



中國廣核電力股份有限公司  
CGN Power Co., Ltd.

一次把事情做好

# CGN POWER CO.,LTD. ( 1816.HK )

## 2016 Annual Results

March 2017

**Disclaimer**

This presentation contains forecast statements, which may involve risks and unforeseeable factors. These statements generally apply words of predicative implications, such as think, expect, estimate, plan, predict, aim at, might, would and other similar words, which are utilized to express expectations, actions to adopt in the future, or possible results brought about by these actions. You should not excessively rely on these predicative statements in the presentation, since they are based on the Company's own materials and other materials the Company consider reliable. The Company's actual performance might be different from these predicted figures, which might be a cause of the fluctuations of the Company's H-share price.

## Part I

## Development Strategy

## Part II

## Business Performance

## Part III

## Financial Performance

## Part IV

## Q&A

# Part I

# Development Strategy







**Safety and Quality**

- Stable operation with more WANO indicators achieving world's top quartile
- The number of unplanned automatic scrams was smaller than international peers, the average capacity factor has reached the highest level since 2012
- 12 outages have been successfully completed with optimized plan in 2016

**Market Share**

- With 5 units began commercial operations and 1 unit FCD, maintaining the leading position in terms of in-service installed capacity and under-construction installed capacity
- Precisely grasp the relationship between the overall and partial benefits, planned and market generation. Overcome the consumption challenges in different regions. On-grid power generation achieved a large growth year on year.
- Hongyanhe Station achieved first-ever three units full-load generation for some time during the heating supply period.

**Shareholder Returns**

- Steady growth of attributable profit
- Stable returns on equity attributable to the Company shareholders

**Corporate Governance**

- Strengthen the role of the board committees, expand audit committee to audit and risk management committee, improve risk management system
- Reinforce control on connected transaction by establishing and optimizing the internal control on major connected transaction

**Environmental Benefit**

- Achieve a total on-grid nuclear power generation of 115,584 GWh, the emission reduction effect of which is equivalent to 250,000 hectares of forest

### Stable Operation

- Fully implement the actions and responsibilities of nuclear safety management to enhance safety
- Ensure the safe and stable operation of the stations and successfully implement 13 Outages

### Construction Promotion

- Advance the construction of units as scheduled while guaranteeing the safety and quality to ensure the commercial operation of two units
- Well prepare the preparatory work of new projects, push forward the approval and construction

### Costs Control

- Comprehensively conduct lean management, carry out fuel management research based on electricity market demand, reduce spare parts inventory to reduce KWH cost
- Strengthen the management on construction cost, target breakdown, responsibility implementation and improve the management mechanism on key nodes

### Income Growth by Marketing

- Adapt to the trend of market situation, strengthen marketing to ensure planned on-grid power generation and guaranteed tariff, expand trading generation
- Adopt "One Station One Tactic" marketing mechanism: Establish overall plan and hierarchical authorization based on regional differentiation



# Part II

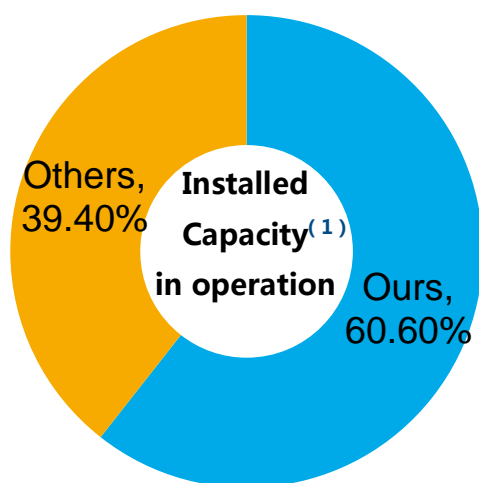
## Business Performance



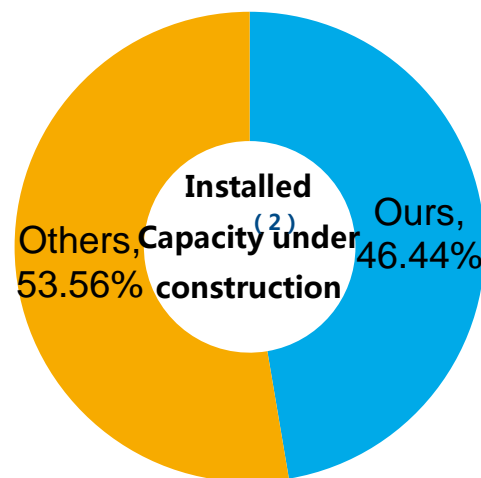
## 5 Units Began Commercial Operations

## 1 Unit FCD

Yangjiang Unit 3	Fangchenggang Unit 1	Hongyanhe Unit 4	Ningde Unit 4	Fangchenggang Unit 2	Fangchenggang Unit 4
<ul style="list-style-type: none"> <li>Commercial operation on 1<sup>st</sup> January 2016</li> <li>Subsidiary, 78.20%</li> <li>CPR1000 , 1086MW</li> </ul>	<ul style="list-style-type: none"> <li>Commercial operation on 1<sup>st</sup> January 2016</li> <li>Subsidiary, 61%</li> <li>CPR1000 , 1086MW</li> </ul>	<ul style="list-style-type: none"> <li>Commercial operation on 8<sup>th</sup> June 2016</li> <li>Associate, 38.14%</li> <li>CPR1000 , 1119MW</li> </ul>	<ul style="list-style-type: none"> <li>Commercial operation on 21<sup>st</sup> July 2016</li> <li>Joint Venture, 32.29%</li> <li>CPR1000 , 1089MW</li> </ul>	<ul style="list-style-type: none"> <li>Commercial operation on 1<sup>st</sup> October 2016</li> <li>Subsidiary, 61%</li> <li>CPR1000 , 1086MW</li> </ul>	<ul style="list-style-type: none"> <li>FCD on 23<sup>rd</sup> December 2016</li> <li>Subsidiary, 61%</li> <li>HPR1000 , 1180MW</li> </ul>



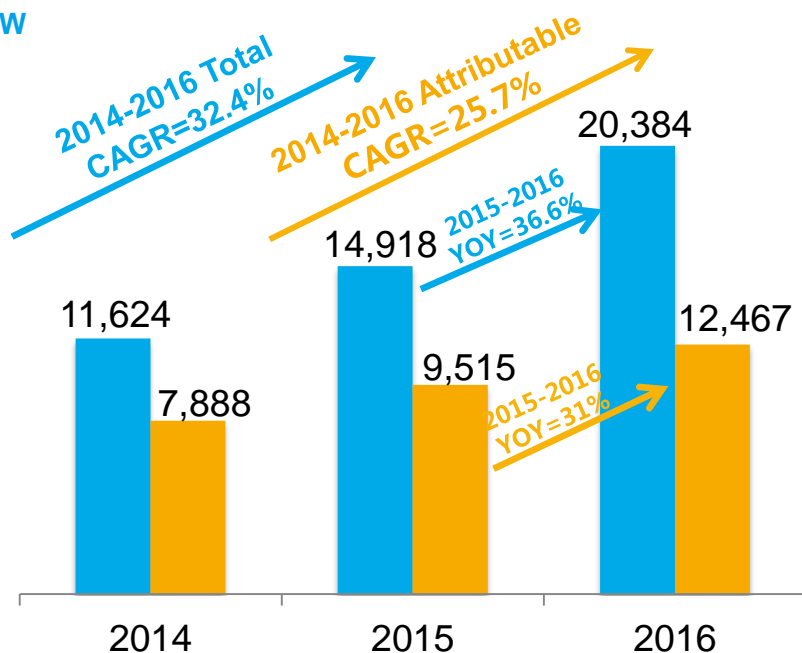
**Note 1:** As at 31 December 2016, 35 units in operation across China with total installed capacity of 33,635 MW (only refers to the mainland China, the same below). Among these, CGNP runs 19 of them, with total installed capacity of 20,384 MW, accounting for approximately 60.6% of the market share.



