

KOREA ELECTRIC POWER CORP

Form 20-F

April 30, 2015

Table of Contents

As filed with the Securities and Exchange Commission on April 30, 2015

**UNITED STATES**

**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549 F

**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, 2014

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

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 \_\_\_\_\_

Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

For the transition period from to

Commission File Number: 001-13372

**KOREA ELECTRIC POWER CORPORATION**

*(Exact name of registrant as specified in its charter)*

N/A  
*(Translation of registrant's name into English)*

The Republic of Korea  
*(Jurisdiction of incorporation or organization)*

55 Jeollyeok-ro, Naju-si, Jeollanam-do, 520-350, Korea

*(Address of principal executive offices)*

Cecilia (Hyangjoo) Oh, +82 61 345 4261, cecilia@kepc.co.kr, +82 61 345 4299

*(Name, telephone, e-mail 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:  
Common stock, par value Won 5,000 per share  
American depositary shares, each representing

one-half of share of common stock

Name of each exchange on which registered:  
New York Stock Exchange\*  
New York Stock Exchange

\* Not for trading, but only in connection with the listing of American depositary shares on the New York Stock Exchange, pursuant to the requirements of the Securities and Exchange Commission.

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

Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

None

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

**Twenty Year 7.40% Amortizing Debentures, due April 1, 2016**

**One Hundred Year 7.95% Zero-to-Full Debentures, due April 1, 2096**

**6% Debentures due December 1, 2026**

**7% Debentures due February 1, 2027**

**6 <sup>3</sup>/<sub>4</sub>% Debentures due August 1, 2027**

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

641,964,077 shares of common stock, par value of Won 5,000 per share

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 annual 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.

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

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 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 ☐

**Table of Contents****TABLE OF CONTENTS**

|  | <b>Page</b> |
|--|-------------|
| <b><u>PART I</u></b>   | <b>2</b>    |
| ITEM 1. <b><u>IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS</u></b>    | <b>2</b>    |
| ITEM 2. <b><u>OFFER STATISTICS AND EXPECTED TIMETABLE</u></b>                  | <b>2</b>    |
| ITEM 3. <b><u>KEY INFORMATION</u></b>  | <b>2</b>    |
| <b><u>Item 3A.</u></b> Selected Financial Data                                 | 2           |
| <b><u>Item 3B.</u></b> Capitalization and Indebtedness                         | 4           |
| <b><u>Item 3C.</u></b> Reasons for the Offer and Use of Proceeds               | 4           |
| <b><u>Item 3D.</u></b> Risk Factors  | 4           |
| ITEM 4. <b><u>INFORMATION ON THE COMPANY</u></b>                               | <b>23</b>   |
| <b><u>Item 4A.</u></b> History and Development of the Company                  | 23          |
| <b><u>Item 4B.</u></b> Business Overview                                       | 23          |
| <b><u>Item 4C.</u></b> Organizational Structure                                | 76          |
| <b><u>Item 4D.</u></b> Property, Plant and Equipment                           | 79          |
| ITEM 4A. <b><u>UNRESOLVED STAFF COMMENTS</u></b>                               | <b>80</b>   |
| ITEM 5. <b><u>OPERATING AND FINANCIAL REVIEW AND PROSPECTS</u></b>             | <b>80</b>   |
| <b><u>Item 5A.</u></b> Operating Results                                       | 80          |
| <b><u>Item 5B.</u></b> Liquidity and Capital Resources                         | 95          |
| <b><u>Item 5C.</u></b> Research and Development, Patents and Licenses, etc.    | 99          |
| <b><u>Item 5D.</u></b> Trend Information                                       | 100         |
| <b><u>Item 5E.</u></b> Off-Balance Sheet Arrangements                          | 100         |
| <b><u>Item 5F.</u></b> Tabular Disclosure of Contractual Obligations           | 101         |
| ITEM 6. <b><u>DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES</u></b>               | <b>107</b>  |
| <b><u>Item 6A.</u></b> Directors and Senior Management                         | 107         |
| <b><u>Item 6B.</u></b> Compensation  | 111         |
| <b><u>Item 6C.</u></b> Board Practices   | 111         |
| <b><u>Item 6D.</u></b> Employees   | 111         |
| <b><u>Item 6E.</u></b> Share Ownership   | 112         |
| ITEM 7. <b><u>MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS</u></b>        | <b>113</b>  |
| <b><u>Item 7A.</u></b> Major Shareholders                                      | 113         |
| <b><u>Item 7B.</u></b> Related Party Transactions                              | 113         |
| <b><u>Item 7C.</u></b> Interests of Experts and Counsel                        | 114         |
| ITEM 8. <b><u>FINANCIAL INFORMATION</u></b>                                    | <b>114</b>  |
| <b><u>Item 8A.</u></b> Consolidated Statements and Other Financial Information | 114         |
| <b><u>Item 8B.</u></b> Significant Changes                                     | 115         |
| ITEM 9. <b><u>THE OFFER AND LISTING</u></b>                                    | <b>115</b>  |
| <b><u>Item 9A.</u></b> Offer and Listing Details                               | 115         |
| <b><u>Item 9B.</u></b> Plan of Distribution                                    | 117         |
| <b><u>Item 9C.</u></b> Markets   | 117         |
| <b><u>Item 9D.</u></b> Selling Shareholders                                    | 120         |
| <b><u>Item 9E.</u></b> Dilution  | 120         |
| <b><u>Item 9F.</u></b> Expenses of the Issue                                   | 120         |
| ITEM 10. <b><u>ADDITIONAL INFORMATION</u></b>                                  | <b>120</b>  |
| <b><u>Item 10A.</u></b> Share Capital  | 120         |
| <b><u>Item 10B.</u></b> Memorandum and Articles of Incorporation               | 120         |
| <b><u>Item 10C.</u></b> Material Contracts                                     | 128         |
| <b><u>Item 10D.</u></b> Exchange Controls                                      | 128         |
| <b><u>Item 10E.</u></b> Taxation   | 133         |
| <b><u>Item 10F.</u></b> Dividends and Paying Agents                            | 144         |
| <b><u>Item 10G.</u></b> Statements by Experts                                  | 144         |
| <b><u>Item 10H.</u></b> Documents on Display                                   | 144         |
| <b><u>Item 10I.</u></b> Subsidiary Information                                 | 144         |



**Table of Contents**

|                        |  |                    |
|------------------------|--|--------------------|
| ITEM 11.               | <u>QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK</u>            | <b>Page</b><br>144 |
| ITEM 12.               | <u>DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES</u>                | 150                |
|                        | <u>Item 12A.</u> Debt Securities   | 150                |
|                        | <u>Item 12B.</u> Warrants and Rights   | 150                |
|                        | <u>Item 12C.</u> Other Securities  | 150                |
|                        | <u>Item 12D.</u> American Depositary Shares                                  | 151                |
| <b><u>PART II</u></b>  |  | 153                |
| <u>ITEM 13.</u>        | DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES                              | 153                |
| <u>ITEM 14.</u>        | MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS | 153                |
| <u>ITEM 15.</u>        | CONTROLS AND PROCEDURES  | 153                |
| <u>ITEM 16.</u>        | [RESERVED]   | 154                |
| <u>ITEM 16A.</u>       | AUDIT COMMITTEE FINANCIAL EXPERT   | 154                |
| <u>ITEM 16B.</u>       | CODE OF ETHICS   | 154                |
| <u>ITEM 16C.</u>       | PRINCIPAL AUDITOR FEES AND SERVICES  | 155                |
| <u>ITEM 16D.</u>       | EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEE                    | 155                |
| <u>ITEM 16E.</u>       | PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS       | 155                |
| <u>ITEM 16F.</u>       | CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANTS                                | 156                |
| <u>ITEM 16G.</u>       | CORPORATE GOVERNANCE   | 157                |
| <u>ITEM 16H.</u>       | MINE SAFETY DISCLOSURE   | 161                |
| <b><u>PART III</u></b> |  | 162                |
| <u>ITEM 17.</u>        | FINANCIAL STATEMENTS   | 162                |
| <u>ITEM 18.</u>        | FINANCIAL STATEMENTS   | 162                |
| <u>ITEM 19.</u>        | EXHIBITS   | 162                |

## **Table of Contents**

### **CERTAIN DEFINED TERMS AND CONVENTIONS**

All references to Korea or the Republic in this annual report on Form 20-F, or this annual report, are references to the Republic of Korea. All references to the Government in this annual report are references to the government of the Republic. All references to we, us, our, ours, the Company or KEPCO in this annual report are references to Korea Electric Power Corporation and, as the context may require, its subsidiaries, and the possessive thereof, as applicable. All references to the Ministry of Trade, Industry and Energy and the Ministry of Strategy and Finance include the respective predecessors thereof. All references to tons are to metric tons, equal to 1,000 kilograms, or 2,204.6 pounds. Any discrepancies in any table between totals and the sums of the amounts listed are due to rounding. All references to IFRS in this annual report are references to the International Financial Reporting Standards as issued by the International Accounting Standard Board. Unless otherwise stated, all of our financial information presented in this annual report has been prepared on a consolidated basis and in accordance with IFRS.

In addition, in this annual report, all references to:

KHNP are to Korea Hydro & Nuclear Power Co., Ltd.,

EWP are to Korea East-West Power Co., Ltd.,

KOMIPO are to Korea Midland Power Co., Ltd.,

KOSEP are to Korea South-East Power Co., Ltd.,

KOSPO are to Korea Southern Power Co., Ltd., and

KOWEPO are to Korea Western Power Co., Ltd.,  
each of which is our wholly-owned generation subsidiary.

### **FORWARD-LOOKING STATEMENTS**

This annual report includes forward-looking statements (as defined in Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934), including statements regarding our expectations and projections for future operating performance and business prospects. The words believe, expect, anticipate, estimate, project and similar words used in connection with any discussion of our future operation or financial performance identify forward-looking statements. In addition, all statements other than statements of historical facts included in this annual report are forward-looking statements. Although we believe that the expectations reflected in such forward-looking statements are reasonable, we can give no assurance that such expectations will prove to be correct. We caution you not to place undue reliance on the forward-looking statements, which speak only as of the date of this annual report.

This annual report discloses, under the caption Item 3D. Risk Factors and elsewhere, important factors that could cause actual results to differ materially from our expectations ( Cautionary Statements ). All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the Cautionary Statements.



**Table of Contents****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****Item 3A. Selected Financial Data**

The selected consolidated financial data set forth below as of and for the years ended December 31, 2010, 2011, 2012, 2013 and 2014 have been derived from our audited consolidated financial statements which have been prepared in accordance with IFRS.

You should read the following data with the more detailed information contained in Item 5. Operating and Financial Review and Prospects and our consolidated financial statements included in Item 18. Financial Statements. Historical results do not necessarily predict future results.

**Consolidated Statement of Comprehensive Income (Loss) Data**

|  | 2010  | 2011    | 2012    | 2013    | 2014    |           |
|--|---|---------|---------|---------|---------|-----------|
|  | (in billions of Won and millions of US\$, except per share data) <sup>(1)</sup> |         |         |         |         |           |
| Sales  | 39,507  | 43,175  | 49,121  | 53,713  | 57,123  | \$ 52,363 |
| Cost of sales                                      | 36,188  | 42,725  | 48,460  | 50,596  | 49,763  | 45,616    |
| Gross profit                                       | 3,319   | 450     | 661     | 3,117   | 7,360   | 6,747     |
| Selling and administrative expenses                | 1,645   | 1,752   | 1,780   | 1,923   | 1,924   | 1,764     |
| Other gains (losses)                               | 118   | 166     | (1,782) | 129     | 107     | 98        |
| Operating profit (loss)                            | 2,260   | (685)   | (2,300) | 1,948   | 6,209   | 5,692     |
| Finance income (expense), net                      | (1,967)   | (1,911) | (1,940) | (2,302) | (2,255) | (2,067)   |
| Income (loss) before income taxes                  | 370   | (2,473) | (4,063) | (396)   | 4,229   | 3,877     |
| Income tax (expense) benefit                       | (439)   | (820)   | 985     | 571     | (1,430) | (1,311)   |
| Profit (loss) for the period                       | (69)  | (3,293) | (3,078) | 174     | 2,799   | 2,566     |
| Other comprehensive income (loss)                  | (43)  | (262)   | (322)   | 186     | (358)   | (328)     |
| Total comprehensive income (loss)                  | (112)   | (3,555) | (3,400) | 360     | 2,441   | 2,238     |
| Profit (loss) attributable to:                     |   |         |         |         |         |           |
| Owners of the Company                              | (120)   | (3,370) | (3,167) | 60      | 2,687   | 2,463     |
| Non-controlling interests                          | 51  | 77      | 89      | 114     | 112     | 103       |
| Total comprehensive income (loss) attributable to: |   |         |         |         |         |           |
| Owners of the Company                              | (152)   | (3,628) | (3,448) | 245     | 2,336   | 2,141     |
| Non-controlling interests                          | 40  | 73      | 48      | 115     | 105     | 96        |
| Earnings (loss) per share                          |   |         |         |         |         |           |
| Basic <sup>(2)</sup>                               | (193)   | (5,411) | (5,083) | 96      | 4,290   | 3.93      |
| Earnings (loss) per ADS                            |   |         |         |         |         |           |
| Basic <sup>(2)</sup>                               | (97)  | (2,706) | (2,542) | 48      | 2,145   | 1.97      |
| Dividends per share                                |   |         |         | 90      | 500     | 0.46      |

**Table of Contents****Consolidated Statements of Financial Position Data**

|   | 2010   | 2011        | As of December 31, |             | 2014        |             |
|---|--|-------------|--------------------|-------------|-------------|-------------|
|   |  |             | 2012               | 2013        |             |             |
|   | (in billions of Won and millions of US\$, except share and per share data) |             |                    |             |             |             |
| Net working capital deficit <sup>(3)</sup>                                  | (916)  | (3,973)     | (4,884)            | (4,945)     | (4,780)     | \$ (4,382)  |
| Property, plant and equipment, net  | 107,406  | 112,385     | 122,376            | 129,638     | 135,812     | 124,496     |
| Total assets  | 129,518  | 136,468     | 146,153            | 155,527     | 163,708     | 150,067     |
| Total shareholders' equity  | 57,277   | 53,804      | 51,064             | 51,451      | 54,825      | 50,257      |
| Equity attributable to owners of the Company                                | 56,818   | 53,270      | 49,889             | 50,260      | 53,601      | 49,135      |
| Non-controlling interests   | 459  | 534         | 1,175              | 1,191       | 1,224       | 1,122       |
| Share capital   | 3,208  | 3,210       | 3,210              | 3,210       | 3,210       | 2,942       |
| Number of common shares as adjusted to reflect any changes in capital stock | 641,567,712  | 641,964,077 | 641,964,077        | 641,964,077 | 641,964,077 | 641,964,077 |
| Long-term debt (excluding current portion)                                  | 32,848   | 39,198      | 45,525             | 52,801      | 55,720      | 51,077      |
| Other long term liabilities   | 25,321   | 25,725      | 30,747             | 31,062      | 31,563      | 28,933      |

*Notes:*

- (1) The financial information denominated in Won as of and for the year ended December 31, 2014 has been translated into U.S. dollars at the exchange rate of Won 1,090.9 to US\$1.00, which was the Noon Buying Rate as of December 31, 2014.
- (2) Basic earnings per share are calculated by dividing net income available to holders of our common shares by the weighted average number of common shares issued and outstanding for the relevant period. Dilutive loss per share is not presented as such amount was anti-dilutive for the periods indicated.
- (3) Net working capital is defined as current assets minus current liabilities. For the periods indicated, current liabilities exceeded current assets, which gave rise to working capital deficit.

**Currency Translations and Exchange Rates**

In this annual report, unless otherwise indicated, all references to Won or ₩ are to the currency of Korea, and all references to U.S. dollars, Dollars, \$ or US\$ are to the currency of the United States of America, all references to Euro or € are references to the currency of the European Union, and all references to Yen or ¥ are references to the currency of Japan. Unless otherwise indicated, all translations from Won to U.S. dollars were made at Won 1,090.9 to US\$1.00, which was the noon buying rate of the Federal Reserve Board (the Noon Buying Rate) in effect as of December 31, 2014, which rates are available on the H.10 statistical release of the Federal Reserve Board. On April 10, 2015, the Noon Buying Rate was Won 1,093.1 to US\$1.00. The exchange rate between the U.S. dollar and Korean Won may be highly volatile from time to time and the U.S. dollar amounts referred to in this annual report should not be relied upon as an accurate reflection of our results of operations. No representation is made that the Won or U.S. dollar amounts referred to in this annual report could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all.

**Table of Contents**

The following table sets forth, for the periods and dates indicated, certain information concerning the Noon Buying Rate in Won per US\$1.00.

| <b>Year Ended December 31,</b> | <b>At End<br/>of<br/>Period</b> | <b>Average<sup>(1)</sup><br/>(Won per US\$1.00)</b> | <b>High</b> | <b>Low</b> |
|--------------------------------|---------------------------------|---|-------------|------------|
| 2010                           | 1,130.6                         | 1,158.7   | 1,253.2     | 1,104.0    |
| 2011                           | 1,158.5                         | 1,105.2   | 1,197.5     | 1,049.2    |
| 2012                           | 1,063.2                         | 1,119.6   | 1,185.0     | 1,063.2    |
| 2013                           | 1,055.3                         | 1,094.6   | 1,161.3     | 1,050.1    |
| 2014                           | 1,090.9                         | 1,054.0   | 1,117.7     | 1,008.9    |
| October                        | 1,073.1                         | 1,073.1   | 1,074.4     | 1,043.9    |
| November                       | 1,112.1                         | 1,112.1   | 1,114.7     | 1,077.0    |
| December                       | 1,090.9                         | 1,090.9   | 1,117.7     | 1,080.8    |
| 2015 (through April 10)        | 1,093.1                         | 1,101.5   | 1,135.7     | 1,075.3    |
| January                        | 1,104.3                         | 1,104.3   | 1,109.1     | 1,075.3    |
| February                       | 1,100.7                         | 1,100.7   | 1,112.8     | 1,086.8    |
| March                          | 1,107.7                         | 1,107.7   | 1,135.7     | 1,095.7    |
| April (through April 10)       | 1,093.1                         | 1,093.1   | 1,098.1     | 1,083.4    |

*Source: Federal Reserve Board*

*Note:*

(1) Represents the average of the Noon Buying Rates on the last day of each month during the relevant period.

**Item 3B. Capitalization and Indebtedness**

Not Applicable

**Item 3C. Reasons for the Offer and Use of Proceeds**

Not Applicable

**Item 3D. Risk Factors**

*Our business and operations are subject to various risks, many of which are beyond our control. If any of the risks described below actually occurs, our business, financial condition or results of operations could be seriously harmed.*

**Risks Relating to KEPCO**

*Increases in fuel prices will adversely affect our results of operations and profitability as we may not be able to pass on the increased cost to consumers at a sufficient level or on a timely basis.*

Fuel costs constituted 36.1% and 41.4% of our sales and cost of sales, respectively, in 2014. Our generation subsidiaries purchase substantially all of the fuel that they use (except for anthracite coal) from suppliers outside Korea at prices determined in part by prevailing market prices in currencies other than Won. For example, most of the bituminous coal requirements (which accounted for approximately 44.1% of our entire fuel requirements in 2014 in terms of electricity output) are imported principally from Indonesia and Australia and, to a lesser extent, Russia, the United States and others, which accounted for approximately 41.6%, 40.2%, 10.4%, 6.8% and 0.9%, respectively, of the annual bituminous coal requirements of our generation subsidiaries in 2014. Approximately 84.5% of the bituminous coal requirements of our generation subsidiaries in 2014 were purchased under long-term contracts and the remaining 15.5% from the spot market. Pursuant to the terms of our long-term



## **Table of Contents**

supply contracts, prices are adjusted periodically based on prevailing market conditions. In addition, our generation subsidiaries purchase a significant portion of their fuel requirements under contracts with limited duration. See Item 4B. Business Overview Fuel.

If fuel prices increase sharply within a short span of time, our generation subsidiaries may be unable to secure requisite fuel supplies at prices commercially acceptable to them. In addition, any significant interruption or delay in the supply of fuel, bituminous coal in particular, from any of their suppliers may cause our generation subsidiaries to purchase fuel on the spot market at prices higher than the prices available under existing supply contracts, which would result in an increase in fuel costs. In recent years, however, the prices of our main fuel types, namely, bituminous coal, oil and liquefied natural gas, or LNG have generally declined in tandem with their international market prices. For example, the average free on board Newcastle coal 6300 GAR spot price index published by Platts declined from US\$85.1 per ton in 2013 to US\$70.7 per ton in 2014 and US\$56.4 per ton as of April 10, 2015. The prices of oil and LNG are substantially dependent on the price of crude oil, and according to Bloomberg (Bloomberg Ticker: PGCRDUBA), the average daily spot price of Dubai crude oil declined from US\$105.4 per barrel in 2013 to US\$96.6 per barrel in 2014 and to US\$54.8 per barrel as of April 10, 2015. However, we cannot assure you that the fuel prices will remain at similarly low levels or will not significantly increase in the remainder of 2015 or thereafter.

Because the Government regulates the rates we charge for the electricity we sell to our customers (see Item 4B. Business Overview Sales and Customers Electricity Rates ), our ability to pass on fuel and other cost increases to our customers is limited. If fuel prices increase rapidly and substantially and the Government, out of concern for inflation or for other reasons, maintains the current level of electricity tariff or does not increase it to a level to sufficiently offset the impact of high fuel prices, the fuel price increases will negatively affect our profit margins or even cause us to suffer operating and/or net losses and our business, financial condition, results of operations and cash flows would suffer. In addition, partly because the Government may have to undergo a lengthy deliberative process to approve an increase in electricity tariff, which represents a key component of the consumer price index, the electricity tariff may not be adjusted to a level sufficient to ensure a fair rate of return to us in a timely manner or at all. Similarly, we cannot assure that any future tariff increase by the Government will be sufficient to fully offset the adverse impact on our results of operations from the current or potential rises in fuel costs.

***The Government may adopt policy measures to substantially restructure the Korean electric power industry or our operational structure, which may have a material adverse effect on our business, operations and profitability.***

From time to time, the Government considers various policy initiatives to foster efficiency in the Korean electric power industry, and at times have adopted policy measures that have substantially altered our business and operations. For example, in January 1999, with the aim of introducing greater competition in the Korean electric power industry and thereby improving its efficiency, the Government announced a restructuring plan for the Korean electric power industry, or the Restructuring Plan. For a detailed description of the Restructuring Plan, see Item 4B. Business Overview Restructuring of the Electric Power Industry in Korea. As part of this initiative, in April 2001 the Government established the Korea Power Exchange to enable the sale and purchase of electricity through a competitive bidding process, established the Korea Electricity Commission to ensure fair competition in the Korean electric power industry, and, in order to promote competition in electricity generation, split off our electricity generation business to form one nuclear generation company and five thermal generation companies, in each case, to be wholly owned by us. In 2002, the Government introduced a plan to privatize one of our five thermal generation subsidiaries, but this plan was suspended indefinitely in 2003 due to prevailing market conditions and other policy considerations.

In 2003, the Government established a Tripartite Commission consisting of representatives of the Government, leading businesses and labor unions in Korea to deliberate on ways to introduce competition in electricity distribution, such as by forming and privatizing new distribution subsidiaries. In 2004, the Tripartite

## **Table of Contents**

Commission recommended not pursuing such privatization initiatives but instead creating independent business divisions within us to improve operational efficiency through internal competition. Following the adoption of such recommendation by the Government in 2004 and further studies by Korea Development Institute, in 2006 we created nine strategic business units (which, together with our other business units, were subsequently restructured into 14 such units in February 2012) that have a greater degree of autonomy with respect to management, financial accounting and performance evaluation while having a common focus on increasing profitability.

In August 2010, the Ministry of Trade, Industry and Energy announced the Proposal for the Improvement in the Structure of the Electric Power Industry, whose key initiatives included the following: (i) maintain the current structure of having six generation subsidiaries, (ii) designate the six generation subsidiaries as market-oriented public enterprises under the Public Agency Management Act in order to foster competition among them and autonomous and responsible management by them, (iii) create a supervisory unit to act as a control tower in reducing inefficiencies created by arbitrary division of labor among the six generation subsidiaries and fostering economies of scale among them and require the presidents of the generation subsidiaries to hold regular meetings, (iv) create a nuclear power export business unit to systematically enhance our capabilities to win projects involving the construction and operation of nuclear power plants overseas, (v) further rationalize the electricity tariff by adopting a fuel-cost based tariff system in 2011 and a voltage-based tariff system in a subsequent year, and (vi) create separate accounting systems for electricity generation, transmission, distribution and sales with the aim of introducing competition in electricity sales in the intermediate future. Pursuant to this Proposal, in December 2010 the Ministry of Trade, Industry and Energy announced guidelines for a cooperative framework between us and our generation subsidiaries, and in January 2011 the five thermal generation subsidiaries formed a joint cooperation unit and transferred their pumped-storage hydroelectric business units to KHNP. Furthermore, in January 2011 the six generation subsidiaries were officially designated as market-oriented public enterprises, whereupon the President of Korea appoints the president and the statutory auditor of each such subsidiary; the selection of outside directors of each such subsidiary is subject to approval by the minister of the Ministry of Strategy and Finance; the president of each such subsidiary is required to enter into a management contract directly with the minister of the Ministry of Trade, Industry and Energy; and the Public Enterprise Management Evaluation Commission conducts performance evaluation of such subsidiaries. Previously, our president appointed the president and the statutory auditor of each such subsidiary; the selection of outside directors of each such subsidiary was subject to approval by our president; the president of each such subsidiary entered into a management contract with our president; and our evaluation committee conducted performance evaluation of such subsidiaries.

Other than as set forth above and except as described below under *The newly adopted vesting contract system may not achieve desired benefits.*, we are not aware of any specific plans by the Government to resume the implementation of the Restructuring Plan or otherwise change the current structure of the electric power industry or the operations of us or our generation subsidiaries in the near future. However, for reasons relating to changes in policy considerations, socio-political, economic and market conditions and/or other factors, the Government may resume the implementation of the Restructuring Plan or initiate other steps that may change the structure of the Korean electric power industry or the operations of us or our generation subsidiaries. Any such measures may have a negative effect on our business, results of operation and financial conditions. In addition, the Government, which beneficially owns a majority of our shares and exercises significant control over our business and operations, may from time to time pursue policy initiatives with respect to our business and operations, and such initiatives may vary from the interest and objectives of our other shareholders.

### ***The newly adopted vesting contract system may not achieve desired benefits.***

On May 20, 2014, the Electricity Business Act was amended, with effect from November 21, 2014, to introduce a vesting contract system in determining the price and quantity of electricity to be sold and purchased through the Korea Power Exchange between the purchaser of electricity (namely, us) and the sellers of electricity (namely, our generation subsidiaries and independent power producers). While the vesting contract

## **Table of Contents**

system will work in conjunction with the cost-based pool system, the former will also substantially revamp and rationalize the latter as currently in effect, particularly with respect to the adjusted coefficient component.

Under the vesting contract system as currently contemplated by the amended Electricity Business Act and the Enforcement Decree of the Electricity Business Act, producers of electricity to be generated from base load fuels (such as nuclear, coal, hydro and by-product gas) at a particular generation unit will be required to enter into a contract with the purchaser of electricity (namely, us), which will specify, among other things, the quantity of electricity to be generated and sold from such generation unit and the price at which such electricity will be sold and purchased. The contracted quantity will be subject to annual adjustment in consideration of past generation amounts, maintenance and overhaul periods, among others. The contracted price will be subject to monthly adjustment largely depending on the fuel price movements, provided that in the event of a drastic change in electricity tariff rates, inflation rate and the general market conditions of electricity supply and demand, the contracted price may be further adjusted on an as-needed basis. Generally, the contractual terms will be subject to prior consultation with the Korea Electricity Commission and approval by the Minister of the Ministry of Trade, Industry and Energy in order to ensure fair and standardized application of the vesting contract system to all producers of electricity.

In addition to aiming to stabilize the electricity supply market, a key feature of the vesting contract system is to provide a settlement mechanism that is designed to incentivize producers of electricity to supply electricity at or exceeding the contracted quantity. Under this settlement mechanism, an electricity producer is required to settle, among others, the difference between the contracted price and the market price of electricity sold at a given hour through the Korea Power Exchange (namely, the system marginal price), as multiplied by the contracted quantity of electricity. For further details of this settlement mechanism, see Item 4B. Business Overview Purchase of Electricity Vesting Contract System . Under this settlement mechanism, assuming sale of electricity in the contracted quantity and further assuming the system marginal price being higher than the contracted price, the consideration to be received by the seller of electricity net of the settlement amount will effectively amount to the product of the contracted quantity multiplied by the contracted price. If the seller sells a quantity of electricity exceeding the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is entitled to an extra return (effectively, an incentive) equal to the product of the excess quantity multiplied by the difference between the system marginal price and the contracted price. On the other hand, if the seller sells a quantity of electricity falling short of the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is required to pay an amount (effectively, a penalty) equal to the product of the shortfall quantity multiplied by the difference between the system marginal price and the contracted price. The foregoing notions of incentive and penalty are intended to minimize the additional cost of purchasing electricity at the higher system marginal price in the event that the seller of electricity fails to deliver the contracted quantity of electricity. Details of the settlement mechanism in the event of the system marginal price being lower than the contracted price have not yet been finalized.

The vesting contract system was introduced principally in order to prevent excessive profit-taking by low-cost producers of electricity by replacing the adjusted coefficient as the basis for determining the guaranteed return to generation companies, as well as to attain the following objectives. First, this system seeks to increase transactional certainty and stability of electricity supply and purchase by requiring that a relatively long-term (generally one-year) contract be entered in relation to electricity supply, which had been previously made entirely through what was effectively a spot market. Second, in order to foster responsible management of electricity supply by generation companies, the generation companies will become subject to minimum supply requirements and will be rewarded or penalized depending on whether they meet these requirements. Third, the introduction of standard contractual prices is designed to encourage cost savings and productivity enhancements on the part of the generation companies, who will be rewarded or penalized depending on whether they can supply electricity at such standard contractual prices.

## **Table of Contents**

In order to minimize undue impact on the electricity trading market in Korea, the vesting contract system will be implemented in phases, with the target date of implementation for hydro power in the second half of 2015, for coal-based electricity in 2016 and for nuclear power in 2017, although vesting contracts have been entered in February 2015 between us and two independent power producers of by-product gas-based electricity (namely, POSCO Energy and Hyundai Green Power) at a contractual price set a level at which the vesting contract system replaced the adjustment coefficient mechanism previously in effect with equal economic effect. By-product gas-based electricity accounted for 1.7% of electricity purchased by us in 2014. Since the vesting contract system is still in the early stages of implementation and many of the related details are still being finalized, it presently remains unclear in what final form the vesting contract system will actually operate, whether the vesting contract system will be able to achieve the desired results and whether there will be any adverse unintended consequences from the application of the system, and no assurance can be given that such system will not adversely affect our business, results of operation or financial condition in the future. See Item 4B. Business Purchase of Electricity Vesting Contract System .

***Our capacity expansion plans, which are based on projections on long-term supply and demand of electricity in Korea, may prove to be inadequate.***

We and our generation subsidiaries make plans for expanding or upgrading our generation capacity based on the Basic Plan Relating to the Long-Term Supply and Demand of Electricity, or the Basic Plan, which is generally revised and announced every two years by the Government. In February 2013, the Government announced the Sixth Basic Plan relating to the future supply and demand of electricity. The Sixth Basic Plan, which is effective for the period from 2013 to 2027, focuses on, among other things, (i) minimizing the need to construct new generation facilities through active consumer demand management, (ii) ensuring that we maintain adequate electricity reserve appropriate to the size of the national economy and (iii) expanding our generation capacity to promote efficient supply of electricity in consideration of the stability of the national electricity grid network and the specific needs of localities. In addition, while the Sixth Basic Plan did not contemplate the construction of additional nuclear plants in light of the heightened public concern over nuclear safety following the nuclear power plant meltdown in Japan in March 2011, there is no assurance that the Government will not implement a supplemental plan for the construction of additional nuclear plants in the future, which may increase the amount of our required capital expenditure.

In addition, on January 13, 2014, the Ministry of Trade, Industry and Energy adopted the Second Basic National Energy Plan following consultations with representatives from civic groups, the power industry and academia. The Second Basic National Energy Plan, which is a comprehensive plan that covers the entire spectrum of energy industries in Korea, will cover the period from 2013 to 2035 (compared to 2008 to 2030 under the First Basic National Energy Plan) and focuses on the following six key tasks: (i) shifting the focus of energy policy to demand management with a goal of reducing electricity demand by 15% by 2035, (ii) establishing a geographically decentralized electricity generation system so as to reduce transmission losses with a goal of supplying at least 15% of total electricity through such system by 2035, (iii) applying latest greenhouse gas emission reduction technologies to newly constructed generation units in order to further promote safety and environmental friendliness, (iv) strengthening exploration and procurement capabilities to enhance Korea's energy security and to ensure stable supply of energy and increasing the portion of electricity supplied from renewable sources to 11% by 2035, (v) reinforcing the system for stable supply of conventional energy, such as oil and gas, and (vi) introducing in 2015 an energy voucher system in lieu of a tariff discount system for the benefit of consumers in the low income group. In addition, the Second Basic National Energy Plan contemplates revising the target level of electricity generated by nuclear sources as a percentage of total electricity generated to 29%, compared to 41% under the First Basic National Energy Plan announced in 2008.

We cannot assure that the Sixth Basic Plan, the Second Basic National Energy Plan or the respective plans to be subsequently adopted will successfully achieve their intended goals, the foremost of which is to ensure, through carefully calibrated capacity expansion and other means, balanced overall electricity supply and demand in Korea at affordable costs to the end users while promoting efficiency and environmental friendliness in the



## **Table of Contents**

consumption and production of electricity. If there is a significant variance between the projected electricity supply and demand considered in planning our capacity expansions and the actual electricity supply and demand or if these plans otherwise fail to meet their intended goals or have other unintended consequences, this may result in inefficient use of our capital, mispricing of electricity and undue financing costs on the part of us and our generation subsidiaries, among others, which may have a material adverse effect on our results of operations, financial condition and cash flows.

From time to time, we may experience temporary power shortages or circumstances bordering on power shortages due to factors beyond our control, such as extreme weather conditions. Such circumstances may lead to increased end-user complaints and greater public scrutiny, which may in turn result in our need to modify our capacity expansion plans, and if we were to substantially modify our capacity plans, this may result in additional capital expenditures, which may have a material adverse effect on our results of operations, financial condition and cash flows.

In light of these temporary power shortages, the Government has increasingly expanded its efforts to encourage conservation of electricity, including through a public relations campaign, but there is no assurance such efforts will have the desired effect of substantially reducing the demand for electricity or improving efficient use thereof.

***We may require a substantial amount of additional indebtedness to refinance existing debt and for future capital expenditures.***

We anticipate that a substantial amount of additional indebtedness will be required in the coming years in order to refinance existing debt, make capital expenditures for construction of generation plants and other facilities and/or make acquisitions and investments related to overseas natural resources. In 2012, 2013 and 2014, our capital expenditures for construction of generation, transmission and distribution facilities amounted to Won 12,748 billion, Won 15,831 billion and Won 16,629 billion, respectively, and our budgeted capital expenditures for 2015, 2016 and 2017 amount to Won 17,629 billion, Won 14,917 billion and Won 14,873 billion, respectively. While we currently do not expect to face any material difficulties in procuring short-term borrowing to meet our liquidity and short-term capital requirements, there is no assurance that we will be able to do so. We expect that a portion of our long-term debt will need to be paid or refinanced through foreign currency-denominated borrowings and capital raising in international capital markets. Such financing may not be available on terms commercially acceptable to us or at all, especially if the global financial markets experience significant turbulence or a substantial reduction in liquidity or due to other factors beyond our control. If we are unable to obtain financing on commercially acceptable terms on a timely basis, or at all, we may be unable to meet our funding requirements or debt repayment obligations, which could have a material adverse impact on our business, results of operations and financial condition.

Recently, in light of the general policy guideline of the Government for public institutions (including us and our generation subsidiaries) in general to reduce their respective overall debt levels, we and our generation subsidiaries have, in consultation with the Government and as approved by the Committee for Management of Public Institutions, set target debt-to-equity levels and undertaken various programs to reduce debt and improve the overall financial health, including through rationalizing various aspects of our operations (both domestic and overseas), engaging private sector investments, disposing of non-core assets, reducing costs and exploring alternative ways to generate additional revenue. For further information, see Item 4B. Business Overview Recent Developments Debt Reduction Program and Related Activities. Despite our best efforts, however, for reasons beyond our control, including macroeconomic environments, government regulations and market forces (such as international market prices for our fuels), we cannot assure whether we or our generation subsidiaries will be able to successfully reduce debt burdens or otherwise improve our financial health to a level contemplated by the Government or to a level that would be optimal for our capital structure. If we or our generation subsidiaries fail to do so or the measures taken by us or our generation subsidiaries to reduce debt levels or improve financial health have unintended adverse consequences, such developments may have an adverse effect on our business, results of operation and financial condition.

## **Table of Contents**

### ***The movement of Won against the U.S. dollar and other currencies may have a material adverse effect on us.***

The Won has fluctuated significantly against major currencies in recent years. See Item 3A. Selected Financial Data Currency Translations and Exchange Rates. Depreciation of Won against U.S. dollar and other foreign currencies typically results in a material increase in the cost of fuel and equipment purchased by us from overseas since the prices for substantially all of the fuel materials and a significant portion of the equipment we purchase are denominated in currencies other than Won, generally in U.S. dollars. Changes in foreign exchange rates may also impact the cost of servicing our foreign currency-denominated debt. As of December 31, 2014, approximately 20.5% of our long-term debt (including the current portion but excluding issue discounts and premium) before accounting for swap transactions, was denominated in foreign currencies, principally U.S. dollars. In addition, even if we make payments in Won for certain fuel materials and equipment, some of these fuel materials may originate from other countries and their prices may be affected accordingly by the exchange rates between the Won and foreign currencies, especially the U.S. dollar. Since the substantial majority of our revenues are denominated in Won, we must generally obtain foreign currencies through foreign currency-denominated financings or from foreign currency exchange markets to make such purchases or service such debt. As a result, any significant depreciation of Won against the U.S. dollar or other major foreign currencies will have a material adverse effect on our profitability and results of operations.

### ***We may not be successful in implementing new business strategies.***

As part of our overall business strategy, we plan to (i) strengthen reliability of our domestic operations by enhancing efficiency of our generation, transmission and distribution networks, (ii) expand overseas business by selectively exploring renewable energy, smart transmission and distribution facilities and fuel procurement projects in the overseas markets along with our traditional businesses in the generation sector, (iii) create a platform for new business growth opportunities by gaining first mover advantages in new businesses through technological development, and (iv) fulfill social responsibilities as an electricity provider by seeking a balance between our public policy mandate and profitability.

Due to their inherent uncertainties, such new and expanded strategic initiatives expose us to a number of risks and challenges, including the following:

new and expanded business activities may require unanticipated capital expenditures and involve additional compliance requirements;

new and expanded business activities may result in less growth or profit than we currently anticipate, and there can be no assurance that such business activities will become profitable at the level we desire or at all;

certain of our new and expanded businesses, particularly in the areas of renewable energy, require substantial government subsidies to become profitable, and such subsidies may be substantially reduced or entirely discontinued;

we may fail to identify and enter into new business opportunities in a timely fashion, putting us at a disadvantage vis-à-vis competitors, particularly in overseas markets; and

we may need to hire or retrain personnel to supervise and conduct the relevant business activities.

As part of our business strategy, we may also seek, evaluate or engage in potential acquisitions, mergers, joint ventures, strategic alliances, restructurings, combinations, rationalizations, divestments or other similar opportunities. The prospects of these initiatives are uncertain, and there can be no assurance that we will be able to successfully implement or grow new ventures, and these ventures may prove more difficult or costly than what we originally anticipated. In addition, we regularly review the profitability and growth potential of our existing and new businesses. As a result of such review, we may decide to exit from or to reduce the resources that we allocate to new or existing ventures in the future. There is a risk that these ventures may not achieve profitability or operational efficiencies to the extent originally anticipated, and we may fail to recover investments or



## **Table of Contents**

expenditures that we have already made. Any of the foregoing may have a material adverse effect on our reputation, business, results of operations, financial condition and cash flows.

***We plan to pursue international expansion opportunities that may subject us to different or greater risks than those associated with our domestic operations.***

While our operations have, to-date, been primarily based in Korea, we may expand, on a selective basis, our overseas operations in the future. In particular, we may further diversify the geographic focus of our operations from Asia to the rest of the world, including the resource-rich Middle East, Australia and Africa as well as expand our project portfolio (which has to-date involved primarily construction and operation of conventional thermal generation units) to include construction and operation of nuclear power plants as well as mining and development of fuel sources in order to increase the level of self-sufficiency in the procurement of fuels.

