

HUANENG POWER INTERNATIONAL INC

Form 20-F

April 15, 2016

HUANENG POWER INTERNATIONAL, INC.

Annual Report On Form 20-F
2015

As filed with the Securities and Exchange Commission on April 15, 2016

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, 2015

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)

Mr. Du Daming

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

HUANENG BUILDING,
6 FUXINGMENNEI STREET, XICHENG DISTRICT, BEIJING, PEOPLE'S REPUBLIC OF CHINA
Tel: +86 (10) 6322 6999 Fax: +86 (10) 6322 6888
(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

TABLE OF CONTENTS

PART I			1
ITEM 1	Identity of Directors, Senior Management and Advisers		1
ITEM 2	Offer Statistics and Expected Timetable		1
ITEM 3	Key Information		1
	A.	Selected financial data	1
	B.	Capitalization and indebtedness	3
	C.	Reasons for the offer and use of proceeds	3
	D.	Risk factors	3
ITEM 4	Information on the Company		12
	A.	History and development of the Company	12
	B.	Business overview	15
	C.	Organizational structure	28
	D.	Property, plants and equipment	29
ITEM 4A	Unresolved Staff Comments		65
ITEM 5	Operating and Financial Reviews and Prospects		65
	A.	General	65
	B.	Operating results	67
	C.	Financial position	83
	D.	Liquidity and cash resources	84
	E.	Trend information	88
	F.	Employee benefits	89
	G.	Guarantees for loans and restricted assets	90
	H.	Off-balance sheet arrangements	90
	I.	Performance of significant investments and their prospects	90
	J.	Tabular disclosure of contractual obligations and commercial commitments	91
	K.	Impairment sensitivity analysis	92
	L.	Prospects for 2016	93
ITEM 6	Directors, Senior Management and Employees		93
	A.	Directors, members of the supervisory committee and senior management	93
	B.	Compensation for Directors, Supervisors and Executive Officers	97
	C.	Board practice	98
	D.	Employees	99
	E.	Share ownership	99
ITEM 7	Major Shareholders and Related Party Transactions		99
	A.	Major shareholders	100
	B.	Related party transactions	102
	C.	Interests of experts and counsel	110
ITEM 8	Financial Information		110
	A.	Consolidated statements and other financial information	110
	B.	Significant changes	110
ITEM 9	The Offer and Listing		111

	A.	Offer and listing details and markets	111
ITEM 10		Additional Information	112
	A.	Share capital	112
	B.	Memorandum and articles of association	112
	C.	Material contracts	119
	D.	Exchange controls	119
	E.	Taxation	120
	F.	Dividends and paying agents	126
	G.	Statement by experts	126
	H.	Documents on display	126
	I.	Subsidiary information	126
ITEM 11		Quantitative and Qualitative Disclosures About Market Risk	126
ITEM 12		Description of Securities Other than Equity Securities	133

	A. Debt Securities	133
	B. Warrants and Rights	133
	C. Other Securities	133
	D. American Depositary Shares	133
PART II		134
ITEM 13	Defaults, Dividend Arrearages and Delinquencies	134
ITEM 14	Material Modifications to the Rights of Security Holders and Use of Proceeds	134
ITEM 15	Controls and Procedures	134
ITEM 16	Reserved	136
ITEM 16A	Audit Committee Financial Expert	136
ITEM 16B	Code of Ethics	136
ITEM 16C	Principal Accountant Fees and Services	136
ITEM 16D	Exemptions from the Listing Standards for Audit Committees	137
ITEM 16E	Purchases of Equity Securities by the Issuer and Affiliated Purchasers	137
ITEM 16F	Change in Registrant's Certifying Accountant	137
ITEM 16G	Corporate Governance	137
ITEM 16H	Mine Safety Disclosure	141
ITEM 17	Financial Statements	141
ITEM 18	Financial Statements	141
ITEM 19	Exhibits	141

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, 2015 of US\$1.00 to RMB6.4936. 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 the “key contracts” refer to coal purchase contracts entered into between the Company and coal suppliers for the amount of coals at the annual national coal purchase conferences attended by, among others, representatives of power companies, coal suppliers and railway authorities. These conferences were coordinated and sponsored by National Development and Reform Commission (“NDRC”). The Company enjoys priority railway transportation services with respect to coal purchased under such contracts. Starting from 2008, NDRC ceased to coordinate the annual national coal purchase conferences. At the end of each year subsequent to 2008, the National Railway Administration (previously, the Ministry of Railways) will promulgate the railway transportation capacity plan for the next year. References to the “key contracts” for the year 2008 and thereafter refer to coal purchase contracts entered into between the Company and coal suppliers under the guidance of such railway transportation capacity plan, which, once confirmed by the National Railway Administration, secures the railway transportation capacity for the coal purchased thereunder. Starting from the beginning of 2013, key contracts were terminated pursuant to a notice issued by the PRC Government in December 2012.

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.

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”.

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.

vi

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, 2015 and 2014 and the consolidated income statement and cash flow data for each of the years in the three-year period ended December 31, 2015 are derived from the historical financial statements included herein. Our consolidated data of financial position as of December 31, 2013, 2012 and 2011 and consolidated income statement and cash flow data for each of the years in the two-year period ended December 31, 2012, 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,				
	2011	2012	2013	2014	2015
RMB in thousands except per share data	(RMB)	(RMB)	(RMB)	(RMB)	(RMB)
Consolidated Income Statement Data					
Operating revenue	133,420,769	133,966,659	133,832,875	125,406,855	128,904,873
Tax and levies on operations	(484,019)	(672,040)	(1,043,855)	(932,485)	(1,157,760)
Operating expenses	(124,189,148)	(116,337,679)	(108,677,981)	(99,199,728)	(98,604,187)
Profit from operations	8,747,602	16,956,940	24,111,039	25,274,642	29,142,926
Interest income	166,183	175,402	170,723	159,550	160,723
Financial expenses, net	(7,659,712)	(9,063,875)	(7,693,363)	(7,823,606)	(7,970,070)
Other investment income	93,460	187,131	224,908	80,580	115,238
(Loss)/Gain on fair value changes of financial assets/ liabilities	(727)	(1,171)	(5,701)	42,538	(16,742)
Share of profits less losses of associates and joint ventures	703,561	622,358	615,083	1,315,876	1,525,975
	2,050,367	8,876,785	17,422,689	19,049,580	22,958,050

Profit before income tax expense					
Income tax expense	(868,927)	(2,510,370)	(4,522,671)	(5,487,208)	(5,698,943)
Net profit	1,181,440	6,366,415	12,900,018	13,562,372	17,259,107
Attributable to:					
Equity holders of the Company	1,180,512	5,512,454	10,426,024	10,757,317	13,651,933
Non-controlling interests	928	853,961	2,473,994	2,805,055	3,607,174
Basic earnings per share	0.08	0.39	0.74	0.76	0.94
Diluted earnings per share	0.08	0.39	0.74	0.76	0.94

