Hokkaido Electric Power Group
Outline of the FY 2019 Management Plan

Hokkaido Electric Power Co., Inc.
April 27, 2018
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Note: In this presentation, "FY(Fiscal Year)" refers to the period of April 1 through March 31 of each year. e.g. FY2019 means the period from April 1, 2018 to March 31, 2019.
Outline of the FY 2019 Management Plan

In FY 2019, we will implement an in-house company system for legal unbundling of the transmission and distribution division scheduled for April 2020, and we will start operation of Ishikariwan-Shinko Power Station and the Shin-Kitahon HVDC Link, which will be the core supply equipment for the future. In this way, HEPCO Group is entering a period of major change.

In order to respond steadily to these changes and aim for growth and development as a general energy company, we set out medium-term measures aimed at the three years from FY 2019 to FY 2021 in the "Management Plan FY 2019".

**Items to be focused on**

- Enhancement of income / expenditure / financial base (Revenue expansion · Cost reduction)
- Early restart of Tomari Power Plant and improvement of safety

**Items to be Continued**

- Response to legal separation of power generation / sales division and transmission / distribution division
- Enhance competitiveness of power supply and secure stable supply
- Environmental conservation · Human resources development · Measures as a company rooted in the community

Further growth and development as a General Energy Company
### Main items of FY 2019 Management Plan

<table>
<thead>
<tr>
<th>Items</th>
<th>Items from FY2019 to FY2021</th>
</tr>
</thead>
</table>
| Response to total liberalization of electricity retail market | Promotion of Total Energy Solution  
- Strengthening sales activities  
- Start offering new price menu and services, etc. |
| Gas supply business | Start selling gas after LNG tank is completed  
- Starting gas tank operation of Ishikari LNG base |
| Electric power sales outside Hokkaido | Further expansion of electric power sales outside Hokkaido  
- Starting operation at Fukushima Natural Gas Power Plant |
| Promotion of efficiency improvement and cost reduction | Promotion of measures to improve efficiency and reduce costs drastically throughout operations  
- Maintaining soundness of equipment and reducing costs |
| Early restart of the Tomari Power Station  
(Response to the new regulatory requirements) | Normalization of management by achieving early restart of the Tomari Power Station |
| Review issues and establish systems, for legal unbundling of transmission and distribution division | Preparation for organizational structure transition by starting in-house company system (Establish transmission and distribution company)  
- Start legal unbundling of power transmission and distribution division |
| Ishikariwan Shinko Power Station and Shin-Kitahon HVDC Link | Starting operations at Ishikariwan Shinko Power Station and Shin-Kitahon HVDC Link  
- Starting operation at Shin-Kitahon HVDC Link  
- Both securing a stable supply in the future and a highly competitive power supply configuration  
- Starting operation at Ishikariwan Shinko Power Station Unit 1 |
Income / Expenditure Situation and Target Profit Level

As the challenging business environment continues, we focused on improving our competitiveness and efforts to improve our income / expenditure balance and secured a surplus for the third consecutive year.

With regard to the profits for the next three years on average, we are aiming for a level that exceeds the actual results posted since the full liberalization of the electricity retail market (average from FY2017 to FY2018).

With regard to the profits for the next three years on average, we aim for a level that exceeds the actual results posted since the full liberalization of the electricity retail market.

Note: Numbers are on a consolidated basis

*Numbers in () indicate net loss / income

Shareholders’ equity ratio

Profit (Loss) attributable to owners of parent

After April 2016: Full Liberalization of Electricity Retail Market

Note: Numbers are on a consolidated basis
We will further promote all aspects of income expansion, efficiency improvement, and cost reduction measures to build a management structure that can generate stable profits even before the restart of the Tomari Power Station.

We will steadily raise profits and try to restore the damaged financial base.