Overseas operations generally carry risks that are different from those we face in our domestic operations. These risks include:

challenges of complying with multiple foreign laws and regulatory requirements, including tax laws and laws regulating our operations and investments;

volatility of overseas economic conditions, including fluctuations in foreign currency exchange rates;

difficulties in enforcing creditors' rights in foreign jurisdictions;

risk of expropriation and exercise of sovereign immunity where the counterparty is a foreign government;

difficulties in establishing, staffing and managing foreign operations;

differing labor regulations;

political and economic instability, natural calamities, war and terrorism;

lack of familiarity with local markets and competitive conditions;

changes in applicable laws and regulations in Korea that affect foreign operations; and

obstacles to the repatriation of earnings and cash.

Any failure by us to recognize or respond to these differences may adversely affect the success of our operations in those markets, which in turn could materially and adversely affect our business and results of operations.

Furthermore, while we seek to enter into business opportunities in a prudent and selective manner, some of our new international business ventures, such as mining and resource exploration, carry inherent risks that are different from our traditional business of electricity power generation, transmission and distribution. While these new businesses in the aggregate currently do not comprise a material portion of our overall business, as we are relatively inexperienced in these types of businesses, the actual revenues and profitability from, and investments and expenditures into, these business ventures may be substantially different from what we planned or anticipated and have a material adverse

impact on our overall business, results of operations, financial condition and cash flows.

***An increase in electricity generated by and/or sourced from private power producers may erode our market position and hurt our business, growth prospects, revenues and profitability.***

As of December 31, 2014, we and our generation subsidiaries owned approximately 77.6% of the total electricity generation capacity in Korea (excluding plants generating electricity for private or emergency use). New entrants to the electricity business will erode our market share and create significant competition, which could have a material adverse impact on our financial conditions and results of operation.

## **Table of Contents**

In particular, we compete with independent power producers with respect to electricity generation. The independent power generators accounted for 15.1% of total power generation in 2014 and 22.4% of total generation capacity as of December 31, 2014. As of December 31, 2014, there were 10 independent power generators in Korea, excluding renewable energy producers. Prior to December 2010, private enterprises had not been permitted to own and operate coal-fired power plants in Korea. However, the Fifth Basic Plan announced in December 2010 included for the first time a plan for independent power producers to own and operate coal-fired power plants, namely four generation units with aggregate capacity of 2,290 megawatts for completion in 2016. In addition, in connection with the Sixth Basic Plan announced in February 2013, the Ministry of Trade, Industry and Energy accepted additional applications from independent power producers for construction of coal-fired power plants. 15 independent power producers applied for construction of a total of 40 additional coal-fired generation units with aggregate generation capacity of 37,100 megawatts, of which the Government approved applications for the construction of six generation units with aggregate generation capacity of 6,000 megawatts. The Government also approved applications from independent power producers for construction of two additional generation units with aggregate generation capacity of 2,000 megawatts to prepare for the contingency of failed or delayed construction of the foregoing generation units. Construction for the six generation units is scheduled to be completed between 2018 and 2021. While it remains to be seen whether construction of these generation units will be completed as scheduled, if it were to be completed as scheduled or independent power producers are permitted to build additional generation capacity (whether coal-fired or not), our market share in Korea may decrease, which may have a material adverse effect on our results of operations and financial condition.

In addition, under the Community Energy System adopted by the Government in 2004, a minimal amount of electricity is supplied directly to consumers on a localized basis by independent power producers without having to undergo the cost-based pool system used by our generation subsidiaries and most independent power producers to distribute electricity nationwide. A supplier of electricity under the Community Energy System must be authorized by Korea Electricity Commission and be approved by the minister of the Ministry of Trade, Industry and Energy in accordance with the Electricity Business Act. The purpose of this system is to geographically decentralize electricity supply and thereby reduce transmission losses and improve the efficiency of energy use. These entities do not supply electricity on a national level but are licensed to supply electricity to limited geographic areas. As of March 31, 2015, the aggregate generation capacity of suppliers participating in the Community Energy System represented less than 1% of that of our generation subsidiaries in the aggregate. Accordingly, we currently do not expect the Community Energy System to be widely adopted, especially in light of the significant level of capital expenditure required for such direct supply. However, if the Community Energy System is widely adopted, it may erode our currently dominant market position in the generation and distribution of electricity in Korea, and may have a material adverse effect on our business, results of operations and financial condition.

### ***Labor unrest may adversely affect our operations.***

We and each of our generation subsidiaries have separate labor unions. As of December 31, 2014, approximately 70.3% of our and our generation subsidiaries' employees in the aggregate were members of these labor unions. Since a six-week labor strike in 2002 by union members of our generation subsidiaries in response to a proposed privatization of one of our generation subsidiaries, there has been no material labor dispute. However, we cannot assure you that there will not be a major labor strike or other material disruptions of operations by the labor unions of us and our generation subsidiaries if the Government resumes privatization or other restructuring initiatives or for other reasons, which may adversely affect our business and results of operations.

### ***Relocation of our headquarters and those of our generation subsidiaries may reduce our operational efficiency.***

Pursuant to a Government plan announced in 2005, which mandated relocation of the headquarters of select government-invested enterprises, including us and our six generation and certain other subsidiaries, from the

## **Table of Contents**

Seoul metropolitan area to other provinces in Korea as part of an initiative to foster balanced economic growth in the provinces, we and certain of our generation and other subsidiaries recently relocated our respective headquarters to the designated locations. Following relocation in November 2014, our headquarters are currently located in Naju in Jeollanam-do Province, which is approximately 300 kilometers south of Seoul. The designated locations for the headquarters of our six generation subsidiaries and other subsidiaries are various cities outside of Seoul across Korea. There is no assurance yet that, following such relocation, we have been or will be able to maintain the prior level of operational efficiency due to geographic dispersion of our business units.

***Operation of nuclear power generation facilities inherently involves numerous hazards and risks, any of which could result in a material loss of revenues or increased expenses.***

Through KHNP, we currently operate 23 nuclear-fuel generation units. Operation of nuclear power plants is subject to certain hazards, including environmental hazards such as leaks, ruptures and discharge of toxic and radioactive substances and materials. These hazards can cause personal injuries or loss of life, severe damage to or destruction of property and natural resources, pollution or other environmental damage, clean-up responsibilities, regulatory investigation and penalties and suspension of operations. Nuclear power has a stable and relatively inexpensive cost structure (which is least costly among the fuel types used by our generation subsidiaries) and is the second largest source of Korea's electricity supply, accounting for 30% of electricity generated in Korea in 2014. Due to significantly lower unit fuel costs compared to those for thermal power plants, our nuclear power plants are generally operated at full capacity with only routine shutdowns for fuel replacement and maintenance, with limited exceptions.

From time to time, our nuclear generation units may experience unexpected shutdowns. Any prolonged or substantial breakdown, failure or suspension of operation of a nuclear unit could result in a material loss of revenues, an increase in fuel costs related to the use of alternative power sources, additional repair and maintenance costs, greater risk of litigation and increased social political hostility to the use of nuclear power, any of which could have a material adverse impact on our financial conditions and results of operations.

In response to the damage to the nuclear facilities (including nuclear meltdowns) in Japan as a result of the tsunami and earthquake in March 2011, the Government took steps to further enhance the safety and security of nuclear power facilities, including by establishing the Nuclear Safety and Security Commission (NSSC) in July 2011 for neutral and independent safety appraisals, subjecting nuclear power plants to additional safety inspections by governmental authorities and civic groups and requiring KHNP to prepare a comprehensive safety improvement plan. As a result of the foregoing, as well as a generally higher level of public and regulatory scrutiny of nuclear power following the recent nuclear incident in Japan, KHNP plans to implement a significant number of measures to improve the safety and efficiency of its generation facilities for target completion by the end of 2015. We expect to incur additional compliance costs and capital expenditures in relation to our improvement measures, which could have a material adverse impact on our business, financial conditions and results of operation.

In addition, in December 2014, KHNP became subject to a cyber terror incident. According to the preliminary findings of the Prosecutor's Office announced in March 2015, hackers suspected to be affiliated with North Korean authorities stole and distributed a mock blueprint for a hypothetical nuclear unit that had been devised for educational purposes, hacked into the computer network of the KHNP employees and threatened to shut down certain of KHNP's nuclear plants. The hacking incident did not jeopardize our nuclear operation in any material respect and none of the stolen information was material to our nuclear operation or the national nuclear policy. In response to such incident, we and our subsidiaries have further bolstered anti-hacking and other preventive and remedial measures in relation to potential cyber terror. However, there is no assurance that a similar or more serious hacking or other forms of cyber terror will not happen with respect to us and our nuclear and non-nuclear generation subsidiaries, which could have a material adverse impact on our business, financial conditions and results of operation.

## **Table of Contents**

***Recent findings of falsified testing results and bribery and the subsequent prolonged shutdowns of certain of our nuclear generation units may adversely hurt our reputation, business, results of operations and financial condition.***

In May 2013, the NSSC announced that it discovered certain control cables used in three of our then-operating nuclear generation units, Shin-Kori #1 and #2, Shin-Wolsong #1, and three units under construction, Shin-Kori #3 and #4 and Shin-Wolsong #2, had been supplied based on forged testing results. These parts were custom-made and have critical functions in the case of emergency for activating certain safety signals. The forgery was made by a testing facility in charge of performance evaluation of the parts before delivery.

Upon such discovery, KHNP immediately began internal investigation of related certification documents and reported to the Prosecutor's Office all testing facilities and suppliers suspected of forgery for further investigation. Currently, the NSSC, with the full cooperation of KHNP, is conducting a full scale investigation into the appropriateness of all testing results at all of our nuclear generation units. In addition, the Prosecutor's Office has been conducting extensive investigation on all parties suspected of having been involved in the forgery and has brought several criminal and civil charges, including against several of KHNP's former and current officers and employees. In addition, one of KHNP's former CEOs and several former and current officers and employees of KHNP were arrested on separate bribery charges brought by the Prosecutor's Office as part of a wider investigation into the nuclear power industry in general, and in June 2013, KHNP's then CEO was dismissed by the Government for failure of oversight. KHNP has been fully cooperating with the authorities on these investigations and have promptly taken all appropriate disciplinary actions against KHNP's employees allegedly involved in such incidents. KHNP has also immediately suspended all existing relationships with all of the entities alleged to have participated in any related illegal or improper activities. KHNP as an entity has not been subject to any criminal charges or sanctions.

Immediately following the discovery of the forgery incident, Shin-Kori #1 and #2 and Shin-Wolsong #1 were shut down in May 2013 for further safety inspections. Shin-Kori #3 and #4 and Shin-Wolsong #2, where such parts were also used, currently remain under construction. Shin-Kori #1 and #2 and Shin-Wolsong #1 resumed operations in January 2014 following parts replacement and the NSSC approval. While we expect that the construction of the other units will proceed as originally planned, we cannot assure you that any or all of these units will complete construction as currently scheduled. As a result of the shutdown, we incurred additional operating expenses, including as a result of having had to purchase electricity generated from more expensive fuel sources while the aforementioned nuclear plants were suspended from operation.

The foregoing incidents follow a discovery in November 2012 that certain machinery parts, such as fuses and switches, used in KHNP's nuclear-fuel generation units Hanbit #5 and Hanbit #6 had been supplied using forged quality certification documents. These parts were generic parts that were not essential to the function or safety of our nuclear generation, and the forgery was made by the suppliers of these parts. Following such discovery, relationships with these suppliers were immediately terminated and these units were shut down in November 2012 pending a Government investigation into the extent of the forgeries and the replacement of the affected parts, and the NSSC performed inspections on all generic supply parts at all of KHNP's nuclear-fuel generation units. Upon completion of such investigation and inspections, Hanbit #5 and Hanbit #6 resumed operation in December 2012 and January 2013, respectively.

These incidents have had a material adverse effect, and may have a further material adverse effect, on our reputation, business, results of operation, financial condition as well as the general acceptance of nuclear power, especially if, as a result of these incidents or otherwise, there are findings of other criminal or other illegal or improper activities or if there are additional shutdowns that lead to greater social and political concerns over nuclear safety to the effect of impeding with our normal operation of nuclear generation units.



## **Table of Contents**

*The construction and operation of our generation, transmission and distribution facilities involve difficulties, such as opposition from civic groups, which may have an adverse effect on us.*

From time to time, we encounter social and political opposition against construction and operation of our generation facilities (particularly nuclear units) and, to a lesser extent, our transmission and distribution facilities. For example, we recently faced intense opposition from local residents and civic groups to the construction of transmission lines in the Milyang area, which we resolved through various compensatory and other support programs. Such opposition delayed the schedule for completion of this project. Although we and the Government have undertaken various community programs to address concerns of residents in areas near our facilities, civic and community opposition could result in delayed construction or relocation of our planned facilities, which could have a material adverse impact on our business and results of operation.

*We are subject to environmental regulations, including in relation to climate change, and our operations could expose us to substantial liabilities.*

We are subject to national, local and overseas environmental laws and regulations, including increasing pressure to reduce emission of carbon dioxide relating to our electricity generation activities as well as our natural resource development endeavors overseas. Our operations could expose us to the risk of substantial liability relating to environmental or health and safety issues, such as those resulting from discharge of pollutants and carbon dioxide into the environment and the handling, storage and disposal of hazardous materials. We may be responsible for the investigation and remediation of environmental conditions at current or former operational sites. We may also be subject to related liabilities (including liabilities for environmental damage, third party property damage or personal injury) resulting from lawsuits brought by governments or private litigants. In the course of our operations, hazardous wastes may be generated, disposed of or treated at third party-owned or -operated sites. If those sites become contaminated, we could also be held responsible for the cost of investigation and remediation of such sites for any related liabilities, as well as for civil or criminal fines or penalties.

We currently operate extensive programs to comply with various environmental regulations, including the Renewable Portfolio Standard program, under which each generation subsidiary is required to generate a specified percentage of total electricity to be generated by such generation subsidiary in a given year in the form of renewable energy, with the target percentage being 2.5% in 2013 and 3.0% in 2014 and incrementally increasing to 10.0% by 2024. Fines are to be levied on any subsidiary that fails to do so in the prescribed timeline. In 2013, while one of our generation subsidiaries met 100% of its target, five others were unsuccessful to do so. Our six generation subsidiaries met, on average, 91.8% of the target for 2013 and accordingly were fined an aggregate amount of Won 44 billion. Compliance by our generation subsidiaries of the 2014 target is currently under evaluation, and if we are found to have failed to meet the target for 2014 or for subsequent years, our generation subsidiaries may become subject to additional fines or other penalties. There is no assurance that such fine or other penalty will not be substantial, and if substantial, such fine or other penalty may have a material adverse effect on our business, results of operations or financial condition. The budgeted amount of capital expenditure for implementation of the Renewable Portfolio Standard program as currently planned for the period from 2014 to 2024 is approximately Won 14.8 trillion. We expect that such additional capital expenditure to be covered by a corresponding increase in electricity tariff. However, there is no assurance that the Government will in fact raise the electricity tariff to a level sufficient to fully cover such additional capital expenditures or at all. See also Item 4B. Business Overview Environmental Programs.

Our environmental measures, including the use of environmentally friendly but more expensive parts and equipment and budgeting capital expenditures for the installation of such facilities, may result in increased operating costs and liquidity requirement. The actual cost of installation and operation of such equipment and related liquidity requirement will depend on a variety of factors which may be beyond our control. There is no assurance that we will continue to be in material compliance with legal or social standards or requirements in the future in relation to the environment, including in respect of climate change.

## **Table of Contents**

See Item 4B. Business Overview Environmental Programs.

### ***Newly adopted coal consumption tax may have a material adverse effect on our business, operations and profitability.***

Effective July 1, 2014, consumption tax has applied to bituminous coal, which previously was not subject to consumption tax unlike other fuel types such as LNG or bunker oil. The base tax rate (which is subject to certain adjustments) is Won 24 per kilogram for bituminous coal; however, due to concerns on the potential adverse effect on industrial activities, the applicable tax rate is Won 19 per kilogram for bituminous coal with net heat generation of 5,000 kilo calories or more per kilogram, and Won 17 per kilogram for bituminous coal with net heat generation of less than 5,000 kilo calories per kilogram. In contrast, the applicable tax rate for LNG was reduced from Won 60 per kilogram to Won 42 per kilogram. Since bituminous coal currently represents the largest fuel type for electricity generation, accounting for approximately 44.1% of our entire fuel requirements in 2014 in terms of electricity output, the newly adopted consumption tax thereon may result in an increase of our overall fuel costs, notwithstanding the decrease in the consumption tax rate for LNG, which accounted for approximately 15.5% of our entire fuel requirements in 2014 in terms of electricity output. While we expect that such additional fuel costs will be covered by a corresponding increase in electricity tariff, there is no assurance that the Government will in fact raise electricity tariff to a level sufficient to fully cover such additional costs in a timely manner or at all, and if the Government does not do so, the increase in our overall fuel costs arising from the newly adopted coal consumption tax will adversely affect our results of operation and financial condition.

### ***Our risk management procedures may not prevent losses in debt and foreign currency positions.***

We manage interest rate exposure for our debt instruments by limiting our variable rate debt exposure as a percentage of our total debt and closely monitoring the movements in market interest rates. We also actively manage currency exchange rate exposure for our foreign currency-denominated liabilities by measuring the potential loss therefrom using risk analysis software and entering into derivative contracts to hedge such exposure when the possible loss reaches a certain risk limit. To the extent we have unhedged positions or our hedging and other risk management procedures do not work as planned, our results of operations and financial condition may be adversely affected.

### ***The amount and scope of coverage of our insurance are limited.***

Substantial liability may result from the operations of our nuclear generation units, the use and handling of nuclear fuel and possible radioactive emissions associated with such nuclear fuel. KHNP carries insurance for its generation units and nuclear fuel transportation, and we believe that the level of insurance is generally adequate and is in compliance with relevant laws and regulations. In addition, KHNP is the beneficiary of Government indemnity which covers a portion of liability in excess of the insurance. However, such insurance is limited in terms of amount and scope of coverage and does not cover all types or amounts of losses which could arise in connection with the ownership and operation of nuclear plants. Accordingly, material adverse financial consequences could result from a serious accident or a natural disaster to the extent it is neither insured nor covered by the government indemnity.

In addition, our thermal generation subsidiaries carry insurance covering certain risks, including fire, in respect of their key assets, including buildings and equipment located at their respective power plants, construction-in-progress and imported fuel and procurement in transit. Such insurance and indemnity, however, cover only a portion of the assets that the thermal generation subsidiaries own and operate and do not cover all types or amounts of loss that could arise in connection with the ownership and operation of these power plants. In addition, unlike us, our generation subsidiaries are not permitted to self-insure, and accordingly have not self-insured, against risks of their uninsured assets or business. Accordingly, material adverse financial consequences could result from a serious accident to the extent it is uninsured.

## **Table of Contents**

In addition, because neither we nor our generation subsidiaries, other than KHNP, carry any insurance against terrorist attacks, an act of terrorism would result in significant financial losses. See Item 4B. Business Overview Insurance.

***We may not be able to raise equity capital in the future without the participation of the Government.***

Under applicable laws, the Government is required to directly or indirectly own at least 51% of our issued capital stock. As of December 31, 2014 the last day on which our shareholder registry was closed, the Government, directly and through Korea Development Bank (a statutory banking institution wholly owned by the Government), owned 51.1% of our issued capital stock. Accordingly, without changes in the existing Korean law, it may be difficult or impossible for us to undertake, without the participation of the Government, any equity financing in the future.

***Following from the recent decision of the Supreme Court of Korea, we may be exposed to potential claims made by current or previous employees for unpaid wages for the past three years under the expanded scope of ordinary wages and become subject to additional labor costs arising from the broader interpretation of ordinary wages under such decision.***

Under the Labor Standards Act, an employee is legally entitled to ordinary wages. Under the guidelines previously issued by the Ministry of Labor, ordinary wages include base salary and certain fixed monthly allowances for work performed overtime during night shifts and holidays. Prior to the Supreme Court decision described below, many companies in Korea had typically interpreted these guidelines as excluding from the scope of ordinary wages fixed bonuses that are paid other than on a monthly basis, namely on a bi-monthly, quarterly or biannually basis, although such interpretation had been a subject of controversy and had been overruled in a few court cases.

In December 2013, the Supreme Court of Korea ruled that regular bonuses fall under the category of ordinary wages on the condition that those bonuses are paid regularly and uniformly, and that any agreement which excludes such regular bonuses from ordinary wage is invalid. The Supreme Court further ruled that in spite of invalidity of such agreements, employees shall not retroactively claim additional wages incurred due to such court decision, in case that such claims bring to employees unexpected benefits which substantially exceeds the wage level agreed by employers and employees and cause an unpredicted increase in expenditures for their company, which would lead the company to material managerial difficulty or would threat to the existence of the company. In that case, the claim is not acceptable since it is unjust and is in breach of the principle of good faith. Prior to such Supreme Court ruling, we determined wages in accordance with budget instructions from the Ministry of Strategy and Finance, which excluded bonuses from ordinary wages and which was determined with the consent of the relevant labor unions.

In tandem with the above-mentioned proceeding at the Supreme Court of Korea, as of December 31, 2014 our six generation subsidiaries and another subsidiary, KPS, were subject to several lawsuits filed by various industry-wide and company-specific labor unions based on claims that ordinary wage had been paid without including certain items that should have been included as ordinary wage. In one of such lawsuits, in January 2015, the Seoul District Court found largely in favor of a company-specific labor union whose members consist of employees of KOSPO, and in February 2015, KOSPO filed an appeal with the Seoul High Court. In light of the District Court ruling and the wage structure of us and our subsidiaries, as of December 31, 2014 we have set aside a reserve on a consolidated basis in the aggregate amount of Won 174 billion to cover the likely future payments of additional ordinary wage in relation to the related lawsuits. We cannot presently assure you that there will not be further lawsuits in relation to ordinary wage or that the foregoing reserve amount will be sufficient to cover additional ordinary wage payments or other compensation and damages arising from the present or future litigation. If there are further litigation or if the actual compensation or other damages we become liable on a consolidated basis to pay in relation to these or other similar lawsuits were to be higher than our reserve amounts, it would adversely affect our results of operation.

## **Table of Contents**

### **Risks Relating to Korea and the Global Economy**

#### ***Unfavorable financial and economic conditions in Korea and globally may have a material adverse impact on us.***

We are incorporated in Korea, where most of our assets are located and most of our income is generated. As a result, we are subject to political, economic, legal and regulatory risks specific to Korea, and our business, results of operation and financial condition are substantially dependent on the Korean consumers' demand for electricity, which are in turn largely dependent on developments relating to the Korean economy.

The Korean economy is closely integrated with, and is significantly affected by, developments in the global economy. In light of the ongoing general economic weakness and political turbulence in Europe, signs of cooling economy for China and the continuing political instability in the Middle East and the former republics of the Soviet Union, including Russia, among others, significant uncertainty remains as to the global economic prospects in general and has adversely affected, and may continue to adversely affect, the Korean economy. In addition, as the Korean economy matures, it is increasingly exposed to the risk of a scissor effect, namely being pursued by competitors in less advanced economies while not having fully caught up with competitors in advanced economies, which risk is amplified by the fact that the Korean economy is heavily dependent on exports. The Korean economy also continues to face other difficulties, including sluggishness in domestic consumption and investment, weakness in the real estate market, rising household debt, potential declines in productivity due to aging demographics and a rise in youth unemployment. Any future deterioration of the global and Korean economies could adversely affect our business, financial condition and results of operations. As the Korean economy is highly dependent on the health and direction of the global economy, the prices of our securities may be adversely affected by investors' reactions to developments in other countries. In addition, the value of the Won relative to the U.S. dollar has also fluctuated significantly in recent years, which in turn also may adversely affect our financial condition and results of operation.

Factors that determine economic and business cycles of the Korean or global economy are for the most part beyond our control and inherently uncertain. In light of the high level of interdependence of the global economy, any of the foregoing developments could have a material adverse effect on the Korean economy and financial markets, and in turn on our business and profitability.

More specifically, factors that could hurt the Korean economy in the future include, among others:

fiscal difficulties, political turbulence and increased sovereign default risks in select countries in Europe and the resulting adverse effects on the global financial markets;

adverse change or increased volatility in macroeconomic indicators, including interest rates, inflation level, foreign currency reserve levels, commodity prices (including oil prices), exchange rates (including fluctuation of U.S. Dollar, Euro or Japanese Yen or revaluation of the Renminbi), stock market indices and inflows and outflows of foreign capital;

adverse developments in the economies of countries and regions that are Korea's important export markets (such as the United States, China and Japan) and deterioration in economic or diplomatic relations between Korea and its major trading partners or allies, including as a result of trading or territorial disputes or disagreements in foreign policy;

continued sluggishness in the Korean real estate market;

a continuing rise in the level of household debt and an increase in delinquency and credit default by retail or small- and medium-sized enterprise borrowers;

a rise in unemployment or stagnation of real wages;

an increase in social expenditures to support an aging population or decreases in productivity due to shifting demographics;



## **Table of Contents**

social and labor unrest;

a decline in consumer confidence and a slowdown in consumer spending and corporate investments;

a widening fiscal deficit from a decrease in tax revenues and a substantial increase in the Government's expenditures for fiscal stimulus, unemployment compensation and other economic and social programs;

political gridlock within the government or in the legislature, which prevents or disrupts timely and effective policy making;

laws, regulations or other government actions (financial, economic or otherwise) that fail to achieve desired policy objectives, produce adverse unintended consequences or otherwise constrain or distort sound economic activities;

loss of investor confidence arising from corporate accounting irregularities and corporate governance issues, including in respect of certain *chaebols*; and

any other developments that has a material adverse effect on the global or Korean economy, such geopolitical tensions (such as in the Crimea peninsula, certain former republics of the Soviet Union, the Middle East and the Korean peninsula), an act of war, a terrorist act, a breakout of an epidemic or natural or man-made disasters (such as the sinking of the Sewol ferry in April 2014, which significantly dampened consumer sentiment in Korea for months).

Any future deterioration of the Korean economy could have an adverse effect on our business, financial condition and results of operations.

### ***Tensions with North Korea could have an adverse effect on us and the market value of our shares.***

Relations between Korea and North Korea have been tense throughout Korea's modern history. The level of tension between the two Koreas has fluctuated and may increase abruptly as a result of current and future events. In particular, there continues to be uncertainty regarding the long-term stability of North Korea's political leadership since the succession of Kim Jong-un to power following the death of his father in December 2011, which has raised concerns with respect to the political and economic future of the region.

In addition, there continues to be heightened security tension in the region stemming from North Korea's hostile military and diplomatic actions, including in respect of its nuclear weapons and long-range missile programs. Some examples from recent years include the following:

In December 2014, North Korea allegedly hacked into Sony's network to prevent the airing of the movie *The Interview* which unfavorably portrays the North Korean leader, which has prompted the United States to consider implementing additional economic sanctions against North Korea.

In March 2013, North Korea stated that it had entered a state of war with Korea, declaring the 1953 armistice invalid, and put its artillery at the highest level of combat readiness to protest the Korea-United States allies' military drills and additional sanctions imposed on North Korea for its missile and nuclear tests.

North Korea renounced its obligations under the Nuclear Non-Proliferation Treaty in January 2003 and conducted three rounds of nuclear tests between October 2006 to February 2013, which increased tensions in the region and elicited strong objections worldwide. In response, the United Nations Security Council unanimously passed resolutions that condemned North Korea for the nuclear tests and expanded sanctions against North Korea, most recently in March 2013.

In December 2012, North Korea launched a satellite into orbit using a long-range rocket, despite concerns in the international community that such a launch would be in violation of the agreement with the United States as well as United Nations Security Council resolutions that prohibit North Korea from conducting launches that use ballistic missile technology.

## **Table of Contents**

North Korea's economy also faces severe challenges, including severe inflation and food shortages, which may further aggravate social and political tensions within North Korea. In addition, reunification of Korea and North Korea may suddenly occur in the future, which would entail significant economic commitment and expenditure by Korea that may outweigh any resulting economic benefits of reunification. Any further increase in tension or uncertainty relating to the military, political or economic stability in the Korean peninsula, including a breakdown of diplomatic negotiations over the North Korean nuclear program, occurrence of military hostilities, heightened concerns about the stability of North Korea's political leadership or its actual collapse, a leadership crisis, a breakdown of high-level contacts or accelerated reunification could have a material adverse effect on our business, financial condition and results of operations, as well as the price of our common shares and our American depositary shares.

***We are generally subject to Korean corporate governance and disclosure standards, which differ in significant respects from those in other countries.***

Companies in Korea, including us, are subject to corporate governance standards applicable to Korean public companies which differ in many respects from standards applicable in other countries, including the United States. As a reporting company registered with the Securities and Exchange Commission and listed on the New York Stock Exchange, we are, and will continue to be, subject to certain corporate governance standards as mandated by the Sarbanes-Oxley Act of 2002, as amended. However, foreign private issuers, including us, are exempt from certain corporate governance standards required under the Sarbanes-Oxley Act or the rules of the New York Stock Exchange. For a description of significant differences in corporate governance standards, see Item 16G. Corporate Governance. There may also be less publicly available information about Korean companies, such as us, than is regularly made available by public or non-public companies in other countries. Such differences in corporate governance standards and less public information could result in less than satisfactory corporate governance practices or disclosure to investors in certain countries.

***You may not be able to enforce a judgment of a foreign court against us.***

We are a corporation with limited liability organized under the laws of Korea. Substantially all of our directors and officers and other persons named in this annual report reside in Korea, and all or a significant portion of the assets of our directors and officers and other persons named in this annual report and substantially all of our assets are located in Korea. As a result, it may not be possible for holders of the American depositary shares to affect service of process within the United States, or to enforce against them or us in the United States judgments obtained in United States courts based on the civil liability provisions of the federal securities laws of the United States. There is doubt as to the enforceability in Korea, either in original actions or in actions for enforcement of judgments of United States courts, of civil liabilities predicated on the United States federal securities laws.

## **Risks Relating to Our American Depositary Shares**

***There are restrictions on withdrawal and deposit of common shares under the depositary facility.***

Under the deposit agreement, holders of shares of our common stock may deposit those shares with the depositary bank's custodian in Korea and obtain American depositary shares, and holders of American depositary shares may surrender American depositary shares to the depositary bank and receive shares of our common stock. However, under current Korean laws and regulations, the depositary bank is required to obtain our prior consent for the number of shares to be deposited in any given proposed deposit which exceeds the difference between (1) the aggregate number of shares deposited by us for the issuance of American depositary shares (including deposits in connection with the initial and all subsequent offerings of American depositary shares and stock dividends or other distributions related to these American depositary shares) and (2) the number of shares on deposit with the depositary bank at the time of such proposed deposit. We have consented to the deposit of outstanding shares of common stock as long as the number of American depositary shares outstanding at any



## **Table of Contents**

time does not exceed 80,153,810 shares. As a result, if you surrender American depositary shares and withdraw shares of common stock, you may not be able to deposit the shares again to obtain American depositary shares.

### ***Ownership of our shares is restricted under Korean law.***

Under the Financial Investment Services and Capital Markets Act, with certain exceptions, a foreign investor may acquire shares of a Korean company without being subject to any single or aggregate foreign investment ceiling. As one such exception, certain designated public corporations, such as us, are subject to a 40% ceiling on acquisitions of shares by foreigners in the aggregate. The Financial Services Commission may impose other restrictions as it deems necessary for the protection of investors and the stabilization of the Korean securities and derivatives market.

In addition to the aggregate foreign investment ceiling, the Financial Investment Services and Capital Markets Act and our Articles of Incorporation set a 3% ceiling on acquisition by a single investor (whether domestic or foreign) of the shares of our common stock. Any person (with certain exceptions) who holds our issued and outstanding shares in excess of such 3% ceiling cannot exercise voting rights with respect to our shares exceeding such limit.

The ceiling on aggregate investment by foreigners applicable to us may be exceeded in certain limited circumstances, including as a result of acquisition of:

shares by a depositary issuing depositary receipts representing such shares (whether newly issued shares or outstanding shares);

shares by exercise of warrant, conversion right under convertible bonds, exchange right under exchangeable bonds or withdrawal right under depositary receipts issued outside of Korea;

shares from the exercise of shareholders' rights; or

shares by gift, inheritance or bequest.

A foreigner who has acquired our shares in excess of any ceiling described above may not exercise his voting rights with respect to our shares exceeding such limit and the Financial Services Commission may take necessary corrective action against him.

### ***Holders of our ADSs will not have preemptive rights in certain circumstances.***

The Korean Commercial Code and our Articles of Incorporation require us, with some exceptions, to offer shareholders the right to subscribe for new shares in proportion to their existing ownership percentage whenever new shares are issued. If we offer any rights to subscribe for additional shares of our common stock or any rights of any other nature, the depositary bank, after consultation with us, may make the rights available to you or use reasonable efforts to dispose of the rights on your behalf and make the net proceeds available to you. The depositary bank, however, is not required to make available to you any rights to purchase any additional shares unless it deems that doing so is lawful and feasible and:

a registration statement filed by us under the U.S. Securities Act of 1933, as amended, is in effect with respect to those shares; or

the offering and sale of those shares is exempt from or is not subject to the registration requirements of the U.S. Securities Act. We are under no obligation to file any registration statement with the U.S. Securities and Exchange Commission in relation to the registration rights. If a registration statement is required for you to exercise preemptive rights but is not filed by us, you will not be able to exercise your preemptive rights for additional shares and you will suffer dilution of your equity interest in us.



## **Table of Contents**

*The market value of your investment in our ADSs may fluctuate due to the volatility of the Korean securities market.*

Our common stock is listed on the KRX KOSPI Division of the Korea Exchange, which has a smaller market capitalization and is more volatile than the securities markets in the United States and many European countries. The market value of ADSs may fluctuate in response to the fluctuation of the trading price of shares of our common stock on the Stock Market Division of the Korea Exchange. The Stock Market Division of the Korea Exchange has experienced substantial fluctuations in the prices and volumes of sales of listed securities and the Stock Market Division of the Korea Exchange has prescribed a fixed range in which share prices are permitted to move on a daily basis. Like other securities markets, including those in developed markets, the Korean securities market has experienced problems including market manipulation, insider trading and settlement failures. The recurrence of these or similar problems could have a material adverse effect on the market price and liquidity of the securities of Korean companies, including our common stock and ADSs, in both the domestic and the international markets.

The Korean government has the ability to exert substantial influence over many aspects of the private sector business community, and in the past has exerted that influence from time to time. For example, the Korean government has promoted mergers to reduce what it considers excess capacity in a particular industry and has also encouraged private companies to publicly offer their securities. Similar actions in the future could have the effect of depressing or boosting the Korean securities market, whether or not intended to do so. Accordingly, actual or perceived actions or inactions by the government may cause sudden movements in the market prices of the securities of Korean companies in the future, which may affect the market price and liquidity of our common stock and ADSs.

*Your dividend payments and the amount you may realize in connection with a sale of your ADSs will be affected by fluctuations in the exchange rate between the U.S. dollar and the Won.*

Investors who purchase the American depositary shares will be required to pay for them in U.S. dollars. Our outstanding shares are listed on the Korea Exchange and are quoted and traded in Won. Cash dividends, if any, in respect of the shares represented by the American depositary shares will be paid to the depositary bank in Won and then converted by the depositary bank into U.S. dollars, subject to certain conditions. Accordingly, fluctuations in the exchange rate between the Won and the U.S. dollar will affect, among other things, the amounts a registered holder or beneficial owner of the American depositary shares will receive from the depositary bank in respect of dividends, the U.S. dollar value of the proceeds which a holder or owner would receive upon sale in Korea of the shares obtained upon surrender of American depositary shares and the secondary market price of the American depositary shares.

*If the Government deems that certain emergency circumstances are likely to occur, it may restrict the depositary bank from converting and remitting dividends in U.S. dollars.*

If the Government deems that certain emergency circumstances are likely to occur, it may impose restrictions such as requiring foreign investors to obtain prior Government approval for the acquisition of Korean securities or for the repatriation of interest or dividends arising from Korean securities or sales proceeds from disposition of such securities. These emergency circumstances include any or all of the following:

sudden fluctuations in interest rates or exchange rates;

extreme difficulty in stabilizing the balance of payments; and

a substantial disturbance in the Korean financial and capital markets.

The depositary bank may not be able to secure such prior approval from the Government for the payment of dividends to foreign investors when the Government deems that there are emergency circumstances in the Korean financial markets.

## **Table of Contents**

### **ITEM 4. INFORMATION ON THE COMPANY**

#### **Item 4A. History and Development of the Company**

##### **General Information**

Our legal and corporate name is Korea Electric Power Corporation. We were established by the Government on December 31, 1981 as a statutory juridical corporation in Korea under the Korea Electric Power Corporation ( KEPCO ) Act as the successor to Korea Electric Company. Our registered office is located at 55 Jeollyeok-ro, Naju-si, Jeollanam-do, 520-350, Korea, and our telephone number is 82-61-345-4261. Our website address is www.kepc.co.kr. Our agent in the United States is Korea Electric Power Corporation, New York Office, located at 7th Floor, Parker Plaza, 400 Kelby Street, Fort Lee, NJ 07024.

The Korean electric utility industry traces its origin to the establishment of the first electric utility company in Korea in 1898. On July 1, 1961, the industry was reorganized by the merger of Korea Electric Power Company, Seoul Electric Company and South Korea Electric Company, which resulted in the formation of Korea Electric Company. From 1976 to 1981, the Government acquired the private minority shareholdings in Korea Electric Company. After the Government acquired all the remaining shares of Korea Electric Company, Korea Electric Company was dissolved, and we were incorporated in 1981 and assumed the assets and liabilities of Korea Electric Company. We ceased to be wholly owned by the Government in 1989 when the Government sold 21% of our common stock. As of December 31, 2014, the last day on which our shareholder registry was closed, the Government maintained 51.1% ownership in aggregate of our common shares by direct holdings by the Government and indirect holdings through Korea Development Bank, a statutory banking institution wholly owned by the Government.

Under relevant laws of Korea, the Government is required to own, directly or indirectly, at least 51% of our capital. Direct or indirect ownership of more than 50% of our outstanding common stock enables the Government to control the approval of certain corporate matters relating to us that require a shareholders' resolution, including approval of dividends. The rights of the Government and Korea Development Bank as holders of our common stock are exercised by the Ministry of Trade, Industry and Energy, based on the Government's ownership of our common stock and a proxy received from Korea Development Bank, in consultation with the Ministry of Strategy and Finance.

We operate under the general supervision of the Ministry of Trade, Industry and Energy. The Ministry of Trade, Industry and Energy, in consultation with the Ministry of Strategy and Finance, is responsible for approving, subject to review by the Korea Electricity Commission, the electricity rates we charge our customers. See Item 4B. Business Overview Sales and Customers Electricity Rates. We furnish reports to officials of the Ministry of Trade, Industry and Energy, the Ministry of Strategy and Finance and other Government agencies and regularly consult with such officials on matters relating to our business and affairs. See Item 4B. Business Overview Regulation. Our non-standing directors, who comprise the majority of our board of directors, must be appointed by the Ministry of Strategy and Finance following the review and resolution of the Public Agencies Operating Committee from a pool of candidates recommended by our director nomination committee and must have ample knowledge and experience in business management, and our President must be appointed by the President of the Republic upon the motion of the minister of the Ministry of Trade, Industry and Energy following the nomination by our director nomination committee, the review and resolution of the Public Agencies Operating Committee and an approval at the general meeting of shareholders. See Item 6A. Directors and Senior Management Board of Directors.

#### **Item 4B. Business Overview**

##### **Introduction**

We are an integrated electric utility company engaged in the transmission and distribution of substantially all of the electricity in Korea. Through our six wholly-owned generation subsidiaries, we also generate the

## **Table of Contents**

substantial majority of electricity produced in Korea. As of December 31, 2014, we and our generation subsidiaries owned approximately 77.6% of the total electricity generation capacity in Korea (excluding plants generating electricity primarily for private or emergency use). In 2014, we sold to our customers approximately 477,592 gigawatt-hours of electricity. We purchase electricity principally from our generation subsidiaries and to a lesser extent from independent power producers. Of the 490,018 gigawatt-hours of electricity we purchased in 2014, 31.6% was generated by KHNP, our wholly-owned nuclear and hydroelectric power generation subsidiary, 54.6% was generated by our wholly-owned five thermal generation subsidiaries and 13.8% was generated by independent power producers that trade electricity to us through the cost-based pool system of power trading (excluding independent power producers that supply electricity under power purchase agreements with us). Our five thermal generation subsidiaries are KOSEP, KOMIPO, KOWEPO, KOSPO and EWP, each of which is wholly owned by us and is incorporated in Korea. We derive substantially all of our revenues and profit from Korea, and substantially all of our assets are located in Korea.

In 2014, we had sales of Won 57,123 billion and net profit of Won 2,799 billion, compared to sales of Won 53,713 billion and net profit of Won 174 billion in 2013.

Our revenues are closely tied to demand for electricity in Korea. Demand for electricity in Korea increased at a compounded average growth rate of 3.9% per annum from 2010 to 2014, compared to the real gross domestic product, or GDP, which increased at a compounded average growth rate of 3.7% during the same period, according to the Bank of Korea. The GDP growth rate was 3.3% during 2014 while demand for electricity in Korea increased by 0.6% during 2014.