**Note 2:** As at 31 December 2016, 21 units under construction across China with total capacity of 24,453 MW. Among these, CGNP managed total 9 units under construction, with total capacity of 11,356 MW and a market share of approximately 46.44%.

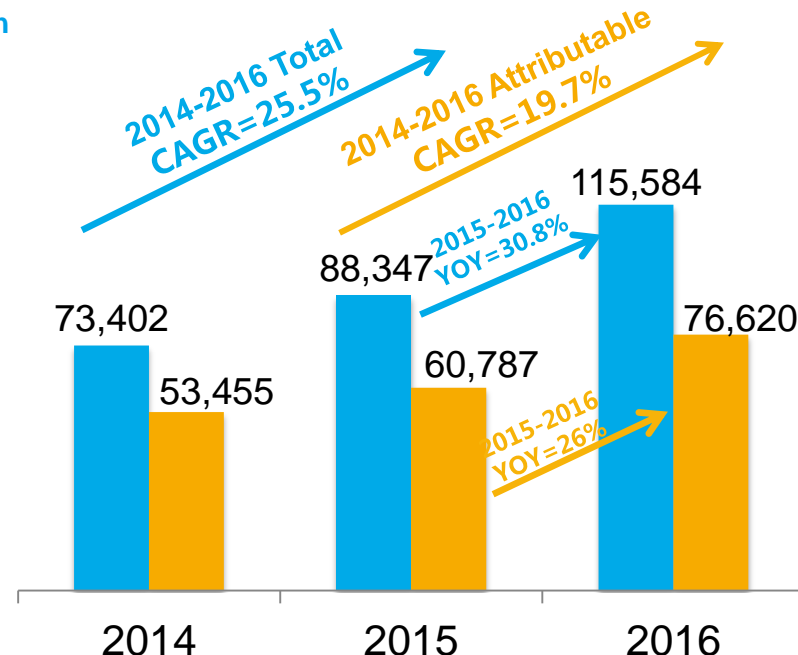
Installed Capacity Rapidly Increased Year on Year

MW

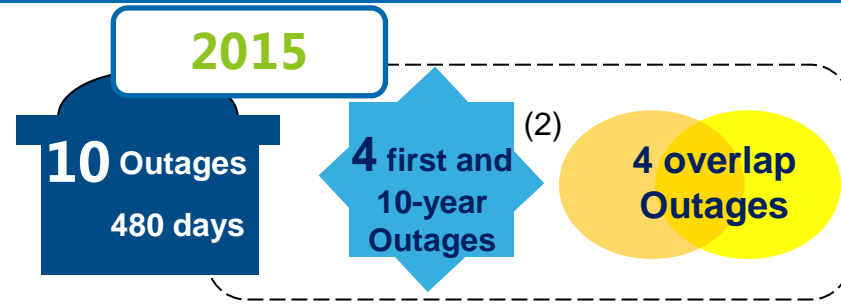
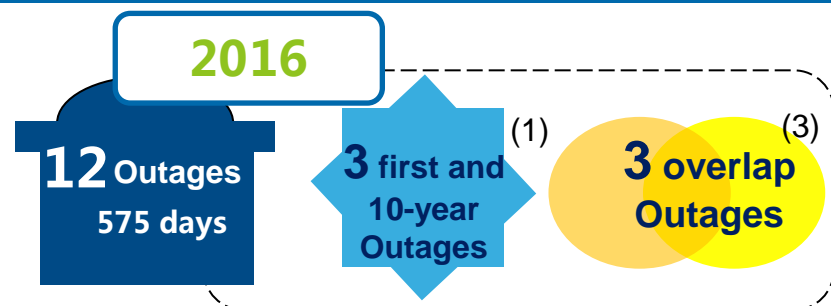


On-grid Power Generation Rapidly Increased Year on Year

Gwh



12 outages have been successfully completed

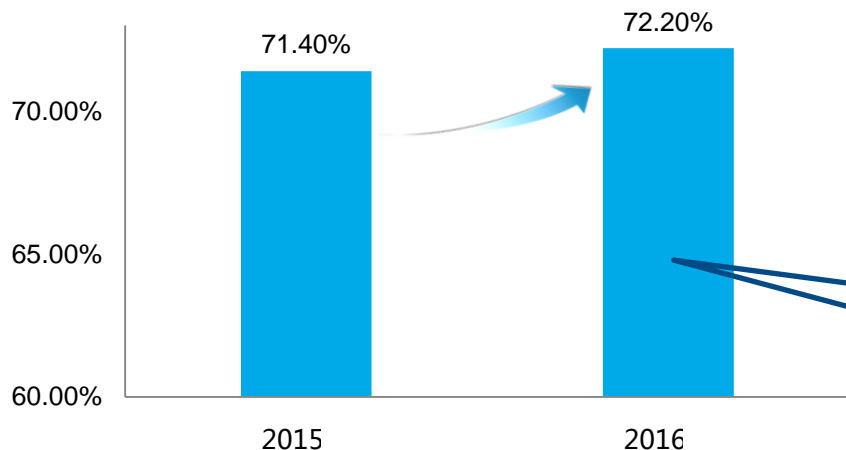


**Note 1:** three first outages and nine annual outages.

**Note 2:** three first outages, one 10-year outages and six annual outages.

**Note 2:** Overlap Outages: the maximum number of outages we conducting at the same time throughout the year( same as below)

WANO indicators that achieved world's top quartile were increasing steadily (1)