<table>
<thead>
<tr>
<th>Measures toward expanding income</th>
<th>Increase revenue by strengthening sales</th>
<th>● Conducting various initiatives aimed at preventing reduction of electricity sales volume and expansion of demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to competition in electricity retail market</td>
<td>● Continuing to propose optimal electricity rate options for each customer (For High-Voltage and Extra High-Voltage Customers); providing a new electricity price menu (for Low Voltage Customers); strengthening face-to-face sales activities</td>
<td></td>
</tr>
<tr>
<td>Expansion of electricity demand through electrification</td>
<td>(For household use) Proposal of high efficiency electrified equipment including smart electrification Measures to expand air conditioner popularization (For corporations) Expansion of electrification of air conditioning, kitchen and hot water supply Contract acquisition through contribution to customer's energy consumption reduction</td>
<td></td>
</tr>
<tr>
<td>Promotion of general energy business</td>
<td>● Combining skills and know-how owned by HEPCO's group companies to provide total energy solutions to meet customer's requests</td>
<td></td>
</tr>
<tr>
<td>Promotion of gas supply business</td>
<td>● Promotion of supply and sales of LNG utilizing LNG procured for Ishikariwan-Shinko Power Station ● For the expansion, we aim to target sales volume of 10,000 tons/year</td>
<td></td>
</tr>
<tr>
<td>Further expansion of electricity sales outside Hokkaido</td>
<td>● Expansion of electricity sales in the Tokyo Metropolitan Area (utilizing Fukushima Natural Gas Power Station) ● Conducting wholesale sales utilizing competitive electricity</td>
<td></td>
</tr>
<tr>
<td>Cost reduction and efficiency improvement</td>
<td>Construction of low cost corporate structure</td>
<td>● Strong promotion of drastic efficiency improvement and cost reduction throughout operations (Reduction of periodic inspection period of thermal power plants, reduction of equipment and materials procurement costs, etc.)</td>
</tr>
<tr>
<td>Review of group company structure</td>
<td>● Consideration of merger and integration of distribution business undertaken by three group companies to Hokkai Electrical Construction</td>
<td></td>
</tr>
</tbody>
</table>
Due to an increase in contract switching to other electric power companies due to intensified competition in electricity sales, etc., our electricity sales volume continues to decline. But we will promote various policies in the future and aim to prevent the reduction of electricity sales volume and to expand demand. In addition, we will also work to expand income by developing general energy business including gas supply business.

### Promotion of optimal electricity rate options for each customer and face-to-face sales activity (For High-Voltage and Extra High-Voltage Customers)

- With the establishment of specialized organizations such as "Sales Promotion Dept." responsible for planning sales/proposal activities, "Branch Office" as regional bases and "Electrification Solution Center" to propose electricity solutions to corporate customers, etc., we will strengthen the sales force.

### Enhancement of lineup of Electricity Charge Menu (for Low Voltage Customers)

- By continuing detailed response according to customer's usage situation etc., we will promote acquisition of contracts from other companies and prevent changeover of contracts to other companies.

### Providing convenient and comfortable living through electrification proposals

- We will strengthen and expand our acquisition of contracts from other companies by enhancing our lineup of electricity price menus that will meet the needs of many customers and enhancing our competitiveness by starting to offer new electricity price menus.

### Expansion of general energy business towards expanding profits

- We will increase electricity demand, including conversion from other energy sources to electrification.
- (For household use) Promotion of smart electrification, and expansion of air conditioner popularization
- (For corporations) Expansion of electrification of air conditioning, kitchen and hot water supply

- We aim to expand profits through the start of the gas supply business, strong development of "total energy solution" that provides combined electricity and gas solution, and further promotion of electricity sales outside Hokkaido.

- We will increase and expand our acquisition of contracts from other companies by enhancing our lineup of electricity price menus that will meet the needs of many customers and enhancing our competitiveness by starting to offer new electricity price menus.

- By continuing detailed response according to customer's usage situation etc., we will promote acquisition of contracts from other companies and prevent changeover of contracts to other companies.

- With the establishment of specialized organizations such as "Sales Promotion Dept." responsible for planning sales/proposal activities, "Branch Office" as regional bases and "Electrification Solution Center" to propose electricity solutions to corporate customers, etc., we will strengthen the sales force.

