

STANDARD SUPPLY CONDITIONS FOR SPECIFIED POWER DEMAND

NOTICE

This is unofficial English translation of KYEPCO's STANDARD SUPPLY CONDITIONS FOR SPECIFIED POWER DEMAND (“tokutei kibo juyo hyojun kyokyu joken”) prepared solely for the convenience of the customer. Accordingly, KYEPCO makes no representations or warranties regarding the accuracy or completeness of this translation. Customers are advised to refer to the official “tokutei kibo juyo hyojun kyokyu joken” that is available only in the Japanese language.

Effective as of April 1, 2007



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CONTENTS

I. GENERAL PROVISIONS	
1. Application	1
2. Revision of Standard Supply Conditions	1
3. Definitions	1
4. Units and Fractions	2
5. Others	3
II. APPLICATION FOR SUPPLY SERVICE CONTRACT	
6. Application for Supply Service Contract	4
7. Conclusion of the Contract and Contract Period	4
8. Customer's Premises	5
9. Unit of Service Contract	5
10. Commencement of Supply Service	6
11. Unit of Supply	6
12. Preparation of Supply Service Contract	6
III. CONTRACT CATEGORIES AND RATES	
13. Contract Categories	7
14. Commercial Power Service	7
15. Industrial Power Service	11
16. Temporary Power Service	15
17. Self-Generation Backup Power Service	15
18. Standby Power Service	22
IV. BILLING AND PAYMENT	
19. Start of Rate Application	24
20. Meter Reading Day	24
21. Billing Period	24
22. Measurement of Energy Consumption and Other Items	25
23. Billing	28
24. Per-Diem Calculation	29

25. Payment Obligation and Due Date	29
26. Payment of Electric Charges and Others	30
27. Security Deposit	32
V. CONSUMPTION AND SUPPLY OF ELECTRICITY	
28. Maintenance of Proper Contract	34
29. Penalty for Excess Power Consumption	34
30. Maintenance of Proper Power Factor	34
31. Operations through Access to Customer's Premises	34
32. Customer's Cooperation Regarding Electricity Consumption	35
33. Suspension of Supply	36
34. Resumption of Supply	37
35. Electric Charge during Suspension of Supply	37
36. Penalty for Breach of Contract	37
37. Supply Interruption or Restriction on Electricity Use	37
38. Supply Restriction or Interruption Discount	38
39. Exemption from Damages	40
40. Compensation for Damage to Facilities	40
VI. ALTERATION AND TERMINATION OF THE CONTRACT	
41. Alteration of Supply Service Contract	41
42. Change of Registered Name of Customer	41
43. Termination of the Contract	41
44. Electric Charges for Terminating or Altering the Contract after Service Starts	42
45. Construction Costs for Terminating or Altering the Contract after Service Starts	43
46. Cancellation and Other Items	46
47. Financial Rights and Obligations after Termination of the Contract	46
VII. SUPPLY METHOD AND CONSTRUCTION	
48. Delivery Point and Installation	47
49. Overhead Service Line	47
50. Underground Service Line	48
51. Extension Service Line and Others	49
52. Connection of Service Line	49
53. Installation of Meters and Others	49
54. Installation of Communication Equipment	50

55. Separate Supply Facilities for Exclusive Use	50
VIII. CONTRIBUTION TO CONSTRUCTION COSTS	
56. Contribution to Construction Costs for General Supply Facilities	52
57. Contribution to Construction Costs for Special Supply Facilities	56
58. Contribution to Construction Costs Applicable to Changes in Supply Facilities	57
59. Calculation of Construction Costs for Special Supply Facilities and Others	57
60. Payment of Contribution to Construction Costs	60
61. Temporary Construction Costs	61
62. Expense from Discontinuance and Alteration of Contract (Before Start of Supply)	62
63. Preparation of Contract for Contribution to Construction Costs	62
IX. SAFETY AND SECURITY	
64. Safety and Security Responsibility	63
65. Customer's Cooperation for Safety and Security	63
SUPPLEMENTARY PROVISIONS	64
SCHEDULES	65

I. GENERAL PROVISIONS

1. Application

- (1) Kyushu Electric Power Co., Inc. (hereinafter referred to as KYEPCO), upon supplying electric service to customers under specified power demand (exclusive of those customers who receive electricity under the Rules and Rates for Electric Service as Final Assurance), conforms to the tariff and other supply conditions set forth in the Standard Supply Conditions for Specified Power Demand (hereinafter referred to as the “Standard Supply Conditions”). However, depending on the manner of supply, separate supply conditions may be established.
- (2) The Standard Supply Conditions apply in any of the following areas: the prefectures of Fukuoka, Saga, Nagasaki, Oita, Kumamoto, Miyazaki, Kagoshima.

2. Revision of Standard Supply Conditions

- (1) The Standard Supply Conditions may be revised during the effective term of the contract. In this case, tariff and other supply conditions under which the customer receives service shall conform to the Standard Supply Conditions as revised. KYEPCO shall notify customers of the content of such revisions in advance if and when such revisions are to be made.
- (2) If the customer objects to any revision to the Standard Supply Conditions described in (1) above, the customer may cancel, even during the contract term, the power supply contract (hereinafter referred to as “contract(s)”) under the Standard Supply Conditions.

3. Definitions

The following terms and phrases herein have the meanings defined below.

- (1) **High Voltage:** A standard voltage of 6,000 volts.
- (2) **Extra High Voltage:** A standard voltage of 20,000, 60,000 or 100,000 volts.
- (3) **Lamp:** Any incandescent, fluorescent, neon tube or mercury lamp or other electric device used for lighting, including accessories.
- (4) **Small-scale Appliance:** Any low-voltage electric device (with a standard voltage of 100 or 200 volts), other than a lamp, used in a single-phase, mainly in homes, stores, offices or other similar establishments. However, electric devices that interfere or may interfere with lamp use by other customers due to causes such as sudden voltage fluctuation and cannot be used with lamps are excluded.
- (5) **Power Appliance:** Any electrical device other than a lamp or small-scale appliance.
- (6) **Incidental Lighting:** Any lamp or similar mechanism that is directly needed for the operation of a power appliance. A “similar mechanism” herein shall refer to any of the following lamps and small-scale appliances that are necessary to maintain the functioning of power appliances

including:

- (A) office lamps used to maintain and manage work areas;
 - (B) lamps at guard posts or outdoor lamps used for security purposes and to maintain safety and security in work areas;
 - (C) lamps in bathrooms, cafeterias or rooms used for medical care that are necessary for site workers; and
 - (D) Lamps that serve as a guide in such work areas.
- (7) **Contract Load Equipment:** Load equipment permitted for use under the electricity supply service contract or contracts.
 - (8) **Contract Receiving Equipment:** Electricity receiving equipment permitted under the service contract or contracts, namely transformers for which the primary voltage is the same as the receiving voltage and the transformers are installed on the secondary side of these transformers.
 - (9) **Contract Power:** Maximum power in kilowatts permitted under the contracts.
 - (10) **Contract Use Period:** Period in which the service may be utilized.
 - (11) **Maximum Demand:** Maximum power demand measured by the 30-minute maximum demand meter.
 - (12) **Summertime:** Period from July 1 to September 30 of each year.
 - (13) **Other Seasons:** Period from October 1 of each year to June 30 of the following year.
 - (14) **Peak Time:** Period from 13:00 to 16:00 every day during summertime. However, this does not apply on Sundays and days specified as holidays under the National Holidays Law.
 - (15) **Daytime:** Period from 8:00 to 22:00 every day. However, this excludes peak time and does not apply on Sundays, days specified as holidays under the National Holidays Law, on January 2 and 3, April 30, May 1 and 2 and December 30 and 31.
 - (16) **Nighttime:** Periods other than those specified as peak time or daytime.
 - (17) **Quarter:** Periods from January 1 to March 31, from April 1 to June 30, from July 1 to September 30, or from October 1 to December 31 of each year.
 - (18) **Customs Clearance Statistics:** Statistics published pursuant to the Customs Law.

4. Units and Fractions

In the Standard Supply Conditions, units and fractions shall be handled as described below for the purpose of calculating electric charges and other amounts.

- (1) The capacity unit of contract load equipment or contract receiving equipment shall be one (1) watt or one (1) volt-ampere. Any fraction of half of one (1) watt or volt-ampere or more will be rounded up; fractions less than half of one (1) watt (volt-ampere) will be disregarded.
- (2) The unit of contract power and maximum demand shall be one (1) kilowatt. Any fraction of

half of one (1) kilowatt or more will be rounded up; fractions less than half of one (1) kilowatt will be disregarded.

- (3) The energy consumption unit shall be one (1) kilowatt-hour. Any fraction of half of one (1) kilowatt-hour or more will be rounded up; fractions less than half of one kilowatt-hour will be disregarded.
- (4) The power factor unit shall be one (1) percent. Any fraction of half of one (1) percent or more will be rounded up; fractions less than half of one (1) percent will be disregarded.
- (5) The unit used for calculating total electric charges or other amounts shall be one (1) yen. Any fraction less than one (1) yen will be disregarded.

5. Others

Any particulars not provided in the Standard Supply Conditions shall be determined by agreement between KYEPCO and the customer as necessity demands.

II. APPLICATION FOR SUPPLY SERVICE CONTRACT

6. Application for Supply Service Contract

- (1) When a customer requests a new supply service contract, the customer must agree to the provisions of the Standard Supply Conditions. KYEPCO may request that the customer use the designated forms when applying and include the items listed below:

Contract category, power supply method, delivery point, customer's premises for electricity use (hereinafter referred to as "customer's premises"), supply voltage, contract load equipment, contract receiving equipment, contract power, power generation facilities, type of business, purpose of energy use, preferred date of supply service commencement, energy use period and payment method.

- (2) The customer shall provide KYEPCO with information regarding contract load equipment, contract receiving equipment and contract power based on the maximum electric loads during the year. In this case, the customer is required to submit to KYEPCO the energy consumption plan for the year from the date supply service is to begin in order to verify the maximum load for the year if the necessity arises.
- (3) If construction work for the supply facilities is necessary, the customer shall inquire about the status of KYEPCO's supply facilities prior to the application as supply may not commence immediately due to reasons such as siting.
- (4) Upon connecting electrical facilities to KYEPCO's supply facilities (hereinafter referred to as "interconnection"), the customer may do so in a technically appropriate manner in consideration of the status of KYEPCO's existing facilities and in accordance with the technical standards established by regulations, and other laws and ordinances, while conforming to the technical requirements for interconnection set forth in Schedule 1 (Technical Requirements for Interconnection) and the principles of generation facility interconnection service.
- (5) A customer who is susceptible to damages from voltage or frequency fluctuation is required to take necessary measures, such as the installation of a non-interruptive power supply device. If a customer requires electricity for reasons of safety and security, the customer shall identify the necessary capacity and apply for Standby Power or take necessary actions such as the installation of generation equipment or batteries for safety and security purposes.

7. Conclusion of the Contract and Contract Period

- (1) The service contract shall become effective when the customer's application is accepted by KYEPCO.
- (2) The contract period is as stipulated below:
 - (A) The contract period shall begin on the day the service contract becomes effective and

continue until one year after the commencement of billing, which is the day electric charges are first applied, except in cases of Temporary Power.

- (B) Unless there is an objection from the customer or KYEPCO by at least one month before the expiration of the contract period, the contract period of the customer will be extended for another year, and the same is applicable for following years.
- (C) The contract period for Temporary Power shall be from the day the service contract becomes effective to the expiration date of the contract use period, as previously agreed upon.

8. Customer's Premises

- (1) KYEPCO shall recognize one site or one building to be the customer's premises (a single site) for electricity use. However, in the case of one building such as an apartment complex which has a common section and other sections that are independent in terms of building use, such section(s) may constitute a customer's premises (a single site) for electricity use. In this case, premises (a single site) means an area which is clearly divided by fences, walls or barriers, and a building means an independent building structure.
- (2) If more than two premises (sites) as defined in (1) above adjoin and the business operation of those premises (sites) are closely connected, those adjoining premises (sites) may be considered as a customer's premises (a single site).
- (3) If street lights or similar equipment are installed on the roads or other areas of common use (except for the premises or sites defined in (1) and (2) above), the location of such installation shall constitute a customer's premises (a single site).

9. Unit of Service Contract

One service contract will be concluded for one contract category at a customer's premises (a single site), except in the following cases:

- (1) Contracts for a customer's premises (a single site) cover any of the contract categories under Commercial Power or Industrial Power, together with one or more of the contract categories of Temporary Power, Self-Generation Backup Power (any of the subcategories), or Standby Power.
- (2) Within a customer's premises (a single site) there is an independent building with load equipment which is not incidental lighting, and a separate contract is entered into for that building.
- (3) One service contract is entered into collectively upon negotiation with a customer who is considered to receive electricity at two or more delivery points of one transmission system due to a traveling load of electric railways.

10. Commencement of Supply Service

- (1) Once the customer's application for a contract is accepted, KYEPCO will set a date to begin supplying service with an agreement with the customer. Supply service shall begin as soon as all preparations and necessary procedures have been completed.
- (2) If it becomes evident that KYEPCO is unable to begin the supply service on the agreed upon date due to weather conditions, negotiation regarding siting or service interruption or any other unavoidable reason, KYEPCO will inform the customer of such reasons and agree on a new date to begin service.

11. Unit of Supply

KYEPCO will provide the electric supply service for each contract through one power supply method with one service line and one meter except for the following cases:

- (1) (3) of 9 (Unit of Service Contract) is applicable.
- (2) A contract is entered for supply under both (1) (A) and (B) of 18 (Standby Power Service).
- (3) Electricity is supplied through the common use service line as defined in 51 (Extension Service Lines and Others).
- (4) Electricity is supplied to a customer defined in (2) (A) (a) c of 56 (Contribution to Construction Costs for General Supply Facilities).
- (5) It is unavoidable for technical or economical reasons.

12. Preparation of Supply Service Contract

A supply service contract shall be prepared with the items necessary for the supply of electricity if the customer so requests or it is so necessitated by KYEPCO. Further, a separate agreement shall be prepared with the customer, as necessity arises, for the items provided in 37 (Supply Interruption or Restriction on Electricity Use) and (3) of 65 (Customer's Cooperation for Safety and Security) and any other items necessary for system operation.

III. CONTRACT CATEGORIES AND RATES

13. Contract Categories

The contract categories for electric supply service include:

- (1) Commercial Power Service
 - (A) Commercial Power A
 - (B) Commercial Power A by Season & Time-of-Use
- (2) Industrial Power Service
 - (A) Industrial Power A
 - (B) Industrial Power A by Season & Time-of-Use
- (3) Temporary Power Service
- (4) Self-Generation Backup Power Service
 - (A) Commercial Self-Generation Backup Power
 - (B) Industrial Self-Generation Backup Power
- (5) Standby Power Service

14. Commercial Power Service

(1) Application

This contract category is applicable to customers using electricity at high or extra high voltage for lamps and/or small-scale appliances or for lamps and/or small-scale appliances together with power appliances, where one of the following conditions applies and an agreement is reached between the customer and KYEPCO.

- (A) The contract power is 50 kilowatts or more. However, this service might be applicable to customers with a contract power of less than 50 kilowatts if there is a special circumstance, such as if the customer plans to increase the contract load equipment in the near future, and the customer so requests.
 - (B) The sum total of the two items: (i) the contract current (where 10 amperes are considered to be one kilowatt) or contract capacity (where 1 kilovolt-ampere is considered to be one kilowatt) of the lamps and/or small-scale appliances used when (2) C or (3) D of 17 (Residential Lighting Service) of the Rules and Rates for Electric Service (submitted to the government for approval on February 14, 2007, hereinafter referred to as the "Rules and Rates;" if KYEPCO revises the Rules and Rates, it shall be the Rules and Rates as revised) is applied, and (ii) the contract power of power appliances used when (4) of 20 (Low Voltage Power Service) of the Rules and Rates is applied, is 50 kilowatts or more, as a rule.
- (2) Power Supply Method, Supply Voltage and Frequency
- Power is supplied in AC, three-phase and three-wire, at supply voltages varying as described

below in accordance with the contract power (or the total of both contract powers if the contract also covers Commercial Self-Generation Backup Power) and a standard frequency of 60 Hertz. However, if the customer's special circumstances or any circumstances at KYEPCO's supply facilities so require, power may be supplied at a lower or higher voltage than such standard voltage.

Contract power of less than 2,000 kilowatts	Standard voltage	6,000 volts
Contract power of 2,000 kilowatts or more and less than 10,000 kilowatts	Standard voltage	20,000 volts
Contract power 10,000 kilowatts or more	Standard voltage	60,000 volts

(3) Contract Load Equipment and Contract Receiving Equipment

The customer is required to define the contract load equipment and contract receiving equipment in advance if the contract power is less than 500 kilowatts.

(4) Contract Power

The contract power shall be determined in accordance with the provisions below.

(A) When the contract power is less than 500 kilowatts and electricity is supplied at high voltage:

(a) The contract power for each billing month, except for the cases described below, shall be the maximum demand during the month or that during the preceding eleven (11) months, whichever is greater.

a. If a customer newly receives supply at high voltage, the contract power for each month during a period of twelve (12) months from the commencement of billing shall be the maximum demand during the month or that of the period up to the preceding month from the commencement day, whichever is greater. However, if the customer, before newly receiving supply at high voltage under the Standard Supply Conditions, received supply at the same premises under the Rules and Rates for Wheeling Service and continues to receive supply under the Standard Supply Conditions, the customer is deemed to have received power under the Standard Supply Conditions for the purpose of determining the contract power.

b. If a customer increases the amount of contract receiving equipment and the maximum demand for the portion of the month during which the day the increase is implemented exceeds either the maximum demand for the portion of the same month before the day of the increase or that during the preceding eleven (11) months, whichever is greater, the contract power for the portion of the month before the day of the increase shall be the value of either the maximum demand for the same period or that during the preceding eleven (11) months, whichever is greater. The contract power for the

portion of the month from the day of the increase shall be the maximum demand of the same period.

- c. If a customer reduces, for example, the contract receiving equipment, and it is obvious that the customer's maximum demand throughout the year will decrease, the contract power for the portion of the month of the reduction until the day before the decrease is implemented shall be the value of either the maximum demand of the same period or that during the preceding eleven (11) months, whichever is greater. The contract power for each month during a period of twelve (12) months from the day of the reduction shall be determined by agreement between the customer and KYEPCO based on items constituting the contract load equipment and contract receiving equipment, as well as the load and other factors commonly seen among other customers with similar business requirements. The contract power for the portion of the month starting on the day of the reduction shall be the contract power of the same period. However, if either the maximum demand during that month or the maximum demand from the day of the reduction to the preceding month of the twelve (12) month period from the day of the reduction, whichever is greater, exceeds the value determined by agreement between the customer and KYEPCO, the contract power shall be the greater maximum demand value. For the portion of the month from the day of the reduction, it shall be the case where the maximum demand of the same period exceeds the value agreed upon by the customer and KYEPCO.
 - (b) If the same meter is used for Commercial Self-Generation Backup Power and the customer consumed electricity under Commercial Self-Generation Backup Power, the maximum demand for the month shall be, in principle, either the value of the maximum 30-minute demand wattmeter during the hours of supply under Commercial Self-Generation Backup Power minus the maximum demand for the month under Commercial Self-Generation Backup Power, or the value of the maximum 30-minute demand wattmeter during times other than hours of electric supply under Commercial Self-Generation Backup Power for the month, whichever is greater.
 - (c) KYEPCO shall install the maximum 30-minute demand wattmeter.
- (B) When the contract power is 500 kilowatts or more and electricity is supplied at high voltage, or where the customer receives electricity at extra high voltage:
- (a) The contract power shall be determined by agreement between the customer and KYEPCO based on the items constituting the load equipment and receiving equipment in use as well as load and other factors seen among other customers with similar business requirements. However, if electricity is supplied under a new contract and it is deemed inappropriate to conclude the contract based on the maximum load throughout the year starting from the

day the supply commenced, the contract power may be increased in stages for the limited period of one year from the commencement day of power supply.

(b) If the same meter is used for Commercial Self-Generation Backup Power and the customer consumed electricity under Commercial Self-Generation Backup Power, the maximum demand for the month shall be, in principle, either the value of the maximum 30-minute demand wattmeter for the month during the hours of supply under Commercial Self-Generation Backup Power minus the maximum demand under Commercial Self-Generation Backup Power for the month, or the value of the maximum 30-minute demand wattmeter for the time other than hours of electric supply under Commercial Self-Generation Backup Power during the month, whichever is greater.

(c) KYEPCO shall install the maximum 30-minute demand wattmeter.

(C) If the maximum demand of a customer receiving electricity supply service with a contract power of less than 500 kilowatts reaches or exceeds 500 kilowatts, the contract power will be revised immediately based on the provision of (B) above. Otherwise, it will be determined pursuant to (A) above.

(5) Rates

The rate applicable shall be the sum total of the demand charge and the energy charge. However, if the demand charge is decreased or increased based on the power factor described in (B) below, the charge shall be adjusted accordingly. The energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the "Fuel Cost Adjustment" section of the separate Electric Rate Schedule.

(A) Demand charge and energy charge

The demand charge and energy charge shall be as defined in the separate Electric Rate Schedule. However, the charge for any one month during which no electricity is consumed, excluding electricity consumed under the Standby Power, shall be billed at half the rate.

(B) Power factor adjustment

(a) The power factor for a month shall be the average power factor from 8:00 to 22:00 each day of the month. When the momentary power factor is leading, it shall be deemed as one hundred (100) percent. In this case the average power factor shall be determined pursuant to Schedule 5 (Average Power Factor Determination). The power factor for a month during which no electricity is consumed shall be deemed as eighty-five (85) percent.

(b) The demand charge shall be decreased if the power factor is higher than eighty-five (85) percent or increased if the power factor is lower than eighty-five (85) percent; in both cases, the demand charge will be adjusted by one (1) percent per one (1) percent of

difference in the power factor from eighty-five (85) percent.

(6) Others

Commercial Power A shall not be applied to customers within one year of changing from Commercial Power A to Commercial Power A by Season & Time-of-Use; and Commercial Power A by Season & Time-of-Use shall not be applied to customers within one year of changing from Commercial Power A by Season & Time-of-Use to Commercial Power A.

15. Industrial Power Service

(1) Application

This contract category is applicable to customers using electricity at high or extra high voltage for power appliances (inclusive of incidental lighting) where one of the following conditions applies and agreement is reached between the customer and KYEPCO.

(A) The contract power is 50 kilowatts or more. However, this service might be applicable to customers with a contract power of less than 50 kilowatts if there is a special circumstance, such as if the customer plans to increase the contract load equipment in the near future, and the customer so requests.

(B) The sum total of the two items: (i) the contract current (where 10 amperes are considered to be one kilowatt) or contract capacity (where 1 kilovolt-ampere is considered to be one kilowatt) of the incidental lighting used when (2) C or (3) D of 17 (Residential Lighting Service) of the Rules and Rates (if KYEPCO revises the Rules and Rates, it shall be the Rules and Rates as revised) is applied, and (ii) the contract power of power appliances used when (4) of 20 (Low Voltage Power Service) of the Rules and Rates is applied is 50 kilowatts or more, as a rule.

