

HUANENG POWER INTERNATIONAL INC
Form 20-F
April 17, 2017
HUANENG POWER INTERNATIONAL, INC.

Annual Report On Form 20-F
2016

As filed with the Securities and Exchange Commission on April 17, 2017

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F

(Mark One)

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED DECEMBER 31, 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report

For the transaction period from _____ to _____

Commission file number: 1-13314

HUANENG POWER INTERNATIONAL, INC.

(Exact name of Registrant as specified in its charter)

PEOPLE'S REPUBLIC OF CHINA

(Jurisdiction of incorporation or organization)

HUANENG BUILDING

6 FUXINGMENNEI STREET, XICHENG DISTRICT, BEIJING, PEOPLE'S REPUBLIC OF CHINA

(Address of principal executive offices)

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(Name, Telephone, Email and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of Each Class	Name of each exchange on which registered
American Depositary Shares Each Representing 40 Overseas Listed Shares	New York Stock Exchange
Overseas Listed Shares with Par Value of RMB1.00 Per Share	New York Stock Exchange*

Securities registered or to be registered pursuant to Section 12(g) of the Act.

NONE

(Title of Class)

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

NONE

(Title of Class)

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

Domestic A Shares with Par Value of RMB1.00 Per Share 10,500,000,000

Overseas Listed Shares with Par Value of RMB1.00 Per Share 4,700,383,440

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes No

Note - Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer Non-accelerated filer

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Yes No

* Not for trading, but only in connection with the registration of American Depositary Shares

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INTRODUCTION

We maintain our accounts in Renminbi Yuan ("Renminbi" or "RMB"), the lawful currency of the People's Republic of China (the "PRC" or "China"). References herein to "US\$" or "U.S. dollars" are to United States Dollars, references to "HK\$" are to Hong Kong Dollars, and references to "S\$" are to Singapore Dollars. References to ADRs and ADSs are to American Depositary Receipts and American Depositary Shares, respectively. Translations of amounts from Renminbi to U.S. Dollars are solely for the convenience of the reader. Unless otherwise indicated, any translations from Renminbi to U.S. Dollars or from U.S. Dollars to Renminbi were translated at the average rate announced by the People's Bank of China (the "PBOC Rate") on December 31, 2016 of US\$1.00 to RMB6.9370. No representation is made that the Renminbi or U.S. Dollar amounts referred to herein could have been or could be converted into U.S. Dollars or Renminbi, as the case may be, at the PBOC Rate or at all.

References to "A Shares" are to common tradable shares issued to domestic shareholders.

References to the "central government" refer to the national government of the PRC and its various ministries, agencies and commissions.

References to the "Company", "we", "our" and "us" include, unless the context requires otherwise, Huaneng Power International, Inc. and the operations of our power plants and our construction projects.

References to "HIPDC" are to Huaneng International Power Development Corporation and, unless the context requires otherwise, include the operations of the Company prior to the formation of the Company on June 30, 1994.

References to "Huaneng Group" are to China Huaneng Group.

References to "local governments" in the PRC are to governments at all administrative levels below the central government, including provincial governments, governments of municipalities directly under the central government, municipal and city governments, county governments and township governments.

References to "our power plants" are to the power plants that are wholly owned by the Company or to the power plants in which the Company owns majority equity interests.

References to the "PRC Government" include the central government and local governments.

References to "provinces" include provinces, autonomous regions and municipalities directly under the central government.

References to "Singapore" are to the Republic of Singapore.

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References to the "State Plan" refer to the plans devised and implemented by the PRC Government in relation to the economic and social development of the PRC.

References to "tons" are to metric tons.

Previously, the Overseas Listed Foreign Shares were also referred to as the "Class N Ordinary Shares" or "N Shares". Since January 21, 1998, the date on which the Overseas Listed Foreign Shares were listed on The Stock Exchange of Hong Kong Limited by way of introduction, the Overseas Listed Foreign Shares have been also referred to as "H Shares".

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GLOSSARY

actual generation	The total amount of electricity generated by a power plant over a given period of time.
auxiliary power	Electricity consumed by a power plant in the course of generation.
availability factor	For any period, the ratio (expressed as a percentage) of a power plant's available hours to the total number of hours in such period.
available hours	For a power plant for any period, the total number of hours in such period less the total number of hours attributable to scheduled maintenance and planned overhauls as well as to forced outages, adjusted for partial capacity outage hours.
capacity factor	The ratio (expressed as a percentage) of the gross amount of electricity generated by a power plant in a given period to the product of (i) the number of hours in the given period multiplied by (ii) the power plant's installed capacity.
demand	For an integrated power system, the amount of power demanded by consumers of energy at any point in time.
dispatch	The schedule of production for all the generating units on a power system, generally varying from moment to moment to match production with power requirements. As a verb, to dispatch a plant means to direct the plant to operate.
GW	Gigawatt. One million kilowatts.
GWh	Gigawatt-hour. One million kilowatt-hours. GWh is typically used as a measure for the annual energy production of large power plants.
installed capacity	The manufacturers' rated power output of a generating unit or a power plant, usually denominated in MW.
kV	Kilovolt. One thousand volts.
kW	Kilowatt. One thousand watts.
kWh	Kilowatt-hour. The standard unit of energy used in the electric power industry. One kilowatt-hour is the amount of energy that would be produced by a generator producing one thousand watts for one hour.
MVA	Million volt-amperes. A unit of measure used to express the capacity of electrical transmission equipment such as transformers.
MW	Megawatt. One million watts. The installed capacity of power plants is generally expressed in MW.
MWh	Megawatt-hour. One thousand kilowatt-hours.
peak load	The maximum demand on a power plant or power system during a specific period of time.

planned generation	An annually determined target gross generation level for each of our operating power plants used as the basis for determining planned output.
total output	The actual amount of electricity sold by a power plant in a particular year, which equals total generation less auxiliary power.
transmission losses	Electric energy that is lost in transmission lines and therefore is unavailable for use.

PART I

ITEM 1 Identity of Directors, Senior Management and Advisers

Not applicable.

ITEM 2 Offer Statistics and Expected Timetable

Not applicable.

ITEM 3 Key Information

A. Selected financial data

Our consolidated data of financial position as of December 31, 2016 and 2015 and the consolidated income statement and cash flow data for each of the years in the three-year period ended December 31, 2016 are derived from the historical financial statements included herein. Our consolidated data of financial position as of December 31, 2014, 2013 and 2012 and consolidated income statement and cash flow data for each of the years in the two-year period ended December 31, 2013, are derived from the historical financial statements not included herein. The Selected Financial Data should be read in conjunction with the consolidated financial statements and "Item 5 Operating and Financial Reviews and Prospects". The financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. The Selected Financial Data may not be indicative of future earnings, cash flows or financial position.

	Year Ended December 31,				
	2012	2013	2014	2015	2016
RMB in thousands except per share data	(RMB)	(RMB)	(RMB)	(RMB)	(RMB)
Consolidated Income Statement Data					
Operating revenue	133,966,659	133,832,875	125,406,855	128,904,873	113,814,236
Tax and levies on operations	(672,040)	(1,043,855)	(932,485)	(1,157,760)	(1,177,818)
Operating expenses	(116,337,679)	(108,677,981)	(99,199,728)	(98,604,187)	(94,258,678)
Profit from operations	16,956,940	24,111,039	25,274,642	29,142,926	18,377,740
Interest income	175,402	170,723	159,550	160,723	147,063
Financial expenses, net	(9,063,875)	(7,693,363)	(7,823,606)	(7,970,070)	(7,067,602)
Other investment income	187,131	224,908	80,580	115,238	1,070,034
(Loss)/Gain on fair value changes of financial assets/liabilities	(1,171)	(5,701)	42,538	(16,742)	(12,986)
Share of profits less losses of associates and joint ventures	622,358	615,083	1,315,876	1,525,975	1,298,889
Profit before income tax expense	8,876,785	17,422,689	19,049,580	22,958,050	13,813,138
Income tax expense	(2,510,370)	(4,522,671)	(5,487,208)	(5,698,943)	(3,465,151)
Net profit	6,366,415	12,900,018	13,562,372	17,259,107	10,347,987
Attributable to:					
Equity holders of the Company	5,512,454	10,426,024	10,757,317	13,651,933	8,520,427
Non-controlling interests	853,961	2,473,994	2,805,055	3,607,174	1,827,560
Basic earnings per share	0.39	0.74	0.76	0.94	0.56
Diluted earnings per share	0.39	0.74	0.76	0.94	0.56

	As of December 31,				
	2012 (RMB)	2013 (RMB)	2014 (RMB)	2015 (RMB)	2016 (RMB)
RMB in thousands					
Consolidated Financial Position Data					
Current assets	36,086,261	34,186,911	37,865,284	33,565,403	36,966,616
Property, plant and equipment	177,013,627	181,415,181	188,379,057	219,673,070	223,061,809
Available-for-sale financial assets	3,052,822	3,111,164	4,333,377	5,077,863	3,406,032
Investments in associates and joint ventures	14,596,771	16,678,694	17,626,910	19,745,192	19,632,113
Land use rights and other non-current assets	9,316,455	9,593,252	10,636,352	14,384,078	14,524,284
Power generation license	4,084,506	3,837,169	3,720,959	3,679,175	3,849,199
Deferred income tax assets	532,387	652,358	884,274	1,064,391	1,263,957
Goodwill	14,417,543	12,758,031	11,725,555	11,677,182	12,135,729
Total assets	259,100,372	262,232,760	275,171,768	308,866,354	314,839,739
Current liabilities	(93,594,320)	(98,978,845)	(104,846,121)	(123,836,633)	(130,196,251)
Non-current liabilities	(99,545,710)	(88,060,941)	(85,542,941)	(83,336,032)	(82,456,751)
Total liabilities	(193,140,030)	(187,039,786)	(190,389,062)	(207,172,665)	(212,653,002)
Total equity	65,960,342	75,192,974	84,782,706	101,693,689	102,186,737

	Year Ended December 31,				
	2012 (RMB)	2013 (RMB)	2014 (RMB)	2015 (RMB)	2016 (RMB)
RMB in thousands except per share data					
Consolidated Cash Flow Data					
Purchase of property, plant and equipment	(15,474,614)	(17,691,382)	(19,858,216)	(24,191,285)	(20,144,903)
Net cash provided by operating activities	26,928,082	40,239,429	33,320,067	42,362,708	31,510,824
Net cash used in investing activities	(15,309,604)	(19,054,250)	(19,470,813)	(33,015,012)	(17,649,646)
Net cash used in financing activities	(9,816,900)	(22,240,088)	(10,894,180)	(14,140,659)	(13,601,850)

Other Company Data

Dividend declared per share	0.21	0.38	0.38	0.47	0.29
Number of ordinary shares ('000)	14,055,383	14,055,383	14,420,383	15,200,383	15,200,383

B. Capitalization and indebtedness

Not applicable.