- Through the start of the gas supply business, strong development of "total energy solution" that provides combined electricity and gas solution, and further promotion of electricity sales outside Hokkaido.
Promoting face-to-face sales activities

- The pace of increase in contract switching to other companies has slowed down as a result of prevention of switchover to other companies and acquisition of contracts from other companies through continuing to conduct sales activities while checking the usage status of each customer in detail.
- In addition to continuing our measures in the future, we will promote face-to-face sales activities that combine energy saving diagnosis and others according to customer needs.

Due to face-to-face sales activities, the pace of increase in contract switch to other companies slowed down.

We will continue to engage in marketing activities in order to prevent contract switching to other companies and acquire contracts from other companies.
In addition to the electricity service plans released last year, we began offering new electricity service plans from April this year to enrich our lineup so that customers who switched their contracts to other companies can choose us again.

Specifically, we will start offering the following two electricity service plans.

- "Enetoku M Plan" to strengthen competitiveness to "customers with slightly higher usage than average"
- "Enetoku Season Plus" which is the plan for customers who use air conditioners

### Measures toward Expanding Income (for Low Voltage Customers)

#### Enhancement of lineup of electricity service plans to enhance competitiveness

**In addition to the electricity service plans released last year, we began offering new electricity service plans from April this year to enrich our lineup so that customers who switched their contracts to other companies can choose us again.**

Specifically, we will start offering the following two electricity service plans.

- "Enetoku M Plan" to strengthen competitiveness to "customers with slightly higher usage than average"
- "Enetoku Season Plus" which is the plan for customers who use air conditioners

### New electricity service plan for home

<table>
<thead>
<tr>
<th>General household customers</th>
<th>Estimated monthly electricity usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>~250kWh</td>
<td>Web・e Plus</td>
</tr>
<tr>
<td></td>
<td>Over 60A (Customers over 30A)</td>
</tr>
<tr>
<td></td>
<td>[New!] Enetoku M Plan</td>
</tr>
<tr>
<td></td>
<td>(2018.4 ~)</td>
</tr>
<tr>
<td>250~400kWh</td>
<td>[New!] Enetoku Season Plus</td>
</tr>
<tr>
<td></td>
<td>(2018.4 ~)</td>
</tr>
<tr>
<td>400kWh~</td>
<td>Enetoku L Plan</td>
</tr>
<tr>
<td></td>
<td>(2017.4 ~)</td>
</tr>
<tr>
<td>60A or less</td>
<td><em>Strengthen competitiveness to customers with slightly higher usage than average</em></td>
</tr>
<tr>
<td>60A</td>
<td><em>Acquisition of contract from other companies and expansion of demand, triggered by air conditioner</em></td>
</tr>
<tr>
<td>30A</td>
<td><em>For customers using heat-pump heaters or road heating systems</em></td>
</tr>
</tbody>
</table>

**<New electricity service plan for home>**

- **Web・e Plus**
  - (2017.4 ~)
  - (Customers over 30A)

- **[New!] Enetoku M Plan**
  - (2018.4 ~)
  - (Customers living in smart electrified residence)

- **[New!] Enetoku Season Plus**
  - (2018.4 ~)
  - (Customers using air conditioners)

- **e Time 3 Plus**
  - (2017.4 ~)
  - (Customers living in smart electrified residence)

### [Other Measures]

- Regarding membership web service "HEPCO ENE MALL", the number of members exceeded 100,000 (February this year)
- Increase in number of subscribers to "L-Den Point Plus Service" through business alliance with Hokkaido Air Water Inc.
Expansion of Sales Electricity Volume through Electrification Proposals

Providing convenient and comfortable living through electrification

- We will continue to promote the penetration of smart electrification that excels in energy saving performance and environmental performance, can realize a comfortable life even in Hokkaido with snow and cold weather.

- Given Hokkaido’s home air conditioner penetration rate (approximately 50% of Aomori Prefecture, where the climate is relatively similar to Hokkaido), we think there is room for promotion in the future. And we regard the trend of increasing penetration rate in recent years as an opportunity. So we will utilize the new electricity service plan "Enetoku Season Plus" and work on supporting the spread of air conditioners.