(2) Power Supply Method, Supply Voltage and Frequency

Power is supplied in AC, three-phase and three-wire, at supply voltages varying as described below in accordance with the contract power (or the total of both contract powers if the contract also covers Industrial Self-Generation Backup Power) and a standard frequency of 60 Hz. However, if the customer's special circumstances or any circumstances at KYEPCO's supply facilities so require, power may be supplied at a lower or higher voltage than such standard voltage.

Contract power of less than 2,000 kilowatts	Standard voltage	6,000 volts
Contract power of 2,000 kilowatts or more and less than 10,000 kilowatts	Standard voltage	20,000 volts
Contract power of 10,000 kilowatts or more and less than 50,000 kilowatts	Standard voltage	60,000 volts

Contract power of 50,000 kilowatts or more	Standard voltage	100,000 volts
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(3) Contract Load Equipment and Contract Receiving Equipment

The customer is required to define the contract load equipment and contract receiving equipment in advance if the contract power is less than 500 kilowatts.

(4) Contract Power

The contract power shall be determined in accordance with the provisions below.

(A) When the contract power is less than 500 kilowatts and electricity is supplied at high voltage:

(a) The contract power for each billing month, except for the cases described below, shall be the maximum demand during the month or that during the preceding eleven (11) months, whichever is greater.

a. When a customer newly receives supply at high voltage, the contract power for each month during a period of twelve (12) months from the commencement day of billing shall be the maximum demand during the month or that of the period up to the preceding month from the commencement day, whichever is greater. However, if the customer, before newly receiving supply at high voltage under the Standard Supply Conditions, received supply at the same premises under the Rules and Rates for Wheeling Service and continues to receive supply under the Standard Supply Conditions, the customer is deemed to have received power under the Standard Supply Conditions for the purpose of determining the contract power.

b. When a customer increases the amount of contract receiving equipment and the maximum demand of the portion of the month during which the day the increase is implemented exceeds either the maximum demand for the portion of the same month before the day of the increase or that during the preceding eleven (11) months, whichever is greater, the contract power for the portion of the month before the day of the increase, shall be the value of either the maximum demand of the same period or that during the preceding eleven (11) months, whichever is greater. The contract power for the portion of the month from the day of the increase shall be the maximum demand of the same period.

c. If a customer reduces, for example, the contract receiving equipment, and it is obvious that the customer's maximum demand throughout the year will decrease, the contract power for the portion of the month of the reduction until the day before the decrease is implemented shall be the value of either the maximum demand of the same period or that during the preceding eleven (11) months, whichever is greater. The contract power for each month during a period of twelve (12) months from the day of the reduction shall be determined by agreement between the customer and KYEPCO based

on items constituting the contract load equipment and contract receiving equipment, as well as the load factor, rate of operation and other factors commonly seen among other customers with similar business requirements. The contract power for the portion of the month starting on the day of the reduction shall be the contract power of the same period. However, if either the maximum demand during that month or the maximum demand from the day of the reduction to the preceding month of the twelve (12) month period from the day of the reduction, whichever is greater, exceeds the value determined by agreement between the customer and KYEPCO, the contract power shall be the greater maximum demand value. For the portion of the month from the day of the reduction, it shall be the case where the maximum demand of the same period exceeds the value agreed upon by the customer and KYEPCO.

- (b) If the same meter is used for Industrial Self-Generation Backup Power and the customer consumed electricity under Industrial Self-Generation Backup Power, the maximum demand for the month shall be, in principle, either the value of the maximum 30-minute demand wattmeter during the hours of supply under Industrial Self-Generation Backup Power minus the maximum demand for the month under Industrial Self-Generation Backup Power, or the value of the maximum 30-minute demand wattmeter during times other than hours of electric supply under Industrial Self-Generation Backup Power for the month, whichever is greater.
 - (c) KYEPCO shall install the maximum 30-minute demand wattmeter.
- (B) When the contract power is 500 kilowatts or more and electricity is supplied at high voltage or where the customer receives electricity at extra high voltage:
- (a) The contract power shall be determined by agreement between the customer and KYEPCO based on the items constituting the load equipment and receiving equipment in use as well as the load factor and rate of operation, etc. seen among other customers with similar business requirements. However, if electricity is supplied under a new contract and it is deemed inappropriate to conclude a contract based on the maximum load throughout the year starting from the day the supply commenced, the contract power may be increased in stages for the limited period of one year from the commencement day of power supply.
 - (b) If the same meter is used for Industrial Self-Generation Backup Power and the customer consumed electricity under Industrial Self-Generation Backup Power, the maximum demand for the month shall be, in principle, either the value of the maximum 30-minute demand wattmeter for the month during the hours of supply under Industrial Self-Generation Backup Power minus the maximum demand under Industrial Self-Generation Backup Power for the month, or the value of the maximum 30-minute demand wattmeter during the time other than hours of electric supply under Industrial

Self-Generation Backup Power for the month, whichever is greater.

(c) KYEPCO shall install the maximum 30-minute demand wattmeter.

(C) If the maximum demand of a customer receiving electricity supply service with a contract power of less than 500 kilowatts reaches or exceeds 500 kilowatts, the contract power will be revised immediately based on the provision of (B) above. Otherwise, it will be determined pursuant to (A) above.

(5) Rates

The rate applicable shall be the sum total of the demand charge and the energy charge. However, if the demand charge is decreased or increased based on the power factor described in (B) below, the charge shall be adjusted accordingly. The energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the "Fuel Cost Adjustment" section of the separate Electric Rate Schedule.

(A) Demand charge and energy charge

The demand charge and energy charge shall be as defined in the separate Electric Rate Schedule. However, the charge for any one month during which no electricity is consumed, excluding electricity consumed under the Standby Power, shall be billed at half the rate.

(B) Power factor adjustment

(a) The power factor for a month shall be the average power factor from 8:00 to 22:00 each day of the month. When the momentary power factor is leading, it shall be deemed as one hundred (100) percent. In this case, the average power factor shall be determined pursuant to Schedule 5 (Average Power Factor Determination). The power factor for a month during which no electricity is consumed shall be deemed as eighty-five (85) percent.

(b) The demand charge will be decreased if the power factor is higher than eighty-five (85) percent, or increased if lower than eighty-five (85) percent. In both cases this will be one (1) percent per one (1) percent of increase or decrease from the power factor of eighty-five (85) percent.

(6) Others

(A) The use of lamps (inclusive of small-scale appliances) other than incidental lighting through, for example, power generating equipment, is not permitted.

(B) Industrial Power A shall not be applied to customers within one year of changing from Industrial Power A to Industrial Power A by Season & Time-of-Use; and Industrial Power A by Season & Time-of-Use shall not be applicable to customers within one year of changing from Industrial Power A by Season & Time-of-Use to Industrial Power A.

16. Temporary Power Service

(1) Application

This contract category is applicable to customers with a contract use period of less than one (1) year who are within the application range of Commercial Power or Industrial Power. However, this service is not applicable for use during certain set periods each year.

(2) Contract Power

The contract power shall be determined based on Commercial Power or Industrial Power. However, if the customer receives power supply at high voltage and the contract power is less than 500 kilowatts, the contract power shall be the value calculated according to Schedule 6 (Contract Power Calculation Method).

(3) Rates

An extra twenty (20) percent shall be added to the corresponding rates for Commercial Power or Industrial Power. However, the energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the "Fuel Cost Adjustment" section of the separate Electric Rate Schedule.

Further, the power factor adjustment shall be made in a method similar to that used for Commercial Power or Industrial Power. The power factor shall be as described below for customers who receive power supply at high voltage with a contract power of less than 500 kilowatts.

(A) The power factor shall be determined by agreement between the customer and KYEPCO based on the factor at the time of maximum load (when the momentary power factor is leading, it shall be one hundred (100) percent). The power factor for a month during which no electricity is consumed shall be deemed as eighty-five (85) percent.

(B) The customer may negotiate with KYEPCO to change the power factor only in cases where there is a justifiable reason.

(4) Others

(A) KYEPCO, in principle, shall not install permanent supply facilities for this service.

(B) If the customer requests continuous use of the service after the contract use period and the time from the day after the contract use period expires to the day of the expiration of the new contract use period is less than one (1) year, Temporary Power shall apply.

(C) Other provisions shall conform to those for Commercial Power or Industrial Power, unless otherwise stated.

17. Self-Generation Backup Power Service

(1) Commercial Self-Generation Backup Power

(A) Application

This contract category is applicable to customers under Commercial Power who receive power supply to make up for power deficiency or loss caused by inspections, repairs or maintenance or failures of the power generation facilities of the customer. The customer is required to enter into the contract for Commercial Self-Generation Backup Power if such customer installs generation facilities unless there is no chance of a power shortage occurring, for instance, due to reasons such as the existence of standby power generation facilities already in place. Commercial Self-Generation Backup Power shall not apply to a customer with thermal power generation facilities suffering from power deficiency due to output restrictions in compliance with the Air Pollution Control Law and other related laws and ordinances. Further, Commercial Self-Generation Backup Power shall not apply to a customer with hydroelectric power generation facilities suffering from power deficiency due to a water shortage.

(B) Contract power

(a) The contract power shall be determined by agreement between the customer and KYEPCO based on the capacity (in rated output) of the customer's generation facilities. In such cases, the contract power shall not be less than the rated (output) capacity of the facility with the largest capacity per unit, in principle.

(b) If it is difficult to apply the provision(s) of (a) above, the contract power shall be determined by agreement between the customer and KYEPCO based on the values below.

a. When standby power generation facilities are installed:

The contract power shall be the value of the rated (output) capacity of the customer's power generation facilities minus the rated (output) capacity of the customer's standby power generation facilities. In this case, "standby power generation facilities" shall refer to equipment that starts operation instantaneously by automatic switching when the normally operating power generation facilities cease operation.

b. When an automatic device is installed to instantaneously interrupt the load when power generation facilities cease operation:

The contract power shall be the value of the rated (output) capacity of the customer's generation facilities minus the capacity of load facilities (total capacity of load equipment used at the same time) connected to such automatic device for instantaneous interrupting of load.

(C) Rates

The rate applicable shall be the sum total of the demand charge and the energy charge. However, if the demand charge is decreased or increased based on the power factor described in

(b) below, the charge shall be adjusted accordingly. The energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the “Fuel Cost Adjustment” section of the separate Electric Rate Schedule.

(a) Demand charge and energy charge

The demand charge and energy charge shall be as defined in the separate Electric Rate Schedule.

(b) Power factor adjustment

The power factor adjustment shall be based on the rate used for Commercial Power.

(D) Use of Commercial Self-Generation Backup Power

(a) If a customer uses Commercial Self-Generation Backup Power, the customer is required to notify KYEPCO in advance regarding the time of the start and stop of such service use. However, if such use is unavoidable for reasons such as a failure, the customer shall notify KYEPCO as soon as possible after the start of the service use.

(b) If the same meter is used for firm supply and Commercial Self-Generation Backup Power, and the value of the maximum 30-minute demand wattmeter of the customer whose contract power for firm supply is determined according to (4) (B) of 14 (Commercial Power Service) does not exceed the contract power for firm supply, no energy is deemed to have been consumed under Commercial Self-Generation Backup Power, notwithstanding (a) above.

(E) Determination of the maximum demand when the same meter is used for firm supply (and self-generation backup power).

If the same meter is used for firm supply and the customer uses Commercial Self-Generation Backup Power, the contract power shall be deemed as the maximum demand for the month as a rule, except for the following cases:

(a) If a customer whose contract power for firm supply is determined according to 14 (Commercial Power Service) (4) (A), and it is obvious that the maximum demand under Commercial Self-Generation Backup Power exceeds the contract power, that maximum demand value shall be the maximum demand for the month.

(b) If a customer whose contract power for firm supply is determined according to 14 (Commercial Power Service) (4) (B), and the value of the maximum 30-minute demand wattmeter for the month exceeds the sum total of the contract power for firm supply and the contract power under Commercial Self-Generation Backup Power, and it is obvious that the cause of such excess is due to the excess of energy consumption under Commercial Self-Generation Backup Power, that maximum demand value shall be the maximum demand for the month. When the cause of excess is not evident, the

maximum demand for the month shall be obtained by proportionally dividing the value based on the ratio of the contract powers of firm supply and Commercial Self-Generation Backup Power.

(F) Determination of the energy consumption when the same meter is used for firm supply (and self-generation backup power)

- (a) The energy consumption shall be the value of the energy consumption measured during the hours of electricity supply under Commercial Self-Generation Backup Power minus the value obtained by multiplying the base power by the number of hours of electricity supply under Commercial Self-Generation Backup Power. In such cases, the base power shall be established, in principle, based on a, b, or c below, and the customer and KYEPCO shall, by agreement and according to the load status, select in advance one of them to be the base. Therefore, such selection shall not be made each time Commercial Self-Generation Backup Power is utilized.

Further, the base power for customers who enter a contract for Commercial Self-Generation Backup Power together with one for Commercial Power A by Season & Time-of-Use shall be determined for the respective time of use period.

- a. Average electric energy for firm supply for the one-month period before the utilization of Commercial Self-Generation Backup Power, or for the same month of the previous year
- b. Average electric energy for firm supply for the three-month period prior to the utilization of Commercial Self-Generation Backup Power
- c. Average electric energy for firm supply for the three-day period prior to the utilization of Commercial Self-Generation Backup Power

- (b) If it is deemed inappropriate to calculate the energy consumption under the Commercial Self-Generation Backup Power for the continuous use term for Commercial Self-Generation Backup Power, the energy consumption under Commercial Self-Generation Backup Power shall be the sum total of the values obtained for each hour of electricity supply under Commercial Self-Generation Backup Power by subtracting the base power multiplied by the number of such supply hours from the energy consumption for the hour.

(c) Energy consumption blocks

The energy consumption under Commercial Self-Generation Backup Power shall not exceed the value obtained by multiplying the maximum demand under Commercial Self-Generation Backup Power by the number of hours of Commercial Self-Generation

Backup Power utilization, in principle.

(G) Others

- (a) The performance of regular inspections and regular maintenance during summertime shall be avoided as much as possible. In such cases, the customer is required to notify KYEPCO in writing of the schedule for such activities at the beginning of each fiscal year. If the customer wishes to change this schedule, the customer is required to give notice of such change to KYEPCO at least one month in advance.
- (b) KYEPCO shall request that the customer submit records regarding the electric supply and on the operation of the power generation facilities as need arises.
- (c) Other provisions shall conform to those for Commercial Power, unless otherwise stated.

(2) Industrial Self-Generation Backup Power

(A) Application

This contract category is applicable to customers under Industrial Power who receive power supply to make up for power deficiency or loss caused by inspections, repairs or maintenance or failures of the power generation facilities of the customer. The customer is required to enter into the contract for Industrial Self-Generation Backup Power if such customer installs generation facilities, unless there is no chance of a power shortage occurring, for instance, due to reasons such as the existence of standby power generation facilities already in place. Industrial Self-Generation Backup Power shall not apply to a customer with thermal power generation facilities suffering from power deficiency due to output restrictions in compliance with the Air Pollution Control Law and other related laws and ordinances. Further, Industrial Self-Generation Backup Power shall not apply to a customer with hydroelectric power generation facilities suffering from power deficiency due to a water shortage.

(B) Contract power

The contract power shall be determined by agreement between the customer and KYEPCO based on the customer's load situation.

(C) Rates

The rate applicable shall be the sum total of the demand charge and the energy charge. However, if the demand charge is decreased or increased based on the power factor described in (b) below, the charge shall be adjusted accordingly. The energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the "Fuel Cost Adjustment" section of the separate Electric Rate Schedule.

(a) Demand charge and energy charge

The demand charge and energy charge shall be as defined in the separate Electric Rate

Schedule.

(b) Power factor adjustment

The power factor adjustment shall be based on the rate used for Commercial Power.

(D) Use of Industrial Self-Generation Backup Power

(a) If the customer uses Industrial Self-Generation Backup Power, the customer is required to notify KYEPCO in advance regarding the time of the start and stop of such service use. However, if such use is unavoidable for reasons such as a failure, the customer shall notify KYEPCO as soon as possible after the start of the service use.

(b) If the same meter is used for firm supply and Industrial Self-Generation Backup Power, and the value of the maximum 30-minute demand wattmeter of the customer whose contract power for firm supply is determined according to (4) (B) of 15 (Industrial Power Service) does not exceed the contract power for firm supply, no energy is deemed to have been consumed under Commercial Self-Generation Backup Power, notwithstanding (a) above.

(E) Determination of the maximum demand when the same meter is used for firm supply (and self-generation backup power)

If the same meter is used for firm supply and the customer uses Industrial Self-Generation Backup Power, the contract power shall be deemed as the maximum demand for the month as a rule, except for the following cases:

(a) If a customer whose contract power for firm supply is determined according to 15 (Industrial Power Service) (4) (A), and it is obvious that the maximum demand under Industrial Self-Generation Backup Power exceeds the contract power, that maximum demand value shall be the maximum demand for the month.

(b) If a customer whose contract power for firm supply is determined according to 15 (Industrial Power Service) (4) (B), and the value of the maximum 30-minute demand wattmeter for the month exceeds the sum total of the contract power for firm supply and the contract power under Industrial Self-Generation Backup Power, and it is obvious that the cause of such excess is due to the excess of energy consumption under Industrial Self-Generation Backup Power, that maximum demand value shall be the maximum demand for the month. When the cause of excess is not evident, the maximum demand for the month shall be obtained by proportionally dividing the value based on the ratio of the contract powers of firm supply and Industrial Self-Generation Backup Power.

(F) Determination of the energy consumption when the same meter is used for firm supply (and self-generation backup power)

(a) The energy consumption shall be the value of the energy consumption measured during

the hours of electricity supply under Industrial Self-Generation Backup Power minus the value obtained by multiplying the base power by the number of hours of electricity supply under Industrial Self-Generation Backup Power. In such cases, the base power shall be established, in principle, based on a, b, or c below, and the customer and KYEPCO shall, by agreement and according to the load status, select in advance one of them to be the base. Therefore, such selection shall not be made each time Industrial Self-Generation Backup Power is utilized.

Further, the base power for customers who enter a contract for Industrial Self-Generation Backup Power together with one for Industrial Power A by Season & Time-of-Use shall be determined for the respective time of use period.

- a. Average electric energy for firm supply for the one-month period before the utilization of Industrial Self-Generation Backup Power, or for the same month of the previous year
- b. Average electric energy for firm supply for the three-month period prior to the utilization of Industrial Self-Generation Backup Power
- c. Average electric energy for firm supply for the three-day period prior to the utilization of Industrial Self-Generation Backup Power

(b) If it is deemed inappropriate to calculate the energy consumption under the Industrial Self-Generation Backup Power for the continuous use term for Industrial Self-Generation Backup Power, the energy consumption under Industrial Self-Generation Backup Power shall be the sum total of the values obtained for each hour of electricity supply under Industrial Self-Generation Backup Power by subtracting the base power multiplied by the number of such supply hours from the energy consumption for the hour.

(c) Energy consumption blocks

The energy consumption under Industrial Self-Generation Backup Power shall not exceed the value obtained by multiplying the maximum demand under Industrial Self-Generation Backup Power by the number of hours of Industrial Self-Generation Backup Power utilization, in principle.

(G) Others

- (a) The performance of regular inspections and regular maintenance during summertime shall be avoided as much as possible. In such cases, such activities shall be scheduled by agreement between the customer and KYEPCO at the beginning of each fiscal year, and the schedule shall be confirmed one month prior to the start of such activities by

agreement. The customer may be asked to change this schedule if electric supply conditions deteriorate significantly at the scheduled time.

- (b) KYEPCO shall request that the customer submit records regarding the electric supply and on the operation of the power generation facilities as need arises.
- (c) Other provisions shall conform to those for Industrial Power, unless otherwise stated.

18. Standby Power Service

(1) Application

This contract category is applicable to customers using Commercial Power or Industrial Power who receive power supply from a standby power line or lines to make up for power deficiency or loss caused by maintenance or failures of firm supply facilities.

(A) Standby lines

When a customer receives the supply at the same voltage from the substation which supplies firm power

(B) Standby power sources

When a customer receives the supply from a substation other than the one that supplies firm power or from the substation which supplies firm power at a voltage different from the voltage normally supplied for firm power

(2) Contract Power

The contract power shall be the same as that for firm supply. However, if the electricity is supplied at a different voltage from that of the firm power supplied or the customer wishes for a contract power different from that of the firm supply due to the customer's special circumstances, the contract power shall be determined by agreement between the customer and KYEPCO based on the items constituting the contract load equipment and contract receiving equipment used for backup power as well as the estimated maximum demand. In such cases, the contract power shall not be less than 50 kilowatts, as a rule.

(3) Rates

The rate applicable shall be the sum total of the demand charge and the energy charge. However, the energy charge shall be adjusted by either adding or subtracting the fuel cost adjustment amount according to 3 (Adjustment with the Fuel Cost Adjustment Amount) in the "Fuel Cost Adjustment" section of the separate Electric Rate Schedule.

(A) Demand charge and energy charge

The demand charge and energy charge shall be as defined in the separate Electric Rate Schedule. The energy charge shall be calculated together with that for the firm supply of power.

(B) Power factor adjustment

No power factor adjustment shall apply to this service. However, for the purpose of applying the power factor adjustment to firm supply, the electricity consumed under Standby Power shall be deemed, in principle, the electricity consumed under firm supply.

(4) Others

- (A) The customer may utilize service with both standby lines and standby power sources if the customer so requests.
- (B) Other provisions shall conform to those for Commercial Power or Industrial Power, unless otherwise stated.

IV. BILLING AND PAYMENT

19. Start of Rate Application

The rate applies on and after the date when the supply service commences. However, for a customer for whom a written service contract is prepared in advance, the rate shall apply from the service commencement date specified therein. It should be noted that, the service commencement date shall be reestablished by agreement between KYEPCO and the customer for whom a written service contract is prepared in advance if a delay of commencement has been requested by the customer prior to conducting any preliminary work for the service or if the service cannot be started due to reasons not attributable to the customer.

20. Meter Reading Day

The meter reading day shall be either the day when the actual meter reading is conducted or the date when the reading is deemed to have been conducted, in accordance with the following provisions:

- (1) Meter reading shall be conducted monthly on a day specified (while considering the preset meter reading day and holidays) for each customer, who will have been notified in advance of the meter reading day. However, the meter reading may be conducted on days other than the meter reading day notified by KYEPCO if required due to emergencies or any other inevitable cause.
- (2) If the meter reading is not conducted due to the customer's absence or another reason, the meter reading shall be deemed to have been conducted on the date the meter reader visited the customer's premises for the reading.
- (3) Notwithstanding (1) above, KYEPCO may not conduct meter reading each month:
 - (A) if the time period from the commencement of the supply to the meter reading day immediately after the commencement is short; or
 - (B) if there is a special reason other than the above and prior agreement from the customer has been obtained.
- (4) If no meter reading is conducted as in (3) (A), meter reading is deemed to have been conducted on the meter reading day which occurs immediately after such commencement of supply in the meter reading area to which the customer belongs.
- (5) If no meter reading is conducted as in (3) (B), meter reading is deemed to have been conducted for such month on the day that KYEPCO notified the customer in advance.