C. Reasons for the offer and use of proceeds

Not applicable.

D. Risk factors

Risks relating to our business and the PRC's power industry

Government regulation of on-grid power tariffs and other aspects of the power industry may adversely affect our business

Similar to electric power companies in other countries, we are subject to governmental and electric grid regulations in virtually all aspects of our operations, including the amount and timing of electricity generations, the setting of on-grid tariffs, the performance of scheduled maintenance, and the compliance with power grid control and dispatch directives as well as environment protection regulations. There can be no assurance that these regulations will not change in the future in a manner which could adversely affect our business.

The on-grid tariffs for our planned output are subject to a review and approval process involving the NDRC and the relevant provincial government. Since April 2001, the PRC Government has been implementing an on-grid tariff-setting mechanism based on the operating terms of power plants as well as the average costs of comparable power plants. Pursuant to the NDRC circular issued in June 2004, the on-grid tariffs for our newly built power generating units commencing operation from June 2004 have been set on the basis of the average cost of comparable units adding tax and reasonable return in the regional grid. Any future reductions in our tariffs, or our inability to raise tariffs (for example, to cover any increased costs we may have to incur) as a result of the new on-grid tariff-setting mechanism, may adversely affect our revenue and profits.

In addition, the PRC Government started a program in 1999 to effect power sales through competitive bidding in some of the provinces where we operate our power plants. The on-grid tariffs for power sold through competitive bidding are generally lower than the pre-approved on-grid tariffs for planned output. In the more recent few years, power sales through competitive bidding only accounted for a small portion of our overall power sales. Nevertheless, the PRC Government is seeking to expand the program. Any increased power sales through competitive bidding may reduce our on-grid tariffs and may adversely affect our revenue and profits.

Furthermore, the PRC Government started in 2009 to promote the practice of direct power purchase by large power end-users. Pursuant to the circular jointly issued by NDRC, the State Electricity Regulatory Commission ("SERC") and China National Energy Administration in June 2009, the direct transaction price shall be freely determined through negotiation between the power generation company and the large power end-user. The price of direct power purchase shall be subject to the supply and demand in the power market. Furthermore, the scale and mode of the transaction are also subject to the structure and level of development of local economy. In terms of power generation companies engaged in direct power purchase, direct power sales constitute a portion of the total power sales and the on-grid power tariffs for this portion are generally lower than the benchmark tariff of each region, thus affecting the on-grid power sales of the Company. For the past few years, the PRC Government continued the reform in the area of direct power purchase by large power end-users. In 2013, China National Energy Administration officially launched the direct power purchase program in seven provinces where we have power plants and the program has been steadily rolled out in other provinces. Although the direct power purchase may act as an alternative channel for our power sales, there is uncertainty as to the effect of the practice of direct power purchase over our operating results.

The on-grid tariff-setting mechanism is evolving with the reforming of the PRC electric power industry. The PRC government announced a number of development and reform plans for the power market in 2016, covering areas including laws and regulations, power transmission and distribution prices and supply side dynamics. There is no assurance that it will not change in a manner which could adversely affect our business and results of operations. See "Item 4 Information of the Company – B. Business Overview – Pricing Policy".

If our power plants receive less dispatching than planned generation, the power plants will sell less electricity than planned

Our profitability depends, in part, upon each of our power plants generating electricity to meet the planned generation, which in turn will be subject to local demand for electric power and dispatching to the grids by the dispatch centers of the local grid companies.

The dispatch of electric power generated by a power plant is controlled by the dispatch center of the applicable grid companies pursuant to a dispatch agreement with us and to governmental dispatch regulations. In each of the markets we operate, we compete against other power plants for power sales. No assurance can be given that the dispatch centers will dispatch the full amount of the planned generation of our power plants. A reduction by the dispatch center in the amount of electric power dispatched relative to a power plant's planned generation could

have an adverse effect on the profitability of our operations. However, we have not encountered any such event in the past.

In August 2007, the General Office of the State Council issued a notice, promoting the energy saving electricity dispatch policy, which provides dispatching priority to electricity generated from renewable resources over electricity generated from unrenewable resources. For past years, the government made continuous effort to improve energy saving, emission reduction and resources allocation. In 2015, the NDRC and China National Energy Administration jointly issued Guidelines on Improving Electric Power Operations and Deepening Clean Energy Generation confirming a system ensuring the full-priced purchasing of renewable energy, and requests furthering the electric power differentiation system on coal-fired units. In 2016, the NDRC and China National Energy Administration issued three official documents, namely Notice on Issuing the Measures for the Administration of the Guaranteed Buyout of Electricity Generated by Renewable Energy Resources, Directive on the Measures for the Administration of the Guaranteed Buyout of Electricity Generated by Solar and Wind Energy Resources and Provisionary Measures for Priority Dispatch of Renewable Peaking Power Generation Units, to further develop the system ensuring the full-priced purchasing of renewable energy and to encourage renewable energy producers to join the market for peaking power supplies. We cannot assure that such implementation will not result in any decrease in the amount of the power dispatched by any of our power plants.

The power industry reform may affect our business

The PRC Government in 2002 announced and started to implement measures to further reform the power industry, with the ultimate goal of creating a more open and fair power market. As part of the reform, five power generation companies, including Huaneng Group, were created or restructured to take over all the power generation assets originally belonging to the State Power Corporation of China. In addition, two grid companies were created to take over the power transmission and distribution assets originally belonging to the State Power Corporation of China. An independent power supervisory commission, the SERC, was created to regulate the power industry. There might be further reforms, and it is uncertain how these reform measures and any further reforms will be implemented and impact our business.

In December 2012, the PRC Government issued a notice to further reform the coal pricing mechanism, which mandated (1) the termination of all key coal purchase contracts between power generation companies and coal suppliers, and the abolition of national guidance of the railway transportation capacity plan, and (2) the cancellation of the dual-track coal pricing system, effective from January 1, 2013. For a detailed discussion of the reform, see "Item 4 Information on the Company – B. Business overview – Pricing policy". There can be no assurance that such coal pricing reform will not adversely affect our results of operation. In 2013, the PRC Government continued the reform in power industry. In July 2013, China National Energy Administration issued the Notice on Direct Purchases between Power End-users and Power Generation Companies, which officially implemented the direct purchases programs by large end-users.

On March 15, 2015, the Opinions of CPC Central Committee and State Council Regarding Further Deepening Reform of the Electricity System was released, according to which the reform will be focused and directed to orderly liberalize the tariff of the competitive markets other than electricity transmission and distribution, gradually allow investment from private investors in power distribution and selling businesses, consistently open the power generation market other than those for non-profit purpose or under regulation, push for independent and regulated operation of the parties involved in electricity transactions, continue the study of regional power grid construction and the transmission and distribution system suitable for China, further strengthen government regulations for enhanced power coordination and planning, and further improve safe and efficient operation of electricity and reliable power supply. These reforms will have a profound impact on the business models of power generation enterprises and may intensify the competition which may adversely affect our business.

In November 2015, the NDRC and China Energy Administration issued six official documents regarding electricity system reform, namely Opinions on Deepening Electricity Price Reform, Opinions on Furthering Electricity Market Development, Opinions on Establishing and Institutionalizing Electricity Purchasing Organizations, Opinions on Orderly Open Up Electricity Generation and Consumption, Opinions on Deepening Electricity Sales Reform and Guidelines on Fortifying and Institutionalizing the Management of Coal-fired Power Plants, further confirming the direction of the newest round of reforms of the electricity system.

In 2016, the PRC Government implemented various measures to further reform the power industry on many fronts, including (i) seeking public comments on the proposed amendment to the electric power law of the People's Republic of China, (ii) implementing structural reform pilot programs in nineteen provinces; (iii) establishing national electricity exchanges in Beijing and Guangzhou, (iii) setting up independent third party credit rating system for market players, (iv) promulgating rules governing the price and method of direct power purchase/competitive bidding programs as well as the market entrance and exit mechanism, and (v) furthering reform on the pricing mechanism for power transmission and distribution prices. These reform actions will have profound impact on the operations of power generation companies and may intensify competition, which may negatively impact our company.

We are effectively controlled by Huaneng Group and HIPDC, whose interests may differ from those of our other shareholders

Huaneng Group, directly or indirectly holds 13.83% of our total outstanding shares, and HIPDC directly holds 33.33% of our total outstanding shares. As Huaneng Group is HIPDC's parent company, they may exert effective control over us acting in concert. Their interests may sometimes conflict with those of our other minority shareholders. There is no assurance that Huaneng Group and HIPDC will always vote their shares, or direct the directors nominated by them to act in a way that will benefit our other minority shareholders.

Disruption in coal supply and its transportation as well as increase in coal price may adversely affect the normal operation of our power plants

A substantial majority of our power plants are fueled by coal. The coal supply for our power plants is arranged through free negotiation between power companies, coal suppliers, and railway authorities. Thus, any material disruption in coal supply and its transportation may adversely affect our operations. To date, we have not experienced shutdowns or reduced electricity generation caused by inadequate coal supply or transportation services.

In addition, our results of operations are sensitive to the fluctuation of coal price. For the past few years, the Chinese coal market was showing a surplus in production, resulting in a significantly decreased coal price. However, the policies of reducing overcapacity of the Chinese coal producers implemented in early 2016 led to a supply shortage with surging coal prices in the Chinese coal market. There is no assurance that this increase in coal prices will not continue in the future, and if the price increase does continue, there is no assurance that we will be able to adjust our power tariff to pass on the increase in the coal price in time. Although the government has established a coal-electricity price linkage mechanism to allow power generation companies to increase their power tariffs to cope with the increase in the coal price, the implementation of the mechanism involves uncertainties. For a detailed discussion of the coal-electricity price linkage mechanism, see "Item 4 Information on the Company – B. Business overview – Pricing policy".

Power plant development, acquisition and construction are a complex and time-consuming process, the delay of which may negatively affect the implementation of our growth strategy

We develop, construct, manage and operate large power plants. Our success depends upon our ability to secure all required PRC Government approvals, power sales and dispatch agreements, construction contracts, fuel supply and transportation and electricity transmission arrangements. Delay or failure to secure any of these could increase cost or delay or prevent commercial operation of the affected power plant. Although each of our power plants in operation and the power plants under construction received all required PRC Government approvals in a timely fashion, no assurances can be given that all the future projects will receive approvals in a timely fashion or at all. In addition, due to national policies and related regulations promoting environment-friendly energy and the restrictions on coal fired projects, the approval requirements and procedures for coal fired power plant are becoming increasingly stringent, which may negatively affect the approval process of our new projects of this kind.