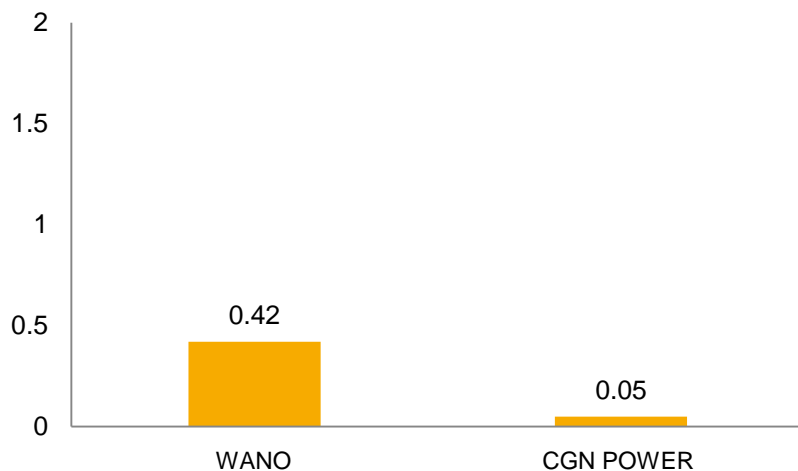


# WANO

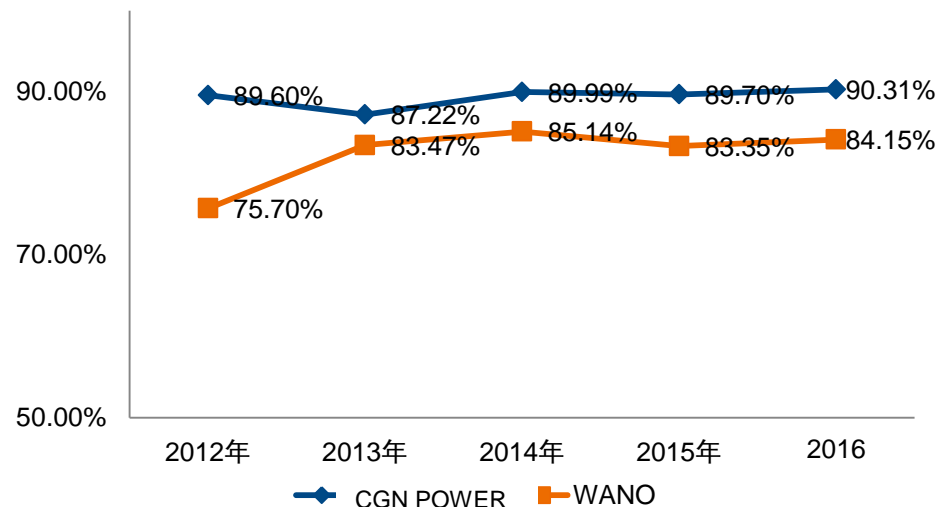
World Association of Nuclear Operators

**72.20% of 12 WANO indicators for every unit ranked among Top Quartile globally.**

The Average Unplanned Automatic Scrams in Each Unit is Lower than the International Peers (2)

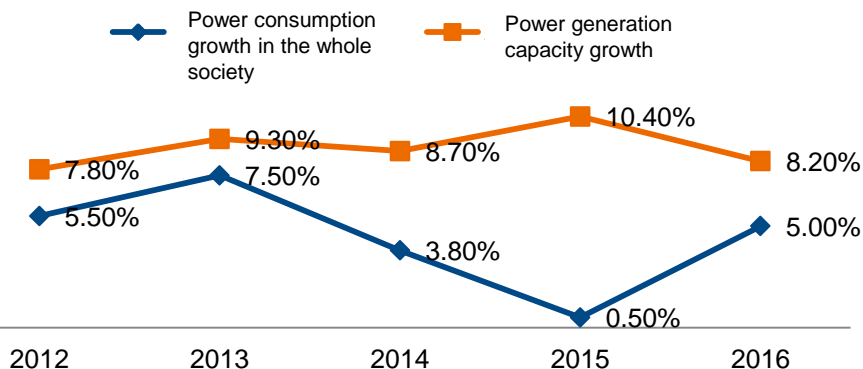


First Time the Average Capacity Factor Break Through 90% Since 2012 (3)



Note 1,2,3: According to WANO calculation rules, unit which operates less than one quarter throughout a year is not included for performance indicators calculation. For convenience of comparison, we count the performance indicators through 18 operating units (exclude Fangchenggang Unit 2) in 2016, and count the performance indicators through 14 operating units during the same period in 2015. Besides, we use the average values during the past three years as assumed 2016 indicator values due to the reason 2016 WANO Performance Indicators has not announced yet.

### Continuing ease power supply, power consumption faced with challenges





















### Actively Tackle, Expand Unplanned Power Generation










About 6,000 GWh unplanned on-grid generation throughout the year

Hongyanhe Station achieved first-ever three units full-load generation for some time during heating supply period

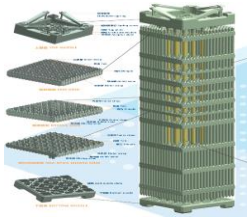
Name	Capacity Factor%		Load Factor%		Utilization Hours		Outage	
	2015	2016	2015	2016	2015	2016	2015	2016
Daya Bay Unit 1	78.83	↑ 86.58	79.65	↑ 87.48	6,979	↑ 7,685	10-year Outage	Annual Outage
Daya Bay Unit 2	98.65	↓ 87.42	99.30	↓ 88.05	8,700	↓ 7,736		Annual Outage
Ling'ao Unit 1	86.80	↑ 99.81	86.37	↑ 99.11	7,564	↑ 8,703	Annual Outage	--
Ling'ao Unit 2	93.64	↓ 88.65	91.01	↓ 83.94	7,970	↓ 7,371	Annual Outage	Annual Outage
Lingdong Unit 1	90.10	↑ 91.62	88.90	↑ 89.23	7,781	↑ 7,831	Annual Outage	Annual Outage
Lingdong Unit 2	90.29	↓ 87.84	88.69	↓ 80.72	7,762	↓ 7,084	Annual Outage	Annual Outage
Yangjiang Unit 1	79.45	↑ 81.56	78.86	↑ 79.16	6,908	↑ 6,953	First Outage	Annual Outage
Yangjiang Unit 2	99.64	↓ 77.68	99.94	↓ 77.29	8,755	↓ 6,789	--	First Outage
Yangjiang Unit 3	Under construction	91.24	Under construction	85.11	Under construction	7,476	--	--

Name	Capacity Factor%		Load Factor%		Utilization Hours		Outage	
	2015	2016	2015	2016	2015	2016	2015	2016
Fangchenggang Unit 1	Under construction	99.02	Under construction	81.21	Under construction	7,133	--	--
Fangchenggang Unit 2	Under construction	—	Under construction	84.13	Under construction	7,389	--	--
Ningde Unit 1	87.16 	98.13	85.93 	76.44	7,527 	6,714	Annual Outage	--
Ningde Unit 2	78.95 	86.38	73.72 	65.46	6,458 	5,750	First Outage	Annual Outage
Ningde Unit 3	93.24 	80.08	81.67 	68.91	7,185 	6,053	--	First Outage
Ningde Unit 4	Under construction	99.98	Under construction	92.47	Under construction	8,122	--	--
Hongyanhe Unit 1	87.75 	87.19	82.57 	66.36	7,233 	5,827	Annual Outage	Annual Outage
Hongyanhe Unit 2	65.53 	87.49	39.26 	57.56	3,439 	5,056	First Outage	Annual Outage
Hongyanhe Unit 3	100.00 	94.90	50.31 	59.90	4,407 	5,262	--	Annual Outage
Hongyanhe Unit 4	Under construction	99.98	Under construction	49.02	Under construction	1,926	--	--
<b>Average<sup>(1)</sup></b>	<b>88.14</b>	<b>90.31</b>	<b>79.31</b>	<b>77.45</b>	<b>7,085</b>	<b>6,673</b>	<b>--</b>	<b>--</b>

**Note 1:** According to WANO calculation rules, unit which operates less than one quarter throughout a year is not included for performance indicators calculation. For convenience of comparison, we count the performance indicators through 18 operating units (exclude Fangchenggang Unit 2) in 2016, and count the performance indicators through 14 operating units during the same period in 2015.