21. Billing Period

- (1) The period for which the electric charge is calculated shall be the period from the meter reading day of the preceding month to the day before the meter reading day of the current month (hereinafter referred to as the "meter reading period"). However, the billing period in cases of

the commencement of supply service or termination of the electric service contract shall be the period from the day of electricity supply commencement to the day before the meter reading day immediately after such commencement, or the period from the meter reading day immediately before termination of the electric service contract to the day before the day of termination of the said contract, respectively. If the method for determining the contract power described in (4) of 14 (Commercial Power Service) or (4) of 15 (Industrial Power Service) is changed, the billing period shall be based on the cases of supply service commencement or termination of the electric service contract, and the day of such change shall be deemed as the day of service commencement or contract termination.

- (2) If the measurement is conducted with the recording meter, and when KYEPCO has notified the customer of the day when the reading on the watt-hour meter or maximum 30-minute demand wattmeter will be recorded by the recording meter (hereinafter referred to as the “measurement day”) in advance, the billing period shall be, notwithstanding (1) above, the period from the measurement day of the preceding month to the day before the measurement day of the current month (hereinafter referred to as the “measurement period”). However, the billing period for cases of supply service commencement or termination of the electric service contract shall be the period from the day of electricity supply commencement to the day before the measurement day immediately after such commencement, or the period from the measurement day immediately before termination of the electric service contract to the day before the day of termination of the said contract, respectively. If the method for determining the contract power described in (4) of 14 (Commercial Power Service) or (4) of 15 (Industrial Power Service) is changed, the billing period shall be based on the cases of supply service commencement or termination of the electric service contract, and the day of such change shall be deemed as the day of service commencement or contract termination.

22. Measurement of Energy Consumption and Other Items

- (1) The measurement of energy consumption shall be based on the reading of the watt-hour meter, and the energy consumption for the billing period shall be determined using the difference between the reading of the watt-hour meter on the meter reading day (or the day of termination, in principle, if the supply contract is terminated) and the reading on the previous meter reading day (or the day of commencement if the supply has commenced under a new contract) except for the following cases as well as the cases described in (8) and (12) below. If the watt-hour meter has multiplying factor settings, the values of such readings shall be multiplied by the relevant factor. However, if the measurement is conducted with the recording meter, and when KYEPCO has notified the customer of the measurement day in advance, the reading on the meter reading day shall be the value recorded by such recording meter on such measurement

day.

- (A) In the case of (2) of 20 (Meter Reading Day), the energy consumption shall be based on the result of the previous meter reading and shall be subject to adjustment from the one-month average (an average based on the number of months) from the meter reading that immediately follows. However, if the provisions in (1) (A), (B), (C) or (D) of 23 (Billing) are applicable, settlement shall be made based on the amount obtained by dividing proportionally the result of the following meter reading by the ratio of the values obtained by multiplying the number of days to be separated for the purpose of billing by the contract power.
 - (B) In the case of (4) of 20 (Meter Reading Day), the energy consumption for the period from the commencement of the supply service to the day before the second meter reading day after such commencement shall be divided proportionally according to the number of days in the period from supply service commencement to the day before the meter reading day immediately after such commencement and the number of days in the period from the meter reading day immediately after such commencement to the day before such second meter reading day, and the amount thus obtained shall be the energy consumption for the respective period. However, if the provisions in (1) (A), (B), (C) or (D) of 23 (Billing) are applicable, the amount obtained by dividing proportionally the result of the following meter reading by the ratio of the values obtained by multiplying the number of days to be separated for the purpose of billing by the value the contract power shall be the energy consumption for the respective billing period.
 - (C) In the case of (5) of 20 (Meter Reading Day), the energy consumption shall be, in principle, the one-month average gained from the result of the previous meter reading and shall be subject to adjustment by the one-month average gained from the result of the meter reading that immediately follows. However, if the provisions in (1) (A), (B), (C) or (D) of 23 (Billing) are applicable, settlement shall be made based on the amount obtained by dividing proportionally the result of the following meter reading by the ratio of the values obtained by multiplying the number of days to be separated for the purpose of billing by the contract power.
- (2) The measurement of energy consumption under Commercial Power A by Season & Time-of-Use and Industrial Power A by Season & Time-of-Use shall be conducted for each time of use period, in principle.
 - (3) The measurement of the maximum demand for the billing period shall be made by reading the maximum 30-minute demand wattmeter on the meter reading day (or by reading the maximum 30-minute demand wattmeter on the day of termination, in principle, if the supply contract is terminated), except for the cases described in (11) and (12). However, if the measurement is

conducted with the recording meter, and when KYEPCO has notified the customer of the measurement day in advance, the readings on the maximum 30-minute demand wattmeter on the meter reading day shall be the value recorded by such recording meter on such measurement day.

Further, if the maximum 30-minute demand wattmeter has multiplying factor settings, the values of such readings shall be multiplied by the relevant factor.

- (4) The reading of the meter shall be made as stipulated below:
 - (A) The reading shall be the value of the scale indicated by the point of the meter. However, if the indication point is between markings, it shall be the value of the smaller marking.
 - (B) The value shall be an integer if the meter has no multiplying factor.
 - (C) If the meter has a multiplying factor, the value shall include the smallest digit. However, if the measurement is made with the maximum 30-minute demand wattmeter, and the indication points to a location between markings, the unit for the measurement shall be half of the value between the two markings.
- (5) Energy consumption and maximum demand shall be measured at the same voltage as the supply voltage.
- (6) Notwithstanding (5) above, energy consumption and maximum demand may be measured at a voltage different from the supply voltage if necessary. In such a case, to obtain energy consumption and maximum demand corrected for the voltage difference, a loss rate of three (3) percent shall be applied to such measured energy consumption and maximum demand, as a rule.
- (7) KYEPCO shall promptly notify the customer of the results of meter reading.
- (8) KYEPCO may confirm the measurements if deemed necessary by KYEPCO, even during the billing period. In such a case, the measurement shall be based on the reading of the watt-hour meter on the day such measured values are verified (hereinafter referred to as "verification day"). The energy consumption before and after such verification day shall be calculated pursuant to (1) and the sum total of such energy consumed shall be deemed to be the energy consumption for the billing period.
- (9) If the billing period of (1) (A) or (2) (A) of 13 (Contract Categories) includes days of both summertime and other seasons and the measured values are verified as in (8) on July 1 or October 1, the energy consumption for summertime and other seasons shall be such verified values, respectively.
- (10) If a billing period described in (1) (A) or (2) (A) of 13 (Contract Categories) includes days of both summertime and other seasons, excluding the case described in (9), the energy consumption for that billing month is divided proportionally based on the number of days of

summertime and other seasons, and each portion thus divided is deemed as the corresponding energy consumption for each respective season.

Further, if, according to (8) above, the energy consumption before and after the verification day is measured, excluding the case described in (9), the value obtained by proportionally dividing the energy consumption of the period that is either before or after such verification day and includes days of both summertime and other seasons, based on the ratio of days in summertime and other seasons, and the energy consumption of the period that does not include days from summertime nor other seasons shall be totaled for summertime and for other seasons respectively.

- (11) If the maximum 30-minute demand wattmeter is replaced, the maximum demand for the billing period shall be the maximum demand measured with each of the removed and newly installed maximum demand wattmeter according to (3) above, whichever is greater, except for the case described in (12).
- (12) If accurate measurement of the energy consumption or the maximum demand was not made for reasons such as failure of the meter, the energy consumption or the maximum demand for such billing period shall be determined by agreement between the customer and KYEPCO based on Schedule 7 (Agreement Regarding Energy Consumption and Other Items).

23. Billing

- (1) The electric charge shall be calculated for a period of one billing month except in the following cases:
 - (A) Electric supply service is started, resumed or suspended, or a service contract is terminated.
 - (B) There are rate changes due to a change in the contract categories, contract load equipment, contract power, supply voltage, power factor or others.
 - (C) The situation in (1) of 21 (Billing Period) exists, and the actual number of days of such a meter reading period is five (5) days more or less than the number of days in the calendar month to which the preset meter reading day corresponding to the beginning of such meter reading period belongs.
 - (D) The situation in (2) of 21 (Billing Period) exists, and the number of days of such a measurement period is five (5) days more or less than the number of days in the calendar month to which the preset meter reading day corresponding to the beginning of such measurement period belongs.
- (2) The electric charge shall be calculated by applying the corresponding electricity rates of the respective contract category to each supply service.

24. Per-Diem Calculation

- (1) The electric charge shall be determined pursuant to the following in the cases described in (A), (B), (C) or (D) of (1) of 23 (Billing).
 - (A) The demand charge shall be determined by a per-diem calculation pursuant to (1) (A) of Schedule 8 (Basic Formula for Per-Diem Calculation).
 - (B) The energy charge shall be determined according to (1) (B) of Schedule 8 (Basic Formula for Per-Diem Calculation) based on the energy consumption of each period subject to the per-diem calculation.
 - (C) If it is difficult to apply the provisions of (A) or (B) above, the calculation shall be done in a manner similar to (A) or (B).
- (2) If the per-diem calculation applies to the case described in (1) (A) of 23 (Billing), days of commencement or resumption shall be included in the calculation and any days of suspension or termination shall be excluded. Further, if the per-diem calculation applies to the case described in (1) (B) of 23 (Billing), rates after the changes shall apply on and from the day of such changes.
- (3) If there is a change in the power factor, the demand charge shall be determined as follows:
 - (A) If there is a change in the contract load equipment that would result in a change of the power factor, per-diem calculations shall be made pursuant to (1) (A) of Schedule 8 (Basic Formula for Per-Diem Calculation) based on the power factors before and after such change.
 - (B) If there is no change in the contract load equipment and the power factor is changed by agreement, the demand charge shall be based on the changed power factor from the month that includes the day of such change.
- (4) For per-diem calculations, KYEPCO shall confirm the measurements each time as necessary.

25. Payment Obligation and Due Date

- (1) The customer's payment obligation for the electric charges shall be incurred on the meter reading days except in the following cases:
 - (A) For the electric charges in the case in (4) of 20 (Meter Reading Day) or the adjustment amounts in (1) (A) or (C) of 22 (Measurement of Energy Consumption and Other Items), obligation shall be incurred on the following meter reading day; and for the case described in (12) of 22 (Measurement of Energy Consumption and Other Items), obligation shall be incurred on the day when the energy consumption or the maximum demand was determined by agreement for the billing period.
 - (B) Payment obligation shall be incurred on the termination day when a supply service contract terminates. However, if the measurement is verified due to a special situation on and after

the date of termination, obligation shall be incurred on the day of such verification.

- (2) The customer is required to pay the electric charges by the thirtieth (30) day of the month, except for the cases below, from the day after the incurrence of the payment obligation (hereinafter referred to as “due date”).

If such due date falls on a Sunday or days stipulated in the cabinet ordinance as set forth in Article 15.1 of the Banking Law (hereinafter referred as “holiday(s)”), then such due date shall be postponed until the following day. If such postponed due date is also a Sunday or holiday, the due date shall be postponed to the day after such day.

- (A) The customer suffers a moratorium on the bank transaction due to dishonored drafts the customer drew or accepted, or checks the customer issued.
- (B) The customer is declared or has filed bankruptcy or legal processing for rehabilitation, consolidation, reorganization, liquidation or similar actions.
- (C) The customer is announced to come under an auction to execute or to enforce security interest.
- (D) The customer suffers the deposition for failure to pay taxes.
- (3) If the cases in (2) (A) through (D) above apply to the customer, the due date for the customer shall be as set forth below:

(A) For charges which are payable by the day the event(s) described in (2) (A) through (D) above occurred but have not been paid (excluding those which are overdue), the due date shall be the day such event(s) occurred. However, upon occurrence of such events the charges have been payable for less than seven (7) days, the due date shall be the seventh (7) day from the day after the incurrence of the payment obligation for such charges.

(B) For charges which become payable after the date of occurrence of the event(s) described in (2) (A) through (D) above, the due date shall be the seventh (7) day from the day after the incurrence of the payment obligation for such charges.

- (4) The customer is required to notify KYEPCO when the event(s) described in (2) (A) through (D) above are remedied. In such cases, the charges for which the payment obligation is incurred after such date of remedy are treated as if no such event(s) had occurred to the customer.

26. Payment of Electric Charges and Others

- (1) The customer is required to pay the electric charges each month and the contribution to construction costs and other amounts as incurred either at KYEPCO offices where charges and other payments are collected or financial institutions designated by KYEPCO.

If electric charges are paid through the financial institutions designated by KYEPCO, it shall be

done according to the following provisions:

- (A) If a customer wishes to pay electric charges monthly by transferring funds from an account to the account of KYEPCO on a continuous basis, the customer shall apply in advance to KYEPCO by filling out a form provided by KYEPCO. In such cases, notwithstanding (2) of 25 (Payment Obligation and Due Date), the day of such account transfer shall be the day specified by KYEPCO.
 - (B) If the customer pays electric charges through financial institutions designated by KYEPCO, the customer shall do so in the manner prescribed by KYEPCO.
- (2) If a customer pays electric charges as described in (1) (A) above, payment to KYEPCO shall be deemed to have been made when such electric charges have been transferred from the account designated by the customer. If a customer makes payment as described in (1) (B) above, the payment shall be deemed to have been made when the payment is made to the financial institution.
 - (3) If a customer fails to pay the electric charges by the due date, KYEPCO will charge such customer overdue interest by adding ten (10) percent to the electric charges exclusive of the sum equivalent to consumption and other taxes (the sum equivalent to consumption tax as established by the Consumption Tax Law and local consumption tax as established by the Local Tax Law) from the day after such due date to the actual payment day. Such interest shall be charged on the assumption of 365 days to a year even in leap years. The unit for the sum equivalent to consumption and other taxes shall be one (1) yen; and any fraction thereof shall be disregarded. Further, the customer is required to pay such overdue interest together with the electric charges for which the payment obligation incurs immediately after the payment of electric charges on which the said interest was imposed.
 - (4) The customer is required to pay the electric charges in the order that payment obligations are incurred.
 - (5) The customer is required to pay the electric charges for the period from the day the supply service commences to the day before the meter reading day immediately after such supply service commencement, together with the electric charges for the period from the meter reading day immediately after the supply commencement day to the day before the following meter reading day, in the case of 20 (Meter Reading Day) (4).
 - (6) KYEPCO may accept advance payment towards the electric charges if requested by the customer. Such advance payment shall not accrue interest.
 - (7) KYEPCO may request a deposit for Temporary Power Service. In such cases, a deposit shall be made prior to the start of electricity use. Further, the deposit shall not, in principle, exceed an amount equivalent to three (3) months of estimated electric charges. After the start of electricity use, the deposit shall be allocated to the payment of electric charges in order. After

the allocation to electric charges, the balance of the deposit after such allocation, if any, shall be refunded to the customers. Such deposit shall not accrue interest.

27. Security Deposit

- (1) KYEPCO may request a security deposit from any customer that is in any of the following circumstances prior to the commencement or resumption of the electric supply service, or as a condition for continuous electric supply. Such security deposit shall not exceed an amount equivalent to three months of estimated electric charges.
 - (A) The customer has had electric charge payments in arrears.
 - (B) The customer requests new service or an increase of the contract power and is in either of the following categories:
 - (a) The customer has electric charge payments from other supply contracts (including that already terminated) in arrears; or
 - (b) The customer is expected to have electric charge payments in arrears.
- (2) The energy consumption, which constitutes a basis for the estimated monthly electric charge, shall be determined by taking into account the customer's load factor, operational conditions, and load factors seen among other customers with similar business requirements.
- (3) The period that KYEPCO will hold the security deposit shall be from the day of the security deposit to the sixtieth day from the expiration of the contract period. Further, if KYEPCO holds a security deposit in accordance with (5) or (6) below, the period that KYEPCO will hold the security deposit shall be from the day of such security deposit to the sixtieth day from the expiration of the contact period.
- (4) If the contract is terminated or the customer has electric charges in arrears, KYEPCO may allocate the security deposit and interest thereof to the electric charges.
- (5) If the security deposit is allocated to the electric charges as provided in (4) above, the interest thereof shall be allocated first, then the security deposit, if there remains any amount still payable. In such a case, the customer is required to deposit the amount re-determined pursuant to (1) and (2) above. However, if there is any amount remaining from the security deposit and interest thereof still in deposit, the difference between the remaining amount and the security deposit amount determined pursuant to (1) and (2) shall be deposited.
- (6) If a customer who has placed a security deposit with KYEPCO increases the contract power during such period, the customer shall re-deposit the security deposit determined pursuant to (1) and (2) above. However, in this case, the customer shall deposit the amount equal to the difference between the amount already in deposit plus the interest thereof and such amount thus determined.
- (7) The security deposit with KYEPCO shall accrue interest as follows:

- (A) The interest shall be a simple interest at a rate of 0.2 percent per annum, and any fraction of less than one (1) yen shall be disregarded.
 - (B) The period of interest accrual shall be the period from such deposit to the day before refunding or allocating such deposit. It should be noted that, if the security deposit is not refunded on the refund day as notified by KYEPCO in advance due to reasons attributable to the customer, no interest shall accrue even during the interest accrual period defined above.
- (8) KYEPCO may refund the security deposit and the interest thereof within the time period that KYEPCO may hold the security deposit. However, in case of termination of the electric supply service contract, if any part of the deposit has been allocated pursuant to provision (4) above, the balance shall be refunded to the customer.

V. CONSUMPTION AND SUPPLY OF ELECTRICITY

28. Maintenance of Proper Contract

KYEPCO may require the customer to promptly change or correct the service contract if the service contract is deemed inappropriate as compared with the state of the customer's electricity use, such as a case in which the customer's power consumption exceeds the contract power.

29. Penalty for Excess Power Consumption

- (1) If a customer uses electricity in excess of the contract power for reasons other than those attributable to KYEPCO, the customer is required to pay penalty for excess power consumption. The amount of such a penalty will be obtained by multiplying the customer's power use in excess of the contract power by the basic charge rate, then either decreased or increased based on the power factor applicable to the month, then multiplied by 1.5. In such cases, power use in excess of the contract power shall be the maximum demand of the month minus the contract power.
- (2) The customer is required to pay the penalty for excess power consumption by the due date for the billing month during which electricity is consumed in excess of the contract power. If the customer fails to pay the penalty for excess power consumption by such due date, the customer is required to pay overdue interest at the rate of ten (10) percent, applicable to such penalty for excess power consumption, exclusive of the sum equivalent of consumption and other taxes, from the day after the due date to the day the payment is made. Such interest shall be calculated on assumption of a 365-day year even in leap years.

30. Maintenance of Proper Power Factor

- (1) The customer is required to maintain a power factor of eighty-five (85) percent or more at the customer's premises. The customer shall prevent the power factor from leading at the time of light load by taking measures such as opening the phase-advanced capacitor. Customers with a contract power of 500 kilowatts or more may be required to install the appropriate regulating devices at the customer's premises at the customer's expense.
- (2) KYEPCO may request the customer to open or close the phase-advanced capacitor if required for technical reasons, for example if there is a possibility of the power factor leading at KYEPCO's system due to light load. In such a case, the power factor for the month when the customer opened or closed the phase-advanced capacitor shall be determined by agreement between the customer and KYEPCO.

31. Operations through Access to Customer's Premises

KYEPCO may enter the customer's sites or buildings with the customer's consent for the purposes of conducting the work listed below. In such cases, the customer is requested to grant access to (a) KYEPCO's employee(s) for the performance of such tasks unless there is a justifiable reason for denying entry. Upon the customer's request, the KYEPCO employee(s) will present their official company identification card(s).

- (1) Designing, installing, repairing or inspecting KYEPCO's supply facilities up to the delivery point or meters and other electrical facilities at the customer's premises
- (2) Inspecting the customer's electrical facilities and other work required as prescribed in 65 (Customer's Cooperation for Safety and Security)
- (3) Testing the customer's electrical appliances, verifying or inspecting the customer's contract load equipment and contract receiving equipment or other electrical facilities, or verifying the uses of electricity required in order to prevent any misuse of electricity
- (4) Meter reading or verification of the measurement results
- (5) Taking the required measures described in 33 (Suspension of Supply), 43 (Termination of the Contract), or (Termination and Other Items)
- (6) Performing other work necessary upon conclusion, alteration or termination of the electric service supply contract, or work necessary for the verification of the safety and security of KYEPCO's electrical facilities in accordance with the Standard Supply Conditions

32. Customer's Cooperation Regarding Electricity Consumption

- (1) If a customer's use of the electric supply service causes or is likely to cause interference with the use of electricity by other customers or with the electrical installations of KYEPCO and/or other electric utilities (judgment in this case shall be made at the point where the cause for such interference is observed most significantly) for any of the reasons listed below, such customer shall install, at the customer's expense, the necessary regulating or protective devices at the customer's premises and shall, whenever deemed particularly necessary, receive electricity from supply facilities modified or installed separately for exclusive use by such customer.
 - (A) There is a significant imbalance of loads between phases caused by the customer's load characteristics.
 - (B) There are significant fluctuations in voltage or frequency caused by the customer's load characteristics.
 - (C) There is a significant distortion in load wave caused by the customer's load characteristics.
 - (D) A significant high frequency or higher harmonics develop.
 - (E) There are cases similar to those described in (A), (B), (C), or (D) above.
- (2) If the customer uses electricity by connecting the customer's own power generation facility to KYEPCO's supply facilities, the provisions of (1) above shall apply. In such a case, the

customer is required to pay an ancillary service fee for such power generation facilities according to the principles of generation facility interconnection service.