We have generally acted as, and intend to continue to act as, the general contractor for the construction of our power plants. As with any major infrastructure construction effort, the construction of a power plant involves many risks, including shortages of equipment, material and labor, labor disturbances, accidents, inclement weather, unforeseen engineering, environmental, geological, delays and other problems and unanticipated cost increases, any of which could give rise to delays or cost overruns. Construction delays may result in loss of revenues. Failure to

complete construction according to specifications may result in liabilities, decrease power plant efficiency, increase operating costs and reduce earnings. Although the construction of each of our power plants was completed on or ahead of schedule and within its budget, no assurance can be given that construction of future projects will be completed on schedule or within budget.

In addition, from time to time, we may acquire existing power plants from HIPDC, Huaneng Group or other parties. The timing and the likelihood of the consummation of any such acquisitions will depend, among other things, on our ability to obtain financing and relevant PRC Government approvals and to negotiate relevant agreements for terms acceptable to us.

Substantial capital is required for investing in or acquiring new power plants and failure to obtain capital on reasonable commercial terms will increase our finance cost and cause delay in our expansion plans

An important component of our growth strategy is to develop new power plants and acquire operating power plants and related development rights from HIPDC, Huaneng Group or other companies on commercially reasonable terms. Our ability to arrange financing and the cost of such financing depend on numerous factors, including general economic and capital market conditions, credit availability from banks or other lenders, investor confidence in us and the continued success of our power plants. Although we have not been materially affected by inflation in the past, there is no assurance that we would not be affected in the future. In 2015, the PBOC repeatedly cut down money market rate and reserve ratio to stabilize China's money supply. The PBOC continued to implement a prudent monetary policy, with moderate and timely adjustments in 2016, which helped the Company to manage its financing costs. We expect that that the prudent monetary policy to continue. The interest bearing debts of the Company are mostly denominated in Renminbi, changes in benchmark lending interest rate published by the PBOC will have a direct impact on the Company's cost of debt. In the Singaporean capital market, the SOR interest rate will continue to rise as a result of increase in the interest rates for U.S. dollar denominated loan as well as depreciation of Singapore dollar, which will likely increase the financing costs of Tuas Power. The change of the benchmark lending interest rates published by the PBOC will have direct impact on the borrowing costs of the Company. As a result, we may not be able to carry out our expansion plans due to the failure to obtain financing or increased financing costs.

Furthermore, although we have historically been able to obtain financing on terms acceptable to us, there can be no assurance that financing for future power plant developments and acquisitions will be available on terms acceptable to us or, in the event of an equity offering, that such offering will not result in substantial dilution to existing shareholders.

Operation of power plants involves many risks and we may not have enough insurance to cover the economic losses if any of our power plants' ordinary operation is interrupted

The operation of power plants involves many risks and hazards, including breakdown, failure or substandard performance of equipment, improper installation or operation of equipment, labor disturbances, natural disasters, environmental hazards and industrial accidents. The occurrence of material operational problems, including but not limited to the above events, may adversely affect the profitability of a power plant.

Our power plants in the PRC currently maintain insurance coverage that is typical in the electric power industry in the PRC and in amounts that we believe to be adequate. Such insurance, however, may not provide adequate coverage in certain circumstances. In particular, in accordance with industry practice in the PRC, our power plants in the PRC do not generally maintain business interruption insurance, or any third party liability insurance other than that included in construction all-risks insurance or erection all-risks insurance to cover claims in respect of bodily injury or property or environment damage arising from accidents on our property or relating to our operation. Although each of our power plants has a good record of safe operation, there is no assurance that the afore-mentioned accidents will not occur in the future.

If the PRC Government adopts new and stricter environmental laws and additional capital expenditure is required for complying with such laws, the operation of our power plants may be adversely affected and we may be required to make more investment in compliance with these environmental laws

Most of our power plants, being coal-fired power plants, discharge pollutants into the environment. We are subject to central and local government environmental protection laws and regulations, which currently impose

base-level discharge fees for various polluting substances and graduated schedules of fees for the discharge of waste substances. The amounts of discharge fees are determined by the local environmental protection authority based on the periodic inspection of the type and volume of pollution discharges. In addition, such environmental protection laws and regulations also set up the goal for the overall control on the discharge volume of key polluting substances. These laws and regulations impose fines for violations of laws, regulations or decrees and provide for the possible closure by the central government or local government of any power plant which fails to comply with orders requiring it to cease or cure certain activities causing environmental damage. Also, the PRC Government requires thermal power plants to equip all units with desulfurization and denitrification facilities, and sets higher anti-dust standards. In September 2014, the NDRC, the Ministry of Environmental Protection and the China National Energy Administration jointly issued the 2014-2020 Action Plans for Energy Saving, Emission Reduction and Renovation of Coal-fired Generation Units, imposing stricter requirements for efficient and clean development of coal-fired generating plants. Such stringent standards, together with the increase in the discharge fees, will result in the increases in the environmental protection expenditure and operating costs of power plants and may have adverse impact on our operating results.

We attach great importance to the environmental related matters of our existing power plants and our power plants under construction. We have implemented a system that is designed to control pollution caused by our power plants, including the establishment of an environmental protection office at each power plant, adoption of relevant control and evaluation procedures and the installation of certain pollution control equipment. We are also upgrading the super low emission facilities on our coal fired units, which may be completed by the end of year 2017. We believe our environmental protection systems and facilities for the power plants are adequate for us to comply with applicable central government and local government environmental protection laws and regulations. However, the PRC Government may impose new, stricter laws and regulations on environmental protection, which may adversely affect our operations.

The PRC is a party to the Framework Convention on Climate Change ("Climate Change Convention"), which is intended to limit or capture emissions of "greenhouse" gases, such as carbon dioxide. Ceilings on such emissions could limit the production of electricity from fossil fuels, particularly coal, or increase the costs of such production. At present, ceilings on the emissions of "greenhouse" gases have not been assigned to developing countries under the Climate Change Convention. Therefore, the Climate Change Convention would not have a major effect on us in the short term because the PRC as a developing country is not obligated to reduce its emissions of "greenhouse" gases at present, and the PRC Government has not adopted relevant control standards and policies. If the PRC were to agree to such ceilings, or otherwise reduce its reliance on coal-fired power plants, our business prospects could be adversely affected. In addition, pilot carbon emission trading programs have been conducted in certain regions and are expected to be gradually implemented throughout China. This may also adversely affect our business and financial prospects in the future.

Our business benefits from certain PRC Government tax incentives. Expiration of, or changes to, the incentives could adversely affect our operating results

Prior to January 1, 2008, according to the relevant income tax law, domestic enterprises were, in general, subject to statutory income tax of 33% (30% enterprise income tax and 3% local income tax). If these enterprises are located in certain specified locations or cities, or are specifically approved by State Administration of Taxation, a lower tax rate would be applied. Effective from January 1, 1999, in accordance with the practice notes on the PRC income tax laws applicable to foreign invested enterprises investing in energy and transportation infrastructure businesses, a reduced enterprise income tax rate of 15% (after the approval of State Administration of Taxation) was applicable across the country. We applied this rule to all of our wholly owned operating power plants after obtaining the approval of State Administration of Taxation. In addition, certain power plants were exempted from enterprise income tax for two years starting from the first profit-making year, after offsetting all tax losses carried forward from the previous years (at most of five years), followed by a 50% reduction of the applicable tax rate for the next three years. The statutory income tax was assessed individually based on each of their results of operations.

On March 16, 2007, the Enterprise Income Tax Law of PRC, or the New Enterprise Income Tax Law, was enacted, and became effective on January 1, 2008 and was amended on February 24, 2017. The New Enterprise Income Tax Law imposes a uniform income tax rate of 25% for domestic enterprises and foreign invested enterprises. Therefore, our power plants subject to a 33% income tax rate prior to January 1, 2008 are subject to a lower tax rate of 25%

starting on January 1, 2008. With regard to our power plants entitled to a reduced enterprise

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income tax rate of 15% prior to January 1, 2008, their effective tax rate gradually increased to 25% within a five-year transition period commencing on January 1, 2008. Accordingly, the effective tax rate of our wholly owned power plants has increased over time. In addition, although our power plants entitled to tax exemption and reduction under the income tax laws and regulations that are effective prior to the New Enterprise Income Tax Law will continue to enjoy such preferential treatments until the expiration of the same, newly established power plants will not be able to benefit from such tax incentives, unless they can satisfy specific qualifications, if any, provided by then effective laws and regulations on preferential tax treatment.

The increase of applicable income tax rate and elimination of the preferential tax treatment with regard to certain of our power plants may adversely affect our financial condition and results of operations. Moreover, our historical operating results may not be indicative of our operating results for future periods as a result of the expiration of the tax benefits currently available to us.

In addition, according to the New Enterprise Income Tax Law and its implementation rules, any dividends derived from the distributable profits accumulated from January 1, 2008 and paid to the shareholders who are non-resident enterprises in the PRC will be subject to the PRC withholding tax at the rate of 10%. The withholding tax will be exempted if such dividends are derived from the distributable profits accumulated before January 1, 2008. Under a notice issued by the State Administration of Taxation of the PRC on November 6, 2008, we are required to withhold PRC income tax at the rate of 10% on annual dividends paid for 2008 and later years payable to our H Share investors who are non-resident enterprises.

Fluctuations in exchange rates could have an adverse effect on our results of operations and your investment. As a power producer operating mainly in China, we collect most of our revenues in Renminbi and have to convert Renminbi into foreign currencies to (i) repay some of our borrowings which are denominated in foreign currencies, (ii) purchase foreign made equipment and parts for repairs and maintenance, (iii) purchase fuel from overseas suppliers, and (iv) pay out dividend to our overseas shareholders.

The value of the Renminbi against the U.S. dollar and other currencies may fluctuate and is affected by, among other things, changes in China's political and economic conditions. The conversion of Renminbi into foreign currencies, including U.S. dollars, is based on rates set by the PBOC. On July 21, 2005, the PRC government introduced a floating exchange rate system to allow the value of Renminbi to fluctuate within a regulated band based on market supply and demand and by reference to a basket of foreign currencies. Renminbi appreciated by more than 20% against the U.S. dollar between July 2005 and July 2008. Between July 2008 and June 2010, this appreciation halted and the exchange rate between the Renminbi and the U.S. dollar remained within a narrow band. On June 19, 2010, the PBOC decided to further promote the reform of the Renminbi exchange rate formation mechanism, and improve the flexibility of Renminbi exchange rate. The Company and its subsidiaries (both domestic and overseas) have debts denominated in foreign currencies, fluctuations in the exchange rates of Renminbi and Singapore dollar into foreign currencies creates exchange risk for the Company. With the internationalization process and RMB joining the SDR, RMB exchange rate may continue to fluctuate in the future. In August 2015, the PBOC perfected its midpoint rate determination mechanism, which led to a 2% depreciation of Renminbi against the U.S. dollar. However, it is difficult to predict how market forces or PRC or U.S. government policy may impact the exchange rate between the Renminbi and the U.S. dollar in the future. There remains significant international pressure on the PRC Government to further liberalize its currency policy, which could result in further fluctuations in the value of the Renminbi against the U.S. dollar. However, there is no assurance that there will not be a devaluation of Renminbi in the future. If there is such devaluation, our debt servicing cost will increase and the return to our overseas investors may decrease.