<table>
<thead>
<tr>
<th>Prefectures</th>
<th>Penetration rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hokkaido</td>
<td>11.9 % 25.7 %</td>
</tr>
<tr>
<td>Aomori</td>
<td>44.8 % 51.6 %</td>
</tr>
<tr>
<td>Tokyo</td>
<td>85.9 % 89.6 %</td>
</tr>
<tr>
<td>National average</td>
<td>83.1 % 86.4 %</td>
</tr>
</tbody>
</table>

Source: Ministry of Internal Affairs and Communications national consumption survey

Air conditioner penetration rate

- We are working on expanding air conditioning/kitchen/hot water supply electrification and aim to promote shift from other energy sources to electrification.
  - Establish a specialized organization such as "electrification solution center" etc. to make electrification proposals and conduct energy saving diagnosis etc.
  - Increase acquisition of electrification consulting property information (facility renewal, construction, transfer, renovation, etc.)
  - By registering as a ZEB planner (Note 1), we will increase the number of system proposals mainly based on heat pumps towards ZEB achievement and aim to disseminate electrified properties with high energy saving performance.

Note 1: Our company was registered as a ZEB planner, the first time for an electric power company
Promotion of General Energy Business

Increasing customer Base and improving profit resulting from expansion of business area

- We established the General Energy Business Dept. and strengthened the system of gas business and solutions.
- Through further expansion of electricity sales outside Hokkaido, and promotion of gas supply business and general energy solutions, we will aim to increase our customer base and improve profit as a general energy company.

Further Expansion of Electricity Sales outside Hokkaido

- We have won contracts of about 20,000 kW in the Tokyo metropolitan area.
- Expansion of wholesale sales utilizing the Fukushima Natural Gas Power Station
- Promotion of competitive power electric wholesale with a view to utilizing re-operation of the Tomari Power Station and starting operation of the Ishikariwan - Shinko Power Station and utilization of the Shin-Kitahon HVDC Link

Promotion of Total Energy Solution

Increase profits by selling electricity and gas + α, including ESP business that provides total solutions

Further Growth and Development as a General Energy Company

Expansion of business area

Electricity Business in Hokkaido (Base of HEPCO Group)
Promotion of General Energy Business

Promotion of gas supply business

- We are working diligently on sales activities for LNG (liquefied natural gas) by tank truck utilizing LNG procured for Ishikariwan - Shinko Power Station. In addition to the electricity we sold so far, we will sell LNG to factories and other customers. The sales start date is scheduled for after the completion of our LNG tank under construction at Ishikari LNG base (to be completed in August 2018).

- In this project, we aim first at a sales volume of 10,000 tons/year, and aim for further expansion afterwards.

Outline of LNG Supply Business

HEPCO

Procurement of LNG

Storage in our own LNG tank (Under construction in Ishikari LNG base)

Ishikariwan - Shinko Power Station

LNG

Electricity

Customers such as factories

- In cooperation with AIR WATER INC. and Iwatani Corporation, we are promoting the supply of liquefied natural gas (LNG) to factories and other customers.
We bring together the skills and know-how of each company of the HEPCO Group to provide total energy solutions, including energy service provider (ESP) business, to respond to customer's requests, and we will aim for improvement of profit from electricity, gas and other business.

We will utilize the skills and know-how of the HEPCO Group to provide consistent services in order to respond to all customer's requests.

Example of service of HEPCO Group

Proposal of ESP business
(example of factory)

Among them, "energy related business"

- Design / Construction
- Ownership of assets
- Energy supply
- Operation
- Maintenance and management
- Maintenance

Outsourcing

HEPCO Group

- No initial investment required
- Labor saving of energy related operation

Energy Saving Diagnosis

Thermal leak diagnosis using thermography

Design, construction, and maintenance of equipment

Electric machine

Photovoltaic / Wind power generation

Total energy solution such as ESP business

Electricity Sales

Gas Sales

Energy Saving Diagnosis

Design / Construction

Ownership of assets

Energy supply

Operation

Maintenance and management

Maintenance

Energy management

Construction

Equipment Sales / Leasing

Factory operation business in general
Electricity Sales in the Tokyo Metropolitan Area

- Regarding sales of electricity outside Hokkaido, we have steadily accumulated sales to Extra-High Voltage and High Voltage customers in the Tokyo metropolitan area, and we have acquired contracts for about 20,000 kW at present.