33. Suspension of Supply

- (1) KYEPCO may suspend the supply of electricity to a customer under the following cases:
 - (A) Suspension is urgently required due to the presence of danger or risk to safety or security as a result of actions for which the customer is liable.
 - (B) The customer causes severe losses for KYEPCO by deliberately damaging or destroying the electric facilities at the customer's premises.
 - (C) The customer connects electric facilities with the power line or service line of KYEPCO, thus violating the provisions of 52 (Connection of Service Lines).
- (2) KYEPCO may suspend the supply of electricity to a customer under the cases below. In such cases, KYEPCO shall provide notice to that effect at least five (5) days prior to the suspension of supply service except for cases under special circumstances.
 - (A) The customer fails to pay the electric charges 20 days after the due date (or the customer fails to pay the electric charges after the due date in the cases described in (2) (A) through (D) of 25 (Payment Obligation and Due Date).
 - (B) The customer fails to pay the electric charges under other supply contracts (including those that are already terminated) 20 days after the due date.
 - (C) The customer has financial obligations other than electric charges made payable in accordance with the Standard Supply Conditions (including overdue interest, security deposit, penalty for excess power consumption, breach of contract penalty, contribution to the construction cost or other financial obligations arising out of the Standard Supply Conditions) in arrears.
- (3) KYEPCO may suspend the supply of electricity to a customer when, despite being warned by KYEPCO, the customer fails to correct a situation:
 - (A) if danger or risk to safety or security develops for which the customer is liable;
 - (B) if the customer improperly uses electricity by altering the electrical facilities or other means;
 - (C) if the customer uses electricity by load equipment or receiving equipment other than contract load equipment or contract receiving equipment;
 - (D) if electricity is used for lamps or lighting (including small-scale appliances) other than the incidental lighting under Industrial Power or Industrial Self-Generation Backup Power, or under Temporary Power or Standby Power to which the corresponding provisions of the Industrial Power are applicable;
 - (E) if the customer refuses without justifiable reason access to their premises for the implementation of work by KYEPCO employees, thus violating the provisions of 31

- (Operations through Access to Customer's Premises); or
- (F) if a customer fails to take necessary measures provided in 32 (Customer's Cooperation Regarding Electricity Consumption).
- (4) KYEPCO may suspend the supply of electricity to a customer when the customer uses electricity in excess of the contract power and, regardless of KYEPCO's request for such situation to be remedied, the customer does not accept alteration to the contract as set forth in 28 (Maintenance of Proper Contract).
- (5) If a customer violates the Standard Supply Conditions in any other way, KYEPCO may suspend the supply of electricity to such customer.
- (6) If the service is suspended due to the reasons described in (1) through (5) above, KYEPCO shall undertake appropriate procedures for the suspension on KYEPCO's supply facilities or on the customer's electrical facilities. In such cases, the customer is required to cooperate when necessity arises.

34. Resumption of Supply

For a customer whose supply of electricity has been suspended in accordance with the provisions of 33 (Suspension of Supply), if the customer eliminates the causes and pays the financial obligations thereof to KYEPCO, KYEPCO shall promptly resume the supply of electricity.

35. Electric Charge during Suspension of Supply

If supply is suspended in accordance with the provisions of 33 (Suspension of Supply), the electric charge during such suspension shall be calculated on a per-diem basis pursuant to 24 (Per-Diem Calculation) and at the rate applicable to any month with no electricity consumed.

36. Penalty for Breach of Contract

- (1) If a customer acts as described in (3) (B), (C) or (D) of 33 (Suspension of Supply) and fails to pay all or part of the electric charges, the customer shall pay a penalty for breach of contract in an amount equivalent to three times the unpaid amount.
- (2) The unpaid amount described in (1) above shall be the difference between the sum determined pursuant to the terms and conditions of supply service as set forth in the Standard Supply Conditions and the sum determined based on the improper use of the electricity.
- (3) If the length of the period of the improper electricity use cannot be confirmed, such length of time shall be within a six-month period and be determined by KYEPCO.

37. Supply Interruption or Restriction on Electricity Use

- (1) KYEPCO may interrupt the electricity supply or request the customer to limit or stop the use of

electricity:

- (A) if the interruption is unavoidable for reasons of electricity supply, such as an extraordinary drought;
 - (B) if there is or is likely to be a failure at the electrical facilities of KYEPCO;
 - (C) if the interruption is unavoidable due to repair, alteration or installation work being carried out at the electric facilities of KYEPCO;
 - (D) in case of emergency or disaster; or
 - (E) if interruption is necessitated for other safety or security reasons.
- (2) If any of the situations in (1) above occurs, KYEPCO will notify the customer in advance through public announcement or other such means; however, where unavoidable in some emergency situations, this provision may not apply.

38. Supply Restriction or Interruption Discount

- (1) If KYEPCO interrupts the supply of electricity to the customer or restricts or interrupts the use of electricity by the customer as provided in (1) of 37 (Supply Interruption or Restriction on Electricity Use), KYEPCO shall determine the charge by applying the discount as described below. However, for customers who are responsible for the situation, the said discount shall not apply.
- (A) When the contract power is less than 500 kilowatts (and only if electricity is supplied at high voltage)
- (a) Discount application
The discount is applicable to the demand charge (as adjusted by the power factor if applicable). However, in cases described in (1) (A), (B), (C) or (D) of 23 (Billing), the discount shall be applied to the amount for the month determined based on the content of the contract as of the day of such restriction or interruption.
 - (b) Discount rate
The rate shall be four (4) percent per day for the total number of days under restriction or interruption during the month.
 - (c) Calculation of total number of days under restriction or interruption
Any day when the restrictions or interruptions total one hour or more shall be included in the total number of days.
- (B) When the contract power is 500 kilowatts or more (and only if electricity is supplied at high voltage) or the customer receives service at extra high voltage
- (a) Discount application
The discount is applicable to the demand charge (as adjusted by the power factor if applicable). However, in cases described in (1) (A), (B), (C) or (D) of 23 (Billing), the

discount shall be applied to the amount for the month determined based on the content of the contract as of the day of such restriction or interruption.

(b) Discount rate

The rate shall be point-two (0.2) percent per hour for the total number of hours under restriction or interruption during the month.

(c) Calculation of total number of hours under restriction or interruption

Total number of hours shall be the accumulation of the restrictions or interruptions lasting 10 minutes or more each time. If the time is less than one hour, time periods of 30 minutes or more will be considered as one full hour; time periods less than 30 minutes will be disregarded. The total number of hours of restriction shall be calculated after adjustment by the following formulas:

a. under demand restriction

$$H' = H \times \frac{D-d}{D}$$

Where H' is hours adjusted (including, in accumulation, any interruption of less than 10 minutes);

H is hours of restriction;

D is contract power; and

d is maximum demand recorded during restricted hours.

b. under energy consumption restriction

$$H' = H \times \frac{A-B}{A}$$

Where H' is hours adjusted;

H is hours of restriction;

A is basic energy consumption during defined hours of restriction (estimated energy consumption calculated based on the energy consumption record during the customer's regular operation hours); and

B is energy consumption during restricted hours.

c. For the hours when demand and energy consumption are restricted simultaneously, the larger of the hours as adjusted by a or b above will apply.

- (2) Upon calculating the total number days and hours in (1), interruptions or restrictions due to construction work necessary for maintenance or the betterment of KYEPCO's electric facilities, for which customers will be given prior notice three days before such work, shall be excluded from the calculation, with a one day per month limitation. In this case, one (1) day per month shall mean such interruption or restriction for a single job in one (1) calendar day per calendar month.

39. Exemption from Damages

- (1) KYEPCO shall not be liable for damages suffered by the customer arising out of failure to supply electricity on the supply service commencement day designated in advance pursuant to (1) of 10 (Commencement of Supply Service). However, this provision does not apply in cases where the cause for such situation is attributable to KYEPCO.
- (2) KYEPCO will not be liable for damages suffered by the customer arising out of interruptions of supply or restrictions or interruptions of use of electricity by the customer pursuant to (1) of 37 (Supply Interruption or Restriction on Electricity Use). However, this provision does not apply in cases where the cause for such situation is attributable to KYEPCO.
- (3) KYEPCO will not be liable for damages suffered by the customer caused by the customer's failure to implement the measures set forth in (5) of 6 (Application for Supply Service Contract).
- (4) KYEPCO will not be liable for damages suffered by the customer arising out of the suspension of supply of electricity pursuant to 33 (Suspension of Supply) or out of the termination or expiration of the service contract pursuant to 46 (Cancellation and Other Items).
- (5) KYEPCO will not be liable for damages suffered by the customer due to other accidents. However, this provision does not apply in cases where the cause for such situation is attributable to KYEPCO.

40. Compensation for Damage to Facilities

A customer who damages or destroys, by a willful act or through negligence, the electric facilities, electric equipment, appliances or other facilities owned by KYEPCO and placed at the customer's premises shall compensate for the damage or losses as set forth below.

- (1) If it is possible to repair the damage, the necessary costs thereof shall apply.
- (2) If such facilities are destroyed, or if repairing the damage is not possible, the book value plus the necessary expenses of replacement thereof shall apply.

VI. ALTERATION AND TERMINATION OF THE CONTRACT

41. Alteration of Supply Service Contract

If a customer requests any alterations in the supply service contract, it shall be handled pursuant to the provisions of II (Application for Supply Service Contract) pertaining to customers requesting a new service contract.

42. Change of Registered Name of Customer

If a new customer succeeds all the rights and obligations of a preceding customer for electric consumption with KYEPCO in such cases as a merger or other circumstance and wishes to continue using the service, the customer may do so by following the procedures for changing the registered name of the customer. In this case, the new customer is required to notify KYEPCO to that effect in writing.

43. Termination of the Contract

- (1) The service contract shall terminate upon the expiration of the contract term, except in the following cases. It should be noted that, in this case, the day of termination shall be the day after the expiration of the contract term.
 - (A) If a customer wishes to discontinue the supply service before the expiration of the contract, the contract shall terminate on the day of such requested discontinuance, except in cases (a) and (b) below. In such cases, the customer is requested to notify KYEPCO in advance of the date of such discontinuance in writing, and KYEPCO shall, in principle, take appropriate measures on KYEPCO's supply facilities or the customer's electric facilities to discontinue the supply service on the requested date of discontinuation. In such cases, the customer is required to cooperate when necessity arises.
 - (a) If KYEPCO receives the customer's notice of discontinuance after the date specified for discontinuance, the service contract shall terminate on the day KYEPCO receives such notice.
 - (b) If KYEPCO is unable to take appropriate measures to discontinue the supply service due to reasons not attributable to KYEPCO (exclusive of emergencies and disasters), the service contract shall terminate on the day such measures can be implemented.
 - (B) If KYEPCO cancels the contract as set forth in 46 (Cancellation and Other Items), the contract shall terminate on the day of such termination.
 - (C) If a customer wishes to cancel the supply service contract based on (2) of 2 (Revision of Standard Supply Conditions), the customer is requested to notify KYEPCO in advance of the date of such cancellation in writing. In such cases, the service contract shall terminate

on the day of such cancellation.

- (2) KYEPCO shall, in principle, take appropriate measures on KYEPCO's supply facilities or on the customer's electric facilities to discontinue the supply service on the day following the expiration of the contract. In such cases, the customer is required to cooperate as necessity arises.

44. Electric Charges for Terminating or Altering Contract after Service Starts

KYEPCO requires the customer to settle or pay electric and other charges payable on the day of termination or alteration of the service contract in the following cases (excluding the customers described in (1) (C) of 43 (Termination of the Contract) or under Temporary Power)). However, this provision does not apply when necessitated for unavoidable reasons such as emergencies or disasters.

- (1) If the service contract is terminated within less than one (1) year after the new contract power is established by the customer, the customer is required to pay the difference in amount between the charges determined by applying the rate for Temporary Power from the beginning of the supply service and the actual charges already paid for the period from the establishment of the new contract power to the day before the termination.
- (2) If the contract is terminated within less than one (1) year after the increased contract power is established by the customer, exclusive of the case in (1) above, the customer is required to pay the difference between the charges determined by applying the rate for Temporary Power to the amount of contract power increased and the actual charges already paid for the amount of contract power increased for the period from the establishment of the increased contract power to the day before such termination. In this case, the respective amount of energy consumption shall be determined as a proportion of the total actual consumption obtained by applying the ratio of the increase in the contract power to the rest of the contract power. Such energy consumption under Commercial Power A by Season & Time-of-Use or Industrial Power A by Season & Time-of-Use shall be the energy consumed in the respective time of use period.
- (3) If the customer reduces the contract power within less than one year after the new contract power is established, the customer is required to pay the difference between the charges determined by applying the rate for Temporary Power to the amount of contract power reduced and the actual charges already paid for the amount of contract power reduced for the period from the establishment of the new contract power to the day before such reduction. In this case, the respective amount of energy consumption shall be determined as a proportion of the total actual consumption obtained by applying the ratio of the reduction in the contract power to the rest of the contract power. Such energy consumption under Commercial Power A by Season & Time-of-Use or Industrial Power A by Season & Time-of-Use shall be the energy consumed in

the respective time of use period.

- (4) If the customer reduces the contract power within less than one year after the contract power is increased, exclusive of the case in (3) above, the customer is required to pay the difference in amount as described below.
 - (A) If the amount of reduction in the contract power exceeds the increased amount:

the amount is determined as pursuant to (2) above for the amount of contract power increased for the period from the contract power increase to the day before such reduction.
 - (B) If the amount of reduction in the contract power does not exceed the increased amount:

the amount is determined as pursuant to (3) above for the amount of contract power reduced for the period from the contract power increase to the day before such reduction.
- (5) If a customer whose contract power is determined pursuant to (4) (A) of 14 (Commercial Power Service) or (4) (A) of 15 (Industrial Power Service) terminates the supply service within less than one year after installing new contract receiving equipment or increasing the total capacity of the contract receiving equipment, or reduces the contract power pursuant to (4) (A) (a) c of 14 (Commercial Power Service) or (4) (A) (a) c of 15 (Industrial Power Service), the electric charges shall be handled pursuant to the provisions of (1), (2), (3) or (4) above. In this case, as described in (1), (2), (3) and (4), the day the contract power is newly established shall refer to the day the new contract receiving equipment is determined. The day the contract power is increased shall refer to the day the total capacity of the contract receiving equipment is increased. The day the contract power is reduced shall refer to the day the contract power is to be reduced pursuant to (4) (A) (a) c of 14 (Commercial Power Service) or (4) (A) (a) c of 15 (Industrial Power Service).

45. Construction Costs for Terminating or Altering the Contract after Service Starts

KYEPCO requires the customer to settle or pay construction costs payable on the day of termination or alteration of the service contract in the following cases. However, this provision does not apply if the customer paid the contribution to construction cost as described in (5) of 56 (Contribution to the Construction Costs for General Supply Facilities) or temporary construction cost upon the commencement of the service or upon increase of the contract power or when necessitated for unavoidable reasons such as emergencies or disasters.

- (1) If a customer begins the use of electricity under specified power demand and if the contract is terminated in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in 56 (Contribution to the Construction Costs for General Supply Facilities) (2) (B)) and if such facilities are not to be utilized after such termination, the customer is required to pay the difference between the sum total of contribution

to the construction costs as determined by (5) of 56 (Contribution to the Construction Costs for General Supply Facilities) for the distribution facilities that have been installed for three (3) years or less and the temporary construction costs determined by 61 (Temporary Construction Costs) for the newly installed supply facilities, and the actual contribution to the construction costs already paid.

- (2) If a customer increases the contract power under specified power demand and if the contract is terminated in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in (2) (B) of 56 (Contribution to the Construction Costs for General Supply Facilities)) and such facilities are not to be utilized after such termination, exclusive of the case in (1) above, the customer is required to pay the difference between the sum total of contribution to the construction costs as determined by (5) of 56 (Contribution to the Construction Costs for General Supply Facilities) for the distribution facilities that have been installed for three (3) years or less in relation to such contract power that has been increased and the temporary construction costs determined by 61 (Temporary Construction Cost) for the newly installed supply facilities, and the actual contribution to the construction costs already paid in relation to such increased contract power.
- (3) If a customer begins the use of electricity under specified power demand and reduces the contract power in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in (2) (B) of 56 (Contribution to the Construction Cost for General Supply Facilities)), the customer is required to pay the difference between the construction costs as determined by (2) (A) (a) of 56 (Contribution to the Construction Costs for General Supply Facilities) (only if power is supplied at extra high voltage) and the temporary construction costs determined by 61 (Temporary Construction Costs) (only if power is supplied at high voltage), and the actual contribution to construction costs already paid for the portion corresponding to the contract power reduced.
- (4) If a customer increases the contract power under specified power demand and reduces the contract power in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in 56 (Contribution to the Construction Costs for General Supply Facilities) (2) (B)), the customer is required to pay, exclusive of the case in (3) above, the difference in amount as described below.
 - (A) If the amount of reduction in the contract power exceeds the increased amount:

Difference in amount between the construction costs as determined by (2) (A) (a) of 56 (Contribution to the Construction Costs for General Supply Facilities) (only if power is

supplied at extra high voltage) and the temporary construction costs determined by 61 (Temporary Construction Costs) (only if power is supplied at high voltage), and the actual contribution to construction costs already paid for the portion corresponding to the contract power increased

(B) If the amount of reduction in the contract power does not exceed the increased amount:

Determined as pursuant to (3) above

- (5) If a customer begins the use of electricity or increases the contract power under specified power demand and reduces the contract power in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in (2) (B) of 56 (Contribution to the Construction Costs for General Supply Facilities)) and if the supply voltage needs to be changed due to such contract power reduction, notwithstanding the provisions in (3) and (4), the customer is required to pay the difference between the sum total of (i) the contribution to the construction costs as determined by (5) of 56 (Contribution to the Construction Costs for General Supply Facilities) (5) for the distribution facilities that have been installed for three (3) years or less, (ii) the temporary construction costs as determined by 61 (Temporary Construction Costs) for the supply facilities newly installed because of such increase, and (iii) the contribution to the construction costs for the supply facilities newly installed upon such supply voltage change, and the actual contribution to the construction costs already paid.
- (6) If a customer begins the use of electricity or increases the contract power under specified power demand and if the contract is terminated in less than one (1) year after the commencement of the utilization of the supply facilities newly installed accordingly (including the distribution facilities that have been installed for three (3) years or less as described in (2) (B) of 56 (Contribution to the Construction Cost for General Supply Facilities)) and the customer continuously utilizes the supply facilities after such termination, the customer is required to pay the difference determined pursuant to (3), (4) or (5) above if such termination is deemed to have similar results upon the contribution to the construction costs and the temporary construction costs as that of the reduction in the contract power.
- (7) If a customer whose contract power is determined pursuant to (4) (A) of 14 (Commercial Power Service) or (4) (A) of 15 (Industrial Power Service) terminates the supply service contract within less than one year after establishing new contract receiving equipment or increasing the total capacity of the contract receiving equipment or reduces the contract power pursuant to (4) (A) (a) c of 14 (Commercial Power Service) or (4) (A) (a) c of 15 (Industrial Power Service), the provisions of (1), (2), (3), (4), (5) or (6) above shall apply. In this case, as described in (1), (2), (3), (4), (5) and (6), the day the contract power is newly established shall refer to the day the

new contract receiving equipment is determined. The day the contract power is increased shall refer to the day the total capacity of the contract receiving equipment is increased. The day the contract power is reduced shall refer to the day the contract power is reduced pursuant to (4) (A) (a) c of 14 (Commercial Power Service) or (4) (A) (a) c of 15 (Industrial Power Service).

46. Cancellation and Other Items

- (1) KYEPCO may terminate service contracts with a customer if the customer fails to eliminate the causes of the suspension of the electric service as defined in 33 (Suspension of Supply) by the date designated by KYEPCO. In such cases, KYEPCO will notify the customer accordingly.
- (2) If a customer moves out of the customer's premises without notifying KYEPCO as defined in provision (1)A of 43 (Termination of the Contract), and it is obvious that no electricity has been consumed, such service contract shall terminate on the day KYEPCO takes measures to discontinue the supply service.

47. Financial Rights and Obligations after Termination of the Contract

Financial rights and liabilities of electric charges or other amounts incurred during the service contract period will not become invalidated upon the termination of the service contract.

VII. SUPPLY METHOD AND CONSTRUCTION

48. Delivery Point and Installation

- (1) The delivery point of electricity (the point where the supplying and receiving of electric service occurs) shall be a point connecting a customer's electric facilities with KYEPCO's power lines or service lines.
- (2) The delivery point shall be located within the customer's premises and shall be determined upon agreement between the customer and KYEPCO based on the point that is the closest to KYEPCO's power line. However, any place other than the customer's premises may be designated as a delivery point upon agreement between the customer and KYEPCO in the following cases:
 - (A) The electric supply service is to be provided at a customer's premises located in mountainous areas, remote islands or other places located a substantial distance from KYEPCO's power lines and no other customer is expected to appear in the area or surrounding areas in the future.
 - (B) The electric supply service is to be provided at the customer's premises where access by KYEPCO is difficult.
 - (C) The electric supply service is to be provided at two or more of the customer's premises within the same building and the electric facilities up to such customer's premises are to pass through places out of KYEPCO's control.
 - (D) The electric service is to be supplied via an underground service line as defined in (4) of 50 (Underground Service Line).
 - (E) There are other special conditions.
- (3) KYEPCO shall install and own the supply facilities up to the delivery point, at its own expense, except for the customer's contribution to construction costs or temporary construction costs. Further, KYEPCO shall require the customer to provide KYEPCO with a location within the customer's site or a building at no cost to KYEPCO for the installation of supply facilities such as service lines and connecting equipment to be used exclusively by the customer (including those customers who receive the supply via "common use" service lines).
- (4) Incidental facilities (electrical facilities that support or store the supply facilities to be installed at the customer's site or building based on (3) above and facilities that are installed in the customer's building and are necessary for the installation of such supply facilities) shall be, in principle, owned by the customer and installed at the customer's expense. In such cases, KYEPCO shall be entitled to use such incidental facilities free of charge.

49. Overhead Service Line

- (1) If a service line is used to connect a customer's electric facilities with KYEPCO's power lines, in principle, the overhead service line is used. KYEPCO shall be responsible for the installation connecting the service line with the anchoring point in the customer's building or other auxiliary support. In such cases, the anchoring point of the service line shall be decided by agreement between the customer and KYEPCO, in principle, as the closest point to the most appropriate support of KYEPCO's power lines and where the most stable installation can be achieved.
- (2) Auxiliary support for fixing the service line at the customer's premises shall be owned by the customer and installed at the customer's expense.

50. Underground Service Line

- (1) If the construction of overhead service lines is not permitted by law or is deemed inappropriate due to technical, economic or regional reasons and the customer's electric facilities are to be connected with KYEPCO's power line via an underground service line, KYEPCO shall be responsible for the installation points closest to the power source as described in (A) and (B) below:
 - (A) the connecting point of the circuit breaker, line disconnecting switch or connecting equipment installed by the customer within the customer's premises; or
 - (B) the connecting point of connecting equipment installed by KYEPCO.
KYEPCO may install the connecting equipment within the customer's site or building.
- (2) The location for installing the electric facilities to be connected with KYEPCO's power lines, as described in (1) above, shall be determined by agreement between the customer and KYEPCO as the point closest to the most appropriate support or branching point of KYEPCO's power lines. In principle, it shall not require special construction work incurring significant cost for the installation of the underground service lines, and it shall ensure a safe installation and satisfy the conditions below. The underground service line within the customer's premises shall be owned by the customer and installed at the customer's expense for the following cases:
 - (A) a place where the construction length of the underground service lines within the customer's site is 50 meters or less;
 - (B) a place located on the third floor or a floor below the third floor of the building;
 - (C) a place where no special techniques or materials are needed for the underground service line installation.
- (3) Incidental facilities necessary for connecting the customer's electric facilities with KYEPCO's power lines by utilizing the underground service line shall be those described below:
 - (A) facilities such as steel pipes or culverts that are installed to hold the underground service lines in the walls of the customer's site or building, including those installed as the lead-in

- and lead-out of the cables in the case of π lead-in cables;
- (B) base blocks (including those used to fix the connecting equipment) and hand holes installed at the customer's site or building;
- (C) other facilities similar to those described in (A) and (B).
- (4) If the customer wishes to use an underground service line at a place where an overhead service line may be used, the underground service line shall be, in principle, owned by the customer and installed at the customer's expense. However, if KYEPCO considers it appropriate for safety or maintenance reasons, the connection may be made as pursuant to (1) above. In this case, the customer shall be required to pay a contribution to the construction costs, as described in 57 (Contribution to Construction Costs for Special Supply Facilities).