Unit	Technology	Civil Construction	Equipment Installation	Commissioning Phase	Grid-Connection	Expected Date of Commencement of Operation
<b>Subsidiaries</b>						
Yangjiang Unit 4	CPR1000			 <sup>(1)</sup>		2017H2
Yangjiang Unit 5	ACPR1000					2018H2
Yangjiang Unit 6	ACPR1000					2019H2
Taishan Unit 1	EPR					2017H2
Taishan Unit 2	EPR					2018H1
Fangchenggang Unit 3	HPR1000					2022
Fangchenggang Unit 4	HPR1000					2022
<b>Associate</b>						
Hongyanhe Unit 5	ACPR1000					2020H2
Hongyanhe Unit 6	ACPR1000					2021

**Note 1** : Yangjiang Unit 4 began commercial operation on March 15, 2017



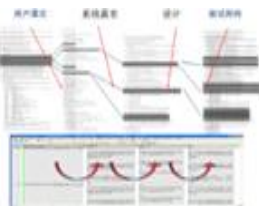
## Nuclear fuel Assembly Autonomy ( STEP-12 )

- **Break the monopoly:** Self-development, which is conducive to controlling the cost and opening new markets.
- **R&D on schedule:** In the irradiation test of commercial reactor in 2016, no anomaly on online test and damage detection was found.



## ACPR50S Small Modular Reactor (SMR)

- **Support sustainable development:** This reactor matches the market demand and enriches our product line.
- **Planning:** Listed in 13th Five-year Plan on Energy Technology Innovation.
- **Listing:** It is also listed in International SMR Entries by IAEA



## Verification and Validation System for Nuclear-grade DCS Software

- **Enhance system safety and reliability:** This system is of international advanced standard capable of not only eliminating software flaws but improving safety and reliability of digital control system of nuclear safety level.
- **Effective transformation:** Applied in DCS generic platform "FirmSys", which is the first of a kind that China owns full independent intellectual property right.



## Management

- **Diverse Background :** Our directors each have extensive experience in the power industry, financial and accounting, legal, audit and other aspects, to understand their responsibilities, powers and duties, and can perform their duties with faith, integrity and diligence.
- **Experienced in the industry:** Our executives have extensive industry experience, solid expertise and international perspective, leading the company to achieve sustained robust growth performance, continuing to create value for shareholders.



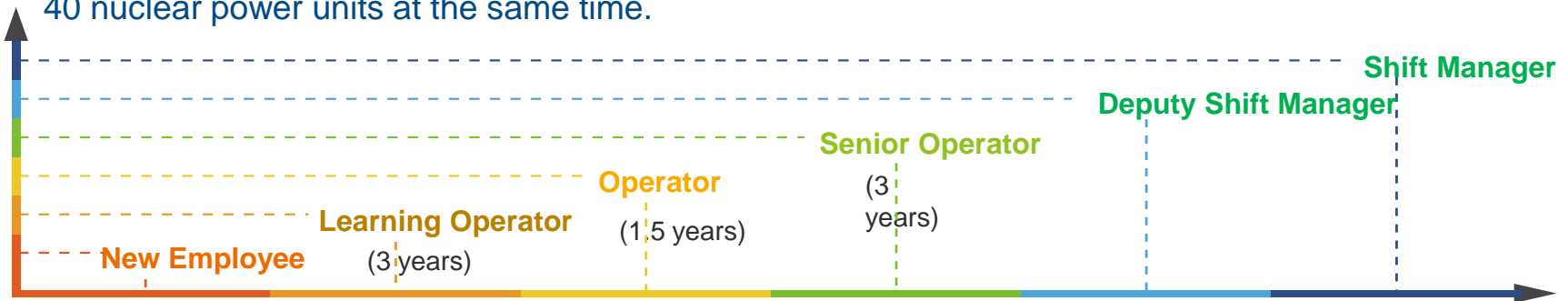
## Honor of the Company

- **Best Listed Company:** "China Finance" magazine "2016 Best Listed Company"
- **Best Secretary of the Board:** China Securities Bauhinia "Best Secretary of the Board" in 2016

## Reactor Operator Cultivation

- **Effectively improve professionalism:** As of December 31, 2016, we (including our affiliates) have 592 licensed operators, 410 senior operators.
- **Strong support for the development:** Current number of operators are sufficient to operate about 40 nuclear power units at the same time.

Knowledge and Capacity



Time ( At least 7.5 years from new employee to senior manager )

## Voluntary Information Disclosure

- **Ensuring effective communication by information disclosure platform:** With "nuclear power station nuclear and radiation safety information disclosure" platform, the company protects the public's right to access to the operation information of nuclear power stations.
- **Report to government regulator voluntarily:** Any operation events of in-service units are disclosed within 2 working days. Persisting in this principle, in 2016 the company reported all the deviations to government regulators voluntarily.



Daya Bay Information Disclosure Platform



Hongyanhe Information Disclosure Platform



Ningde Information Disclosure Platform



Yangjiang Information Disclosure Platform



Fangchenggang Information Disclosure Platform

## Sound environment monitoring system

- **Well-developed environment monitoring system:** In accordance with national regulations, our nuclear power bases have unified environment monitoring, forming a well-developed environment monitoring system.
- **Normal ambient monitoring results:** Each nuclear power station obtains normal ambient monitoring results.

## Radioactive waste management optimization

- **Emissions less than the national emission standards:** Our Radioactive waste gases and liquid waste emissions are far less than the national emission standards.
- **Amount lower than the design criteria:** Our radioactive solid waste are generated in the amount lower than the design criteria.

Data of 2016	Daya Bay <sup>(1)</sup>	Yangjiang	Ningde	Hongyanhe	Fangchenggang
Radioactive liquid waste according to national standards expressed as a ratio of (Non-gaseous radionuclides) emissions	0.170%	0.490%	0.324%	0.227%	0.090%
Radioactive waste gases expressed as a ratio of national standards (Inert gas) emissions	0.142%	0.350%	0.578%	0.176%	0.260%
Environment monitoring results	Normal	Normal	Normal	Normal	Normal

**Note 1 :** Daya Bay Base includes Daya Bay Station, Ling'ao Station and Lingdong Station.

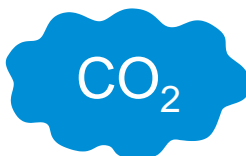
On-grid  
nuclear power in 2016:  
115,584 GWh



=



Reduction of standard coal consumption  
of around 37.20 million tons



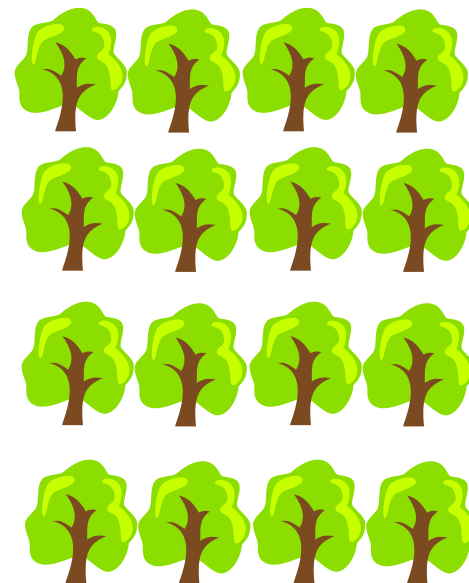
Reduction of carbon dioxide Emission  
of around 90.00million tons



