average dividend payout ratio in 2009-19 was around 50%, thanks to high operating cash inflow and free cash inflow during the period - a characteristic favored by investors seeking security amid a volatile market.

Commencement of Wudongde and Baihetan is likely to boost CYP's 2020E/21E capacity by 22%/29%YoY. The Wudongde power plant has started construction since 2014 and is scheduled to commence commercial operation in 2020; the Baihetan power plant will commence commercial operation in 2021 (started construction in 2008). The two plants are likely to add 10.2GW/16GW of installed capacity to CYP, expanding its total installed capacity by 22%/29%YoY.

TP at RMB 20.00; initiate with BUY. We favor CYP's leading position in the industry with invaluable assets. Our DCF-derived TP at RMB 20.00 implies 19.5x 2020E P/E and 2.8x 2020E P/B. Initiate with **BUY**.

Risks: (1) Widespread drought would affect power output; (2) Construction risk; (3) High net gearing ratio prompts concern on fundraising activities; (4) Safety risk; (5) Policy risk.

Results and Valuation

FY ended Dec 31	2018A	2019A	2020E	2021E	2022E
Revenue (Rmb mn)	51,214	49,874	52,525	65,305	75,477
Chg (% YoY)	2.1	-2.6	5.3	24.3	15.6
Net profit (Rmb mn)	22,611	21,543	22,628	27,130	30,951
Chg (% YoY)	1.6	-4.7	5.0	19.9	14.1
Adj. Net profit* (Rmb mn)	23,235	21,908	22,628	27,130	30,951
Chg (% YoY)	0.6	-5.7	3.3	19.9	14.1
Adj. EPS (Rmb)	1.056	0.996	1.028	1.233	1.407
Chg (% YoY)	0.6	-5.7	3.3	19.9	14.1
BVPS (Rmb)	6.464	6.796	7.154	7.585	8.078
Chg (% YoY)	5.3	5.1	5.3	6.0	6.5
P/E (x)	18.94	20.08	19.45	16.22	14.22
P/B (x)	3.09	2.94	2.80	2.64	2.48
ROAE (%)	16.31	14.77	14.75	16.73	17.96
ROAA (%)	7.60	7.28	6.85	6.92	6.86
DPS (Rmb)	0.680	0.680	0.669	0.802	0.914
Yield (%)	3.40	3.40	3.34	4.01	4.57
Net gearing (%)	52.0	60.2	89.7	103.6	122.7

Adjusted net profit = net profit without the impact of impairment loss and fair value change of assets
Source(s): Bloomberg, ABCI Securities estimates

Company Report

May 7, 2020

Initiation

Rating: **BUY**

TP: **RMB 20.00**

Analyst : Kelvin Ng

Tel: (852) 2147 8869

kelvinng@abci.com.hk

Share price (RMB)	17.24
Est. share price return	16.0%
Est. dividend yield	3.9%
Est. total return	19.9%
Previous Rating & TP	N/A
Previous Report Date	N/A

Source(s): ABCI Securities estimates

Key Data

52Wk H/L(Rmb)	19.7/16.0
Issued shares (mn)	22,000
Market cap (Rmb mn)	379,280
3-mth avg daily turnover(Rmb mn)	362
Major shareholder(s) (%):	
Three Gorges Corp.	62.3%

Source(s): Company, ABCI Securities

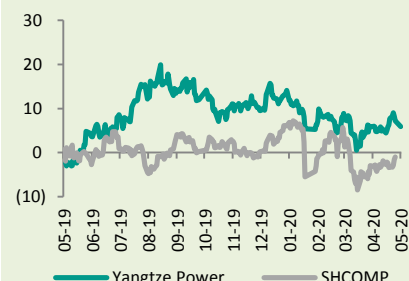
Share Performance (%)

	Absolute	Relative*
1-mth	(0.06)	(2.09)
3-mth	(3.63)	(3.71)
6-mth	(3.25)	0.12

*Relative to SHCOMP

Source(s): Bloomberg, ABCI Securities

1-Year share price performance (RMB)



Source(s): Bloomberg, ABCI Securities

Contents

China Yangtze Power (600900 CH)	1
Investment summary	4
Company overview	10
Valuation	12
Risk factors	14
Company profile	15
Shareholding structure	18
Disclosures	21

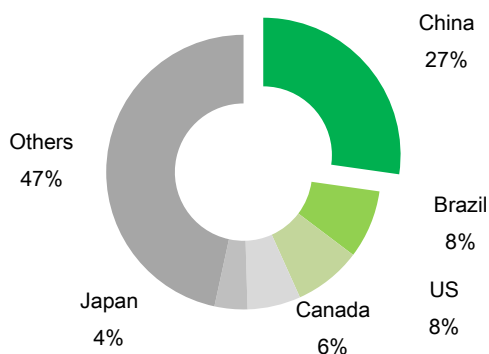
Investment summary

1. China has the world's highest hydropower installed capacity

According to International Hydropower Association (IHA), as of end-2018, China was operating 352GW of hydropower installed capacity – the global highest, followed by Brazil (104GW) and the US (103GW). In 2018, China had 8.5GW of newly installed capacity, compared to Brazil's 3.9GW and Pakistan's 2.5GW. In the foreseeable future, China will remain as the country with the world's highest hydropower installed capacity.

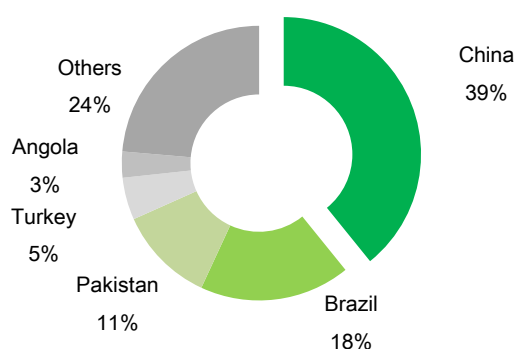
In China, China Yangtze Power (CYP) is the largest hydropower operator with 45.5GW of installed capacity and 26GW of new capacity under construction. According to IHA data, five of CYP's plants were ranked among the world's top 12 hydropower plants by installed capacity.

Exhibit 1: China was ranked first in the world's hydropower installed capacity (2018)



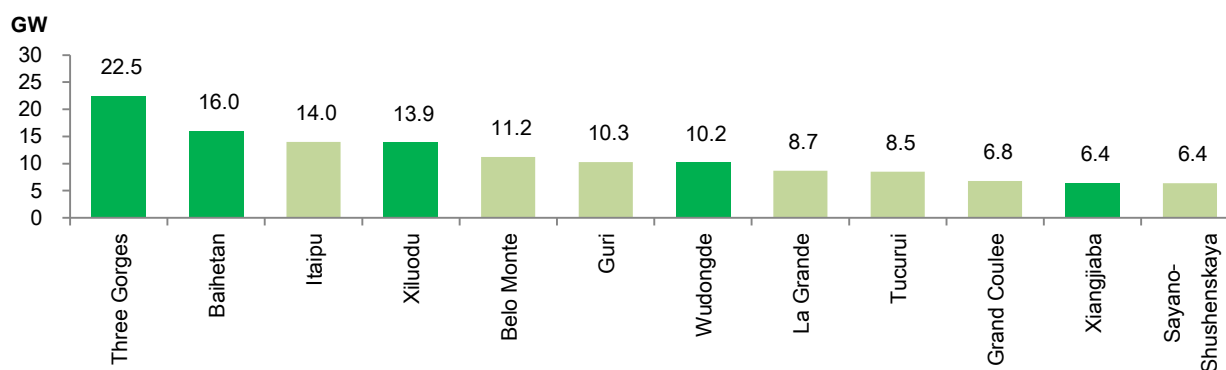
Source(s): IHA, ABCI Securities

Exhibit 2: China was ranked first in the world's newly-installed capacity in 2018