51. Extension Service Line and Others

KYEPCO may supply electricity via extension service lines (service lines branching out from the service line at a customer's premises (a single site) and reaching to other delivery point(s) at another customer's premises without passing through any supports) or common use service lines (service lines to supply electricity with the use of one service line for two or more contracts) in areas with special features such as densely built areas. In such cases, KYEPCO may install branching equipment at the customer's site or building. KYEPCO shall install service lines up to the connecting point with customer's electrical facilities.

52. Connection of Service Line

KYEPCO shall be responsible for the connection of the customer's electric facilities with KYEPCO's power line or service line. If the customer wishes to change the location of the service line and requests similar construction work, the customer is required to pay the actual expenses incurred.

53. Installation of Meters and Others

- (1) Based on the contract power and other items, KYEPCO shall select, own and install at its expense meters (such as watt-hour meters, 30-minute maximum demand wattmeters and var hour meters) and accessory equipment (meter boxes, current transformers, current transformer boxes, secondary wiring for current transformers, communication equipment and communication networks for the remote reading of watt-hour meters) and time switching devices (those for sectioning the power factor measuring time) necessary for the billing of electric charges. However, in the cases below, the customer may be required to own and install such equipment at the customer's expense:
- (A) Accessory equipment is installed upon request by the customer.

- (B) The cost is due to the necessity of cables other than KYEPCO's specifications for the secondary wiring of the current transformer or for especially long wiring requested by the customer.
- (2) The locations of meters, accessory equipment and time switching devices shall be determined by agreement between the customer and KYEPCO to ensure accurate metering, easy reading, inspection, installment and removal.
 - (3) The customer shall provide, free of charge, space for the installation of meters, accessory equipment, and time switching devices. Further, KYEPCO shall be entitled to use, free of charge, the items installed by the customer as described in (1).
 - (4) If the location of meters, accessory equipment and time switching devices is changed upon the request of the customer, KYEPCO shall require the customer to pay the actual expenses incurred.

54. Installation of Communication Equipment

For communication equipment such as phones for power security, load dispatching data transmission equipment and signal terminals for power protection necessary for system operation, the following conditions shall apply:

- (1) The connection point of KYEPCO's communication facilities with that of the customer shall be within the customer's premises where electricity is used and shall be determined by agreement between the customer and KYEPCO, based on the point that is the closest to KYEPCO's communication facilities. However, any place other than the customer's premises where electricity is used may be selected as a connection point by agreement between the customer and KYEPCO in the case of a location in mountainous areas or remote islands or where special circumstances so require.
- (2) The communication facilities on the customer side from the connection points described in (1) above shall be owned by the customer and installed at the customer's expense. In this case, the specifications for such communication facilities shall be as designated by KYEPCO.
- (3) The communication facilities on the KYEPCO side from the connection point described in (1) above shall be owned by KYEPCO and installed at KYEPCO's expense except for the amount of the customer's contribution to the construction costs or temporary construction costs. Further, the customer is required to provide, free of charge, a place for installing such communication facilities.
- (4) If the customer wishes to change the location of KYEPCO's communication facilities, the customer is required to pay the actual expenses incurred.

55. Separate Supply Facilities for Exclusive Use

- (1) KYEPCO shall install supply facilities for the customer's exclusive use, for which KYEPCO requires the customer to pay a contribution to the construction costs as defined in 57 (Contribution to Construction Costs for Special Supply Facilities), for the following cases:
 - (A) The customer specifically requests such installation and KYEPCO deems it to cause no interference with supply service to other customers.
 - (B) The provisions of 32 (Customer's Cooperation Regarding Electricity Consumption) are applicable.
 - (C) It is deemed appropriate to install supply facilities for exclusive use by certain customers due to safety and security reasons at a customer's facilities, or if no other demands are expected in the future due to the nature of the customer's premises or surrounding conditions.
- (2) Supply facilities for exclusive use in (1) above shall be limited to the power line from the delivery point up to KYEPCO's substation nearest the delivery point, including switchboards, relays and power lines to the point of the line disconnecting switch on the side of the bus bar or a similar connecting point operated at the same voltage as the supply voltage from such substation. However, if required by special circumstances, the power line operated at the same voltage as the supply voltage and the transformer connected thereto, including the line switch on the primary voltage side of the line, may constitute such facilities.
- (3) KYEPCO may install the supply facilities as common supply facilities to be used exclusively by two or more customers. However, in the case described in (1) (A), it is subject to the consent of all customers and must satisfy either of the following conditions:
 - (A) Applications are made at the same time by two or more customers and the customers request the electric service to be supplied via supply facilities for their exclusive use; or
 - (B) The customer requests the electric service to be supplied via the existing supply facilities for their exclusive use.
- (3) KYEPCO may install the supply facilities as common supply facilities to be used exclusively by two or more customers. However, in the case described in (1) (A), it is subject to the consent of all customers and must satisfy either of the following conditions:
 - (A) Applications are made at the same time by two or more customers and the customers request the electric service to be supplied via supply facilities for their exclusive use; or
 - (B) The customer requests the electric service to be supplied via the existing supply facilities for their exclusive use.

VIII. CONTRIBUTION TO CONSTRUCTION COSTS

56. Contribution to Construction Costs for General Supply Facilities

(1) When power is supplied at high voltage:

- (A) When a customer uses electricity under a new contract or increases the contract power, etc. and the total length of distribution facilities (except supply facilities for exclusive use and standby supply facilities) to be newly installed exceeds the length of construction performed free of charge (hereinafter referred to as “free construction”) (1,000 meters for overhead installations or 150 meters for underground installations), the customer shall pay KYEPCO a contribution to the construction costs, an amount obtained by applying the unit prices below to the excess length of such facilities. However, if a customer receiving the service of 16 (Temporary Power Service) utilizes the supply facilities for a limited period time during the contract use period, the contribution shall be as set forth in 61 (Temporary Construction Costs).

Category	Unit	Price
Overhead distribution facilities	Per meter of excess length	¥3,255.00
Underground distribution facilities	Per meter of excess length	¥25,935.00

In the case of distribution line replacement or additional placement, the value equivalent to sixty (60) percent of such length of work for the overhead distribution facilities, or twenty (20) percent of that for the underground distribution facilities, shall be considered as the total length of distribution facilities to be newly installed.

- (B) The contribution to the construction costs shall be determined for each supply contract. However, if two or more contracts are concluded at a customer’s premises, such contribution shall be determined for each customer’s premises.
- (C) If two or more customers share all or a part of the distribution facilities, the contribution to the construction costs shall be determined as follows:
- (a) If two or more customers make an application together, the contribution shall be determined on the assumption that such application was made by a representative customer. In such cases, the length of free construction shall be the value obtained by multiplying the length of free construction in (A) by the number of customers.
- (b) If two or more customers make applications at the same time, the contribution shall be determined for each customer. In such cases, the construction length of the new distribution facilities for each customer shall be the sum total of the value obtained by dividing the construction length of the part commonly used by all of the customers by the

number of customers and the value of the construction length of the part used by each customer exclusively.

(D) If both overhead and underground distribution facilities are to be installed, the excess construction length in (A) shall be determined as follows:

(a) The excess construction length of the underground distribution facilities shall be the value obtained by subtracting the length of free construction of underground distribution facilities from the total construction length of the underground distribution facilities.

(b) The excess construction length of the overhead distribution facilities shall be the value of the total construction length of the overhead distribution facilities. However, if the total construction length of the underground distribution facilities is less than the length of free construction of underground distribution facilities, the following shall apply:

The excess construction length of the overhead distribution facilities =

$$\left(\begin{array}{c} \text{Total} \\ \text{construction} \\ \text{length of} \\ \text{overhead} \\ \text{distribution} \\ \text{facilities} \end{array} - \left[\begin{array}{c} \text{Length of free} \\ \text{construction of} \\ \text{underground} \\ \text{distribution facilities} \end{array} - \begin{array}{c} \text{Total} \\ \text{construction} \\ \text{length of} \\ \text{underground} \\ \text{distribution} \\ \text{facilities} \end{array} \right] \right) \times \frac{\begin{array}{c} \text{Length of free} \\ \text{construction of} \\ \text{overhead distribution} \\ \text{facilities} \end{array}}{\begin{array}{c} \text{Length of free} \\ \text{construction of} \\ \text{underground} \\ \text{distribution facilities} \end{array}}$$

(2) When power is supplied at extra high voltage:

(A) If a customer uses electricity under a new contract or increases the contract power and the construction cost determined pursuant to (a) below for distribution facilities (except supply facilities for exclusive use and standby supply facilities) to be newly installed exceeds the amount to be defrayed by KYEPCO as set forth in (b) below, the customer shall pay KYEPCO such excess amount as a contribution to construction costs. However, if a customer receiving the service of 16 (Temporary Power Service) utilizes the supply facilities for a limited period of the contract use period, the contribution shall be as set forth in (5) below and 61 (Temporary Construction Costs).

(a) Construction costs

a. Overhead distribution facilities

(Per 100 meters of construction length)

Per kilowatt of new or increased contract power	Service at a standard voltage of 20,000 volts	¥525.00
	Service at a standard voltage of 60,000 volts	¥168.00
	Service at a standard voltage of 100,000 volts	¥105.00

Further, when the electric service is supplied at a standard of 20,000 volts and a utility pole is used as a support, the unit cost of such part shall be fifteen (15) percent of the corresponding unit cost given above.

b. Underground distribution facilities

(Per 100 meters of construction length)

Per kilowatt of new or increased contract power	Service at a standard voltage of 20,000 volts	¥640.50
	Service at a standard voltage of 60,000 volts	¥514.50
	Service at a standard voltage of 100,000 volts	¥315.00

For distribution line replacement or additional placement, the unit cost of construction for any part of the facilities to be replaced shall be twenty (20) percent of the corresponding unit cost given above.

c. If it becomes necessary to construct new underground distribution facilities for providing electric supply service to customers on a spot network system, the construction costs shall, notwithstanding the provisions of b above, be calculated as set forth below.

On a spot network system, customers receive electricity simultaneously at all times using the secondary-side bus of the transformer installed for each circuit, in principle, from KYEPCO's three-circuit line. Such system is applicable when KYEPCO considers it to be technically and economically necessary.

$$\text{Amount equivalent to construction cost} \times \text{Total construction length} \times \frac{1}{100} \times \frac{\text{New or increased contract power}}{\text{Number of circuits in use} - 1}$$

In this case, the amount equivalent to the construction costs shall be:

$$\text{Unit construction cost under b above} \times \{100\% + 20\% \times (\text{Number of circuits in use} - 1)\}$$

(b) Amount covered by KYEPCO

Per kilowatt of new or increased contract power	¥5,250.00
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(B) If a customer uses electricity under a new contract or increases the contract power and receives electric supply service via any part of the existing distribution facilities that have been installed for three (3) years or less, those parts to be used shall be regarded as distribution facilities to be newly installed. "Receiving electric supply service via any part of the existing distribution facilities that have been installed for three (3) years or less" refers to cases where

supply service commences by the day the facilities passed inspection (or the day they passed inspection tentatively) if such inspection is required by law and ordinance, or otherwise, by the day before the third anniversary of the day such facilities started operation.

- (3) The contribution to construction costs shall cover the following supply facilities:
 - (A) The disconnecting switch installed at the outgoing line outlet of the supply substation closest to the delivery point or distribution facilities extending from the delivery point to the load side connecting point of equivalent equipment; or
 - (B) Extra voltage distribution facilities extending from the delivery point to the connecting point to the transmission line closest to the delivery point, if extra voltage distribution facilities branch out from the transmission line.
- (4) If the customer subjected to the contribution to the construction costs pursuant to (2) above re-increases the contract power after contract power reduction and utilizes, within three (3) years from the time of installation, the distribution facilities subject to such contribution, the contract power originally deemed to be subject to the contribution to the construction costs shall be exempted.
- (5) If a customer receiving electricity pursuant to 16 (Temporary Power Service) utilizes distribution facilities that have been installed for three (3) years or less pursuant to (2) (B) (exclusive of those distribution facilities for which the temporary construction costs have already been paid) for a limited period of time during the contract use period, the customer is required to pay the construction costs calculated pursuant to (2) (A) (a) as the contribution to the construction costs.
- (6) In the provisions of VIII (Contribution to Construction Costs), the following terms shall have the meanings as defined below:
 - (A) Distribution facilities
This refers to the supply facilities extending to the delivery point directly from a power plant, substation or transmission line (power lines between power plants or substations or that connect power plants and substations) to the delivery point without passing through any other power plant or substation. The facilities include power lines, service lines and safety devices as well as other devices that support and store those facilities (inclusive of supports, insulators, tie branch lines, culverts and pipes) and communication equipment for power security.
 - (B) Construction length
This refers to the construction length between the distribution facilities and the supply facilities closest to the delivery point determined by the design defined in Schedule 9 (Standard Design Criteria) (hereinafter referred to as “standard design”) and does not necessarily mean the actual construction length.

The unit for construction length shall be one (1) meter. Any fraction of one half of one (1)

meter or more will be rounded up. Fractions less than one half of one (1) meter will be disregarded.

- (7) For each provision in VIII (Contribution to Construction Costs), the contract power, if it is determined according to (4) (A) of 14 (Commercial Power Service) or (4) (A) of 15 (Industrial Power Service), shall be the total capacity of contract receiving equipment. Further, if a customer receiving power supply at low voltage newly receives power supply at high voltage due to an increase in the total capacity of load equipment, the customer shall be deemed to have increased the contract power for each provision in VIII (Contribution to Construction Costs).

57. Contribution to Construction Costs for Special Supply Facilities

- (1) If a customer uses electricity under a new contract or increases the contract power, and special supply facilities are to be installed accordingly, the customer shall pay KYEPCO the following amounts as a contribution to the construction costs. However, if the customer receiving supply under 16 (Temporary Power Service) utilizes the supply facilities for a limited period time during the contract use period, the provisions of (5) of 56 (Contribution to Construction Costs for General Supply Facilities) and 61 (Temporary Construction Costs) shall apply.

- (A) If a customer requests supply facilities to be constructed with designs exceeding the standard design, the customer shall pay expenses in excess of those construction costs based on the standard design (hereinafter referred to as “standard design construction costs”). In this case, the construction of the supply facilities with designs exceeding the standard design shall refer to any of the following cases:

- (a) Wires, supports or other devices that exceed the standard design necessary to supply service for the customer are installed.
- (b) Underground service lines are installed in spite of the fact that electricity may be supplied via overhead service lines.
- (c) The customer receives electricity from distribution facilities other than those with the standard design.
- (d) Other cases exist where the supply facilities are installed with a design exceeding the standard design necessary to supply service for the customer.

Also in such cases described above, the customer shall pay the contribution to the construction costs described in 56 (Contribution to Construction Costs for General Supply Facilities).

- (B) If the supply facilities for exclusive use are constructed pursuant to 55 (Separate Supply Facilities for Exclusive Use), the customer shall pay the amount equal to the total construction costs. In this case, the supply facilities subject to such contribution to construction costs shall be pursuant to (2) of 55 (Separate Supply Facilities for Exclusive Use).

- (2) If a customer uses electricity under a new contract or increases the contract power as defined in 17 (Self-Generation Backup Power Service) or 18 (Standby Power Service), and if standby supply facilities are newly installed accordingly, the customer shall pay KYEPCO the full cost of such construction as a contribution to construction costs. However, if the customer receiving supply under 16 (Temporary Power Service) utilizes the supply facilities for a limited period of time during the contract use period, the provisions of (5) of 56 (Contribution to Construction Costs for General Supply Facilities) and 61 (Temporary Construction Costs) shall apply.

In such cases, the supply facilities subject to such contribution to construction costs shall be pursuant to (3) of 56 (Contribution to Construction Costs for General Supply Facilities). However, if the standby supply facilities are installed as supply facilities for exclusive use, the provisions of (2) of 55 (Separate Supply Facilities for Exclusive Use) shall apply.

58. Contribution to Construction Costs Applicable to Changes in Supply Facilities

- (1) If a customer requests changes to be made to the supply facilities without entering a new supply contract or increasing the contract power, etc. (limited to cases where the change is directly related to the supply of electricity to the customer), the customer shall pay KYEPCO the full cost of construction as a contribution to construction costs, except in a case where the customer is charged the actual expenses described in 52 (Connection of Service Line), 53 (Installation of Meters and Others) or 54 (Installation of Communication Equipment).
- (2) If the supply facilities are newly installed or altered as defined in 32 (Customer's Cooperation Regarding Electricity Consumption), the customer shall pay KYEPCO the full cost of construction as a contribution to construction costs.

59. Calculation of Construction Costs for Special Supply Facilities and Others

Construction costs described in 57 (Contribution to Construction Costs for Special Supply Facilities) and 58 (Contribution to Construction Costs Applicable to Changes in Supply Facilities) shall be calculated as detailed below.

- (1) Construction costs hereunder, except upon customer's request for construction with a design exceeding the standard design, shall be the standard design construction cost calculated as follows:
 - (A) The standard design construction costs shall be the sum total of expenses for materials, labor, and general expenses pertaining to the construction work performed on supply facilities subject to a customer's contribution to construction costs.
 - (B) The cost of materials shall be determined by their unit prices (i.e. the unit prices at the time of

issuance of the stored material calculated in the method provided in the Accounting Regulations of the Electric Power Industry) at the time of issuance.

- (C) General expenses include the costs for survey supervision, overhead, compensation, and the share in the construction and other related costs, and shall be calculated as follows:
- (a) The land price (the amount allocated to land as a fixed asset pursuant to the Accounting Regulations of the Electric Power Industry) is not allocated for the construction costs. However, in the case where the easement is established for the land through which the overhead distribution lines pass, fifty (50) percent of such amount shall be allocated for the construction costs, but the cost required for the registration process for such easement, such as taxes for registration, stamp taxes, and registration fees shall not be allocated for the construction costs.
 - (b) If the contract for compensation is entered into with any conditions that prevent acts which may interfere with power line operation including the construction of buildings or the planting of trees in the area through which the overhead distribution lines pass, fifty (50) percent of such compensation amount for the construction of power lines shall be allocated for the construction costs.
 - (c) The compensation for the unutilized land of the total compensation amount shall be allocated for the construction costs as long as it is clearly categorized.
 - (d) The share in the construction costs and related costs shall be allocated for the construction costs as long as its construction period is twelve (12) months or more and its construction costs are five billion (5,000,000,000) yen or more.
- (D) Costs for removal, if any, shall be determined by first subtracting the salvage value of the removed material from the total construction cost as calculated in (A), then adding removal work costs (inclusive of overhead).
- (E) The cost for installing the temporary supply facilities per the customer's request shall be determined pursuant to the provision of 61 (Temporary Construction Costs).
- (2) Construction costs for supply facilities requested by the customer that include design elements exceeding those of the standard design shall be calculated pursuant to (1) above. The amount of construction costs exceeding the costs of construction based on the standard design in the case of (1) (A) of 57 (Contribution to Construction Costs for Special Supply Facilities) shall be the amount obtained by subtracting the standard design's construction cost from the actual construction cost incurred.
- (3) In the case of (1) (A) of 57 (Contribution to Construction Costs for Special Supply Facilities), and if it is appropriate to determine the construction costs based on the unit price per meter of excess construction length defined in (1) (A) of 56 (Contribution to Construction Costs for General Supply Facilities) or the unit construction cost defined in (2) (A) (a) of 56 (Contribution

to Construction Costs for General Supply Facilities), notwithstanding the provisions of (1) and (2) above, the construction costs for supply facilities with a standard design or with a design exceeding the standard design shall be determined based on the unit price per meter of excess construction length defined in (1) (A) of 56 (Contribution to Construction Costs for General Supply Facilities) or the unit construction cost defined in (2) (A) (a) of 56 (Contribution to Construction Costs for General Supply Facilities). In this case, the construction costs shall be determined by applying the price for one (1) meter of excess construction length to the total construction length of the newly constructed distribution facilities.

- (4) If KYEPCO supplies electric service to a customer by utilizing steel towers, cable conduits or similar facilities previously installed by KYEPCO in consideration of future requirements, an amount determined by the following calculations and based on the number of circuits, conduit holes or other facilities necessary for the power line to be newly installed shall be added to the cost of the power line construction.

(A) If electricity is supplied utilizing steel towers:

$$\text{Construction costs} \times \frac{\text{Number of Circuit in use}}{\text{Number of circuits installed}}$$

(B) If electricity is supplied utilizing conduits:

$$\text{Construction costs} \times \frac{\text{Number of holes in use}}{\text{Number of holes prepared} - \text{Number of spare holes}}$$

- (5) If existing distribution facilities, which have been installed for three (3) years or less, are utilized (only if supplied at extra high voltage), any portion thus utilized shall be regarded as newly installed distribution facilities. In this case, construction costs will be calculated pursuant to (2) (A) (a) of 56 (Contribution to Construction Cost for Facilities for General Supply Service).
- (6) In the case of (2) (A) of 57 (Contribution to Construction Costs for Special Supply Facilities), and if it is appropriate to determine the construction costs based on the unit price per meter of excess construction length defined in (1) (A) of 56 (Contribution to Construction Costs for General Supply Facilities) or the unit construction cost defined in (2) (A) (a) of 56 (Contribution to Construction Costs for General Supply Facilities) or according to (2) (B) of 56 (Contribution to Construction Costs for General Supply Facilities), notwithstanding the provisions of (1) and (2) above, the construction costs shall be determined based on the unit price per meter of excess construction length defined in (1) (A) of 56 (Contribution to Construction Costs for General Supply Facilities) or the unit construction cost defined in (2) (A) (a) of 56 (Contribution to Construction Costs for General Supply Facilities) or according to (2) (B) of 56 (Contribution to Construction Costs for General Supply Facilities). In this case, the construction costs shall be

determined by applying the price for one (1) meter of excess construction length to the total construction length of the newly constructed distribution facilities.

If both the general supply facilities and the standby supply facilities are installed on the same supports for a customer receiving the electric service under 18 (Standby Power Service) (only if supplied at extra high voltage), the construction costs for standby supply facilities shall be calculated by applying twenty (20) percent of the corresponding unit price specified in (2) (A) (a) of 56 (Contribution for Construction Costs for General Supply Facilities).