RMB in thousands	As of December 31,				
	2011 (RMB)	2012 (RMB)	2013 (RMB)	2014 (RMB)	2015 (RMB)
Consolidated Financial Position Data					
Current assets	36,417,338	36,086,261	34,186,911	37,865,284	33,565,403
Property, plant and equipment	177,968,001	177,013,627	181,415,181	188,379,057	219,673,070
Available-for-sale financial assets	2,301,167	3,052,822	3,111,164	4,333,377	5,077,863
Investments in associates and joint ventures	13,588,012	14,596,771	16,678,694	17,626,910	19,745,192
Land use rights and other non-current assets	8,820,722	9,316,455	9,593,252	10,636,352	14,384,078
Power generation license	3,904,056	4,084,506	3,837,169	3,720,959	3,679,175
Deferred income tax assets	526,399	532,387	652,358	884,274	1,064,391
Goodwill	13,890,179	14,417,543	12,758,031	11,725,555	11,677,182
Total assets	257,415,874	259,100,372	262,232,760	275,171,768	308,866,354
Current liabilities	(96,597,620)	(93,594,320)	(98,978,845)	(104,846,121)	(123,836,633)
Non-current liabilities	(101,260,501)	(99,545,710)	(88,060,941)	(85,542,941)	(83,336,032)
Total liabilities	(197,858,121)	(193,140,030)	(187,039,786)	(190,389,062)	(207,172,665)
Total equity	59,557,753	65,960,342	75,192,974	84,782,706	101,693,689

RMB in thousands except per share data	Year Ended December 31,				
	2011 (RMB)	2012 (RMB)	2013 (RMB)	2014 (RMB)	2015 (RMB)
Consolidated Cash Flow Data					
Purchase of property, plant and equipment	(16,673,632)	(15,474,614)	(17,691,382)	(19,858,216)	(24,191,285)
Net cash provided by operating activities	20,949,155	26,928,082	40,239,429	33,320,067	42,362,708
Net cash used in investing activities	(21,664,831)	(15,309,604)	(19,054,250)	(19,470,813)	(33,015,012)
Net cash provided by / (used in) financing activities	69,648	(9,816,900)	(22,240,088)	(10,894,180)	(14,140,659)

Other Company Data

Dividend declared per share	0.05	0.21	0.38	0.38	0.47
Number of ordinary shares ('000)	14,055,383	14,055,383	14,055,383	14,420,383	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 profit.

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 power purchase price consists of direct transaction price, on-grid dispatch and distribution price and governmental levies and charges, in which 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, 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. 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. 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”.

3

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. 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

4

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. These reform actions will influence 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, there is no assurance that coal prices will not increase in the future, and if the price does increase, 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, the approval requirements and procedures for thermal power plant are becoming increasingly stringent, which may negatively affect the approval process of our new projects and therefore negatively affect the implementation of our growth strategy.

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. We expect that the PBOC will continue to implement a prudent monetary policy, with moderate and timely adjustments in 2016, which will help the Company to manage its financing costs. 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 desulphurization and denitrification facilities, and sets higher anti-dust standards. In September 2014, the NDRC, the Ministry of Environmental Protection and the 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 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

7

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. 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 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.

The Chinese member firm of the KPMG network, of which our independent registered public accounting firm is also a member, 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 KPMG network, 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.

Our independent registered public accounting firm currently relies on the Chinese member firm of the KPMG network for assistance in completing the audit work associated with our operations in China. 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.

9

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, 2015, 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, 2015, 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. The PRC regulatory agencies are intensifying their efforts to protect interests of shareholders. We are listed in three exchanges. Given that each exchange and jurisdiction has different rules for shareholder protection, it is our policy to adopt the strictest standards of these listing rules. 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 1% in 2015 over 2014. 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. A newly constructed 400MW of new generating capacity by a new entrant entered commercial operation in the Singapore market in 2015. To enhance its competitiveness, Tuas Power itself had added 405.9MW of new generating capacity in 2013.

An electricity futures market was also established 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.

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 investors to site their premises is uncertain due to economic situations. The demand of the utilities by these customers may vary as well. Therefore, it is necessary for TPU to understand the customers' demand and timing to arrive at a demand

projection. The facilities will be developed in stages and/or in modules to provide sufficient capacity matching the demand. Customers are required to pay minimum capacity payment charges to mitigate the demand risk.

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 generating 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 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 generating companies in the Singapore market, such as Tuas Power, to a large degree. The quantity of each power generation company’s capacity reserved for vesting contracts depends on the proportion of such power generation company’s capacity to the total capacity in the NEMS system. 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 the initial tranche of LNG for Singapore are allocated electricity sale contracts. The contract quantity and price are recalculated every three months. 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. In addition, the EMA has been tasked by the Minister for Trade and Industry to conduct a comprehensive review of the vesting contract regime.

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. 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. 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. 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.

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.

On April 19, 2006, we carried out the reform to convert all non-tradable domestic shares to tradable domestic shares. According to the reform plan, Huaneng Group and HIPDC offered three shares to each holder of A Shares for every ten shares held by them. The total number of shares offered in connection with the reform was 150,000,000 shares. As a result, all non-tradable domestic shares were permitted to be listed on the stock exchange for trading with certain

selling restrictions. The period of selling restrictions is sixty months for the non-tradable shares held by Huaneng Group and HIPDC, and one year for most non-tradable shares held by others starting from

April 19, 2006. All such selling restrictions were released by April 19, 2011. The reform did not affect the rights of shareholders of our overseas listed foreign shares.

In 2010, we increased our share capital through non-public issuances of new shares, including A shares and H shares. With the approval from shareholders and relevant PRC governmental authorities, we were authorized to issue (i) not exceeding 1,500 million new A shares by way of placement to not more than 10 designated investors including Huaneng Group, which would subscribe for no more than 500 million new A shares, and (ii) no more than 500 million new H Shares to China Hua Neng Hong Kong Company Limited (“Hua Neng HK”). On December 23, 2010, we completed the non-public issuance of 1,500 million new A shares (ordinary shares with a par value of RMB1 per share) to 10 designated investors, including Huaneng Group, at the issuance price of RMB5.57 per share. The shares subscribed by Huaneng Group are subject to a lock-up period of 36 months, and the shares subscribed by other designated investors are subject to a lock-up period of 12 months. On December 28, 2010, we completed the placement of 500 million H shares (ordinary shares with a par value of RMB1 per share) to Hua Neng HK at the subscription price of HK\$4.73 per share. On November 13, 2014, we issued a total of 365 million H Shares to nine placees, at an issue price of HK\$8.60 per share. After these non-public issuances, we have a total share capital of approximately 14.42 billion shares.

On December 31, 2009, we entered into an equity transfer contract with Shandong Electric Power Corporation (“Shandong Power”) and Shandong Luneng Development Group Company Limited (“Luneng Development”) to acquire various interests and preliminary stage projects in nine entities. As of December 31, 2011, the operating results of all the nine entities were consolidated into ours.