Reduction of sulfur dioxide emission  
of around 0.88million tons



Reduction of nitrogen oxides  
emission of around 0.57 million tons



Reduction effect of emissions=  
250,000 hectares of forest  
covering almost the whole  
Shenzhen

# Part III

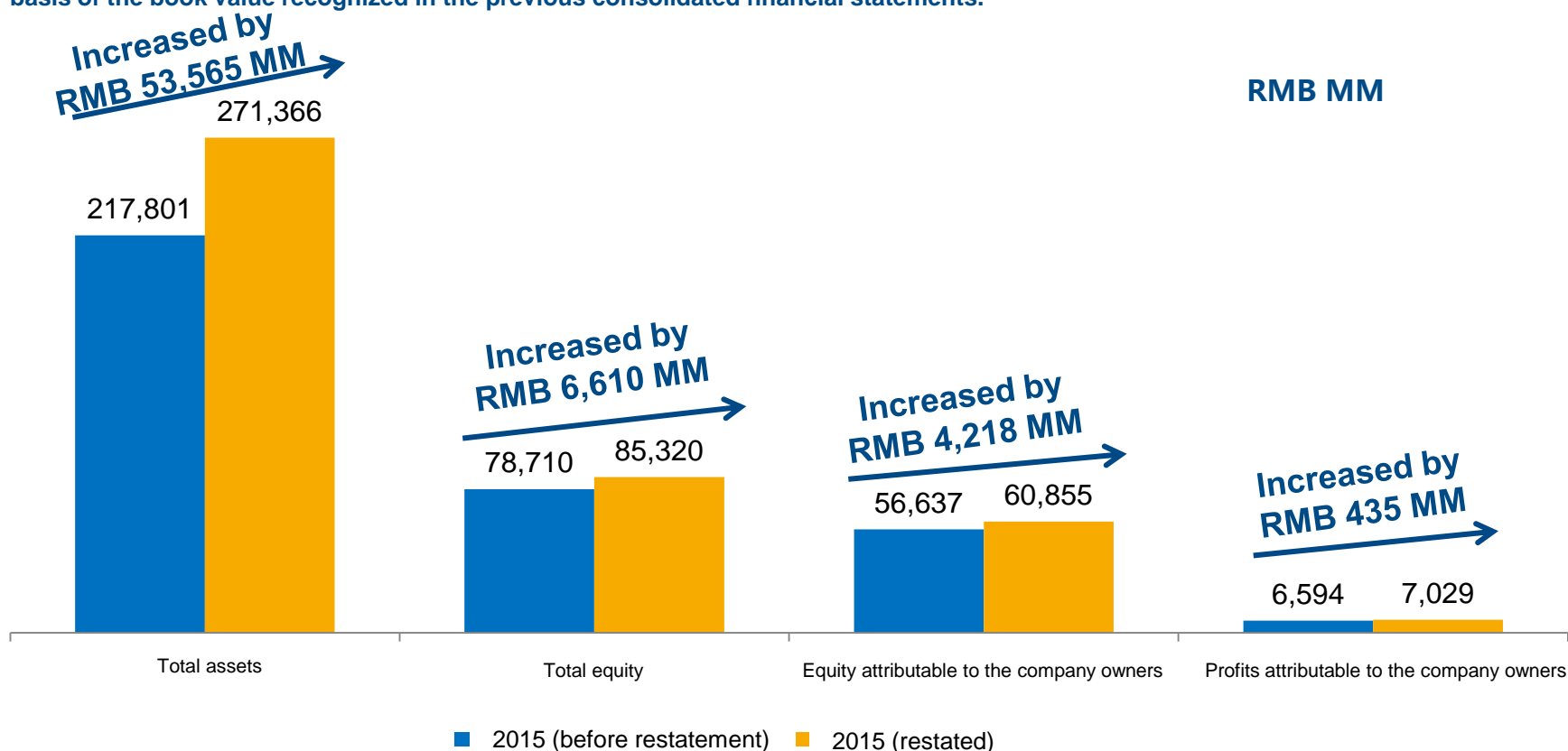
## Financial Performance



The financial data for 2015 in the consolidated financial statements of the Group has been restated. Except for where specially noted, the 2015 financials all refer to the restated data. The Company has completed the acquisition of 61% of Fangchenggang Nuclear, 100% of Lufeng Nuclear and 100% of CGN Engineering, which were held by China General Nuclear Power Corporation (CGN), the Company's ultimate holding company, in 2016.

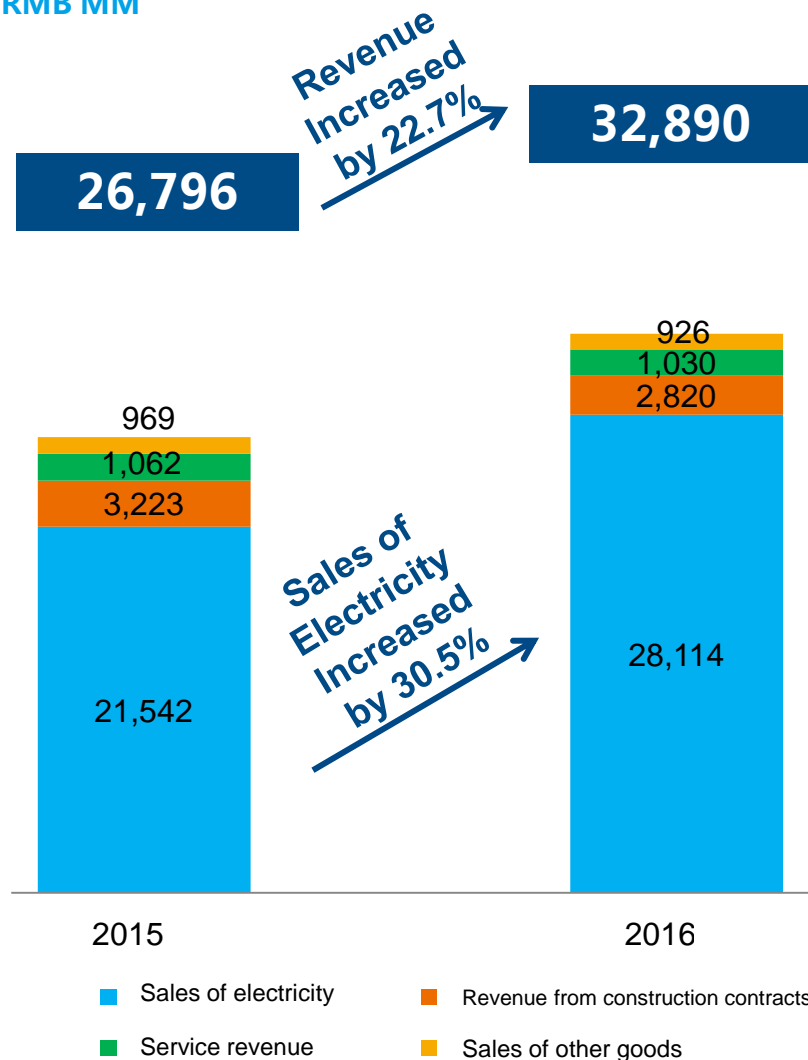
As the Company, Fangchenggang Nuclear, Lufeng Nuclear and CGN Engineering were all controlled by CGN, the above-mentioned acquisition has been recorded as a business combination under common control.

