Guidelines for Energy Resource Aggregation Business

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Agency for Natural Resources and Energy

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Chapter 1 General

Section 1 Energy Resource Aggregation Business

1. Background

In the conventional power system, the demand for electricity is assumed as a given, and the supplydemand balance of electricity is controlled centrally on the power grid side. However, the environment surrounding the electricity system is changing because of the development of integrated control technologies along with IoT development, in addition to the increasing share of renewable energy, such as solar power generation, and demand-side energy resources, such as storage batteries.

This has led to an increased focus on the energy resource aggregation business (hereinafter referred to as "ERAB") tackling energy saving to reduce conventional electricity consumption by using demand side resources (hereinafter referred to as "DSRs") and distributed energy resources (hereinafter referred to as "DERs"), as well as smartly changing demand patterns according to electricity supply conditions, which uses the so-called demand response (hereinafter referred to as "DR") and virtual power plant (hereinafter referred to as "VPP").

There are two possible ways of changing demand patterns: demand restraint and demand creation. The former is expected to contribute to the resolution of the supply-demand crunch by effective peak shaving and to rationalize power generation capacity while achieving a medium- to long-term stable supply by eliminating the need to increase or maintain inefficient thermal power generation and to build new peak power sources. The latter is considered to be used to contribute to the stabilization of electricity quality, including supply and demand balancing while making effective use of renewable energy, for example, by encouraging consumers to increase electricity consumption when electricity is in oversupply in association with the expanded introduction of renewable energy.



Figure 1. VPP Image and its Functions

2. Definitions of terms related to ERAB

ERAB refers to a business that provides various energy services, such as balancing capacity, supply capacity, imbalance avoidance, electricity rate cuts, and output control avoidance, by making use of a VPP and DR to general electricity Transmission/Distribution Service Operator (TSO/DSO) businesses (hereinafter referred to as TSO/DSO businesses), electricity retailers, consumers, renewable-energy utilities, and other customers. The definition of terms related to ERAB and their relationships are organized in the following Table 1 and Figure 2:



Figure 2. Terms related to ERAB and their relationships

NOTE: DR that encourages consumers to participate in DR with various electricity prices offered from electricity retailers by such means as raising electricity prices during peak hours and reducing electricity prices in the event of renewable energy output control.

Term	Definition
	A business that provides various energy services, such as balancing capacity, supply capacity, imbalance avoidance,
Energy Resource Aggregation	electricity rate cuts, and output control avoidance, by making use
Business (ERAB)	of a VPP and DR to general electricity TSO/DSO businesses,
	electricity retailers, consumers, renewable-energy utilities, and
	other customers.
	A generic term for energy resources (generation, storage, and load
Demand Side Resource (DSR)	facilities) connected at or downstream from the consumer's power
	receiving point (behind the meter).
Distributed Energy Resource	A generic term for generation and storage systems connected
(DER)	directly to the grid, in addition to DSRs.
Demand Response (DR)	A program to change electricity demand patterns by controlling DSRs.
	Technology whereby the DER owner or a third party controls the
Virtual Power Plant (VPP)	DER (including a reverse power flow from a DSR) to provide the
	same function as a power plant.
	A program where under a prior contract, an aggregator or other
Incentive-based DR	business implements DR for consumers based on commands from
	general electricity TSO/DSO businesses, electricity retailers, and
	other customers and receives an incentive (cash reward) in return.
	An operator that provides DR and VPP functions through
Aggregator	integrated control of DSRs and DERs.
	DR that restrains demand. This includes restraining the grid
	generated from power generation systems connected at or
Turn-down DR	downstream from the consumer's power receiving point and
	discharging electricity from storage systems (in particular
	incentive based turn down DP is called "negowett trading")
	DP that increases demand. This includes increasing the grid
	by that increases demand. This includes increasing the grid
	electricity consumption by reducing the amount of electricity
Turn-up DR	generated from power generation systems connected at of
	downstream from the consumer's power receiving point and
	charging storage systems. This is also called demand-creating
	DR.

Table 1. Terms related	to	ERAB	and	their	definitions
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Section 2 Purpose and scope of Guidelines for Energy Resource Aggregation Business

1. Purpose

The purpose of Guidelines for Energy Resource Aggregation Business (hereinafter referred to as the ERAB Guidelines) is to promote the diffusion of fair ERAB and thereby achieve and realize an efficient power system by establishing specific guidelines that serve as basic principles to be as reference for stakeholders with regard to issues that may become problematic in ERAB. The Guidelines shall be revised, as necessary, based on future program review and from the viewpoint of diffusion of ERAB.

2. Position

Rules and requirements for all trading activities between market operators and market participants in each market are set out in the respective guidelines. The ERAB Guidelines are positioned as reference guidelines for entering into private contracts for agreements and arrangements between the stakeholders required by aggregators and other businesses for their business activities.