Our revenues from SinoSing Power Pte. Ltd. ("SinoSing Power") and its subsidiaries are collected in Singapore dollars. However, commencing from 2008, the operating results of SinoSing Power and its subsidiaries were consolidated into our financial statements, which use Renminbi as the presentation currency. As a result, we are exposed to foreign exchange fluctuations between Renminbi and the Singapore dollar. Appreciation of Renminbi against the Singapore dollar may cause adverse impact on our operation results and foreign translation difference. The audit report included in this annual report is prepared by an auditor who is not inspected by the Public Company Accounting Oversight Board and, as such, you are deprived of the benefits of such inspection

Auditors of companies that are registered with the U.S. Securities and Exchange Commission and traded publicly in the United States, including our independent registered public accounting firm, must be registered with the U.S. Public Company Accounting Oversight Board (United States) (the "PCAOB") and are required by the laws of the United States to undergo regular inspections by the PCAOB to assess their compliance with the laws of the United States and professional standards. Because we have substantial operations within the People's Republic of China and the PCAOB is currently unable to conduct inspections of the work of our auditors as it relates to those operations without the approval of the Chinese authorities, our auditor's work related to our operations in China is not currently inspected by the PCAOB. In May 2013, PCAOB announced that it had entered into a Memorandum of Understanding on Enforcement Cooperation with the China Securities Regulatory Commission ("CSRC") and the PRC Ministry of Finance, which establishes a cooperative framework between the parties for the production and exchange of audit documents relevant to investigations undertaken by PCAOB, the CSRC or the PRC Ministry of Finance in the United States and the PRC, respectively. PCAOB continues to be in discussions with the CSRC and the PRC Ministry of Finance to permit joint inspections in the PRC of audit firms that are registered with PCAOB and audit Chinese companies that trade on U.S. exchanges.

This lack of PCAOB inspections of audit work performed in China prevents the PCAOB from regularly evaluating audit work of any auditors that was performed in China including that performed by our auditors. As a result, investors may be deprived of the full benefits of PCAOB inspections. Investors may lose confidence in our reported financial information and procedures and the quality of our financial statements.

Our independent registered public accounting firm may be temporarily suspended from practicing before the SEC. If a delay in completion of our audit process occurs as a result, we could be unable to timely file certain reports with the SEC, which may lead to the delisting of our stock

On January 22, 2014, Judge Cameron Elliot, an SEC administrative law judge, issued an initial decision suspending the Chinese member firms of the "Big Four" accounting firms, including our independent registered public accounting firm, from, among other things, practicing before the SEC for six months. In February 2014, the initial decision was appealed. While under appeal and in February 2015, the Chinese member firms of "Big Four" accounting firms reached a settlement with the SEC. As part of the settlement, each of the Chinese member firms of "Big Four" accounting firms agreed to settlement terms that include a censure; undertakings to make a payment to the SEC; procedures and undertakings as to future requests for documents by the US SEC; and possible additional proceedings and remedies should those undertakings not be adhered to.

If the settlement terms are not adhered to, Chinese member firms of "Big Four" accounting firms may be suspended from practicing before the SEC which could in turn delay the timely filing of our financial statements with the SEC. In addition, it could be difficult for us to timely identify and engage another qualified independent auditor. A delinquency in our filings with the SEC may result in NYSE initiating delisting procedures, which could adversely harm our reputation and have other material adverse effects on our overall growth and prospect.

Forward-looking information may prove inaccurate

This document contains certain forward-looking statements and information relating to us that are based on the beliefs of our management as well as assumptions made by and information currently available to our management. When used in this document, the words "anticipate," "believe," "estimate," "expect," "going forward" and similar expressions, as they relate to us or our management, are intended to identify forward-looking statement. Such statements reflect the current views of our management with respect to future events and are subject to certain risks, uncertainties and assumptions, including the risk factors described in this document. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated or expected. We do not intend to update these forward-looking statements.

There can be no assurance that we will not be passive foreign investment company, or PFIC, for United States federal income tax purposes for any taxable year, which could subject United States investors in the ADSs or our H shares to significant adverse United States income tax consequences.

We will be a "passive foreign investment company," or "PFIC," if, in the case of any particular taxable year, either (a) 75% or more of our gross income for such year consists of certain types of "passive" income or (b) 50% or more of the average quarterly value of our assets (as determined on the basis of fair market value) during such year produce or are held for the production of passive income (the "asset test"). For United States federal income tax purposes, and based upon our income and assets, we do not believe that we were classified as a PFIC for the taxable year ended December 31, 2016, and do not anticipate becoming one in the foreseeable future.

While we do not expect to become a PFIC, because the value of our assets for purposes of the asset test may be determined by reference to the market price of the ADSs, fluctuations in the market price of the ADSs may cause us to become a PFIC for the current or subsequent taxable years. The determination of whether we will be or become a PFIC will also depend, in part, on the composition of our income and assets. Under circumstances where we determine not to deploy significant amounts of cash for active purposes, our risk of being a PFIC may substantially increase. Because there are uncertainties in the application of the relevant rules and PFIC status is a factual determination made annually after the close of each taxable year, there can be no assurance that we will not be a PFIC for the current taxable year or any future taxable year.

If we are a PFIC in any taxable year, a U.S. holder (as defined in "Item 10. Additional Information—E. Taxation—United States federal income tax considerations") may incur significantly increased United States income tax on gain recognized on the sale or other disposition of the ADSs or H shares and on the receipt of distributions on the ADSs or H shares to the extent such gain or distribution is treated as an "excess distribution" under the United States federal income tax rules and such holders may be subject to burdensome reporting requirements. Further, if we are a PFIC for any year during which a U.S. holder holds the ADSs or our H shares, we generally will continue to be treated as a PFIC for all succeeding years during which such U.S. holder holds the ADSs or our H shares. For more information see "Item 10. Additional Information—E. Taxation—Passive Foreign Investment Company Considerations."

Risks relating to doing business in the PRC

China's economic, political and social conditions as well as government policies could significantly affect our business

As of December 31, 2016, the majority of our business, assets and operations are located in China. The economy of China differs from the economies of most developed countries in many respects, including government involvement, control of foreign exchange, and allocation of resources.

The economy of China has been transitioning from a planned economy to a more market-oriented economy. After multiple years of strenuous and sustained economic restructuring reforms, China has become a leading player in the global economy and a major contributing force to the economic revival and growth worldwide.

The PRC Government has implemented economic reform measures emphasizing utilization of market forces in the development of the economy of China and a higher level of autonomy for the private sector. Some of these measures will benefit the overall economy of China, but may have a negative effect on us for a short term. For example, our operating results and financial condition may be adversely affected by changes in taxation, changes in power tariff for our power plants, changes in the usage and costs of State-controlled transportation services, and changes in State policies affecting the power industry.

Interpretation of PRC laws and regulations involves significant uncertainties

The PRC legal system is based on written statutes and their interpretation by the Supreme People's Court. Prior court decisions may be cited for reference but have limited value as precedents.

We are subject to certain PRC regulations governing PRC companies that are listed overseas. These regulations contain certain provisions that are required to be included in the articles of association of these PRC companies and are intended to regulate the internal affairs of these companies. As the PRC regulations are constantly evolving with the goal of better protecting shareholder's interests, we may face greater uncertainties in the interpretation of PRC laws and regulations. Furthermore, the PRC regulations for protection of shareholder's rights are different from those applicable in the United States and/or exchanges where we are listed. Therefore we made it our policy to adopt the strictest standards of any listing rules potentially applicable to us. Some of these standards are incorporated in our articles of association and bylaws with the view to providing most protection for the interests of our shareholders.

Risks relating to our operations in Singapore

Our operations in Singapore are subject to a number of risks, including, among others, risks relating to electricity pricing, dispatching, fuel supply, project development, capital expenditure, environmental regulations, government policies, and Singapore's economic, political and social conditions. Any of these risks could materially and adversely affect our business, prospects, financial condition and results of operations.

Fluctuation in demand and intensified competition may adversely affect Tuas Power's business and results of operations.

Our operations in Singapore depend on market demand and are subject to competition. Overall power system demand grew by 2.5% in 2016 over 2015. The future growth is highly dependent on sustained recovery in the Singapore and global economies. The liberalization of Singapore's power market and the further deregulation of its power industry have resulted in more intense competition among the power generation companies in Singapore. Tuas Power Group, or Tuas Power, one of our wholly owned business units, is one of the three largest power generation companies in Singapore. If Tuas Power is unable to compete successfully against other power generation companies in Singapore, its business, prospects, financial condition and results of operations may be adversely affected.

An electricity futures market was also established in 2015 through an incentive scheme by the authority to market makers (MM) in the futures market. This has attracted independent retailers which are expected to exert some price competition in the retail market. A Demand Response (DR) scheme is currently being established which could potentially introduce further price competition in the wholesale generation market in Singapore. Furthermore, the Singapore government recently announced plans to raise the adoption of solar energy to 350 MWp by 2020, compared to 60 MWp in 2016.

TP Utilities Pte Ltd ("TPU"), an entity in Tuas Power Group, sells utilities, such as steam, industrial water and demineralized water to industrial customers for their direct consumption. The timing for those potential customers to site their premises is uncertain due to economic situations. The demand of the utilities by these customers may vary as well. Despite Tuas Power's efforts to develop its facilities in stages and/or in modules to provide sufficient capacity matching the demand, and require customers to pay minimum capacity payment charges to mitigate the demand risk, its business and results of operations may be adversely affected by fluctuation in demand.