60. Payment of Contribution to Construction Costs

- (1) The customer is required, in principle, to pay a contribution to construction costs prior to the commencement of the construction work.
- (2) The contribution shall be adjusted and settled immediately after the completion of work in the following cases:
 - (A) The contribution falls under the categories below when such contribution amount is determined pursuant to 56 (Contribution to Construction Costs for General Supply Facilities).
 - (a) The difference in the construction length due to a change in design or other items exceeds five (5) percent for either the overhead distribution facilities or underground distribution facilities.
 - (b) There is a difference between the contribution to construction costs and the actual cost of construction for any other reason.
 - (B) The contribution falls under the categories below and such contribution amount is determined pursuant to 57 (Contribution to Construction Costs for Special Supply Facilities) (the construction cost is determined based on the unit price per meter of excess construction length defined in (1) (A) of 56 (Contribution to Construction Costs for General Supply Facilities) or the unit construction cost defined in (2) (A) (a) of 56 (Contribution to Construction Costs for General Supply Facilities), it shall be pursuant to (A) above) and 58 (Contribution to Construction Costs Applicable to Changes in Supply Facilities).
 - (a) When power is supplied at high voltage:
 - a. The change is necessitated in the specifications of main equipment, such as utility poles (inclusive of steel towers and steel poles), wires and transformers, or the difference in the quantity of main equipment exceeds five (5) percent, due to a change in design.
 - b. There is a change in the unit prices for materials between those at the time of designing and those at the time of issuance (excluding cases where the duration of time between designing and issuance is short).

- c. There is significant difference between the contribution to construction costs and the actual cost of construction due to other special reasons.
- (b) When power is supplied at extra high voltage:
Any contribution to construction costs shall be adjusted and settled immediately after the completion of construction work as a rule.
- (3) The supply facilities for exclusive use may be designated as facilities for general use with the customer's consent. In this case, if such change occurs within ten (10) years from the installation of such supply facilities, the difference in amount between the contribution to the construction costs determined as if the facilities had been general supply facilities at the time of such installation, and the actual contribution to the construction costs already paid shall be refunded to the customer.

61. Temporary Construction Costs

- (1) If a customer receiving electric service supply under 16 (Temporary Power Service) utilizes, for a limited period of time during the contract use period only, the supply facilities newly installed for the customer, the customer shall pay KYEPCO temporary construction costs, consisting of the construction costs for the new supply facilities and expenses for the removal of said facilities (inclusive of overhead), after subtracting the salvage value of the removed facilities and materials, prior to the commencement of construction work. However, the customer is not required to pay temporary construction costs for portions of the supply facilities (only if electricity is supplied at high voltage) to be installed that are permanent facilities KYEPCO installed taking into consideration future demand and other factors and represent the length of free construction.
- (2) The temporary construction costs shall be calculated using the formulas below. If KYEPCO accepts the application by the customer using the excess capacity of equipment such as transformers, the customer is not required to pay the transformer depreciation expense.
 - (A) When power is supplied at high voltage:
Cost of materials for the new installation (excluding equipment such as transformers and circuit breakers) × 50% + new installation cost + removal cost + transformer depreciation expense + general expenses

In such cases, the depreciation expense for the transformer (including the circuit breaker, arrester, disconnecting switch and capacitor) shall be at the rate of five (5) percent of the price throughout the contract use period.
 - (B) When power is supplied at extra high voltage:
Cost of materials for the new installation (excluding equipment such as transformers and

circuit breakers) – cost of storage for removed material + new installation cost + removal cost + transformer depreciation expense + general expenses

In this case, the depreciation expense for the transformer (including the circuit breaker, arrester, disconnecting switch and capacitor) shall be at the rate of one (1) percent per month during the contract use period. Any period of less than one (1) month shall be deemed as one (1) month for this purpose.

- (3) If KYEPCO requires the customer to pay the temporary construction costs, the customer shall not be obligated to pay contribution to construction costs described in 56 (Contribution to Construction Costs for General Supply Facilities), 57 (Contribution to Construction Costs for Special Supply Facilities) and 58 (Contribution to Construction Costs Applicable to Changes in Supply Facilities), except for the case set forth in (5) of 56 (Contribution to Construction Costs for General Supply Facilities).
- (4) Settlement of the temporary construction costs shall be made pursuant to the case described in (2) (B) of 60 (Payment of Contribution to Construction Costs).

62. Expense from Discontinuance and Alteration of Contract (Before Start of Supply)

If a customer terminates or changes the supply contract before the commencement thereof, for reasons attributable to the customer after all or part of the installation of the supplying system has been completed, and the customer does not use electricity with such supply facilities, the customer is required to pay KYEPCO the actual construction costs incurred. Even if no actual construction work was implemented, if significant cost was incurred due to taking measurements, purchasing materials and performing other work, the customer shall pay KYEPCO the actual costs thus incurred.

63. Preparation of Contract for Contribution to Construction Costs

The contract for the contribution to the construction costs shall be prepared to cover particulars necessary for the contribution to the construction costs upon request by the customer or if KYEPCO deems it necessary. Such contract for contribution to the construction costs shall be entered into prior to the commencement of such construction work.

IX. SAFETY AND SECURITY

64. Safety and Security Responsibility

KYEPCO shall be responsible for the safety and security of the supply facilities up to the delivery point and for KYEPCO's metering devices and other electric installations at the customer's premises.

65. Customer's Cooperation for Safety and Security

- (1) The customer shall give prompt notice to KYEPCO so that KYEPCO can take appropriate countermeasures promptly in the following situations:
 - (A) A customer perceives that there is or is likely to be an abnormality or failure in the service line, metering devices or other KYEPCO facilities located on the customer's premises.
 - (B) A customer perceives that there is or is likely to be an abnormality or failure in any of the customer's electric facilities that might affect KYEPCO's supply facilities.
- (2) The customer shall notify KYEPCO, in advance, if the customer is to install, alter or repair any object, including generating facilities, that may directly affect KYEPCO's supply facilities; and, the customer shall notify KYEPCO immediately if such installation, alteration or repair has directly affected KYEPCO's supply facilities. In such cases and where it is especially necessary for safety and security reasons, KYEPCO may request the customer to modify or change the details of such work.
- (3) When necessary, KYEPCO shall discuss with the customer the procedures required for operating the circuit breakers designed to interrupt receiving power prior to the commencement of supply service, in addition to other matters.

SUPPLEMENTARY PROVISIONS

1. Enforcement Date of the Standard Supply Conditions

The Standard Supply Conditions shall be implemented on and after April 1, 2007.

2. Special Measures for Supply Method and Supply Voltage

Notwithstanding the provisions of the Standard Supply Conditions, when required by conditions at KYEPCO's supply facilities, KYEPCO may supply service in AC, three-phase three-wire, and at a standard voltage of 3,000 volts. In such cases, rates and other supply conditions shall conform to those for supply service at high voltage.

3. Transitional Measures for Implementation of the Standard Supply Conditions

For service contracts that predate March 31, 2007, the electric charges for which payment obligation incurs on and after the effective date of the Standard Supply Conditions shall be billed pursuant to the provisions set forth in the Standard Supply Conditions. However, this provision may not apply to customers whose meter reading day is the first day of the month.

SCHEDULES

Schedule 1: Technical Requirements for Interconnection

(1) Purpose

The Technical Requirements for Interconnection include technical requirements indispensable for maintaining the stable operation of the KYEPCO power system (hereafter referred to as “system”) and for technically coordinating with the supply facilities of KYEPCO upon establishing an interconnection between the electric facilities of a customer with the system in accordance with (4) of 6 (Application for the Supply Service Contract).

(2) Application

The Technical Requirements for Interconnection are applicable when the customer establishes an interconnection between the customer’s electrical facilities and the HV or EHV system, based on the Standard Supply Conditions outlined hereby

(3) Discussion

The Technical Requirements for Interconnection present standard guidelines for the technical requirements for establishing an interconnection with the system. Specific matters that may arise in practice and matters that are not stipulated in the Technical Requirements for Interconnection are to be determined by agreement between the customer and KYEPCO as necessary and in accordance with 5 (Others).

(4) Interconnection with HV system

(A) Power factor

(a) The customer is requested, as a rule, to maintain the power factor at the customer’s premises at eighty-five (85) percent or higher. Furthermore, the customer is requested not to bring about the leading power factor during lighter load periods.

(b) KYEPCO may request that the customer open or close the phase-advanced capacitor if necessary for technical reasons.

(B) Installation of protective device

KYEPCO may request that the customer install a protective device to automatically eliminate failures in the case of faults occurring in the customer’s electrical facilities or short-circuit or ground faults occurring at the customer’s premises.

(C) Higher harmonics

When a higher harmonic current flows into the system as a result of the use of devices generating higher harmonics, the following requirements must be satisfied for higher harmonics control:

(a) These requirements are applicable to customers establishing an interconnection with a system of 6,000 volts when the capacity of harmonic-generating devices is converted to

a 6-pulse converter capacity and the total capacity of the converted capacities of such devices (referred to as “equivalent capacity”) exceeds 50 kilovolt-amperes. Such harmonic-generating devices are applicable for the calculation of the equivalent capacity above and shall be equipment other than electric/electronic equipment (home appliances and general products) with a rated current of 20 amps/phase or less connected with a system of 300 volts or less. This criterion also applies if an additional installation of or an increase in equipment has been made.

- (b) Applicable customers are requested to calculate the higher harmonic current that flows into the system in accordance with the following:
 - a. Harmonic current is to be obtained by summing up the harmonic current generated by each unit of harmonic-generating equipment in a rated operating status, and then multiplying the obtained sum by the maximum operation factor of the harmonic-generating equipment.
 - b. Harmonic current is to be summed up by the order of harmonics.
 - c. The applicable orders of harmonics are 40 or lower.
 - d. If any equipment reduces the harmonic current at the customer’s premises, such reduction effect will be taken into consideration.
- (c) The tolerable upper limit of the harmonic current that flows into the system is defined as the value obtained by multiplying the concerned contract power by the upper limit value of the harmonic current (in milli-amperes) per kilowatt of the contract power, as shown in the table below, for each order of harmonics.

Interconnection voltage	5th order	7th order	11th order	13th order	17th order	19th order	23rd order	Over the 23rd order
6,000 volts	3.5	2.5	1.6	1.3	1.0	0.90	0.76	0.70

- (d) If the harmonic current in (b) above exceeds the upper limit of that shown in (c) above, KYEPCO will request that the customer take necessary measures to curb the harmonic current within the limit.

(D) Flicker

If voltage in the power system may possibly be affected due to specific load such as for electric furnaces, welding machines or other such heavy equipment, KYEPCO will request that the customer install appropriate regulators according to such load degree.

(E) Interconnection of generating facility

If a generating facility is to be connected at the customer’s premises, the requirements below apply, in addition to (A) through (D) above. Further, the rated output of power generating facilities to be connected at the customer’s premises shall be less than 2,000

kilowatts.

(a) Power factor

If there is reverse power flow and when either of the following is applicable, the power factor at the customer's premises may be below eighty-five (85) percent.

- a. It is necessary to prevent voltage build-up (in this case, the power factor at the delivery point shall be controllable up to eighty (80) percent.
- b. A power inverter of small output is used or the power factor at the delivery point is deemed appropriate (in this case, the power factor of the generation facilities is deemed appropriate at eighty-five (85) percent or more when controlling reactive power, or ninety-five (95) percent or more when not controlling reactive power).

(b) Installation of protective device

- a. So as to protect the system from failures in the generating facilities, a protective relay must be installed as follows:
 - i. An overvoltage relay must be installed to control an abnormal rise in generated voltage of the generating facility. Such overvoltage relay shall be capable of detecting the voltage rise and performing parallel-off within a time limit. However, installation of such overvoltage relay may be omitted if detection and protection can be undertaken by other protective device(s) incorporated within the generating facilities.
 - ii. An undervoltage relay must be installed to control an abnormal drop in generated voltage of the generating facilities. Such undervoltage relay shall be capable of detecting the voltage drop and performing parallel-off within a time limit. However, installation of such undervoltage relay may be omitted if detection and protection can be undertaken by other protective device(s) incorporated within the generating facilities.
- b. So as to protect the system if a short-circuit fault occurs, a protective relay must be installed as follows:
 - i. A directional short-circuit relay must be installed when a synchronous generator is used. Such directional short-circuit relay shall be capable of detecting a short-circuit fault in the system with which the generator is connected and performing parallel-off of such generating facilities from the system.
 - ii. An undervoltage relay must be installed when either an induction generator or a power inverter is used. Such undervoltage relay shall be capable of detecting an abnormal drop in generator voltage and performing parallel-off when a short-circuit occurs within the interconnected system.
- c. So as to protect the system when a ground fault occurs, an overvoltage ground relay

must be installed. However, the overvoltage ground relay may be omitted if either one of the following conditions is satisfied:

- i. Detection of a grounding fault in the interconnected system is possible with the overvoltage ground relay installed at the outgoing line outlet of the generator.
- ii. The output of the generating facilities having a power inverter connected to an LV line within the premises is small compared to the capacity of the incoming power; and it is possible to promptly detect isolated operation and either shut down or parallel off the generation facilities using a device with an isolated operation detection function.

d. So as to prevent isolated operation, a protective relay must be installed as follows:

- i. If there is no reverse power flow:

A reverse current relay or under frequency relay must be installed. However, the under frequency relay may be omitted when the connection is made with the use of a private line and the reverse current relay can offer detection and protection functions at a high speed. Further, the reverse current relay may be omitted if the output of the generation facilities having a power inverter connected to an LV line within the premises is significantly smaller compared to the capacity of the incoming power, and it is possible to promptly detect isolated operation and either shut down or parallel off the generation facilities using a device with an isolated operation detection function (limited to those with one or more of both passive and active methods).

- ii. If there is reverse power flow:

Both the over frequency relay and under frequency relay must be installed along with a transfer circuit breaker or a device with an isolated operation detection function (limited to those with at least one active method) that satisfies all of the conditions below. However, the over frequency relay may be omitted if the connection is made for exclusive use.

- i) The device is capable of reliable detection within the time frame necessary based on the impedance and load status of the system.
- ii) The device has the detection sensitivity that does not cause frequent and unnecessary parallel-off.
- iii) The active signals' effect on the system shall not be significant.

(c) Prevention of reverse power flow in the banks

KYEPCO may request that the output of the customer's generation facilities be curbed if there is a possibility of reverse power flow occurring in the banks of the distributing substation to which such generation facilities are connected.

(d) Location of the protective relay to be installed

KYEPCO shall request that the customer install a protective relay at the delivery point or at the location where fault detection is easily made.

(e) Location where parallel-off can be performed

Locations where parallel-off can be performed shall be one of the locations listed below where generation facilities can be paralleled off from the system:

- a. Circuit breaker for receiving power;
- b. Circuit breaker located at the output terminal of generation facilities;
- c. Circuit breaker for the generation facility connection; or
- d. Circuit breaker for bus bar connection.

(f) Automatic load control

If there is a possibility that the distribution line connected may become overloaded upon failure of the power generation facilities, the customer is required to take measures to automatically control load.

(g) Device for checking power line voltage

KYEPCO installs a device for checking the power line voltage at the outgoing line outlet of the distribution lines of the distributing substation of a linked system in order to prevent faults upon re-closing. However, such device may be omitted if one of the conditions below is satisfied:

- a. Linkage is made with a an exclusive line and automatic reclosing is not needed for the system to which the customer is linked;
- b. There is reverse power flow, and any of the following conditions is satisfied:
 - i. A transfer circuit breaker and a device with an isolated operation detection function (limited to those with the active method) are installed, and different circuit breakers break the connection.
 - ii. Devices with an isolated operation detection function and two or more methods (limited to those with at least one active method) are installed, and different circuit breakers break the connection.
 - iii. A device with an isolated operation detection function (limited to those with the active method) and a reverse power relay, which has a set point smaller than the minimum load of the distribution line during the operation of the generation facilities are installed, and different circuit breakers break the connection.
- c. If there is no reverse power flow, and any of the following conditions is satisfied:
 - i. A measure similar to b above is implemented.
 - ii. A protective relay, a current transformer, a voltage transformer, a circuit breaker and the wiring of the control power source for system linkage are made up with a two

series and can back each other up. It should be noted that equipment of the second series may be simplified using one of the methods below:

- i) An underpower relay alone may be sufficient for the second series protective relay.
- ii) The current transformer, when the underpower relay is installed at the terminal thereof, may be sufficient for the first and second series.
- iii) The voltage transformer, when the underpower relay is installed at the terminal thereof, may be sufficient for the first and second series.

(h) Voltage variation

- a. If there is concern of voltage deviating from its proper value (101 ± 6 volts, 202 ± 20 volts) for customers receiving supply at low voltage due to power source failure, KYEPCO shall request that the customer take measures to automatically control load.
- b. If there is concern of voltage deviating from its proper value (101 ± 6 volts, 202 ± 20 volts) for customers receiving supply at low voltage due to reverse power flow from the generating facility, KYEPCO shall request that the customer adjust the voltage automatically.
- c. If a synchronous generator is used, the generator must be equipped with damping coils (a synchronous generator without damping coils may be included only when the generator has a hunting prevention effect equivalent or superior to that of a generator with damping coils). Furthermore, KYEPCO shall request that the customer install an automatic synchronous detection device.

If an induction generator is used, KYEPCO shall request that the customer install a current limiting reactor, etc. when there is concern of the system voltage deviating from its proper value (roughly ten (10) percent of the constant voltage) due to an instantaneous voltage drop in parallel operation. However, if such a measure proves unsatisfactory, KYEPCO shall request that the customer use a synchronous generator.

- d. If a self-commuted power inverter is used, KYEPCO shall request that the customer use one with an automatic synchronizing function. If an externally commuted power inverter is used, KYEPCO shall request that the customer install a current limiting reactor, etc. when there is concern of the system voltage deviating from its proper value (roughly ten (10) percent of the constant voltage) due to an instantaneous voltage drop in parallel operation. However, if such a measure proves unsatisfactory, KYEPCO shall request that the customer use a self-commuted power inverter.

e. If there is concern of output fluctuation and voltage variation due to frequent paralleling and paralleling off of the generating facilities interfering with other customers, etc., KYEPCO shall request that the customer take measures to reduce voltage variation and the frequency of paralleling and paralleling off.

(i) Short-circuit capacity

If there is concern that the system's short-circuiting capacity may exceed the breaking capacity of another circuit breaker (150 megavolt-amperes, in the case of the general circuit breaking capacity for receiving) due to the system being linked with the generating facility, KYEPCO shall request that the customer regulate short-circuiting capacity through appropriate means such as by installing a current limiting reactor or similar regulatory devices.

(j) Liaison system

Telephones for security purposes must be installed for communication between KYEPCO and the customer. For the telephone system, one of the following communication methods may be used:

- a. Telephones for power security
- b. Private telephone lines of telecommunication companies
- c. General subscription phones or mobile phones, if the following conditions are satisfied:
 - i. The phone system enables contact with an engineer directly (instead of through the customer's switchboard using a representative number, a method with a single number connecting the customer directly with the engineer's office) and is permanently placed at the maintenance or monitoring site of the generating facilities, etc.
 - ii. A system such as "catch phone" is used that allows for interruption when the line is busy.
 - iii. The phone system is usable even during power outages.
 - iv. A phone system for which the safety regulations stipulate that the generating facility must be paralleled off or the operation thereof stopped until the liaison system activates it in the event that no contact can be established due to the occurrence of a disaster.

(5) Interconnection with an EHV system

(A) Power factor

- (a) The customer is requested, as a rule, to maintain the power factor at the customer's premises at eighty-five (85) percent or higher. Furthermore, the customer is requested not to bring about the leading power factor during lighter load periods.

- (b) KYEPCO may request that the customer open or close the phase-advanced capacitor if necessary for technical reasons.
- (B) Installation of protective device
 - (a) KYEPCO may request that the customer install a protective device to automatically eliminate failures in the case of faults occurring in the customer's electrical facilities or short-circuits or ground faults occurring at the customer's premises.
 - (b) KYEPCO may request that the customer install a protective device to automatically eliminate failures in the case of short-circuit faults or ground faults occurring in the system with which linkage is established.
- (C) Device for checking power line no-voltage

KYEPCO installs a device for checking the power line no-voltage at the outgoing line outlet of power lines from the substation of a linked system in order to prevent faults upon re-closing (or, as necessary, if the linkage is to be made with a 20,000 volt system).
- (D) Liaison systems
 - (a) Telephones for power security purposes must be installed for communication between KYEPCO and the customer. However, when a linkage is established with a 20,000 volt system, one of the following communication methods may be used:
 - a. Telephones for power security
 - b. Private telephone lines of telecommunication companies
 - c. General subscription phones or mobile phones, if the following conditions are satisfied:
 - i. The phone system enables contact with an engineer directly (instead of through the customer's switchboard using a representative number, a method with a single number connecting the customer directly with the engineer's office) and is permanently placed at the maintenance or monitoring site of the generating facilities, etc.
 - ii. A system such as "catch phone" is used that allows for interruption when the line is busy.
 - iii. The phone system is usable even during power outages.
 - (b) A transmission terminal for load dispatching data (supervision, telemeters, etc.) shall be installed, as necessary, so that the information required for the system's operation (on/off operation of switching devices, active and reactive power, etc.) may be obtained by both KYEPCO and the customer.
- (E) Higher harmonics

When harmonic current flows into the system as a result of the use of devices generating higher harmonics, the following requirements must be satisfied for higher harmonics

control.

(a) Applicable customers shall be as described below:

- a. In establishing an interconnection with a system of 20,000 volts, the total capacity of the customer's harmonic-generating devices as converted to a 6-pulse converter capacity (referred to as "equivalent capacity"), exceeds 300 kV amps.
- b. In establishing an interconnection with a system of 60,000V or higher, the equivalent capacity of the customer's harmonic-generating devices exceeds 2,000 kV amps.

Such harmonic-generating devices, which are applicable to the calculation of the equivalent capacity in a and b above, shall be equipment other than electric/electronic equipment (home appliances and general products) used under a rated current of 20 amperes/phase and connected with a system of 300V or less. This rule also applies in cases where the additional installation of or an increase in equipment has been made.

(b) Applicable customers are requested to calculate the higher harmonic current that flows into the system in accordance with the following:

- a. Harmonic current is to be obtained by summing up the harmonic current generated by each unit of harmonic-generating equipment in a rated operating status, and then multiplying the obtained sum by the maximum operation factor of the harmonic-generating equipment.
- b. Harmonic current is to be summed up by the order of harmonics.
- c. The applicable orders of harmonics are 40 or lower.
- d. If any equipment reduces the harmonic current at the customer's premises, such reduction effect will be taken into consideration.

(c) The tolerable upper limit of the harmonic current that flows into the system is defined as the value obtained by multiplying the concerned contract power with the upper limit value of the harmonic current (in milli-amperes) per kilowatt of the contract power, as shown in the table below, for each order of harmonics.

Interconnection voltage	5th order	7th order	11th order	13th order	17th order	19th order	23rd order	Over the 23rd order
20,000 volts	1.8	1.3	0.82	0.69	0.53	0.47	0.39	0.36
60,000 volts	0.59	0.42	0.27	0.23	0.17	0.16	0.13	0.12
100,000 volts	0.35	0.25	0.16	0.13	0.10	0.09	0.07	0.07

(d) If the harmonic current in (b) exceeds the upper limit of that shown in (c) above,

KYEPCO will request that the customer take necessary measures to curb the harmonic current within the limit.

(F) Flicker

If voltage in the power system may possibly be affected due to specific load such as for electric furnaces, welding machines or other such heavy equipment, KYEPCO shall request that the customer install appropriate regulators according to such load degree.