## **Strategy**

As our overall strategy, we seek to become a leading global energy enterprise through enhanced global competitiveness and strengthening our contribution to the global environmental campaigns through continued development of green and smart power-related technologies. We also aim to adapt to the growing uncertainties in global economy by selectively pursuing new business opportunities and through development of innovative technologies. In addition, we are in the process of integrating a creating shared values platform to our business model and operating strategy so as to enhance our social contributions as well as financial profitability in the form of creating new business opportunities while promoting energy welfare for our consumers.

*Strengthen reliability of our domestic operations.* Our primary strategies in this connection are to enhance efficiency of our electricity generation, transmission and distribution networks and acceptability of the construction and operation of our related facilities. Toward this end, we will strategically focus on ensuring stable supply of electricity, making our electricity networks smarter and more intelligent, creating customer-oriented marketing solutions, hiring outside agencies to assist with site selection for our facilities and improving the compensation system in relation to our facilities. We also aim to strengthen our marketing capabilities in anticipation of increasing competition, as well as bolster programs designed to encourage efficient energy use. We believe these measures will be instrumental to reinforcing our dominance in the Korean electricity market.

*Expand overseas business.* Our primary strategies in this connection are to develop tailored expansion plans specific to the target region, increase the level of our control over the proposed projects and procure secure supply of fuels. In this connection, we plan to expand our thermal and nuclear power projects as well as selectively explore renewable energy, smart transmission and distribution facilities and fuel procurement projects in the overseas markets.

*Create a platform for new business growth opportunities.* Our primary objectives in this connection are to gain first mover advantages in new businesses through technological development and to create opportunities for synergy through formation of an integrated energy network connecting Northeast Asia. Towards these goals, we plan to focus on development of high value-added electricity-related technology, commercialization of our strategic projects and establishment of super grids in Northeast Asia.

## **Table of Contents**

*Fulfill social responsibilities as an electricity provider.* In this connection, we will continue to seek to balance between our public policy mandate and profitability and develop sustainable products, including through leadership in low-carbon clean energy business, creating and fostering a common set of shared values with local communities, development of a sustainable energy business model and actualization of results-oriented social responsibility as a global corporate citizen.

### **Recent Developments**

#### ***Vesting Contract System***

On May 20, 2014, the Electricity Business Act was amended, with effect from November 21, 2014, to introduce a vesting contract system in determining the price and quantity of electricity to be sold and purchased through the Korea Power Exchange between the purchaser of electricity (namely, us) and the sellers of electricity (namely, our generation subsidiaries and independent power producers). While the vesting contract system will work in conjunction with the cost-based pool system, the former will also substantially revamp and rationalize the latter as currently in effect, particularly with respect to the adjusted coefficient component.

Under the vesting contract system as currently contemplated by the amended Electricity Business Act and the Enforcement Decree of the Electricity Business Act, producers of electricity to be generated from base load fuels (such as nuclear, coal, hydro and by-product gas) at a particular generation unit will be required to enter into a contract with the purchaser of electricity (namely, us), which will specify, among other things, the quantity of electricity to be generated and sold from such generation unit and the price at which such electricity will be sold and purchased. The contracted quantity will be subject to annual adjustment in consideration of past generation amounts, maintenance and overhaul periods, among others. The contracted price will be subject to monthly adjustment largely depending on the fuel price movements, provided that in the event of a drastic change in electricity tariff rates, inflation rate and the general market conditions of electricity supply and demand, the contracted price may be further adjusted on an as-needed basis. Generally, the contractual terms will be subject to prior consultation with the Korea Electricity Commission and approval by the Minister of the Ministry of Trade, Industry and Energy in order to ensure fair and standardized application of the vesting contract system to all producers of electricity.

In addition to aiming to stabilize the electricity supply market, a key feature of the vesting contract system is to provide a settlement mechanism that is designed to incentivize producers of electricity to supply electricity at or exceeding the contracted quantity. Under this settlement mechanism, an electricity producer is required to settle, among others, the difference between the contracted price and the market price of electricity sold at a given hour through the Korea Power Exchange (namely, the system marginal price), as multiplied by the contracted quantity of electricity. For further details of this settlement mechanism, see *Purchase of Electricity Vesting Contract System*. Under this settlement mechanism, assuming sale of electricity in the contracted quantity and further assuming the system marginal price being higher than the contracted price, the consideration to be received by the seller of electricity net of the settlement amount will effectively amount to the product of the contracted quantity multiplied by the contracted price. If the seller sells a quantity of electricity exceeding the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is entitled to an extra return (effectively, an incentive) equal to the product of the excess quantity multiplied by the difference between the system marginal price and the contracted price. On the other hand, if the seller sells a quantity of electricity falling short of the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is required to pay an amount (effectively, a penalty) equal to the product of the shortfall quantity multiplied by the difference between the system marginal price and the contracted price. The foregoing notions of incentive and penalty are intended to minimize the additional cost of purchasing electricity at the higher system marginal price in the event that the seller of electricity fails to deliver the contracted quantity of electricity. Details of the settlement mechanism in the event of the system marginal price being lower than the contracted price have not yet been finalized.

## **Table of Contents**

The vesting contract system was introduced principally in order to prevent excessive profit-taking by low-cost producers of electricity by replacing the adjusted coefficient as the basis for determining the guaranteed return to generation companies, as well as to attain the following objectives. First, this system seeks to increase transactional certainty and stability of electricity supply and purchase by requiring that a relatively long-term (generally one-year) contract be entered in relation to electricity supply, which had been previously made entirely through what was effectively a spot market. Second, in order to foster responsible management of electricity supply by generation companies, the generation companies will become subject to minimum supply requirements and will be rewarded or penalized depending on whether they meet these requirements. Third, the introduction of standard contractual prices is designed to encourage cost savings and productivity enhancements on the part of the generation companies, who will be rewarded or penalized depending on whether they can supply electricity at such standard contractual prices.

In order to minimize undue impact on the electricity trading market in Korea, the vesting contract system will be implemented in phases, with the target date of implementation for hydro power in the second half of 2015, for coal-based electricity in 2016 and for nuclear power in 2017, although vesting contracts have been entered in February 2015 between us and two independent power producers of by-product gas-based electricity (namely, POSCO Energy and Hyundai Green Power) at a contractual price set a level at which the vesting contract system replaced the adjustment coefficient mechanism previously in effect with equal economic effect. By-product gas-based electricity accounted for 1.7% of electricity purchased by us in 2014. Since the vesting contract system is still in the early stages of implementation and many of the related details are still being finalized, it presently remains unclear in what final form the vesting contract system will actually operate, whether the vesting contract system will be able to achieve the desired results and whether there will be any adverse unintended consequences from the application of the system, and no assurance can be given that such system will not adversely affect our business, results of operation or financial condition in the future. See Purchase of Electricity Vesting Contract System .

### ***Relocation and Sale of Our Headquarters***

Pursuant to a Government plan announced in 2005, which mandated relocation of the headquarters of select government-invested enterprises, including us and our six generation and certain other subsidiaries from the Seoul metropolitan area to other provinces in Korea as part of an initiative to foster balanced economic growth in the provinces, we and certain of our generation and other subsidiaries recently relocated our respective headquarters to the designated locations. Following relocation in November 2014, our headquarters are currently located in Naju in Jeollanam-do Province, which is approximately 300 kilometers south of Seoul. The designated locations for the headquarters of our six generation subsidiaries and other subsidiaries are various cities outside of Seoul across Korea. The estimated total cost of relocation of the headquarters of us and our generation subsidiaries is Won 1,522 billion, which has been funded with operating cash, borrowings and proceeds from the sale of existing headquarters.

Under a special act enacted for this purpose which requires that we sell our headquarters within one year after relocation, in September 2014 we entered into a definitive agreement with a consortium consisting of Hyundai Motor Company, Kia Motor Company and Hyundai Mobis for the sale of the properties in our previous headquarters for a sale price of Won 10,550 billion. The sale was made following an open bidding, and the assessment value for such properties was approximately Won 3,335 billion. Under the sales agreement, the purchaser made a deposit equal to 10% of the purchase price on the date of the agreement, paid the first installment equal to 30% of the purchase price on January 15, 2015 and is obligated to pay the remaining proceeds in two equal installments on May 25 and September 25, 2015, and the title to the properties will transfer on the date the full purchase price is paid.

### ***Sale of Treasury Shares***

On October 24, 2014, we sold 18,929,995 treasury shares held by us, representing 2.95% of our total issued shares for a consideration of Won 45,200 per share, or approximately Won 856 billion in the aggregate, through an after-hours block sale on the Korea Exchange to third party investors.

**Table of Contents*****Debt Reduction Program and Related Activities***

In 2014, in light of the general policy guideline of the Government for public institutions (including us and our generation subsidiaries) in general to reduce their respective overall debt levels, we and our generation subsidiaries have, in consultation with the Ministry of Trade, Industry and Energy and as approved by the Committee for Management of Public Institutions in June 2014, set target debt-to-equity levels and undertaken various programs to reduce debt and improve the overall financial health, including through rationalizing and applying stricter review (from a profitability and efficiency perspective) various aspects of our operations (both domestic and overseas), inviting private sector investments, disposing of non-core assets (such as non-core or loss-generating overseas operations and real property unrelated to operations), reducing costs, exploring alternative ways to generate additional revenue and developing contingency plans for further cost savings.

The following table summarizes some of the actions that we and our generation subsidiaries have undertaken or plan to undertake as part of such debt reduction program.

| <b>Entity</b> | <b>Target Debt-to-Equity Level<sup>(1)</sup></b> | <b>Actual Debt-to-Equity Level<sup>(1)</sup></b>           | <b>Other Related Activities</b>  |
|---------------|--|--|--|
| KEPCO         | 145% by 2017                                     | 136% as of December 31, 2013; 130% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Sale of treasury shares, remaining shares in LG Uplus and shares in select subsidiaries;</li> </ul>   |
| KHNP          | 150% by 2017                                     | 129% as of December 31, 2013; 132% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Active rental of facilities for additional revenue</li> <li>- Stricter review of new nuclear generation construction and new headquarters construction</li> </ul>   |
|               |  |  | <ul style="list-style-type: none"> <li>- Rationalization of the procurement process and other budget reduction efforts</li> </ul>  |
| EWP           | 107% by 2017                                     | 117% as of December 31, 2013; 135% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Development and sale of radioactive waste vitrification and other advanced technologies</li> <li>- Sale of shares in GS Donghae Electric Power Co., Ltd. and six other domestic and overseas companies</li> </ul> |
| KOMIPO        | 160% by 2017                                     | 112% as of December 31, 2013; 135% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Sale of shares in seven solar power facilities and closed facilities at Incheon Thermal Nos. 1 and 2</li> </ul>   |
| KOSEP         | 130% by 2017                                     | 128% as of December 31, 2013; 128% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Sale of shares in Korea Engineering &amp; Power Service Co., Ltd. and shares in six renewable energy companies</li> </ul>   |
| KOSPO         | 143% by 2017                                     | 113% as of December 31, 2013; 151% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Sale of real properties that yield no revenues</li> </ul>   |
| KOWEPO        | 149% by 2017                                     | 128% as of December 31, 2013; 156% as of December 31, 2014 | <ul style="list-style-type: none"> <li>- Sale of equity interests in Dongducheon Dream Power and obtaining private sector investment in the Pyeongtaek Combined Cycle Unit No. 3</li> </ul>  |
|               |  |  | <ul style="list-style-type: none"> <li>- Accelerated construction of generation units</li> </ul>   |



*Note:*

(1) Computed on a separate basis for KEPCO, EWP, and KOSPO.

Despite our best efforts, however, for reasons beyond our control, including macroeconomic environments, government regulations and market forces (such as international market prices for our fuels), we cannot assure whether we or our generation subsidiaries will be able to successfully reduce debt burdens or otherwise improve our financial health to a level contemplated by the Government or to a level that would be optimal for our capital

## **Table of Contents**

structure. If we or our generation subsidiaries fail to do so or the measures taken by us or our generation subsidiaries to reduce debt levels or improve financial health have unintended adverse consequences, such developments may have an adverse effect on our business, results of operation and financial condition.

### **Government Ownership and Our Interactions with the Government**

The KEPCO Act requires that the Government own at least 51% of our capital stock. Direct or indirect ownership of more than 50% of our outstanding common stock enables the Government to control the approval of certain corporate matters which require a shareholders' resolution, including approval of dividends. The rights of the Government and Korea Development Bank as holders of our common stock are exercised by the Ministry of Trade, Industry and Energy in consultation with the Ministry of Strategy and Finance. We are currently not aware of any plans of the Government to cease to own, directly or indirectly, at least 51% of our outstanding common stock.

We play an important role in the implementation of the Government's national energy policy, which is established in consultation with us, among other parties. As an entity formed to serve public policy goals of the Government, we seek to maintain a fair level of profitability and strengthen our capital base in order to support the growth of our business in the long term.

The Government, through its various policy initiatives for the Korean energy industry as well as direct and indirect supervision of us and our industry, plays an important role in our business and operations. Most importantly, the electricity tariff rates we charge to our customers are regulated by the Government taking into account, among others, our needs to recover the costs of operations, make capital investments and recoup a fair return on capital invested by us, as well as the Government's overall policy considerations, such as inflation. See Item 4B. Business Overview Sales and Customers Electricity Rates.

In addition, pursuant to the Basic Plan determined by the Government, we and our generation subsidiaries have made, and plan to make, substantial expenditures for the construction of generation plants and other facilities to meet demand for electric power. See Item 5B. Liquidity and Capital Resources Capital Requirements.

### **Restructuring of the Electric Power Industry in Korea**

On January 21, 1999, the Ministry of Trade, Industry and Energy published the Restructuring Plan. The overall objectives of the Restructuring Plan consisted of: (i) introducing competition and thereby increasing efficiency in the Korean electric power industry, (ii) ensuring a long-term, inexpensive and stable electricity supply, and (iii) promoting consumer convenience through the expansion of consumer choice.

The following provides further details relating to the Restructuring Plan.

#### ***Phase I***

During Phase I, which served as a preparatory stage for Phase II and lasted from the announcement of the Restructuring Plan in January 1999 until April 2001, we undertook steps to split our generation business units off into one wholly-owned nuclear generation subsidiary (namely, KHNP) and five wholly-owned thermal generation subsidiaries (namely, KOSEP, KOMIPO, KOWEPO, KOSPO and EWP), each with its own management structure, assets and liabilities. These steps were completed upon the approval of the split-off at our shareholders' meeting in April 2001.

The Government's principal objectives in the split-off of the generation units into separate subsidiaries were to: (i) introduce competition and thereby increase efficiency in the electricity generation industry in Korea, and (ii) ensure a stable supply of electricity in Korea.

## **Table of Contents**

Following the implementation of Phase I, we have substantial monopoly with respect to the transmission and distribution of electricity in Korea.

While our ownership percentage of the thermal generation subsidiaries will depend on the further adjustments to the Restructuring Plan to be adopted by the Government, we plan to retain 100% ownership of both KHNP and our transmission and distribution business.

### ***Phase II***

At the outset of Phase II in April 2001, the Government introduced a cost-based competitive bidding pool system under which we purchase power from our generation subsidiaries and other independent power producers for transmission and distribution to customers. For a further description of this system, see *Purchase of Electricity Cost-based Pool System* below.

In order to support the logistics of the cost-based pool system, the Government established the Korea Power Exchange in April 2001 pursuant to the Electricity Business Law. The primary function of the Korea Power Exchange is to deal with the sale of electricity and implement regulations governing the electricity market to allow for electricity distribution through a competitive bidding process. The Government also established the Korea Electricity Commission in April 2001 to regulate the Korean electric power industry and ensure fair competition among industry participants. To facilitate this goal, the Korea Power Exchange established the Electricity Market Rules relating to the operation of the bidding pool system. To amend the Electricity Market Rules, the Korea Power Exchange must have the proposed amendment reviewed by the Korea Electricity Commission and then obtain the approval of the Ministry of Trade, Industry and Energy.

The Korea Electricity Commission's main functions include implementation of standards and measures necessary for electricity market operation and review of matters relating to licensing participants in the Korean electric power industry. The Korea Electricity Commission also acts as an arbitrator in tariff-related disputes among participants in the Korean electric power industry and investigates illegal or deceptive activities of the industry participants.

### ***Privatization of Thermal Generation Subsidiaries***

In April 2002, the Ministry of Trade, Industry and Energy released the basic privatization plan for five of our generation subsidiaries other than KHNP. Pursuant to this plan, we commenced the process of selling our equity interest in KOSEP in 2002. According to the original plan, this process was, in principle, to take the form of a sale of management control, potentially supplemented by an initial public offering as a way of broadening the investor base. In November 2003, KOSEP submitted its application to the Korea Exchange for a preliminary screening review, which was approved in December 2003. However, in June 2004, KOSEP made a request to the Korea Exchange to delay its stock listing due to unfavorable stock market conditions at that time. We may resume the stock listing process for KOSEP in due course, after taking into consideration the overall stock market conditions and other pertinent matters. The aggregate foreign ownership of our generation subsidiaries is limited to 30% of total power generation capacity in Korea. In consultation with us, the Government will determine the size of the ownership interest to be sold and the timing of such sale, with a view to encouraging competition and assuring adequate electricity supply and debt service capability.

We believe the Government currently has no specific plans to resume the public offering of KOSEP or commence the same for any of our other generation subsidiaries in the near future. However, we cannot assure that our generation subsidiaries will not become part of Government-led privatization initiatives in the future for reasons relating to a change in Government policy, economic and market conditions and/or other factors.

## **Table of Contents**

### ***Suspension of the Plan to Form and Privatize Distribution Subsidiaries***

In 2003, the Government established a Tripartite Commission consisting of representatives of the Government, leading businesses and labor unions in Korea to deliberate on ways to introduce competition in electricity distribution, such as by forming and privatizing new distribution subsidiaries. In 2004, the Tripartite Commission recommended not pursuing such privatization initiatives but instead creating independent business divisions within us to improve operational efficiency through internal competition. Following the adoption of such recommendation by the Government in 2004 and further studies by Korea Development Institute, in 2006 we created nine strategic business units (which, together with our other business units, were subsequently restructured into 14 such units in February 2012) that have a greater degree of autonomy with respect to management, financial accounting and performance evaluation while having a common focus on increasing profitability.

### ***Initiatives to Improve the Structure of Electricity Generation***

In August 2010, based on deliberations with various interested parties, the Ministry of Trade, Industry and Energy announced the Proposal for the Improvement in the Structure of the Electric Power Industry, whose key initiatives include the following: (i) maintain the current structure of having six generation subsidiaries, (ii) designate the six generation subsidiaries as market-oriented public enterprises under the Public Agency Management Act in order to foster competition among them and autonomous and responsible management by them, (iii) create a supervisory unit to act as a control tower in reducing inefficiencies created by arbitrary division of labor among the six generation subsidiaries and fostering economies of scale among them and require the presidents of the generation subsidiaries to hold regular meetings, (iv) create a nuclear power export business unit to systematically enhance our capabilities to win projects involving the construction and operation of nuclear power plants overseas, (v) further rationalize the electricity tariff by adopting a fuel-cost based tariff system in 2011 and a voltage-based tariff system in a subsequent year, and (vi) create separate accounting systems for electricity generation, transmission, distribution and sales with the aim of introducing competition in electricity sales in the intermediate future.

Pursuant to this Proposal, in December 2010 the Ministry of Trade, Industry and Energy announced guidelines for a cooperative framework between us and our generation subsidiaries, and in January 2011 the five thermal generation subsidiaries formed a joint cooperation unit and transferred their pumped-storage hydroelectric business units to KHNP. Furthermore, in January 2011 the six generation subsidiaries were officially designated as market-oriented public enterprises, whereupon the President of Korea appoints the president and the statutory auditor of each such subsidiary; the selection of outside directors of each such subsidiary is subject to approval by the minister of the Ministry of Strategy and Finance; the president of each such subsidiary is required to enter into a management contract directly with the minister of the Ministry of Trade, Industry and Energy; and the Public Enterprise Management Evaluation Commission conducts performance evaluation of such subsidiaries. Previously, our president appointed the president and the statutory auditor of each such subsidiary; the selection of outside directors of each such subsidiary was subject to approval by our president; the president of each such subsidiary entered into a management contract with our president; and our evaluation committee conducted performance evaluation of such subsidiaries.

### ***Purchase of Electricity***

#### ***Cost-based Pool System***

Since April 2001, the purchase and sale of electricity in Korea is required to be made through the Korea Power Exchange, which is a statutory not-for-profit organization established under the Electricity Business Act with responsibilities for setting the price of electricity, handling the trading and collecting relevant data for the electricity market in Korea. The suppliers of electricity in Korea consist of our six generation subsidiaries, which were spun off from us in April 2001, and independent power producers, which numbered 10 (excluding renewable energy producers) as of December 31, 2014. We distribute electricity purchased through the Korea Power Exchange to the end users.

## **Table of Contents**

### *Our Relationship with the Korea Power Exchange*

The key features of our relationships with the Korea Power Exchange include the following: (i) we and our six generation subsidiaries are member corporations of the Korea Power Exchange and collectively own 100% of its share capital, (ii) three of the 10 members of the board of directors of the Korea Power Exchange are currently our or our subsidiaries' employees, and (iii) one of our employees is currently a member in three of the key committees of the Korea Power Exchange that are responsible for evaluating the costs of producing electricity, making rules for the Korea Power Exchange and gathering and disclosing information relating to the Korean electricity market.

Notwithstanding the foregoing relationships, however, we do not have control over the Korea Power Exchange or its policies since, among others, (i) the Korea Power Exchange, its personnel, policies, operations and finances are closely supervised and controlled by the Government, namely through the Ministry of Trade, Industry and Energy, and are subject to a host of laws and regulations, including, among others, the Electricity Business Act and the Public Agencies Management Act, as well as the Articles of Incorporation of the Korea Power Exchange, (ii) we are entitled to elect no more than one-third of the Korea Power Exchange directors and our representatives represent only a minority of its board of directors and committees (with the other members being comprised of representatives of the Ministry of Trade, Industry and Energy, employees of the Korea Power Exchange, businesspersons and/or scholars), and (iii) the role of our representatives in the policy making process for the Korea Power Exchange is primarily advisory based on their technical expertise derived from their employment at us or our generation subsidiaries. Consistent with this view, the Finance Supervisory Service issued a ruling in 2005 that stated that we are not deemed to have significant influence or control over the decision-making process of the Korea Power Exchange relating to its business or financial affairs.

### *Pricing Factors*

The price of electricity in the Korean electricity market is determined principally based on the cost of generating electricity using a system known as the cost-based pool system. Under the cost-based pool system, the price of electricity has two principal components, namely the marginal price (representing in principle the variable cost of generating electricity) and the capacity price (representing in principle the fixed cost of generating electricity).

Under the merit order system, the electricity purchase allocation, the system marginal price (as described below) and the final allocation adjustment are automatically determined based on an objective formula. The variable cost (including the adjusted coefficient as described below) and the capacity price are determined in advance of trading by the Cost Evaluation Committee. Accordingly, a supplier of electricity cannot exercise control over the merit order system or its operations to such supplier's strategic advantage.

### *Marginal Price*

The primary purpose of the marginal price is to compensate the generation companies for fuel costs, which represents the principal component of the variable costs of generating electricity. We currently refer such marginal price as the system marginal price.

The system marginal price represents, in effect, the marginal price of electricity at a given hour at which the projected demand for electricity and the projected supply of electricity for such hour intersect, as determined by the merit order system, which is a system used by the Korea Power Exchange to allocate which generation units will supply electricity for which hour and at what price. To elaborate, the projected demand for electricity for a given hour is determined by the Korea Power Exchange based on a forecast made one day prior to trading, and such forecast takes into account, among others, historical statistics relating to demand for electricity nationwide by day and by hour, seasonality and on-peak-hour versus off-peak hour demand analysis. The projected supply of electricity at a given hour is determined as the aggregate of the available capacity of all generation units that have submitted bids to supply electricity for such hour. These bids are submitted to the Korea Power Exchange one day prior to trading.

## **Table of Contents**

Under the merit order system, the generation unit with the lowest variable cost of producing electricity among all the generation units that have submitted a bid for a given hour is first awarded a purchase order for electricity up to the available capacity of such unit as indicated in its bid. The generation unit with the next lowest variable cost is then awarded a purchase order up to its available capacity in its bid, and so forth, until the projected demand for electricity for such hour is met. We refer to the variable cost of the generation unit that is the last to receive the purchase order for such hour as the system marginal price, which also represents the highest price at which electricity can be supplied at a given hour based on the demand and supply for such hour. Generation units whose variable costs exceed the system marginal price for a given hour do not receive purchase orders to supply electricity for such hour. The variable cost of each generation unit is determined by the Cost Evaluation Committee (comprised of representatives from the Ministry of Trade, Industry and Energy, the Korea Power Exchange, generation companies, scholars and researchers as well as us) on a monthly basis and reflected in the following month based on the fuel costs two months prior to such determination. The purpose of the merit order system is to encourage generation units to reduce its electricity generation costs by making its generation process more efficient, sourcing fuels from most cost-effective sources or adopting other cost savings programs.

The final allocation of electricity supply is further adjusted on the basis of other factors, including the proximity of a generation unit to the geographical area to which power is being supplied, network and fuel constraints and the amount of power loss. This adjustment mechanism is designed to adjust for transmission losses in order to improve overall cost-efficiency in the transmission of electricity to end-users.

The price of electricity at which our generation subsidiaries sell electricity to us is determined using the following formula:

Variable cost + [System marginal price - Variable cost] \* Adjusted coefficient

The adjusted coefficient is determined based on considerations of, among others, electricity tariff rates, the differential generation costs for different fuel types and the relative fair returns on investment in respect of us compared to our generation subsidiaries. The purpose of the adjusted coefficient is to prevent electricity trading from resulting in undue imbalances as to the relative financial results among generation subsidiaries as well as between us (as the purchaser of electricity) and our generation subsidiaries (as sellers of electricity). Such imbalances may arise from excessive profit taking by base load generators (on account of their inherently cheaper fuel cost structure compared to non-base load generators) as well as from fluctuations in fuel prices (it being the case that during times of rapid and substantial rises in fuel costs which are not offset by corresponding rises in electricity tariff rates charged by us to end-users, on a non-consolidated basis our profitability will decline compared to that of our generation subsidiaries since our generation subsidiaries are entitled to sell electricity to us at cost plus a guaranteed margin).

The adjusted coefficient applies in principle to all generation units that use the same type of fuel, except for independent power producers that use LNG, oil, or by-product gas (for which the adjusted coefficient was replaced with the vesting contract system as further discussed below). The adjusted coefficient is currently set at the highest level for the marginal price of electricity generated using nuclear fuel, followed by coal, oil and LNG. The differentiated adjusted coefficients reflect the Government's current energy policy objectives and have the effect of setting priorities in the fuel types to be used in electricity generation. The adjusted coefficient is determined by the Cost Evaluation Committee in principle on an annual basis, although in exceptional cases driven by external factors such as material developments in fuel costs and electricity tariff rates, the adjusted coefficient may be adjusted on a quarterly basis.

Under the vesting contract system which is currently being implemented in phases as to the purchase and sale of electricity between us and the suppliers of electricity (namely, our generation subsidiaries and independent power producers) pursuant to an amendment to the Electricity Business Act, effective November 21, 2014, the application of adjusted coefficient will be gradually cease in tandem with the rollout of the vesting contract system depending on various fuel types, and the adjustment mechanism for determining the price we

## **Table of Contents**

currently pay to our generation subsidiaries and independent power producers for electricity sold to us will be replaced by the vesting contract system as further described below in Vesting Contract System .

### *Capacity Price*

In addition to payment in respect of the variable cost of generating electricity, generation units receive payment in the form of capacity price, the purpose of which is to compensate them for the costs of constructing generation facilities and to provide incentives for new construction. The capacity price is determined annually by the Cost Evaluation Committee based on the construction costs and maintenance costs of a standard generation unit and is paid to each generation company for the amount of available capacity indicated in the bids submitted the day before trading, subject to such capacity being actually available on the relevant day of trading. From time to time, the capacity price is adjusted in ways to soften the impact of changes in the marginal price over time based on the expected rate of return for our generational subsidiaries. Currently, the capacity price is Won 7.46/kW-h and is applied equally to all generation units, regardless of fuel types used.

Under a regionally differentiated capacity price system, we are required to maintain a standard capacity reserve margin in the range of 12.0% to 20.0% in order to prevent excessive capacity build-up as well as induce optimal capacity investment at the regional level. The capacity reserve margin is the ratio of peak demand to the total available capacity. Under this system, generation units in a region where available capacity is insufficient to meet demand for electricity as evidenced by a failure to meet the standard capacity reserve margin receive increased capacity price. Conversely, generation units in a region where available capacity exceeds demand for electricity as evidenced by exceeding the standard capacity reserve margin receive reduced capacity price. The capacity price received by generation units is subject to hourly and seasonal adjustments in order to incentivize our generation subsidiaries to operate their generation facilities at full capacity during periods of highest demand. For example, the capacity price paid differs depending on whether the relevant hour is a on-peak hour, a mid-peak hour or an off-peak hour (it being highest for the on-peak hours and lowest for the off-peak hours) and the capacity price paid is highest during the months of January, July and August when electricity usage is highest due to weather conditions. Other than subject to the aforementioned variations, the same capacity pricing mechanism applies to all generation units regardless of fuel types used.

### *Vesting Contract System*

On May 20, 2014, the Electricity Business Act was amended, with effect from November 21, 2014, to introduce a vesting contract system in determining the price and quantity of electricity to be sold and purchased through the Korea Power Exchange between the purchaser of electricity (namely, us) and the sellers of electricity (namely, our generation subsidiaries and independent power producers). While the vesting contract system will work in conjunction with the cost-based pool system, the former will also substantially revamp and rationalize the latter as currently in effect, particularly with respect to the adjusted coefficient component.

Under the vesting contract system as currently contemplated by the amended Electricity Business Act and the Enforcement Decree of the Electricity Business Act, producers of electricity to be generated from base load fuels (such as nuclear, coal, hydro and by-product gas) at a particular generation unit will be required to enter into a contract with the purchaser of electricity (namely, us), which will specify, among other things, the quantity of electricity to be generated and sold from such generation unit and the price at which such electricity will be sold and purchased. The contracted quantity will be subject to annual adjustment in consideration of past generation amounts, maintenance and overhaul periods, among others. The contracted price will be subject to monthly adjustment largely depending on the fuel price movements, provided that in the event of a drastic change in electricity tariff rates, inflation rate and the general market conditions of electricity supply and demand, the contracted price may be further adjusted on an as-needed basis. Generally, the contractual terms will be subject to prior consultation with the Korea Electricity Commission and approval by the Minister of the Ministry of Trade, Industry and Energy in order to ensure fair and standardized application of the vesting contract system to all producers of electricity.

## **Table of Contents**

In addition to aiming to stabilize the electricity supply market, a key feature of the vesting contract system is to provide a settlement mechanism that is designed to incentivize producers of electricity to supply electricity at or exceeding the contracted quantity. Under this settlement mechanism, an electricity producer is required to settle, among others, the difference between the contracted price and the market price of electricity sold at a given hour through the Korea Power Exchange (namely, the system marginal price), as multiplied by the contracted quantity of electricity.

To elaborate, the net consideration that the seller of electricity at a particular generation unit is entitled to receive upon sale of the contracted quantity of electricity through the Korea Power Exchange at a given hour is determined using the following formula:

Net consideration = Gross consideration – Settlement amount, assuming the system marginal price is higher than the contracted price, where:

(A) Gross consideration equals the sum of:

(i) System marginal price \* quantity of electricity sold; and

(ii) Capacity price (as discussed above), as applicable to the particular generation unit; and

(B) Settlement amount equals the sum of:

(i) Contracted quantity \* (system marginal price – contracted price); and

(ii) Capacity price.

Accordingly, under this settlement mechanism, assuming sale of electricity in the contracted quantity and further assuming the system marginal price being higher than the contracted price, the consideration to be received by the seller of electricity net of the settlement amount will effectively amount to the product of the contracted quantity multiplied by the contracted price. If the seller sells a quantity of electricity exceeding the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is entitled to an extra return (effectively, an incentive) equal to the product of the excess quantity multiplied by the difference between the system marginal price and the contracted price. On the other hand, if the seller sells a quantity of electricity falling short of the contracted quantity at a given hour, under the settlement mechanism and assuming the system marginal price being higher than the contracted price, the seller is required to pay an amount (effectively, a penalty) equal to the product of the shortfall quantity multiplied by the difference between the system marginal price and the contracted price. The foregoing notions of incentive and penalty are intended to minimize the additional cost of purchasing electricity at the higher system marginal price in the event that the seller of electricity fails to deliver the contracted quantity of electricity. Details of the settlement mechanism in the event of the system marginal price being lower than the contracted price have not yet been finalized.

The vesting contract system was introduced principally in order to prevent excessive profit-taking by low-cost producers of electricity by replacing the adjusted coefficient as the basis for determining the guaranteed return to generation companies, as well as to attain the following objectives. First, this system seeks to increase transactional certainty and stability of electricity supply and purchase by requiring that a relatively long-term (generally one-year) contract be entered in relation to electricity supply, which had been previously made entirely through what was effectively a spot market. Second, in order to foster responsible management of electricity supply by generation companies, the generation companies will become subject to minimum supply requirements and will be rewarded or penalized depending on whether they meet these requirements. Third, the introduction of standard contractual prices is designed to encourage cost savings and productivity enhancements on the part of the generation companies, who will be rewarded or penalized depending on whether they can supply electricity at such standard contractual prices.



**Table of Contents**

In order to minimize undue impact on the electricity trading market in Korea, the vesting contract system will be implemented in phases, with the target date of implementation for hydro power in the second half of 2015, for coal-based electricity in 2016 and for nuclear power in 2017, although vesting contracts have been entered in February 2015 between us and two independent power producers of by-product gas-based electricity (namely, POSCO Energy and Hyundai Green Power) at a contractual price set a level at which the vesting contract system replaced the adjustment coefficient mechanism previously in effect with equal economic effect. By-product gas-based electricity accounted for 1.7% of electricity purchased by us in 2014. Since the vesting contract system is still in the early stages of implementation and many of the related details are still being finalized, it presently remains unclear in what final form the vesting contract system will actually operate, whether the vesting contract system will be able to achieve the desired results and whether there will be any adverse unintended consequences from the application of the system, and no assurance can be given that such system will not adversely affect our business, results of operation or financial condition in the future.

**Power Trading Results**

The results of power trading, as effected through the Korea Power Exchange, for our generation subsidiaries and independent power producers for the year ended December 31, 2014 are as follows:

|                      | Items                 | Volume<br>(Gigawatt<br>hours) | Percentage<br>of Total<br>Volume<br>(%) | Sales to<br>KEPCO<br>(in billions<br>of Won) | Percentage<br>of Total<br>Sales (%) | Unit Price<br>(Won/kWh) |
|----------------------|-----------------------|-------------------------------|---|--|-------------------------------------|-------------------------|
| Generation Companies | KHNP                  | 154,894                       | 31.6                                    | 9,287  | 20.8                                | 59.95                   |
|                      | KOSEP                 | 63,876                        | 13.0                                    | 4,501  | 10.1                                | 70.46                   |
|                      | KOMIPO                | 50,181                        | 10.2                                    | 5,029  | 11.3                                | 100.22                  |
|                      | KOWEPO                | 48,391                        | 9.9                                     | 4,932  | 11.0                                | 101.93                  |
|                      | KOSPO                 | 56,686                        | 11.6                                    | 6,302  | 14.1                                | 111.17                  |
|                      | EWP                   | 48,549                        | 9.9                                     | 4,537  | 10.2                                | 93.44                   |
|                      | Others <sup>(1)</sup> | 67,441                        | 13.8                                    | 10,108                                       | 22.6                                | 144.87                  |
|                      | Total                 | 490,018                       | 100.0                                   | 44,695                                       | 100.6                               | 91.21                   |
| Energy Sources       | Nuclear               | 149,056                       | 30.4                                    | 8,192  | 18.3                                | 54.96                   |
|                      | Bituminous coal       | 189,330                       | 38.6                                    | 11,994                                       | 26.8                                | 63.35                   |
|                      | Anthracite coal       | 7,746                         | 1.6                                     | 706  | 1.6                                 | 91.18                   |
|                      | Oil                   | 7,591                         | 1.5                                     | 1,681  | 3.8                                 | 221.42                  |
|                      | LNG                   | 25,267                        | 5.2                                     | 3,936  | 8.8                                 | 155.78                  |
|                      | Combined-cycle        | 89,566                        | 18.3                                    | 14,524                                       | 32.5                                | 162.16                  |
|                      | Hydro                 | 2,070                         | 0.4                                     | 333  | 0.7                                 | 170.94                  |
|                      | Pumped-storage        | 5,037                         | 1.0                                     | 866  | 1.9                                 | 204.41                  |
|                      | Others                | 14,355                        | 2.9                                     | 2,464  | 5.5                                 | 171.67                  |
|                      | Total                 | 490,018                       | 100.0                                   | 44,695                                       | 100.0                               | 91.21                   |
| Load                 | Base load             | 342,132                       | 69.8                                    | 20,791                                       | 46.5                                | 60.77                   |
|                      | Non-base load         | 147,886                       | 30.2                                    | 23,904                                       | 53.5                                | 161.64                  |
|                      | Total                 | 490,018                       | 100.0                                   | 44,695                                       | 100.0                               | 91.21                   |

Note:

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

- (1) Others represent independent power producers that trade electricity through the cost-based pool system of power trading (excluding independent power producers that supply electricity under power purchase agreements with us).

**Table of Contents*****Power Purchased from Independent Power Producers Under Power Purchase Agreements***

In 2014, we purchased an aggregate of 11,114 gigawatt hours of electricity generated by independent power producers under existing power purchase agreements. These independent power producers had an aggregate generation capacity of 4,243 megawatts as of December 31, 2014.

***Power Generation***

As of December 31, 2014, we and our generation subsidiaries had a total of 607 generation units, including nuclear, thermal, hydroelectric and internal combustion units, representing total installed generation capacity of 72,305 megawatts. Our thermal units produce electricity using steam turbine generators fired by coal, oil and LNG. Our internal combustion units use oil or diesel-fired gas turbines and our combined-cycle units are primarily LNG-fired. We also purchase power from several generation plants not owned by our generation subsidiaries.

The table below sets forth as of and for the year ended December 31, 2014 the number of units, installed capacity and the average capacity factor for each type of generating facilities owned by our generation subsidiaries.

|                     | <b>Number<br/>of Units</b> | <b>Installed<br/>Capacity<sup>(1)</sup><br/>(Megawatts)</b> | <b>Average<br/>Capacity<br/>Factor<sup>(2)</sup><br/>(Percent)</b> |
|---------------------|----------------------------|---|--|
| Nuclear             | 23                         | 20,716  | 85.0   |
| Thermal:            |                            |   |  |
| Coal                | 53                         | 26,274  | 88.5   |
| Oil                 | 11                         | 2,950   | 26.5   |
| LNG                 | 2                          | 388   | 16.7   |
| Total thermal       | 66                         | 29,612  | 81.4   |
| Internal combustion | 208                        | 330   | 22.7   |
| Combined-cycle      | 111                        | 16,074  | 48.4   |
| Hydro               | 73                         | 5,343   | 12.8   |
| Wind                | 40                         | 94  | 18.0   |
| Solar               | 75                         | 74  | 14.8   |
| Fuel cell           | 9                          | 28  | 55.4   |
| Biogas              | 2                          | 35  | 62.1   |
| Total               | 607                        | 72,305  | 69.9   |

***Notes:***

- (1) Installed capacity represents the level of output that may be sustained continuously without significant risk of damage to plant and equipment.
- (2) Average capacity factor represents the total number of kilowatt hours of electricity generated in the indicated period divided by the total number of kilowatt hours that would have been generated if the generation units were continuously operated at installed capacity, expressed as a percentage.

The expected useful life of a unit, assuming no substantial renovation, is approximately as follows: nuclear, over 40 years; thermal, over 30 years; internal combustion, over 25 years; and hydroelectric, over 55 years. Substantial renovation can extend the useful life of thermal units by up to 20 years.

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

We seek to achieve efficient use of fuels and diversification of generation capacity by fuel type. In the past, we relied principally upon oil-fired thermal generation units for electricity generation. Since the oil shock in 1974, however, Korea's power development plans have emphasized the construction of nuclear generation units. While nuclear units are more expensive to construct than thermal generation units of comparable capacity, nuclear fuel is less expensive than fossil fuels in terms of electricity output per unit cost. However, efficient operation of nuclear units requires that such plants be run continuously at relatively constant energy output levels. As it is impractical to store large quantities of electrical energy, we seek to maintain nuclear power production capacity at approximately the level at which demand for electricity is continuously stable. During

**Table of Contents**

those times when actual demand exceeds the usual level of electricity supply from nuclear power, we rely on units fired by fossil fuels and hydroelectric units, which can be started and shut down more quickly and efficiently than nuclear units, to meet the excess demand. Bituminous coal is currently the least expensive thermal fuel per kilowatt-hour of electricity produced, and therefore we seek to maximize the use of bituminous coal for generation needs in excess of the stable demand level, except for meeting short-term surges in demand which require rapid start-up and shutdown. Thermal units fired by LNG, hydroelectric units and internal combustion units are the most efficient types of units for rapid start-ups and shutdowns, and therefore we use such units principally to meet short-term surges in demand. Anthracite coal is a less efficient fuel source than bituminous coal in terms of electricity output per unit cost.