Regulatory changes of the vesting regime in Singapore could expose Tuas Power to electricity price volatility and adversely affect its business and results of operations

Tuas Power derives its revenue mainly from sale of electricity to the National Electricity Market of Singapore (the "NEMS") through a bidding process and vesting contracts under which a significant portion of power sales is predetermined by the Energy Market Authority ("EMA"). The vesting contract regime in Singapore is targeted at mitigation of market power in the wholesale electricity spot market. The regime achieves this objective by assigning a quantity of vesting contracts to generation companies, thereby limiting their incentives to exercise whatever level of market power they may possess. Vesting contracts are a form of bilateral contract imposed/vested on the major power generation companies in Singapore. Vesting contract price is set by the EMA, which is Singapore's power market regulator. Vesting contract price is set at the long run marginal cost of the most efficient base-loaded technology plant employed in Singapore and is reviewed every two years. On a quarterly basis, the EMA allows for vesting contract quantity to be adjusted to account for changes in demand (due to seasonality) and the vesting contract price to be adjusted to account for inflation and changes in fuel prices. Such a mechanism helps

protect the profit margins of the power generation companies in the Singapore market, such as Tuas Power, to a large degree. The quantity of vesting contract allocated to the power generation company depends on the proportion of such power generation company's capacity to the total licensed or planned generation capacity at the commencement of the vesting contracts regime. A portion of the volume under the Vesting Contract Scheme has also been allocated to the LNG Vesting Scheme - an incentive scheme where players who have committed to an initial tranche of LNG for Singapore are allocated electricity sale contracts. The volume allocated to the generation companies under the LNG vesting scheme is fixed for a period of 10 years until 2023. By the end of 2015, the vesting contract has been rolled back to 25% of system demand (inclusive of the LNG Vesting Scheme). Following an appeal by some of the players in the market, the vesting contract level has been maintained at 25% for 2016. Following EMA's review of the Vesting Contract Regime in 2016, it is determined that the vesting contract level will be maintained at 25% until the end of the first half of 2018 and it will be reduced to LNG vesting level by the second half of 2019. The vesting contract regime will be phased out by 2023 when the LNG vesting contract expires, which could lead to volatility in electricity prices and adversely affect our business, financial condition and results of operation..

The fuel cost of Tuas Power is exposed to volatility of international fuel price and foreign currency risk

The fuel for Tuas Power consists of natural gas, coal, biomass, fuel oil and diesel oil. Since the procurement price of natural gas is closely linked to oil price and the procurement price of coal and biomass is linked to a coal index, the fuel cost of Tuas Power is exposed to the volatility of international oil and coal prices. The prices of oil and coal, after dipping to low level in the first half of 2016, have moved up in the second half of 2016. In addition, the commitments for the purchase of fuel are denominated in U.S. dollars, which further exposes Tuas Power to foreign currency risk. Any increase in fuel price and/or appreciation of the U.S. dollar against the Singapore dollar will translate into an increase in fuel cost for Tuas Power. Part of this increase can be passed through electricity sale contracts and utilities sale contracts, while fuel and foreign exchange hedging strategies done appropriately will mitigate the impact of such increase. No assurance can be given that such increase will not adversely affect results of its operation. Tuas Power is highly dependent upon the import of gas via pipelines from Indonesia. The rapid and sharp fall in the price of oil over the course of 2015 has resulted in wide variation in the price for its various sources of gas supply within the same month. Any disruption of such supply would impact the normal operation of Tuas Power significantly. This risk has been mitigated through Tuas Power's contract to buy LNG for its incremental needs, although there is no assurance that, in the event of fuel supply shortfall, Tuas Power's operations will not be adversely affected.

ITEM 4 Information on the Company

A. History and development of the Company

Our legal and commercial name is Huaneng Power International, Inc. Our head office is at Huaneng Building, 6 Fuxingmennei Street, Xicheng District, Beijing, People's Republic of China and our telephone number is (8610) 63226999. We were established in June 1994 as a company limited by shares organized under the laws of the People's Republic of China.

As resolved at the second meeting of the 8th session of the board of the Company on October 13, 2014 and adopted at the third extraordinary general meeting of the Company, we entered into the Huaneng Group Interests Transfer Agreement with Huaneng Group, and the HIPDC Interests Transfer Agreement and the Chaohu Power Interests Transfer Agreement with HIPDC. Pursuant to these transfer agreements, we acquired from Huaneng Group 91.8% interests of Hainan Power, 75% interests of Wuhan Power, 53.45% interests of Suzhou Thermal Power, 97% interests of Dalongtan Hydropower and 100% interests of Hualiangting Hydropower at a total price of RMB7.338 billion, and acquire from HIPDC 60% interests of Chaohu Power, 100% interests of Ruijin Power, 100% interests of Anyuan Power, 100% interests of Jingmen Thermal Power and 100% interest of Yingcheng Thermal Power Interests at a total price of RMB1.938 billion. The total consideration is RMB9.647 billion after adjustment of the profits generated from the date of valuation to the acquisition date in accordance with the equity transfer agreements. The transaction was completed in January 2015.

On November 20, 2015, we issued a total of 780 million new H shares by way of placement at the issuance price of HKD7.32 per share. The aggregate consideration received for these shares was approximately HKD5.71 billion. After this issuance, our total share capital increased from 14,420,383,440 shares to 15,200,383,440 shares, including an increase in our total share capital for H shares from 3,920,383,440 shares to 4,700,383,440 shares.

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As resolved at the 2014 annual general meeting on June 25, 2015, our Company has been given a mandate to issue one or more tranches of short-term debentures in the PRC in a principal amount not exceeding RMB 15 billion on a rolling basis within 24 months of approval by the general shareholders' meeting. On August 10 and October 20, 2016, we issued short-term debentures in two tranches each at principal amount of RMB3 billion with nominal annual interest rate of 2.50% and 2.60%, respectively. Each of the debentures was denominated in RMB, issued at par value, and would mature in 365 days from issuance.

On October 14, 2016, the Company signed the Agreement for the Transfer of Equity Interests in Certain Companies with Huaneng Group (the "Transfer Agreement"). Pursuant to the Transfer Agreement, the Company shall accept the transfer of (i) 80% equity interest of Huaneng Shandong Power Limited; (ii) 100% equity interest of Huaneng Jilin Power Limited; (iii) 100% equity interest of Huaneng Heilongjiang Power Limited; and (iv) 90% equity interest of Huaneng Henan Zhongyuan Gas Power Generation Co., Ltd. from Huaneng Group for the consideration of RMB15,113,825,800. This transaction was considered and approved at the 21st meeting of the Eighth Session of the Board held on October 14, 2016, and was considered and approved at the 2016 Second Extraordinary General Meeting held on November 30, 2016. According to the terms of the agreements, the Company has paid 50% of the consideration for such transaction to Huaneng Group on January 9, 2017.

See "Item 5 Operating and Financial Reviews and Prospects – Liquidity and Cash Resources" for a description of our principal capital expenditures since the beginning of the last three financial years.

B. Business overview

We are one of the China's largest independent power producers. As of March 31, 2017, we had controlling generating capacity of 101,270 MW, and a total generating capacity of 89,486 MW on an equity basis.

Operations in China

We are engaged in developing, constructing, operating and managing power plants throughout China. Our domestic power plants are located in 24 provinces, provincial-level municipalities and autonomous regions.

In 2016, the Company actively responded to the new market environments arising from the development of the social demand for power, implemented and progressed the relevant work, generally maintained a stable and safe production and made efforts on cost control. The operating result of the Company reached a record high while the Company continued to fulfill the duties of providing sufficient, reliable and green power to the society.

In 2016, new generating units with a total installed capacity of 1,227 MW were put into operation. In 2016, our total domestic power generation from all operating power plants on a consolidated basis amounted to 313.690 billion kWh, representing a decrease of 2.13% from 2015. The annual average utilization hours of our domestic generating units reached 3,921 hours. Our fuel cost per unit of power sold by domestic power plants decreased by 1.76% from the previous year to RMB 170.62 per MWh.

We believe our significant capability in the development and construction of power projects, as exemplified in the completion of our projects under construction ahead of schedule, and our experience gained in the successful acquisitions of power assets in recent years will enable us to take full advantage of the opportunities presented in China's power market.

With respect to the acquisition or development of any project, we will consider, among other factors, changes in power market conditions, and adhere to prudent commercial principles in the evaluation of the feasibility of the project. In addition to business development strategies, we will continue to enhance our profitability by further strengthening our cost control, especially in respect of fuel costs and construction costs, so as to hedge against fluctuations in fuel price and increase competitiveness in the power market.

Operations in Singapore

Tuas Power, one of our wholly owned business units, operates in Singapore and is engaged in the business of generation, wholesale and retail of power and other relating utilities. Tuas Power is comprised of Tuas Power Ltd ("TPL"), the investment holding company, and seven subsidiaries. Among those subsidiaries, Tuas Power Generation Pte. Ltd. ("TPG") is the electricity generation company that owns 100% of Tuas Power Supply Pte Ltd ("TPS"), which is the retail arm of TPG. Separately, TPU, a wholly owned subsidiary of TPL is engaged in the business of production and supply of utilities to industrial customers at Tembusu, Jurong Island in Singapore, as well as the generation of electricity dispatched to the electricity wholesale market. We have consolidated Tuas Power's results of operations since March 2008. The total assets and revenue of Singapore operations represented approximately 8.98% and 7.70%, respectively, of our consolidated total assets and revenue as of and for the year ended December 31, 2016. In 2016, the power generated by Tuas Power in Singapore accounted for 21.5% of the total power generated in Singapore, slightly lower than 2015.

Development of power plants

The process of identifying potential sites for power plants, obtaining government approvals, completing construction and commencing commercial operations is usually lengthy. However, because of our significant experience in developing and constructing power plants, we have been able to identify promising power plant projects in China and to obtain all required PRC Government approvals in a timely manner.

Opportunity identification and feasibility study

We initially identify an area in which additional electric power is needed by determining its existing installed capacity and projected demand for electric power. The initial assessment of a proposed power plant involves a preliminary feasibility study. The feasibility study examines the proposed power plant's land use requirements, access to a power grid, fuel supply arrangements, availability of water, local requirements for permits and licenses and the ability of potential customers to afford the proposed power tariff. To determine projected demand, factors such as economic growth, population growth and industrial expansion are used. To gauge the expected supply of electricity, the capacities of existing plants and plants under construction or development are studied.

Approval process

Prior to July 2004, any project proposal and supporting documents for new power plants had to first be submitted to the NDRC for approval and then be submitted to the State Council. In July 2004, the State Council of the PRC reformed the fixed asset investment regulatory system in China. Under the new system, new projects in the electric power industry that do not use government funds will no longer be subject to the examination and approval procedure. Instead, they will only be subject to a confirmation and registration process. Coal-fired projects will be subject to confirmation by the NDRC. Wind power projects with installed capacity of 50 MW or above shall be subject to confirmation and registration with the relevant department of the central government, while wind power projects with installed capacity lower than 50 MW shall be subject to confirmation and registration with relevant local government departments. Wind power projects confirmed by local government departments at provincial level shall also be filed with the NDRC and China National Energy Administration.