Participation in the Fukushima Natural Gas Power Generation Project

- We are participating in the construction of the Fukushima Natural Gas Power Station aiming to start operation in the spring of 2020 and utilize this power supply to further expand electricity sales including wholesale sales.

Wholesale sales utilizing competitive electricity

- We will promote wholesale utilizing competitive electric power with a view to the supply capacity generated by restarting the Tomari Power Station and starting operation of the Ishikariwan-Shinko Power Station and utilizing the Shin-Kitahon HVDC Link.
The HEPCO group will work together to promote fundamental efficiency improvement and cost reduction throughout the entire group, will build a competitive business structure, and will realize both securing stable supply and a low cost structure.

### Implement cost reduction measures to realize constant profit improvement

- **Reduce equipment related expenses**
  - **Main points of consideration**
    - Suspension and retirement of aged thermal power plants
    - Reduction of periodic inspection period of thermal power plants
    - Careful selection of the equipment to be updated
    - Extended use of equipment
    - Utilization of AI and IoT, adoption of new construction methods, etc.

- **Improve efficiency of operations**
  - **Main points of consideration**
    - Abolition and simplification of operations
    - Outsourcing, commissioning, and utilization of diverse human resources

- **Review group companies’ businesses**
  - **Main points of consideration**
    - Improvement of business efficiency of electric power support business that the Company and Group companies work on together
      - Example: Recognizing and improving issues by visualizing a series of cost structures and business processes
    - Optimization of the number of people in the entire group

Reduce the headcount of the HEPCO group’s headquarter to about 5,000 by the end of FY 2026 (end of FY 2018: about 5,600 people)
Promotion of measures to strengthen management foundation

- Under the "Management Infrastructure Enhancement Promotion Committee", in FY 2018, in addition to the efficiency improvement so far, we will newly target efficiency improvement and cost reductions of 13.7 billion yen.
- Going forward, we will further promote measures to create stronger profitability.

In January 2017, in order to realize the establishment of a management structure that can generate stable profit, we established the "Management Infrastructure Enhancement Promotion Committee" with the President as chairperson.

**[Outline of the Management Infrastructure Enhancement Promotion Committee]**

- Management Infrastructure Enhancement Promotion Committee
  (Chairperson: President, Committee: Vice President and Managing Executive Officer)

- Group company
  Cooperation

- Each department of the head office
  Responsible person: Responsible officer

- Conference organized by category
  Cooperation

- External specialists
  Support

**Measures toward Reducing Costs**

- Strengthen management foundation
  - Increase income by strengthening sales
  - Improve management efficiency and reduce costs
Measures to shorten the work process of regular inspection

- We cooperate with manufacturers and construction companies to carefully examine each process in the periodic inspection and shorten the total work days by adopting new construction methods and prioritizing securing of personnel.

<table>
<thead>
<tr>
<th>Conventional process</th>
<th>①</th>
<th>②</th>
<th>③</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process after adopting new construction methods</td>
<td>①</td>
<td>②</td>
<td>③</td>
</tr>
</tbody>
</table>

We will shorten the total construction days by reorganizing the processes we have been doing in order, securing personnel preferentially, and simultaneously performing multiple construction tasks.

Example of shortening repair work period (image)
At the review of the Tomari power station, currently there are the following issues, and we explain the evaluation of the potential fault in the power plant premises toward the confirmation of the design basis seismic ground motions/reference tsunami, and we are evaluating potential earthquake ground motion from the active fault assumed northwest off the Shakotan Peninsula. In parallel, we are also studying the issues of tide embankment and breakwaters, and we will explain them at the review meeting based on the results of the design basis seismic ground motion and design basis tsunami, and get an understanding.