On January 4, 2011, we entered into an equity transfer agreement relating to the acquisition of Fushun Suzihe Hydropower Development Company Limited (“Fushun Suzihe Hydropower”) with its existing shareholders, pursuant to which we agreed to acquire the entire equity interest in Fushun Suzihe Hydropower with an aggregate consideration of RMB50 million. Fushun Suzihe Hydropower has a planned hydropower capacity of 37.5 MW (3 x 12.5 MW). In September 2012, unit I of Suzihe Hydropower passed trial run.

On June 29, 2011, we entered into an equity transfer agreement relating to the transfer of Huaneng Jilin Biological Power Generation Limited Company (“Jilin Biological”) with Huaneng Jilin Power Generation Co., Ltd. and Huaneng Group, pursuant to which we agreed to transfer the entire equity interest in Jilin Biological with an aggregate consideration of approximately RMB106 million.

On August 9, 2011, we entered into a capital increase agreement with China Huaneng Finance Limited Liability Company (“Huaneng Finance”), pursuant to which we subscribed for its own part of the newly increased registered capital of Huaneng Finance for a consideration of RMB600 million. The equity interest held by us in Huaneng Finance remains unchanged, representing 20% of the equity interests of Huaneng Finance.

On October 25, 2011, we entered into a capital increase agreement with Huaneng Group, GreenGen Co., Ltd. (“GreenGen”) and Tianjin Jinneng Investment Company (“Tianjin Jinneng”), pursuant to which our Company made a capital contribution of RMB264 million to the registered capital of Huaneng (Tianjin) Coal Gasification Power Generation Co., Ltd., which was jointly funded by GreenGen and Tianjin Jinneng immediately prior to the capital increase. We hold 35.97% of the equity interests in Coal Gasification Co after the completion of the capital increase.

On January 11, 2013, we entered into an equity transfer agreement with Huaneng Group, pursuant to which we agreed to acquire a 50% interest in China Huaneng Group Fuel Co., Ltd. (“Fuel Company”) from Huaneng Group for a consideration of approximately RMB108 million. On the same day, we entered into a capital increase agreement with Huaneng Group and the Fuel Company, pursuant to which we agreed to make a capital injection of RMB1.4 billion into the Fuel Company after the completion of the acquisition.

As resolved at the 2010 annual general meeting held on May 17, 2011, our Company has been given a mandate to apply to the competent authority for a quota of the non-public issuance of debt financing instruments with a principal amount not exceeding RMB10 billion within 12 months from the date of obtaining an approval at

the general meeting (to be issued within such period on a rolling basis). On September 8, 2011, we received the approval from the competent authority. On November 7, 2011, we completed the issuance of the first tranche of non-public issuance of debt financing instruments in the amount of RMB5 billion with a maturity period of 5 years, a unit face value of RMB100 and an interest rate of 5.74%. On January 5, 2012, we completed the issuance of the second tranche of the non-public issuance of debt financing instruments in the amount of RMB5 billion with a maturity period of 3 years, a unit face value of RMB100 and an interest rate of 5.24%. On June 4, 2013, we completed the issuance of the third tranche of non-public issuance of debt financing instruments in the amount of RMB5 billion with a maturity period of 3 years and an interest rate of 4.82%.

As resolved at the 2010 Annual General Meeting on May 17, 2011, our Company has been given a mandate to issue one or multiple tranches of financing instruments of RMB-denominated debt instruments of a principal amount up to RMB5 billion in or outside PRC within 12 months from the date of approval at the general meeting. On April 19, 2012, we received an approval regarding the issuance of RMB-denominated debt instruments in Hong Kong in the sum of RMB5 billion issued by the NDRC, approving our Company to issue the RMB-denominated debt instruments in Hong Kong in an aggregate amount of up to RMB5 billion, with an effective period of one year from the date of approval. On January 30, 2013, our Company and the managers entered into a subscription agreement in relation to the proposed issuance of RMB1.5 billion bonds due 2016 with an interest rate of 3.85% (“RMB Bonds”). The RMB Bonds are listed and traded on the Hong Kong Stock Exchange effective from February 5, 2013.

As resolved at the 2012 annual general meeting on June 19, 2013, our Company has been given a mandate to issue one or more tranches of super short-term notes within the PRC in a principal amount not exceeding RMB30 billion on a rolling basis within 24 months of approval by the general shareholders’ meeting. On August 22, September 10 and November 3, 2014, we issued super short-term notes in three installments at principal amount of RMB2 billion, RMB3 billion and RMB3 billion and with nominal annual interest rate of 4.63%, 4.63% and 4.00%, respectively. All these series of notes were denominated in RMB, issued at par value, and would mature in 270 days from issuance.

As resolved at the 2012 annual general meeting on June 19, 2013, our Company has been given a mandate to issue one or more tranches of short-term notes 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 April 25 and November 14, 2014, we issued unsecured short-term bonds in two installments each at principal amount of RMB5 billion with nominal annual interest rate of 4.90% and 3.98%, respectively. Each of the bonds was denominated in RMB, issued at par value, and would mature in 365 days from issuance.

As resolved at the 2012 annual general meeting held on June 19, 2013, our Company has been given a mandate to issue non-public debt financing instruments in the PRC in a principal amount of not exceeding RMB10 billion within 24 months from the date of obtaining an approval at the general meeting. On July 11, 2014, we issued mid-term notes at principal amount of RMB4 billion with nominal annual interest rate of 5.30%. The notes were denominated in RMB, issued at par value, and would mature in five years from issuance.

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.

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, 2016, we had controlling generating capacity of 82,381MW, and a total generating capacity of 74,826 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 22 provinces, provincial-level municipalities and autonomous regions. We also have a wholly owned power company in Singapore.

In 2015, the Company actively responded to the new environment and new demand arising from the development of the power market, implemented and progressed the relevant work, maintained stable overall production safety 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 2015, new generating units with a total installed capacity of 3,988 MW were put into operation. In 2015, our total domestic power generation from all operating power plants on a consolidated basis amounted to 320.529 billion kWh, representing a 8.9% increase from 2014. The annual average utilization hours of our generating units reached 4,147 hours. Our fuel cost per unit of power sold by domestic power plants decreased by 13.68% from the previous year to RMB 173.67 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 profit enhancement by relentlessly 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 8.94% and 7.87%, respectively, of our consolidated total assets and revenue as of and for the year ended December 31, 2015. In 2015, the power generated by Tuas Power in Singapore accounted for 21.7% of the total power generated in Singapore, marginally lower than 2014.

Development of power plants

15

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 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.

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-Tianjian-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.

Permits and contracts

In developing a new power plant, we and third parties 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.