The assets as well as liabilities of Fangchenggang Nuclear, Lufeng Nuclear and the engineering company have been confirmed on the basis of the book value recognized in the previous consolidated financial statements.

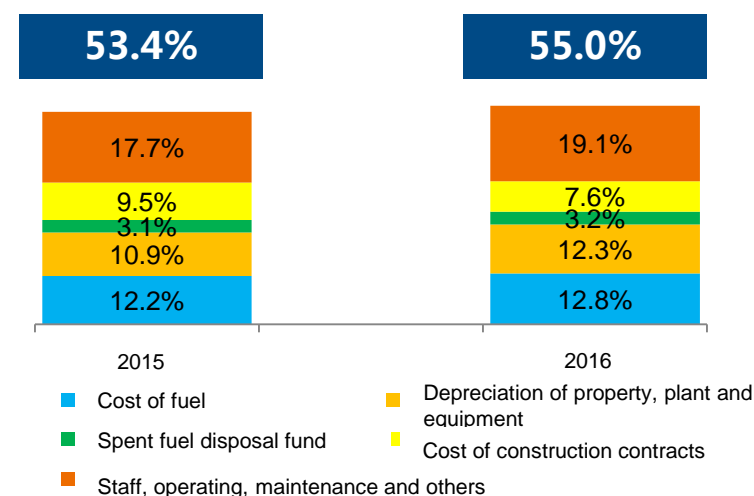


## Revenue and revenue in sales of electricity <sup>(1)</sup>

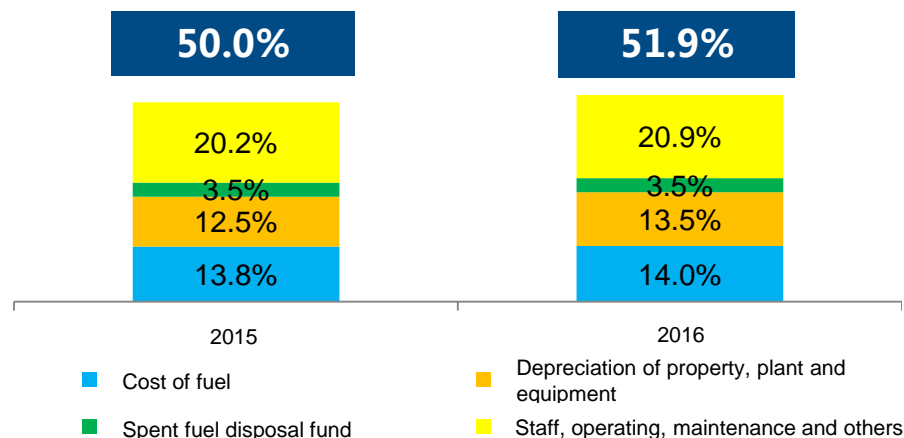
RMB MM



## The Operating Cost as % of Revenue



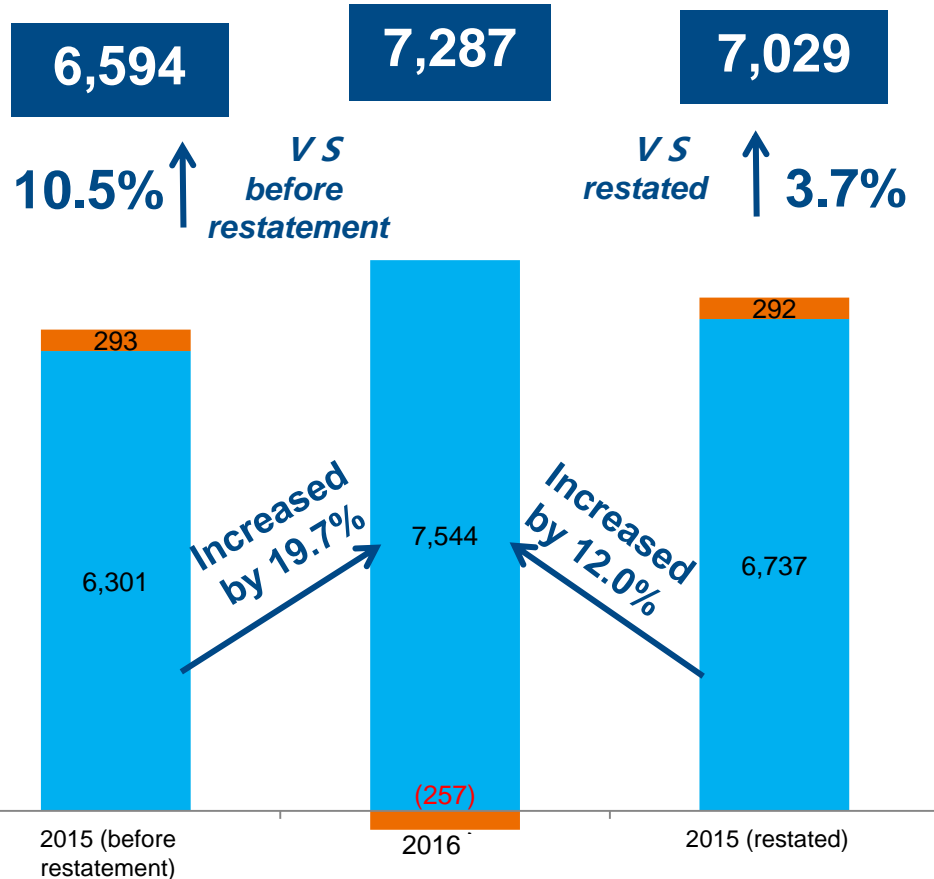
## The Operating Cost as % of Revenue (not including construction and design business)



**Note 1 :** Hongyanhe Nuclear and Ningde Nuclear are not included in the consolidated financial statements, therefore the income from Hongyanhe Unit 1, Unit 2, Unit 3 and Unit 4 as well as Ningde Unit 1, Unit 2, Unit 3 and Unit 4 are not included into the Company's revenue.