<table>
<thead>
<tr>
<th>Issues</th>
<th>Correspondence situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]Chronological evaluation of strata in the premises of a power plant</td>
<td>In order to improve the explanation of our evaluation on the age of the strata, we conducted surveys and studies, and explain them at hearings, etc.</td>
</tr>
<tr>
<td>[2]Ground motion evaluation based on active fault assumed to exist off the northwestern coast of the Shakotan Peninsula</td>
<td>We are advancing evaluation of potential earthquake ground motion from assumed active fault.</td>
</tr>
<tr>
<td>[3]Evaluation of the impact on liquefaction of the ground under the tide embankment (seawall) due to earthquake</td>
<td>Regarding the tide embankment, we are studying a design change to the rocky support structure.</td>
</tr>
<tr>
<td>[4]Evaluation of the impact on plant facilities when breakwaters are damaged by a tsunami</td>
<td>Using analysis on movement and settlement of breakwater and the results of hydraulic model experiments, we are advancing evaluation of the impact on power plant facilities.</td>
</tr>
</tbody>
</table>
In order to increase the reliability of our evaluation that there is no activity in the strata of a new era more than "about 120 thousand to 130 thousand years ago" within the Tomari Power Station premises (there are no so-called active faults in the site), we are explaining the results of investigation and examination, about the sedimentary age of the stratum that we evaluated that it accumulated 330 thousand years ago, with a particular emphasis on "The improvement of the precision of the terrace correlation and chronology."

Specifically, we compare the geological formations in the vicinity of the premises with the geological formations in the power plant premises, etc., and then we estimate that the deposition of the stratum that we evaluated to have deposited in the site about 330 thousand years ago. To raise the reliability of the age, we will explain at the review meeting the survey and examination results we conducted.
In anticipation of the Legal Unbundling System in April 2020 (scheduled), we emphasized the integration and efficiency as a company with the premise of securing neutrality of the transmission and distribution business and maintaining stable supply, and we were oriented towards a two-company structure consisting of "business holding company" which places power generation division and sales division, and "transmission and distribution company".

First of all, in April 2018 we established a Power Network Company.

We reviewed the organizational structure for power generation, sales, management and indirect departments in order to strengthen our efforts to expand business areas and to strengthen sales capabilities.

Establishment of Power Network Company with a view to Legal Unbundling System

Review of power generation / sales / management / indirect department for further growth

- **Strengthen group management / strategic functions**
  Establishment of Corporate Planning Dept. (Aggregation of management functions of group companies, promotion of business strategy that integrates power generation and sales, and enhancing the competitiveness of the power supply)

- **Strengthen measures to expand business areas**
  Establishment of General Energy Business Dept. to consistently promote expansion of business areas related to energy in general

- **Strengthening sales force**
  Establishment of Sales Promotion Dept., regional organization restructuring

- **Promotion of efficiency**
  Centralization of indirect departments etc. (aggregation from the regional organization to the head office)
Enhance Competitiveness of Power Supply and Ensure Stable Supply

New construction of Ishikariwan - Shinko Power Station (LNG Thermal Power Station)

- The Ishikariwan - Shinko Power Station is expected to operate nearly as a base power supply for the time being, so it is expected that the benefits of fuel conversion to LNG fire power, which is superior in economic efficiency, from oil fired power generation, will occur.
- The power plant has a high power generation efficiency (62% of the world's highest level), as a thermal power plant of the natural gas combined cycle system which has excellent environmental characteristics and high thermal efficiency. It will respond to various issues such as aging of existing thermal power plants, diversification, and diversification of power supply.

<table>
<thead>
<tr>
<th>Power Generation System</th>
<th>Generator output</th>
<th>Commercial operation start date (scheduled)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas turbine combined cycle power generation system</td>
<td>Unit 1 : 569.4 MW</td>
<td>Unit 1 : 2019.2</td>
</tr>
<tr>
<td></td>
<td>Unit 2 : 569.4 MW</td>
<td>Unit 2 : 2026.12</td>
</tr>
<tr>
<td></td>
<td>Unit 3 : 569.4 MW</td>
<td>Unit 3 : 2030.12</td>
</tr>
<tr>
<td></td>
<td>Total : 1,708.2 MW</td>
<td></td>
</tr>
</tbody>
</table>

Characteristics of Ishikariwan - Shinko Power Station

- High power generation efficiency
- Excellent environmental characteristics
- Excellent operability
- Construction progress rate: 79.9% (As of 2018.4.20)

Expanding the capacity of Kitahon HVDC Link

- The purpose of expansion is to ensure stable supply in the Hokkaido area, such as more reliable response to emergency shutdown risk of power plants.
- It is also expected to contribute to expansion of introduction of renewable energy in Hokkaido and invigoration of power trading.