Import duties

Under the relevant PRC laws and regulations, foreign invested enterprises (“FIE”), will be entitled to import duty exemption in respect of self-use imported equipment and raw materials for investment projects that fall into the encouraged category under the Catalogue for the Guidance of Foreign Investment Industries (the “Catalogue”). Pursuant to the current Catalogue, effective on January 30, 2012, construction and operation of power stations using integrated gasification combined cycle, circulating fluidized bed with a generating capacity of 300MW or above, pressurized fluidized bed combustor with a generating capacity of 100MW or above and other clean combustion technologies belong to the category of encouraged projects. Therefore, all of our construction projects that meet the conditions for encouraged projects under the current catalogue are eligible for import-duty exemption for imported generating units.

Pursuant to the Interim Rules to Promote Structural Adjustment of Industries issued in December 2005 and Guidance Catalogue for Structural Adjustment of Industries effective on June 1, 2011, our power plants construction projects with independent legal person status belonging to an encouraged category of investments are eligible for exemption from import duty and related value-added tax with regard to the imported equipments used in such projects, subject to the approval of the relevant government authorities.

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

17

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 to maintain system security, 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 70% of total power capacity. It is therefore unlikely that the EMA will allow the three largest power generation companies to increase their licensed capacity and these generation companies will have to rely on the optimization of their existing capacity within license capacities to improve efficiency and forestall any new entrant.

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 take-or-pay penalties arising out of an oversupplied market.

In late 2015, EMA released a consultation paper on “Preparing for Future Power Generation Investments in Singapore”. In it, EMA stated its intention to provide information on the long term outlook of the energy market, proposed enhancements to the regulatory approval process for new and existing generation assets to give greater visibility on the capacity coming on-stream, and proposed a framework to allocate land for new generation assets.

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.

In terms of power tariff for wind power projects, pursuant to the applicable policies and regulations, the PRC is categorized into four wind-resource zones, and the onshore wind power projects approved after August 1, 2009 and in the same zone are subject to the same standard on-grid tariff applicable to that zone. In addition, the power grid companies are generally required to purchase all of the electricity generated by wind power generating units.

Pricing Policy in Singapore

Pricing Policy of Electricity in Singapore

21

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 each power generation company's capacity covered by vesting contracts depends on the proportion of its capacity to total capacity in the NEMS system. 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. 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. The existing Vesting Contract Scheme has been reduced to an intermediate level of 30% of system demand in first half of 2015 and 25% in second half of 2015 (from 40% in 2014). Following an appeal by some of the players in the market, the vesting contract level has been maintained at 25% for 2016 (instead of the originally intended 20%). In addition, the EMA has been tasked by the Minister to conduct a comprehensive review of the vesting contract regime. This translates into increased exposure to a more volatile pool price. The authority is further considering introducing a demand response scheme where loads can choose to participate in peak load shaving and share in part of the consumer surplus. An Electricity Futures Market is also being contemplated. Going forward, we intend to monitor and evaluate the impact of such market 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 4,000kWh) 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 program. In 2014, the programs were also implemented in Zhejiang and Anhui. In addition to these regions, the direct purchase program by large end-users was also implemented in Liaoning, Jiangxi, Hubei and Chongqing in 2015.

In general, establishing liberalized power markets may be 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 2015 and the approved power tariff for 2016.

	Year Ended December 31,					
	2011 Average Tariff	2012 Average Tariff	2013 Average Tariff	2014 Average Tariff	2015 Average Tariff	2016 Approved Tariff
Liaoning Province						
Dalian Power Plant	382.84	409.18	407.89	394.50	375.55	368.50
Dandong Power Plant	383.08	405.73	401.09	393.06	371.45	368.50
Yingkou Power Plant	394.82	409.35	406.85	399.33	378.32	368.50
Yingkou						
Co-generation	391.92	397.59	396.96	399.21	365.04	368.50
Wafangdian Wind						
Power	610.00	610.82	632.85	609.68	598.12	620.00
Changtu Wind Power	—	610.00	605.30	602.82	590.93	610.00
Suzihe Hydropower	—	364.25	330.00	330.00	329.96	330.00
Inner Mongolia						
Autonomous Region						
Huade Wind Power	528.45	520.00	520.00	520.00	520.00	520.00
Hebei Province						

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

Shang'an Power Plant	408.20	434.63	431.15	429.39	401.79	357.57
Kangbao Wind Power	—	536.72	534.47	538.84	538.14	540.00
Gansu Province						
Pingliang Power Plant	306.36	336.12	332.16	322.72	259.51	297.80
Jiuquan Wind Power	—	520.60	520.60	520.60	473.12	520.60
Jiuquan II Wind Power	—	—	—	540.00	497.75	540.00
Yumen Wind Power	—	—	—	520.60	472.01	520.60
Yigang Wind Power	—	—	—	—	—	580.00
Beijing Municipality						
Beijing Co-generation	481.35	494.00	529.47	514.72	480.70	462.60
Beijing Co-generation CCGT	—	—	468.79	882.33	959.91	650.00
Tianjin Municipality						
Yangliuqing Co-generation	414.23	438.03	483.73	434.28	416.54	383.80
Lingang Co-generation CCGT	—	—	—	—	817.57	730.00
Shanxi Province						
Yushe Power Plant	363.66	396.56	393.37	391.22	334.87	331.50

	Year Ended December 31,						2016 Approved Tariff
	2011 Average Tariff	2012 Average Tariff	2013 Average Tariff	2014 Average Tariff	2015 Average Tariff		
Zuoquan Power Plant	—	383.25	389.83	382.01	333.25	320.50	
Dongshan CCGT	—	—	—	—	703.80	607.50	
Shandong Province							
Dezhou Power Plant	443.20	468.90	464.89	463.36	445.44	398.70	
Jining Power Plant	422.91	459.63	455.46	446.73	429.20	377.30	
Xindian Power Plant	426.77	453.75	453.35	448.55	432.30	379.60	
Weihai Power Plant	435.32	461.89	474.38	461.18	440.45	393.51	
Rizhao Power Plant							
Phase II	420.06	446.90	446.38	441.59	422.33	372.90	
Zhanhua Co-generation	419.76	450.55	446.56	434.71	424.66	372.90	
Henan Province							
Qinbei Power Plant	412.75	441.43	437.01	435.42	401.65		355.10
Luoyang Cogeneration Power Plant	—	—	—	—	384.33		365.10
Jiangsu Province							
Nantong Power Plant	425.97	441.25	435.69	436.00	430.98		378.00
Nanjing Power Plant	442.54	442.17	436.35	463.50	453.08		378.00
Taicang Power Plant							
Phase I	424.09	430.43	432.81	419.19	387.68		378.00
Taicang Power Plant Phase II	429.44	443.88	427.58	395.38	387.68		378.00
Huaiyin Power Plant	438.72	458.25	449.87	438.98	450.81		378.00
Jinling Power Plant							
CCGT	587.53	581.35	585.53	606.21	712.13		575.00
Coal-fired	417.99	427.34	428.38	408.24	385.24		388.00
CCGT Co-generation	—	—	635.42	690.00	760.99		584.00
Qidong Wind Power	519.09	542.65	541.34	555.92	556.76		549.67
Rudong Wind Power	—	—	610.00	610.00	610.00		610.00
*Suzhou Thermal Power	—	—	—	508.66	489.38		457.00
Shanghai Municipality							
Shidongkou I	441.11	457.18	453.27	438.21	435.48		394.10
Shidongkou II	422.25	442.13	442.00	437.54	410.35		395.80
Shanghai CCGT(2)	665.00	674.00	820.92	866.20	937.13		705.60
Shidongkou Power	457.20	463.85	462.02	449.92	427.42		404.80
Chongqing Municipality							
Luohuang Power Plant	410.86	448.95	448.57	440.90	427.84		379.60
Liangjiang CCGT	—	—	—	—	872.20		629.00
Zhejiang Province							
Yuhuan Power Plant	462.49	491.37	484.79	468.71	452.99		412.30
Tongxiang CCGT(2)	—	—	—	1,298.37	1,278.17		600.00
Changxing Power Plant	—	—	—	431.03	487.93		432.30
Si'an Photovaltaic	—	—	—	—	1,125.67		1,100.00
Hunan Province							
Yueyang Power Plant	465.74	506.87	505.13	495.31	480.55		447.10
Xiangqi Hydropower	—	390.00	390.00	410.00	410.00		410.00