Source(s): IHA, ABCI Securities

Exhibit 3: World's leading hydropower plants by installed capacity in 2018 (green ones are controlled by CYP)



Source(s): IHA, Company, ABCI Securities

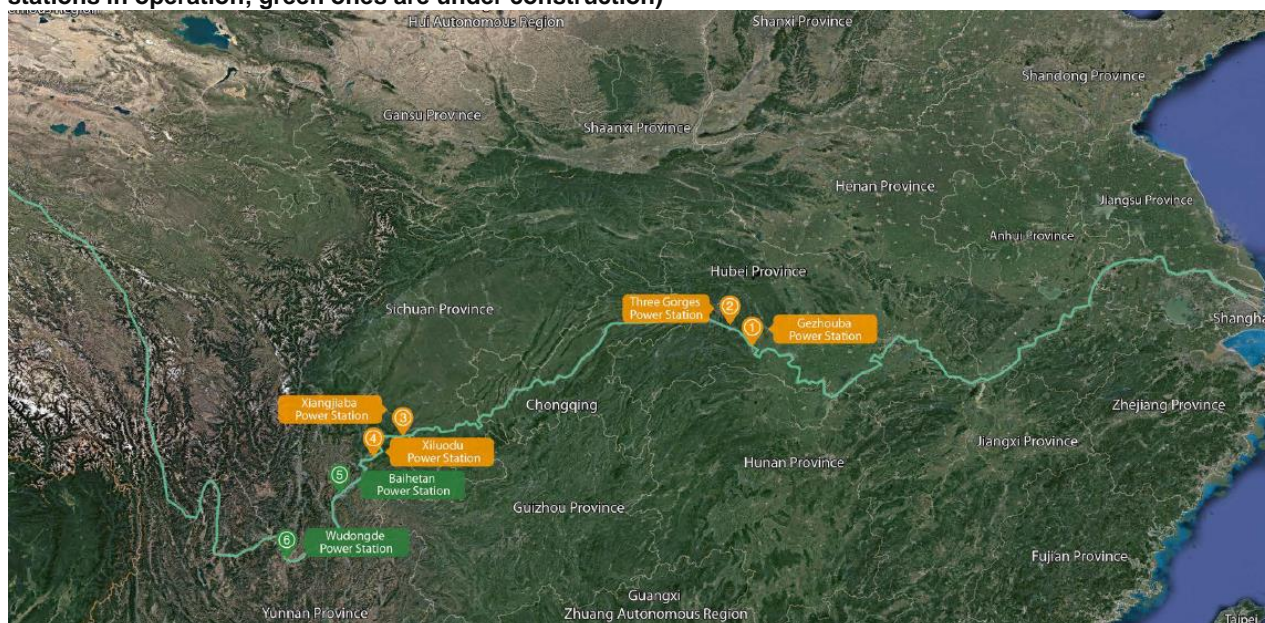
2. China Yangtze Power: Leader in an oligopolistic market with irreplaceable asset

China's hydropower is wholly controlled by the Chinese companies mainly due to national security concern - foreign companies are not allowed to operate hydropower plant in China. In addition, most of the operators of hydropower plant are state-owned enterprises (SOEs) due to their resourcefulness in operating power plants and huge initial investment needed.

Among the SOEs, China Yangtze Power (CYP) controlled 13% of nationwide hydropower installed capacity by end-2019; it also controls the Three Gorges power station, which is largest hydropower plant in the world located on the Yangtze River.

- ◆ **Geographically advantages:** Yangtze River is the longest river in China with the largest drainage area and flow. Controlling the world's largest hydropower station in the strategic region means the Company possesses an asset unparalleled by other competitors.
- ◆ **Oligopolistic market structure:** Most of China's hydropower stations is controlled and operated by SOEs. The competition in hydropower industry is mainly among the large SOEs such as Huaneng Group, Huadian Group, Datang Group, SPIC and SDIC.
- ◆ **No potential substitute:** Hydropower is the cheapest energy source in China on the generation cost basis due to its "free" fuel nature. Unlike other alternative energy sources such as wind and solar, there is no potential substitute for hydropower on the cost basis (since nuclear power is more expensive).

Exhibit 4: The location of power stations controlled by CYP: along the Yangtze River (Orange ones are stations in operation; green ones are under construction)



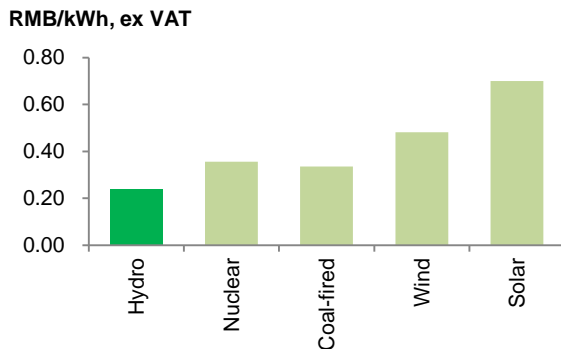
Source(s): Company, ABCI Securites

3. Hydropower has no feed-in tariffs, which means no financial burden on local governments

Hydropower is the most-preferred energy source on the back of its ultra-low generation cost and clean nature. Hydropower has the lowest tariff among all energy sources in China: RMB0.24/kWh excl. VAT vs. RMB0.34/kWh for coal-fired, RMB0.36/kWh for nuclear, RMB0.48/kWh for wind, and RMB0.7/kWh for solar. Hydropower has no fuel cost – its generation relies on heavy raining and flooding. Low generation cost is crucial in the sense that the local governments would not be financially burdened by subsidy distribution.

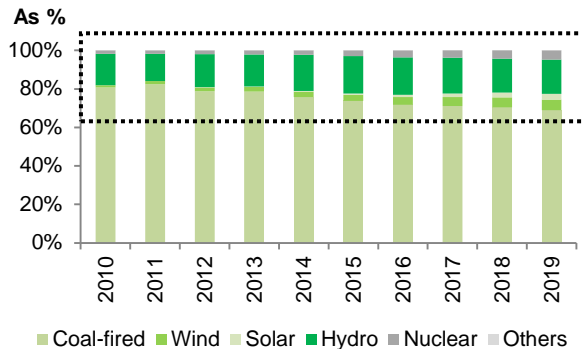


Exhibit 5: Hydropower has the lowest tariff among peers - no subsidies are required



Source(s): Company, ABCI Securities

Exhibit 6: Hydropower output accounted for 18% of China's overall power output



Source(s): NEA, ABCI Securities

4. Hydropower is a sustainable energy source unaffected by geopolitical situation

Hydropower is sustainable by the frequent river flooding and heavy raining in China during summer. More importantly, the energy source (water) does not need to be transported (unlike coal and oil), meaning that it is strategically secure. Oil, natural gas, and coal would be affected by geopolitical situation such as the Persian Gulf crisis and tension among countries that may affect air, land, or sea traffic.