In November 2014, pursuant to the Catalogue of Investment Projects Approved by the Government (2014 Version) issued by the State Council, administrative approval power for certain activities in the energy sector has been delegated to a lower level. The administrative approval power for thermal power stations has been delegated to the provincial level (with coal-fired thermal power station projects being subject to national-level administrative

approval based on state-promulgated constructions plans limited by total volume), the administrative approval power for heat power stations has been delegated to the local level (with condensing steam heat power station projects being subject to provincial-level administrative approval based on state-promulgated constructions plans limited by total volume), and the administrative approval power for wind power plants delegated to the local level subject to state-promulgated constructions plans limited by total volume as well as the scope as set out in the annual developmental guides. The Interim Measures for Supervision and Administration of Photovoltaic Power Station Projects issued by China National Energy Administration in 2013 requires that photovoltaic power station projects be regulated by on a filing-based system by the provincial-level energy supervisory departments in accordance with regulations related to investment projects issued by the State Council. The same administrative approval standard was again re-affirmed in December 2016 pursuant to the Catalogue of Investment Projects Approved by the Government (2016 Version) issued by the State Council.

Joint venture power projects are subject to additional governmental approvals. Approval by Ministry of Commerce is also required when foreign investment is involved.

From 2014, China National Energy Administration has placed stringent control on coal-fired projects within the Beijing-Tianjin-Hebei region, the Yangtze River Delta Region and the Pearl River Delta Region. All new coal-fired generating projects, other than those involving co-generation, were prohibited from being approved. Multi coal-fired generating units with a total capacity of more than 300 MWh may be reconstructed into large capacity units based on the principles of equivalent replacement for coal but reduction in replacement pollutant emission.

From 2016, to counter the issue of overcapacity in the coal-fire power sector, China National Energy Administration strengthened the approval of coal-fire projects nationwide, a number of new coal-fired generating projects, other than those involving co-generation, were cancelled, postponed or terminated. Considering the increasingly limited availability of prime locations and decreasing subsidies, China National Energy Administration also suspended approval of new wind power plants and photovoltaic power station projects in provinces with wind curtailment rate over 20% and solar curtailment rate over 5%.

Permits and contracts

In developing a new power plant, we, like other players in the industry, are required to obtain permits before commencement of the project. Such permits include operating licenses and similar approvals related to plant site, land use, construction, and environment. To encourage the cooperation and support of the local governments of the localities of the power plants, it has been and will be our policy to seek investment in such power plants by the relevant local governments.

Power plant construction

We have generally acted as the general contractor for the construction of our power plants. Equipment procurement and installation, site preparation and civil works are subcontracted to domestic and foreign subcontractors through a competitive bidding process. All of our power plants were completed on or ahead of schedule, enabling certain units to enter service and begin generating income earlier than the estimated in-service date.

Plant start-up and operation

We have historically operated and intend to continue to operate our power plants. Our power plants have established management structures based on modern management techniques. We select the superintendent for a new power plant from the senior management of our operating plants early in the construction phase of the new plant, invest in the training of operational personnel, adopt management techniques that improve efficiency and structure our plant bonus program to reward efficient and cost-effective operation of the plant in order to ensure the safety, stability and high availability factor of each power plant. Our senior management meets several times a year with the superintendents of the power plants as a group, fostering a team approach to operations, and conducts annual plant performance reviews with the appropriate superintendent, during which opportunities to enhance the power plant's performance and profitability are evaluated.

After a coal-fired generating unit is constructed, the contractor tests its installation and systems. Following such tests, the contractor puts the unit through a continuous 168-hour trial run at full load. After successfully passing the continuous 168-hour test and obtaining approval from the local governments, the unit may commence its commercial operation. Trial run of a wind power project consists of two phases: (i) trial run of single wind power generating unit and (ii) trial run of the entire wind power project as a whole. After successfully passing the trial run, the wind power project may commence its commercial operation.

Development of Power Plants in Singapore

The Singapore electricity industry had traditionally been vertically integrated and owned by the government. Since 1995, steps have been taken to liberalize the power industry, including the incorporation of the Public Utilities Board ("PUB") in 1995, establishment of Singapore Electricity Pool ("SEP") in 1998, formation of Energy Market Authority ("EMA") in 2001, and the evolution of the SEP into the New Electricity Market of Singapore ("NEMS") in 2003. The EMA is a statutory body responsible for the economic, technical and competition regulation of the gas and electricity industry in Singapore. In carrying out its functions as the regulator of the power sector, EMA is empowered under the Electricity Act to issue and enforce licenses, codes of practices and performance standards. Energy Market Company Pte Ltd. (the "EMC") is the market company licensed to operate the wholesale market, or the NEMS. In Singapore, a company is required to hold a generation license issued by the EMA if it generates electricity by means of one or more generating units with capacity of 10 MW or above. If connected to the power grid, the generating unit(s) must be registered with the EMC and will have to compete with other power generation companies to secure dispatch in the NEMS.

To ensure adequate electricity supply in Singapore, the EMA targets a minimum reserve margin (the excess of generating capacity over peak electricity demand) of 30% based on a loss of load probability (a measure of the probability that a system demand will exceed capacity during a given period, often expressed as the estimated number of days over a year) of three days per year. The 30% required reserve margin is to cater for scheduled maintenance as well as forced outages of generating units in the system. If the reserve margin falls below the required 30% due to demand growth and/or plant retirements, it would be an indication that new generation investments in generation units are needed to maintain system security.

The EMA intends to keep the increase and decrease in generating capacity commercially driven as far as practicable. As a precaution against the risk of insufficient generating capacity in the system, the EMA has planned to put in place a capacity assurance scheme to incentivize new generation planting in case new generating capacity that is required to maintain system security is not forthcoming from the market. EMA has not provided any update to the proposed scheme but given the current oversupply of capacity, it is not anticipated that the scheme will be put into place anytime soon.

By most measures of market power, the Singapore market is highly concentrated, as the three largest power generation companies account for approximately 60% of total power capacity. Since December 2002, EMA has imposed a licensed capacity cap (in MW) on these three power generation companies to prevent them from increasing their market dominance/power. Following a review of the vesting contract regime in 2016, EMA imposed a 25% cap on capacity market share to all generation licensees to prevent structural increases in market concentration/power. With regard to the three largest power generation companies, the cap imposed by EMA is the higher of either the 25% capacity market share cap or their respective licensed capacity cap, until the expiry of their respective generation license. This provides an option for the three largest power generation companies to increase their generation capacities beyond their current generation license up to 25% capacity market share cap.

New entrants as well as existing competitors have invested in new generating capacity or repowering of existing plants to take advantage of the LNG Vesting Scheme. This will impact the market negatively as these new capacities compete for market share as well as to avoid the gas take-or-pay penalties arising out of an oversupplied market. EMA issued a Singapore Electricity Market Outlook (SEMO) 2016, which provides a long term outlook of the energy market, such as the projected supply and demand conditions to facilitate power generation investment

decisions. Based on the data provided by EMA, there will be approximately 300MW of new investments in 2017 and 700MW of plant retirement in 2019.

We are in the process of developing the Tembusu Multi-Utilities Complex (the "TMUC") in Singapore. The TMUC is expected to consist of a co-generation plant, a desalination plant and a wastewater treatment facility, with a total installed capacity of 165 MW. The complex will be developed in multiple phases in order to meet customers' demand. Phase 1 consists of 1 x 450 t/h coal-biomass co-fired circulated fluidized bed boiler, 2 x 200 t/h diesel/natural gas fired boilers and 1 x 101MW steam turbine-generator, and other components of the plant. Phase 2A consists of 1 x 450 t/h coal-biomass co-fired circulated fluidized bed boiler, 1 x 200 t/h diesel/natural gas fired boiler and 1 x 32MW steam turbine-generator, and other components of plant. Phase 1 and Phase IIA commenced commercial operations in March 2013 and June 2014 respectively. The first train of 62.5 m³/h wastewater treatment facility commenced commercial operation in September 2015. TPL owns 100% equity interest in this project.

Pricing policy

Pricing policy in China

Prior to April 2001, the on-grid tariffs for our planned output were designed to enable us to recover all operating and debt servicing costs and to earn a fixed rate of return. Since April 2001, however, the PRC Government has gradually implemented a new on-grid tariff-setting mechanism based on the operating terms of power plants as well as the average costs of comparable power plants.

On July 3, 2003, the State Council approved the tariff reform plan and made it clear that the long-term objective of the reform is to establish a standardized and transparent tariff-setting mechanism.

Pursuant to the NDRC circular issued in June 2004, on-grid tariffs for newly built power generating units commencing operation from June 2004 should be set on the basis of the average cost of comparable units adding tax and reasonable return in the regional grid. It provides challenges and incentives for power generation companies to control costs for building new generating units.

On March 28, 2005, the NDRC issued the Interim Measures on Regulation of On-grid Tariff, the Interim Measures on Regulation of Transmission and Distribution Tariff, and the Interim Measures on Regulation of End-user Tariff, or collectively the "Interim Measures", to provide guidance for the reform of tariff-setting mechanism in the transition period. Under the Interim Measures, tariff is classified into on-grid tariff, transmission and distribution tariff and end-user tariff. Transmission and distribution tariff will be instituted by the government. End-user tariff will be based on on-grid tariff and transmission and distribution tariff. The government is responsible for regulating and supervising power tariffs based on the principles of promoting efficiency, encouraging investment and improving affordability. In December 2004, the NDRC proposed and the State Council approved the establishment of a linkage mechanism between coal and power prices, pursuant to which, the NDRC may adjust power tariffs if the change of the average coal price reaches 5% within a period of six months compared with the preceding same period. The change in a period, if less than 5%, will be carried forward to the future periods until the accumulated amounts reach 5%. With a goal to encourage power generation companies to reduce cost and improve efficiency, only around 70% of coal price increases will be allowed to pass to end-users through an increase of power tariffs, and power generation companies will bear the remaining 30%. In May 2005, the NDRC activated the coal-electricity price linkage mechanism for the first time to increase on-grid tariffs and end-user tariffs in the northeastern region, central region, eastern region, northwestern region and southern region. We accordingly increased the on-grid tariffs of our power plants in the northeastern region, central region, eastern region and northwestern region on May 1, 2005 and in the southern region on July 15, 2005. In June 2006, the coal-electricity price linkage mechanism was reactivated by the NDRC to increase on-grid tariffs and end-user tariffs in the northeastern region, central region, eastern region, northwestern region and southern region. We accordingly increased the on-grid tariffs of most of our power plants in the same regions on June 30, 2006.