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

Subaoding Wind Power	—	—	—	494.00	611.72	610.00
Guidong Wind Power	—	—	—	—	610.00	610.00
Hubei Province						
Enshi Maweigou						
Hydropower	437.03	360.00	356.96	366.59	379.26	370.00
*Jingmen Thermal						
Power	—	—	—	432.20	444.09	398.10
*Yingcheng Thermal						
Power	—	—	—	—	477.26	398.10
*Wuhan Power Plant	—	—	—	461.99	435.47	400.76
*Dalongtan Hydropower	—	—	—	366.89	374.80	370.00
Jieshan Wind Power	—	—	—	—	610.00	610.00
Jiangxi Province						
Jingangshan Power						
Plant	447.05	483.90	482.95	468.92	443.73	401.18
Jianggongling Wind						
Power	—	—	—	610.00	610.00	610.00
*Ruijin Power	—	—	—	466.57	441.24	399.30
*Anyuan Power	—	—	—	—	424.63	399.30

	Year Ended December 31,						2016 Approved Tariff
	2011 Average Tariff	2012 Average Tariff	2013 Average Tariff	2014 Average Tariff	2015 Average Tariff		
Anhui Province							
*Chaohu Power Plant	—	—	—	412.93	409.79	369.30	
*Hualiangting Hydropower							
	—	—	—	346.85	392.89	406.90	
Fujian Province							
Fuzhou Power Plant	425.38	445.64	442.81	441.83	392.29	381.42	
Guangdong Province							
Shantou Power Plant	522.91	542.97	541.39	529.99	498.01	472.76	
Haimen	498.77	529.06	514.30	503.18	483.38	450.50	
Haimen Power	—	—	—	479.55	485.46	450.50	
Yunnan Province							
Diandong Energy	345.43	359.58	371.30	401.59	435.58	335.80	
Diandong Yuwang	345.31	361.70	377.41	395.96	545.42	335.80	
Fuyuan Wind Power	—	—	—	610.00	600.61	610.00	
Guizhou Province							
Panxian Wind Power	—	—	—	—	—	610.00	
Hainan Province							
*Haikou Power Plant	—	—	—	474.14	457.71	419.80	
*Dongfang Power Plant	—	—	—	482.69	460.53	419.80	
*Nanshan CCGT	—	—	—	439.84	629.32	665.80	
*Gezhen Hydropower	—	—	—	392.63	399.78	400.00	
*Wenchang Wind Power	—	—	—	619.72	571.95	610.00	

Notes:

- (1) The power plants marked * are Newly Acquired Entities of the Company in January 2015, and the comparative figures thereof are solely for reference purposes.
- (2) The tariff of Shanghai Combined Cycle and Tongxiang Combined Cycle consist of on-grid settlement price and capacity subsidy income.

Power sales in Singapore

According to the latest available update from EMA, the total licensed capacity in commercial operation for the first quarter of 2015 in Singapore was 12,889 MW. In 2015, the peak demand for electricity was 6,696 MW against 2014's 6,849MW. The power market in Singapore is competitive, and power generation companies compete to sell their power output into NEMS through a bidding process with hedging via vesting contracts and retail sales. At the end of December 31, 2015, power sold through vesting contracts represented approximately 25% of total system demand. The existing Vesting Contract Scheme will be maintained at 25% of system demand for 2016. EMA has been tasked by the Minister to do a comprehensive review of the Vesting Regime. The decrease in allocated vesting contract volumes will have to be made up through increased retail sales, or otherwise, be translated into increased exposure to more volatile pool prices.

The volatility in the sales price of the revenue associated with the sale of electricity in the NEMS is effectively managed via vesting contracts and direct retail sales which is carried out through a Tuas Power's subsidiary. The effective tariffs Tuas Power received for its electricity output is thus largely dependent on the vesting contract prices

and volumes as well as prices secured under retail sales. The Minister has also indicated the year of 2018 for the start of Full Retail Contestability.

Utility sales in Singapore

In 2015, TMUC sold 1,988,927 MT of steam to customers, representing an increase of 9% as compared to 1,824,638 MT in 2014.

Fuel supply arrangements

In 2015, the majority of our power plants were fueled by coal, gas and oil.

Coal

Our coal supply for our coal-fired power plants is mainly obtained from numerous coal producers in Shanxi Province, Inner Mongolia Autonomous Region and Gansu Province. We also obtain coal from overseas suppliers.

For past years, as part of its efforts to make a transition from a comprehensive planned economy to a “socialist market economy”, the PRC has experimented with a variety of methods of setting coal prices. In 1996, the government allowed coal prices to fluctuate within a range around a reference price for coal allocated under the State Plan to be used in electricity generation, and set maximum allowable prices in various coal-producing areas for coal used in electricity generation.

From 2002 to 2003, there was no longer an official State Plan for coal supplies, but the government continued to coordinate the coal prices at the annual national coal purchase conferences attended by, among others, representatives of each of power companies, coal suppliers, and the railway authorities and sponsored and coordinated by NDRC. Power companies obtain allocations for coal on a plant-by-plant basis. Each of the power plants then signs supply contracts with the coal suppliers, and with the railway and shipping companies for the amount of coal and transportation allocated to them. From 2004 to 2008, although such annual coal purchase conferences continue to be held, only key contracts are negotiated and executed at such conferences. Starting from 2009, in furtherance of the coal purchase reform, NDRC ceased to coordinate annual coal purchase conference and took measures to reduce government’s involvement in the coal supply negotiation. NDRC will no longer make allocation of coal supply to power companies, but instead will consolidate and publish overall framework for the coal demand and supply. The price and amount of coal supply will be determined based on the free negotiation between power companies, coal suppliers, and the railway authorities.