Our generation subsidiaries have constructed and recommissioned thermal and internal combustion units in order to help meet power demand. Subject to market conditions, our generation subsidiaries plan to continue to add additional thermal and internal combustion units. These units generally take less time to complete construction than nuclear units.

The high average age of our oil-fired thermal units is attributable to our reliance on oil-fired thermal units as the primary means of electricity generation until mid-1970s. Since then, we have diversified our fuel sources and constructed relatively few oil-fired thermal units compared to units of other fuel types.

The table below sets forth, for the periods indicated, the amount of electricity generated by facilities linked to our grid system and the amount of power used or lost in connection with transmission and distribution.

|   | 2010           | 2011           | 2012           | 2013           | 2014           | % of 2014<br>Gross<br>Generation <sup>(1)</sup> |
|---|----------------|----------------|----------------|----------------|----------------|---|
| (in gigawatt hours, except percentages)                       |                |                |                |                |                |   |
| Electricity generated by us and our generation subsidiaries:  |                |                |                |                |                |   |
| Nuclear   | 148,596        | 154,723        | 150,327        | 138,784        | 156,407        | 30.0  |
| Coal  | 198,287        | 199,516        | 199,330        | 201,119        | 203,765        | 39.0  |
| Oil   | 10,874         | 9,456          | 13,553         | 13,941         | 6,838          | 1.3   |
| LNG   | 2,288          | 2,233          | 3,453          | 3,526          | 568            | 0.1   |
| Internal combustion   | 731            | 821            | 752            | 741            | 656            | 0.1   |
| Combined-cycle  | 70,081         | 71,668         | 75,751         | 84,561         | 68,134         | 13.1  |
| Hydro   | 4,393          | 4,815          | 5,140          | 5,679          | 5,976          | 1.1   |
| Wind  | 91             | 117            | 127            | 155            | 148            |   |
| Solar and fuel cells  | 44             | 60             | 83             | 251            | 422            | 0.1   |
| <b>Total generation by us and our generation subsidiaries</b> | <b>435,385</b> | <b>443,409</b> | <b>448,516</b> | <b>448,757</b> | <b>442,914</b> | <b>84.9</b>                                     |
| Electricity generated by IPPs:                                |                |                |                |                |                |   |
| Thermal   | 37,197         | 42,240         | 48,043         | 55,923         | 63,088         | 12.1  |
| Hydro and other renewable                                     | 2,079          | 11,244         | 13,015         | 12,468         | 15,968         | 3.1   |
| <b>Total generation by IPPs</b>                               | <b>39,276</b>  | <b>53,484</b>  | <b>61,058</b>  | <b>68,391</b>  | <b>79,056</b>  | <b>15.1</b>                                     |
| Gross generation  | 474,660        | 496,893        | 509,574        | 517,148        | 521,970        | 100   |
| Auxiliary use <sup>(2)</sup>                                  | 19,372         | 19,689         | 20,154         | 20,463         | 20,610         | 3.9   |
| Pumped-storage <sup>(3)</sup>                                 | 3,663          | 4,257          | 4,789          | 5,408          | 6,644          | 1.3   |
| <b>Total net generation<sup>(4)</sup></b>                     | <b>451,625</b> | <b>472,947</b> | <b>484,631</b> | <b>491,277</b> | <b>494,716</b> | <b>94.8</b>                                     |
| Transmission and distribution losses <sup>(5)</sup>           | 18,034         | 17,430         | 17,292         | 18,019         | 18,270         | 3.7   |

IPPs = Independent power producers



**Table of Contents***Notes:*

- (1) Unless otherwise indicated, percentages are based on gross generation.
- (2) Auxiliary use represents electricity consumed by generation units in the course of generation.
- (3) Pumped-storage represents electricity consumed during low demand periods in order to store water which is utilized to generate hydroelectric power during peak demand periods.
- (4) Total net generation is gross generation minus auxiliary and pumped-storage use.
- (5) Total transmission and distribution losses divided by total net generation.

The table below sets forth our total capacity at the end of, and peak and average loads during, the indicated periods.

|                | 2010        | 2011   | 2012   | 2013   | 2014   |
|----------------|-------------|--------|--------|--------|--------|
|                | (Megawatts) |        |        |        |        |
| Total capacity | 76,078      | 76,649 | 81,806 | 82,296 | 93,216 |
| Peak load      | 71,308      | 73,137 | 75,987 | 76,522 | 80,154 |
| Average load   | 54,185      | 56,723 | 58,012 | 58,615 | 59,586 |

***Korea Hydro & Nuclear Power Co., Ltd.***

We commenced nuclear power generation activities in 1978 when our first nuclear generation unit, Kori-1, began commercial operation. On April 2, 2001, all of nuclear and hydroelectric power generation assets and liabilities of our thermal generation subsidiaries were transferred to KHNP.

KHNP owns and operates 23 nuclear generation units at four power plant complexes in Korea, located in Kori, Wolsong, Yonggwang (Hanbit) and Ulchin (Hanul), 51 hydroelectric generation units including 16 pumped storage hydro generation units as well as five solar generation units and one wind generation unit as of December 31, 2014.

The table below sets forth the number of units and installed capacity as of December 31, 2014 and the average capacity factor by types of generation units in 2014.

|               | Number of Units | Installed Capacity <sup>(1)</sup><br>(Megawatts) | Average Capacity Factor <sup>(2)</sup><br>(Percent) |
|---------------|-----------------|--|---|
| Nuclear       | 23              | 20,716   | 85.0  |
| Hydroelectric | 51              | 5,307  | 27.1  |
| Solar         | 5               | 16   | 15.2  |
| Wind          | 1               | 1  | 6.9   |
| Total         | 80              | 26,040   |   |

*Notes:*

- (1) Installed capacity represents the level of output that may be sustained continuously without significant risk of damage to plant and equipment.
- (2) Average capacity factor represents the total number of kilowatt hours of electricity generated in the indicated period divided by the total number of kilowatt hours that would have been generated if the generation units were continuously operated at installed capacity.

expressed as a percentage.

Shin-Kori-2 and Shin-Wolsong-1, each with a 1,000 megawatt capacity, commenced commercial operation in July 2012. We are currently building five additional nuclear generation units, consisting of one unit with a 1,000 megawatt capacity and four units each with a 1,400 megawatt capacity at the Shin-Kori and Shin-Hanul sites, respectively. We expect to complete these units between 2015 and 2018. In addition, we plan to build four additional nuclear units, each with a 1,400 megawatt capacity, and two additional nuclear units, each with a 1,500 megawatt capacity at the Shin-Kori and Shin-Hanul sites between 2019 and 2024.



**Table of Contents***Nuclear*

The table below sets forth certain information with respect to the nuclear generation units of KHNP as of December 31, 2014.

| Unit           | Reactor Type <sup>(1)</sup><br>(Megawatts) | Reactor Design <sup>(2)</sup> | Turbine and Generation <sup>(3)</sup> | Commencement of Operations | Installed Capacity |
|----------------|--|-------------------------------|---------------------------------------|----------------------------|--------------------|
| Kori-1         | PWR  | W                             | GEC, Hitachi, D                       | 1978                       | 587                |
| Kori-2         | PWR  | W                             | GEC                                   | 1983                       | 650                |
| Kori-3         | PWR  | W                             | GEC, Hitachi                          | 1985                       | 950                |
| Kori-4         | PWR  | W                             | GEC, Hitachi                          | 1986                       | 950                |
| Shin-Kori-1    | PWR  | D, KOPEC, W                   | D, GE                                 | 2011                       | 1,000              |
| Shin-Kori-2    | PWR  | D, KOPEC, W                   | D, GE                                 | 2012                       | 1,000              |
| Wolsong-1      | PHWR                                       | AECL                          | P                                     | 1983                       | 679                |
| Wolsong-2      | PHWR                                       | AECL, H, K                    | H, GE                                 | 1997                       | 700                |
| Wolsong-3      | PHWR                                       | AECL, H                       | H, GE                                 | 1998                       | 700                |
| Wolsong-4      | PHWR                                       | AECL, H                       | H, GE                                 | 1999                       | 700                |
| Shin-Wolsong-1 | PWR  | D, KOPEC, W                   | D, GE                                 | 2012                       | 1,000              |
| Hanbit-1       | PWR  | W                             | W, D                                  | 1986                       | 950                |
| Hanbit-2       | PWR  | W                             | W, D                                  | 1987                       | 950                |
| Hanbit-3       | PWR  | H, CE, K                      | H, GE                                 | 1995                       | 1,000              |
| Hanbit-4       | PWR  | H, CE, K                      | H, GE                                 | 1996                       | 1,000              |
| Hanbit-5       | PWR  | D, CE, W, KOPEC               | D, GE                                 | 2002                       | 1,000              |
| Hanbit-6       | PWR  | D, CE, W, KOPEC               | D, GE                                 | 2002                       | 1,000              |
| Hanul-1        | PWR  | F                             | A                                     | 1988                       | 950                |
| Hanul-2        | PWR  | F                             | A                                     | 1989                       | 950                |
| Hanul-3        | PWR  | H, CE, K                      | H, GE                                 | 1998                       | 1,000              |
| Hanul-4        | PWR  | H, CE, K                      | H, GE                                 | 1999                       | 1,000              |
| Hanul-5        | PWR  | D, KOPEC, W                   | D, GE                                 | 2004                       | 1,000              |
| Hanul-6        | PWR  | D, KOPEC, W                   | D, GE                                 | 2005                       | 1,000              |
| Total nuclear  |  |                               |                                       |                            | 20,716             |

*Notes:*

- (1) PWR means pressurized light water reactor; PHWR means pressurized heavy water reactor.
- (2) W means Westinghouse Electric Company (U.S.A.); AECL means Atomic Energy Canada Limited (Canada); F means Framatome (France); H means Hanjung; CE means Combustion Engineering (U.S.A.); D means Doosan Heavy Industries; K means Korea Atomic Energy Research Institute; KOPEC means Korea Power Engineering Company.
- (3) GEC means General Electric Company (U.K.); P means Parsons (Canada and U.K.); W means Westinghouse Electric Company (U.S.A.); A means Alsthom (France); H means Hanjung; GE means General Electric (U.S.A.); D means Doosan Heavy Industries; Hitachi means Hitachi Ltd. (Japan).

**Table of Contents**

The table below sets forth the average capacity factor and average fuel cost per kilowatt for 2014 with respect to each nuclear generation unit of KHNP.

| Unit           | Average Capacity<br>Factor<br>(Percent) | Average Fuel Cost<br>Per kWh<br>(Won) |
|----------------|---|---------------------------------------|
| Kori-1         | 85.2                                    | 5.8                                   |
| Kori-2         | 91.5                                    | 6.5                                   |
| Kori-3         | 83.5                                    | 6.8                                   |
| Kori-4         | 86.3                                    | 6.5                                   |
| Shin-Kori-1    | 84.8                                    | 5.8                                   |
| Shin-Kori-2    | 95.1                                    | 5.3                                   |
| Wolsong-1      |   |                                       |
| Wolsong-2      | 91.3                                    | 8.7                                   |
| Wolsong-3      | 85.6                                    | 9.1                                   |
| Wolsong-4      | 85.1                                    | 9.2                                   |
| Shin-Wolsong-1 | 99.3                                    | 5.4                                   |
| Hanbit-1       | 103.5                                   | 6.5                                   |
| Hanbit -2      | 77.8                                    | 5.5                                   |
| Hanbit -3      | 78.8                                    | 6.3                                   |
| Hanbit -4      | 77.9                                    | 6.3                                   |
| Hanbit -5      | 79.5                                    | 5.9                                   |
| Hanbit -6      | 81.8                                    | 5.5                                   |
| Hanul-1        | 91.9                                    | 5.9                                   |
| Hanul-2        | 84.6                                    | 6.3                                   |
| Hanul-3        | 41.4                                    | 6.8                                   |
| Hanul-4        | 98.1                                    | 4.9                                   |
| Hanul-5        | 84.2                                    | 6.1                                   |
| Hanul-6        | 88.7                                    | 5.8                                   |
| Total nuclear  | 85.0                                    | 6.3                                   |

Under extended-cycle operations, nuclear units can be run continuously for periods longer than the conventional 12-month period between scheduled shutdowns for refueling and maintenance. Since 1987, we have adopted the mode of extended-cycle operations for all of our pressurized light water reactor units and plan to use it for our newly constructed units. The duration of shutdown for fuel replacement and maintenance was 71.9 days per unit in 2014. In addition, KHNP's nuclear units experienced an average of 0.2 unplanned shutdowns per unit in 2014. In the ordinary course of operations, KHNP's nuclear units routinely experience damage and wear and tear, which are repaired during routine shutdown periods or during unplanned temporary suspensions of operations. No significant damage has occurred in any of KHNP's nuclear reactors, and no significant nuclear exposure or release incidents have occurred at any of KHNP's nuclear facilities since the first nuclear plant commenced operation in 1978.

**Table of Contents***Hydroelectric*

Effective January 1, 2011, pursuant to the Government's Proposal for Improvements in the Structure of the Electric Power Industry announced in August 2010, our five thermal generation subsidiaries transferred all of the assets and liabilities relating to their pumped-storage and hydroelectric business units to KHNP. The table below sets forth certain information, including the installed capacity as of December 31, 2014 and the average capacity factor in 2014.

| Location of Unit            | Number of Units | Classification  | Year Built | Installed Capacity<br>(Megawatts) | Average Capacity<br>Factor<br>(%) |
|-----------------------------|-----------------|-----------------|------------|-----------------------------------|-----------------------------------|
| Hwacheon                    | 4               | Dam waterway    | 1944       | 108.0                             | 9.5                               |
| Chuncheon                   | 2               | Dam             | 1965       | 62.3                              | 9.6                               |
| Euam                        | 2               | Dam             | 1967       | 48.0                              | 21.8                              |
| Cheongpyung                 | 4               | Dam             | 1943       | 140.1                             |                                   |
| Paldang                     | 4               | Dam             | 1973       | 120.0                             | 13.8                              |
| Seomjingang                 | 3               | Basin deviation | 1945       | 34.8                              | 25.4                              |
| Boseonggang                 | 2               | Basin deviation | 1937       | 4.5                               | 61.6                              |
| Kwoesan                     | 2               | Dam             | 1957       | 2.6                               | 34.4                              |
| Anheung                     | 3               | Dam waterway    | 1978       | 0.5                               | 29.0                              |
| Kangreung                   | 2               | Basin deviation | 1991       | 82.0                              |                                   |
| Topyeong                    | 1               | Dam             | 2011       | 0.05                              | 23.8                              |
| Muju <sup>(1)</sup>         | 1               | Dam             | 2003       | 0.4                               | 17.7                              |
| Sancheong <sup>(1)</sup>    | 2               | Dam             | 2001       | 1.0                               | 45.2                              |
| Yangyang <sup>(1)</sup>     | 2               | Dam             | 2005       | 1.4                               | 26.8                              |
| Yecheon <sup>(1)</sup>      | 1               | Dam             | 2011       | 1.0                               | 11.5                              |
| Cheongpeoung <sup>(1)</sup> | 2               | Pumped Storage  | 1980       | 400.0                             | 9.3                               |
| Samrangjin <sup>(1)</sup>   | 2               | Pumped Storage  | 1985       | 600.0                             | 10.4                              |
| Muju <sup>(1)</sup>         | 2               | Pumped Storage  | 1995       | 600.0                             | 14.1                              |
| Sancheong <sup>(1)</sup>    | 2               | Pumped Storage  | 2001       | 700.0                             | 13.6                              |
| Yangyang <sup>(1)</sup>     | 4               | Pumped Storage  | 2006       | 1,000.0                           | 11.4                              |
| Cheongsong <sup>(1)</sup>   | 2               | Pumped Storage  | 2006       | 600.0                             | 14.5                              |
| Yecheon <sup>(1)</sup>      | 2               | Pumped Storage  | 2011       | 800.0                             | 11.9                              |
| <b>Total</b>                | <b>51</b>       |                 |            | <b>5,307.0</b>                    | <b>27.1</b>                       |

*Note:*

(1) Indicates facilities that have been transferred from our five thermal generation companies to KHNP as of January 1, 2011.

*Solar/Wind*

The table below sets forth certain information, including the installed capacity as of December 31, 2014 and the average capacity factor in 2014, regarding each solar and wind power unit of KHNP. Yecheon-units 1 and 2 began commercial operation in July 2012 and December 2012, respectively. KHNP added an 11-megawatt capacity unit to the Younggwang Solar Park, for which commercial operation began in November 2012.

| Location of Unit | Classification | Year Built | Installed Capacity | Average<br>Capacity |
|------------------|----------------|------------|--------------------|---------------------|
|------------------|----------------|------------|--------------------|---------------------|

Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

|           |       |      | (Megawatts) | Factor<br>(Percent) |
|-----------|-------|------|-------------|---------------------|
| Yonggwang | Solar | 2008 | 13.9        | 15.1                |
| Yecheon   | Solar | 2012 | 2.0         | 15.8                |
| Kori      | Wind  | 2008 | 0.8         | 6.78                |
| Total     |       |      | 16.7        |                     |

**Table of Contents**

Korea Water Resources Corporation, which is a Government-owned entity, assumes full control of multi-purpose dams, while KHNP maintains the dams used for power generation. Existing hydroelectric power units have exploited most of the water resources in Korea available for commercially viable hydroelectric power generation. Consequently, we expect that no new major hydroelectric power plants will be built in the foreseeable future. Due to the ease of its start-up and shut-down mechanism, hydroelectric power generation is reserved for peak demand periods.

***Korea South-East Power Co., Ltd.***

The table below sets forth, by fuel type, the weighted average age and installed capacity as of December 31, 2014 and the average capacity factor and average fuel cost per kilowatt in 2014 based upon the net amount of electricity generated, of KOSEP.

|   | Weighted<br>Average Age<br>of Units<br>(Years) | Installed<br>Capacity<br>(Megawatts) | Average<br>Capacity<br>Factor<br>(Percent) | Average Fuel<br>Cost per kWh<br>(Won) |
|---|--|--------------------------------------|--|---------------------------------------|
| <b>Bituminous:</b>  |  |                                      |  |                                       |
| Samchunpo #1, 2, 3, 4, 5, 6                               | 23.5   | 3,240                                | 90.9                                       | 42.8                                  |
| Yong Hung #1, 2, 3, 4, 5, 6                               | 5.5  | 5,080                                | 90.4                                       | 41.3                                  |
| Yosu # 2  | 37.5   | 328.6                                | 89.7                                       | 57.3                                  |
| <b>Anthracite:</b>  |  |                                      |  |                                       |
| Yongdong #1, 2  | 37.6   | 325                                  | 88.8                                       | 58.3                                  |
| <b>Combined cycle and internal Combustion:</b>            |  |                                      |  |                                       |
| Bundang gas turbine #1,2,3,4,5,6,7,8; steam turbine #1, 2 | 20.9   | 922                                  | 32.8                                       | 188.4                                 |
| Hydro, Solar and other renewable energy                   |  | 83.3                                 |  |                                       |
| <b>Total</b>  | <b>15.0</b>                                    | <b>9,979</b>                         | <b>83.9</b>                                | <b>49.3</b>                           |

**Table of Contents*****Korea Midland Power Co., Ltd.***

The table below sets forth, by fuel type, the weighted average age and installed capacity as of December 31, 2014 and the average capacity factor and average fuel cost per kilowatt in 2014 based upon the net amount of electricity generated, of KOMIPO.

|   | Weighted<br>Average Age<br>of Units<br>(Years) | Installed<br>Capacity<br>(Megawatts) | Average<br>Capacity<br>Factor<br>(Percent) | Average Fuel<br>Cost per<br>kWh<br>(Won) |
|---|--|--------------------------------------|--|--|
| Bituminous:   |  |                                      |  |  |
| Boryeong #1, 2, 3, 4, 5, 6, 7, 8                                | 19.9   | 4,000                                | 95.3                                       | 39.5                                     |
| Anthracite:   |  |                                      |  |  |
| Seocheon #1, 2  | 31.5   | 400                                  | 65.2                                       | 68.8                                     |
| Oil-fired:  |  |                                      |  |  |
| Jeju #2, 3  | 14.5   | 150                                  | 58.8                                       | 208.6                                    |
| LNG-fired:  |  |                                      |  |  |
| Seoul #4, 5   | 45.1   | 387.5                                | 12.1                                       | 237.8                                    |
| Combined-cycle and internal combustion:                         |  |                                      |  |  |
| Boryeong gas turbine #1, 2, 3, 4, 5, 6; steam turbine #1, 2, 3, | 15.8   | 1,350                                | 29.5                                       | 155.0                                    |
| Incheon gas turbine #1, 2, 3, 4, 5, 6; steam turbine #1, 2, 3   | 9.8  | 1,462.7                              | 65.2                                       | 140.9                                    |
| Sejong gas turbine #1, 2; steam turbine #1                      | 1.1  | 530.4                                | 59.0                                       | 147.4                                    |
| Jeju Gas Turbine #3   | 37.1   | 55                                   | 0.4  | 779.6                                    |
| Jeju Internal Combustion Engine #1, 2                           | 7.6  | 80                                   | 58.8                                       | 159.2                                    |
| Wind-powered:   |  |                                      |  |  |
| Yangyang #1, 2  | 8.5  | 3.0                                  | 15.1                                       | 13.7                                     |
| Hydroelectric:  |  |                                      |  |  |
| Boryeong  | 5.8  | 7.5                                  | 26.9                                       | 0.7                                      |
| Photovoltaic ( PV ) power and fuel cell generation:             |  |                                      |  |  |
| Boryeong (PV) site  | 6.6  | 0.6                                  | 12.7                                       | 15.2                                     |
| Seocheon (PV) site  | 6.9  | 1.2                                  | 14.2                                       |  |
| Jeju (PV) site  | 3.4  | 2.3                                  | 12.3                                       |  |
| Seoul (PV) site   | 3.3  | 1.3                                  | 15.2                                       | 2.7                                      |
| Yeosu (PV) site   | 2.8  | 2.2                                  | 15.8                                       |  |
| Incheon (PV) site   | 3.0  | 0.3                                  | 14.1                                       |  |
| Boryeong (fuel cell) site                                       | 6.3  | 0.3                                  | 78.9                                       | 243.8                                    |
| Total   | 19.7   | 8,434                                | 67.1                                       | 76.9                                     |

**Table of Contents*****Korea Western Power Co., Ltd.***

The table below sets forth, by fuel type, the weighted average age and installed capacity as of December 31, 2014 and the average capacity factor and average fuel cost per kilowatt in 2014 based upon the net amount of electricity generated, of KOWEPO.

|                               | <b>Weighted<br/>Average Age<br/>of Units<br/>(Years)</b> | <b>Installed<br/>Capacity<br/>(Megawatts)</b> | <b>Average<br/>Capacity<br/>Factor<br/>(Percent)</b> | <b>Average Fuel<br/>Cost per kWh<br/>(Won)</b> |
|-------------------------------|--|---|--|--|
| <b>Bituminous:</b>            |  |   |  |  |
| Taeon #1, 2, 3, 4, 5, 6, 7, 8 | 14.4   | 4,000   | 93.4   | 41.9   |
| <b>Oil-fired:</b>             |  |   |  |  |
| Pyeongtaek #1, 2, 3, 4        | 33.1   | 1,400   | 15.9   | 178.4  |
| <b>Combined cycle:</b>        |  |   |  |  |
| Pyeongtaek #1, 2              | 8.2  | 1,348.5                                       | 31.0   | 146.8  |
| Gunsan                        | 4.6  | 718.4   | 73.4   | 145.0  |
| West Incheon                  | 22.5   | 1,800   | 52.5   | 152.1  |
| <b>Hydroelectric:</b>         |  |   |  |  |
| Taeon                         | 7.3  | 2.2   | 22.6   |  |
| <b>Solar:</b>                 |  |   |  |  |
| Taeon                         | 9.4  | 0.1   | 12.6   |  |
| Taeon 2                       | 2.9  | 0.6   | 14.1   |  |
| Gunsan                        | 4.5  | 0.3   | 14.4   |  |
| Samryangjin                   | 7.1  | 3.0   | 13.6   |  |
| Sejong City                   | 2.5  | 4.9   | 14.3   |  |
| Gyeonggi-do                   | 1.7  | 2.5   | 14.4   |  |
| Yeongam                       | 1.8  | 13.3  | 15.2   |  |
| Pyeongtaek                    | 0.1  | 0.46  | 6.1  |  |
| <b>Fuel Cell:</b>             |  |   |  |  |
| West Incheon                  | 0.3  | 11.2  | 84.2   |  |
| <b>Total</b>                  | <b>17.1</b>  | <b>9,305.5</b>                                | <b>64.8</b>  | <b>80.4</b>                                    |

**Table of Contents*****Korea Southern Power Co., Ltd.***

The table below sets forth, by fuel type, the weighted average age and installed capacity as of December 31, 2014 and the average capacity factor and average fuel cost per kilowatt in 2014 based upon the net amount of electricity generated, of KOSPO.

|                                | Weighted<br>Average Age<br>of Units<br>(Years) | Installed<br>Capacity<br>(Megawatts) | Average<br>Capacity<br>Factor<br>(Percent) | Average Fuel<br>Cost per kWh<br>(Won) |
|--------------------------------|--|--------------------------------------|--|---------------------------------------|
| Bituminous:                    |  |                                      |  |                                       |
| Hadong #1, 2, 3, 4, 5, 6, 7, 8 | 13.3   | 4,000                                | 100.0                                      | 41.45                                 |
| Oil-fired:                     |  |                                      |  |                                       |
| Nam Jeju #3, 4                 | 8.0  | 200                                  | 78.8                                       | 203.76                                |
| Combined cycle:                |  |                                      |  |                                       |
| Shin Incheon #1, 2, 3, 4       | 18.2   | 1,800                                | 66.9                                       | 149.56                                |
| Busan #1, 2, 3, 4              | 11.2   | 1,800                                | 77.8                                       | 142.52                                |
| Yeongwol #1                    | 4.6  | 848                                  | 29.3                                       | 154.31                                |
| Hallim                         | 18.5   | 105                                  | 12.0                                       | 265.63                                |
| Andong #1                      | 1.3  | 361                                  | 55.9                                       |                                       |
| Wind power:                    |  |                                      |  | 132.22                                |
| Hankyung                       | 8.2  | 21                                   | 28.4                                       | 0.92                                  |
| Seongsan                       | 5.2  | 20                                   | 26.7                                       | 0.60                                  |
| Solar                          | 4.2  | 6                                    | 13.0                                       | 0.29                                  |
| Total                          | 12.5   | 9,161                                | 75.0                                       | 91.43                                 |



**Table of Contents*****Korea East-West Power Co., Ltd.***

The table below sets forth, by fuel type, the weighted average age and installed capacity as of December 31, 2014 and the average capacity factor and average fuel cost per kilowatt in 2014 based upon the net amount of electricity generated, of EWP.

|   | Weighted<br>Average Age<br>of Units<br>(Years) | Installed<br>Capacity<br>(Megawatts) | Average<br>Capacity<br>Factor<br>(Percent) | Average Fuel<br>Cost per<br>kWh<br>(Won) |
|---|--|--------------------------------------|--|--|
| Bituminous:   |  |                                      |  |  |
| Dangjin #1, 2, 3, 4, 5, 6, 7, 8                             | 11.4   | 4,000                                | 91.4                                       | 39.3                                     |
| Honam #1, 2   | 41.7   | 500                                  | 82.9                                       | 56.3                                     |
| Anthracite:   |  |                                      |  |  |
| Donghae #1, 2   | 15.8   | 400                                  | 91.0                                       | 56.4                                     |
| Oil-fired:  |  |                                      |  |  |
| Ulsan #1, 2, 3, 4, 5, 6                                     | 34.4   | 1,200                                | 20.5                                       | 181.3                                    |
| Combined cycle:   |  |                                      |  |  |
| Ulsan gas turbine #1, 2, 3, 4, 5, 6; steam turbine #1, 2, 3 | 15.5   | 2.1                                  | 39.5                                       | 138.9                                    |
| Ilsan gas turbine #1, 2, 3, 4, 5, 6; steam turbine #1, 2    | 20.8   | 900                                  | 26.1                                       | 194.6                                    |
| Mini hydro:   |  |                                      |  |  |
| Dangjin   | 5.1  | 5.0                                  | 54.2                                       |  |
| Photovoltaic:   |  |                                      |  |  |
| Dangjin   | 4.3  | 1.0                                  | 14.0                                       |  |
| Ulsan   | 3.8  | 0.5                                  | 10.8                                       |  |
| Kwangyang   | 3.1  | 2.3                                  | 9.8  | 1.4                                      |
| Dangjin Storage Facility                                    | 2.1  | 0.7                                  | 13.9                                       |  |
| Dangjin Floating System                                     | 1.6  | 1.0                                  | 11.4                                       |  |
| Dangjin Waste Treatment Facility                            | 3.1  | 1.3                                  | 13.0                                       |  |
| Donghae   | 8.3  | 1.0                                  | 72.1                                       |  |
| Fuel cell:  |  |                                      |  |  |
| Ilsan #1  | 5.3  | 2.4                                  | 80.1                                       | 193.7                                    |
| Ilsan #2  | 3.8  | 2.8                                  | 71.0                                       | 206.8                                    |
| Ilsan #3  | 1.8  | 2.8                                  | 86.0                                       | 184.9                                    |
| Ulsan   | 1.3  | 2.8                                  | 90.3                                       | 166.9                                    |
| Wind Power:   |  |                                      |  |  |
| YeongGwang Jisan  | 2.3  | 3.0                                  |  | 4.0                                      |
| Biomass:  |  |                                      |  |  |
| Donghae   | 1.5  | 30.0                                 | 82.4                                       | 83.9                                     |
| Total   | 8.5  | 9,128.5                              | 71.4                                       | 70.2                                     |

**Table of Contents****Power Plant Remodeling and Recommissioning**

Our generation subsidiaries supplement power generation capacity through remodeling or recommissioning of thermal units. Recommissioning includes installation of anti-pollution devices, modification of control systems and overall rehabilitation of existing equipment. The following table shows recent remodeling and recommissioning initiatives by our generation subsidiaries.

| Power Plant     | Capacity                   | Completed (Year)                                | Extension                       | Company |
|-----------------|----------------------------|---|---------------------------------|---------|
| Taeon #1-8      | 4,000 MW                   | EP <sup>(1)</sup> upgrade (#4, 2011)            | Anti-pollution                  | KOWEPO  |
|                 | (500 MW×8)                 | EP <sup>(1)</sup> upgrade (#1, 2012)            |                                 |         |
| Pyeongtaek #1-4 | 1,400 MW                   | Steam turbine upgrade (#1, 4, 2013/#2, 3, 2014) | 10-year performance-improvement | KOWEPO  |
|                 | (350×4)                    |   |                                 |         |
| Boryeong #1-8   | 4,000 MW                   | Control System upgrade                          | Performance-improvement         | KOMIPO  |
|                 | (500×8)                    | (#6, 2011, #3, 5, 2012)                         |                                 |         |
| Incheon CC #2   | 508.9 MW                   | SCR <sup>(2)</sup> : 2012                       | Anti-pollution                  | KOMIPO  |
|                 | (gas turbines 164 MW ×2)   |   |                                 |         |
|                 | (steam turbines 181 MW ×1) |   |                                 |         |
| Yosu #2         | 328.6 MW                   | Boiler Type Change (CFBC <sup>(3)</sup> : 2011) | 30 years                        | KOSEP   |
| Samcheonpo #1-6 | 3,240 MW                   | Boiler, EP, Draft System Upgrade (#1, 2: 2012)  | 10 years                        | KOSEP   |
|                 | (560 ×4500 ×2)             |   | Refurbishing-modernization      |         |

**Notes:**

- (1) EP means an electrostatic precipitation system.  
 (2) SCR means a selective catalytic reduction system.  
 (3) CFBC means a circulating fluidized bed combustion system.

**Transmission and Distribution**

We currently transmit and distribute substantially all of the electricity in Korea.

As of December 31, 2014, our transmission system consisted of 32,795 circuit kilometers of lines of 765 kilovolts and others including high-voltage direct current lines, and we had 805 substations with aggregate installed transformer capacity of 285,242 megavolt-amperes.

As of December 31, 2014, our distribution system consisted of 107,804 megavolt-amperes of transformer capacity and 8,832,409 units of support with a total line length of 457,249 circuit kilometers.

We make substantial investments in our transmission and distribution systems to increase geographic coverage and improve efficiency. Our current projects principally focus on increasing capabilities of the existing lines and reducing our transmission and distribution loss, which was

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

3.69% of our gross generation in 2014. In light of the increased damage to large-scale transmission and distribution facilities, we plan to reinforce stability of our transmission and distribution facilities through stricter design and material specifications. In addition, we also plan to expand underground transmission and distribution facilities to meet customer demand for more environment-friendly facilities. In order to reduce the interruption time in power distribution, which is an indicator of the quality of electricity transmission, we are also continuing to invest in automation of electricity transmission and development of new transmission technologies, among others.

## **Table of Contents**

In particular, as part of our overall business strategy, we are currently developing, or seek to develop, an intelligent power transmission and distribution network, or smart grids, based on advanced information technology, in order to promote a more efficient allocation and use of electricity by consumers. We expect that such technology will improve efficiency and reduce electricity loss over the course of electricity transmission and distribution. In July 2012, the Government implemented a master plan to build out a smart grid, which includes the Advanced Metering Infrastructure (AMI) roadmap. In accordance with such plan, we are in the process of installing smart meters and related communication networks and operating systems for 22 million households for target completion by 2020 as part of the smart grid initiative in an effort to enhance efficiency in the power electricity industry and alleviate growing energy shortage concerns. Smart meters refer to digital meters that record, on a real-time basis, electricity consumption within a household and the effective tariff rate at the time of electricity usage so that consumers will have a price-based incentive to enhance efficiency in their electricity usage. On the other hand, the smart grid refers to the next-generation network for electricity distribution that integrates information technology into the existing power grid with the aim of enabling two-way real time exchange of information between electricity suppliers and consumers for optimal efficiency in electricity use. The smart grid project is scheduled to be completed in 2030, and the AMI project is currently scheduled to be completed in 2020. We expect that the smart grid initiative would significantly increase efficient energy consumption by providing real-time data to customers, which would in turn help to reduce greenhouse gas emission and decrease Korea's reliance on foreign energy sources. As of December 31, 2014, we have installed 2 million smart meter units, and plan to install an additional 2.3 million units in 2015. The AMI project is expected to cost Won 1.7 trillion by 2020.

Some of the facilities we own and use in our distribution system use rights of way and other concessions granted by municipal and local authorities in areas where our facilities are located. These concessions are generally renewed upon expiration.

## **Fuel**

### ***Nuclear***

Uranium, the principal fuel source for nuclear power, accounted for 33.5%, 30.9% and 35.3% of our fuel requirements for electricity generation in 2012, 2013 and 2014, respectively.

All uranium ore concentrates are imported from, and conversion and enrichment of such concentrates are provided by, sources outside Korea and are paid for with currencies other than Won, primarily U.S. dollars.

In order to ensure stable supply, KHNP enters into long-term and medium-term contracts with various suppliers and supplements such supplies with purchases in spot markets. In 2014, KHNP purchased 100%, or approximately 4,172 tons, of its uranium concentrate requirement under both long-term and spot supply contracts with suppliers in the United Kingdom, Kazakhstan, France, Germany, Niger, Canada, Japan and Australia. Under the long-term supply contracts, the purchase prices of uranium concentrates are adjusted annually based on base prices and spot market prices prevailing at the time of actual delivery. The conversion and enrichment services of uranium concentrates are provided by suppliers in Canada, France, Germany, Japan, China, Russia, the United Kingdom and the United States. A Korean supplier typically provides fabrication of fuel assemblies. Except for certain fixed contract prices, contract prices for processing of uranium are adjusted annually in accordance with the general rate of inflation. KHNP intends to obtain its uranium requirements in the future, in part, through purchases under medium- to long-term contracts and, in part, through spot market purchases.

### ***Coal***

Bituminous coal accounted for 42.5%, 43.0% and 44.1% of our fuel requirements for electricity generation in 2012, 2013 and 2014 respectively, and anthracite coal accounted for 2.0%, 1.8% and 1.9% of our fuel requirements for electricity generation in 2012, 2013 and 2014, respectively.

## **Table of Contents**

In 2014, our generation subsidiaries purchased approximately 77 million tons of bituminous coal, of which approximately 41.6%, 40.2%, 10.4%, 6.8% and 0.9%, were imported from Indonesia, Australia, Russia, the United States and others, respectively. Approximately 84.5% of the bituminous coal requirements of our generation subsidiaries in 2014 were purchased under long-term contracts with the remaining 15.5% purchased in the spot market. Some of our long-term contracts relate to specific generating plants and extend through the end of the projected useful lives of such plants, subject in some cases to periodic renewal. Pursuant to the terms of our long-term supply contracts, prices are adjusted periodically based on market conditions. The average cost of bituminous coal per ton purchased under such contracts amounted to Won 113,705, Won 94,217 and Won 92,206 in 2012, 2013 and 2014, respectively.

In 2014, our generation subsidiaries purchased approximately 1.2 million tons of anthracite coal. The prices for anthracite coal under such contracts are set by the Government. The average cost of anthracite coal per ton purchased under such contracts was Won 141,669, Won 126,425 and Won 108,118 in 2012, 2013 and 2014, respectively.

### ***Oil***

Oil accounted for 3.2%, 3.3% and 1.7% of our fuel requirements for electricity generation in 2012, 2013 and 2014, respectively.

In 2014, our generation subsidiaries purchased approximately 10.9 million barrels of fuel oil, substantially all of which was purchased from domestic refiners through competitive open bidding. Purchase prices are based on the spot market price in Singapore. The average cost per barrel was Won 139,204, Won 123,402 and Won 117,692 in 2012, 2013 and 2014, respectively.

### ***LNG***

LNG accounted for 17.7%, 19.7% and 15.5% of our fuel requirements for electricity generation in 2012, 2013 and 2014, respectively. In 2014, for use in electricity generation we purchased approximately 9.4 million tons of LNG from Korea Gas Corporation, a Government-controlled entity in which we currently own a 24.5% equity interest. In 2014, we purchased all of our LNG requirements for use in power generation from Korea Gas Corporation. Under the terms of the LNG contract with Korea Gas Corporation, all of our five thermal generation subsidiaries jointly and severally agreed to purchase a total of 9.4 million tons of LNG in 2014, subject to an automatic price adjustment annually based on a pre-determined formula if the actual purchased amount exceeds or falls short of the contracted amount. We believe the quantities of LNG provided under such contract will be adequate to meet the needs of our generation subsidiaries for LNG for the next several years. The LNG supply contracts between our generation subsidiaries and Korea Gas Corporation generally have a term of 20 years and provide for minimum purchase requirements for our generation subsidiaries, the specific terms of which are subject to negotiation between Korea Gas Corporation and our generation subsidiaries and approval by the Government. The average cost per ton of LNG under our contract with Korea Gas Corporation was Won 1,020,528, Won 1,002,323 and Won 1,059,640 in 2012, 2013 and 2014, respectively.

### ***Hydroelectric***

Hydroelectric power generation accounted for 1.1%, 1.3% and 1.3% of our fuel requirements for electricity generation in 2012, 2013 and 2014, respectively. The availability of water for hydroelectric power depends on rainfall and competing uses for available water supplies, including residential, commercial, industrial and agricultural consumption. Pumped storage enables us to increase the available supply of water for use during periods of peak electricity demand.

As of January 1, 2011, assets and liabilities relating to the pumped storage units of the five thermal generation subsidiaries were transferred to KHNP pursuant to the Government's Proposal for Improvements in the Korean Electric Power Industry.

## Table of Contents

### Sales and Customers

Our sales depend principally on the level of demand for electricity in Korea and the rates we charge for the electricity we sell to the end-users.

Demand for electricity in Korea grew at a compounded average rate of 3.9% per annum for the five years ended December 31, 2014. According to the Bank of Korea, the compounded growth rate for real gross domestic product, or GDP, was approximately 3.7% for the same period. The GDP growth rate was approximately 2.3%, 2.9% and 3.3% during 2012, 2013 and 2014, respectively.

The table below sets forth, for the periods indicated, the annual rate of growth in Korea's gross domestic product, or GDP, and the annual rate of growth in electricity demand (measured by total annual electricity consumption) on a year-on-year basis.

|                                   | 2010  | 2011 | 2012 | 2013 | 2014 |
|-----------------------------------|-------|------|------|------|------|
| Growth in GDP                     | 6.5%  | 3.7% | 2.3% | 2.9% | 3.3% |
| Growth in electricity consumption | 10.1% | 4.8% | 2.5% | 1.8% | 0.6% |

Electricity demand in Korea varies within each year for a variety of reasons other than the general growth in GDP demand. Electricity demand tends to be higher during daylight hours due to heightened commercial and industrial activities and electronic appliance use. Due to the use of air conditioning during the summer and heating during the winter, electricity demand is higher during these two seasons than the spring or the fall. Variation in weather conditions may also cause significant variation in electricity demand.