5. Hydropower has priority dispatch on power grid, especially in the flood season

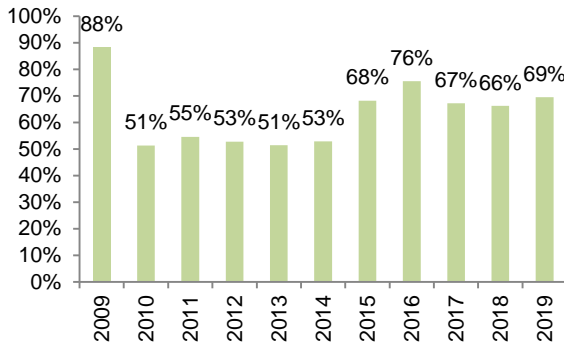
Timing is crucial for utilizing hydropower – the energy will be wasted if it is not used within a short period after generation. Summer is the flooding season in China; therefore, dam has to undergo flood discharge during the period. If hydropower cannot be dispatched on grid and consumed, the energy generated will be wasted. Like nuclear power (due to its non-stoppable nuclear fission reaction that may trigger explosion if forced to shut down), hydropower also priority dispatch on state grid; the curtailment rate, therefore, nears zero vs. 5% for wind power- an aspect that is significant especially when national power demand is low.

6. China Yangtze Power: A company with strong cash inflow and high dividend payout ratio

Hydropower companies usually have a strong cash flow because 1) priority dispatch on state grid suggests sufficient demand; 2).no feed-in tariff indicates faster cash collection. CYP has been reporting a high dividend payout ratio averaging 50% in the past decade, thanks to the high levels of operating cash flow and free cash flow during the period. We believe its strong cash-generating ability will be favored by investors seeking security amid a volatile market.

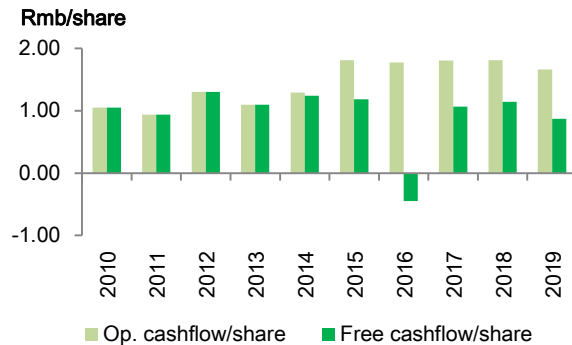


Exhibit 7: CYP's dividend payout ratio has not been less than 50% in the last decade (2009-19)



Source(s): Company, ABCI Securities

Exhibit 8: CYP's operating cash flow has remained positive for the past years



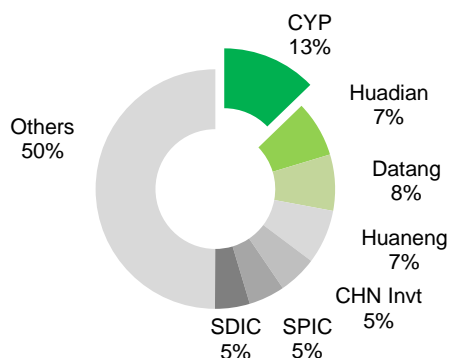
Source(s): Company, ABCI Securities

7. China's hydropower industry snapshot

China's hydropower resources are rich in south China, especially in the southwest regions (e.g. Yunnan, Sichuan, Guizhou etc.). The hilly landscape creates altitude differences in river beds – a geographical prerequisite for hydropower generation.

- ◆ **Location.** Aside from the Yangtze River and the Yellow River that pass through central China, most of the rivers in China are located in southwest region (Sichuan, Yunnan, Guizhou etc.), namely, the Nu River, the Lancang River, the Yalong River, etc.
- ◆ **River size:** In China, Yangtze River is the longest river in length and largest in drainage area and flow, followed by Pearl River, which is much smaller than the Yangtze River in all regards. Besides the two major rivers, the Heilongjiang River and the Yarlung Tsangpo River are ranked third and fourth by flow volume.
- ◆ **Hydropower stations.** China, with the highest hydropower generation in the world, has numerous hydropower stations. There are four with an installed capacity, exceeding 10GW: Three Gorges, Baihetan, Xiluodu, and Wudongde, which are all under CYP.
- ◆ **Competition.** 7 large SOEs control 50% of China's installed capacity by end-2018. They are namely CYP, Huadian Group, Datang Group, Huaneng Group, CHN Investment Group, SPIC and SDIC. This indicates competition is within these operators.
- ◆ **Technically exploitable resources.** According to China Electricity Council (CEC), as of end-2018, China's installed hydropower capacity was 350GW, accounts for 63% of electricity generated with technically exploitable resources. In another words, there is 37% technically exploitable resources for future development.

Exhibit 9: The competition in China's hydropower industry is mainly among SOEs (2018)



Source(s): Company, ABCI Securities

Exhibit 10: China's hydropower technically exploitable resources (2018)



Source(s): CEC, ABCI Securities

Exhibit 11: China's top 20 rivers by flow rank: Yangtze River is much larger than others

Rank	English Name	Chinese Name	Length (km)	Drainage area (sq km)	Flow (m³/s)
1	Yangtze River	长江	6,300	1,807,199	31,060
2	Pearl River	珠江	2,210	452,616	11,070
3	Heilongjiang River	黑龙江	3,420	1,620,170	8,600
4	Yarlung Tsangpo River	雅鲁藏布江	2,057	240,480	4,425
5	Min River	岷江	735	135,788	2,752
6	Songhua River	松花江	1,927	545,000	2,530
7	Lancang River	澜沧江	2,153	161,430	2,354
8	Xiangjiang River	湘江	817	96,738	2,288
9	Jialing River	嘉陵江	1,119	159,710	2,165
10	Yuanjiang River	沅江	1,060	88,815	2,158
11	Ganjiang River	赣江	744	82,068	2,054
12	Dadu River	大渡河	1,070	90,700	2,033
13	Usuri River	乌苏里江	890	187,000	2,000
14	Nu River	怒江	2,013	124,830	2,000
15	Minjiang River	闽江	577	60,992	1,980
16	Yellow River	黄河	5,500	752,443	1,820
17	Yalong River	雅砻江	1,500	129,930	1,800
18	Hanjiang River	汉水	1,532	150,710	1,792
19	Yu River	郁江	1,162	90,720	1,700
20	Wu River	乌江	1,018	86,815	1,650

Source(s): Ministry of Water Resources, ABCI Securities

Exhibit 12: China's top 20 hydropower stations by installed capacity (ones highlighted in light green are controlled by CYP)