In 2011, the average coal price increased significantly. We purchased 144.72 million tons of coal and consumed 144.07 million tons of coal. In 2011, we adjusted the thresholds of key contracts in accordance with the NDRC’s catalogue and criteria. Of our total coal purchases, 26.13% was purchased under the key contracts and the remainder was purchased in the open market. The coal purchase price for our Company, including transportation costs and miscellaneous expenses, averaged approximately RMB637.22 per ton. Our average unit fuel cost in 2011 increased by 9.24% from that in 2010.

In 2012, the average coal price decreased significantly. We purchased 133.47 million tons of coal and consumed 133.93 million tons of coal. Of our total coal purchases, 28.1% was purchased under the key contracts and the remainder was purchased in the open market. The coal purchase price for our Company, including transportation costs and miscellaneous expenses, averaged approximately RMB598.27 per ton. Our average unit fuel cost in 2012 decreased by 7.6% from that in 2011.

In December 2012, the PRC Government issued a notice to further reform coal price, which mandated (1) the termination of all key coal purchase contracts between power generation companies and coal suppliers under the guidance of railway transportation capacity plan, and (2) the termination of the dual pricing system for coal pricing, from the beginning of 2013.

In 2013, as a result of the termination of the key contracts, coal prices in PRC fluctuated wildly. The Bohai-Rim Steam Coal Price Index (“BSPI”) decreased from RMB633 per ton in the beginning of 2013 to RMB530 per ton in early October 2013, and increased again to RMB631 per ton by the end of 2013. The coal purchase price for our Company, including transportation costs and miscellaneous expenses, averaged approximately RMB531.37 per ton. Our average unit fuel cost in 2013 decreased by 12.5% from that in 2012

In 2014, the average coal purchase price decreased significantly while the quality of the purchased coals saw marked improvement. We purchased 120.7 million tons of coal and consumed a total of 134.9 million tons of coal. Of our total coal purchases, 52% was purchased under annual contracting arrangements, and the remainder was purchased in the open market. The coal purchase price for our Company, including transportation costs and miscellaneous expenses, averaged approximately RMB494.86 per ton in 2014. Our average unit fuel cost in 2014 decreased by 7.96% from that in 2013.

In 2015, the average coal purchasing price decreased significantly from the previous year. We purchased 130.56 million tons of coal and consumed 132.12 million tons of coal. Of our total coal purchases, 48% was purchased under annual contracting arrangements and the remainder was purchased in the open market.

The coal purchase price for our Company, including transportation costs and miscellaneous expenses, averaged approximately RMB408.71 per ton in 2015. Our average unit fuel cost in 2015 decreased by 13.68% from that in 2014.

Singapore's Tuas Power used coal as primary fuel for its TMUC's cogeneration plants. Coal is procured from coal producers in Indonesia via two long-term coal supply contracts with 10 years and 15 years term respectively. The prices are indexed to the Global Coal Newcastle Index.

Gas

Currently, the Company has nine Combined Cycle Gas Turbine Power Plants ("CCGT") in China, including:

1. Huaneng Shanghai Combined Cycle Gas Turbine Power Plant ("Shanghai CCGT") with gas supply transported through the pipeline of "West-East Gas Transport Project";
2. Huaneng Jiangsu Jinling Combined Cycle Gas Turbine Power Plant ("Jinling CCGT") with gas supply transported through the pipeline of "West-East Gas Transport Project";
3. Huaneng Jiangsu Jinling Combined Cycle Gas Turbine Co-generation Power Plant ("Jinling CCGT Co-generation") with gas supply transported through the pipeline of "West-East Gas Transport Project";
4. Huaneng Beijing Co-generation CCGT Power Plant ("Beijing Co-generation CCGT") with gas supply transported through Shaanxi-Beijing Pipeline;
5. Huaneng Zhejiang Tongxiang Combined Cycle Gas Turbine Power Plant ("Tongxiang CCGT"), with gas supply transported through the pipeline of "West-East Gas Transport Project";
6. Huaneng Chongqing Liangjiang Combined Cycle Gas Turbine Power Plant ("Liangjiang CCGT") with gas supply transported through the pipeline of "West-East Gas Transport Project";
7. Huaneng Tianjin Lingang Combined Cycle Gas Turbine Co-generation Power Plant ("Lingang CCGT Co-generation") with gas supply by CNOOC Tianjin Trading Branch;
8. Huaneng Shanxi Dongshan Combined Cycle Gas Turbine Power Plant ("Dongshan CCGT") with gas supply transported through Shaanxi-Beijing Pipeline II; and
9. Huaneng Hainan Nanshan Combined Cycle Gas Turbine Power Plant ("Nanshan CCGT") with gas supply by CNOOC Hainan Branch.

Also, the Tuas Power in Singapore has five gas-fired combined cycle generating units and three gas-fired backup boilers. The piped gas for Tuas Power is provided by Pavilion Gas Pte Ltd and Sembcorp Gas Pte Ltd., whereas LNG is provided by BG Singapore Gas Marketing Pte Ltd.

Oil

Tuas Power maintains operation of one 600 MW oil-fired steam generating unit. The oil supply for Tuas Power is purchased from the open market. With the increased competition from new gas-fired CCPs, fuel oil consumption is expected to be marginal at best and therefore future purchases, if any, will be on a spot basis. Diesel, as backup fuel for oil-fired units, is also purchased on a spot basis.

Repairs and maintenance

27

Each of our power plants has a timetable for routine maintenance, regular inspections and repairs. Such timetables and the procedures for the repairs and maintenance of generating units comply with the relevant regulations promulgated by the former Ministry of Electricity Power.

Pursuant to our procedures, generating units are currently operating on a cycle of four to six years. In each cycle, there are four different levels of maintenance:

- (i) regular checks and routine maintenance are carried out throughout the period during which generating unit is in operation;
- (ii) a small-scale servicing is performed every year, which takes approximately 20 days;
- (iii) a medium-scale check-up is carried out between the two overhauls, the length of which depends on the actual condition of the generating unit at the time of the check-up and the inspections and improvements to be carried out; and
- (iv) a full-scale overhaul is conducted at the end of each operating cycle, which takes approximately 60 days.

C. Organizational structure

We are 33.33% owned by HIPDC, which in turn is a subsidiary of Huaneng Group. Huaneng Group was established in 1988 with the approval of the State Council. Huaneng Group also holds a 13.83% equity interest in us besides HIPDC. In 2002, Huaneng Group was restructured as one of the five independent power generation group companies to take over the power generation assets originally belonging to the State Power Corporation of China. Huaneng Group has a registered capital of RMB20 billion and is controlled and managed by the central government. Huaneng Group is principally engaged in development, investment, construction, operation and management of power plants; organizing the generation and sale of power (and heat); and the development, investment, construction, production and sale of products in relation to energy, transportation, new energy and environmental protection industries.