Figure 3. Relationship between the ERAB Guidelines and other guidelines for respective markets and public offering

3. Scope of application

At present, considering the difference in maturity of the programs and trading practices, the Guidelines shall be applicable only for incentive-based turn-down DR, part of turn-up DR, and a part of reverse power flow.

4. Classification of incentive-based DR (turn-down DR)

Turn-down DR, which is a part of the incentive-type DR program, is classified into two categories: procurement of a demand restraint amount (negawatt) by an electricity retailer to achieve the planned simultaneous equal amount (hereinafter referred to as "Category 1") and procurement of a demand restraint amount by a general electricity TSO/DSO business to balance supply and demand (hereinafter referred to as "Category 2").

Category 1 is classified into two subcategories: procurement by an electricity retailer of a demand restraint amount generated by its consumers (hereinafter referred to as "Category 1-(1)") and procurement by an electricity retailer of a demand restraint amount generated by consumers of other electricity retailers (hereinafter referred to as "Category 1-(2)").

Category 2 is classified into two subcategories: procurement by a general electricity TSO/DSO business directly from an electricity retailer of a demand restraint amount generated by the consumers of the electricity retailer (hereinafter referred to as "Category 2-(1)") and procurement by a general electricity TSO/DSO business of a demand restraint amount through an aggregator (hereinafter referred to as "Category 2-(2)").

Category 2-(1) and Category 2-(2) are further classified into two types, respectively: procurement before grid connection (GC) (hereinafter referred to as "Category 2-(1) (before GC)" and "Category 2-(2) (before GC)") and procurement after GC (hereinafter referred to as "Category 2-(1) (after GC)" and "Category 2-(2) (after GC)").

The ERAB Guidelines are intended to be applied as described below. Figure 4 shows Categories of turn-down DR (in negawatt trading) and the intended scope of application of the ERAB Guidelines.

(1) Category 1-(1)

As private-to-private trading under this category, it is expected to provide diverse and attractive services in a free and competitive environment, businesses are encouraged to actively promote their ingenuity, while referring to the ERAB Guidelines.

(2) Category 1-(2)

Private-to-private trading under this category is conducted in the same manner as under Category 1-(1), but in this case, an aggregator, acting as a seller, will play a major role to achieve the planned simultaneous equal amount, and negawatt trading has an impact on electricity retailers (Retailer X in Figure 4; hereinafter referred to as "Supplier-Electricity Retailers") that enter into a power supply contract with consumers who are not a party to the negawatt trading but reduce demand. Accordingly, as accuracy and fairness are required more strongly compared to Category 1-(1), it is strongly encouraged to specifically apply the ERAB Guidelines.

(3) Category 2-(1)

A general electricity TSO/DSO business, a buyer, is ultimately responsible for balancing supply and demand, and conducts negawatt trading as part of its general electricity transmission/distribution business activities that should ensure neutrality. Rules for all trading activities between general electricity TSO/DSO businesses and electricity retailers that are market participants (some aggregators may also serve as electricity retailers) are set out in the respective guidelines. As accuracy and fairness are required with respect to agreements and arrangements between the stakeholders (electricity retailers, aggregators, and consumers) required for the conduct of ERAB, it is strongly encouraged to specifically apply the ERAB Guidelines.

(4) Category 2-(2)

A general electricity transmission/distribution business conducts negawatt trading under this category as part of its general electricity transmission/distribution business activities in the same manner as under Category 2-(1). Negawatt trading has an impact on Supplier-Electricity Retailers that enter into a power supply contract with consumers who are not a party to the negawatt trading but reduce demand. Rules for all trading activities between general electricity TSO/DSO businesses and aggregators that are market participants are set out in the respective guidelines. As accuracy and fairness are required with respect to agreements and arrangements between the stakeholders (aggregators, consumers, and Supplier-Electricity Retailers) required for the conduct of ERAB, it is strongly encouraged to specifically apply the ERAB Guidelines.

The ERAB Guidelines are also expected to be used as one of the criteria to monitor whether incentive-based DR is conducted fairly.



Figure 4. Categories of turn-down DR (in negawatt trading) and the intended scope of application of the ERAB Guidelines

5. Use cases of incentive-based DR (turn-down DR)

Category 1 of incentive-based DR (turn-down DR) is the turn-down DR procured and used by electricity retailers, and typical use cases currently assumed are as follows:

(1) Use cases of Category 1 (DR used by electricity retailers)

(i) Category 1-(1)

Turn-down DR implemented by electricity retailers by rewriting the plan before GC to optimize the planned value and increase profits (economic DR)

• Use Case 1

Implementing DR to reduce procurement from power plants with high unit cost

• Use Case 2

Implementing DR to sell at a higher price to other electricity retailers and the wholesale

electricity market and increase profits

Turn-down DR implemented by electricity retailers to reduce imbalance

• Use Case 3

Implementing DR avoid imbalance against unplanned demand fluctuations

(ii) Category 1-(2)

Turn-down DR by aggregators with consumers to whom other electricity retailers supply electricity, and use the reduced demand amount thereby