Rank	Name	Chinese Name	River	Province	Opened	Installed Capacity (GW)	Dam Height (m)
1	Three Gorges	三峡	Yangtze River	Hubei	2003	22.5	181
2	Baihetan	白鹤滩	Jinsha River	Sichuan	2021*	16.0	277
3	Xiluodu	溪洛渡	Jinsha River	Yunnan	2013	13.9	286
4	Wudongde	乌东德	Jinsha River	Yunnan	2020*	10.2	240
5	Xiangjiaba	向家坝	Jinsha River	Sichuan	2012	6.4	161
6	Longtan	龙滩	Hongshui River	Guangxi	2009	6.3	216
7	Nuozhadu	糯扎渡	Lancang River	Yunnan	2012	5.9	262
8	Jinping-II	锦屏二级	Yalong River	Sichuan	2014	4.8	37
9	Laxiwa	拉西瓦	Yellow River	Qinghai	2009	4.2	250
10	Xiaowan	小湾	Lancang River	Yunnan	2010	4.2	292
11	Jinping-I	锦屏一级	Yalong River	Sichuan	2013	3.6	305
12	Pubugou	瀑布沟	Dadu River	Sichuan	2010	3.3	186
13	Ertan	二滩	Yangtze River	Sichuan	1999	3.3	240
14	Goupitan	构皮滩	Yangtze River	Guizhou	2009	3.0	232
15	Guanyinyan	观音岩	Jinsha River	Sichuan	2014	3.0	159
16	Gezhouba	葛洲坝	Yangtze River	Hubei	1988	2.7	47
17	Changheba	长河坝	Dadu River	Sichuan	2017	2.6	240
18	Dagangshan	大岗山	Dadu River	Sichuan	2015	2.6	186
19	Jinanqiao	金安桥	Jinsha River	Yunnan	2009	2.4	160
20	Guandi	官地	Yangtze River	Sichuan	2012	2.4	168

* expected to be opened

Source(s): Ministry of Water Resources, ABCI Securies

Exhibit 13: China's hydropower resources: the Yangtze River and the Jinsha River (upstream of the Yangtze River) have the greatest potential for development



Source(s): Company, ABCI Securies

Company overview

Future commencement of Wudongde and Baihetan is likely to boost CYP's 2020E/21E capacity by 22%/29%YoY

The Wudongde power plant has started construction since 2014 and is scheduled to commence commercial operation in 2020. The new power plant will add 10.2GW of new capacity to CYP, raising CYP's total installed capacity to 55.7GW in 2020E (+ 22% YoY). In addition, the Baihetan power plant is scheduled to commence commercial operation in 2021 (started construction in 2008), which will add another 16GW of new installed capacity to CYP, boosting its total capacity to 71.7GW in 2021E (+ 29% YoY).

Overall utilization hour to decline by 14%/3%YoY in 2020E/21E, but rebound by 16%YoY in 2022E

As new capacity (the Wudongde power plant will commence operation in 2020) needs time to ramp up and given the slowdown power demand resulted from the COVID-19 pandemic, we expect CYP's overall utilization hours in 2020E to be 3,984, down 14%YoY. For 2021E, despite China's power demand to recover, new commencement of Baihetan power plant is likely to drag overall utilization hour as it needs time to ramp up; hence we estimate CYP's overall utilization hour to report 3,853, down 3.3%. The situation would improve in 2022E as these two power plants have been lifting up utilization hour; we expect a 16%YoY rebound.

Power output to expand by 15% CAGR during 2019-2022E

With the new commencement of the Wudongde and Baihetan power plants in 2020E and 2021E, CYP's hydropower output is likely to increase in coming years. We expect gross power output to be 222bn kWh in 2020E, up 5%YoY as Wudongde power plant needs time to ramp up utilization. The figure would increase substantially in 2021E and 2022E, with 25%/16%YoY growth and reach 276 bn kWh and 320 bn kWh respectively. Hence, 3-year CAGR would be robust 15%.

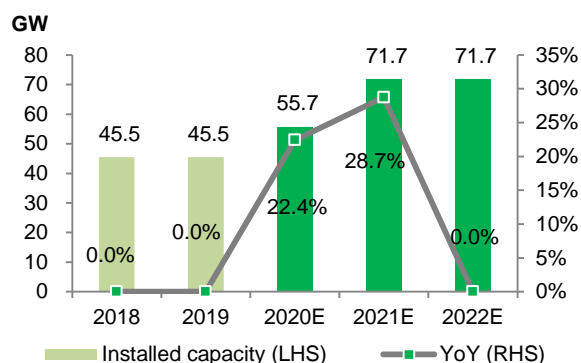
Net gearing ratio would soar to 104% in 2021E, but would stabilize at 50% going forward

Historically, CYP's net gearing ratio varied in the range of 40%-80% and remained mostly at around the 50% level. We expect net gearing ratio would soar to 90%/104% in 2020E/21E since the commencement of the Wudongde and Baihetan power plants would increase CAPEX. We believe these new plants would generate a strong cash flow for CYP in the long run and would help reducing net gearing ratio to 50% level in long run.

Adjusted net profit to grow by 12% CAGR during 2019-2022E

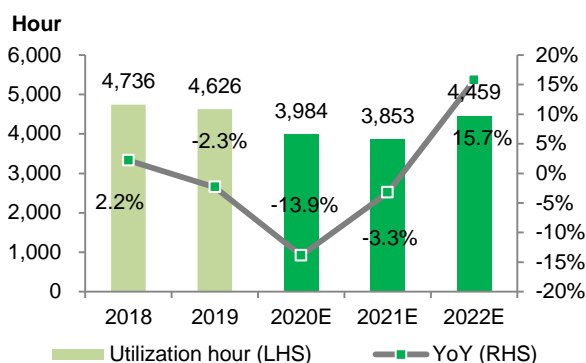
The Wudongde and Baihetan power plants commencing in 2020E and 2021E will boost new capacity by 22% and 29% YoY; as utilization hour to ramp up gradually would boost CYP's revenue by 5%/24%/16%YoY in 2020E/21E/22E, or 15% CAGR during the period. However, CAPEX and depreciation would surge with the new plants, driving up financing cost and operating cost (in which depreciation is one of the key components). We therefore estimate CYP to report 3%/20%/14%YoY adjusted net profit (net profit without the impact of impairment loss and fair value change in assets) growth in 2020E, 2021E and 2022E to RMB22.6bn / RMB 27.1bn /RMB 31.0bn, with 12% CAGR during the period.

Exhibit 14: The Wudongde and Baihetan power plants will boost CYP's installed capacity



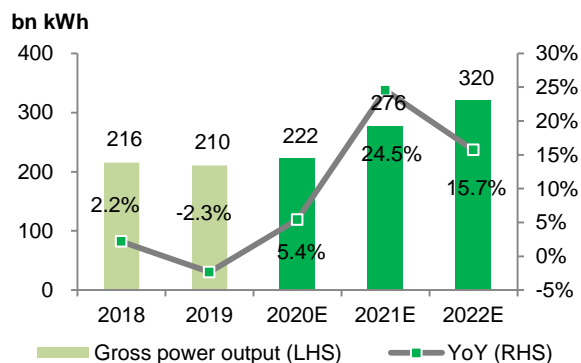
Source(s): Company, ABCI Securities estimates

Exhibit 15: CYP's utilization hour outlook



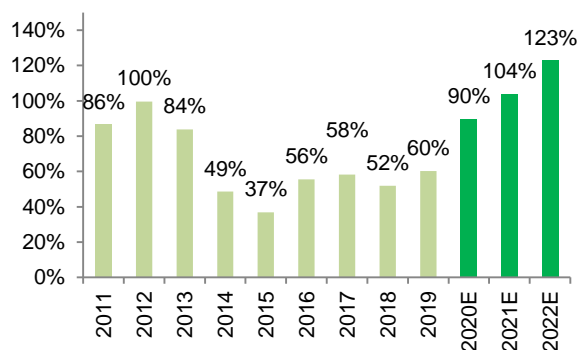
Source(s): Company, ABCI Securities estimates