HIPDC was established in 1985 as a joint venture controlled by Huaneng Group. HIPDC is engaged in developing, investing, operating and constructing power plants in China. Some of the power plants currently owned and operated by us were originally built and later transferred to us by HIPDC. Both Huaneng Group and HIPDC have agreed to give us preferential rights in the power development business and power assets transfers. See “Item 7.A. Major shareholders” for details.

The following organizational chart sets forth the organizational structure of HIPDC and us as of March 31, 2016:

Notes:

*Huaneng Group indirectly holds 100% equity interests in Pro-Power Investment Limited through its wholly owned subsidiary, China Hua Neng Hong Kong Company Limited, and Pro-Power Investment Limited in turn holds 25% equity interests in HIPDC. As a result, Huaneng Group indirectly holds additional 25% equity interests in HIPDC.

**Of the 13.83% equity interest, 10.23% was directly held by Huaneng Group, 3.11% was held by Huaneng Group through its wholly owned subsidiary, China Hua Neng Hong Kong Company Limited, and the remaining approximately 0.49% was held by Huaneng Group through its subsidiary, China Huaneng Finance Corporation Limited.

For a detailed discussion of the Company's subsidiaries, see Note 9 to the Financial Statements.

D. Property, plants and equipment

The following table presents certain summary information on our power plants as of March 31, 2016.

Plant or Expansion (Names as defined below)		Actual In-service Date	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Liaoning Province						
Dalian Power Plant	Phase I	Unit I: Sep. 1988	2 x 350	100%	700	Coal
		Unit II: Dec. 1988				
	Phase II	Unit III: Jan. 1999	2 x 350	100%	700	Coal
		Unit IV: Jan. 1999				
Dandong Power Plant		Unit I: Jan. 1999	2 x 350	100%	700	Coal
		Unit II: Jan. 1999				
Yingkou Power Plant	Phase I	Unit I: Jan. 1996	2 x 320	100%	640	Coal
		Unit II: Dec. 1996				
	Phase II	Unit III: Aug. 2007	2 x 600	100%	1,200	Coal
		Unit IV: Oct. 2007				
Yingkou Co-generation		Unit I: Dec. 2009	2 x 330	100%	660	Coal
		Unit II: Dec. 2009				

Plant or Expansion (Names as defined below)		In-service Date	Actual	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Wafangdian Wind Power		24 turbines: Jun. 2011	48	100%	48	Wind	
Changtu Wind Power		33 turbines: Nov. 2012	97.5	100%	97.5	Wind	
		24 turbines: Oct. 2014					
Suzihe Hydropower Inner Mongolia Autonomous Region		2012	3 x 12.5	100%	37.5	Hydro	
Huade Wind Power	Phase I	33 turbines: Dec. 2009	49.5	100%	49.5	Wind	
	Phase II	33 turbines: Jun. 2011	49.5	100%	49.5	Wind	
Hebei Province Shang' an Power Plant	Phase I	Unit I: Aug. 1990	2 x 350	100%	700	Coal	
		Unit II: Dec. 1990					
	Phase II	Unit III: Oct. 1997	2 x 330	100%	660	Coal	
		Unit IV: Oct. 1997					
	Phase III	Unit V: Jul. 2008	2 x 600	100%	1,200	Coal	
		Unit VI: Aug. 2008					
Kangbao Wind Power	Phase I	33 turbines: Jan. 2011	49.5	100%	49.5	Wind	
Gansu Province Pingliang Power Plant		Unit I: Sep. 2000	3 x 325	65%	633.75	Coal	
		Unit II: Jun. 2001					
		Unit III: Jun. 2003					
		Unit IV: Nov. 2003	1 x 330	65%	214.5	Coal	
		Unit V: Feb. 2010	2 x 600	65%	780	Coal	
		Unit VI: March 2010					
Jiuquan Wind Power		259 turbines: Dec. 2011	401	100%	401	Wind	

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

Jiuquan II Wind Power	100 turbines: Dec. 2014	200	100%	200	Wind
	100 turbines: Jun.2015	200	100%	200	Wind
Yumen Wind Power	24 turbines: Jun. 2015	48	100%	48	Wind
	67 turbines: Jun. 2015	100.5	100%	100.5	Wind
Yigang Wind Power	96 turbines: Dec. 2015	192	100%	192	Wind
Beijing Municipality Beijing Co-generation	Unit I: Jan. 1998	2 x 165	41%	135.3	Coal
	Unit II: Jan. 1998				
	Unit III: Dec. 1998	2 x 220	41%	180.4	Coal
	Unit IV: Jun. 1999				
	Unit V: Apr. 2004	1 x 75	41%	30.75	Coal
Beijing Co-generation CCGT	Unit I: Dec. 2011	2 x 306.9	41%	251.66	Gas
	Unit II: Dec. 2011				
	Unit III: Dec. 2011	1 x 309.6	41%	126.94	Gas

Plant or Expansion (Names as defined below)		Actual In-service Date	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Tianjin Municipality						
Yangliuqing Co-generation		Unit I: Dec. 1998	4 x 300	55%	660	Coal
		Unit II: Sep. 1999				
		Unit III: Dec. 2006				
		Unit IV: May 2007				
Lingang Co-generation CCGT		Unit I: Dec. 2014	1 x 313 1 x 150	100	463	Gas
Shanxi Province						
Yushe Power Plant	Phase I	Unit I: Jun. 1994	2 x 100	60%	120	Coal
		Unit III: Dec. 1994				
	Phase II	Unit IV: Oct. 2004	2 x 300	60%	360	Coal
		Unit II: Nov. 2004				
Zuoquan Power Plant		Unit I: Dec. 2011	2 x 673	80%	1,076.8	Coal
		Unit II: Jan. 2012				
Dongshan CCGT		Unit I: Oct. 2015	2 x 297.7	100%	595.4	Gas
		Unit II: Oct. 2015				
		Unit III: Oct. 2015	263.6	100%	263.6	Gas
Shandong Province						
Dezhou Power Plant	Phase I	Units I: 1992	1 x 330	100%	330	Coal
		Unit II: 1992	1 x 320	100%	320	Coal
	Phase II	Units III: Jun. 1994	1 x 330	100%	330	Coal
		Unit IV: May 1995	1 x 320	100%	320	Coal
	Phase III	Units V: Jun. 2002	2 x 700	100%	1,400	Coal
		Unit VI: Oct. 2002				