- Transmission capacity: 300MW
- Power transmission voltage: 250kV (direct current)
- Power transmission distance: 122km (Underground cable 24km)
- Commercial operation start date (scheduled): 2019.3
- Construction progress rate: 81% (As of 2018.3.31)
Measures Concerning the Environment

Ratio of renewable energy to total amount of electricity of our company

- In order to expand the introduction of renewable energy, which is a local resource, in addition to wind power generation and photovoltaic power generation, we are promoting efforts related to hydro power generation, biomass power generation, etc. They are resources of the region, and are renewable energy rooted in the area. Additionally, their output fluctuation is small and the influence on the electric power system is low.
- The proportion of renewable energy (electricity generated by our own renewable energy generation, electricity procured from a renewable power generation business) in our electricity (Note 1) is about a quarter.
- We will continue to operate business with consideration of ESG (Note 2) in order to fulfill our corporate social responsibility and sustainable corporate value as the HEPCO Group.

(Note 1) Total amount of electricity generated by HEPCO's power generation and amount of electricity purchased from other companies (excluding remote islands)
(Note 2) ESG: Environment • Social • Governance

### Ratio of renewable energy to total amount of electricity of our company

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydropower (over 30MW)</td>
<td>4%</td>
</tr>
<tr>
<td>Oil</td>
<td>23%</td>
</tr>
<tr>
<td>Coal</td>
<td>52%</td>
</tr>
<tr>
<td>Renewable energy (excluding FIT electricity)</td>
<td>11%</td>
</tr>
<tr>
<td>FIT electricity</td>
<td>8%</td>
</tr>
<tr>
<td>Wholesale Power Exchange and others</td>
<td>2%</td>
</tr>
</tbody>
</table>

**FY 2018 Results**

Renewable energy electricity generated by HEPCO, and electricity procured from renewable energy power generation companies: Approximately 23%

(Note 3) "Hydropower (over 30,000 kW)" does not include pumped-storage power generation.

(Note 4) "Energy other than FIT electricity" includes hydro power (less than 30,000 kW), photovoltaic power, wind power, biomass, geothermal power.

(Note 5) "Wholesale Power Exchange / Others" includes procurement from the wholesale power exchange, pumped-storage power generation / waste power generation, and some of the electricity procured from other companies and whose power type can not be specified. Incidentally, procurement from the wholesale power exchange includes hydroelectric power generation, thermal power generation, nuclear power generation, FIT electric power, renewable energy generation, etc.

(Note 6) Part of the expenses for the Company to procure FIT Electricity is covered by "levies" collected from all customers using electricity. In addition, FIT Electricity is treated as having nationwide average electricity CO2 emissions including thermal power generation etc.

(Note 7) Our CO2 emission coefficient (adjusted) in FY 2017 is 0.640 kg - CO2 / kWh (Results for FY 2018 are being calculated).
Measures Concerning the Environment

Measures toward expansion of introduction of wind power generation/solar power generation

- The interconnected amount of renewable energy generation to the grid within Hokkaido as of the end of FY2018 is about 3,630 MW. Among them, the total interconnected amount of wind power generation and photovoltaic power generation is about 1,720 MW, which is equivalent to about 50% of the annual average electric power (about 3,600 MW) in the Hokkaido area. Furthermore, the total amount of wind power/photovoltaic power connection applications to our company as of the end of FY 2018 is almost the same level as the average annual electric power.