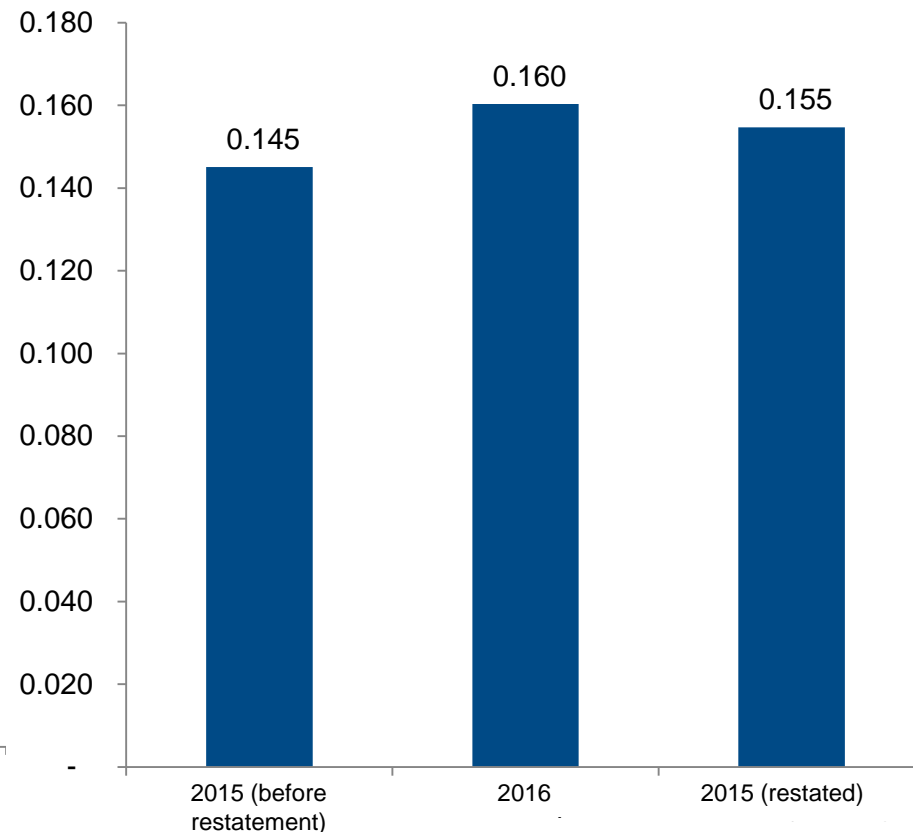
## Profits attributable to the Company owners

RMB MM



## Earnings per share attributable to the Company owners

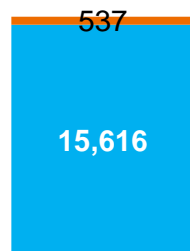
RMB



## EBITDA<sup>(1)</sup>

RMB MM

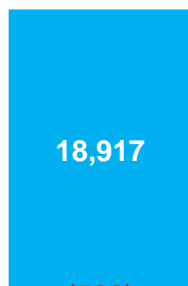
16,153



2015

EBITDA after deducting the gains (losses) on exchange

18,388

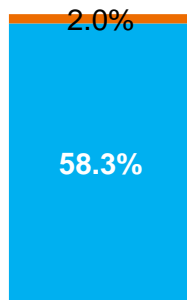


2016

Gains (losses) on exchange

## EBITDA%<sup>(2)</sup>

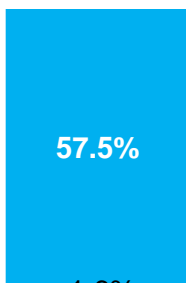
60.3%



2015

EBITDA after deducting the gains (losses) on exchange

55.9%



2016

Gains (losses) on exchange

## Returns on equity attributable to the Company owners <sup>(3)</sup> and return on total asset <sup>(4)</sup>

Return on equity attributable to the Company owners



Return on total asset



2015

Return on equity attributable to the Company owners

2016

Return on total asset

**Note 1:** EBITDA = Profit before tax + Finance cost + Depreciation and amortization

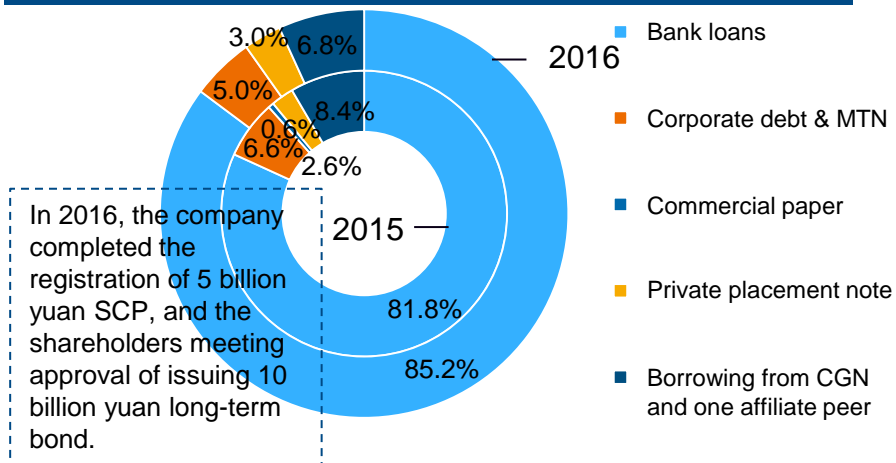
**Note 2:** EBITDA profitability = EBITDA/Income \* 100%

**Note 3:** Returns on equity attributable to the Company owners = Annual profits attributable to the Company owners / Average equity interest attributable to the Company owners (arithmetic mean of the opening and ending number) \* 100%  
**Note 4:** Total return on asset = ( Profit before tax + Finance cost ) / Total average working capital and non-working capital (arithmetic mean of the opening and ending number) \* 100%

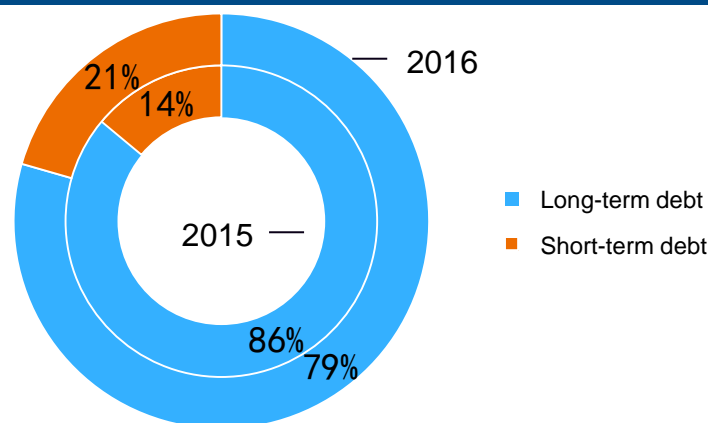


The company follows the principles of considering both cost and security, pursues competitive financing costs, but does not put the lowest financing cost as the sole goal, so as not to damage the financing security.

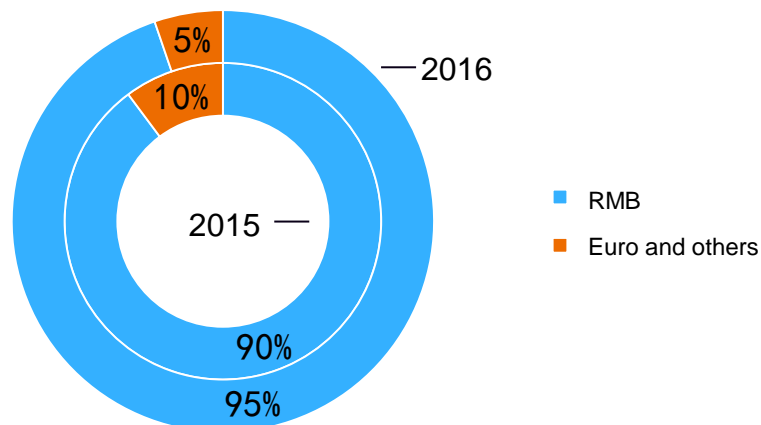
### Adapt to the needs of funds, continue to broaden the financing channels