Exhibit 16: CYP's hydropower gross power output will report strong growth in 2021E and 22E



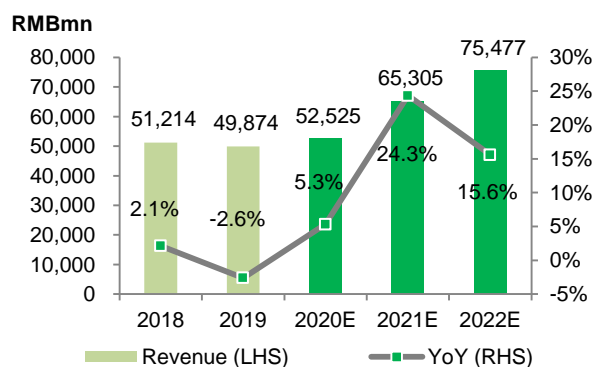
Source(s): Company, ABCI Securities estimates

Exhibit 17: Net gearing ratio outlook



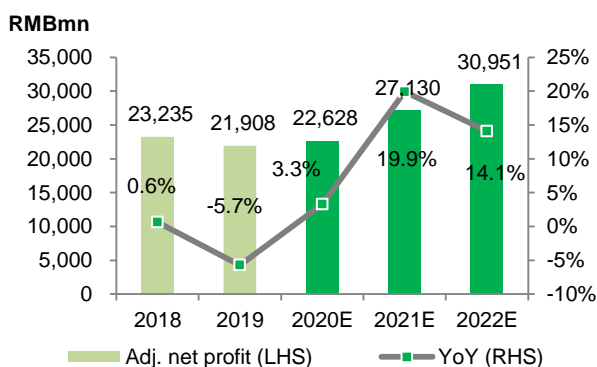
Source(s): Company, ABCI Securities estimates

Exhibit 18: CYP's revenue outlook



Source(s): Company, ABCI Securities estimates

Exhibit 19: CYP's adjusted net profit outlook



Source(s): Company, ABCI Securities estimates

Valuation

TP at RMB 20.00; initiate with BUY

We apply the DCF analysis to value CYP's assets as cash flow generated by hydropower assets is fairly steady and predictable in the long run

Our WACC at 7.6% is calculated with a risk-free rate of 2.55% (10-year China government bond yield), a stock beta of 1.00 (average of international hydropower generators), and an equity risk premium of 9.74%. Our DCF analysis yields an equity value of RMB 440bn, or RMB20.00 per share, equivalent to 19.5x 2020E P/E and 2.8x 2020E P/B.

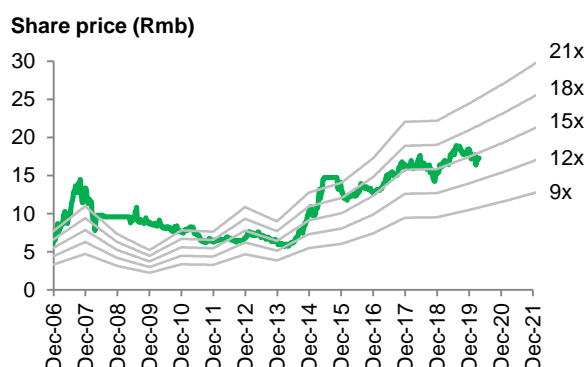
We consider several international hydropower peers in nationwide and worldwide:

- ◆ **Hong Kong & PRC peers:** The average 2020E P/E of Hong Kong & China listing hydropower operators are now trading at 11.9x, based on Bloomberg consensus estimates. For P/B, the trading average is 1.5x.
- ◆ **International peers:** The average 2020E P/E of international listing hydropower operators are now trading at 21.8x, based on Bloomberg consensus estimates. For P/B, the trading average is 1.5x.

We believe CYP, as the world's largest hydropower operator owning the Three Gorges power plant, will remain the leader in the industry. In addition, CYP has very strong cash flow and high dividend payout ratio (average of 63% during 2009-19), which should be favored by investors seeking security amid a volatile market.

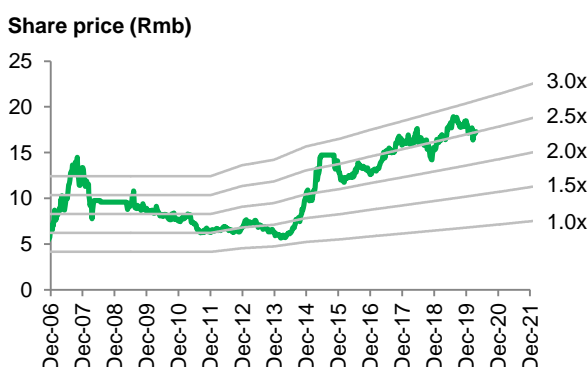
CYP should be valued as the top-tier hydropower operators with a price premium over domestic and global peers. Its world largest hydropower plant (Three Gorges) would continue making CYP outstand from peers and new power plants (Wudongde and Baihetan) are likely to bring strong earnings growth in the future. Our TP of RMB 20.00 equivalent to 19.5x 2020E P/E is justified.

Exhibit 20: CYP's fwd P/E chart



Source(s): Company, ABCI Securities estimates

Exhibit 21: CYP's fwd P/B chart



Source(s): Company, ABCI Securities estimates

Exhibit 22: Peer comparisons

Exhibit 22: Peer Comparisons											
	Stock		Mkt Cap	P/E (x)		P/B (x)		Dvd Yield		ROE	
Name	code	Price	(USDmn)	FY20E	FY21E	FY20E	FY21E	FY20E	FY21E	FY20E	FY21E
Hong Kong & China											
China Yangtze Power	600900 CH	17.24	53,385	17.0	16.7	2.4	2.3	4%	4%	14%	14%
Huaneng Lancang River Hydro	600025 CH	3.56	9,020	12.7	11.4	1.2	1.1	4%	4%	9%	9%
SDIC Power Holdings	600886 CH	7.61	7,269	10.2	9.8	1.2	1.1	3%	3%	12%	11%
Sichuan Chuantou Energy	600674 CH	8.82	5,465	12.7	12.2	1.4	1.3	4%	4%	11%	11%
Guangxi Guiguan Electric-A	600236 CH	4.28	4,749	13.7	13.0	2.2	2.0	5%	5%	17%	16%
Hubei Energy Group Co Ltd-A	000883 CH	3.65	3,343	8.9	8.5	n.a.	n.a.	n.a.	n.a.	8%	9%
China Power International	2380 HK	1.56	1,973	7.7	5.9	0.4	0.4	7%	8%	6%	7%
Avg.				11.9	11.1	1.5	1.4	4%	5%	11%	11%
International											
Brookfield Renewable Partner	BEP US	47.23	14,633	33.3	24.3	1.8	2.0	5%	5%	n.a.	n.a.
Meridian Energy	MEL NZ	4.48	6,913	36.4	41.5	2.2	2.3	5%	5%	6%	5%
Aboitiz Power	AP PM	25.50	3,706	10.6	8.5	1.3	1.2	5%	5%	13%	15%
Terraform Power	TERP US	17.22	3,901	n.a.	181.3	1.6	1.6	5%	5%	-4%	-3%
Rushydro Pjsc	HYDR RM	0.63	3,612	6.9	5.5	0.5	0.4	6%	9%	6%	8%
Avg.				21.8	52.2	1.5	1.5	5%	6%	5%	6%

Source(s): Bloomberg, prices as of May 6, 2020

Risk factors

A wide range drought would hit the power generation of CYP

Hydropower relies on rainfall and water resources. In China, the amount of water resources varies by year. A widespread drought in China will affect the water storage and dampen power output. The latest incident occurred in 2013 and hydropower output dropped 14% YoY; the Company's earnings were down 17.3% YoY for the year.