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

Jining Power Plant	Coal-fired	Unit V: Jul. 2003	2 x 135	100%	270	Coal
		Unit VI: Aug. 2003				
	Co-generation	Unit I: Nov. 2009	2 x 350	100%	700	Coal
		Unit II: Dec. 2009				
Xindian Power Plant	Phase III	Unit V: Sep. 2006	2 x 300	95%	570	Coal
		Unit VI: Nov. 2006				
Weihai Power Plant	Phase II	Units III: Mar. 1998	2 x 320	60%	384	Coal
		Unit IV: Nov. 1998				
	Phase III	Unit V: Dec. 2012	2 x 680	60%	816	Coal
Rizhao Power Plant	Phase II	Unit VI: Dec. 2012				
		2008	2 x 680	100%	1,360	Coal
Zhanhua Co-generation		Jul. 2005	2 x 165	100%	330	Coal
Henan Province Qinbei Power Plant	Phase I	Unit I: Nov. 2004	2 x 600	60%	720	Coal
		Unit II: Dec. 2004				
	Phase II	Unit III: Nov. 2007	2 x 600	60%	720	Coal
		Unit IV: Nov. 2007				
Phase III	Unit V: Mar. 2012	2 x 1000	60%	1,200	Coal	
	Unit VI: Feb. 2013					
Luoyang Co-generation Power Plant		Unit I: May. 2015	2 x 350	80%	560	Coal
		Unit II: Jun. 2015				

Plant or Expansion (Names as defined below)		Actual In-service Date	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Jiangsu Province						
Nantong Power Plant	Phase I	Unit I: Sep. 1989 Unit II: Mar. 1990	2 x 352	100%	704	Coal
	Phase II	Unit III: Jul. 1999 Unit IV: Oct. 1999	2 x 350	100%	700	Coal
Nanjing Power Plant		Unit I: Mar. 1994 Unit II: Oct. 1994	2 x 320	100%	640	Coal
Taicang Power Plant	Phase I	Unit I: Dec. 1999 Unit II: Apr. 2000	2 x 320	75%	480	Coal
	Phase II	Unit III: Jan. 2006 Unit IV: Feb. 2006	2 x 630	75%	945	Coal

Plant or Expansion (Names as defined below)		Actual In-service Date	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Huaiyin Power Plant	Phase II	Unit III: Jan. 2005	2 x 330	63.64%	420	Coal
		Unit IV: Mar. 2005				
	Phase III	Unit V: May 2006	2 x 330	63.64%	420	Coal
		Unit VI: Sep. 2006				
Jinling Power Plant	CCGT	Unit I: Dec. 2006	2 x 390	60%	468	Gas
		Unit II: Mar. 2007				
	CCGT Cogeneration	Unit I: April. 2013 Unit II: May, 2013	2 x 126.7 2 x 64.6	51%	195.1	Gas
Jinling Coal-fired		Unit III: Dec. 2009	2 x 1,030	60%	1,236	Coal
		Unit IV: Aug. 2012				
Qidong Wind Power	Phase I	61 turbines: Mar. 2009	91.5	65%	59.5	Wind
	Phase II	25 turbines: Jan. 2011	50	65%	32.5	Wind
		22 turbines: Jun. 2012	44	65%	28.6	Wind
Rudong Wind Power		24 turbines: Nov. 2013	48	90%	24.48	Wind
Suzhou Co-generation		Unit I: Aug. 2006	2 x 60	53.45%	64.14	Coal
		Unit II: Oct. 2006				
Tongshan Wind Power		Mar. 2016	48	100%	48	Wind
		Mar. 2016	1.5	100%	1.5	Wind
Shanghai Municipality Shidongkou I		Unit I: Feb. 1988	4 x 325	100%	1,300	Coal
		Unit II: Dec. 1988				
		Unit III: Sep. 1989				
		Unit IV: May 1990				
Shidongkou II			2 x 600	100%	1,200	Coal

Edgar Filing: HUANENG POWER INTERNATIONAL INC - Form 20-F

		Unit I: Jun. 1992				
		Unit II: Dec. 1992				
Shidongkou Power		Unit I: Oct. 2011	2 x 660	50%	660	Coal
		Unit II: Oct. 2011				
Shanghai CCGT		Unit I: May 2006	3 x 390	70%	819	Gas
		Unit II: Jun. 2006				
		Unit III: Jul. 2006				
Chongqing Municipality						
Luohuang Power Plant	Phase I	Unit I: Sep. 1991	2 x 360	60%	432	Coal
		Unit II: Feb. 1992				
	Phase II	Unit III: Dec. 1998	2 x 360	60%	432	Coal
		Unit IV: Dec. 1998				
	Phase III	Unit V: Dec. 2006	2 x 600	60%	720	Coal
		Unit VI: Jan. 2007				
Liangjiang CCGT		Unit I: Oct. 2014	2 x 467	100%	934	Gas
		Unit II: Dec. 2014				
Zhejiang Province						
Changxing Power Plant		Unit I: Dec. 2014	2 x 660	100%	1320	Coal
		Unit II: Dec. 2014				
Yuhuan Power Plant	Phase I	Unit I: Nov. 2006	2 x 1,000	100%	2,000	Coal
		Unit II: Dec. 2006				
	Phase II	Unit III: Nov. 2007	2 x 1,000	100%	2,000	Coal
		Unit IV: Nov. 2007				
Tongxiang CCGT		Unit I: Sep. 2014	1 x 258.4	95%	245.48	Gas
		Unit II: Sep. 2014	1 x 200	95%	190	Gas

Plant or Expansion (Names as defined below)		Actual In-service Date	Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Si'an Photovoltaic		Dec. 2014	5	100%	5	Solar
		Mar. 2015	5	100%	5	Solar
Hunan Province						
Yueyang Power Plant	Phase I	Unit I: Sep. 1991	2 x 362.5	55%	398.75	Coal
		Unit II: Dec. 1991				
	Phase II	Unit III: Mar. 2006	2 x 300	55%	330	Coal
		Unit IV: May 2006				
	Phase III	Unit V: Jan. 2011	2 x 600	55%	660	Coal
		Unit VI: Aug. 2012				
Xiangqi Hydropower		Unit I: Dec. 2011	4 x 20	100%	80	Hydro
		Unit II: May 2012				
		Unit III: Jul. 2012				
		Unit IV: Aug. 2012				
Subaoding Wind Power		40 turbines: Dec. 2014	75	100%	75	Wind
		35 turbines: May. 2015	75	100%	75	Wind
Guidong Wind Power		42 turbines: Aug. 2015	48	100%	48	Wind
		18 turbines: Sep. 2015	36	100%	36	Wind

Plant or Expansion (Names as defined below)		Actual In-service Date		Current Installed Capacity (MW)	Ownership %	Attributable Capacity MW	Type of Fuel
Hubei Province							
Enshi Maweigou Hydropower		Dec. 2011	3 x 5	100%	15	Hydro	
		Dec. 2015	2 x 20	100%	40	Hydro	
Dalongtan Hydropower		Unit I: May 2006	3 x 12	97%	34.92	Hydro	
		Unit II: Aug. 2005	1 x 1.6	97%	1.55	Hydro	
		Unit III: Mar. 2006					
Wuhan Power Plant	Phase I	Unit I: Jun. 1993	2 x 300	75%	450	Coal	
		Unit II: Jan. 1994					
	Phase II	Unit III: May 1997	2 x 330	75%	495	Coal	
		Unit IV: Dec. 1997					
	Phase III	Unit V: Oct. 2006	2 x 600	75%			