In May 2007, NDRC and the State Environment Protection Administration jointly promulgated Interim Administrative Measures on Electricity Price of Coal-fired Generating Units installed with Desulphurization Facilities and the Operations of Such Facilities, which provided that a premium for desulphurization may be charged on the price of the electricity generated by generating units installed with desulphurization facilities on and from the date on which such desulphurization facilities are tested and accepted by a relevant environment protection regulator. Such pricing policy is also applicable to the old generating units which are installed with desulphurization facilities. The new measures are more stringent on the regulation of the coal-fired power plants with desulphurization facilities, setting forth the categories under which the price including a desulphurization premium will be offset or otherwise penalized based on the ratio of utilization of the relevant desulphurization facilities on an annual basis. As of December 31, 2013, all of our existing coal-fired generating units have installed and operated the desulphurization facilities and enjoyed the desulphurization premium.

In June 2008, NDRC issued Notice of Raising the Power Tariff, pursuant to which, the power tariff in provincial grids nationwide was increased by an average of RMB0.025 per kWh. In August 2008, NDRC issued Notice of Raising the On-grid Tariffs of the Thermal Power Plants, pursuant to which, the on-grid tariff of thermal power plants, including plants fueled by coal, oil, gas and co-generation, was increased by an average of RMB0.02 per kWh.

On February 25, 2009, NDRC, SERC and China National Energy Administration jointly promulgated the Notice regarding Cleaning up the Concessional Tariff Scheme, pursuant to which, (i) the concessional tariff scheme at the local level is banned, and (ii) certain measures, such as direct purchase by large end-users and adopting peak and off-peak power pricing policy, will be carried out to reduce enterprises' power cost. In addition, the notice emphasizes the supervision and inspection over the setting of power tariffs. On October 11, 2009, in order to promote a fair market condition and the optimization of electric power resources, NDRC, SERC and China National Energy Administration jointly promulgated the Circular on Regulating the Administration of Electric Power Transaction Tariff to regulate the tariff-setting mechanism for the on-grid tariff, transmission and distribution tariff and end-user tariff and clean up the local preferential power tariffs provided to high energy consumption companies. Pursuant to a notice issued by NDRC, with effect from November 20, 2009, certain adjustments on the on-grids tariffs have been made in various regions of China in order to resolve the inconsistencies in tariffs, rationalize the tariff structure and promote the development of renewable energy.

In 2010, the PRC Government started to implement the direct power purchase policy. As of December 31, 2013, some of the provinces where we operate power plants are approved by the NDRC to implement the direct power purchase by large power end-users. In addition, during 2010 SERC issued several circulars and notices to regulate the trans-provincial and interregional transaction of power and/or power generation right, in which the power purchase price shall be freely determined by negotiation through market pricing mechanism. In December 2012, SERC issued another circular to further regulate the trans-provincial and interregional transaction of power and/or power generation right.

In May 2011, NDRC issued a notice, increasing the on-grid tariffs of thermal power plants to partially compensate the increased costs incurred by thermal power plants resulting from increases in coal prices. Different adjustments on tariffs were made in different provinces. In November 2011, PRC Government made further nationwide adjustments on power tariffs, including an average of RMB0.026 per kWh increase in on-grid tariff for thermal power plants. In December 2012, NDRC issued a notice, which provided that, from January 1, 2013, NDRC would provide a RMB0.008 per kWh denitrification premium for all coal-fired generating units equipped with denitrification facilities that are inspected and accepted by authorized national or provincial authority.

In March 2012, the PRC Government issued a notice, which mandated the confirmation method for the power generation projects, subsidy standards and fund appropriation standards relating to the application for subsidy for renewable energy power price of power generation projects. In December 2012, the PRC Government issued the Notice on the Guidelines of Enhancing the Reform of Marketization of Coal Used for Power Generation to further reform the coal pricing mechanism. Effective January 1, 2013, all key coal purchase contracts between power generation companies and coal suppliers were terminated and contracts are directly negotiated between power generation companies and coal suppliers without the interference of local governments. According to the notice, the NDRC will no longer issue inter-provincial guidance on the railway transportation capacity plan. In addition, the dual-track coal pricing system, which included the government regulated mandatory annual contract pricing and spot

market prices for the remaining coal production output of each coal supplier, was abolished due to the narrowing gap between the government regulated coal contract price and the spot market price. Pursuant to the notice, future coal contract prices will be determined by the market and freely negotiated between power generation companies and coal suppliers. Furthermore, the coal-electricity price linkage mechanism will continue to be implemented and constantly improved. Once the coal price fluctuates for more than 5% on an annual basis, on-grid tariff would be adjusted accordingly. The notice also mandates that power generation companies absorb 10% of the coal price fluctuations as compared to 30% prior to 2013. Given the narrow gap between the key contract coal price and the spot market price, the overall on-grid tariff was not adjusted.

In September 2013, NDRC issued the Notice on the Adjustment of Power Tariff for Power Generation Companies and Related Matters, pursuant to which the on-grid tariffs for coal-fired generating units were lowered, by a national average of RMB0.013 per kWh, and the on-grid tariff for gas turbine power plants were slightly increased. The Notice also increased the power tariff for power-generating companies that are equipped with denitrification facilities and dust-removal facilities.

In March 2014, the NDRC and the Ministry of Environmental Protection jointly issued the Measures to Monitor the Operation of Environmental Protection Tariffs and Facilities Regarding Coal-fired Generating Units, under which the standard on-grid electricity tariff incorporating environmental protection element will no longer be applicable to coal-fired generating units unless the coal-fired power generating enterprise has completed renovation for environmental protection acceptable after testing. In August 2014, the NDRC issued the Notice to Further Resolve Conflicts Regarding Environmental Protection Tariff, under which the standard on-grid tariff for coal-fired power generating units is lowered with the view to resolve the environmental protection tariffs conflicts such as denitrification and dedusting of coal-fired power generation enterprises, and setting the tariff subsidy for denitrification and dedusting at RMB0.01/kWh and RMB0.002/kWh, respectively. In December 2014, the NDRC issued the Notice Regarding Adjusting Standard On-grid Tariff for Onshore Wind Powers, under which the standard on-grid tariff for each of Class I, Class II and Class III wind powers is lowered by RMB0.02, and the tariff for Class IV wind power remain unchanged at RMB0.61/kWh. In December 2014, the NDRC issued the Notice Regarding Certain issues of On-grid Tariff of Natural Gas Powers, defining the principles to formulate and modify the tariff of electricity generated by natural gas, aiming to regulate on-grid tariff administration and used facilitate healthy and orderly growth of natural gas power generating sector in China.

In April 2015, the NDRC issued the Notice on Reducing On-grid Tariff for Coal-fired Power and Commercial and Industrial Power Tariff in order to release the pressure on tariffs for natural gas and for companies that utilize denitration or dedusting techniques or with extremely low emissions, to lower commercial and industrial power tariff, and to moderately lower on-grid tariff for coal-fired power, the power tariff in provincial grids nationwide was decreased by an average of RMB0.02 per kWh.

In December 2015, the NDRC issued the Notice on Issues of Perfecting the Mechanism of Coal-electricity Price Linkage, confirming the annual cycle of the mechanism, the NDRC's leading role in implementing the mechanism, and provinces and cities' executor role in implementing the mechanism. The coal-electricity prices with which the mechanism of coal-electricity price linkage is in line are indexed to the national thermal coal price index. The benchmark coal price is the provincial average price in China's thermal coal price index of 2014. And the benchmark tariff is in principle the on-grid tariff in line with the benchmark coal price. The tariff adjustment may be triggered after the annual review based on the calculations according to the formula given by Policy of the Mechanism of Coal-electricity Price Linkage. Also in December 2015, the NDRC issued the Notice on Reducing On-grid Tariff for Coal-fired Power and General Commercial and Industrial Power Tariff, which ordered a decrease of national on-grid tariffs for coal power and general commercial and industrial power tariff by an average of RMB0.03 per kWh, based on the relevant regulations prescribed in the mechanism of coal-electricity price linkage. In the same month of 2015, the NDRC also issued the Notice on Improving On-grid Tariff Policy for Wind Power and Photovoltaic Power, which established a policy that the benchmark on-grid tariffs for wind power and photovoltaic power decrease in line with the development of these two types of power plants. To further indicate the investment expectation, the Notice confirmed the benchmark on-grid tariffs for wind power of 2016 and 2018. The 2016 benchmark on-grid tariff for photovoltaic power has been confirmed, yet that of 2017 and onward will be confirmed at a later stage.

On January 1, 2016, after the annual review based on the calculations prescribed in the mechanism of coal-electricity price linkage, the NDRC adjusted on-grid tariff for coal-fired power and commercial and industrial power tariff. National on-grid tariffs for coal power decreased by an average of RMB0.03 per kWh, based on the relevant regulations, RMB0.01 per kWh of which shall be contributed to a specialized corporate restructuring fund with the purpose of supporting placement of personnel laid off during the supply-side reform. The NDRC also increased on-grid tariff for renewable power by RMB0.004 per kWh in order to replenish the renewable energy fund and to support emission reduction efforts of coal-fired power generation enterprises and to resolve conflicts regarding environmental protection tariffs.

In December 2016, in order to implement General Office of the State Council's Energy Development Strategic Action Plan (2014-2020) about achieving equal on-grid tariff for wind and solar power with coal power to encourage the orderly development of wind and solar power by properly guiding investments in these areas, the NDRC issued the Announcement on the Adjustment of Standard On-Grid Tariff for Solar and Onshore Wind Power (NDRC Price [2016]No. 2729). From January 1, 2017, standard on-grid tariffs for Class I, Class II and Class III solar powers was adjusted to RMB0.65 per kWh, RMB0.75 per kWh and RMB0.85 per kWh, respectively, which is RMB0.15 per kWh, RMB0.13 per kWh and RMB0.13 per kWh lower than corresponding tariff in 2016. Such standard on-grid tariff will be adjusted annually. 2018 standard on-grid tariff for Class I, Class II and Class III onshore wind power decreased by RMB0.04 per kWh, RMB0.02 per kWh, RMB0.01 per kWh, respectively. Yunnan Province has been recategorized as Class II from Class IV, which meant the standard on-grid tariff for wind power generated in Yunnan province will decrease by an additional RMB0.12 per kWh.

Pricing Policy in Singapore

Pricing Policy of Electricity in Singapore

All licensed power plants in Singapore sell their plant output into the NEMS under a half-hourly competitive bidding process, during which a clearing price is determined based on the projected system demand. All successful bids/power plants that are cleared in each half hour will be dispatched automatically by control signals from the Power System Operator, a division of the EMA, and in turn will receive the cleared price as determined earlier. The cleared price paid to the power plants is the nodal price at their point of injection, and the Market Clearing Engine, the computer software that creates dispatch schedules and determines market clearing prices, automatically produces a different price at each node on the network. A Demand Response scheme is being introduced where demand could be curtailed in response to high prices in return for a share of the total savings arising out of lower prices as a result of demand being reduced.