We do not use any marketing channels, including any special sales methods, to sell electricity to our customers, other than to install electricity meters on-site and take monthly readings of such meters, based upon which invoices are sent to our customers.

### Demand by the Type of Usage

The table below sets forth consumption of electric power, and growth of such consumption on a year-on-year basis, by the type of usage (in gigawatt hours) for the periods indicated.

|                 | 2010<br>(GWh) | YoY<br>growth<br>(%) | 2011<br>(GWh) | YoY<br>growth<br>(%) | 2012<br>(GWh) | YoY<br>growth<br>(%) | 2013<br>(GWh) | YoY<br>growth<br>(%) | 2014<br>(GWh) | YoY<br>growth<br>(%) | % of<br>Total<br>2014 |
|-----------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|-----------------------|
| Residential     | 63,200        | 6.3                  | 63,524        | 0.5                  | 65,484        | 3.1                  | 65,815        | 0.5                  | 64,457        | (2.1)                | 13.5                  |
| Commercial      | 97,410        | 8.7                  | 99,504        | 2.1                  | 101,593       | 2.1                  | 102,196       | 0.6                  | 100,761       | (1.4)                | 21.1                  |
| Educational     | 7,453         | 15.3                 | 7,568         | 1.5                  | 7,860         | 3.9                  | 7,947         | 1.1                  | 7,438         | (6.4)                | 1.6                   |
| Industrial      | 232,672       | 12.3                 | 251,491       | 8.1                  | 258,102       | 2.6                  | 265,373       | 2.8                  | 272,552       | 2.7                  | 57.1                  |
| Agricultural    | 10,654        | 10.2                 | 11,232        | 5.4                  | 12,776        | 13.8                 | 13,866        | 8.5                  | 14,505        | 4.6                  | 3.0                   |
| Street lighting | 3,081         | 4.3                  | 3,145         | 2.1                  | 3,158         | 0.4                  | 3,156         | (0.1)                | 3,221         | 2.1                  | 0.7                   |
| Overnight Power | 19,690        | 3.0                  | 18,606        | (5.5)                | 17,620        | (5.3)                | 16,496        | (6.4)                | 14,658        | (11.1)               | 3.0                   |
| Total           | 434,160       | 10.1                 | 455,070       | 4.8                  | 466,593       | 2.5                  | 474,849       | 1.8                  | 477,592       | 0.6                  | 100.0                 |

The industrial sector represents the largest segment of electricity consumption in Korea. Demand for electricity from the industrial sector was 272,552 gigawatt hours in 2014, representing a 2.7% increase from 2013, largely due to continued export-led growth of the Korean economy. Demand for electricity from the commercial sector has increased in recent years, largely due to increased commercial activities in Korea and the rapid expansion of the service sector of the Korean economy, which has resulted in increased office building construction, office automation and use of air conditioners. Demand for electricity from the commercial sector, however, decreased to 100,761 gigawatt hours in 2014, representing a 1.4% decrease from 2013 largely due to a

**Table of Contents**

decrease in electricity usage for air conditioning and heating resulting in part from cooler summer and warmer winter compared to the prior year. In 2014, we distributed electricity to approximately 22 million households, which represent substantially all of the households in Korea. Demand for electricity from the residential sector is largely dependent on population growth and use of heaters, air conditioners and other electronic appliances. Demand for electricity from the residential sector decreased to 64,457 gigawatt hours in 2014, representing a 2.1% decrease compared to 2013.

***Demand Management***

Our ability to provide adequate supply of electricity is principally measured by the facility capacity reserve margin and the supply reserve margin. The facility capacity reserve margin represents the difference between the peak usage during a year and the installed capacity at the time of such peak usage, expressed as a percentage of such installed capacity. The supply reserve margin represents the difference between the peak usage in a year and the average available capacity at the time of such peak usage, expressed as a percentage of such peak usage. The following table sets forth our facility reserve margin and supply reserve margin for the periods indicated.

|                         | 2010 | 2011 | 2012 | 2013 | 2014  |
|-------------------------|------|------|------|------|-------|
| Facility reserve margin | 6.7% | 4.8% | 7.7% | 7.5% | 16.3% |
| Supply reserve margin   | 6.2% | 5.5% | 5.2% | 5.5% | 11.5% |

While we seek to meet the growing demand for electricity in Korea primarily by continuing to expand our generation capacity, we have also implemented several measures to curtail electricity consumption, especially during peak periods. We apply time-of-use and seasonality tariff, which are structured so that higher tariffs are charged at the time and months of peak demand to select types of customers, and we also apply a progressive rate structure for the residential use of electricity. We have several demand management programs to control demand and induce power conservation during peak hours and peak seasons such as providing incentives for reducing power consumption during peak hours.

***Electricity Rates***

The Electricity Business Law and the Price Stabilization Act of 1975, each as amended from time to time, prescribe the procedures for the approval and establishment of rates charged for the electricity we sell. We submit our proposals for revisions of rates or changes in the rate structure to the Ministry of Trade, Industry and Energy. The Ministry of Trade, Industry and Energy then reviews these proposals and, following consultation with the Electricity Rates Expert Committee of the Ministry of Trade, Industry and Energy and the Ministry of Strategy and Finance, makes the final decision. Under the Electricity Business Law, the Korea Electricity Commission must review our proposals prior to the Ministry of Trade, Industry and Energy's final decision.

Under the Electricity Business Law and the Price Stabilization Act, electricity rates are established at levels that would enable us to recover our operating costs attributable to our basic electricity generation, transmission and distribution operations as well as receive a fair investment return on capital used in those operations.

In May 2014, in order to make conforming changes to the standards for determining the public utility rates and to further bolster the reasonableness of cost determination, the Ministry of Trade, Industry and Energy amended the standards for determining the electricity tariff rates. The main amendments include (i) recording as our cost of electricity (which forms part of our operating costs) (x) the pretax income of our six generation subsidiaries (which was previously deducted from our operating costs) and (y) our equity interests in our six generation subsidiaries (which were previously included in the rate base discussed below), and (ii) when determining working capital, considering the actual time of our cost recovery (namely, the accounts receivable collection period and the accounts payable payment period).

## **Table of Contents**

For the purposes of rate approval, operating costs are defined as the sum of our operating expenses (which principally consists of cost of sales and selling and administrative expenses) and our adjusted income taxes.

Fair investment return represents an amount equal to the rate base multiplied by the rate of return.

Following the amendments to its computation methods in May 2014 as described above, the rate base is currently equal to the sum of:

net utility plant in service (which is equal to utility plant minus accumulated depreciation minus revaluation reserve);

working capital for 19.2 days; and

the portion of construction-in-progress which is charged from our retained earnings.

The amounts used for the variables in the rates are those projected by us for the periods to be covered by the rate approval. There is no provision for prior period adjustments to compensate us.

For the purpose of determining the fair rate of return, the rate base is divided into two components in proportion to our total shareholders' equity and our total debt. The rate of return permitted in relation to the debt component of the rate base is set at a level designed to approximate the weighted average interest cost on all types of borrowing for the periods covered by the rate approval. The rate of return permitted in relation to the equity component of the rate base is set by applying the capital asset pricing model which takes account of the risk-free rate, the return on the Korea Stock Price Index, KOSPI, a Korean equity market index, and the correlation of the stock price of our company with KOSPI. In 2013, the approved rate of return on the debt component of the rate base was 3.2% while the approved rate of return on the equity component of the rate base was 6.4%. As a result of such approved rates of returns, the fair rate of return in 2013 was determined to be 4.6%. The fair rate of return for 2014 has not yet been determined.

The Electricity Business Law and the Price Stabilization Act do not specify a basis for determining the reasonableness of our operating expenses or any other items (other than the level of the fair investment return) for the purposes of the rate calculation. However, the Government exercises substantial control over our budgeting and other financial and operating decisions.

In addition to the calculations described above, a variety of other factors are considered in setting overall tariff levels. These other factors include consumer welfare, our projected capital requirements, the effect of electricity tariff on inflation in Korea and the effect of tariff on demand for electricity.

From time to time, our actual rate of return on invested capital may differ significantly from the fair rate of return on invested capital assumed for the purposes of electricity tariff approvals, for reasons, among others, related to movements in fuel prices, exchange rates and demand for electricity that differ from what is assumed for determining our fair rate of return. For example, between 1987 and 1990, the actual rate of return was above the fair rate of return due to declining fuel costs and rising demand for electricity at a rate not anticipated for purposes of determining our fair rate of return. Similarly, depreciation of the Won against the U.S. dollar accounted for our actual rates of return being lower than the fair rate of return for the period from 1996 to 2000. For the period since 2006, our actual rates of return have been lower than the fair rate of return largely due to a general increase in fuel costs and additional facility investment costs incurred, the effects of which were not offset by timely increases in our tariff rates. Partly in response to the variance between our actual rates of return and the fair rates of return, the Government from time to time increases the electricity tariff rates, but there typically is a significant time lag for the tariff increases as such increases requires a series of deliberative processes and administrative procedures and the Government also has to consider other policy considerations, such as the inflationary effect of overall tariff increases and the efficiency of energy use from sector-specific tariff increases.



## **Table of Contents**

Recent increases to the electricity tariff rates by the Government involve the following, which were made principally in response to the rising fuel prices which hurt our profitability as well as to encourage a more efficient use of electricity by the different sectors:

effective August 6, 2012, a 4.9% overall increase in our average tariff rate, consisting of increases in the residential, commercial, educational, industrial, street lighting, agricultural and overnight power usage tariff rates by 2.7%, 4.4%, 3.0%, 6.0%, 4.9%, 3.0% and 4.9%, respectively.

effective January 14, 2013, a 4.0% overall increase in our average tariff rate, consisting of increases in the residential, commercial, industrial, educational, agricultural, street lighting and overnight power usage tariff rates by 2.0%, 4.6%, 4.4%, 3.5%, 3.0%, 5.0% and 5.0%, respectively.

effective November 21, 2013, a 5.4% overall increase in our average tariff rate, consisting of increases in the residential, commercial, industrial, agricultural, street lighting and overnight power usage tariff rates by 2.7%, 5.8%, 6.4%, 3.0%, 5.4% and 5.4%, respectively, while making no change to the educational tariff.

The tariff rates we charge for electricity vary among the different classes of consumers, which principally consist of industrial, commercial, residential, educational and agricultural consumers. The tariff also varies depending upon the voltage used, the season, the time of usage, the rate option selected by the user and, in the residential sector, the amount of electricity used per household, as well as other factors. For example, we adjust for seasonal tariff variations by applying higher rates when demand tends to rise such as during the months of June, July and August (when the demand tends to rise due to increased use of air conditioning) and November, December, January and February (when demand tends to rise due to increased use of heating), which reflects the policy of the Korean government to cope with the rise in electricity demand during peak seasons by encouraging a more efficient use of electricity by customers.

Our current tariff schedule, which became effective as of November 21, 2013, is summarized below by the type of usage:

*Industrial.* The basic charge varies from Won 5,550 per kilowatt to Won 9,810 per kilowatt depending on the type of contract, the voltage used and the rate option. The energy usage charge varies from Won 53.7 per kilowatt hour to Won 196.6 per kilowatt hour depending on the type of contract, the voltage used, the season, the time of day and the rate option.

*Commercial.* The basic charge varies from Won 6,160 per kilowatt to Won 9,810 per kilowatt depending on the type of contract, the voltage used and the rate option. The energy usage charge varies from Won 53.7 per kilowatt hour to Won 196.6 per kilowatt hour depending on the type of contract, the voltage used, the season, the time of day and the rate option.

*Residential.* Residential tariff includes a basic charge ranging from Won 410 for electricity usage of less than 100 kilowatt hours to Won 12,940 for electricity usage in excess of 500 kilowatt hours. Residential tariff also includes an energy usage charge ranging from Won 60.7 to Won 709.5 per kilowatt hour for electricity usage depending on the amount of usage and voltage.

*Educational.* The basic charge varies from Won 5,230 per kilowatt to Won 6,980 per kilowatt depending on the voltage used and the rate option. The energy usage charge varies from Won 43.8 per kilowatt hour to Won 160.4 per kilowatt hour depending on the voltage used, the season and the rate option.

*Agricultural.* The basic charge varies from Won 360 per kilowatt to Won 1,210 per kilowatt depending on the type of usage. The energy usage charge varies from Won 21.6 per kilowatt-hour to Won 41.9 per kilowatt hour depending on the type of contract, the voltage used and the season.

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

*Street-lighting.* The basic charge is Won 6,290 per kilowatt and the energy usage charge is Won 85.9 per kilowatt hour. For electricity capacity of less than 1 kilowatt or for places where the

## **Table of Contents**

installation of the electricity meter is difficult, a fixed rate of Won 37.5 per watt applies, with the minimum charge per month of Won 1,220.

In 2001, as part of implementing the Restructuring Plan, the Ministry of Trade, Industry and Energy established the Electric Power Industry Basis Fund to enable the Government to take over certain public services previously performed by us. In 2014, 3.7% of the tariff we collected from our customers was transferred to this fund prior to recognizing our sales revenue.

### ***Fuel Cost Pass-through Adjustment to the Tariff System***

Further to the announcement by the Ministry of Trade, Industry and Energy in February 2010, a new electricity tariff system went into effect on July 1, 2011. This system is designed to overhaul the prior system for determining electricity tariff chargeable to customers by more closely aligning the tariff levels to the movements in fuel prices, with the aim of providing more timely pricing signals to the market regarding the expected changes in electricity tariff levels and encouraging more efficient use of electricity by customers. Previously, the electricity tariff consisted of two components: (i) base rate and (ii) usage rate based on the cost of electricity and the amount of electricity consumed by the end-users. Under the new tariff system, the electricity tariff is also to have a third component of fuel cost pass-through adjustment ( FCPTA ) rate, which is to be added to or subtracted from the sum of the base rate and the usage rate on a monthly basis based on the three-month average movements of coal, LNG and oil prices. This system was intended to provide greater financial stability and ensure a minimum return on investment to electricity suppliers, such as us.

However, due to inflationary and other policy considerations relating to protecting the consumers from sudden and substantial rises in electricity tariff, the Ministry of Trade, Industry and Energy issued a hold order on July 29, 2011 suspending our billing and collecting of the FCPTA amount and eventually abolished the FCPTA system altogether on May 21, 2014 and generally reverted to the tariff system in place prior to the adoption of the FCPTA system. See Item 5A. Operating Results Critical Accounting Policies Correction of Accounting for Fuel Cost Pass-through Adjustment.

### **Power Development Strategy**

We and our generation subsidiaries make plans for expanding or upgrading our generation capacity based on the Basic Plan Relating to the Long-Term Supply and Demand of Electricity, or the Basic Plan, which is generally revised and announced every two years by the Government. In February 2013, the Government announced the Sixth Basic Plan relating to the future supply and demand of electricity. The Sixth Basic Plan, which is effective for the period from 2013 to 2027, focuses on, among other things, (i) minimizing the need to construct new generation facilities through active consumer demand management, (ii) ensuring that we maintain adequate electricity reserve appropriate to the size of the national economy and (iii) expanding our generation capacity to promote efficient supply of electricity in consideration of the stability of the national electricity grid network and the specific needs of localities. In addition, while the Sixth Basic Plan did not contemplate the construction of additional nuclear plants in light of the heightened public concern over nuclear safety following the nuclear power plant meltdown in Japan in March 2011, there is no assurance that the Government will not implement a supplemental plan for the construction of additional nuclear plants in the future, which may increase the amount of our required capital expenditure.

In addition, on January 13, 2014, the Ministry of Trade, Industry and Energy adopted the Second Basic National Energy Plan following consultations with representatives from civic groups, the power industry and academia. The Second Basic National Energy Plan, which is a comprehensive plan that covers the entire spectrum of energy industries in Korea, will cover the period from 2013 to 2035 (compared to 2008 to 2030 under the First Basic National Energy Plan) and focuses on the following six key tasks: (i) shifting the focus of energy policy to demand management with a goal of reducing electricity demand by 15% by 2035, (ii) establishing a geographically decentralized electricity generation system so as to reduce transmission losses

**Table of Contents**

with a goal of supplying at least 15% of total electricity through such system by 2035, (iii) applying latest greenhouse gas emission reduction technologies to newly constructed generation units in order to further promote safety and environmental friendliness, (iv) strengthening exploration and procurement capabilities to enhance Korea's energy security and to ensure stable supply of energy and increasing the portion of electricity supplied from renewable sources to 11% by 2035, (v) reinforcing the system for stable supply of conventional energy, such as oil and gas, and (vi) introducing in 2015 an energy voucher system in lieu of a tariff discount system for the benefit of consumers in the low income group. In addition, the Second Basic National Energy Plan contemplates revising the target level of electricity generated by nuclear sources as a percentage of total electricity generated to 29%, compared to 41% under the First Basic National Energy Plan.

We cannot assure that the Sixth Basic Plan, the Second Basic National Energy Plan or the respective plans to be subsequently adopted will successfully achieve their intended goals, the foremost of which is to ensure, through carefully calibrated capacity expansion and other means, balanced overall electricity supply and demand in Korea at affordable costs to the end users while promoting efficiency and environmental friendliness in the consumption and production of electricity. If there is a significant variance between the projected electricity supply and demand considered in planning our capacity expansions and the actual electricity supply and demand or if these plans otherwise fail to meet their intended goals or have other unintended consequences, this may result in inefficient use of our capital, mispricing of electricity and undue financing costs on the part of us and our generation subsidiaries, among others, which may have a material adverse effect on our results of operations, financial condition and cash flows.

**Capital Investment Program**

The table below sets forth, for each of the years ended December 31, 2012, 2013 and 2014, the amounts of capital expenditures for the construction of generation, transmission and distribution facilities.

| 2012   | 2013                 | 2014   |
|--------|----------------------|--------|
|        | (In billions of Won) |        |
| 12,748 | 15,831               | 16,629 |

The table below sets forth the currently estimated installed capacity for new or expanded generation units to be completed by our generation subsidiaries in each year from 2015 to 2018.

| Year | Number of Units | Type of Units | Total Installed Capacity<br>(Megawatts) |
|------|-----------------|---------------|---|
| 2015 | 2               | Coal-fired    | 2,020                                   |
|      | 2               | Nuclear power | 2,400                                   |
| 2016 | 6               | Coal-fired    | 5,470                                   |
|      | 3               | LNG-combined  | 1,200                                   |
| 2017 | 1               | Nuclear power | 1,400                                   |
|      | 1               | Coal-fired    | 1,000                                   |
|      | 1               | LNG-combined  | 900                                     |
| 2018 | 1               | Nuclear power | 1,400                                   |
|      | 2               | Coal-fired    | 1,370                                   |

For the period from 2018 to 2027, our generation subsidiaries currently plan to complete seven additional nuclear units with an aggregate installed capacity of 10,000 megawatts (subject to any further plan to be announced by the Government in relation to the construction of additional nuclear generation capacity which was not included in the Sixth Basic Plan) and four additional coal-fired units with an aggregate installed capacity of 2,740 megawatts.

**Table of Contents**

As part of our capital investment program, we also intend to add new transmission lines and substations, continue to replace overhead lines with underground cables and improve the existing transmission and distribution systems.

The actual number and capacity of generation units and transmission and distribution facilities we construct and the timing of such construction are subject to change depending upon a variety of factors, including, among others, changes in the Basic Plan, demand growth projections, availability and cost of financing, changes in fuel prices and availability of fuel, ability to acquire necessary plant sites, environmental considerations and community opposition.

The table below sets forth, for the period from 2015 to 2018, the budgeted amounts of capital expenditures for the construction of generation, transmission and distribution facilities pursuant to our capital investment program. The budgeted amounts may vary from the actual amounts of capital expenditures for a variety of reasons, including, among others, the implementation of the Sixth Basic Plan, changes in the number of units to be constructed, the actual timing of such construction, changes in rates of exchange between the Won and foreign currencies and changes in interest rates.

|                                       | 2015   | 2016   | 2017<br>(in billions of Won) | 2018   | Total  |
|---------------------------------------|--------|--------|------------------------------|--------|--------|
| <b>Generation<sup>(1)</sup>:</b>      |        |        |                              |        |        |
| Nuclear                               | 4,522  | 5,018  | 4,991                        | 4,550  | 19,081 |
| Thermal                               | 5,038  | 2,771  | 3,138                        | 3,191  | 14,138 |
| Sub-total                             | 9,560  | 7,789  | 8,129                        | 7,741  | 33,219 |
| <b>Transmission and Distribution:</b> |        |        |                              |        |        |
| Transmission                          | 2,806  | 2,919  | 2,847                        | 2,355  | 10,927 |
| Distribution                          | 2,931  | 2,680  | 2,589                        | 2,577  | 10,777 |
| Sub-total                             | 5,737  | 5,599  | 5,436                        | 4,932  | 21,704 |
| <b>Others<sup>(2)</sup></b>           | 1,972  | 1,529  | 1,308                        | 1,567  | 6,376  |
| <b>Total</b>                          | 17,269 | 14,917 | 14,873                       | 14,240 | 61,299 |

*Notes:*

(1) The budgeted amounts for our generation facilities are based on the Sixth Basic Plan.

(2) Principally consists of investments in renewable energy generation, among others.

We have financed, and plan to finance in the future, our capital investment programs primarily through net cash provided by our operating activities and financing in the form of debt securities and loans from domestic financial institutions, and to a lesser extent, borrowings from overseas financial institutions. In addition, in order to prepare for potential liquidity shortage, we and our generation subsidiaries maintain several credit facilities with domestic financial institutions in the aggregate amounts of Won 2,655 billion and US\$5,181 million, the full amount of which was available as of December 31, 2014. We, KHNP and KOWEPO also maintain global medium-term note programs in the aggregate amount of US\$10 billion, of which approximately US\$3.3 billion remains currently available for future drawdown. KOSEP also maintains an A\$2 billion Australian dollar medium-term note program, of which approximately A\$1.7 billion remains current available for future drawdown. See also Item 5B. Liquidity and Capital Resources Capital Resources.

**Environmental Programs**

The Environmental Policy Basic Act, the Air Quality Preservation Act, the Water Quality Preservation Act, the Marine Pollution Prevention Act and the Waste Management Act, collectively referred in this annual report as the Environmental Acts, are the major laws of Korea that regulate

atmospheric emissions, waste water, noise

**Table of Contents**

and other emissions from our facilities, including power generators and transmission and distribution units. Our existing facilities are currently in material compliance with the requirements of these environmental laws and international agreements, such as the United Nations Framework Convention on Climate Change, the Montreal Protocol on Substances that Deplete the Ozone Layer, the Stockholm Convention on Persistent Organic Pollutants and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. In order to foster coordination among us and our generation subsidiaries in respect of climate change and development of renewable energy sources, we and our generation subsidiaries formed the Committee on Climate Change and the Committee on Renewable Energy in 2005. In 2011 the Ministry of Security and Public Administration issued guidelines for the reduction of nationwide greenhouse gas emissions and energy conservation, pursuant to which we are intensifying our efforts to reduce the levels of carbon emission in order to help meet the national target for greenhouse gas emission reduction.

We continuously endeavor to contribute to sustainable growth (whether as an economy, a society or an ecosystem) by actively taking actions that befit our social responsibility as a corporate citizen in the energy industry. For example, in 2005, we became the first public company in Korea to join the United Nations Global Compact, an international voluntary initiative designed to hold a forum for corporations, United Nations agencies, labor and civic groups to promote reforms in economic, environmental and social policies. As part of our involvement with such initiative, we issue an annual report named the Sustainability Report to disclose our activities from the perspectives of economy, environment and society, in accordance with the reporting guidelines of the Global Reporting Initiative, the official collaborating center of the United Nations Environment Program that works in cooperation with United Nations Secretary General. In addition, in order to address the global issue of climate change, in May 2013, we obtained the Carbon Trust Standard, a certificate issued by Carbon Trust, an agency of the British government for excellence in demonstrated efforts to reduce carbon footprint in response to global climate changes. We are also a participant of the Carbon Disclosure Project, an international organization that promotes transparency in informational disclosure of carbon management process, and in 2014 we were recognized by the Carbon Disclosure Project for scoring the highest in the energy and utility sector in relation to climate change response. We aim to become a global leader in carbon management and reduction.

In term of other social contributions, we also seek to foster a culture of mutual understanding and appreciation with local communities by developing a common set of shared values with local communities and fine-tuning our business model to meet this goal. Examples include applying discounted electricity tariff rates to the handicapped, veterans, patriots and low-income households, emergency and disaster relief and medical assistance (such as eye surgery) to the needy. In part as a result of such efforts, in 2014 we were selected as the best company in the global electricity utility sector in the Dow Jones Sustainability Indices, which measures management performance in terms of contribution to sustainability.

The table below sets forth the number of emission control equipment installed at thermal power plants by our generation subsidiaries as of December 31, 2014.

|  | KOSEP | KOMIPO | KOWEPO | KOSPO | EWP |
|--|-------|--------|--------|-------|-----|
| Flue Gas Desulphurization System         | 13    | 12     | 12     | 10    | 13  |
| Selective Non-catalytic Reduction System |       | 2      |        |       | 5   |
| Selective Catalytic Reduction System     | 11    | 18     | 14     | 11    | 14  |
| Electrostatic Precipitation System       | 15    | 20     | 12     | 10    | 15  |
| Low NO2 Combustion System                | 16    | 28     | 28     | 28    | 30  |
| Total                                    | 55    | 80     | 66     | 59    | 77  |

**Table of Contents**

The table below sets forth the amount of annual emission from all generating facilities of our generation subsidiaries for the periods indicated. The amount of CO2 emissions may increase in the near future due to the construction of additional coal thermal power plants but is expected to decrease in the long-term, principally due to an increased use of nuclear power and renewable energy.

| Year | Sox<br>(g/MWh) | NOx<br>(g/MWh) | Dust<br>(g/MWh) | CO2<br>(kg/MWh) |
|------|----------------|----------------|-----------------|-----------------|
| 2012 | 165            | 297            | 8               | 471             |
| 2013 | 155            | 283            | 7               | 487             |
| 2014 | 154            | 263            | 7               | 471             |

In order to comply with the current and expected environmental standards and address related legal and social concerns, we intend to continue to install additional equipment, make related capital expenditures and undertake several environment-friendly measures to foster community goodwill. For example, in October 2004, we and our generation subsidiaries reached an agreement with the Ministry of Environment and civic organizations to completely remove polychlorinated biphenyl, or PCB, a toxin, from the insulating oil of our transformers by 2015. In addition, when constructing certain large new transmission and distribution facilities, we assess and disclose their environmental impact at the planning stage of such construction, as well as consult with local residents, environmental groups and technical experts to generate community support for such projects. We exercise additional caution in cases where such facilities are constructed near ecologically sensitive areas such as wetlands or preservation areas. We also make reasonable efforts to minimize any negative environmental impact, for example, by using more environment-friendly technology and hardware. In addition, we also undertake measures to minimize losses during the transmission and distribution process by making our power distribution network more energy-efficient in terms of loss of power, as well as to lower consumption of energy, water and other natural resources. In addition, we and our subsidiaries have acquired the ISO 14000 certification which is an environmental management system widely adopted internationally and have made it a high priority to make our electricity generation and distribution more environmentally friendly. In 2013, we further reinforced our environmental management system by acquiring the ISO 14001 certification as well as a domestic certification of the GMS (Green Management System), KS I 7001/7002, which relates to the management of resources, energy, green house effects and social responsibilities. Recently, we were awarded the 2014 presidential award for environmental contributions as a corporate citizen, after scoring the highest among 102 corporations that competed for the award.

Our environmental measures, including the use of environment-friendly but more expensive parts and equipment and allocation of capital expenditures for the installation of such facilities, may result in increased operating costs and liquidity requirement. The actual cost of installation and operation of such equipment and related liquidity requirement will depend on a variety of factors which may be beyond our control. There is no assurance that we will continue to be in material compliance with legal or social standards or requirements in the future in relation to the environment.

As part of our long-term strategic initiatives, we plan to take other measures designed to promote the generation and use of environmentally friendly, or green, energy. See Item 4B. Business Overview Strategy.

Some of our generation facilities are powered by renewable energy sources, such as solar energy, wind power and hydraulic power. While such facilities are currently insignificant as a proportion of our total generation capacity or generation volume of our generation subsidiaries, we expect that the portion will increase in the future, especially since we are required to comply with the Renewable Portfolio Standard policy as described below.



**Table of Contents**

The following table sets forth the generation capacity and generation volume in 2014 of our generation facilities that are powered by renewable energy sources.

|                                       | Generation Capacity<br>(megawatts) | Generation Volume<br>(gigawatt-hours) |
|---------------------------------------|------------------------------------|---------------------------------------|
| Hydraulic Power                       | 5,343                              | 5,976                                 |
| Wind Power                            | 94                                 | 148                                   |
| Solar Energy, Fuel Cells and Biogas   | 137                                | 422                                   |
| Subtotal                              | 5,574                              | 6,546                                 |
| As percentage of total <sup>(1)</sup> | 7.7%                               | 1.5%                                  |

*Note:*

(1) As a percentage of the total generation capacity or total generation volume, as applicable, of us and our generation subsidiaries. In order to deal with shortage of fuel and other resources and also to comply with various environmental standards, in 2012 the Government adopted the Renewable Portfolio Standard program, which replaced the Renewable Portfolio Agreement which had been in effect from 2006 to 2011. Under the Renewable Portfolio Standard program, each generation subsidiary is required to generate a specified percentage of total electricity to be generated by such generation subsidiary in a given year in the form of renewable energy, with the target percentage being 2.5% in 2013 and 3.0% in 2014 and incrementally increasing to 10.0% by 2024. Fines are to be levied on any subsidiary that fails to do so in the prescribed timeline. In 2013, while one of our generation subsidiaries met 100% of its target, five others were unsuccessful to do so. Our six generation subsidiaries met, on average, 91.8% of the target for 2013 and accordingly were fined an aggregate amount of Won 44 billion. Compliance by our generation subsidiaries of the 2014 target is currently under evaluation, and if our generation subsidiaries are found to have failed to meet the target for 2014 or for subsequent years, our generation subsidiaries may become subject to additional fines or other penalties. The budgeted amount of capital expenditure for implementation of the Renewable Portfolio Standard program as currently planned for the period from 2014 to 2024 is approximately Won 14.8 trillion. We expect that such additional capital expenditure to be covered by a corresponding increase in electricity tariff. However, there is no assurance that the Government will in fact raise the electricity tariff to a level sufficient to fully cover such additional capital expenditures or at all.

As to how we plan to finance our capital expenditures related to our environmental programs, see Capital Investment Program.

**Community Programs**

Building goodwill with local communities is important to us in light of concerns among the local residents and civic groups in Korea regarding construction and operation of generation units, particularly nuclear generation units. The Act for Supporting the Communities Surrounding Power Plants requires that the generation companies and the affected local governments carry out various activities up to a certain amount annually to address neighboring community concerns. Pursuant to this Act, we and our generation subsidiaries, in conjunction with the affected local and municipal governments, undertake various programs, including scholarships and financial assistance to low-income residents.

Under the Act for Supporting the Communities Surrounding Power Plants, activities required to be undertaken under the Act are funded partly by the Electric Power Industry Basis Fund (see Sales and Customers Electricity Rates ) and partly by KHNP as part of its budget. KHNP is required to make annual contributions to the affected local communities in an amount equal to Won 0.25 per kilowatt hour of electricity generated by its nuclear generation units during the one-year period before the immediately preceding fiscal year and Won 5 million per thousand kilowatts of hydroelectric generation capacity. In addition, under Korean tax law, KHNP is currently required to pay local tax levied on its nuclear generation units in an amount equal to

## **Table of Contents**

Won 1 (effective January 1, 2015 reflecting an increase from Won 0.5 previously) per kilowatt hour of their generation volume in the affected areas and Won 2 per 10 cubic meters of water used for hydroelectric generation.

Prior to the construction of a generation unit, our generation subsidiaries perform an environmental impact assessment which is designed to evaluate public hazards, damage to the environment and concerns of local residents. A report reflecting this evaluation and proposing measures to address the problems identified must be submitted to and approved by the Ministry of Trade, Industry and Energy following agreement with related administrative bodies, including the Ministry of Environment prior to the construction of the unit. Our generation subsidiaries are then required to implement the measures reflected in the approved report. Despite these activities, civic community groups may still oppose the construction and operation of generation units (including nuclear units), and such opposition could adversely impact our construction plans for generation units (including nuclear units) and have a material adverse effect on our business, results of operations and cash flow.

### **Nuclear Safety**

KHNP takes nuclear safety as its top priority and continues to focus on ensuring the safe and reliable operation of nuclear power plants. KHNP also focuses on enhancing corporate ethics and transparency in the operation of its plants.

KHNP has a corporate code of ethics and is firmly committed to enhancing nuclear safety, developing new technologies and improving transparency. KHNP has also established the Statement of Safety Policy for Nuclear Power Plants to ensure the highest level of nuclear safety. Furthermore, KHNP invests approximately 5% of its total annual sales into research and development for the enhancement of nuclear safety and operational performance.

KHNP implements comprehensive programs to monitor, ensure and improve safety of nuclear power plants. In order to enhance nuclear safety through risk-informed assessment, KHNP conducts probabilistic safety assessments, including for low power-shutdown states, for all its nuclear power plants. In order to systematically verify nuclear safety and identify the potential areas for safety improvements, KHNP performs periodic safety reviews on a 10-year frequency basis for all its operating units. These reviews have been completed for Kori units 1, 2, 3 and 4, Hanbit units 1, 2, 3 and 4, Hanul units 1, 2, 3 and 4 and Wolsong units 1, 2, 3 and 4. Reviews for Hanbit units 5 and 6 and Hanul units 5 and 6 are in progress. In order to enhance nuclear safety and plant performance, KHNP has established a maintenance effectiveness monitoring program based on the maintenance rules issued by the United States Nuclear Regulatory Commission, which covers all of KHNP's nuclear power plants in commercial operation.

KHNP has developed the Risk Monitoring System for operating nuclear power plants, which it implements in all of its nuclear power plants. The Risk Monitoring System is intended to help ensure nuclear plant safety. In addition, KHNP has developed and implemented the Severe Accident Management Guidelines and is developing the Severe Accident Management Guidelines for Low Power-Shutdown States in order to manage severe accidents for all of its nuclear power plants.

KHNP conducts various activities to enhance nuclear safety such as quality assurance audits and reviews by the KHNP Nuclear Review. KHNP maintains a close relationship with international nuclear organizations in order to enhance nuclear safety. In particular, KHNP invites international safety review teams such as the World Association of Nuclear Operators ( WANO ) Peer Review Team and the Expert Mission Team to its nuclear plants for purposes of meeting international standards for independent review of its facilities. KHNP actively exchanges relevant operational information and technical expertise with its peers in other countries. For example, we conducted five WANO Peer Reviews for Wolsong #1, 2, Hanul #1, 2, Hanul #3, 4, Shin-Kori #1, 2 and Hanbit #5, 6 in 2014. We also invited WANO Follow-up Peer Review Team at Hanul #5, 6 in February 2014. The recommendations and findings from this event were shared with KHNP's other nuclear plants to implement improvements at such plants.

## **Table of Contents**

The average level of radiation dose per unit amounted to a relatively low level of 0.36 man-Sv in 2014, which was substantially lower than the global average in 2014 of 0.73 man-Sv/year as reported in the WANO performance indicator report.

In response to the damage to the nuclear facilities in Japan as a result of the tsunami and earthquake in March 2011, the Government conducted additional safety inspections on nuclear power plants by a group of experts from governmental authorities, civic groups and academia. As a result of such inspections, the Government required KHNP to perform 50 comprehensive safety improvement measures. The Government also established the Nuclear Safety & Security Commission in October 2011 for neutral and independent safety appraisals. KHNP developed 10 additional measures through benchmarking overseas cases and the internal analysis of current operations. KHNP plans to implement these measures, which are expected to be completed by 2015, at total expected cost of approximately Won 1.0 trillion. As of December 31, 2014, KHNP had completed 39 of such measures.

Low and intermediate level waste, or LILW, and spent fuels are stored in temporary storage facilities at each nuclear site of KHNP. The temporary LILW storage facilities at the nuclear sites had been sufficient to accommodate all LILWs produced up to 2014. Korea Radioactive Waste Agency ( KORAD ) completed the construction of a LILW disposal facility in the city of Gyeongju and the government approval for its operations was obtained in December 2014. Starting from December 2010, LILW stored in temporary storage facilities at Hanul and Wolsong was transferred to a disposal facility in the city of Gyeongju.

In order to increase the storage capacity of temporary storage facilities for spent fuels, KHNP has been pursuing various projects, such as installing high-density racks in spent fuel pools and building dry storage facilities. Through these activities, we expect that the storage capacity for spent fuels in all nuclear sites will be sufficient to accommodate all the spent fuels produced by 2016. The policy for spent fuel management options is currently under development.

In 2009, the Radioactive Waste Management Act ( RWMA ) was enacted in an effort to centralize management of the disposal of spent fuel and LILW and enhance the security and efficiency of related management processes. The RWMA designates KORAD to manage the disposal of spent fuels and LILW. Pursuant to the RWMA, the Government has established the Radioactive Waste Management Fund. The management expense for LILW is paid when LILW is transferred to KORAD, and the charge for spent fuel is paid based on the quantity generated every quarter. LILW-related management costs and charges for spent fuel are reviewed by the Ministry of Trade, Industry and Energy every two years. In December 2012, such costs and charges were increased by a committee composed of Government officials, KHNP, Korea Radioactive Waste Management Corporation and experts in finance and accounting. This may result in an increase in future expenses that KHNP may incur in relation to radioactive waste.

All of KHNP's nuclear plants are currently in compliance with Korean law and regulations and the safety standards of the IAEA in all material respects. For a description of certain past incidents relating to quality assurance in respect of KHNP, see Item 3D. Risk Factors Recent findings of falsified testing results and bribery and the subsequent prolonged shutdowns of certain of our nuclear generation units may adversely hurt our reputation, business, results of operations and financial condition.

## **Decommissioning**

Decommissioning of a nuclear power unit is the process whereby the unit is shut down at the end of its life, the fuel is removed and the unit is eventually dismantled. KHNP implements a dismantling policy under which dismantling would take place five to ten years after the unit's closure. KHNP renewed the operating license of Kori-1, the first nuclear power plant constructed in Korea, which commenced operation in 1978, for an additional 10 years in 2007. In February 2015, KHNP also renewed the operation license of Wolsong-1 (which originally expired in November 2012) for an additional 10 years until 2020. Decommissioning of KHNP's nuclear power

**Table of Contents**

generation units is not expected to commence before 2017. While it does not carry a cash reserve for its decommissioning liability, KHNP retains full financial and operational responsibility for decommissioning its units.

KHNP has accumulated the decommissioning cost as a liability since 1983. The decommissioning costs of nuclear facilities are defined by the Radioactive-Waste Management Act, which requires KHNP to credit annual appropriations separately. These costs are estimated based on studies conducted by the relevant committees, and are reviewed by the Ministry of Trade, Industry and Energy every two years. In December 2012, estimated decommissioning costs were increased in consideration of overseas cases of decommissioning, inflation rate assumptions, changes in the operating environment and other criteria. As a result, KHNP was required to accrue additional provisions due to increased future decommissioning costs, and as of December 31, 2014, KHNP accrued Won 13,143 billion for the cost of dismantling and decontaminating existing nuclear power plants, which consisted of dismantling costs of nuclear plants of Won 10,311 billion and dismantling costs of spent fuel and radioactive waste of Won 2,812 billion. For accounting treatment of decommissioning costs, see Item 5A. Operating Results Critical Accounting Policies Decommissioning Costs.

**Overseas Activities**

We are engaged in a number of overseas activities. We believe that such activities help us diversify our revenue streams by leveraging the operational experience of us and our subsidiaries gathered from providing a full range of services, such as power plant construction and specialized engineering and maintenance services in Korea, as well as to establish strategic relationships with countries that are or may become providers of fuels.