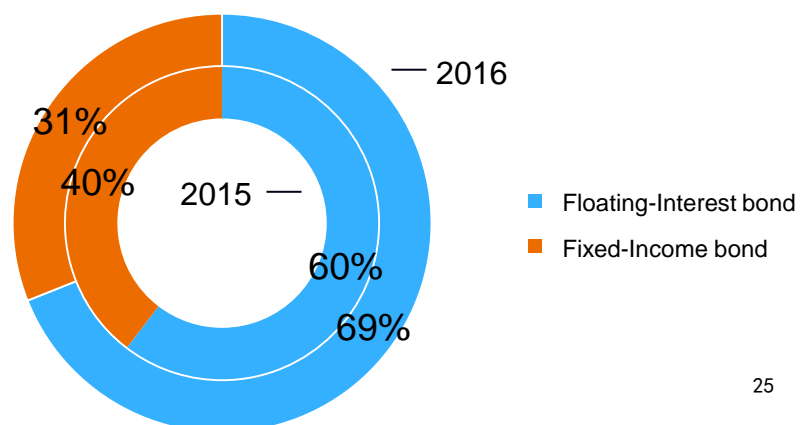
### Maintain long-term debt and reduce the risk of refinancing



### Reduce foreign currency debt as well as the risk of exchange rate fluctuations

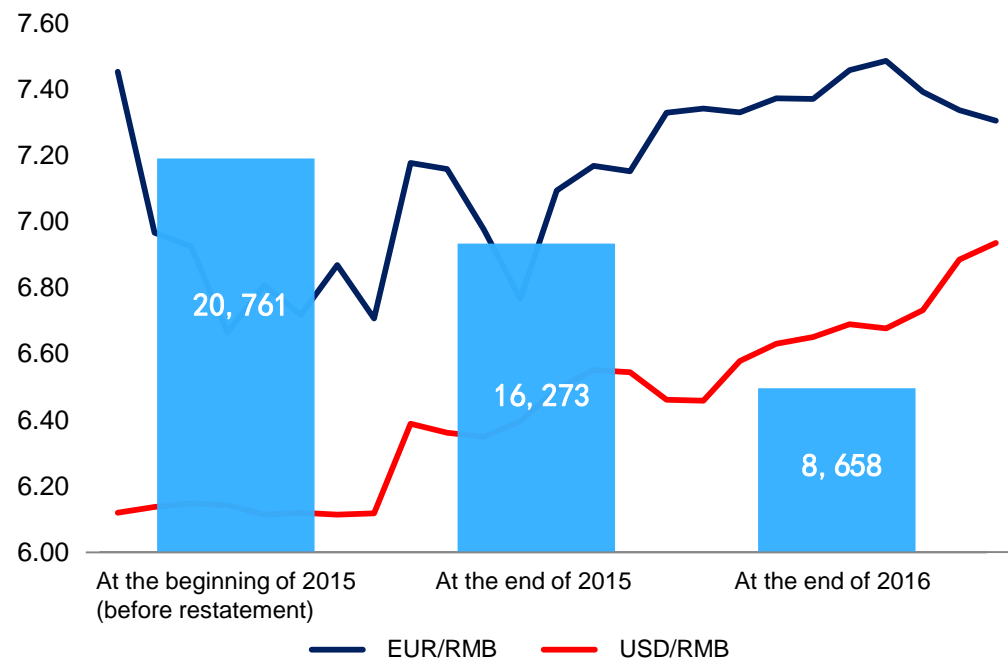


### Make Appropriate reorganizations to optimize the balance of floating-interest bond and fixed-income bond



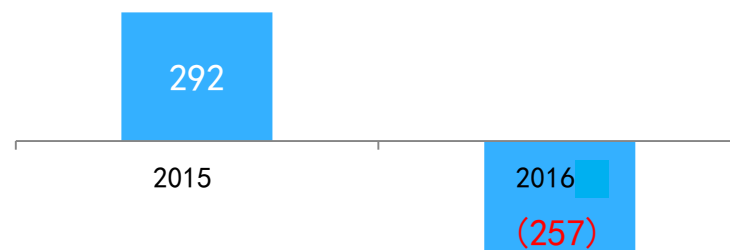
## Balance of Foreign Currency Bank Loans and Other Borrowings

RMB MM (Equivalent)



## Gains (Losses) on Exchange equity attributable to the Company owners

RMB MM



In 2016, in the face of a complex financial market environment, the Company continued to take effective actions to reduce the exchange rate exposure of foreign currency debt (mainly US dollar and Euro debt) and its impact.

In 2016, as the Euro, the US dollar against the RMB sharply appreciated (in the same period last year, the Euro against the RMB depreciated, and the US dollar against the RMB appreciated less than 2016), the Company reduced the impact of exchange losses as much as possible.

## Debt / Equity Ratio <sup>(1)</sup> & Interest Coverage Ratio <sup>(2)</sup>

## Capital Expenditure

RMB MM

### Debt / Equity Ratio



### Interest Coverage Ratio

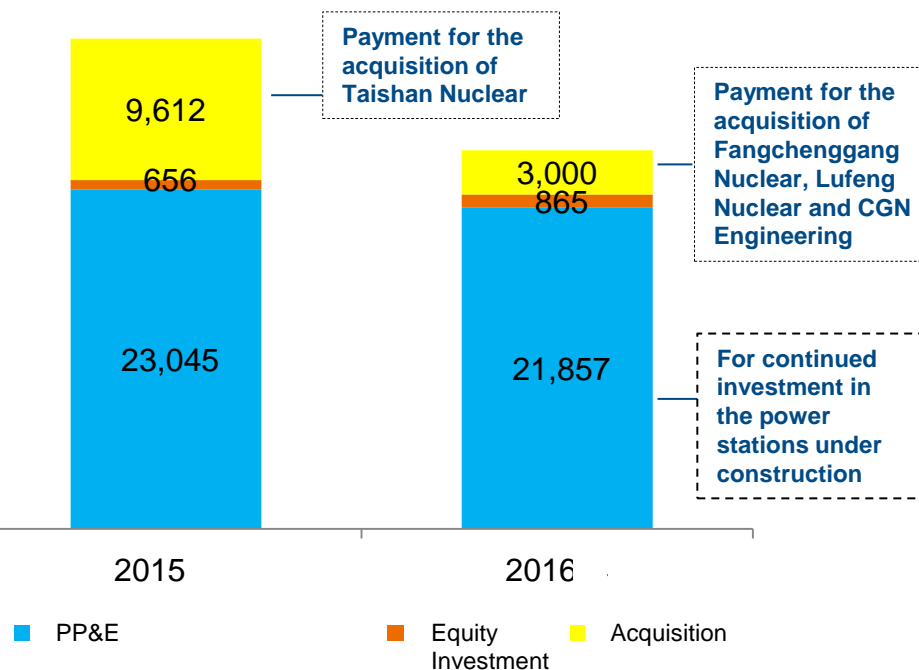


2015

2016

33,313

25,722



**Note 1:** Debt / equity ratio = Net debt (i.e., bank loans and other borrowings minus cash and cash equivalents and other bank deposits with maturity of more than 3 months) / Total equity\*100%

**Note 2:** Interest coverage ratio = (EBT + Finance expense) / (Finance expense + Capitalized interest).

# Part IV Q&A





中國廣核電力股份有限公司  
CGN Power Co., Ltd.

一次把事情做好

Thanks!