As there is no certainty in the price or the dispatch levels for any power plants, operators of power plants may enter into short- or long-term financial arrangements with other counterparties or their own subsidiary company involved in the electricity retail market (to end consumers of electricity) to secure stability in their revenue stream and manage the commercial risks associated with operations in a competitive market.

In addition, the major power generation companies, including Tuas Power, are obliged to hold vesting contracts. Vesting contracts are a form of bilateral contract imposed/vested on the generation companies who had been licensed by the EMA before the establishment of NEMS. Market Support Services Licensee is the counterparty to all of the vesting contracts, and the vesting contracts are settled between the parties through the EMC's settlement system. The quantity of vesting contract allocated to the power generation company depends on the proportion of such power generation company's capacity to the total licensed or planned generation capacity at the commencement of the vesting contract regime. Vesting contract price is set by the EMA at the long-run marginal cost and is adjusted by the EMA on a periodic basis for changes in the long-run marginal cost and on a quarterly basis for inflation and changes in fuel prices and electricity demand. Such mechanism helps protect the profit margins of the power generation companies in the Singapore market to a large degree. The contract quantity and

price are currently recalculated every three months. There has been a rollback on the vesting contract level from 40% in 2015 to an immediate level of 25%. Following the review of vesting contract regime by EMA in 2016, it is determined that the vesting contract level will maintain at 25% until the end of first half of 2018 and reduce to LNG vesting level by second half of 2019. The vesting contract regime will be phased out by 2023 when the LNG vesting contracts expires. This translates into increased exposure to a more volatile pool price. The authority has introduced a demand response scheme where loads can choose to participate in peak load shaving and share in part of the consumer surplus and an Electricity Futures Market which attracts independent retailers to enter the Singapore market. We continue to monitor closely and evaluate the impact of such markets on our business.

The gross pool design adopted in NEMS means all quantity sold by retailers to contestable consumers (currently defined as customers with average monthly usage more than of 42,000kWh) has to be in turn purchased from the pool. The retailers pay for their electricity purchases at the Uniform Singapore Energy Price, which is a weighted average of nodal prices and is determined on a half-hourly basis in the NEMS.

Pricing Policy of Utilities in Singapore

Utilities supply to industrial customers is based on long-term contracts. The pricing of utilities has both fixed and variable components.

Power sales

Each of our power plants has entered into a written agreement with the local grid companies for the sales of its planned power output. Generally, the agreement has a fixed term of one year and provides that the annual utilization hours of the power plant will be determined with reference to the average annual utilization hours of the similar generating units connected to the same grid.

In 2003, SERC and the State Administration of Commerce and Industry jointly promulgated a model contract form (the "Model Contract Form") for use by power grid companies and power generation companies in connection with electricity sale and purchase transactions. The Model Contract Form contains provisions on the parties' rights and obligations, amount of electricity subject to purchase, payment method and liabilities for breach of contract, etc. We believe that the publication of the Model Contract Form has facilitated the negotiation and execution of electricity purchase contracts between power grid companies and power generation companies in a fair, transparent and efficient manner. In 2015, a majority of the agreements entered into between our power plants and the local grid companies were based on the Model Contract Form.

From 2008, with the purpose of improving energy usage efficiency, the government implemented an optimized-dispatch electricity policy in some provinces in China, as a result of which, the utilization hours of low energy consumption and low pollution generating units have been improved. We believe that our large generating units with high efficiency and low emission are competitive in the market.

The PRC Government started in 1999 to experiment with a program to effect power sales through competitive bidding in some provinces. Furthermore, the PRC Government started in 2009 to experiment with a program for direct power purchase by large power end-users, and has promulgated relevant rules governing the price and method of direct power purchase transactions as well as the market entrance and exit mechanism. In accordance with the above policies, we are conducting research on the program for direct power purchases by large power end-users. In July 2013, China National Energy Administration issued the Notice on Direct Purchases between Power End-users and Power Generation Companies, which officially implemented the direct purchases programs by large end-users. Among the provinces where we operate our power plants, seven of them, namely Shanxi, Jiangsu, Henan, Hunan, Guangdong, Fujian and Gansu, started the direct purchase program in 2013, and four of them, namely Jiangxi, Yunnan, Hubei and Liaoning, are actively promoting the direct purchase pilot programs.

In 2014, the programs were also implemented in Zhejiang and Anhui. In addition to these regions, the direct purchase programs by large end-users were also implemented in Liaoning, Jiangxi, Hubei and Chongqing in 2015 and in the whole nation except Shanghai, Hainan and Tibet in 2016. The national volume of electricity sold in 2016 via the direct purchase programs was approximately 800 billion kWh, which represented a huge increase from the 430 billion kWh sold in 2015. Most of the sale was negotiated between power producers and large end users, with a minority completed through the competitive bidding process. We participated in all regions with pilot direct purchase programs.

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In general, establishing liberalized power markets represents the general trend in China's power market reform, which is conducive to creating a competition environment that is fair, transparent and equitable. The following table sets forth the average power tariff (RMB/MWh) of electric power sold by our power plants in China, for each of the five years ended December 31 through 2016 and the approved power tariff for 2017.

	Year Ended December 31,					2017 Approved Tariff
	2012 Average Tariff	2013 Average Tariff	2014 Average Tariff	2015 Average Tariff	2016 Average Tariff	
<u>Heilongjiang Province</u>						
Xinhua Power Plant*	—	—	—	—	—	377.21
Hegang Power Plant*	—	—	—	—	—	378.70
Daqing Co-generation	—	—	—	—	—	372.30
Yichun Co-generation*	—	—	—	—	—	382.30
Sanjiangkou Wind Power*	—	—	—	—	—	630.00
Linjiang Jiangsheng Wind Power*	—	—	—	—	—	630.00
Daqing Heping Aobao Wind Power*	—	—	—	—	—	630.00
<u>Jilin Province</u>						
Jiutai Power Plant*	—	—	—	—	—	371.70
Changchun Co-generation*	—	—	—	—	—	371.70
Nongan Biomass*	—	—	—	—	—	750.00
Linjiang Jubao Hydropower*	—	—	—	—	—	375.70
Zhenlai Wind Power*	—	—	—	—	—	595.00
Siping Wind Power*	—	—	—	—	—	610.00
Tongyu Tuanjie Wind Power*	—	—	—	—	—	580.00
<u>Liaoning Province</u>						
Dalian Power Plant	409.18	407.89	394.50	375.55	346.76	368.50
Dandong Power Plant	405.73	401.09	393.06	371.45	352.52	368.50
Yingkou Power Plant	409.35	406.85	399.33	378.32	344.71	368.50
Yingkou Co-generation	397.59	396.96	399.21	365.04	331.39	368.50
Wafangdian Wind Power	610.82	632.85	609.68	598.12	603.72	620.00
Changtu Wind Power	610.00	605.30	602.82	590.93	626.09	620.00
Suzihe Hydropower	364.25	330.00	330.00	329.96	332.67	330.00
Dandong Photovoltaic	—	—	—	—	950.00	950.00
Yingkou Co-generation Photovoltaic	—	—	—	—	950.00	950.00
<u>Inner Mongolia Autonomous Region</u>						
Huade Wind Power	520.00	520.00	520.00	520.00	471.22	520.00
<u>Hebei Province</u>						
Shang'an Power Plant	434.63	431.15	429.39	401.79	358.48	367.57

	Year Ended December 31,					
	2012	2013	2014	2015	2016	2017
	Average	Average	Average	Average	Average	Approved
	Tariff	Tariff	Tariff	Tariff	Tariff	Tariff
Kangbao Wind Power	536.72	534.47	538.84	538.14	554.60	540.00
Kangbao Photovoltaic					784.95	982.50
<u>Gansu Province</u>						
Pingliang Power Plant	336.12	332.16	322.72	259.51	207.63	297.80
Jiuquan Wind Power	520.60	520.60	520.60	473.12	367.54	520.60
Jiuquan II Wind Power	—	—	540.00	497.75	402.36	540
Yumen Wind Power	—	—	520.60	472.01	390.06	520.60
Yigang Wind Power	—	—	—	—	447.65	580.00
<u>Beijing Municipality</u>						
Beijing Co-generation	494.00	529.47	514.72	480.70	454.99	462.60
Beijing Co-generation CCGT	—	468.79	882.33	959.91	687.33	650.00
<u>Tianjin Municipality</u>						
Yangliuqing Co-generation	438.03	483.73	434.28	416.54	370.82	383.80
Lingang Co-generation CCGT	—	—	—	817.57	726.44	700
<u>Shanxi Province</u>						
Yushe Power Plant	396.56	393.37	391.22	334.87	253.01	331.50
Zuoquan Power Plant	383.25	389.83	382.01	333.25	252.96	325.5
Dongshan CCGT	—	—	—	703.80	682.40	670.50
<u>Shandong Province</u>						
Dezhou Power Plant	468.90	464.89	463.36	445.44	389.78	403.51
Jining Power Plant	459.63	455.46	446.73	429.20	372.57	384.52
Xindian Power Plant	453.75	453.35	448.55	432.30	381.58	389.60
Weihai Power Plant	461.89	474.38	461.18	440.45	382.53	398.51
Rizhao Power Plant Phase II	446.90	446.38	441.59	422.33	372.08	382.90
Zhanhua Co-generation	450.55	446.56	434.71	424.66	389.33	372.90
Baiyanghe Power Plant*	—	—	—	—	—	394.64
Rizhao Power Plant Phase I*	—	—	—	—	—	448.50
Jiaxiang Power Plant*	—	—	—	—	—	377.90
Jining Co-generation*	—	—	—	—	—	385.50
QufuCo-generation*	—	—	—	—	—	372.90
Huangtai Power Plant*	—	—	—	—	—	382.90
Yantai Power Plant*	—	—	—	—	—	405.40
Linyi Power Plant*	—	—	—	—	—	384.23
Jining Yunhe Power Plant*	—	—	—	—	—	394.50

	Year Ended December 31,					Approved
	2013	2014	2015	2016	2017	
	Average Tariff	Average Tariff	Average Tariff	Average Tariff	Average Tariff	Tariff
Liaocheng Co-generation*	—	—	—	—	—	385.20
Taian Power Plant*	—	—	—	—	—	372.90
Laiwu Power Plant*	—	—	—	—	—	380.40
Muping Wind Power*	—	—	—	—	—	640.00
Penglai Wind Power*	—	—	—	—	—	635.00
Rushan Wind Power*	—	—	—	—	—	640.00
Changdao Wind Power*	—	—	—	—	—	630.00
Rongcheng Wind Power*	—	—	—	—	—	630.00
Dongying Wind Power*	—	—	—	—	—	640.00
Boshan Photovoltaic*	—	—	—	—	—	1,000.00
Sishui Photovoltaic*	—	—	—	—	—	