Delayed commencement of new power plants would affect cash inflow

Any delays in the commencement of the new power plants (i.e. the Wudongde and Baihetan power plants) will affect CYP's cash inflow. In addition, delay of construction would also inflate finance cost increase and weaken CYP's balance sheet position.

High net debt position would increase the financial burden

While CYP's net gearing ratio has been around 50% net gearing ratio in 2009-19, the absolute amount was substantial, with net debt ranging from RMB 35bn - RMB81bn in 2009-19. Increasing financial burden may affect CYP's earnings.

Room for significant expansion other than Wudongde and Baihetan, is unlikely in China in the short run

Most of China's hydropower plants are located on rivers. We believe hydropower resource in China is unlikely to support another mammoth plant with a size similar to the Three Gorges power station. In addition, long-lead time of hydropower plant construction cycle (5-10 years) would make major capacity expansion is unlikely for CYP in short term.

Damage caused by unexpected events would cause shutdowns of hydropower power plants, which can have disastrous consequences

Any damage caused by earthquakes, typhoons or unexpected events may result in shutdown of hydropower plants. If serious damage occurs, water stored behind the dam would overflow to downstream areas, flooding the cities, towns and villages.

Company profile

The largest hydropower operator in China

China Yangtze Power (CYP) is the largest hydropower operator in China with an operating capacity of 45.5GW; capacity under construction is 26.2GW. The major assets are located along China's largest river, the Yangtze River. CYP is operating world's largest hydropower station – the Three Gorges power station.

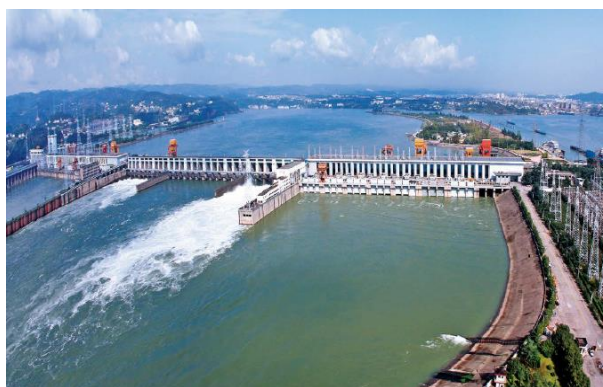
- ◆ **The Three Gorges power station:** operation started in 2003; installed capacity at 22.5GW. Located on Yangtze River, near Yibin city (Hubei province), the Three Gorges is the world's largest hydropower station.
- ◆ **The Gezhouba power station:** operated in 198; installed capacity at 2.74GW; located on the Yangtze River (downstream).
- ◆ **The Xiangjiaba power station:** operated in 2012; installed capacity at 6.4GW; located on Jinsha River (upstream of the Yangtze River).
- ◆ **The Xiluodu power station:** operated in 2013; installed capacity at 13.86GW; located on Jinsha River (upstream of the Yangtze River).
- ◆ **The Baihetan power station:** under construction; operation commencement expected in 2021; installed capacity at 16GW; located on Jinsha River (upstream of the Yangtze River).
- ◆ **Wudongde power station:** under construction; operation commencement expected in 2020; installed capacity at 10.2GW; located on Jinsha River (upstream of the Yangtze River).

Exhibit 23: The Three Gorges power station



Source(s): Company, ABCI Securities

Exhibit 24: The Gezhouba power station



Source(s): Company, ABCI Securities

Exhibit 25: The Xiangjiaba power station



Source(s): Company, ABCI Securities

Exhibit 26: The Xiluodu power station



Source(s): Company, ABCI Securities

Exhibit 27: The Baihetan power station (under construction)



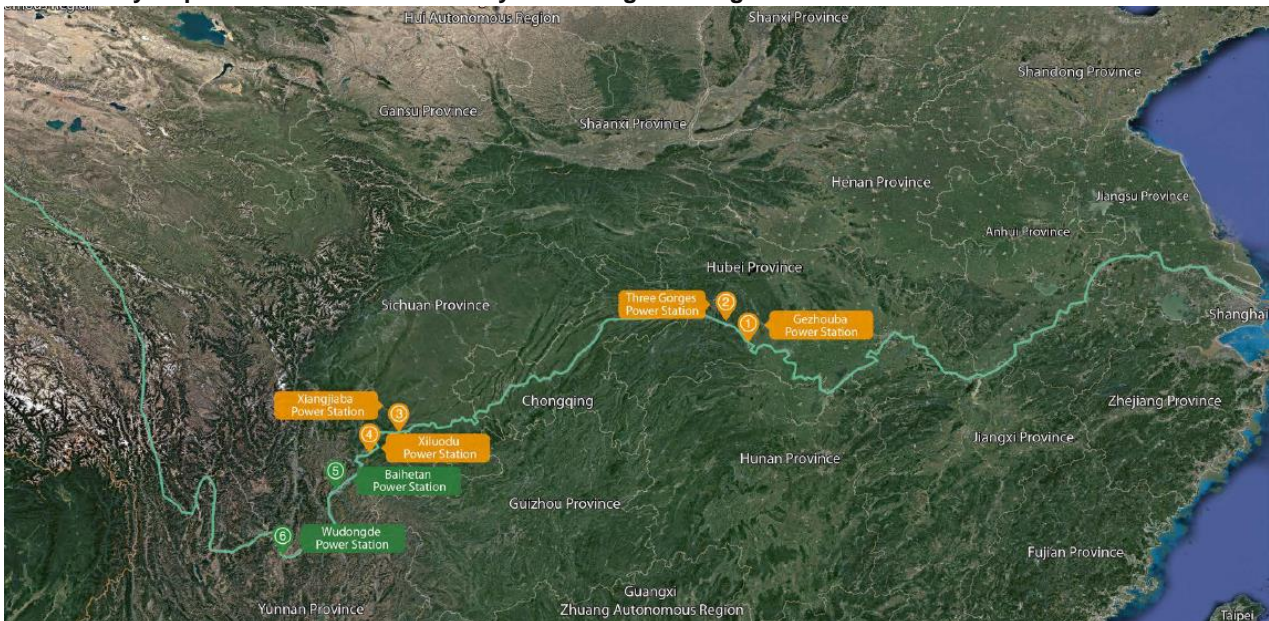
Source(s): Company, ABCI Securities

Exhibit 28: The Wudongde power station (under construction)