The table set below summarizes our major overseas projects.

| <b>Country</b>              | <b>Project Period</b>          | <b>Project Description</b>   |
|-----------------------------|--------------------------------|--|
| <b>Generation Projects:</b> |                                |  |
| United Arab Emirates        | December 2009 to May 2020      | Construction, operation and support for four 1,400 megawatt nuclear power generation units |
| United Arab Emirates        | March 2011 to July 2039        | 1,600 megawatt combined-cycle gas power plant project (BOO) <sup>(1)</sup>                 |
| Jordan                      | October 2009 to December 2035  | 373 megawatt combined-cycle power plant in Al Qatrana (BOO) <sup>(1)</sup>                 |
| Jordan                      | September 2012 to August 2039  | 573 megawatt diesel engine power plant in Almanakher (BOO) <sup>(1)</sup>                  |
| Jordan                      | July 2015 to February 2037     | Construction and operation of a wind farm in Fujeij (BOO) <sup>(1)</sup>                   |
| Rabigh, Saudi Arabia        | July 2009 to April 2033        | 1,204 megawatt oil-fired power plant (BOO) <sup>(1)</sup>                                  |
| Shanxi, China               | April 2007 to April 2056       | 6,887 megawatt coal-fired power plants (BOO) <sup>(1)</sup> and coal mine projects         |
| Gansu, China                | September 2005 to April 2029   | 99 megawatt wind power plants (BOO) <sup>(1)</sup>   |
| Inner Mongolia, China       | December 2006 to December 2032 | 991 megawatt wind power plants (BOO) <sup>(1)</sup>  |
| Liaoning, China             | July 2012 to July 2032         | 226 megawatt wind power plant (BOO) <sup>(1)</sup>   |

## Table of Contents

| Country                                     | Project Period                 | Project Description   |
|---|--------------------------------|---|
| Vietnam                                     | December 2014 to December 2043 | 1,200 megawatt coal-fired power plants project (BOT) <sup>(2)</sup>   |
| Thailand                                    | October 2013 to October 2038   | 110 megawatt combined-cycle power plant (BOO) <sup>(1)</sup>  |
| Ilijan, Philippines                         | November 1997 to May 2022      | 1,200 megawatt combined-cycle power plant project (BOT) <sup>(2)</sup>  |
| Naga, Philippines                           | Since February 2006            | Acquisition of a 208.1 megawatt power plant   |
| Cebu, Philippines                           | February 2008 to May 2036      | 200 megawatt CFBC <sup>(3)</sup> coal-fired power plant (BOO) <sup>(1)</sup>  |
| India                                       | February 2012 to December 2040 | Construction, operation and management of a 388 megawatt combined-cycle power plant   |
| United States                               | January 2012 to September 2041 | Development, construction, operation and management of a 200 megawatt solar photovoltaic plant in Nevada (BOO) <sup>(1)</sup>           |
| United States                               | Since September 2012           | Construction and operation of a 80 megawatt Novus 1 wind farm project   |
| United States                               | Since December 2012            | Construction and operation of a 40 megawatt Novus 2 wind farm project   |
| Mexico                                      | September 2010 to May 2038     | 433 megawatt combined-cycle power plant project (BOO) <sup>(1)</sup>  |
| Chile                                       | June 2014 to October 2031      | 517 megawatt combined cycle gas turbine power plant (BOO) <sup>(1)</sup>  |
| Nigeria                                     | Since 2007                     | Acquisition of an equity interest in Egbin Power Plc for operation and maintenance of a 1,320 megawatt gas-fired power plant in Nigeria |
| <b>Exploration and Production Projects:</b> |                                |   |
| Indonesia                                   | Since July 2009                | Purchase of equity interest of PT Adaro Energy Tbk  |
| Indonesia                                   | Since August 2010              | Purchase of equity interest of PT Bayan Resources Tbk   |
| Indonesia                                   | Since August 2011              | Purchase of equity interest of LongDaliq mines  |
| Australia                                   | Since January 2008             | Moolarben thermal coal mine development   |
| Australia                                   | Since November 2007            | Share subscription of Cockatoo Coal Limited, a coal development company   |
| Australia                                   | Since July 2010                | Bylong thermal coal mine development  |
| Australia                                   | Since June 2012                | Acquisition of equity interest of Amber Energy Company, an operator of Decker and Black Cutte mines                                     |

**Table of Contents**

| <b>Country</b>                                 | <b>Project Period</b>      | <b>Project Description</b>   |
|--|----------------------------|--|
| Canada   | Since June 2009            | Share subscription of Denison Mines, a uranium development company                     |
| Canada   | Since December 2007        | Uranium exploration project in the Cree East   |
| Canada   | Since January 2008         | Uranium exploration project in the Waterbury Lake                                      |
| United States                                  | Since July 2012            | Acquisition of an equity interest in Energy Fuel Inc., a Denver-based uranium producer |
| Niger  | Since December 2009        | Share subscription of ANCE, a uranium development company                              |
| Nigeria  | Since March 2006           | Exploration of oil and gas for two offshore blocks                                     |
| Nigeria  | Since October 2008         | Development of downstream projects in Nigeria  |
| France   | June 2009 to 2015          | Construction and operation of a uranium enrichment plant                               |
| <b>Transmission and Distribution Projects:</b> |                            |  |
| India  | September 2011 to May 2015 | Feeder separation program  |
| Kazakhstan                                     | February 2011 to May 2015  | Modernization of 17 substations in Actub, Kazakhstan                                   |
| Dominican Republic                             | May 2011 to May 2014       | Rehabilitation of electricity distribution network                                     |

*Notes:*

- (1) Represents build, own and operate projects.
- (2) Represents build, operate and transfer projects.
- (3) Represents circulating fluidized bed combustion projects.

While strategically important, we believe that our overseas activities, as currently being conducted, are not in the aggregate significant in terms of scope or amount compared to our domestic activities. In addition, a number of the overseas contracts currently being pursued are based on non-binding memoranda of understanding and the details of such projects may significantly change during the course of negotiating the definitive agreements.

A further description of the major overseas activities by us and our subsidiaries is provided below.

**Generation projects***United Arab Emirates*

In December 2009, following an international open bidding process, we entered into a prime contract with the Emirates Nuclear Energy Corporation (the "ENEC"), a state-owned nuclear energy provider of the United Arab Emirates ("UAE"), to design, build and help operate four civil nuclear power generation units to be located in Barakah, a region approximately 270 kilometers from Abu Dhabi, for the UAE's peaceful nuclear energy program. The contract amount for the project is US\$18.6 billion, with the term of the contract to last from December 27, 2009 to May 1, 2020. Under the contract, we and the subcontractors, some of which are our subsidiaries, are to perform various duties in connection with the project, including, among others, (i) designing and constructing four nuclear power generation units (each with a capacity of 1,400 megawatts), (ii) supplying nuclear fuel for three fuel cycles including initial loading (with each cycle currently projected to last for

## **Table of Contents**

approximately 18 months), and (iii) providing technical support, training and education to the plant operation personnel. The target completion dates for the four units are set for May 2017, May 2018, May 2019 and May 2020.

In addition, in order to foster a long-term strategic partnership and stable management of the units post-construction, we currently plan to make an equity investment in a project company established by ENEC. Details of such investment, including its size and structure, remain subject to further negotiation at this time, and we plan to make further disclosures regarding such investment in due course and as appropriate.

In October 2010, a consortium, which included us, was selected by Abu Dhabi Water & Electricity Authority (ADWEA), a state-run utilities provider in the United Arab Emirates, as the preferred bidder in an international bidding for the construction and operation of the combined-cycle natural gas-fired electricity generation facilities in Shuweihat, UAE with an expected aggregate generation capacity of 1,600 megawatts. In February 2011, the consortium entered into a formal contract with ADWEA for the construction and operation of the generation facilities. This project involves three years of construction starting from March 2011, and 25 years of operation by us following its completion in July 2014. The total project cost is estimated to be US\$1.5 billion, of which approximately 20% will be financed through equity investments by the consortium members and the remaining 80% through project financing. Equity interests in the consortium are owned by ADWEA (60.0%), Sumitomo (20.4%) and us (19.6%). The total amount of our equity investment in the project is expected to be approximately US\$56 million, and we are participating in this project through a special purpose vehicle.

### *Jordan*

In July 2008, a consortium consisting of us and Xenel was selected as the preferred bidder to build, own and operate a gas-fired power plant with installed capacity of 373 megawatts in Al Qatrana, near Amman, Jordan. After entering into definitive agreements in October 2009, construction of the power plant began in March 2010 and was completed in December 2011. The total cost of the project was approximately US\$460 million. Operation of the power plant will be for a period of 25 years until 2035. We and Xenel established a joint venture to oversee the project, with us and Xenel holding an 80:20 equity interest, respectively. We expect our total investment in the project to be approximately US\$96 million. We believe that this project will help us expand our business in the Middle East and position us as a competitive power producer in the global market.

In January 2012, a consortium consisting of us, Mitsubishi Corporation and Wartsila Development & Financial Services was selected by National Electric Power Corporation, a state-run electricity provider in Jordan, to construct and operate a diesel engine power project in Almanakher with an expected total generation capacity of 573 megawatts. In August 2012, we established a special-purpose vehicle for the purpose of carrying out the project and on September 24, 2012, the consortium entered into a power purchase agreement with the National Electric Power Company. The construction of the power plant began in September 2012 and was completed in October 2014. The total cost of the project was approximately US\$775 million. Operation of the power plant will be for a period of 25 years until 2039. We, Mitsubishi Corporation and Wartsila Development & Financial Services established a joint venture to oversee the project with 60:35:5 equity interest, respectively. We expect our total investment in the project to be approximately US\$104 million.

In January 2013, we were selected by Ministry of Energy and Mineral Resources of Jordan as an independent power producer to build, own and operate a wind farm with installed capacity of 89.1 megawatts in Fujeij, which is located on a plateau 150 kilometers south of Amman, Jordan. This project is currently in negotiations with the Ministry of Energy and Mineral Resources of Jordan, and we expect the construction to begin in 2015 for target completion in 2017. The project involves 20 months of construction and 20 years of operation. The total project cost is approximately US\$176 million, of which approximately 43% will be financed through equity investments solely from us, and we will be the 100% equity holder of the project and the remaining 57% through debt financing. We believe that this project will help us to further diversify our business portfolio in the Middle East from the existing focus on nuclear and thermal power plants to expand into renewable energy facilities.

## **Table of Contents**

### *Saudi Arabia*

In December 2008, we formed a consortium with ACWA Power International of Saudi Arabia and submitted a bid for the 1,204 megawatt oil-fired power project in Rabigh, Saudi Arabia. In March 2009, we were selected as the preferred bidder, and in July 2009, we entered into a power purchase agreement with Saudi Electricity Company. Construction of the project was completed in April 2013, and we will participate in the operation of the plant for 20 years. This project has an estimated project cost of US\$2.5 billion. We currently hold a 40.0% equity interest in the joint venture entity, Rabigh Electricity Company, which will oversee the project.

### *China*

In April 2007, we formed a limited partnership with Shanxi International Electricity Group and Deutsche Bank in China to develop and operate power projects and coal mines in Shanxi province, China, which was approved by the Chinese government. As of December 31, 2014, total capital investment in these projects amounted to US\$1.33 billion of which KEPCO's capital investment was US\$0.45 billion. We are expected to participate in the operation of the project for a period of 50 years ending 2056. As of December 31, 2014, the total installed capacity was 5,946 megawatts and capacity under construction was 941 megawatts, and our equity interest in the partnership was 34%.

In September 2005 and April 2006, we and China Datang Corporation of the People's Republic of China formed joint ventures to build four wind-powered generation projects in China, consisting of one project in Gansu province with total capacity of 49.3 megawatts and three projects in Inner Mongolia with total capacity of 139.4 megawatts. Since then, one project with capacity of 49.5 megawatts has been added in Gansu and 15 projects with total capacity with 851.4 megawatts have been added in Inner Mongolia. In Liaoning province, we are developing five projects with total capacity of 226 megawatts under an understanding with the government of Chaoyang City. As of December 2014, 642.5 megawatts and 178.0 megawatts of the aforementioned projects had been developed in Inner Mongolia and Liaoning province, respectively. The joint ventures were capitalized with RMB 271 million for the Gansu projects, RMB 3,297 million for the Inner Mongolia projects and RMB 678 million for the Liaoning projects. One-third of the investment was funded with equity contribution and the remaining two-thirds with debt. We and China Datang Corporation hold 40% and 60% of equity interests, respectively, in each of the aforementioned joint ventures and we are participating in the projects through our wholly-owned subsidiaries. Of the 25 wind power generation projects in the aforementioned areas in China, 20 projects with a total capacity of 919 megawatts are currently in operation. The other five projects are still in the preparation stage.

### *Vietnam*

In March 2013, a consortium consisting of us and Marubeni, a Japanese corporation, was selected by the Ministry of Industry and Trade of Vietnam for the construction and operation of a 1,200 megawatt coal-fired power plant in Thanh Hoa province, Vietnam. The target date for commencing construction is December 2015 with target completion by December 2019, following which we will handle operation for 25 years. We are under negotiation with Electricity of Vietnam to finalize a power purchase agreement. Total project cost is expected to be US\$2.34 billion, of which 25% will be funded by capital contribution and the remaining 75% by debt financing. The share capital of the special purpose entity that will be in charge of this project will be US\$574 million, and KEPCO and Marubeni will each hold 50% equity interest in such entity.

### *Thailand*

In December 2011, KOMIPO agreed to purchase a 29% equity interest in Navanakorn Electric Co., a Thailand power company, to jointly develop a combined-cycle power plant project in Thailand with generation capacity of 111 megawatts. The total project cost is currently estimated to be US\$187 million, and KOMIPO expects to invest approximately US\$15.6 million into this project. Following the completion of construction in 2013, this project commenced commercial operation on October 31, 2013 for a period of 25 years.



## **Table of Contents**

### *Philippines*

We are currently engaged in three major power projects in the Philippines: (i) a build, operate and transfer of a 1,200-megawatt combined-cycle power plant project in Ilijan, construction of which began in November 1997 and was completed in June 2002, and operation by us until 2022 (the project cost of the Ilijan project was US\$721 million, for which project finance on a limited recourse basis was provided), and (ii) ownership of a 39.6% equity interest in SPC Power Corporation, an independent power producer which owns a 208.1-megawatt Naga power complex in Cebu, in which we initially acquired a 40.0% equity interest in February 2006 pursuant to a rehabilitation, operation, maintenance and management ( ROMM ) agreement, which was completed in March 25, 2012 followed by an approximately two-year operation and maintenance period thereafter. In September 2014, SPC Power Corporation acquired the ownership of Naga power plant complex from the Philippine government as the winning bidder of the sales of Naga Power Plant and (iii) a build, operate and own of a 200-megawatt CFBC coal power plant in Cebu for which construction began in February 2008 and was completed in May 2011, followed by operation thereof until 2036. The project cost of the Cebu project was US\$451 million, for which project financing on a limited recourse basis was provided.

### *India*

In 2012, KOWEPO purchased a 40% equity interest in Pioneer Gas Power for a purchase price of approximately US\$35 million to construct a 388-megawatt combined-cycle power plant in Maharashtra, India. The total size of the project, which commenced in February 2012, is expected to be approximately US\$274 million and we expect the power facility to begin commercial operation in 2016.

### *United States*

In December 2011, KOMIPO entered into a land lease agreement with the City of Boulder, Nevada to develop the solar power plant with generation capacity of 200 megawatts. The construction is scheduled to begin in the second half of 2015. The total project cost is currently estimated to be US\$500 million, and KOMIPO invested approximately US\$9.2 million into this project and plans to acquire a 20% equity interest. The project will be undertaken jointly with SunPower Corporation. All of the electricity generated will be sold to utility companies in Nevada and California under long-term electricity sales agreements.

In 2012, KOSEP completed construction of wind farm projects in Oklahoma, KODE Novus 1 LLC and KODE Novus 2 LLC. The two wind farm projects have generation capacities of 80 megawatts and 40 megawatts, respectively, and KOSEP commenced operation of these projects in December 2012 for a term of 20 years. The total project cost is expected to be US\$27.8 million, and KOSEP will hold a 50% and 49% equity interest in these wind farm projects, respectively.

### *Mexico*

In August 2010, a consortium led by us was selected as the preferred bidder in an international auction for the construction and operation of the Norte II gas-fueled combined-cycle electricity generation facility in Chihuahua, Mexico, as ordered by the Commission Federal de Electricidad ( CFE ) of Mexico. The consortium established a special purpose vehicle, KST Electric Power Company ( KST ), to act as the operating entity, and in September 2010, KST entered into a power purchase agreement with CFE in relation to the construction and operation of a 433-megawatt combined-cycle power plant at Chihuahua in Mexico. In October 2010, KST was licensed by the Mexican government as an independent power producer, which allows it to produce and sell electricity to CFE during the specified contract period. The project will be undertaken on a build, own and operate basis. The total cost of the project is approximately US\$430 million. We hold a 56% equity interest in the consortium, with the remaining equity interests held by Samsung C&T (with a 34% equity interest) and Techint, a Mexico company (with a 10% equity interest). Approximately 22.5% of the total project costs will be financed through equity investments by the consortium and the remaining 77.5% through project financing. Commercial operation commenced in December 2013 following completion of the construction, and the

## **Table of Contents**

operation period will run for 25 years until 2038. Our wholly-owned subsidiary, KEPCO Energy Service Company, currently manages the operation of the project.

### *Chile*

In November 2013, Kelar S.A., a special purpose company owned by respective holding companies of KOSPO and Samsung C&T in Chile entered into a long-term contract with Tamakaya SpA, a special purpose company wholly owned by BHP Copper Inc., to build, own, operate and maintain a 517 megawatt combined cycle gas turbine power plant. Prior to entering into such contract, in order to facilitate project management, KOSPO established a wholly-owned subsidiary, KOSPO Chile SpA to own 65 % of the shares in Kelar S.A. In January 2014, an engineering, procurement and construction contract was entered between Kelar S.A. and Samsung Engineering Co. Ltd. Debt financing in the amount of US\$477 million was provided in November 2014. The total cost of the project is expected to be US\$602 million. Construction for this project began in February 2014 and is expected to be completed in October 2016.

### *Nigeria*

In October 2007, we invested US\$9.1 million in KEPCO Energy Resource Nigeria Ltd., ( KERNL ), a joint venture with Energy Resource Ltd., a Nigerian company. We currently own 30.0% of KERNL 's equity capital. In May 2007, KERNL entered into a share purchase agreement with the Nigerian government for the purchase of 70% of the equity capital of Egbin Power Plc in Nigeria, which owns and operates the Egbin power plant, a 1,320-megawatt gas-fired power plant in Lagos, Nigeria for a consideration of approximately US\$407 million. The acquisition was completed in October 2013, and in June 2013, we entered into a contract with Egbin Power Plc for the operation and maintenance of the Egbin power plant. The contract price was US\$315 million. In November 2013, we commenced operation and maintenance services for a term of five years and will expire in October 2018.

## ***Exploration and Production Projects***

### *Indonesia*

In July 2009, we, together with KOSEP, purchased a 1.5% equity interest in PT Adaro Energy Tbk ( Adaro ) for an aggregate purchase price of US\$47 million. Adaro is one of the largest coal producers in Indonesia and has produced a total of 56 million tons of coal in 2014. As part of this investment, we are entitled to an annual coal procurement of 3 million tons per year. In August 2010, we purchased a 20% equity interest in PT Bayan Resources Tbk ( Bayan ), an Indonesian mining company, for a purchase price of US\$518 million. Bayan is engaged in open cut mining of various coal qualities from mines located primarily in East and South Kalimantan, and has produced approximately 10 million tons of coal in 2014. In addition, because Bayan owns one of the largest coal terminals in Indonesia, we believe that the acquisition will improve our access to much-needed transportation infrastructure within Indonesia. As part of this investment, we are entitled to an annual coal procurement of 2 million tons per year between 2012 and 2014 and 7 million tons per year beginning in 2015. We expect that both of our investments in Indonesia will help us secure more stable supply of coal for power generation and help us hedge against fluctuations in fuel prices.

In August 2011, KOSPO entered into an agreement with PT. Kedap Sayaaq to acquire a 10% equity interest in LongDaliq mines located in western Kalimantan, Indonesia. KOSPO acquired such equity interest in 2013, and will secure up to three million tons of coal per year through a coal off-take agreement.

### *Australia*

In January 2008, a consortium consisting of Korea Resources Corporation, a Government-controlled enterprise, Hanwha Corporation, us and four of our wholly owned generation subsidiaries, namely, KOSEP, KOMIPO, KOWEPO and KOSPO, entered into an agreement with Felix Resources Limited, an Australian coal

## **Table of Contents**

mining company which was acquired by Yancoal Australia in December 2009, to develop the Moolarben coal mine located in Western Coal Fields, New South Wales, Australia. Under the terms of agreement, the consortium purchased a 10% equity interest in the Moolarben project, for a purchase price of A\$90 million, of which we and our four generation subsidiaries own an aggregate of 5%. Yancoal and Sojitz Coal Resources Pty hold 80% and 10% equity interests of the project respectively. In 2014, Moolarben produced 6.4 million tons of coal. Our four generation subsidiaries have coal off-take agreements for a total of 2.5 million tons of coal per annum.

In November 2007, we and EWP entered into a share subscription agreement with Cockatoo Coal Limited ( Cockatoo ), a coal exploration and mining company located in Australia. We and EWP currently hold a 1.1% equity interest, in aggregate, in Cockatoo after having made a total investment of A\$21.8 million. Cockatoo has several coal exploration projects in Queensland and New South Wales and one production project in Bowen Basin, Queensland, Australia.

In July 2010, KEPCO Australia Pty Ltd., our wholly-owned subsidiary, entered into an agreement with Anglo American Metallurgical Coal Pty Ltd. to acquire 100% of the equity interest in Anglo Coal (Bylong) Pty Ltd., a wholly-owned subsidiary of Anglo, for a purchase price of A\$403 million. Bylong owns a bituminous coal mine in New South Wales, Australia. From this acquisition, we expect to secure an average of 3.26 million tons of bituminous coal per year from this mine for over 40 years starting from 2018. We are currently undergoing a feasibility study for this project to explore and develop coal that is of export quality.

In June 2012, KOSPO entered into an agreement with Amber Energy Company, which is the operator of Decker and Black Cutte mines located in Brisbane, Australia. KOSPO is also entitled to secure up to two million tons of coal per year through a coal off-take agreement.

### *Canada*

In June 2009, we and KHNP entered into a share subscription agreement with Denison Mines Corporation ( Denison ), which is a Canada-based uranium exploration and development company with projects in Canada, Zambia, Namibia, Mali and Mongolia. Denison owns 60% interest in the Wheeler River Project, 60% interest in the Waterbury Lake Project and a 22.5% ownership interest in the McClean Lake uranium mill. We and KHNP currently hold approximately 11.5% equity interest, in aggregate, in Denison.

In December 2007, a consortium consisting of four Korean companies, namely, us, Korea Resources Corporation, Hanwha Corporation and SK Networks Co., Ltd. (the Korean Consortium ), entered into an agreement with CanAlaska Uranium, Ltd., a uranium exploration company located in Canada ( CanAlaska ), to carry out a joint uranium exploration project to explore for uranium on the Cree East property in the Athabasca region in the province of Saskatchewan in Canada. We have invested C\$4.75 million and currently hold a 12.5% equity interest in the project.

In January 2008, a consortium consisting of us, KHNP, KEPCO Nuclear Fuel Co., Ltd., Hanwha Corporation and Gravis Capital Corp., a Canadian company, entered into an agreement with Fission Energy Corp., a uranium exploration company located in Canada, to carry out a joint uranium exploration project in Waterbury Lake, Saskatchewan, Canada. During the three-year exploration period, which ended in April 2010, we discovered a high grade uranium mineralization after drilling 20 out of 97 sites. In August 2010, the consortium entered into additional agreements consisting of a limited partnership agreement with Fission Energy Corp. and extended the exploration period to May 2013 in order to enlarge known mineralization and to produce a resource estimate. In April 2013, Denison mines Corp. acquired Fission's 60% interest in the Waterbury Lake uranium project. We have invested C\$11.2 million and currently hold a 16% equity interest of the project. Further exploration program in Waterbury Lake, which started in January 2014 and expected to be finished in 2016, is in progress.

## **Table of Contents**

### *United States*

On July 2, 2012, we and KHNP acquired equity interests in Energy Fuel Inc. ( *EFI* ), a Denver-based uranium producer as a result of a swap between Denison Mine's U.S. assets, which we invested in 2009, and *EFI*'s equity. In November 2013, we additionally acquired equity interests in *EFI* through *EFI*'s merger with Strathmore that we invested in 2012. We and KHNP made an off-take agreement with *EFI* by which we and KHNP are entitled to procure approximately 160 tons of uranium per year until 2015, and will renegotiate the next procurement beginning in 2016. We and KHNP currently hold 8.7% equity interest, in aggregate, in *EFI*.

### *Niger*

In December 2009, we and KHNP entered into a definitive agreement with Areva NC Expansion ( *ANCE* ) to purchase 15.0% of the share capital of *ANCE* and 10% of the share capital of Imouraren SA, which is an *ANCE*-invested mine operating company. We and KHNP currently hold a 13.5% equity interest in *ANCE* and 9% Imouraren SA. We are entitled to procure up to approximately 9.0% of Imouraren SA's annual uranium production in Niger, which is estimated to be 626 metric tons based on *ANCE*'s annual production plan for 36 years starting from its production.

### *Nigeria*

In August 2005, a consortium consisting of us, Korea National Oil Corporation ( *KNOC* ), a Government-owned entity, and Daewoo Shipbuilding & Marine Engineering won a bid from the federal government of Nigeria for exploration and production of oil in two off-shore blocks. The consortium, of which we hold a 8.8% equity interest, holds 60.0% of the equity interest in the special purpose vehicle established to carry out the project regarding these two blocks. In March 2006, the consortium entered into production sharing contracts with Nigerian National Petroleum Corporation in connection with this project. However, in January 2009, the government of Nigeria unilaterally decided to void allocation of the two blocks granted to the consortium based on a claim that the consortium failed to pay full amount of the consideration. *KNOC* filed a suit in the Nigerian court challenging this decision in August 2009, the final outcome of which is currently pending. In the meanwhile, our projects in Nigeria remain on hold.

### *France*

In June 2009, KHNP acquired a 2.5% equity interest in Societe D. Enrichissement Du Tricastin ( *SET Holding* ), which was established by Areva for the purpose of constructing and operating a uranium enrichment plant in Tricastin, France. KHNP has invested approximately 129 million Euros for a 2.5% equity interest, and COGAC SAS and a group led by Japan France Enrichment Investing and Kansai Electric Power Co. have acquired a 5% and 4.5% equity interest, respectively, in *SET Holding*. The maximum production capability of the uranium enrichment plant is 7,500 ton Separative Work Unit or, SWU. We believe that this investment will help us secure a more stable and economical supply of enriched uranium.

## ***Transmission and Distribution Projects***

### *India*

In September 2011, a joint venture company established by us and Megha Engineering & Infrastructures Ltd. ( *Megha* ) entered into an agreement with M.P. Paschim Kshetra Vidyut Vitaran Co. Ltd., Indore ( *Paschim* ) and M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd., Jabalpur ( *Poorv* ), each a state-controlled electricity provider in India, to improve the overall power distribution network in Madhya Pradesh, India through a feeder separation program, including improvements of transmission lines and installation of power meters in seven rural areas. The joint venture company will be responsible for five of the projects in conjunction with *Megha*. In addition, we will be separately responsible for the remaining two projects. The total project cost is estimated to be US\$100 million, of which US\$32 million will be invested in the projects conducted by us and the remaining US\$68 million in the projects conducted in conjunction with *Megha*. Construction for the project began in September 2011 and is expected to be completed in May 2015.

## **Table of Contents**

### *Kazakhstan*

On January 31, 2011, a consortium led by us, Hyundai Engineering and Hyundai Corporation won a power transmission project from Kazakhstan Electricity Grid Operating Company ( KEGOC ), a Kazakhstan state-run company. This US\$100 million project was conducted on an engineering, procurement and construction (EPC) basis, in connection with which are modernizing 17 substations in Kazakhstan. The project is expected to be completed in May 2015.

### *Dominican Republic*

In May 2011, we entered into an agreement with Corporación Dominicana de Empresas Eléctricas Estatales ( CDEEE ) to improve power distribution networks in three local districts in Dominican Republic. We constructed 1,294 kilometers of distribution lines and 12,644 electricity poles as part of the rehabilitation project. We were in charge of design, procurement and construction. The project was completed in May 2014, but there remains an unpaid balance to us. The total project cost is estimated to US\$48 million.

### *North Korea*

#### *Kaesong Complex*

Since 2005, we have provided electricity to the industrial complex located in Kaesong, North Korea, which was established pursuant to an agreement made during the summit meeting of the two Koreas in June 2000. The Kaesong complex is the largest economic project between the two Koreas and is designed to combine the Republic's capital and entrepreneurial expertise with the availability of land and labor of North Korea. In March 2005, we built a 22.9 kilovolt distribution line from Munsan substation in Paju, Gyeonggi Province to the Kaesong complex and became the first to supply electricity to pilot zones such as ShinWon Ebenezer. In April 2006, we started to construct a 154 kilovolt, 16 kilometer transmission line connecting Munsan substation to the Kaesong complex as well as Pyunghwa substation in the complex and began operations in May 2007.

As of December 31, 2014, we supplied electricity to 254 units, including administrative agencies, support facilities and resident corporations, using a tariff structure identical to that of South Korea. No assurance can be given that we will not experience any material losses from this project as a result of, among other things, a project suspension or failure of the project as a result of a breakdown or escalation of hostilities in the relationship between the Republic and North Korea. See Item 3D. Risk Factors Risks Relating to Korea and the Global Economy Tensions with North Korea could have an adverse effect on us and the market value of our shares.

#### *The Light Water Reactor Project*

The Korean Peninsula Development Organization, or KEDO, was chartered in March 1995 as an international consortium stipulated by the Agreed Framework, which was signed by the United States and North Korea in October 1994. KEDO signed an agreement with North Korea in December 1995 to construct two light water reactors in North Korea in return for certain nuclear nonproliferation steps to be taken by North Korea. However, when North Korea did not meet the conditions required for the continuation of the project, KEDO suspended the project in December 2003. Following the suspension, KEDO notified us of the termination of the project and the related turnkey contract between KEDO and us. In 2006, we entered into a transfer agreement with KEDO under which we assumed substantially all of KEDO's rights and obligations related to the light water reactor outside of North Korea. Following disposal of the transferred equipment in March 2012 we submitted to KEDO the Final Report on Resale in relation to such disposal as required under the transfer agreement and in January 2013, KEDO gave us a final notice of the termination of the transfer agreement.

### **Insurance**

We and our generation subsidiaries carry insurance covering against certain risks, including fire, in respect of key assets, including buildings, equipment, machinery, construction-in-progress and procurement in transit, as

## **Table of Contents**

well as, in the case of KEPCO, directors' and officers' liability insurance. We and our generation subsidiaries maintain casualty and liability insurance against risks related to our business to the extent we consider appropriate. Other than KHNP, neither we nor our generation subsidiaries separately insure against terrorist attacks. These insurance and indemnity policies, however, cover only a portion of the assets that we own and operate and do not cover all types or amounts of loss that could arise in connection with the ownership and operation of these assets.

Substantial liability may result from the operations of our nuclear generation units, the use and handling of nuclear fuel and possible radioactive emissions associated with such nuclear fuel. KHNP maintains property and liability insurance against risks of its business to the extent required by the related law and regulations or considered as appropriate and otherwise self-insures against such risks. KHNP carries insurance for its generation units against certain risks, including property damage, nuclear fuel transportation and liability insurance for personal injury and property damage. KHNP carries property damage insurance covering up to US\$1 billion per accident for all properties within its plant complexes, which includes property insurance coverage for acts of terrorism up to US\$300 million and for breakdown of machinery up to US\$300 million. KHNP maintains nuclear liability insurance for personal injury and third-party property damage for coverage of up to 300 million Special Drawing Rights, or SDRs, which amounts to approximately US\$430 million, at the rate of 1 SDR = US\$ 1.433510 as posted on the Internet homepage of the International Monetary Fund on January 5, 2015 per plant complex, for a total coverage of 1.5 billion SDRs. KHNP is also the beneficiary of a Government indemnity with respect to such risks for damage claims of up to Won 300 million SDRs per nuclear plant complex, for a total coverage of 1.5 billion SDRs. Under the Nuclear Damage Compensation Act of 1969, as amended, KHNP is liable only up to 300 million SDRs, per single accident; provided that such limitation will not apply where KHNP intentionally causes harm or knowingly fails to prevent the harm from occurring. KHNP will receive the Government's support, subject to the approval of the National Assembly, if (i) the damages exceed the insurance coverage amount of 300 million SDRs and (ii) the Government deems such support to be necessary for the purposes of protecting damaged persons and supporting the development of nuclear energy business. While KHNP carries insurance for its generation units and nuclear fuel transportation, the level of insurance is generally adequate and is in compliance with relevant laws and regulations, and KHNP is the beneficiary of a certain Government indemnity which covers a portion of liability in excess of the insurance. Such insurance is limited in terms of amount and scope of coverage and does not cover all types or amounts of losses which could arise in connection with the ownership and operation of nuclear plants. Accordingly, material adverse financial consequences could result from a serious accident to the extent it is neither insured nor covered by the government indemnity.

See Item 3D. Risk Factors Risks Relating to KEPCO The amount and scope of coverage of our insurance are limited.

## **Competition**

As of December 31, 2014, we and our generation subsidiaries owned approximately 77.6% of the total electricity generation capacity in Korea (excluding plants generating electricity for private or emergency use). New entrants to the electricity business will erode our market share and create significant competition, which could have a material adverse impact on our financial conditions and results of operation.

In particular, we compete with independent power producers with respect to electricity generation. The independent power generators accounted for 15.1% of total power generation in 2014 and 22.4% of total generation capacity as of December 31, 2014. As of December 31, 2014, there were 10 independent power generators in Korea, excluding renewable energy producers. Prior to December 2010, private enterprises had not been permitted to own and operate coal-fired power plants in Korea. However, the Fifth Basic Plan announced in December 2010 included for the first time a plan for independent power producers to own and operate coal-fired power plants, namely four generation units with aggregate capacity of 2,290 megawatts for completion in 2016. In addition, in connection with the Sixth Basic Plan announced in February 2013, the Ministry of Trade, Industry

## **Table of Contents**

and Energy accepted additional applications from independent power producers for construction of coal-fired power plants. 15 independent power producers applied for construction of a total of 40 additional coal-fired generation units with aggregate generation capacity of 37,100 megawatts, of which the Government approved applications for the construction of six generation units with aggregate generation capacity of 6,000 megawatts. The Government also approved applications for construction of two additional generation units with aggregate generation capacity of 2,000 megawatts to prepare for the contingency of failed or delayed construction of the foregoing generation units. Construction for the six generation units is scheduled to be completed between 2018 and 2021. While it remains to be seen whether construction of these generation units will be completed as scheduled, if it were to be completed as scheduled and/or independent power producers are permitted to build additional generation capacity (whether coal-fired or not), our market share in Korea may decrease, which may have a material adverse effect on our results of operations and financial condition.

In addition, under the Community Energy System adopted by the Government in 2004, a minimal amount of electricity is supplied directly to consumers on a localized basis by independent power producers without having to undergo the cost-based pool system used by our generation subsidiaries and most independent power producers to distribute electricity nationwide. A supplier of electricity under the Community Energy System must be authorized by Korea Electricity Commission and be approved by the minister of the Ministry of Trade, Industry and Energy in accordance with the Electricity Business Act. The purpose of this system is to geographically decentralize electricity supply and thereby reduce transmission losses and improve the efficiency of energy use. These entities do not supply electricity on a national level but are licensed to supply electricity to limited geographic areas. As of March 31, 2015, the aggregate generation capacity of suppliers participating in the Community Energy System represented less than 1% of that of our generation subsidiaries in the aggregate. Accordingly, we currently do not expect the Community Energy System to be widely adopted, especially in light of the significant level of capital expenditure required for such direct supply. However, if the Community Energy System is widely adopted, it may erode our currently dominant market position in the generation and distribution of electricity in Korea, and may have a material adverse effect on our business, results of operations and financial condition.

The electric power industry, which began its liberalization process with the establishment of our power generation subsidiaries in April 2001, may become further liberalized in accordance with the Restructuring Plan. See Item 4B. Business Overview Restructuring of the Electric Power Industry in Korea.

In the residential sector, consumers may use natural gas, oil and coal for space and water heating and cooking. However, currently there is no practical substitute for electricity for lighting and other household appliances, which is available on commercially affordable terms.

In the commercial sector, electricity is the dominant energy source for lighting, office equipment and air conditioning. For its other uses, such as space and water heating, natural gas and, to a lesser extent, oil, provide competitive alternatives to electricity.

In the industrial sector, electricity is the dominant energy source for a number of industrial applications, including lighting and power for many types of industrial machinery and processes that are available on commercially affordable terms. For other uses, such as heating, electricity competes with oil and natural gas and potentially with gas-fired combined heating and power plants.

## **Regulation**

We are a statutory juridical corporation established under the KEPCO Act for the purpose of ensuring a stable supply of electric power and further contributing toward the sound development of the national economy through facilitating development of electric power resources and carrying out proper and effective operation of

**Table of Contents**

the electricity business. The KEPCO Act (including the amendment thereto) prescribes that we engage in the following activities:

1. development of electric power resources;
2. generation, transmission, transformation and distribution of electricity and other related business activities;
3. research and development of technology related to the businesses mentioned in items 1 and 2;
4. overseas businesses related to the businesses mentioned in items 1 through 3;
5. investments or contributions related to the businesses mentioned in items 1 through 4;
6. businesses incidental to items 1 through 5;
7. Development and operation of certain real estate held by us to the extent that:
  - a. it is necessary to develop certain real estate held by us due to external factors, such as relocation, consolidation, conversion to indoor or underground facilities or deterioration of our substation or office; or
  - b. it is necessary to develop certain real estate held by us to accommodate development of relevant real estate due to such real estate being incorporated into or being adjacent to an area under planned urban development; and
8. other activities entrusted by the Government.

The KEPCO Act currently requires that our profits be applied in the following order of priority:

first, to make up any accumulated deficit;

second, to set aside 20.0% or more of profits as a legal reserve until the accumulated reserve reaches one-half of our capital;

third, to pay dividends to shareholders;

fourth, to set aside a reserve for expansion of our business;

fifth, to set aside a voluntary reserve for the equalization of dividends; and



sixth, to carry forward surplus profit.

As of December 31, 2014, the legal reserve was Won 1,605 billion and the voluntary reserve was Won 22,999 billion, which consisted of reserve for business expansion of Won 17,182 billion, reserve for investment in social overhead capital of Won 5,277 billion, reserve for research and human development of Won 330 billion and reserve for equalizing dividends of Won 210 billion.

We are under the supervision of the Ministry of Trade, Industry and Energy, which has principal responsibility with respect to director and management appointments and rate approval.

Because the Government owns part of our capital stock, the Government's Board of Audit and Inspection may audit our books.

The Electricity Business Act requires that licenses be obtained in relation to generation, transmission, distribution and sales of electricity, with limited exceptions. We hold the license to generate, transmit, distribute and sell electricity. Each of our six generation subsidiaries holds an electricity generation license. The Electricity Business Act governs the formulation and approval of electricity rates in Korea. See Sales and Customers Electricity Rates above.

On January 28, 2014, the Act for Supporting the Communities Surrounding Power Plants was enacted, with effect from July 29, 2014, which prescribes the supports to be provided by the power generation or transmission

**Table of Contents**

companies to the communities surrounding power plants. Under this Act, those who own land or houses in the vicinity of power plants may claim compensation for damages, or compel purchase of such properties, by the power generation or transmission companies which are legally obligated in principle to pay for such damages or purchase such properties. See Community Programs above.

Our operations are subject to various laws and regulations relating to environmental protection and safety. See Community Programs above.

**Proposed Sale of Certain Power Plants and Equity Interests**

The following table summarizes our current plans for sale of certain of our assets. The consummation of these plans, however, is subject to, among others, related Government policies and market conditions.

| Equity Holdings   | Primary Business                             | Fair Value <sup>(2)</sup> as of December 31, 2014<br>(in billions of Won) | Ownership Percentage as of December 31, 2014 | Ownership Percentage to be Sold |
|---|--|---|--|---------------------------------|
| KEPCO Plant Service & Engineering Co., Ltd <sup>(1)</sup> | Utility plant maintenance                    | 1,937   | 54.0%  | 1.5%                            |
| KEPCO Engineering & Construction Co., Inc                 | Architectural engineering for utility plants | 1,300   | 66.3%  | 15.3%                           |
| Korea Electric Power Industrial Development Co., Ltd.     | Electricity metering                         | 61  | 29.0%  | 29.0%                           |

*Notes:*

- (1) In April 2015, we further sold a 1.5% equity interest in this entity. As of the date of this annual report, our ownership in this entity amounted to 52.5%.
- (2) Fair value has been computed as the product of the closing share price on December 31, 2014 multiplied by the number of outstanding shares.

*KEPCO Plant Service & Engineering Co., Ltd.*

In December 2007, we completed the initial public offering of KEPCO Plant Service & Engineering Co., Ltd., or KPS, formerly our wholly-owned subsidiary, by listing approximately 20.0% of its equity interest on the Korea Stock Exchange. Pursuant to the Public Institution Reform Plan, we sold through block sales to third party investors an aggregate of 27.5% shares in KPS on various occasions during the period from December 2012 to April 2015. We currently hold a 52.5% equity interest in KPS.

*KEPCO Engineering & Construction Co., Inc.*

Pursuant to the Third Phase of the Public Institution Reform Plan announced by the Government in August 2008, we conducted the initial public offering of Korea Engineering and Construction Co., Inc., or KEPCO E&C formerly known as Korea Power Engineering Co., Ltd., in December 2009 for gross proceeds to us of Won 165 billion, following which we owned 77.9% of KEPCO E&C's shares. In furtherance of the Public Institution Reform Plan and to improve our financial profile, we sold our equity interests representing 3.1%, 4.0% and 4.5% of KEPCO E&C shares in November 2011, December 2013 and December 2014, respectively, in each case to third party investors. We currently hold a 66.3% equity interest in KEPCO E&C.