- We are making efforts to make effective use of the transmission network ahead of "Japan version Connect & Manage" which is currently under consideration for introduction nationwide and also promoting utilization of new adjustment power such as large storage batteries corresponding to output fluctuation to maintain the quality of power, while continuing to further expand wind and photovoltaic power generation.

Amount of interconnected wind and photovoltaic power generation to the transmission system in Hokkaido

- (MW): Connection application amount to our company as of the end of March 2018
- Note: does not include recruitment of wind power generation by grid side storage battery.

- Wind Power
- Photovoltaic Power

2012: Wind Power 290 (MW), Photovoltaic Power 60 (MW)  
2013: Wind Power 290 (MW), Photovoltaic Power 100 (MW)  
2014: Wind Power 320 (MW), Photovoltaic Power 320 (MW)  
2015: Wind Power 350 (MW), Photovoltaic Power 610 (MW)  
2016: Wind Power 320 (MW), Photovoltaic Power 970 (MW)  
2017: Wind Power 350 (MW), Photovoltaic Power 1,150 (MW)  
2018: Wind Power 390 (MW), Photovoltaic Power 1,330 (MW)
Measures Concerning the Environment

Various measures to expand the introduction of renewable energy

Recruitment of wind power generation by installing Grid Side Storage Battery

- We are recruiting new wind power generation on the premise that businesses jointly pay the cost of grid side storage batteries.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Wind power generation volume</th>
<th>Guide of storage battery capacity</th>
<th>When to install storage batteries</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>+600MW</td>
<td>About 90MW-4h</td>
<td>FY 2023</td>
</tr>
<tr>
<td>II</td>
<td>+400MW</td>
<td>About 60MW-4h</td>
<td>Considering the introduction situation of Phase I</td>
</tr>
</tbody>
</table>

Large Power Storage System Demonstration Project

- We set up a large-sized storage battery at our substation and conducted demonstration tests to verify the performance as a new coordination power for renewable energy output fluctuation and establish optimum control technology.
  - Rated output: 15,000 kW
  - Storage capacity: 60,000 kWh

Demonstration Test for Expansion of Introduction of Wind Power Generation

- In cooperation with TEPCO Power Grid Inc., we will conduct a demonstration test utilizing the existing Kitahon HVDC Link and expand the introduction of 200MW of new wind power generation.

Effective Utilization of Transmission Lines

- We are trying to effectively utilize the unused capacity portion of the transmission line on the premise of suppressing the power generation output when the transmission capacity is exceeded.

<table>
<thead>
<tr>
<th>Wind power generation company</th>
<th>HEPCO</th>
<th>TEPCO Power Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase generated electricity</td>
<td>Adjust by utilizing HVDC Link against output fluctuation</td>
<td></td>
</tr>
</tbody>
</table>
Regarding Preferred Stock

We decided to replace Class-A preferred Stock issued in July 2014 with Class-B preferred Stock with the aim of maintaining capital adequacy and reducing the preferential dividend burden. For the issue of new Class-B Preferred Stocks, we will submit a proposal to the shareholders' meeting to be held in June this year.

<table>
<thead>
<tr>
<th>Items</th>
<th>Class-A preferred Stock</th>
<th>Class-B preferred Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of funds procured</td>
<td>47 billion yen (As of April 2018 Note1)</td>
<td>47 billion yen</td>
</tr>
<tr>
<td>Issue Date</td>
<td>July 31, 2014</td>
<td>July 31, 2018 (planned)</td>
</tr>
<tr>
<td></td>
<td>Mizuho Bank, Ltd.</td>
<td></td>
</tr>
<tr>
<td>Preferred Dividend Rate</td>
<td>3.8%/year</td>
<td>3.0%/year</td>
</tr>
<tr>
<td>Rising preferential dividend rate</td>
<td>Rising (rising to 6.3%/year from August 1, 2019)</td>
<td>None</td>
</tr>
<tr>
<td>Date of Issue of Acquisition Request by Allottee</td>
<td>After August 1, 2019</td>
<td>After August 1, 2023</td>
</tr>
</tbody>
</table>

Note 1: Class-A preferred stock was originally 50 billion yen, but since it was partially acquired and cancelled in May 2016, it is now 47 billion yen.
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