Source(s): Company, ABCI Securities

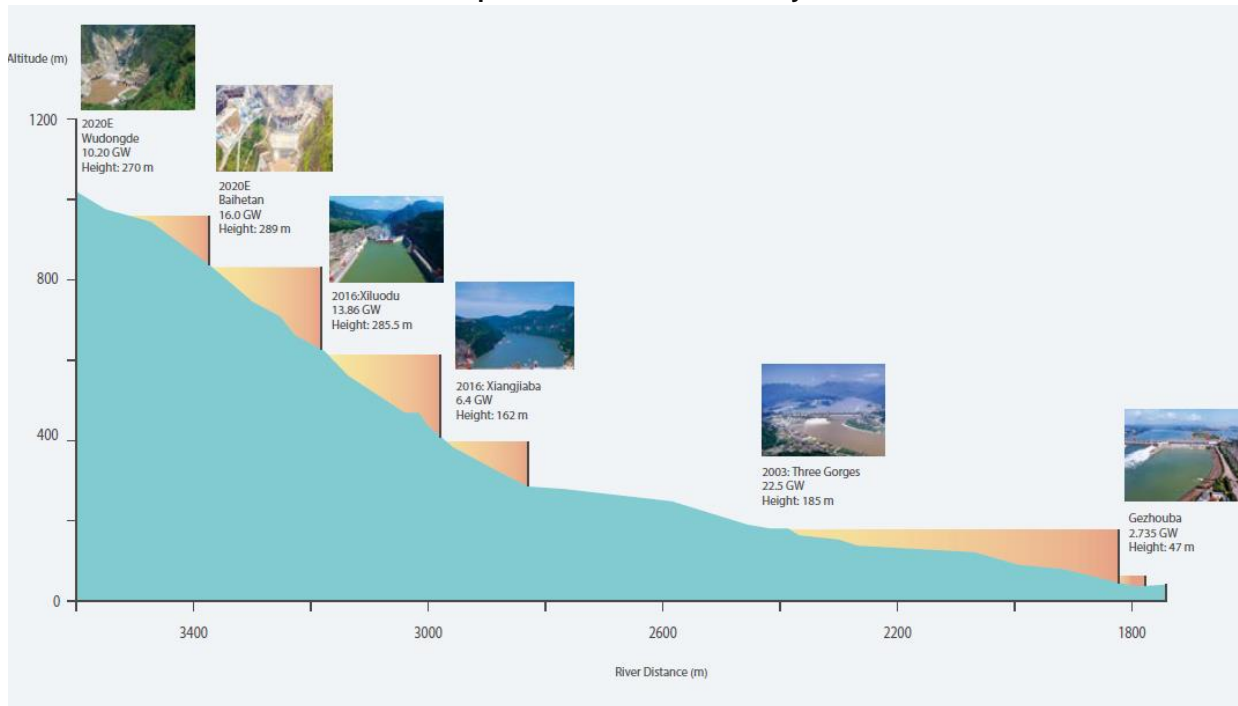
Exhibit 29: Hydropower stations controlled by CYP along the Yangtze River



Source(s): Company, ABCI Securities



Exhibit 30: The location and altitude of power stations controlled by CYP



Source(s): Company, ABCI Securites

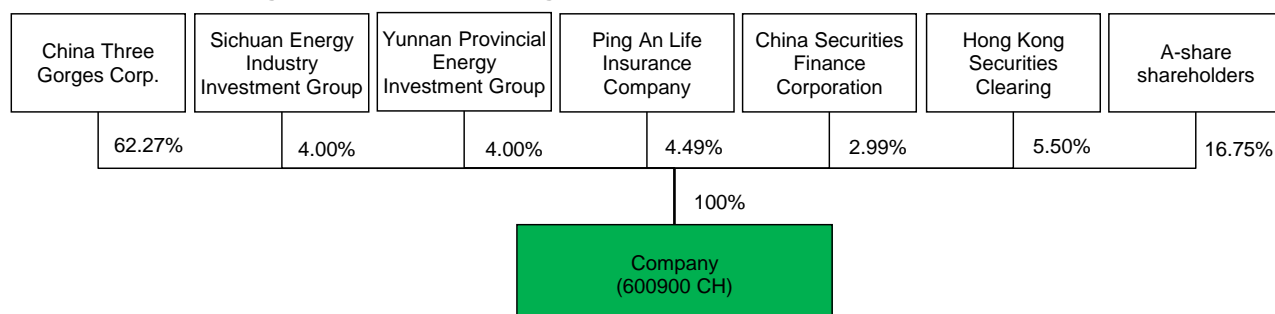
Shareholding structure

Shareholding structure

China Three Gorges Group is the largest shareholder holding 62.27% of the shares. Sichuan Energy Industry Investment Group and Yunnan Provincial Energy Investment Group each have a 4.00% stake.

Besides energy companies, Ping An Life Insurance Company and China Securities Finance Corporation own 4.49% and 2.99% of the stock.

Exhibit 31: Shareholding structure of China Yangtze Power (600900 CH)



Source(s): Company, ABCI Securites



Consolidated income statement

As of Dec 31 (Rmb mn)	2018A	2019A	2020E	2021E	2022E
Revenue	51,214	49,874	52,525	65,305	75,477
Hydropower	51,137	49,659	52,289	65,045	75,191
Other	76	215	236	260	286
Cost of sales	(20,294)	(19,866)	(21,636)	(25,107)	(28,878)
Gross Profit	30,920	30,008	30,889	40,197	46,599
SG&A expenses	(868)	(882)	(935)	(1,162)	(1,343)
Net financial income (cost)	(5,846)	(5,211)	(4,790)	(9,003)	(11,053)
Other income/ (expenses)	2,809	2,712	3,152	3,918	4,529
Profit before tax	27,015	26,627	28,316	33,950	38,732
Tax	(4,364)	(5,060)	(5,663)	(6,790)	(7,746)
Net profit	22,651	21,567	22,653	27,160	30,985
Profit attributable to:					
Minority interest	33	24	25	30	34
Equity shareholders of the Company	22,611	21,543	22,628	27,130	30,951
Adj. equity shareholders of the Company	23,235	21,908	22,628	27,130	30,951
Basic EPS (RMB)	1.028	0.979	1.028	1.233	1.407
Adj. basic EPS (RMB)	1.056	0.996	1.028	1.233	1.407
DPS (RMB)	0.680	0.680	0.669	0.802	0.914

Source(s): Company, ABCI Securities estimates

Consolidated balance sheet

As of Dec 31 (Rmb mn)	2018A	2019A	2020E	2021E	2022E
Current assets	9,485	11,035	15,061	19,538	21,707
Cash	5,337	7,323	10,789	13,745	16,186
Pledged and restricted bank deposits	0	0	0	0	0
Trade and bill receivables	2,630	2,947	2,809	4,348	3,924
Other receivables and prepayments	90	83	234	153	290
Inventories	219	222	229	293	307
Other current assets	1,209	460	1,000	1,000	1,000
Non-current assets	286,012	285,448	349,566	400,328	460,451
Property, plant & equipment	237,912	226,292	251,632	275,582	316,021
Investment properties	29	28	30	30	30
Intangible assets	181	191	207	224	240
Investment in JV and associates	21,487	40,258	60,149	81,033	102,962
Deferred tax assets	344	369	380	380	380
Other non-current assets	26,060	18,309	37,168	43,079	40,818
Total Assets	295,497	296,483	364,627	419,865	482,158
Current Liabilities	56,827	55,959	82,552	104,901	135,037
Trade and bill payables	146	106	176	150	225
Other payables	21,695	23,278	27,242	32,590	33,133
Short term borrowings	19,196	29,307	51,994	68,781	97,562
Other current assets	15,790	3,268	3,140	3,381	4,117
Non-current liabilities	95,985	90,508	124,151	147,514	168,804
Deferred tax liabilities	1,080	875	1,000	1,000	1,000
Long-term borrowings	60,266	68,395	100,394	118,409	137,424
Other non-current assets	34,639	21,239	22,757	28,105	30,380
Total Liabilities	152,812	146,467	206,703	252,415	303,841
Minority interests	481	506	531	561	595
Shareholders' equities	142,203	149,510	157,394	166,889	177,722