*Korea Electric Power Industrial Development Co., Ltd.*

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

In 2003, we privatized Korea Electric Power Industrial Development, or KEPID, formerly our wholly-owned subsidiary, by selling 51.0% of its equity interest to Korea Freedom Federation. Pursuant to the Fifth

## Table of Contents

Phase of the Public Institution Reform Plan announced by the Government in 2009, we sold 20% of the KEPID shares through additional listing. We currently plan to sell the remaining 29.0% of KEPID's equity interest based on, among others, considerations of economic and market conditions.

### *LG Uplus Corp.*

In 2014, we sold our remaining 8.8% equity interest in LG Uplus Corp., a telecommunications and Internet access service provider in Korea. Pursuant to the Public Institution Reform Plan and in an effort to improve our financial profile, we sold through block sales to third party investors 4.4% of LG Uplus shares in August 2014 and the remaining 4.4% in December 2014.

## Item 4C. Organizational Structure

As of December 31, 2014, we had 76 subsidiaries, 50 associates and 38 joint ventures (not including any special purpose entities).

### Subsidiaries

Our wholly-owned six generation subsidiaries are KHNP, KOSEP, KOMIPO, KOWEPO, KOSPO and EWP. Our non-generation subsidiaries include KEPCO E&C, KEPCO KPS, KEPCO NF, and KEPCO KDN. For a full list of our subsidiaries, including foreign subsidiaries, and their respective jurisdiction of incorporation, please see Exhibit 8.1 attached to this annual report.

### Associates and Joint Ventures

An associate is an entity over which we have significant influence and that is neither a subsidiary nor a joint venture. Significant influence is the power to participate in the financial and operating policy decisions of the investee but does not have control or joint control over those policies. According to IFRS 11, joint arrangements are classified as joint operations or joint ventures, depending on the rights and obligations of the parties to the arrangements. As a result of IFRS 11, we have changed our accounting policy for our interests in joint arrangements. Under IFRS 11, we have classified our interests in joint arrangements as either joint operations (if we have rights to the assets, and obligations for the liabilities, relating to an arrangement) or joint ventures (if we have rights only to the net assets of an arrangement). When making this assessment, we considered the structure of the arrangements, the legal form of any separate vehicles, the contractual terms of the arrangements and other facts and circumstances. Previously, the structure of the arrangement was the sole focus of classification. We have re-evaluated our involvement in our only joint arrangement and have reclassified the investment from a jointly controlled entity to a joint venture. See Note 17 of the notes to our financial statements.

The table below sets forth for each of our principal associates and joint ventures the name and our percentage shareholdings and their principal activities as of December 31, 2014.

|   | Ownership<br>(Percent) | Principal Activities          |
|---|------------------------|-------------------------------|
| <b>Associates:</b>                                    |                        |                               |
| Daegu Green Power Co., Ltd.                           | 48                     | Power generation              |
| Korea Gas Corporation <sup>(1)</sup>                  | 20                     | Importing and wholesaling LNG |
| Korea Electric Power Industrial Development Co., Ltd. | 29                     | Electricity metering          |
| YTN Co., Ltd.   | 21                     | Broadcasting                  |
| Cheongna Energy Co., Ltd.                             | 44                     | Generating and distributing   |
|   |                        | vapor and hot/cold water      |
| Gangwon Wind Power Co., Ltd. <sup>(2)</sup>           | 15                     | Wind power generation         |

## Table of Contents

|  | Ownership<br>(Percent) | Principal Activities                               |
|--|------------------------|--|
| Hyundai Green Power Co., Ltd.                      | 29                     | Power generation                                   |
| Korea Power Exchange <sup>(6)</sup>                | 100                    | Management of power market                         |
| AMEC Partners Korea <sup>(3)</sup>                 | 19                     | Resources development                              |
| Hyundai Energy Co., Ltd. <sup>(9)</sup>            | 29                     | Power generation                                   |
| Ecollite Co., Ltd.                                 | 36                     | Artificial light-weight aggregate                  |
| Taeback Wind Power Co., Ltd.                       | 25                     | Power generation                                   |
| Muju Wind Power Co., Ltd.                          | 25                     | Power generation                                   |
| Pyeongchang Wind Power Co., Ltd.                   | 25                     | Power generation                                   |
| Daeryun Power Co., Ltd. <sup>(3)(10)</sup>         | 13                     | Power generation                                   |
| JinanJangsu Wind Power Co., Ltd.                   | 25                     | Power generation                                   |
| Changjuk Wind Power Co., Ltd.                      | 30                     | Power generation                                   |
| KNH Solar Co., Ltd.                                | 27                     | Power generation                                   |
| SPC Power Corporation                              | 38                     | Power generation                                   |
| Gemeng International Energy Co., Ltd.              | 34                     | Power generation                                   |
| PT. Cirebon Electric Power                         | 28                     | Power generation                                   |
| KNOC Nigerian East Oil Co., Ltd. <sup>(4)</sup>    | 15                     | Resources development                              |
| KNOC Nigerian West Oil Co., Ltd. <sup>(4)</sup>    | 15                     | Resources development                              |
| Dolphin Property Limited <sup>(4)</sup>            | 15                     | Rental company                                     |
| PT Wampu Electric Power                            | 46                     | Power generation                                   |
| PT. Bayan Resources TBK                            | 20                     | Resources development                              |
| S-Power Co., Ltd.                                  | 40                     | Power generation                                   |
| Pioneer Gas Power Limited <sup>(8)</sup>           | 40                     | Power generation                                   |
| Eurasia Energy Holdings                            | 40                     | Power generation and<br>resources development      |
| Xe-Pian Xe-Namnoy Power Co., Ltd.                  | 25                     | Power generation                                   |
| Busan Solar Co., Ltd. <sup>(3)</sup>               | 20                     | Power generation                                   |
| Hadong Mineral Fiber Co., Ltd.                     | 25                     | Recycling fly ashes                                |
| Green Biomass Co., Ltd.                            | 34                     | Power generation                                   |
| PT. Mutiara Jawa                                   | 29                     | Manufacturing and operating floating coal terminal |
| Samcheok Eco Material Co., Ltd. <sup>(3)(11)</sup> | 3                      | Recycling fly ashes                                |
| Noeul Green Energy Co., Ltd.                       | 20                     | Power generation                                   |
| Naepo Green Energy Co., Ltd.                       | 25                     | Power generation                                   |
| Goseong Green Energy Co. Ltd.                      | 10                     | Power generation                                   |
| Gangneung Eco Power Co., Ltd.                      | 6                      | Power generation                                   |
| Shin Pyeongtaek Power Co., Ltd.                    | 40                     | Power generation                                   |
| Heang Bok Do Si Photovoltaic Power Co., Ltd.       | 28                     | Power generation                                   |
| DS POWER Co., Ltd. <sup>(2)</sup>                  | 11                     | Power generation                                   |
| Dongducheon Dream Power Co., Ltd.                  | 34                     | Power generation                                   |
| KS Solar Corp. Ltd. <sup>(3)</sup>                 | 19                     | Power generation                                   |
| Yeongwol Energy Station Co., Ltd. <sup>(2)</sup>   | 10                     | Power generation                                   |
| Jimbhuvish Power Generation <sup>(2)</sup>         | 5                      | Power generation                                   |
| SE Green Energy Co., Ltd.                          | 48                     | Power generation support                           |
| Daegu Photovoltaic Co., Ltd.                       | 29                     | Power generation                                   |
| Jeongam Wind Power Co., Ltd.                       | 40                     | Power generation                                   |
| Korea Power Engineering Service Co., Ltd.          | 29                     | Construction and service                           |
| <b>Joint Ventures:</b>                             |                        |  |
| KEPCO-Uhde Inc. <sup>(7)</sup>                     | 66                     | Power generation                                   |
| Eco Biomass Energy Sdn. Bhd. <sup>(7)</sup>        | 62                     | Power generation                                   |

**Table of Contents**

|   | Ownership<br>(Percent) | Principal Activities   |
|---|------------------------|--|
| Datang Chaoyang Renewable Power Co., Ltd.                                   | 40                     | Power generation   |
| Shuweiha Asia Power Investment B.V.   | 49                     | Holding company  |
| Shuweiha Asia Operation & Maintenance Company <sup>(7)</sup>                | 55                     | Maintenance of utility plant   |
| Waterbury Lake Uranium L.P.   | 40                     | Power generation   |
| ASM-BG Investicii AD  | 50                     | Power generation   |
| RES Technology AD   | 50                     | Power generation   |
| KV Holdings, Inc.   | 40                     | Power generation   |
| KEPCO SPC Power Corporation <sup>(7)</sup>                                  | 75                     | Construction and operation of utility plant                                  |
| Canada Korea Uranium Limited Partnership <sup>(5)</sup>                     | 13                     | Resources development  |
| KEPCO Energy Resource Nigeria Limited                                       | 30                     | Holding company  |
| Gansu Datang Yumen Wind Power Co., Ltd.                                     | 40                     | Power generation   |
| Datang Chifeng Renewable Power Co., Ltd.                                    | 40                     | Power generation   |
| Datang KEPCO Chaoyang Renewable Power Co., Ltd.                             | 40                     | Power generation   |
| Rabigh Electricity Company  | 40                     | Sales of electricity   |
| Rabigh Operation & Maintenance Company                                      | 40                     | Maintenance of utility plant   |
| Jamaica Public Service Company Limited                                      | 40                     | Power generation   |
| KW Nuclear Components Co., Ltd.   | 43                     | R&D  |
| Busan Shinho Solar Power Co., Ltd.  | 25                     | Power generation   |
| GS Donghae Electric Power Co., Ltd. (Formally, STX Electric Power Co., Ltd. | 34                     | Power generation   |
| Global Trade Of Power System Co., Ltd.                                      | 29                     | Exporting products and<br>technology of small or<br>medium business by proxy |
| Expressway Solar-light Power Generation Co., Ltd                            | 29                     | Power generation   |
| KODE NOVUS 1 LLC.   | 50                     | Power generation   |
| KODE NOVUS 2 LLC.   | 49                     | Power generation   |
| Daejung Offshore Wind Power Co., Ltd.                                       | 50                     | Power generation   |
| Amman Asia Electric Power Company <sup>(7)</sup>                            | 60                     | Power generation   |
| KEPCO-ALSTOM Power Electronics Systems, Inc. <sup>(7)</sup>                 | 51                     | R&D  |
| Dangjin Eco Power Co., Ltd. (Formally, Dongbu Power Dangjin Corporation     | 33                     | Power generation   |
| Honam Wind Power Co., Ltd.  | 29                     | Power generation   |
| Nepal Water & Energy Development Company Pty Ltd. <sup>(7)</sup>            | 60                     | Construction and operation of utility plant                                  |
| Chun-cheon Energy Co., Ltd.   | 30                     | Power generation   |
| Yeonggwangbaeksu Wind Power Co., Ltd. <sup>(3)</sup>                        | 15                     | Power generation   |
| Nghi Son 2 Power Ltd.   | 50                     | Power generation   |
| Kelar S.A. <sup>(7)</sup>   | 65                     | Power generation   |
| PT. Tanjung Power Indonesia   | 35                     | Power generation   |
| Incheon New Power Co., Ltd.   | 29                     | Power generation   |
| Seokmun Energy Co., Ltd.  | 34                     | Integrated energy business   |

*Notes:*

- (1) The effective percentage of ownership is 21.57% considering the treasury stocks.
- (2) We can exercise significant influence by virtue of our contractual right to appoint directors to the board of directors of this entity, and by strict decision criteria of our financial and operating policy of the board of directors.

## **Table of Contents**

- (3) We can exercise significant influence by virtue of our contractual right to appoint a director to the board of directors of this entity.
- (4) We can exercise significant influence by virtue of our contractual right to appoint one out of four members of the steering committee of this entity. Moreover, we have significant financial transactions with this entity to the effect that we can exercise significant influence on this entity.
- (5) We have joint control on the associates by virtue of our contractual right to appoint directors to the board of directors of this entity, and by strict decision criteria of our financial and operating policy of the board of directors.
- (6) The Government regulates our ability to make operating and financial decisions over the entity, as the Government requires maintaining arms-length transactions between the Korea Power Exchange and our other subsidiaries. We can exercise significant influence by our right to nominate directors to the board of directors of this entity.
- (7) According to the shareholder agreement, all critical financial and operating decisions must be agreed to by all ownership parties. For these reasons, these entities are classified as joint ventures.
- (8) The reporting period of all associates and joint ventures ends in December 31, except for Pioneer Gas Power Limited whose reporting period ends on March 31.
- (9) As of December 31, 2014, 17.3% of ownership of Hyundai Energy Co., Ltd. was held by NH Power II Co., Ltd. and NH Bank . According to the shareholders' agreement reached on March 2011, not only do we have a call option to acquire the investment in Hyundai Energy Co., Ltd. from NH Power II Co., Ltd. and NH Bank upon a certain rate of return, NH Power II Co., Ltd. and NH Bank also have put options to dispose of their investment to us. In connection with this agreement, we applied the equity method on our 46.3% equity investment in Hyundai Energy Co., Ltd.
- (10) Following the merger of Daeryun Energy Co., Ltd. into Daeryun Power Co., Ltd., its parent, our effective percentage of ownership decreased to 19.45% after accounting for stock purchase options.
- (11) Our effective percentage of ownership (excluding the redeemable convertible preferred shares) is 25.54%.

### **Item 4D. Property, Plant and Equipment**

Our property consists mainly of power generation, transmission and distribution equipment and facilities in Korea. See Item 4B. Business Overview Power Generation, Transmission and Distribution and Capital Investment Program. In addition, we own our corporate headquarters building complex at 55 Jeollyeok-ro, Naju-si, Jeollanam-do, 520-350, Korea. As of December 31, 2014, the net book value of our property, plant and equipment was Won 135,812 billion. As of December 31, 2014, investment property, which is accounted for separately from our property, plant and equipment, amounted to Won 317 billion. No significant amount of our properties is leased. There are no material encumbrances on our properties, including power generation, transmission and distribution equipment and facilities.

In connection with the recent relocation of our headquarters in December 2014 pursuant to a government plan, in September 2014 we entered into a definitive agreement with a consortium consisting of Hyundai Motor Company, Kia Motor Company and Hyundai Mobis for the sale of the properties in our previous headquarters for a sale price of Won 10,550 billion. The sale was made following an open bidding, and the assessment value for such properties was approximately Won 3,335 billion. Under the sales agreement, the purchaser made a deposit equal to 10% of the purchase price on the date of the agreement, paid the first installment equal to 30% of the purchase price on January 15, 2015 and is obligated to pay the remaining proceeds in two equal installments on May 25 and September 25, 2015, and the title to the properties will transfer on the date the full purchase price is paid.

On December 30, 2014, we completed the sales of 49 properties (including residential properties, storage spaces, and substation lots that are located in Korea) which are not directly related to its operations for an aggregate sale price of approximately Won 55.9 billion, representing 0.04% of our total assets as of December 31, 2014. The foregoing sales reflect our plans to improve our financial soundness through debt reduction and enhance our management efficiency, selling noncore properties that have no direct relations to electricity facilities.

## **Table of Contents**

### **ITEM 4A. UNRESOLVED STAFF COMMENTS**

We do not have any unresolved comments from the SEC staff regarding our periodic reports under the Securities Exchange Act of 1934, as amended (the Exchange Act ).

### **ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS**

*You should read the following discussion on our operating and financial review and prospects together with our consolidated financial statements and the related notes which appear elsewhere in this annual report. Our results of operations, financial condition and cash flows may materially change from time to time, for reasons including various policy initiatives (including changes to the Restructuring Plan) by the Government in relation to the Korean electric power industry, and accordingly our historical performance may not be indicative of our future performance. See Item 4B. Business Overview Restructuring of the Electric Power Industry in Korea and Item 3D. Risk Factors The Government may adopt policy measures to substantially restructure the Korean electric power industry or our operational structure, which may have a material adverse effect on our business, operations and profitability.*

#### **Item 5A. Operating Results**

##### **Overview**

We are a predominant market participant in the Korean electric power industry, and our business is heavily regulated by the Government, including with respect to the rates we charge to customers for the electricity we sell. In addition, our business requires a high level of capital expenditures for the construction of electricity generation, transmission and distribution facilities and is subject to a number of variable factors, including demand for electricity in Korea and fluctuations in fuel costs, which are in turn impacted by the movements in the exchange rates between the Won and other currencies.

Under the Electricity Business Law and the Price Stabilization Act, the Government generally establishes electricity rates at levels that are expected to permit us to recover our operating costs attributable to our basic electricity generation, transmission and distribution operations in addition to receiving a fair investment return on capital used in those operations. For a detailed description of the fair investment return, see Item 4B. Business Overview Sales and Customers Electricity Rates. From 2008 to 2012, we had consecutive net losses and, from time to time, operating losses, due to substantial increases in fuel prices which have more than offset the effect from the increases in the electricity tariff rates we charge to our customers. From 2013 to 2014, largely due to increases in electricity tariff rates, the general decline of fuel prices and the greater use of coal relative to LNG (the former being a cheaper source of fuel) as a proportion of the fuels used to produce electricity, our gross profit, operating profit and net profit increased significantly.

If fuel prices were to rise substantially and rapidly in the future, such rise may have a material adverse effect on our results of operations and profitability. In part to address these concerns, the Government from time to time increases the electricity tariff rates (most recently in January and November 2013). However, such increases may be insufficient to fully offset the adverse impact from the rise in fuel costs, and since such increases typically require lengthy public deliberations in order to be implemented, the tariff increases often occur with a significant time lag and as a result our results of operations and cash flows may suffer.

Further to the announcement by the Ministry of Trade, Industry and Energy in February 2010, a new electricity tariff system went into effect on July 1, 2011. This system was designed to overhaul the prior system for determining electricity tariff chargeable to customers by more closely aligning the tariff levels to movements in fuel prices, with the aim of providing more timely pricing signals to the market regarding the expected changes in electricity tariff levels and encouraging more efficient use of electricity by customers. Previously, the electricity tariff consisted of two components: (i) base rate and (ii) usage rate based on the cost of electricity and the amount of electricity consumed by the end-users. Under the new tariff system, the electricity tariff also has a



## **Table of Contents**

third component of the FCPTA rate, which is to be added to or subtracted from the sum of the base rate and the usage rate on a monthly basis based on the three-month average movements of coal, LNG and oil prices. This system was intended to provide greater financial stability and ensure a minimum return on investment to electricity suppliers, such as us.

However, due to inflationary and other policy considerations relating to protecting the consumers from sudden and substantial rises in electricity tariff, the Ministry of Trade, Industry and Energy issued a hold order on July 29, 2011 suspending our billing and collecting of the FCPTA amount and eventually abolished the FCPTA system altogether on May 21, 2014 and generally reverted to the tariff system in place prior to the adoption of the FCPTA system.

For further discussion, including in relation to accounting, see Item 5A. Operating Results Critical Accounting Policies Correction of Accounting for Fuel Cost Pass-through Adjustment.

The results of our operations are largely affected by the following factors:

demand for electricity;

electricity rates we charge to our customers;

fuel costs; and

the exchange rates of Won against other foreign currencies, in particular the U.S. dollar.

### ***Demand for Electricity***

Our sales are largely dependent on the level of demand for electricity in Korea and the rates we charge for the electricity we sell.

Demand for electricity in Korea grew at a compounded average rate of 3.9% per annum for the five years ended December 31, 2014. According to the Bank of Korea, the compounded growth rate for real gross domestic product, or GDP, was approximately 3.7% during the same period. The GDP increased, on a year-on-year basis, by 2.3% in 2012, by 2.9% in 2013, and by 3.3% in 2014.

The table below sets forth, for the periods indicated, the annual rate of growth in Korea's gross domestic product, or GDP, and the annual rate of growth in electricity demand (measured by total annual electricity consumption).

|                                   | 2010  | 2011 | 2012 | 2013 | 2014 |
|-----------------------------------|-------|------|------|------|------|
| Growth in GDP                     | 6.5%  | 3.7% | 2.3% | 2.9% | 3.3% |
| Growth in electricity consumption | 10.1% | 4.8% | 2.5% | 1.8% | 0.6% |

Demand for electricity may be categorized either by the type of its usage or by the type of customers. The following describes the demand for electricity by the type of its usage, namely, industrial, commercial and residential:

The industrial sector represents the largest segment of electricity consumption in Korea. Demand for electricity from the industrial sector was 272,552 gigawatt hours in 2014, representing a 2.7% increase from 2013, largely due to the continued export-led growth of the Korean economy.

## Edgar Filing: KOREA ELECTRIC POWER CORP - Form 20-F

Demand for electricity from the commercial sector has increased in recent years, largely due to increased commercial activities in Korea and the rapid expansion of the service sector of the Korean economy, which has resulted in increased office building construction, office automation and use of air conditioners. However, demand for electricity from the commercial sector decreased to 100,761 gigawatt hours in 2014, representing a 1.4% decrease from 2013 largely due to decreased electricity usage for cooling and heating reflecting cooler summer and warmer winter in 2014 compared to 2013.

## **Table of Contents**

In 2014, we distributed electricity to approximately 22 million households, which represent substantially all of the households in Korea. Demand for electricity from the residential sector is largely dependent on population growth and use of heaters, air conditioners and other electronic appliances. Demand for electricity from the residential sector decreased to 64,457 gigawatt hours in 2014, representing a 2.1% decrease compared to 2013, largely due to a decrease in electricity usage for air conditioning and heating resulting in part from cooler summer and warmer winter in 2014 compared to 2013.

For a discussion on demand by the type of customers, see Item 4B. [Business Overview](#) [Sales and Customers](#) [Demand by the Type of Usage](#).

Since our inception, we have had the predominant market share in terms of electricity generated in Korea. As for electricity we purchase from the market for transmission and distribution to our end-users, our generation subsidiaries accounted for 90.9%, 89.4% and 86.2% in 2012, 2013 and 2014, respectively, while the remainder was accounted for by independent power producers. As for transmission and distribution of electricity, we have historically handled, expect to continue to handle, substantially all of such activities in Korea.

We expect that we will continue to have a dominant market share in the generation, transmission and distribution of electricity in Korea for the foreseeable future, absent any substantial changes to the Restructuring Plan or other policy initiatives by the Government in relation to the Korean electric power industry, or an unexpected level of market penetration by independent power producers or localized electricity suppliers under the Community Energy System. See Item 4B. [Business Overview](#) [Competition](#).

### ***Electricity Rates***

Under the Electricity Business Law and the Price Stabilization Act, electricity rates are established at levels that will permit us to recover our operating costs attributable to our basic electricity generation, transmission and distribution operations in addition to receiving a fair investment return on capital used in those operations. For further discussion of fair investment return, see Item 4B. [Business Overview](#) [Sales and Customers](#) [Electricity Rates](#).

From time to time, our actual rate of return on invested capital may differ significantly from the fair rate of return on invested capital assumed for the purposes of electricity tariff approvals, for reasons, among others, related to movements in fuel prices, exchange rates and demand for electricity that differs from what is assumed for determining our fair rate of return. For example, between 1987 and 1990, the actual rate of return was above the fair rate of return due to declining fuel costs and rising demand for electricity. In contrast, depreciation of the Won against the U.S. dollar accounted for our actual rates of return being lower than the fair rate of return for the period from 1996 to 2000. Partly in response to the variance between our actual rates of return and the fair rate of return, the Government from time to time increases the electricity tariff rates, but there typically is a significant time lag for the tariff increase as such increase requires a series of deliberative processes and administrative procedures and the Government also has to consider other policy considerations, such as the inflationary effect of overall tariff increases and the efficiency of energy use through sector-specific tariff increases. For the period since 2006, our actual rate of return has been lower than the fair rate of return largely due to increases in fuel costs and additional facility investment costs, the effects of which were not offset by timely increases in the electricity tariff rates.

Recent increases to the electricity tariff rates by the Government involve the following, which were made principally in response to the rising fuel prices which hurt our profitability as well as to encourage a more efficient use of electricity by the different sectors:

effective August 6, 2012, a 4.9% overall increase in our average tariff rate, consisting of increases in the residential, commercial, educational, industrial, street lighting, agricultural and overnight power usage tariff rates by 2.7%, 4.4%, 3.0%, 6.0%, 4.9%, 3.0% and 4.9%, respectively.

## **Table of Contents**

effective January 14, 2013, a 4.0% overall increase in our average tariff rate, consisting of increases in the residential, commercial, industrial, educational, agricultural, street lighting and overnight power usage tariff rates by 2.0%, 4.6%, 4.4%, 3.5%, 3.0%, 5.0% and 5.0%, respectively.

effective November 21, 2013, a 5.4% overall increase in our average tariff rate, consisting of increases in the residential, commercial, industrial, agricultural, street lighting and overnight power usage tariff rates by 2.7%, 5.8%, 6.4%, 3.0%, 5.4% and 5.4%, respectively, while making no change to the educational tariff.

### ***Fuel Costs***

Our results of operations are also significantly affected by the cost of producing electricity, which is subject to a variety of factors, including, in particular, the cost of fuel.

Cost of fuel in any given year is a function of the volume of fuels consumed and the unit fuel cost for the various types of fuel used for generation of electricity which affects the cost structure for both our generation subsidiaries and independent power producers from whom we purchase electric power. A significant change in the unit fuel costs materially impacts the costs of electricity generated by our generation subsidiaries, which mainly comprise our fuel costs under the cost of sales, as well as, to our knowledge, the costs of electricity generated by the independent power producers that sell their electricity to us (see Item 4A. Purchase of Electricity Cost-based Pool System ), which mainly comprise our purchased power costs under the cost of sales. We are however unable to provide a comparative analysis since the unit fuel cost information for independent power producers and their cost structures are proprietary information.

Fuel costs accounted for 48.5%, 45.1% and 36.1% of our sales and 49.2%, 47.8% and 41.4% of our cost of sales in 2012, 2013 and 2014, respectively. Substantially all of the fuel (except for anthracite coal) used by our generation subsidiaries is imported from outside of Korea at prices determined in part by prevailing market prices in currencies other than Won. In addition, our generation subsidiaries purchase a significant portion of their fuel requirements under contracts with limited quantity and duration. Pursuant to the terms of our long-term supply contracts, prices are adjusted from time to time subject to prevailing market conditions. See Item 4B. Business Overview Fuel.

Uranium accounted for 33.5%, 30.9% and 35.3% of our fuel requirements in 2012, 2013 and 2014, respectively. Coal accounted for 44.5%, 44.8% and 46.0% of our fuel requirements in 2012, 2013 and 2014, respectively. LNG accounted for 17.7%, 19.7% and 15.5% of our fuel requirements in 2012, 2013 and 2014 respectively. Oil accounted for 3.2%, 3.3% and 1.7% of our fuel requirements in 2012, 2013 and 2014, respectively. In each case, the fuel requirements are measured by the amount of electricity generated by us and our generation subsidiaries and do not include electricity purchased from independent power producers. In order to ensure stable supplies of fuel materials, our generation subsidiaries enter into long-term and medium-term contracts with various suppliers and supplement such supplies with fuel materials purchased on spot markets.

The price of bituminous coal, which represents our largest fuel requirement, fluctuates significantly from time to time. In 2014, approximately 84.5% of the bituminous coal requirements of our generation subsidiaries were purchased under long-term contracts and the remaining 15.5% purchased on the spot market. The average free on board Newcastle coal 6300 GAR spot price index published by Platts decreased from US\$85.1 per ton in 2013 to US\$70.7 per ton in 2014 and US\$56.4 per ton as of April 10, 2015. If the price of bituminous coal were to sharply rise, our generation subsidiaries may not be able to secure their respective bituminous coal supplies at prices commercially acceptable to them. In addition, any significant interruption or delay in the supply of fuel, bituminous coal in particular, from any of their suppliers could cause our generation subsidiaries to purchase fuel on the spot market at prices higher than contracted, resulting in an increase in fuel cost.

In recent years, the prices of oil and LNG have fallen significantly. The prices of oil and LNG are substantially dependent on the price of crude oil, and according to Bloomberg (Bloomberg Ticker:

## **Table of Contents**

PGCRDUBA), the average daily spot price of Dubai crude oil per barrel decreased from US\$108.9 in 2012 to US\$105.4 in 2013 to US\$96.6 in 2014 and was US\$54.8 as of April 10, 2015.

Nuclear power has a stable and relatively low-cost structure and forms a significant portion of electricity supplied in Korea. Due to significantly lower unit fuel costs compared to those for thermal power plants, our nuclear power plants are generally operated at full capacity with only routine shutdowns for fuel replacement and maintenance, with limited exceptions. In case of shortage in electricity generation resulting from stoppages of the nuclear power plants, we seek to make up for such shortage with power generated by our thermal power plants.

Because the Government heavily regulates the rates we charge for the electricity we sell (see Item 4B. *Business Overview* *Sales and Customers* *Electricity Rates* ), our ability to pass on such cost increases to our customers is limited. For example, from 2008 to 2012 we had consecutive net losses and, from time to time, operating losses, largely due to sustained rises in fuel costs that were neither timely nor sufficiently offset by a corresponding rise in electricity tariff rates. If fuel prices substantially increase and the Government, out of concern for inflation or for other reasons, maintains the current level of electricity tariff and does not increase it to a level to sufficiently offset the impact of rising fuel prices, the price increases will negatively affect our profit margins or even cause us to suffer net losses and our business, financial condition, results of operations and cash flows would suffer.

### ***Movements of the Won against the U.S. Dollar and Other Foreign Currencies***

Korean Won fluctuates significantly against major currencies from time to time. For fluctuations in exchange rates, see Item 3A. *Selected Financial Data* *Currency Translations and Exchange Rates*. In particular, Korean Won underwent substantial fluctuations during the recent global financial crisis, and remains subject to significant volatility. The Noon Buying Rate per one U.S. dollar fluctuated from Won 1,063.2 on December 31, 2012 to Won 1,055.3 on December 31, 2013 and to Won 1,090.9 on December 31, 2014 and was Won 1,093.1 on April 10, 2015. In 2014, the Won generally depreciated against U.S. dollar and other foreign currencies, and such depreciation may result in a significant increase in the cost of fuel materials and equipment purchased from overseas as well as the cost of servicing our foreign currency debt. As of December 31, 2014, approximately 20.5% of our long-term debt (including the current portion but excluding issue discounts and premium) before accounting for swap transactions was denominated in foreign currencies, principally U.S. dollars. The prices for substantially all of the fuel materials and a significant portion of the equipment we purchase are stated in currencies other than Won, generally in U.S. dollars. Since a substantial portion of our revenues is denominated in Won, we must generally obtain foreign currencies through foreign currency-denominated financings or from foreign currency exchange markets to make such purchases or service such debt, fulfill our obligations under existing overseas investments and make new overseas investments. As a result, any significant depreciation of Won against U.S. dollar or other foreign currencies will have a material adverse effect on our profitability and results of operations. See Item 3D. *Risk Factors* *Risks Relating to KEPCO* The movement of Won against the U.S. dollar and other currencies may have a material adverse effect on us.

### **Recent Accounting Changes**

#### ***New Amendments Adopted***

New amendments to IFRS and other accounting standards are set forth below. These amendments had no impact on our consolidated financial statements included in this annual report.

Amendments to IAS 32 *Financial Instruments: Presentation*

Amendments to IFRIC 21 *Levies*

See Note 2 of the notes to our consolidated financial statements included in this annual report for further related information.

## **Table of Contents**

### ***New Standards and Amendments Not Yet Adopted***

The following new standards and amendments to existing IFRS and other standards are effective for annual periods beginning after January 1, 2014; however, we have not adopted such amendments yet and are currently in the process of evaluating the impact on our consolidated financial statements upon the adoption of these amendments.

IFRS 9 Financial Instruments

IFRS 15 Revenue from contract with customers

Amendments to IAS 19 Employee benefits

See Note 2 of the notes to our consolidated financial statements included in this annual report for further related information.

### **Critical Accounting Policies**

The following discussion and analysis are based on our consolidated financial statements included in this annual report. The fundamental objective of financial reporting is to provide useful information that allows a reader to comprehend our business activities. To aid in that understanding, our management has identified critical accounting policies.

We make a number of estimates and judgments in preparing our consolidated financial statements. These estimates may differ from actual results and have a significant impact on our recorded assets, liabilities, revenues and expenses and related disclosure of contingent assets and liabilities. We consider an estimate to be a critical accounting estimate if it requires a high level of subjectivity or judgment, and a significant change in the estimate would have a material impact on our financial condition or results of operations. Further discussion of these critical accounting estimates and policies is included in the notes to our consolidated financial statements included in this annual report.

The accounting policies set out below have been applied consistently by us and our subsidiaries to all periods presented in the consolidated annual financial statements, unless otherwise indicated.

#### ***Sale and Purchase of Electricity***

The Government approves the rates we charge to customers. Our utility rates are designed to recover our reasonable costs plus a fair investment return. We purchase electricity principally from our generation subsidiaries based on a competitive bidding process through the Korea Power Exchange.

We recognize electricity sales revenue based on power sold (transferred to the customer) up to the reporting date. To determine the amount of power sold, we make reasonable estimates on daily power volumes for residential, commercial, industrial and other uses. The differences between the current month's estimated amounts and actual (meter-read) amounts are adjusted (true-up) during the next month period.

#### ***Correction of Accounting for Fuel Cost Pass-through Adjustment***

As of July 1, 2011, a new electricity tariff system approved by the Government took effect featuring a fuel cost pass-through adjustment (FCPTA). This system is intended to allow us to pass through fluctuations in fuel costs ultimately to customers. The FCPTA amount is determined based on a prior three-month period moving average of international fuel prices and other factors, and such amount is reflected two months later. On July 29, 2011, out of inflationary and other policy considerations, the Government issued a hold-order suspending us from billing or collecting the FCPTA amount from customers.

## **Table of Contents**

Our accounting policy was to recognize unbilled fuel cost adjustments as assets under the IFRS Conceptual Framework when we concluded that it is probable that future economic benefits would flow to us. We had concluded that we controlled a resource as a result of past events from which future economic benefits were expected to flow to us. The Regulation for Electricity Service, which regulates the FCPTA system, provides a legal resource or right to bill where the costs we incur will result in future cash flows. The operation of the FCPTA system creates a right to charge rates in amounts that would permit us to recover the related costs, such amounts being subject to government approval. In addition, we relied on the authority of the Ministry of Trade, Industry and Energy, which regulates and approves the electricity tariff we charge to our customers, including the FCPTA system. As of December 31, 2011, we determined that it was probable that economic benefits associated with the unbilled fuel cost adjustments would be realizable based on the authority of the Ministry of Trade, Industry and Energy in setting and enforcing electricity rates for customers. Therefore, we concluded that as of December 31, 2011 it was probable that our unbilled FCPTA amount would be collected.

We previously recognized revenue and a receivable for the FCPTA amounts subject to the hold order in the amount of Won 357,085 million at December 31, 2011. However, we came to realize that our FCPTA rate regulatory scheme closely resembles a cost-of service scheme, and have therefore determined that the appropriate accounting for the unbilled FCPTA amounts is to reduce cost of sales by the unbilled FCPTA amounts and recognize a related non-financial asset by the same amount, which is more consistent with accounting policies for rate regulated assets of other standard setting bodies. In accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors, we used judgment in developing and applying an accounting policy that results in information that is relevant and reliable. In making that judgment, management considered pronouncements of other standard-setting bodies that use a similar conceptual framework to develop accounting standards, other accounting literature and accepted industry practices. We have concluded that the aforementioned error is immaterial, and corrected the accounting for our unbilled FCPTA amounts in our consolidated financial statements as of and for the year ended December 31, 2011.

During the fourth quarter of 2012, we had further consultations with the Ministry of Trade, Industry and Energy as to the outlook for the lifting the hold-order. Furthermore, on January 11, 2013, the Ministry of Trade, Industry and Energy informed us that the FCPTA system needed to be reassessed in light of other factors such as the prolonged unbilled period since the announcement of the FCPTA system. We have therefore concluded that, in consideration of the prolonged unbilled period and recent consultations with, and information from, the Ministry, we would not be able to bill and collect the unbilled FCPTA amounts for the foreseeable future. As a result, we wrote off the entire unbilled FCPTA amounts of Won 1,877 billion recognized through December 31, 2012, including the unbilled FCPTA amounts as of December 31, 2011. As a result, there was no FCPTA amount remaining in the consolidated statement of financial position as of December 31, 2013.

On May 21, 2014, for inflationary and other various policy considerations, the Ministry of Trade, Industry and Energy abolished the FCPTA system altogether. As a result, there was no FCPTA amount remaining in the consolidated statement of financial position as of December 31, 2014.

As for the accumulated and unbilled FCPTA amount, on the next occasion on which the Government raises the electricity tariff rates, we plan to consult with the Government and consider whether to reflect such FCPTA amount in our consolidated financial statements by adjusting the total electricity cost.

## ***Derivative Instruments***

We recognize rights and obligations arising from derivative instruments as assets and liabilities, which are stated at fair value. The gains and losses that result from the change in the fair value of derivative instruments are reported in current earnings. However, for derivative instruments designated as hedging the exposure of variable cash flows, the effective portions of the gains or losses on the hedging instruments are recorded as accumulated other comprehensive income (loss) and credited or charged to operations at the time the hedged transactions affect earnings, and the ineffective portions of the gains or losses are credited or charged immediately to operations.

## **Table of Contents**

Significant management judgment is involved in determining the fair value of estimated derivative instruments. The estimates and assumptions used by our management to determine fair value can be impacted by many factors, such as the estimated discount factor derived from observable market data, credit risk of the counterparty and the estimated cash flow based on settlement period, interest convention, and other contract information of the derivative instruments.

As of December 31, 2012, we had Won 376 billion of net amounts as assets, and as of December 31, 2013, we had Won 614 billion of net amounts as liabilities. As of December 31, 2014, we had Won 168 billion of net amounts as liabilities. Changes in the estimated discount factor or cash flow, or changes in the assumptions and judgments by management underlying these estimates, may cause material revisions to the estimated total gain or loss effect of derivative instruments, which could have a material effect on the recorded asset or liability.

### ***Decommissioning Costs***

We recognize the fair value of estimated decommissioning costs as a liability in the period in which we incur a legal obligation associated with retirement of long-lived assets that result from acquisition, construction, development and/or normal use of the assets. We also recognize a corresponding asset that is depreciated over the life of the asset. Accretion expense consists of period-to-period changes in the liability for decommissioning costs resulting from the passage of time and revisions to either the timing or the amount of the original estimate of undiscounted cash flows. Depreciation and accretion expenses are included in the cost of electric power in the accompanying consolidated statements of comprehensive income.

Significant management judgment is involved in determining the fair value of estimated decommissioning costs. The estimates and assumptions used by our management to determine fair value can be impacted by many factors, such as the estimated decommissioning costs based on engineering studies commissioned and approved by the Korean government, and changes in assumed dates of decommissioning, inflation rate, discount rate, decommissioning technology, regulation and the general economy.

As of December 31, 2012, 2013 and 2014, we had a liability for decommissioning costs in the amounts of Won 11,913 billion, Won 12,348 billion and Won 13,234 billion, respectively. Changes in the estimated costs or timing of decommissioning, or changes in the assumptions and judgments by management underlying these estimates, may cause material revisions to the estimated total cost to decommission these facilities, which could have a material effect on the recorded liability. We used discount rates of 4.49%, 4.49% and 4.49% and inflation rates of 2.93%, 2.93% and 2.93% when calculating the decommissioning cost liability recorded as of December 31, 2012, 2013 and 2014, respectively. In addition, the following is a sensitivity analysis of the potential impact on decommissioning costs from a 0.10% increase or decrease in each of the inflation rate and the discount rate, assuming that all other aforementioned assumptions remain constant:

|  | Sensitivity to inflation rate |        | Sensitivity to discount rate |        |
|--|-------------------------------|--------|------------------------------|--------|
|  | +0.10%                        | -0.10% | +0.10%                       | -0.10% |
|  | (in billions of Won)          |        |                              |        |
| Increase (decrease) of liability for decommissioning costs | 304                           | 295    | 271                          | 279    |

See Notes 26 and 45 of the notes to our consolidated financial statements included in this annual report for further related information.

### ***Provision for Decontamination of Transformer***

Under the Persistent Organic Pollutants Management Act which was enacted in 2007, we are required to remove the toxin polychlorinated biphenyls ( PCBs ) from our transformers insulating oil by 2015. We are also required to inspect the PCB levels in our transformers and dispose of any PCBs in excess of established safety standards.



## **Table of Contents**

As of December 31, 2012, 2013 and 2014, we had liabilities of Won 220 billion, Won 220 billion and Won 200 billion, respectively, for inspection and disposal costs related to the decontamination of existing transformers.

The estimates and assumptions used by our management to determine fair value can be affected by many factors, such as the estimated costs of inspection and disposal, inflation rate, discount rate, regulations and the general economy.

Changes in the estimated costs or changes in the assumptions and judgments underlying these estimates may cause material revisions to the estimated total costs, which could have a material effect on our recorded liability. When calculating the provision for the decontamination of our transformers, we used a discount rate of 4.92% and an inflation rate of 3.10% as of December 31, 2012, a discount rate of 4.92% and an inflation rate of 3.10% as of December 31, 2013 and a discount rate of 3.78% and an inflation rate of 2.79% as of December 31, 2014.