(G) Interconnection of generating facility

If a generating facility is to be linked at the customer's premises, the following requirements apply, in addition to (A) through (F) above:

(a) Frequency at which generating facilities are operable

In order to maintain the proper system frequency, in principle, the frequency at which generating facilities are operable shall be as follows:

a. Frequency at which continuous operation is possible:

58.5 Hz or higher and 60.5 Hz or lower

b. Conditions for continuous operation upon frequency drop:

90 seconds or longer at 58.0 Hz or higher

45 seconds or longer at 57.5 Hz or higher

(b) Installation of protective device

a. So as to protect the system from failures in generating facilities, a protective relay must be installed as follows:

i. An overvoltage relay must be installed to control an abnormal rise in generated voltage of the generating facility. Such overvoltage relay shall be capable of detecting the voltage rise and performing parallel-off within a time limit. However, installation of such relay may be omitted if detection and protection can be undertaken by other protective device(s) incorporated within the generating facilities.

ii. An undervoltage relay must be installed to control an abnormal drop in generated voltage of the generating facilities. Such undervoltage relay shall be capable of detecting the voltage drop and performing parallel-off within a time limit. However, installation of such undervoltage relay may be omitted if detection and protection can be undertaken by other protective device(s) incorporated within the generating facilities.

b. So as to protect the system if a short-circuit fault occurs, a protective relay must be installed as follows:

i. A directional short-circuit relay must be installed when a synchronous generator is used. Such directional short-circuit relay shall be capable of detecting a

short-circuit fault in the system with which the generator is linked and performing parallel-off of such generating facilities from the system. In the event that such relay does not function effectively, either a directional short-circuit relay or a differential current relay shall be used.

- ii. An undervoltage relay must be installed when either an induction generator or a power inverter is used. Such undervoltage relay shall be capable of detecting an abnormal drop in generator voltage and performing parallel-off when a short-circuit occurs within the interconnected system. However, if a protective device for generating facility failure is capable of performing detection and protection, such device may be used in place of the relay above.
- c. So as to protect the system when a ground fault occurs, a protective relay must be installed as follows:
 - i. A differential current relay shall be used in the neutral direct grounding method.
 - ii. In methods other than the neutral direct grounding method, an overvoltage ground relay must be installed. In this case, either a directional ground relay or a differential current relay shall be used if such relay does not function effectively. However, the overvoltage ground relay may be omitted if either one of the following conditions is satisfied:
 - i) The system is capable of detecting a grounding fault in the linked system by the overvoltage ground relay installed at the outgoing line outlet of the generator.
 - ii) The output of the generating facilities is smaller than the load within the premises, and the under frequency relay is capable of promptly detecting the isolated operation and performing parallel-off of the generating facilities.
 - iii) The facilities are capable of promptly detecting isolated operation and performing parallel-off using a device with an isolated operation detection function with a passive method.
- d. So as to maintain proper system voltage and frequency, protective relays shall be installed as follow:
 - i. If there is reverse power flow, either an over frequency relay and under frequency relay or a transfer circuit breaker must be installed to prevent isolated operation deviating from the proper voltage and frequency. The over frequency relay and under frequency relay must conform to characteristics that are not affected by changes of voltage.

If a customer establishes an interconnection with a system of 20,000 volts, KYEPCO shall request that the customer install an over frequency relay and an

under frequency relay in order to reliably prevent isolated operation. Furthermore, either a transfer circuit breaker or a device with an isolated operation detection function must be installed. At the same time, KYEPCO may request measures to be taken to prevent reverse power flow affecting KYEPCO substation transformers that are linked with the generating facility concerned.

ii. If there is no reverse power flow, an over frequency relay and an under frequency relay must be installed to prevent isolated operation. However, if the output capacity of the generating facilities reaches a state of equilibrium with the load of the system and an over frequency relay or under frequency relay may not offer sufficient detection or protection functions, a reverse power relay must be installed.

(c) Location of the protective relay to be installed

KYEPCO shall request that the customer install a protective relay at the delivery point or at the location where fault detection is easily made.

(d) Location where parallel-off can be performed

Locations where parallel-off can be performed shall be one of the locations listed below where generation facilities can be paralleled off from the system:

- a. Circuit breaker for receiving power;
- b. Circuit breaker located at the output terminal of generation facilities;
- c. Circuit breaker for the generation facility connection; or
- d. Circuit breaker for bus bar connection.

(e) Automatic load control and power generation control

If there is a possibility that linked power lines and other items may become overloaded upon failure of the generating facilities, the customer is required to take measures to automatically control load. Further, if the linked power lines become overloaded upon a system failure, etc., the customer is required to curb power generation.

(f) Voltage variation

- a. If there is concern of the system voltage deviating from its proper value (roughly within one (1) to two (2) percent of the constant voltage) due to interconnection with the generating facility, KYEPCO shall request that the customer adjust the voltage automatically. The proper value in the case of linking with a system of 20,000 volts shall be in the range of 101 ± 6 volts or 202 ± 20 volts for LV customers of the system concerned.
- b. When a synchronous generator is used, the generator must be equipped with damping coils (a synchronous generator without damping coils may be included only when the generator has a hunting prevention effect equivalent or superior to that of a generator

with damping coils). Furthermore, KYEPCO shall request that the customer install an automatic synchronous detection device. If an induction generator is used, KYEPCO shall request that the customer install a current limiting reactor, etc. when there is concern of system voltage deviating from its proper value (roughly two (2) percent of the constant voltage) due to an instantaneous voltage drop in parallel operation. However, if such a measure proves unsatisfactory, KYEPCO shall request that the customer use a synchronous generator.

c. If a self-commuted power inverter is used, KYEPCO shall request that the customer use one with an automatic synchronizing function. If an externally commuted power inverter is used, KYEPCO shall request the customer to install a current limiting reactor, etc. when there is concern of the system voltage deviating from its proper value (roughly two (2) percent of the constant voltage) due to an instantaneous voltage drop in parallel operation. However, if such a measure proves unsatisfactory, KYEPCO shall request that the customer use a self-commuted power inverter.

(g) Short-circuit capacity

If there is concern that the system's short-circuiting capacity may exceed the breaking capacity of another circuit breaker due to the system being linked with the generating facility, KYEPCO shall request that the customer regulate short-circuiting capacity through appropriate means such as by installing a current limiting reactor or similar regulatory devices.

(h) Liaison system

When linkage with a system of 20,000 volts is established, and a general subscription telephone or mobile phone is used as the phone line to backup power security, it shall conform to the conditions stipulated in the safety regulations which state that the parallel-off or operation of the generating facility must be stopped until the liaison system activates it in the event that no contact can be established due to the occurrence of a disaster, in addition to (D) (a) c above.

Schedule 2: Calculation of Total Capacity of Contract Load Equipment

(1) If there is a discrepancy between the number of outlets and electrical appliances, the total capacity of the contract load equipment shall be determined based on the value obtained as described below.

(A) If the number of electrical appliances exceeds that of outlets,

the total capacity shall be the total (input) capacity of the electric appliances depending on the number of outlets. In this case, the electric appliances shall be taken into account in descending order from that with the largest input.

- (B) If the number of electrical appliances is less than that of outlets,
the total capacity shall be the total (input) capacity of the electric appliances plus the value
obtained by (2) below depending on the number of outlets in excess of the number of electric
appliances.
- (2) If the capacity of the electric appliances to be connected to the outlet has not been determined,
the value obtained as follows shall be the total capacity of the contract load equipment.
- (A) For houses, apartments, dormitories, hospitals, schools, and temples
Per outlet : 50 volt-amperes
- (B) For cases other than those above
Per outlet : 100 volt-amperes

Schedule 3: Converted Input Capacity of Load Equipment

(1) Electric Appliances for Illumination Purposes

The converted capacity of electric appliances for illumination purposes shall be pursuant to (A),
(B), (C) and (D) below.

(A) Fluorescent lamps

The converted capacity (input in watts) of fluorescent lamps shall be obtained by applying the
conversion rate of 125.0 percent to the rated power consumption in watts of the tube bulbs.

(B) Neon tube lamps

Secondary voltage (volts)	Converted capacity	
	Input (watts)	
3,000	30	
6,000	60	
9,000	100	
12,000	140	
15,000	180	

(C) Instant-start lamps

Tube length (millimeter)	Converted capacity	
	Input (watts)	
999 or less	40	
1,149 or less	60	
1,556 or less	70	

1,759 or less	80
2,368 or less	100

(D) Mercury lamps

Output (watts)	Converted capacity
	Input (watts)
40 or less	50
60 or less	70
80 or less	90
100 or less	130
125 or less	145
200 or less	230
250 or less	270
300 or less	325
400 or less	435
700 or less	735
1,000 or less	1,005

(2) Induction Motors

(A) Single-phase induction motors

(a) The converted capacity (input in kilowatts) of single-phase induction motors whose rated capacity is expressed in horsepower shall be obtained by multiplying the value by the conversion rate of 100.0 percent.

(b) The converted capacity (input in watts) of those with a rated capacity in watts shall be obtained by multiplying the value by the conversion rate of 133.0 percent.

(B) Three-phase induction motors

Contract load equipment	Converted capacity (Input) (kilowatts)
Low-voltage induction motors	Output (horsepower) \times 93.3%
	Output (kilowatts) \times 125.0%
High-voltage induction motors	Output (horsepower) \times 87.8%
	Output (kilowatts) \times 117.6%

(3) Electric Welders

The converted capacity of electric welders shall be the value obtained by the formula below.

(A) If the appliances conform to the Japan Industrial Standards (exclusive of those with built-in capacitors):

$$\text{Input (kW)} = \text{Maximum rated primary input (kilovolt-amperes)} \times 70\%$$

(B) In cases other than those in (A) above:

$$\text{Input (kW)} = \text{Measured primary input (kilovolt-amperes)} \times 70\%$$

(4) Others

(A) If obtaining such values pursuant to (1), (2) or (3) is deemed inappropriate, the converted (input) capacities of the electric appliances shall be determined by agreement between the customer and KYEPCO based on the actual value of the measurement. However, the converted (input) capacity may be the value of rated power consumption if a special situation so requires.

(B) The (input) capacity for indicating lamps that are integrated parts of power appliances and indispensable for the use of such power appliances shall be determined on the basis that such lamps, together with such power appliances, constitute a single unit of contract load equipment.

(C) Electric appliances that evidently serve as standby equipment shall not be included in the determination of the contract load equipment capacity.

Schedule 4: Calculation of the Contract Receiving Equipment Capacity

The total bank capacity (in kilovolt-amperes) of the contract receiving equipment, which is used by connecting single-phase transformers, shall be the value calculated by the formula below.

(1) In the case of a Delta or Y connection:

$$\text{Bank capacity} = \text{Capacity of the single-phase transformer (kilovolt-amperes)} \times 3$$

(2) In the case of a V connection (transformer with the same capacity):

$$\text{Bank capacity} = \text{Capacity of the single-phase transformer (kilovolt-amperes)} \times 2 \times 0.866$$

(3) In the case of a variable V connection (Transformer with a different capacity):

Bank capacity

= Capacity of the transformer for light and power (kilovolt-amperes)

– Capacity of the power transformer (kilovolt-amperes)

+ Capacity of the power transformer (kilovolt-amperes) $\times 2 \times 0.866$

Schedule 5: Average Power Factor Determination

The average power factor shall be as shown below, based on the value obtained by dividing the reactive power by the active power. Any fraction of 0.00005 or more shall be rounded up, and a fraction of less than 0.00005 shall be disregarded. In this case, the active power and reactive power

shall be measured pursuant to (1), (4), (5), (6), (8) and (12) of 22 (Measurement of Energy Consumption and Other Items). However, the average power factor when active power is zero shall be deemed eighty-five (85) percent.

Wo/W Value		Average Power Factor (%)	Wo/W Value		Average Power Factor (%)
from	to		from	to	
0.0000	0.1004	100	1.0061	1.0345	70
0.1005	0.1752	99	1.0346	1.0636	69
0.1753	0.2279	98	1.0637	1.0931	68
0.2280	0.2718	97	1.0932	1.1231	67
0.2719	0.3106	96	1.1232	1.1536	66
0.3107	0.3461	95	1.1537	1.1848	65
0.3462	0.3793	94	1.1849	1.2166	64
0.3794	0.4108	93	1.2167	1.2490	63
0.4109	0.4409	92	1.2491	1.2822	62
0.4410	0.4701	91	1.2823	1.3161	61
0.4702	0.4984	90	1.3162	1.3508	60
0.4985	0.5261	89	1.3509	1.3864	59
0.5262	0.5533	88	1.3865	1.4229	58
0.5534	0.5801	87	1.4230	1.4603	57
0.5802	0.6066	86	1.4604	1.4988	56
0.6067	0.6329	85	1.4989	1.5384	55
0.6330	0.6590	84	1.5385	1.5792	54
0.6591	0.6850	83	1.5793	1.6211	53
0.6851	0.7110	82	1.6212	1.6644	52
0.7111	0.7370	81	1.6645	1.7091	51
0.7371	0.7630	80	1.7092	1.7554	50
0.7631	0.7892	79	1.7555	1.8031	49
0.7893	0.8154	78	1.8032	1.8526	48
0.8155	0.8419	77	1.8527	1.9039	47
0.8420	0.8685	76	1.9040	1.9571	46

0.8686	0.8954	75	1.9572	2.0124	45
0.8955	0.9225	74	2.0125	2.0700	44
0.9226	0.9500	73	2.0701	2.1299	43
0.9501	0.9778	72	2.1300	2.1923	42
0.9779	1.0060	71	2.1924	2.2576	41

Wo/W Value		Average Power Factor (%)	Wo/W Value		Average Power Factor (%)
from	to		from	to	
2.2577	2.3258	40	5.0299	5.3121	19
2.3259	2.3972	39	5.3122	5.6261	18
2.3973	2.4721	38	5.6262	5.9775	17
2.4722	2.5507	37	5.9776	6.3736	16
2.5508	2.6334	36	6.3737	6.8237	15
2.6335	2.7206	35	6.8238	7.3396	14
2.7207	2.8126	34	7.3397	7.9373	13
2.8127	2.9099	33	7.9374	8.6380	12
2.9100	3.0130	32	8.6381	9.4712	11
3.0131	3.1225	31	9.4713	10.4787	10
3.1226	3.2390	30	10.4788	11.7221	9
3.2391	3.3633	29	11.7222	13.2958	8
3.3634	3.4962	28	13.2959	15.3521	7
3.4963	3.6389	27	15.3522	18.1543	6
3.6390	3.7919	26	18.1544	22.1997	5
3.7920	3.9572	25	22.1998	28.5539	4
3.9573	4.1362	24	28.5540	39.9875	3
4.1363	4.3305	23	39.9876	66.6667	2
4.3306	4.5424	22	66.6668	199.9975	1
4.5425	4.7744	21	199.9976	∞	
4.7745	5.0298	20			

Further, the average power factor shall be as calculated by the formula below:

$$\text{Average power factor (\%)} = \frac{W}{\sqrt{W^2 + W_0^2}} \times 100$$

Schedule 6: Method of Calculating Contract Power and Other Items

The contract power for customers who receive electric service at high voltage under Temporary Power, and with a contract power of less than 500 kilowatts, shall be the smaller value of (1) or (2) below:

(1) Value Obtained from the Contract Load Equipment

The value obtained by totaling the input capacities of each item of contract load equipment as multiplied by the factors in (A) below, then again multiplied by the factors in (B). It should be noted that, if the ratings are expressed in output capacity or in another form, the input capacity shall be obtained by applying the conversion rates in Schedule 3 (Converted Input Capacity of Load Equipment).

Further, regarding lamps or small-scale appliances, if there is a discrepancy between the number of outlets and electrical appliances, the input of the contract load equipment shall be determined pursuant to (1) of Schedule 2 (Calculation of Total Capacity of Contract Load Equipment) (in this case, one (1) volt-ampere is considered to be one (1) watt). Also, for power appliances, under special situations, including a case in which the power is used to test electrical appliances, the customer is required to install appropriate devices, such as circuit breakers, to limit the maximum current used in the circuit. Further, KYEPCO regards the capacity of such devices to be the input capacity of contract load equipment used in such circuit. In this case, such capacity shall not be multiplied by the factors in (B).

(A) Of contract load equipment items

In descending order from the largest input	Input capacity of first two items	100%
	Input capacity of next two items	95%
	Input capacity of all additional items	90%

The total number of lamps and small-scale appliances shall be considered as one (1) unit of contract load equipment.

(B) Of the sum obtained by applying the appropriate factors in Table (A) above

First 6 kilowatts	100%
Next 14 kilowatts	90%
Next 30 kilowatts	80%
Next 100 kilowatts	70%
Next 150 kilowatts	60%
Next 200 kilowatts	50%
All additional kilowatts exceeding 500 kilowatts	30%

(2) Value Obtained from the Contract Receiving Equipment

The value obtained by applying the factors below to a sum of the total capacity of the contract receiving equipment (by bank capacity determined pursuant to Schedule 4 (Calculation of The Contract Receiving Equipment Capacity) when used in connection with a single-phase transformer) and the total input capacity of the contract load equipment to be in use at the same voltage as the receiving voltage. In this case, one (1) volt-ampere is considered as one (1) watt for the total capacity of the contract receiving equipment. When the ratings are expressed in output capacity, the input capacity must be obtained pursuant to Schedule 3 (Converted Input Capacity of Load Equipment) for each item of the contract load equipment.

First 50 kilowatts	80%
Next 50 kilowatts	70%
Next 200 kilowatts	60%
Next 300 kilowatts	50%
All additional kilowatts exceeding 600 kilowatts	40%

However, the following transformers shall not be included in the determination of the contract receiving equipment total capacity:

- (A) Transformers not directly connected with the contract load equipment on its secondary side;
- (B) Transformers connected with the contract load equipment operated at the same voltage as the receiving voltage, on its secondary side;
- (C) Transformers installed on the secondary side of the transformer that is used to change the voltage to same level as the service voltage of the contract load equipment (exclusive of those installed on the secondary side of the transformer in (B) above);
- (D) Transformers obviously used as spare equipment.

Schedule 7: Agreement on Energy Consumption and Other Items

The criteria for determining energy consumption or maximum demand by negotiation shall be as detailed below.

(1) Agreement on Energy Consumption

It shall be the value determined by either of the following:

(A) When based on past energy consumption:

The energy consumption shall be determined using any of the following manners. It should be noted that, if there was a change in the contract current during the billing period subject to such agreement or during the billing period when measurement was made for past energy

consumption, the value shall be determined while taking into account the ratio of the values attained by multiplying the number of days in each billing block by the respective contract power.

- (a) When based on the energy consumption of the previous month or the same month of the previous year:

Agreed value =

$$\frac{\text{Energy consumption of the previous month or the same month of the previous year}}{\text{Number of days in the billing period of the previous month or that of the same month of the previous year.}} \times \text{Number of days in the period subject to the agreement}$$

- (b) When based on the energy consumption of the previous three months:

Agreed value =

$$\frac{\text{Energy consumption of the three months immediately preceding}}{\text{Number of days in the billing period of immediately preceding three months}} \times \text{Number of days in the period subject to the agreement}$$

- (B) When based on the capacity of the load equipment used and the hours of usage:

The energy consumption shall be the sum total of the values obtained by multiplying the (input) capacity of the load equipment used by the respective number of usage hours.

- (C) When based on the energy consumption measured with the replaced meter when the number of days in the period the measurement was made with the replaced meter is ten (10) days or more:

$$\frac{\text{Energy consumption measured with replaced meter}}{\text{Number of days in the period the measurement was made with replaced meter}} \times \text{Number of days in the period subject to the agreement}$$

- (D) When based on the measurement by the meter installed as a reference:

The energy consumption shall be the energy consumption measured by the meter installed as a reference. Further, such meter shall be installed pursuant to 54 (Installation of Meters and Others)

- (E) When corrected for the error exceeding the tolerance:

$$\frac{\text{Measured power}}{(100\% + (\pm\text{Relative error}))}$$

Further, if the occurrence time of errors exceeding the tolerance cannot be confirmed, the agreement shall be made on the energy consumption during and after the following month.

- (a) If measured upon customer's notification, it shall be applicable from the month such notification is given.
 (b) If measured upon KYEPCO's discovery, it shall be the month such discovery was made.

(2) Agreement on Maximum Demand

Agreement on maximum demand shall conform to (1) above.

Schedule 8: Basic Formula for Per-Diem Calculation

(1) The basic formulas for per-diem calculation are detailed below.

(A) For per-diem calculation of the demand charge:

$$\text{Corresponding rate for the month} \times \frac{\text{Number of days for per-diem calculation}}{\text{Number of days in meter reading period}}$$

However, if the provisions of (1) (C) or (D) of 23 (Billing) are applicable:

$$\frac{\text{Number of days for per-diem calculation}}{\text{Number of days in meter reading period}} \text{ to be understood } \frac{\text{Number of days for per-diem calculation}}{\text{Number of calendar days}}$$

(B) Billing for the energy charge based on per-diem calculation:

(a) For (1) (A), (C) or (D) of 23 (Billing):

The energy charge shall be determined according to the amount of energy consumption during a billing period.

(b) For (1) (B) of 23 (Billing):

The energy charge during a billing month shall be calculated by dividing the energy consumption during such billing month into two blocks proportional to the values obtained by multiplying respective contract power by the number of days in the period before and after the applicable rates changed. For a customer under Commercial Power A, Industrial Power A and Temporary Power, when the billing month includes days of both summertime and other seasons, the energy charge is determined based on the ratio of values obtained by multiplying the number of days in each period treated differently for billing purposes, by the contract power. However, if the measured value is confirmed according to (8) of 22 (Energy Consumption Measurement), it shall be based on such value.

(2) The number of days in the meter reading periods as in (1) (A) for cases of commencement of supply service or the termination of the electric service contract shall be as follows.

(A) For supply service commencement

It shall be the number of days in the period beginning on the meter reading day of the meter reading area to which the customer belongs immediately before the supply commencement ending on the day before the meter reading day immediately after such commencement.

(B) For supply service termination

It shall be the number of days in the period beginning on the meter reading day immediately

before the supply termination ending on the day before the day KYEPCO notifies the customer in advance as the next meter reading day.

- (3) The number of days in the meter reading period in (1) (A), in the case of (2) of 21 (Billing Period), shall be the number of days in the measurement period. However, the number of days in the meter reading periods as in (1) (A) for cases of commencement of supply service or the termination of the electric service contract, shall be pursuant to (2) above. In this case, the meter reading day in (2) shall be read as the measurement day.
- (4) The number of calendar days in (1) (A) for cases of commencement of supply service or the termination of the electric service contract shall be as follows:
 - (A) For supply service commencement

The number of calendar days shall be the number of days in the month of the preset meter reading day (and shall correspond to the beginning of the meter reading period in which the commencement day is included) of the meter reading area to which the customer belongs.
 - (B) For supply service termination

The number of calendar days shall be the number of days in the month of the preset meter reading day (and shall correspond to the beginning of the meter reading period in which the day before such termination is included) of the meter reading area to which the customer belongs.
- (5) When the electric charges are to be calculated on a per-diem basis for the period when the supply is suspended, the number of days subject to the per-diem calculation in (1) (A) shall be the number of days during such suspension. In this case, the day of suspension shall be included and the day of resumption shall be excluded from the period of suspension. If the service is resumed on the same day the service is suspended, such day shall not be included in the period of suspension.