Source(s): Company, ABCI Securities estimates



Consolidated cash flow statement

As of Dec 31 (Rmb mn)	2018A	2019A	2020E	2021E	2022E
Profit before tax	22,611	21,543	22,628	27,130	30,951
Change in depreciation and amortization	12,209	12,038	13,435	14,832	16,897
Change in Working Capital	(5,344)	(23,939)	4,864	9,390	3,902
Income tax paid	(14,959)	(14,968)	(14,960)	(14,708)	(17,635)
Others	25,220	41,791	2,689	6,391	8,034
Operating cash flow	39,737	36,464	28,656	43,035	42,149
Capex	(14,587)	(17,321)	(20,169)	(21,177)	(22,236)
Increase in intangible assets	0	0	(32)	(34)	(36)
Others	(6,107)	(3,915)	(36,603)	(36,579)	(54,616)
Investing cash flow	(20,694)	(21,236)	(56,804)	(57,790)	(76,887)
Net Capital raise	0	0	0	0	0
Net debt financing	(60)	5,419	51,856	37,304	63,958
Dividend payout	(14,959)	(14,968)	(14,960)	(14,708)	(17,635)
Interest paid	(3,987)	(3,675)	(5,283)	(4,885)	(9,143)
Others	2	(44)	0	0	0
Financing cash flow	(19,005)	(13,269)	31,614	17,711	37,180
Net change in cash	37	1,959	3,466	2,956	2,442
Cash at the beginning	5,201	5,337	7,323	10,789	13,745
Adjustment (Time deposit & FX effect)	98	27	0	0	0
Cash at the end	5,337	7,323	10,789	13,745	16,186

Source(s): Company, ABCI Securities estimates

Key ratio

	2018A	2019A	2020E	2021E	2022E
Sales mixed (%)					
Hydropower	99.85	99.57	99.55	99.60	99.62
Other	0.15	0.43	0.45	0.40	0.38
Total	100.0	100.0	100.0	100.0	100.0
Profit & loss ratios (%)					
Gross margin	60.37	60.17	58.81	61.55	61.74
Operating profit margin	62.54	60.40	59.03	61.77	61.96
Pre-tax margin	52.75	53.39	53.91	51.99	51.32
Net profit margin	44.23	43.24	43.13	41.59	41.05
Selling & administrative expenses/revenue	1.70	1.77	1.78	1.78	1.78
Effective tax rate	16.15	19.00	20.00	20.00	20.00
Growth (%)					
Revenue	2.13	(2.62)	5.31	24.33	15.58
Gross profit	4.33	(2.95)	2.94	30.13	15.93
Operating profit	(0.65)	(5.94)	2.92	30.11	15.92
Net profit	1.69	(4.78)	5.03	19.90	14.08
Balance sheet ratios					
Current ratio (x)	0.17	0.20	0.18	0.19	0.16
Quick ratio (x)	0.14	0.18	0.16	0.17	0.15
Cash ratio (x)	0.09	0.13	0.13	0.13	0.12
Trade and bill receivables days	21.10	20.41	20.00	20.00	20.00
Trade and bill payables turnover days	3.21	2.46	2.50	2.50	2.50
Inventory turnover days	4.57	4.31	4.00	4.00	4.00
Total debt / equity ratio (%)	55.69	65.13	96.49	111.79	131.78
Net debt / equity ratio (%)	51.95	60.25	89.66	103.58	122.70
Returns (%)					
ROAA	7.60	7.28	6.85	6.92	6.86
ROAE	16.31	14.77	14.75	16.73	17.96
Payout ratio	66.20	69.44	65.00	65.00	65.00

Source(s): Company, ABCI Securities estimates

Disclosures

Analyst Certification

I, Ng King Chuen, Kelvin, being the person primarily responsible for the content of this research report, in whole or in part, hereby certify that all of the views expressed in this report accurately reflect my personal view about the subject company or companies and its or their securities. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this report. I and/or my associates have no financial interests in relation to the listed company (ies) covered in this report, and I and/or my associates do not serve as officer(s) of the listed company (ies) covered in this report.

Disclosures of Interests

ABCI Securities Company Limited and/or its affiliates may pursue financial interests to the companies mentioned in the report.

Definition of equity rating

Rating	Definition
Buy	Stock return rate \geq Market return rate (10%)
Hold	- Market return rate (-10%) \leq Stock return rate < Market return rate (+10%)
Sell	Stock return < - Market return (-10%)

Stock return rate: expected percentage change of share price plus gross dividend yield over the next 12 months

Market return rate: average market return rate since 2008 (HSI total return index 2008-19 CAGR at 10%)

Time horizon of share price target: 12-month

Stock rating, however, may vary from the stated framework due to factors including but not limited to: corporate governance, market capitalization, historical price volatility relative to corresponding benchmark index, average daily turnover of the stock relative to market capitalization of the stock, competitive advantages in corresponding industry, etc.

Disclaimers

This report is for our clients only and is for distribution only under such circumstances as may be permitted by applicable law. It has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. It is published solely for informational purposes and is not to be construed as a solicitation or an offer to buy or sell any securities or related financial instruments. No representation or warranty, either expresses or implied, is provided in relation to the accuracy, completeness or reliability of the information contained herein. This report should not be regarded by recipients as a substitute for the exercise of their own judgment. Any opinions expressed in this report are subject to change without notice and may differ or be contrary to opinions expressed by other business areas as a result of using different assumptions and criteria. The analysis contained herein is based on numerous assumptions. Different assumptions could result in materially different results. The analyst(s) responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituencies for the purpose of gathering, synthesizing and interpreting market information. ABCI Securities Company Limited is under no obligation to update or keep current the information contained herein. ABCI Securities Company Limited relies on information barriers to control the flow of information contained in one or more areas within ABCI Securities Company Limited, into other areas, units, groups or affiliates of ABCI Securities Company Limited. The compensation of the analyst who prepared this report is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues, however, compensation may relate to the revenues of ABCI Securities Company Limited as a whole, of which investment banking, sales and trading are a part. The securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors. The price and value of the investments referred to in this research and the income from them may fluctuate. Past performance is not necessarily indicative of future results. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument mentioned in this report. For investment advice, trade execution or other enquiries, clients should contact their local sales representative. Neither ABCI Securities Company Limited nor any of its affiliates, directors, employees or agents accepts any liability for any loss or damage arising out of the use of all or any part of this report. Additional information will be made available upon request.

Copyright 2020 ABCI Securities Company Limited

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of ABCI Securities Company Limited.

Office address: ABCI Securities Company Limited, 13/F Fairmont House, 8 Cotton Tree Drive, Central, Hong Kong.

Tel: (852) 2868 2183