### ***Deferred Tax Assets***

In assessing the realizability of the deferred tax assets, our management considers whether it is probable that a portion or all of the deferred tax assets will not be realized. The ultimate realization of our deferred tax assets is dependent on whether we are able to generate future taxable income in specific tax jurisdictions during the periods in which temporary differences become deductible. Our management has scheduled the expected future reversals of the temporary differences and projected future taxable income in making this assessment. Based on these factors, our management believes that it is probable that we will realize the benefits of these temporary differences as of December 31, 2014. However, the amount of deferred tax assets that is realized may be different if we do not realize estimated future taxable income during the carry forward periods as originally expected.

In relation to the deferred tax assets recognized for tax loss, future taxable income is estimated considering the followings: (i) five-year mid-to long-term financial forecasts of earnings before tax approved by management and submitted to the Ministry of Strategy and Finance, and (ii) average amount of tax adjustments for the recent three years. Based on the estimated amount and timing of future taxable profit, our management determined that all cumulative tax losses as of December 31, 2014 could be recognized as an asset.

For tax credits carried forward, similar to deferred tax assets recognized for tax loss, our management estimates the probability timing of future taxable profits in determining the probability of utilization of tax credits carried forward. In addition, our management considers the possible carry forward period and available tax credit or deductible temporary differences within the tax laws of each country in which the tax credits originated.

Similarly, our management also estimates the probability of utilization of temporary differences considering the probability of generating future taxable profits in the periods that the deductible temporary differences reverse. We do not recognize deferred tax assets for certain temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures considering future dividends or disposals.

We recognize deferred tax assets and liabilities based on the differences between the financial statement carrying amounts and the tax bases of assets and liabilities at each separate taxpaying entity. Under IFRS, a deferred tax asset is recognized for temporary difference that will result in deductible amounts in future years and for carry forwards. If, based on the weight of available evidence, it is more likely that some or the entire portion of the deferred tax asset will not be realized, that portion is deducted directly from the deferred tax asset.

We believe that the accounting estimate related to the realizability of deferred tax asset is a critical accounting estimate because: (i) it requires management to make assessments about the timing of future events, including the probability of expected future taxable income and available tax planning opportunities, and (ii) the difference between these assessments and the actual performance could have a material impact on the realization of tax benefits as reported in our results of operations. Management's assumptions require significant judgment because actual performance has fluctuated in the past and may continue to do so.

**Table of Contents*****Useful Lives of Property, Plant and Equipment***

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Economic useful life is the duration of time the asset is expected to be productively employed by us, which may be less than its physical life. Management's assumptions on the following factors, among others, affect the determination of estimated economic useful life: wear and tear, obsolescence, technical standards, changes in market demand and technological changes.

The estimated useful lives of our property, plant and equipment are as follows:

|                        | Useful lives (years) |
|------------------------|----------------------|
| Buildings              | 8 ~ 40               |
| Structures             | 8 ~ 50               |
| Machinery              | 6 ~ 32               |
| Vehicles               | 4                    |
| Loaded heavy water     | 30                   |
| Asset retirement costs | 18, 30, 40           |
| Finance lease assets   | 20                   |
| Ships                  | 9                    |
| Others                 | 4 ~ 9                |

A component that is significant compared to the total cost of property, plant and equipment is depreciated over its separate useful life. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. In 2012, we changed the estimated useful lives of certain buildings. As a result of the change in accounting estimate, depreciation expenses decreased by Won 57,378 million and Won 31,979 million in 2013 and 2014, respectively. In addition, we estimate that depreciation expense will decrease by Won 22,158 million in 2015.

***Impairment of Long-lived Assets***

At the end of each reporting period, we review the carrying amounts of tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset, we estimate the recoverable amount of the cash-generating unit to which the asset belongs. Where a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual cash-generating units, or otherwise they are allocated to the smallest group of cash-generating units for which a reasonable and consistent allocation basis can be identified.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired. Recoverable amount is the higher of fair value less costs to sell or value in use. In assessing value in use, the estimated future cash flows are discounted to their present values using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

## **Table of Contents**

If the recoverable amount of an asset (or a cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (or the cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognized immediately in income or loss, unless the relevant asset is carried at a revalued amount, in which case the impairment loss is treated as a revaluation decrease.

In the event that an impairment loss subsequently reverses, the carrying amount of the asset (or a cash-generating unit) is increased to the revised estimate of its recoverable amount, ensuring that such carrying amount increase does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset (or the cash-generating unit) in prior years. A reversal of an impairment loss is recognized immediately in income or loss, unless the relevant asset is carried at a revalued amount, in which case the reversal of the impairment loss is treated as a revaluation increase.

The assessment of impairment is a critical accounting estimate, because significant management judgment is required to determine: (i) whether an indicator of impairment has occurred, (ii) how assets should be grouped, and (iii) the recoverable amount of the asset or asset group in the case of an impairment. If management's assumptions about these assets change as a result of events or circumstances, and management believes the assets may have declined in value, we may record impairment charges, resulting in lower profits. Our management uses its best estimate in making these evaluations and considers various factors, including the future prices of energy, fuel costs and other operating costs. However, actual market prices and operating costs could vary from those used in the impairment evaluations, and the impact of such variations could be material. We performed impairment tests on individual asset of Garorim Tidal Power Plant Co., Ltd., a 49% owned subsidiary. Accordingly, we recognized the amount by which the carrying amount exceeds its recoverable amount as impairment loss on our consolidated statements of comprehensive income. See Note 18 of the notes to our consolidated financial statements included in this annual report for further information.

### ***Accrual for Loss Contingencies for Legal Claims***

We are involved in legal proceedings regarding matters arising in the ordinary course of business. In relation to these matters, as of December 31, 2014, we were engaged in 652 lawsuits as a defendant and 157 lawsuits as a plaintiff. The total amount claimed against us was Won 563 billion and the total amount claimed by us was Won 314 billion as of December 31, 2014. As of December 31, 2014, our provisions for these legal claims amounted to Won 200 billion. These provisions are adjusted when events or circumstances cause these judgments or estimates to change.

Actual amounts of our liabilities as determined upon settlement of legal claims or by final decisions of the courts in relation thereto may be substantially different from the amounts of provisions recognized or contingent liabilities disclosed. If the actual amounts are higher than the amounts of related provisions, the resulting additional liabilities would adversely impact our results of operations, financial condition and cash flows.

### **Consolidated Results of Operations**

#### ***2014 Compared to 2013***

In 2014, our consolidated sales, which is principally derived from the sale of electric power, increased by 6.3% to Won 57,123 billion from Won 53,713 billion in 2013, reflecting primarily a 4.7% increase in our average electricity tariff rates in 2014 compared to 2013 and a 0.58% increase in the volume of electricity sold from 474,849 gigawatt hours in 2013 to 477,592 gigawatt hours in 2014. For a discussion of the increase in our electricity tariff rates which are regulated by the Government, see Item 4B. Business Overview Sales and Customers Electricity Rates. The overall increase in the volume of electricity sold was primarily attributable to a 2.7% increase in the volume of electricity sold to the industrial sector, which represents the largest segment of electricity consumption in Korea, from 265,373 gigawatt hours in 2013 to 272,552 gigawatt hours in 2014, which was partially offset by a 1.4% decrease in the volume of electricity sold to the commercial sector from 102,196 gigawatt hours in 2013 to 100,761 gigawatt hours in 2014 and a 2.1% decrease in the volume of

## **Table of Contents**

electricity sold to the residential sector from 65,815 gigawatt hours in 2013 to 64,457 gigawatt hours in 2014. The increase in the volume of electricity sold to the industrial sector was primarily due to the general increase in demand for electricity in this sector in Korea largely as a result of continued export-led growth of the Korean economy, which involved an increased industrial output and greater capacity utilization in industrial plants. The decreases in the volume of electricity sold to the commercial and residential sectors were largely due to weather conditions, including cooler summer and warmer winter in 2014 compared to 2013.

Our consolidated cost of sales, which is principally derived from the costs related to the purchase of fuels for generation of electricity and to a lesser extent, from the purchase of power from independent power producers, depreciation and salaries, decreased by 1.6% to Won 49,763 billion in 2014 from Won 50,596 billion in 2013, primarily due to a 14.9% decrease in fuel costs, which was partially offset by a 11.2% increase in purchased power, a 6.8% increase in depreciation, a 2.0% increase in salaries and a 18.2% increase in other cost of sales.

Fuel costs, which accounted for 41.4% and 47.8% of our consolidated cost of sales in 2014 and 2013, respectively, decreased by 14.9% to Won 20,595 billion in 2014 from Won 24,200 billion in 2013 largely due to a 13.7% decrease in unit fuel cost mainly resulting from the general decline in international market prices for our main fuel types, as well as an increased use of less expensive fuel sources such as nuclear power due to the resumption of three nuclear units in 2014. Purchased power, which accounted for 25.3% and 22.4% of our cost of sales in 2014 and 2013, respectively, increased by 11.2% to Won 12,602 billion in 2014 from Won 11,329 billion in 2013, primarily due to a 16.1% increase in the volume of power purchased from independent power producers (who generate electricity primarily through LNG-fired power plants), from 67,676 gigawatt hours in 2013 to 78,551 gigawatt hours in 2014, primarily due to an increase in installed generation capacity (such as from the Yulchon combined cycle unit) of independent power producers. Depreciation expense, excluding Won 957 billion and Won 825 billion in 2014 and in 2013, respectively arising from amortization of nuclear fuel charged to fuel costs aforementioned, increased by 5.6% to Won 6,763 billion in 2014 from Won 6,403 billion in 2013 primarily due to an increase of additional property, plant and equipment related to the construction of new generation facilities pursuant to our capital investment program.

Salaries recorded as cost of sales increased by 2.0% to Won 2,633 billion in 2014 from Won 2,583 billion in 2013 primarily due to an increase by base salary in tandem with the inflation rate. Other cost of sales increased by 17.9% to Won 7,169 billion in 2014 from Won 6,080 billion in 2013 primarily due to an increase in costs related to our nuclear complex construction projects in the United Arab Emirates.

As a cumulative result of the foregoing factors, our consolidated gross profit increased by 136.1% to Won 7,360 billion in 2014 from Won 3,117 billion in 2013, and our consolidated gross profit margin increased significantly to 12.9% in 2014 from 5.8% in 2013. The increases in our consolidated gross profit and consolidated gross profit margin were largely attributable to the 6.3% increase in our consolidated sales (which were primarily due to the 4.7% overall increase in the average electricity tariff rates) and the 1.7% decrease in our consolidated cost of sales (which was mainly due to the 14.9% decrease in fuel costs partially offset by the 11.2% increase in purchased power).

Our consolidated selling and administrative expenses slightly increased by 0.1% to Won 1,924 billion in 2014 from Won 1,923 billion in 2013, largely due to an increase in commission, which was substantially offset by a decrease in salaries recorded as selling and administrative expenses and a decrease in ordinary development expense.

Our consolidated other income, net of expenses, increased by 6.4% to Won 666 billion in 2014 from Won 626 billion in 2013, mainly as a result of an increase in compensation and reparation revenue and an increase in revenue related to the transfer of assets from customers, which were partially offset by a decrease in gains on electricity infrastructure development fund.

## **Table of Contents**

Our consolidated net other gains decreased by 17.1% to Won 107 billion in 2014 from Won 129 billion in 2013, primarily as a result of an increase of impairment loss on property, plant and equipment. Impairment loss on property, plant and equipment increased largely due to impairment related to Garorim Tidal Power Plant Co., Ltd., a 49% owned subsidiary.

As a cumulative result of the foregoing factors, our consolidated operating profit increased more than threefold to Won 6,209 billion in 2014 from Won 1,948 billion in 2013, and our consolidated operating income margin increased significantly to 10.9% in 2014 from 3.6% in 2013. These increases were mainly due to the 6.3% increase in our consolidated sales and the 1.6% decrease in our consolidated cost of sales.

Our consolidated finance expenses, net, decreased by 2.0% to Won 2,255 billion in 2014 from Won 2,302 billion in 2013, primarily as a result of net gain on valuation of derivatives in 2014 compared to net loss in 2013 and net gain on foreign currency transaction in 2014 compared to net loss in 2013 which more than offset recording net losses in foreign currency translation in 2014 compared to net gains in 2013, which were largely as a result of the depreciation of Korean Won against the U.S. dollar in 2014.

We had consolidated profit of associates or joint ventures using equity method of Won 275 billion in 2014, compared to consolidated loss of associates or joint ventures using equity method of Won 42 billion in 2013, primarily as a result of an increase in profit of Korea Gas Corporation.

As a cumulative result of the foregoing factors, our consolidated income before income taxes increased significantly to Won 4,229 billion in 2014 from Won 396 billion in 2013.

Our income tax expense increased significantly to Won 1,430 billion in 2014 from Won 571 billion in 2013, largely as a result of an increase in our profit before income taxes, which was partially offset by an increase in adjustments related to unrealized deferred tax assets. See Note 41 to our financial statements included in this annual report. Our effective tax expense (benefit) rate, which represents tax expense (benefit) as a percentage of profit (loss) before income taxes, decreased from 144.0% in 2013 to 33.8% in 2014 primarily due to the effect of recognition of deferred tax assets in relation to amounts received from customers regarding installation and use of facilities required for electricity supply in 2013. In 2014, the effective tax rate was higher than the statutory rate of 24.2%, primarily due to the recognition of deferred tax liabilities regarding our investments in subsidiaries, associates and joint ventures primarily in connection with taxable temporary differences related to undistributed earnings.

As a cumulative result of the above factors, our consolidated profit increased significantly to Won 2,799 billion in 2014 from Won 174 billion in 2013. Our consolidated net profit margin also increased significantly to 4.9% in 2014 from 0.3% in 2013. Our profit attributable to the owners of the company was Won 2,687 billion in 2014 from Won 60 billion attributable to the owners of the company in 2013.

We had consolidated other comprehensive loss of Won 358 billion in 2014 compared to consolidated other comprehensive income of Won 186 billion in 2013, largely as a result of decreased actuarial gains on retirement benefit obligations, net of tax (related to changes in future salary increases), valuation gains on available-for-sale securities (primarily Korea District Heating Corp.) and gains on valuation of derivatives using cash flow hedge accounting, share in other comprehensive income of associates and joint ventures, net of tax.

As a cumulative result of the above factors, our consolidated total comprehensive income increased significantly Won 2,441 billion in 2014 from Won 360 billion in 2013.

### ***2013 Compared to 2012***

In 2013, our consolidated sales, which is principally derived from the sale of electric power, increased by 9.3% to Won 53,713 billion from Won 49,121 billion in 2012, reflecting primarily a 7.3% overall increase in our

## **Table of Contents**

average electricity tariff rates in 2013 (as a result of a 4.0% increase effective January 14, 2013 and a 5.4% increase effective November 21, 2013) and a 1.8% increase in the volume of electricity sold from 466,593 gigawatt hours in 2012 to 474,849 gigawatt hours in 2013. The overall increase in the volume of electricity sold was primarily attributable to a 2.8% increase in the volume of electricity sold to the industrial sector, which represents the largest segment of electricity consumption in Korea, from 258,102 gigawatt hours in 2012 to 265,373 gigawatt hours in 2013, and, to a lesser extent, a 0.6% increase in the volume of electricity sold to the commercial sector from 101,593 gigawatt hours in 2012 to 102,196 gigawatt hours in 2013 and a 0.5% increase in the volume of electricity sold to the residential sector, from 65,484 gigawatt hours in 2012 to 65,815 gigawatt hours in 2013. The increase in the volume of electricity sold to the industrial sector was primarily due to the general increase in demand for electricity in this sector in Korea largely as a result of continued export-led growth of the Korean economy, which involved an increased industrial output and greater capacity utilization in industrial plants. For a discussion of the increase in our electricity tariff rates, see Item 4B. Business Overview Sales and Customers Electricity Rates.

Our consolidated cost of sales, which is principally derived from the costs related to the purchase of fuels for generation of electricity and to a lesser extent, from the purchase of power from independent power producers, depreciation and salaries, increased by 4.4% to Won 50,596 billion in 2013 from Won 48,459 billion in 2012, primarily due to a 1.6% increase in fuel costs, a 15.6% increase in purchased power and a 5.6% increase in depreciation, which were partially offset by a 3.0% decrease in salaries and a 1.4% decrease in other cost of sales.

Fuel costs, which accounted for 47.8% and 49.2% of our consolidated cost of sales in 2013 and 2012, respectively, increased to Won 24,200 billion in 2013 from Won 23,823 billion in 2012 largely due to an increased use of more expensive fuel sources such as LNG due to the extended suspension of three of our nuclear units related to quality assurance issues, which was partially offset by a 2.6% decrease in unit fuel cost mainly resulting from the general decline in international market prices for our main fuel types. Purchased power, which accounted for 22.4% and 20.2% of our cost of sales in 2013 and 2012, respectively, increased by 15.6% to Won 11,329 billion in 2013 from Won 9,801 billion in 2012, primarily due to a 12.1% increase in the volume of power purchased from independent power producers (who generate electricity primarily through LNG-fired power plants), from 60,392 gigawatt hours in 2012 to 67,676 gigawatt hours in 2013, primarily to compensate for the shortfall in the supply of electricity due to the higher than anticipated rise in demand for electricity in 2013 as well as extended suspension of three of our nuclear units related to quality assurance issues. Depreciation expense, excluding Won 825 billion and Won 771 billion in 2013 and in 2012, respectively arising from amortization of nuclear fuel charged to fuel costs aforementioned, increased by 5.4% to Won 6,403 billion in 2013 from Won 6,075 billion in 2012 primarily due to an increase of additional property, plant and equipment related to the construction of new generation facilities pursuant to our capital investment program.

Salaries recorded as cost of sales decreased by 3.0% to Won 2,583 billion in 2013 from Won 2,662 billion in 2012 primarily due to a decrease in performance pay. Other remaining items of our cost of sales decreased to Won 6,080 billion in 2013 from Won 6,098 billion in 2012 primarily due to a decrease in provision for decommissioning costs of our nuclear facilities.

As a cumulative result of the foregoing factors, our consolidated gross profit increased significantly to Won 3,117 billion in 2013 from Won 661 billion in 2012, and our consolidated gross profit margin increased significantly to 5.8% in 2013 from 1.3% in 2012. The increases in our consolidated gross profit and consolidated gross profit margin were largely attributable to the 9.3% increase in our consolidated sales (which were due to the 7.3% overall increase in the average electricity tariff rates and, to a lesser extent, the 1.8% increase in the volume of electricity sold), which was partially offset by the 4.4% increase in our consolidated cost of sales (which was mainly due to the 15.6% increase in purchased power and, to a lesser extent, the 1.6% increase in fuel costs and the 5.6% increase in depreciation expense).

Our consolidated selling and administrative expenses increased by 8.0% to Won 1,923 billion in 2013 from Won 1,780 billion in 2012, primarily as a result of increases in depreciation and commissions, which increased by Won 22 billion and Won 67 billion, respectively.

## **Table of Contents**

Our consolidated other income, net of expenses, increased by 4.2% to Won 626 billion in 2013 from Won 600 billion in 2012, mainly as a result of an increase in insurance compensations and an increase in contributions from the Electric Power Industry Basis Fund, which was partially offset by an increase in donations for educational and other purposes.

We had consolidated other gains, net, of Won 129 billion in 2013 compared to consolidated other losses, net, of Won 1,782 billion in 2012, primarily as a result of a write-off in 2012 of our accumulated but unbilled fuel cost-based adjustment amounts. (See Item 5A. Operating Results Critical Accounting Policies Correction of Accounting for Fuel Cost Pass-through Adjustment ). Other profit is mainly composed of gain or loss from disposal of assets and inventories, among others.

As a cumulative result of the foregoing factors, we had consolidated operating profit of Won 1,948 billion in 2013 compared to consolidated operating loss of Won 2,300 billion in 2012, and our consolidated operating profit margin was 3.6% in 2013 compared to an operating loss margin of 4.7% in 2012. These turnarounds were mainly due to the 9.3% increase in our consolidated sales, which was partially offset by the 4.4% increase in our consolidated cost of sales.

Our consolidated finance expenses, net of income, increased by 18.7% to Won 2,302 billion in 2013 from Won 1,940 billion in 2012, primarily as a result of a decrease in net gains on foreign currency translation, and an increase in net interest expense, which was partially offset by a decrease in net losses on valuation of derivatives.

We had consolidated loss of associates or joint ventures using equity method of Won 42 billion in 2013, compared to consolidated profit of associates or joint ventures using equity method of Won 177 billion in 2012, primarily as a result of decreased profits from Korea Gas Corporation mainly due to an impairment loss on intangible assets.

As a cumulative result of the foregoing factors, our consolidated loss before income taxes significantly decreased to Won 396 billion in 2013 from Won 4,063 billion in 2012.

Our income tax benefit decreased by 42.1% to Won 571 billion in 2013 from Won 985 billion in 2012, largely as a result of a decrease in our loss before income taxes, which was partially offset by an increase in adjustments related to unrealized deferred tax assets. See Note 41 to our financial statements included in this annual report. Our effective tax benefit rate, which represents tax benefit as a percentage of loss before income taxes, increased from 24.3% in 2012 to 144.0% in 2013 primarily due to the effect of recognition of deferred tax assets in relation to amounts received from customers regarding installation and use of facilities required for electricity supply.

As a cumulative result of the above factors, we had consolidated profit of Won 174 billion in 2013, compared to consolidated loss of Won 3,078 billion in 2012. Our consolidated net profit margin was 0.3% in 2013 compared to consolidated net loss margin of 6.3% in 2012. Our profit attributable to the owners of the company was Won 60 billion in 2013, compared to loss of Won 3,167 billion attributable to the owners of the company in 2012.

We had consolidated other comprehensive income of Won 186 billion in 2013 compared to consolidated other comprehensive loss of Won 322 billion in 2012, largely as a result of positive changes in actuarial gains or losses on retirement benefit obligations, net of tax (related to changes in future salary increases), gains on valuation of derivatives using cash flow hedge accounting, share in other comprehensive income of associates and joint ventures, net of tax. Furthermore, there were valuation gains on available-for-sale securities of LG Uplus Corp. and Korea District Heating Corp. in 2013.

As a cumulative result of the above factors, we had consolidated total comprehensive income of Won 360 billion in 2013, compared to consolidated total comprehensive loss of Won 3,400 billion in 2012.

## **Table of Contents**

### **Inflation**

The effects of inflation in Korea on our financial condition and results of operations are reflected primarily in construction costs as well as in labor expenses. Inflation in Korea has not had a significant impact on our results of operations in recent years. It is possible that inflation in the future may have an adverse effect on our financial condition or results of operations.

### **Segment Results**

We operate the following business segments: transmission and distribution, nuclear power generation and thermal power generation and all others. The transmission and distribution segment, which is operated by KEPCO, the parent company, consists of operations related to the transmission, distribution and sale to end-users of electricity purchased from our generation subsidiaries as well as from independent power producers. The power generation segment, which is operated by our one nuclear generation subsidiary and five thermal generation subsidiaries, consists of operations related to the generation of electricity sold to KEPCO through the Korea Power Exchange. The transmission and distribution segment and the power generation segment together represent our electricity business. The remainder of our operation is categorized as all others. The all other segment consists primarily of operations related to the plant maintenance and engineering service, information services, and sales of nuclear fuel, communication line leasing, overseas businesses and others. In 2012, 2013 and 2014 the unaffiliated revenues of the power generation segment (representing the six generation subsidiaries) and all our other revenues in the aggregate amounted to only 2.5%, 2.6% and 2.8% of our consolidated revenues, respectively, and the results of operations for our business segments substantially mirror our consolidated results of operations. For further information, see Note 4 of the notes to our consolidated financial statements included in this annual report.

### **Item 5B. Liquidity and Capital Resources**

*We expect that our capital requirements, capital resources and liquidity position may change in the course of implementing the Restructuring Plan. See Item 4B. Business Overview Restructuring of the Electric Power Industry in Korea and Item 3D. Risk Factors Risks Relating to KEPCO The Government may adopt policy measures to substantially restructure the Korean electric power industry or our operational structure, which may have a material adverse effect on our business, operations and profitability.*

### **Capital Requirements**

We anticipate that the following represent the major sources of our capital requirements in the short-term to intermediate future:

capital expenditures pursuant to our capital investment program;

working capital requirements, the largest component of which is fuel purchases;

payment of principal and interest on our existing debt; and

overseas investments.

In addition, if there were to occur unanticipated material changes to the Restructuring Plan, the Basic Plan or other major policy initiatives of the Government relating to the electric power industry, or natural disasters, such developments may require a significant amount of additional capital requirements.

### **Capital Expenditures**

We anticipate that capital expenditures will be the most significant use of our funds for the next several years. Our capital expenditures relate primarily to the construction of new generation units, maintenance of existing generation units and expansion of our transmission and distribution systems. Our capital expenditures





**Table of Contents**

generally follow budgets established under the Basic Plan Relating to the Long-Term Supply and Demand of Electricity, which contains projections relating to the supply and demand of electricity of Korea based on which we plan the construction of additional generation units and transmission systems. See Item 4B. *Business Overview* *Capital Investment Program* for a further description of our capital investment program.

Our total capital expenditures for the construction of generation, transmission and distribution facilities were Won 12,748 billion, Won 15,831 billion and Won 16,629 billion in 2012, 2013 and 2014, respectively, and under our current budgets, are estimated to be approximately Won 17,269 billion, Won 14,917 billion and Won 14,873 billion in 2015, 2016 and 2017, respectively. We plan to finance our capital expenditures primarily through issuance of securities in the capital markets, borrowings from financial institutions and construction grants.

In order to deal with shortage of fuel and other resources and also to comply with various environmental standards, in 2012 the Government has adopted the Renewable Portfolio Standard program, which replaces the Renewable Portfolio Agreement which was in effect from 2006 to 2011. Under the Renewable Portfolio Standard program, each generation subsidiary is required to generate a specified percentage of total electricity to be generated by such generation subsidiary in a given year in the form of renewable energy, with the target percentage being 2.5% in 2013 and 3.0% in 2014 and incrementally increasing to 10.0% by 2024. The current budgeted amount of capital expenditure for implementation of the Renewable Portfolio Standard program as currently planned for the period from 2014 to 2024 is approximately Won 14.8 trillion. We expect that such additional capital expenditure will be covered by a corresponding increase in electricity tariff. However, there is no assurance that the Government will in fact raise the electricity tariff to a level sufficient to fully cover such additional capital expenditures or at all. See Item 4B.

*Business Overview* *Environmental Programs* for a further description of the Renewable Portfolio Standard and our related past capital expenditures.

***Fuel Purchases***

We require significant funds to finance our operations, principally in relation to the purchase of fuels by our generation subsidiaries for generation of electricity. In 2012, 2013 and 2014, fuel costs accounted for 48.5%, 45.1% and 36.1% of our sales and 49.2%, 47.8% and 41.4% of our cost of sales, respectively. We plan to fund our fuel purchases primarily with net operating cash, although in cases of rapid increases in fuel prices as is the case from time to time, we may also rely on borrowings from financial institutions and issuance of debt securities in the capital markets.

***Repayment of Existing Debt***

Payments of principal and interest on indebtedness will require considerable resources. The table below sets forth the scheduled maturities of the outstanding interest-paying debt (excluding issue discounts and premium) before accounting for swap transactions of us and our six wholly-owned generation subsidiaries as of December 31, 2014 for each year from 2015 to 2019 and thereafter. As of December 31, 2014, such debt represented 97.7% of our outstanding debt on a consolidated basis.

| Year ended<br>December 31 | Local Currency<br>Borrowings | Foreign Currency<br>Borrowings | Domestic<br>Debentures<br>(in billions of Won) | Foreign<br>Debentures | Total  |
|---------------------------|------------------------------|--------------------------------|--|-----------------------|--------|
| 2015                      | 1,034                        | 13                             | 4,400  | 1,595                 | 7,042  |
| 2016                      | 527                          |                                | 5,630  | 693                   | 6,850  |
| 2017                      | 561                          |                                | 5,950  | 1,999                 | 8,510  |
| 2018                      | 649                          |                                | 4,930  | 2,809                 | 8,388  |
| 2019                      | 312                          |                                | 4,290  | 1,432                 | 6,034  |
| Thereafter                | 72                           | 17                             | 21,350   | 3,261                 | 24,700 |
| Total                     | 3,155                        | 30                             | 46,550   | 11,789                | 61,524 |

## **Table of Contents**

We and our six wholly-owned generation subsidiaries incurred interest charges (including capitalized interest) in relation to our interest-paying debt of Won 2,927 billion, Won 3,084 billion and Won 3,121 billion in 2012, 2013 and 2014, respectively. We anticipate that interest charges will increase in future years because of, among other factors, anticipated increases in our long-term debt. See **Capital Resources** below. The weighted average rates of interest on our and our six wholly-owned generation subsidiaries' debt were 4.65%, 4.11% and 3.93% in 2012, 2013 and 2014, respectively.

### ***Overseas Investments***

As part of our revenue diversification and fuel procurement strategy, we plan to continue to make overseas investments on a selective basis, which will be funded primarily through foreign currency-denominated borrowings and debt securities issuances as well as net operating cash from such projects.

### **Capital Resources**

We have traditionally met our working capital and other capital requirements primarily from net cash provided by operating activities, issuance of debt securities and borrowings from financial institutions. Net cash provided by operating activities is primarily a function of electricity sales and fuel purchases and is also affected by increases and decreases in trade receivables, trade payables and inventory related to electricity sales and fuel purchases. Net cash provided by operating activities was Won 3,917 billion, Won 6,884 billion and Won 12,046 billion in 2012, 2013 and 2014, respectively.

As of December 31, 2012, 2013 and 2014, our long-term debt (excluding the current portion but including issue discounts and premium), before accounting for swap transactions, amounted to Won 45,525 billion, Won 52,801 billion and Won 55,720 billion, respectively, representing 89.1%, 102.6% and 101.6% of shareholders' equity, respectively, as of such dates. As of December 31, 2012, 2013 and 2014, the current portions of our long-term debt were Won 7,005 billion, Won 7,508 billion and Won 6,446 billion, respectively. As of December 31, 2012, 2013 and 2014, our short-term borrowings amounted to Won 689 billion, Won 579 billion and Won 659 billion, respectively. See Note 23 of the notes to our consolidated financial statements included in this annual report. Total long-term debt (including the current portion but excluding issue discounts and premium), before accounting for swap transactions, as of December 31, 2014 was Won 62,300 billion, of which Won 49,518 billion was denominated in Won and an equivalent of Won 12,782 billion was denominated in foreign currencies, primarily U.S. dollars. In addition, we, KHNP and KOWEPO also maintain U.S. dollar-denominated global medium-term note programs in the aggregate amount of US\$10 billion, of which approximately US\$3.3 billion remains currently available for future drawdown. KOSEP also maintains an A\$2 billion Australian dollar medium-term note program, of which approximately A\$1.7 billion remains current available for future drawdown.

Subject to the implementation of our capital expenditure plan and the sale of our interests in our generation subsidiaries and other subsidiaries, our long-term debt may increase or decrease in future years. Until recently, a significant portion of our long-term debt was raised through foreign currency-denominated borrowings. Our foreign currency-denominated long-term debt (including the current portion but excluding issue discounts and premium), before accounting for swap transactions, amounted to Won 12,648 billion and Won 12,782 billion as of December 31, 2013 and 2014, respectively.

Our ability to incur long-term debt in the future is subject to a variety of factors, many of which are beyond our control, including, the implementation of the Restructuring Plan and the amount of capital that other Korean entities may seek to raise in capital markets. Economic, political and other conditions in Korea may also affect investor demand for our securities and those of other Korean entities. In addition, our ability to incur debt will also be affected by the Government's policies relating to foreign currency borrowings, the liquidity of the Korean capital markets and our operating results and financial condition. In case of adverse developments in Korea, the price at which such financing may be available may not be acceptable to us.

## **Table of Contents**

We incur our short-term borrowings primarily through commercial papers sold to domestic financial institutions. We have not had, and we do not expect to have, any material difficulties in obtaining short-term borrowings. In addition, in order to prepare for potential liquidity shortage, we maintain several credit facilities with domestic financial institutions amounting to Won 2,655 billion and US\$5,181 million, the full amount of which was available as of December 31, 2014.

We may raise capital from time to time through the issuance of equity securities. However, there are certain restrictions on our ability to issue equity, including limitations on shareholdings by foreigners. In addition, without changes in the existing KEPCO Act which requires that the Government, directly or pursuant to the Korea Development Bank Act, through Korea Development Bank, own at least 51% of our capital stock, it may be difficult or impossible for us to undertake any equity financing other than sales of treasury stock without the participation of the Government. Even if we are able to conduct equity financing with the participation of the Government, prevailing market conditions may be such that we may not be able to conduct equity financing on terms that are commercially acceptable to us. See Item 3D. Risk Factors Risks Relating to Korea and the Global Economy.

Our total shareholders' equity increased by 6.6% from Won 51,451 billion as of December 31, 2013 to Won 54,825 billion as of December 31, 2014, mainly as a result of an increase in total comprehensive income and a disposal of our treasury shares for an aggregate consideration of Won 856 billion.

### **Liquidity**

Our liquidity is substantially affected by our construction expenditures and fuel purchases. Construction in progress increased by 18.0% from Won 27,334 billion as of December 31, 2013 to Won 32,256 billion as of December 31, 2014. Fuel costs decreased by 14.9% to Won 20,595 billion in 2014 from Won 24,200 billion in 2013.

Our cash flows are also impacted by other factors. Our net cash provided by operating activities increased by 75.0% from Won 6,884 billion in 2013 to Won 12,046 billion in 2014. The increase in net cash provided by operating activities in 2014 compared to 2013 was mainly due to an increase in cash collected from our customers in tandem with increases in electricity tariff rates and the sales volume and in 2014 compared to 2013 and the decrease in the unit cost of coal, LNG and oil in 2014 compared to 2013, which in turn led to a decrease in cash paid for fuels. Our cash flows from investing activities are affected by acquisitions of property, plant and equipment. Our net cash used in investing activities remained largely stable from Won 14,503 billion in 2013 to Won 14,460 billion in 2014. Our cash flows from financing activities are mainly affected by borrowings and issuance of debt securities and repayment thereof, as well as dividends paid. Our net cash used in financing activities decreased by 75.0% from Won 7,933 billion in 2013 to Won 1,985 billion in 2014, largely due to reduced borrowing and increased repayments as part of our debt reduction program.

Due to the capital-intensive nature of our business as well as significant volatility in fuel prices, from time to time we operate with working capital deficits, and we may have substantial working capital deficits in the future. As of December 31, 2012, 2013 and 2014, we had a working capital deficit of Won 4,884 billion, Won 4,945 billion and Won 4,780 billion, respectively. We have traditionally met our working capital and other capital requirements primarily with net cash provided by operating activities, issuance of debt securities, borrowings from financial institutions and construction grants. We also incur short-term borrowings primarily through commercial papers sold to domestic financial institutions. We have not had, and we do not expect to have, any material difficulties in obtaining short-term borrowings. See Capital Resources.

We may face liquidity concerns in the case of sudden and sharp depreciation of the Won against major foreign currencies or depreciation over a sustained period of time. While substantially all of our revenues are denominated in Won, we pay for substantially all of our fuel purchases in foreign currencies and a substantial portion of our long-term debt is denominated in foreign currencies, and payment of principal and interest thereon is made in foreign currencies. In the past, we have incurred foreign currency debt principally due to the limited

## **Table of Contents**

availability and the high cost of Won-denominated financing in Korea. However, in light of the increasing sophistication of the Korean capital markets and the recent increase in Won liquidity in the Korean financial markets, we plan to reduce the portion of our debt which is denominated in foreign currencies although we intend to continue to raise certain amounts of capital through long-term foreign currency debt for purposes of maintaining diversity in our funding sources as well as paying for overseas investments and fuel procurements in foreign currencies. As of December 31, 2014, approximately 20.5% of our long-term debt (including the current portion but excluding issue discounts and premium) before accounting for swap transactions was denominated in currencies other than Won.

We enter into currency swaps and other hedging arrangements with respect to our debt denominated in foreign currencies only to a limited extent due primarily to the limited size of the Korean market for such derivative arrangements. Such instruments include combined currency and interest rate swap agreements, interest rate swaps and foreign exchange agreements. We do not enter into derivative financial instruments in order to hedge market risk resulting from fluctuations in fuel costs. Our policy is to hold or issue derivative financial instruments for hedging purposes only. Our derivative financial instruments are entered into with major financial institutions, thereby minimizing the risk of credit loss. See Note 11 of the notes to our consolidated financial statements.

We did not pay dividends in respect of fiscal year 2012 as we did not have net income for such year. We paid dividends of Won 90 per share in respect of fiscal year 2013. On April 24, 2015, we paid dividends of Won 500 per share in respect of fiscal year 2014.

### **Other**

Our operations are materially affected by the policies and actions of the Government. See Item 4B. Business Overview Regulation.

### **Item 5C. Research and Development, Patents and Licenses, etc.**

#### **Research and Development**

Our research and development program is focused on developing advanced electric power, renewable energy, smart grid and customer-friendly electricity service technologies that will enable us to become a global leader in the energy industry. In order to achieve our corporate vision of becoming a Smart Energy Creator in 2014, we adopted the KEPCO Technology Strategy, which emphasizes enhanced technological convergence and customer service. As part of such strategy, we seek to develop (i) clean and smart energy technology, including in relation to low carbon emission in power generation, (ii) an efficient and intelligent power transmission and distribution grid system, (iii) technology that will enhance efficiency and responsiveness to consumer's electricity consumption patterns, and (iv) improvements in information, communication and technology ( ICT ) for enhanced customer service.

In 2015, consistent with the Government guidelines, we plan to invest approximately 0.54% of our annual revenue in the research and development of green and smart technologies, particularly with a focus on the following 12 areas: integrated gasification combined cycle for synthetic natural gas production, carbon capture and storage, offshore wind power, offshore energy development, high voltage direct currents, super conductor, smart grid, micro grid, demand responsive and energy efficiency applications, power ICT solutions, super-critical CO2 power generation systems and energy storage systems.

Our high-priority green and smart energy projects currently include the following:

acquiring integrated gasified process technology;

establishing high-tech smart grid and micro grid test beds in Jeju Island;

developing highly efficient absorbents for carbon capture;

## **Table of Contents**

commercializing offshore wind power plants;

obtaining high-voltage direct currents technology suitable for domestic operation; and

experimental testing of large-scale electricity storage systems with capacities ranging from four to eight megawatts.

Our research and development activities also focus on the following:

in the thermal power generation sector, reducing the greenhouse effect, enhancing efficiency and reducing cost in power plant construction and operation as well as in our plant maintenance, including through improvements in damage analysis and environment-friendly inspections;

in the renewable energy sector, enhancing efficiency, lowering costs of power generation, identifying new energy sources and exploring new business opportunities;

in the electric power system sector, enhancing the stability and reliability in the operation of our electric power grid as well as enhancing efficiency in electricity distribution, including through build-out of large-sized electricity storage facilities and superconducting transmission cable grids, introducing preventive maintenance measures for substations and developing technologies related to system automation, power utilization and power line communication;

in the customer service sector, developing technologies enabling a greater range of business opportunities and heightened customer service in anticipation of the upcoming rollout of the smart grid system; and

in the technological convergence sector, identifying new business opportunities through convergence among technologies and businesses and maximizing synergy from such convergence in tandem with the promotion of creative economy in Korea as well as globally.

In addition, we cooperate closely with several other electric utility companies and research institutes, both foreign and domestic, on various projects to diversify the scope and scale of our research and development activities.

We invested Won 327 billion, Won 640 billion and Won 638 billion in 2012, 2013 and 2014, respectively, and currently plan to invest Won 861 billion in 2015, on research and development. Our current focus in research and development is primarily in the area of ICT-based smart energy technological development. We had 1,144 employees engaged in research and development activities as of December 31, 2014. As a result of our research, we currently have 2,845 registered patents and 2,244 patent applications outstanding in Korea and abroad. In addition, we plan to establish a management infrastructure that will facilitate the development of high value-added intellectual properties. We also seek opportunities to market our technologies overseas.

### **Item 5D. Trend Information**

Trends, uncertainties and events which could have a material impact on our sales, liquidity and capital resources are discussed above in Item 5A. Operating Results and Item 5B. Liquidity and Capital Resources.

### **Item 5E. Off-Balance Sheet Arrangements**

We had no significant off-balance sheet arrangements as of December 31, 2014.



**Table of Contents**

**Item 5F. Tabular Disclosure of Contractual Obligations**

The following summarizes certain of the contractual obligations of us and our six wholly-owned generation subsidiaries as of December 31, 2014 and the effect such obligations are expected to have on liquidity and cash flow in future periods.

| Contractual Obligations <sup>(1)</sup> | Total  | Payments Due by Period |                                      |              | After 5 years |
|--|--------|------------------------|--------------------------------------|--------------|---------------|
|  |        | Less than<br>1 year    | 1 3<br>years<br>(in billions of Won) | 3 5<br>years |               |
| Long-term debt <sup>(2)</sup>          | 60,891 |                        |                                      |              |               |