Schedule 9: Standard Design Criteria

(1) Purpose

- (A) Standard design criteria (hereinafter referred to as “criteria”) shall apply to the calculation of construction costs stipulated in “VIII Contribution to Construction Costs.” Issues not defined by the criteria shall conform to designs which are recognized as technically appropriate, based on the technical standards for electric facilities as defined in laws and ordinances, based on other laws and ordinances, or based on KYEPCO’s design standards. In this case, such design will be defined as the standard design.
- (B) If special facilities are needed due to special topographic needs and other circumstances when it is difficult to meet the criteria, a specific design shall be used which is recognized as technically appropriate, notwithstanding (A) above, and such design will be defined as the

standard design.

(C) Standards for materials and equipment shall conform to the standards of the JIS, the standards of the FEPC (Federation of Electric Power Companies of Japan) and others.

(2) Units Used and Other Items

Units shall be expressed using the symbols shown below.

Name of unit	Symbol
Volt	V
Kilovolt	kV
Ampere	A
Kilometer	km
Meter	m
Millimeter	mm
Square millimeter	mm ²
Milligram	mg
Percentage	%

(2) HV (High Voltage) Power Lines

(A) General standards

(d) Tolerable limit of voltage drop

Standard tolerable limit of voltage drop of an HV power line shall be shown below. The power line is defined as a feeder from a delivery point to the power plant's or substation's outlet closest to the delivery point or outgoing-side terminal of the supply transformer.

Nominal voltage (V)	HV 6,600
Tolerable limit of voltage drop (V)	600

(e) Locations

The locations where HV power lines start, branch out, and pass through shall be selected with due consideration for future prospects, siting and environmental, work/construction, maintenance and economic aspects.

(f) Types

HV power lines shall be defined as overhead power lines. However, when it is not legally possible to install overhead power lines or it is inappropriate to install them for technical, economic, or community-based reasons, installation of underground or other power lines shall apply.

(B) Overhead power line

(a) Installation

- a. Except in technically difficult cases, HV overhead power lines shall be constructed in the most economical manner by either installing a new power line independently, sharing a pole with another overhead power line, or replacing a power line.
- b. If an HV overhead power line is installed independently, a single feeder circuit shall be installed as a rule.

(b) Supports

- a. HV overhead power line supports shall, in principle, either be a concrete poles or hybrid material poles. KYEPCO shall select technically and economically appropriate poles in accordance with laws and ordinances, taking into account the status of the supply facilities already installed in the area.
- b. Other suitable supports may be used for the HV overhead power line support if the use of concrete or hybrid material poles seems technically or economically improper.

(c) Standard span

The standard spans of HV overhead lines are shown in the table below. Spans different from those given in the table may, however, be used, in cases in which the construction of power lines with a standard span is impossible due to geographical or land conditions.

Area installed	Standard span (m)
City area	40
Other areas	50

(d) Length of support structure

The length for support structures for HV overhead power lines is chosen as shown in the table below. Structures with lengths different from this table may, however, be used to avoid unfavorable topographical conditions, or to support power lines running across roads, or when it is required to keep a necessary distance from trees, architectural structures, other transmission lines, etc. or when transformers are installed on such supporting structures.

Area installed	High voltage (m)	Parallel spanning of high-low Voltage lines (m)
Urban area	10	12
Other areas	9	10

(e) Pole assembly

- a. Horizontal pole structure arrangement is normally used for high-voltage overhead power lines. Vertical pole structure arrangement may, however, be used, if adopting horizontal pole arrangement is considered unfavorable from technical or maintenance aspects.
- b. As for the arm materials, lightweight metal is used for horizontal pole arrangement while high-voltage direct metal fittings are adopted for vertical pole arrangement.

(f) Stays and support poles

Stays and support poles are installed to share the stress on the HV overhead power line support. However, a stay pole may be used for a stay if the topographical features so require.

(g) Insulators

Insulators used for HV overhead power lines are given in the table below:

	For spans	For cramping
High-voltage line	High-voltage solid insulator Insulator for span with current limiting arcing horn	High-voltage strain insulator Terminal insulator with current limiting arcing horn

(h) Type and size of conductors

- a. Aluminum conductors are used for HV overhead power lines and HV service lines. Other suitable materials may be used for the conductor if the use of aluminum conductors seems improper from technical or economic aspects.
- b. Insulated conductors are used for HV overhead power lines and HV overhead service lines. However, bare conductors may be used in places with very limited access such as a portion of the power line crossing a strait.
- c. The size of conductors is selected so as to meet legal restrictions and by considering allowable current, short circuit current, voltage drop, and mechanical strength. The types and minimum size of conductors are chosen in accordance with Table 1, and the conductor sizes to be applied are chosen according to Table 2.

(Table 1)

	Insulated (aluminum) conductor	Bare aluminum conductor
High-voltage conductor	Not less than 25 mm ²	Not less than 120 mm ²

High-voltage service line	Not less than 25 mm ²	—————
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(Table 2)

Types and size of conductors		Continuous allowable current (A)		Bare conductor
		OC conductor	OE conductor	
Aluminum conductor	25 mm ²	----	107	----
	58 mm ²	----	177	----
	120 mm ²	----	271	400
	200 mm ²	473	----	540
	400 mm ²	723	----	850

(i) Installation of line disconnecting switches

Line disconnecting switches are installed at the points necessary for maintenance work of HV overhead power lines.

(j) Installation for lightning protection

Arresters, overhead grounding wires, and other equipment necessary for lightning protection are furnished along the HV overhead power lines.

(k) Installation for special areas

For overhead power lines installed in areas prone to pollution from salt, soot or gas, or for those built on soft ground or in windy areas, structures that can withstand salt, soot and gas contamination or have enough strength even on soft land or in windy areas are adopted.

(l) Total length of HV overhead service lines

The total length of HV overhead service lines is 50 meters or less.

(C) Underground power lines

(a) Installation

Normally conduit-type installation is used for HV underground cable line laying; however, direct laying or laying in culverts is used in the cases described below:

a. Direct laying system

Direct laying is adopted for places where no heavy vehicles pass over the cable route or where cables are laid in places where digging up the cable route does not cause any trouble to other installations inside the premises.

b. Culvert laying system

A culvert laying system is adopted for places where a large number of cables, including the specified ones, are laid in the same place.

(b) Selection of cables

The types and sizes of the cables used for HV underground lines are selected from the following table. As a rule, the minimum in the table is chosen in consideration of the allowable current, short circuit current, voltage drop, installation circumstances, etc.

The allowable current of cables is determined according to the calculation method of the Japanese Electric Wires & Cable Makers' Association's standards (JCS 168) by considering various conditions for installation.

Type		Size in mm ²
Cross-linked polyethylene cable	Copper conductor	14, 22, 38, 60, 100, 325, 725

(c) Method of installation

The most favorable method will be adopted by considering technical and economic conditions.

(d) Installation of switchgear towers

Switchgear towers are installed in places necessary for maintenance work on HV underground cables.

(3) EHV (Extra High Voltage) Power Lines

(A) General standards

① Tolerable limit of voltage drop

Standard tolerable limit of voltage drop of an EHV power line shall be defined as follows. The power line is defined as a feeder from a delivery point to the power plant or substation's outlet closest to the delivery point.

Nominal voltage (V)	22,000	66,000	110,000
Tolerable limit of voltage drop (V)	2,000	6,000	10,000

(b) Locations of power lines, etc.

The locations where EHV power lines start, branch out, and pass through shall be selected with due consideration for future prospects, siting, as well as environmental, work, maintenance and economic aspects.

(c) Types of power lines

EHV power lines shall be defined as overhead power lines. However, when it is not

legally possible to install overhead power lines or it is difficult to install them for technical, economical, or community-based reasons, installation of underground or other power lines shall apply.

(B) Overhead power line

(a) Installation

- a. Except for technically difficult cases, EHV overhead power lines shall be constructed in the most economic manner either by installing a new power line independently, sharing a pole with another overhead power line, or replacing a power line.
- b. Concerning the order of installation of power lines when sharing a pole with other EHV overhead power lines, a higher voltage power line shall be installed higher up, and a lower voltage one shall be installed lower down.
- c. If an EHV overhead power line is installed independently, a single feeder circuit shall be installed as a rule.

(b) Types of power line supports

- a. EHV overhead power line supports shall, as a rule, be steel towers. However when it is judged that a steel tower is not appropriate because the support is only temporary, or due to harmonious coordination with other related systems, other types of power line supports shall be used.
- b. If a 22kV EHV overhead power line is installed in a similar method as that for an HV overhead power line (hereinafter referred to as “22kV overhead power line installed according to the method used for HV overhead power lines”), a concrete pole shall be used, as a rule.

(c) Design of supports

Design of supports for EHV overhead power lines shall conform to technical standards relating to electrical facilities as determined by laws and ordinances, and standards defined by the Japanese Electrotechnical Committee of the Institute of Electrical Engineers of Japan (IEEJ).

(d) Standard span

- a. The standard spans of EHV overhead power lines are defined as follows:

Power line supports	Standard span (m)
Steel tower	200 - 300
Others	100 -150

- b. The standard spans of 22kV overhead power lines installed according to the method used for HV overhead power lines shall be defined as follows:

Area installed	Standard span (m)
City area	40
Other areas	50

(e) Pole assembly

- a. An economical design must be employed for pole assembly, taking into account sites where power lines are laid as well as optimum maintenance of power lines.
- b. In areas with common occurrence of salt pollution as in C, D or E in section (g) a below, specific pole assembly shall be used with an extra insulator in addition to the standard one.
- c. Insulation clearance shall be defined as below. However, when an arcing horn is installed together with the insulator, the values below as corrected shall be used in consideration of the best performance of the arcing horn.

Voltage (kV)	22	66	110
Number of insulators required	2*	6	9 or 10
Standard clearance (mm)	350	740	1,100
Minimum clearance (mm)	300	400	700
Clearance between jumper and cross-arm (mm)	400	890	1,320

* One insulator shall be required for a 22kV overhead power line installed according to the method used for HV overhead power lines.

(f) Foundation of steel tower or pole

A concrete foundation shall be prepared when a steel tower and pole are constructed.

(g) Insulator

- a. An insulator for EHV overhead power lines shall be defined, as a rule, as a 250mm standard suspension insulator. The number of insulators to be connected shall conform to (e) c above. However, at locations where insulators are damaged due to salt pollution and smog, values recommended by the Transmission & Substation Sub-committee of the Salt Pollution Taskforce Committee and past records on the dirt of insulators in Kyushu shall be taken into consideration. Standard insulators or smog insulators shall be installed as follows:

Required Number of Insulators to be Installed for Salt and Smog Pollution

Locations where insulators are damaged	A	B	C	D	E (near coast)

Estimated equivalent salt deposit mg/bottom surface (excluding central portion)		50	100	200	400	For seawater splashing: 3% saltwater (estimated to be 0.3mm/min on a horizontal surface)
Distance from coast	For typhoons	50km or more	10 - 50km	3 - 10km	0 - 3km	0 - 0.3km or 0 - 0.5km according to coastal topology
	For seasonal winds	10km or more	3 - 10km	1 - 3km	0 - 1km	0 - 0.3km according to coastal topology
Distance from origin of smog in factory area			Light smog pollution area around factory area	Center of factory area		
Standard suspension insulators	110kV	9	9	9	*9	* 10
	66kV	6	6	6	6	* 6
	22kV or less	2	2	2	2	3

Note: 1. * indicates smog insulator.
2. "Locations where insulators are damaged" is only a guideline as there is much discrepancy according to individual locations.

b. The insulator used for 22kV overhead power lines installed according to the method used for HV overhead power lines shall be line-post insulators or long rod insulators.

(h) Type and size of power line

a. Taking into account allowable current, short-circuiting current, voltage drop, span length, snow deposit, and locations where power lines are laid; cable types and sizes shall be selected from those listed below, as a rule. However, other types and sizes may be used if necessary for technical or economic reasons.

Types of power lines	Nominal cross-section area (mm ²)
Aluminum cable steel reinforced (ACSR)	160, 240, 410, 610

b. Allowable current of power line

Allowable current of power lines shall conform to the following:

Types of power lines	Nominal cross-section area (mm ²)	Allowable current (A)
Aluminum cable steel reinforced (ACSR)	160	467
	240	608
	410	846
	610	1,059

c. A 22kV overhead power line installed according to the method used for HV overhead power lines shall be defined as an aluminum insulated cable. The size of the cable shall conform to the following.

Types of power lines	Nominal cross-section area (mm ²)	Allowable current (A)
Aluminum insulated cable	200	473

(i) Installation of overhead ground wire

- a. For steel towers and poles, one overhead ground wire of 70 mm² or more shall be installed as a rule, made of aluminum-clad steel stranded conductors. However, for locations where electromagnetic induction interference or extreme corrosion is seen, other kinds of overhead ground wires shall be used. Furthermore, for locations with high support grounding resistance, ground rods and counterpoise shall be employed to prevent reverse flashing.
- b. For 22kV overhead power lines installed according to the method used for HV overhead power lines, one overhead ground wire with a cross-section of 25mm² or more, made of aluminum cable steel reinforced, shall be installed as a rule.

(j) Ground height of overhead power line

- a. The minimum clearance from the ground to EHV overhead power lines shall conform to the following. However, for locations where there are structures in the vicinity of the power line or a structure is slated to be constructed, or power lines cross a road or river, power lines extend across a wooded area, or where special consideration must be paid for security and maintenance reasons; an additional clearance must be added to the standard value.

Ground Height of Power Line

Nominal voltage (kV)	Ground height (m)
22	6
66	7
110	7

- b. Minimum clearance from the ground to 22kV overhead power lines installed according to the method used for HV overhead power lines shall conform to the following.

Ground Height of Power Line

Area where power line is laid	Ground height (m)
City area	8
Other areas	6

- (k) Installation of blocking coil

If branching is necessary from the feeder which serves as a power line carrier, the rated blocking coil required for branching shall be installed when damage is presumed to be caused to the carrier.

- (l) Installation of arcing horns and armor rod

Depending on the area where the power line is laid, an arcing horn and armor rod are installed as necessary.

(C) Underground power lines

- (a) Installation of power lines

EHV underground power lines shall be installed using either the conduit laying method or the culvert method. However, the direct laying method may be used at locations with suitable ease of installation and maintenance, such as on yards belonging to a substation or factory.

- (b) Selection of cables

After taking into account the allowable current, short-circuiting current, voltage drop, and installation means, cable types and sizes to be used for EHV underground power lines shall be selected as follows, as a rule. However, in cases where technical and economic reasons dictate, other types and sizes of cables may be used.

The tolerable cable current may be sought, taking into account installation conditions, based on the calculation method stipulated in the Japanese Electric Wires & Cable Makers' Association's standards (JCS 168).

Types and sizes of cables

Voltage		Number of cores	Size of conductor (mm ²)
22kV	CV	Single	400, 600, 800, 1,000, 1,200
		Three-stranded, single	60, 100, 150, 200, 250, 325, 400
66kV	CV	Single	600, 800, 1,000, 1,200, 1,400, 1,600, 2,000

	OF	Three-stranded, single	80, 100, 150, 200, 250, 325, 400, 500
		Single	400, 600, 800, 1,000, 1,200
110k V	CV	Single	600, 800, 1,000, 1,200, 1,400, 1,600, 2,000
		Three-stranded, single	150, 200, 250, 325, 400
	OF	Single	400, 600, 800, 1,000, 1,200
		Three	150, 200, 250, 325

(c) Installation of arresters

If the cable length is short, an arrester may be installed at the location where the cable and overhead power line connects.

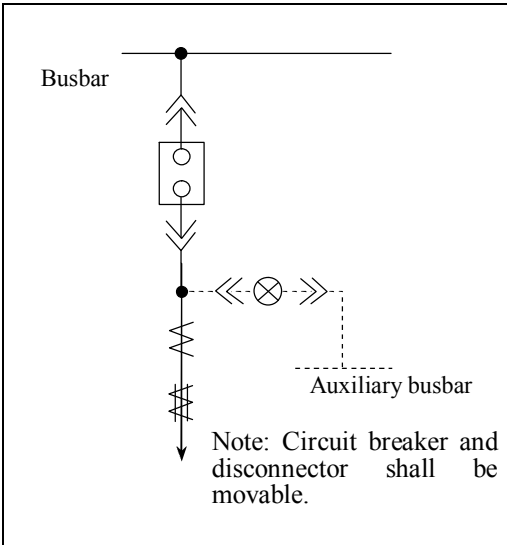
(5) HV Substations

(A) General standards




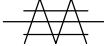
An outgoing facility shall be installed for the HV power line in accordance with other facilities of the substation.

(B) Connection method

Standards for line connection at KYEPCO's substations' outgoing facilities and the number pieces of major equipment to be installed shall conform to the following.

	Equipment	Number of pieces of equipment to be installed	
		Single-busbar	With auxiliary busbar
	Circuit breaker	1 unit	1 unit
	Disconnecter	-	1 sets
	Current transformer	2 units	2 units
	Zero-phase current transformer	1 unit	1 unit
	Switchboard	1 unit	1 unit

Note: Dotted line indicates a case in which an auxiliary busbar is used.

Legend	Circuit breaker	Disconnecter	Current transformer	Zero-phase current transformer
				

(C) Circuit breaker

- (a) A circuit breaker with the minimum capacity among those normally used by KYEPCO shall be installed based on the maximum load current and the short-circuit capacity derived from the present or planned power system.
- (b) Future system configurations shall be planned based on a 10-year plan.

(D) Disconnecter

A disconnecter with the minimum capacity among those normally used by KYEPCO shall be installed based on the maximum load current.

(E) Current transformer

A current transformer with the minimum capacity among those normally used by KYEPCO shall be installed based on the maximum load current.

(F) Switchboard

A switchboard shall be equipped, as a rule, with devices necessary for system operation such as ammeters, switches for circuit breaker operation, protective devices for automatic circuit cut-off upon occurrence of short-circuits or ground faults. A watt-hour meter, a reactive power meter, and a voltmeter shall be installed as necessary.

(6) EHV Substations

(A) General standards

An outgoing facility shall be installed for the EHV power lines in accordance with other facilities of the substation.

(B) Connection method

Standards for line connection at KYEPCO's substations' outgoing facilities and the number of major equipment to be installed shall conform to the following.

	Equipment	Number of equipment to be installed	
		Single-busbar	Double busbar
	Circuit breaker	1 unit	1 unit
	Disconnecter	2 sets	3 sets
	Current transformer	6 units	6 units
	Instrumental transformer	1 unit	1 unit
	Switchboard	1 unit	1 unit

- Note:
1. The dotted line indicates a double busbar.
 2. An earthing device shall be installed on the power line side, as a rule. If a gas-insulated switch (GIS) is used, the earthing device may be installed at both sides of the circuit breakers.
 3. The location and number of current transformers to be installed may vary according to the usage of current transformer concerned or configuration of the control circuit. A zero-phase current transformer may be installed as necessary.
 4. If a circuit breaker with of a movable type is required, disconnectors normally installed at both sides of the circuit breaker can be omitted.
 5. An arrester may be installed on the power line side for lightning protection purposes as necessary.

	Circuit breaker	Disconnecter	Disconnecter with earthing device	Current transformer	Instrumental transformer
Legend					

(C) Circuit breaker

- (a) A circuit breaker with the minimum capacity among those normally used by KYEPCO shall be installed based on the circuit voltage and judging from the maximum load current and the short-circuit capacity derived from the present or planned power system.
- (b) Future system configurations shall be planned based on a 10-year plan.

(D) Disconnecter

A disconnecter with the minimum capacity among those normally used by KYEPCO shall

be installed based on the circuit voltage and judging from the maximum load current.

(E) Current transformer

A current transformer with the minimum capacity among those normally used by KYEPCO shall be installed based on the circuit voltage and judging from the maximum load current.

(F) Instrumental transformer

An instrumental transformer with the minimum capacity among those normally used by KYEPCO shall be installed based on the circuit voltage and judging from the maximum service load.

(G) Switchboard

A switchboard shall be equipped, as a rule, with devices necessary for system operation such as an ammeter, a switch for circuit breaker operation, a protective device for automatic circuit cut-off upon occurrence of a short-circuit or ground fault. A watt-hour meter, a reactive power meter, and a voltmeter shall be installed as necessary.

(7) Communication Facility for Power Security

(A) General standards

(a) Installation of phone for power security

- a. A telephone shall be installed, as a rule, for power security communication purposes, as stipulated by the law.
- b. The number of lines shall be one, as a rule.

(b) Communication method

Of the phones that may be used for power security communication purposes, the most appropriate method in terms of technology and economy shall be chosen from among: optical ground wires (OPGW); overhead phone lines (communication cable, fiber-optics); underground phone lines (communication cable, fiber-optics); communication line carriers; optical carriers; or microwave multiplex radios.

(c) Site where communication facility shall be installed

Sites where communication facilities will be installed shall be selected so as to be most economical, taking into account geographical conditions, safety, and maintenance.

(d) Phones

Automatic or common battery-type phones shall be used as a standard.

(B) Overhead phone line

(a) Installation of phone line

An overhead phone line shall be installed jointly on a pole with an overhead power line with a service voltage of 35,000 volts or less, or jointly on a pole carrying other overhead phone lines. However, where not appropriate for technical or economic reasons, an independent phone line shall be installed.

- (b) Type of phone line
 - For overhead phone lines, a polyethylene insulated communication cable, stipulated in the standards of FEPC, shall be used for a communication cable, as a rule. Ribbon-type optical communication cable that meets the FEPC standards shall be used for the fiber-optics cable.
- (C) Underground phone line
 - (a) Installation
 - Underground phone line cables shall be installed using either a conduit method or a culvert method.
 - (b) Type of cable
 - For underground phone lines, a polyethylene insulated communication cable, stipulated in the standards of FEPC, shall be used for a communication cable, as a rule. Ribbon-type optical communication cable that meets the FEPC standards shall be used for the fiber-optics cable.
- (D) Communication line carrier
 - The transceiver transmission method shall employ either a frequency-division method or a time-division method.
- (E) Optical carrier
 - The transceiver transmission method shall employ a time-division method.
- (F) Microwave multiplex radio
 - (a) Installation of aerial line
 - a. The aerial line shall be supported with an appropriate and sufficiently strong support, such as a steel tower and steel pole.
 - b. The feeder shall use a waveguide.
 - (b) Transceiver
 - a. The frequency band to be used shall be either 6.5 GHz, 7.5 GHz or 12 GHz.
 - b. The modulation method shall use four-phase modulation and equipment in conformity to FEPC standards, as a rule.
- (G) Communication facility for power security other than phones
 - This standard shall be applied for installation of a communication facility other than a phone for power security such as load dispatching data transmission equipment and a protection signal terminal for power security.