• Use Case 4

Implementing turn-down DR with consumers to whom other electricity retailers supply electricity, which is done by an aggregator contracted by an electricity retailer to purchase electricity at a relatively lower price level

• Use Case 5

Implementing turn-down DR with consumers to whom other electricity retailers supply electricity, which is done by an aggregator selling at the wholesale electricity market to make profits

(2) Use cases of Category 2 (DR used by general electricity TSO/DSO businesses to balance supply and demand)

Category 2 is turn-down DR procured and used by general electricity TSO/DSO businesses to balance supply and demand across the grid, and trading at a supply-demand balancing market and the like is assumed as follows:

(i) Category 2-(1) (before GC) and Category 2-(1) (after GC)

Turn-down DR by electricity retailers with consumers to whom they supply electricity, and provide the reduced demand amount to general electricity TSO/DSO businesses

• Use Case 6 (before GC)

Participation of electricity retailers in the procurement of balancing capacity directed before GC using resources owned by consumers to whom they supply electricity

Use Case 7 (after GC)
 Participation of electricity retailers in the supply-demand balancing market using resources owned by consumers to whom they supply electricity

(ii) Category 2-(2) (before GC) and Category 2-(2) (after GC)

Turn-down DR by aggregators with consumers to whom other electricity retailers supply electricity, and provide the reduced demand amount to general electricity TSO/DSO businesses

• Use Case 8 (before GC)

Participation of aggregators in the procurement of balancing capacity directed before GC using resources owned by consumers to whom other electricity retailers supply electricity

• Use Case 9 (after GC)

Participation of aggregators in the supply-demand balancing market using resources owned by consumers to whom other electricity retailers supply electricity

6. Matters to be covered by the ERAB Guidelines

The ERAB Guidelines provide guidance on the following matters:

		Item	Description	Chapter
	g method	Measuring points	Measuring points for assessment of the contribution amount by control	
	Measurin	Measuring interval	Interval to measure the amount of electricity contributed by control	
nt method	eria	Response assessment (kW assessment)	Response assessment of whether the contributed power value (kW) follows the value of command	Chapter
Assessme	Crit	Control amount assessment (kWh assessment)	Assessment of the contributed power value (kWh)	2
	ent time	Assessed time	Time to be assessed for response assessment and control amount assessment	
	Assessm	Assessment intervals	Intervals of response assessment and control amount assessment	
Rewa	rds and	penalties	Rewards to be paid as consideration for the amount of electricity contributed or penalties for failure to meet contractual requirements	Chapter 3
Matte Electr	ers for a	coordination with Supplier- etailers	Matters for coordination between aggregators and Supplier-Electricity Retailers when procuring a demand control amount from consumers to whom other companies supply electricity	Chapter 4

Table 2. Matters to be covered by the ERAB Guidelines

Chapter 2 Assessment method

As an assessment method of control amount, measuring method, assessment criteria, and assessed time need to be defined among aggregators, consumers, electricity retailers, and other stakeholders. This chapter presents the basic guidelines for an assessment method when a control amount is provided to electricity retailers (Category 1 for turn-down DR). The scope of coverage is as shown in Figure 5. When a control amount is provided to general electricity TSO/DSO businesses (Category 2 for turn-down DR), please follow the respective guidelines for procurement by general electricity TSO/DSO businesses.



Figure 5. Scope of coverage of Chapter 2

Section 1 Measuring method

1. Measuring points

Measuring points to assess the amount contributed by control are used for the following two types of measurements: power receiving point measurement and individual measurement.

(1) Power receiving point measurement

A power receiving point is a point of entry into the same premises as the power receiving location. Power receiving point measurement is a method of measurement using a meter installed between the power receiving point and an indoor distribution board (see Figure 6). Measuring points to assess the control amount are basically used for power receiving point measurement.

(2) Individual measurement

Individual measurement is a method of measurement other than at the power receiving point. There

are methods including that of using a meter¹ connected to an individual device (see Figure 7).

Individual measurement may be used for assessment only in the cases listed below.

(i) Category 1-(1)

Consideration may be paid to a consumer based on the control amount assessed by the meter installed at an individual measurement point, on the basis of proportional metering, only if there is an agreement between the consumer and the electricity retailer.

(ii) Category 1-(2)

Consideration and compensation for negawatts may be settled with a consumer based on the control amount assessed by the meter installed at an individual measurement point, on the basis of proportional metering² only if there is an agreement between the stakeholders (Supplier-Electricity Retailer, aggregator, and consumer).



Figure 6. Image of power receiving point measurements

¹ Under the current measurement system, measurement must be made using a specified measuring instrument inspected.

² The amount of electricity for each of all generation, storage, and load facilities at one power generation/receiving point shall be metered with the individual electricity meters.



Figure 7. Image of individual measurements

2. Measuring interval

The intervals at which the amount of electricity contributed by control is measured shall be agreed by the stakeholders (Supplier-Electricity Retailer, aggregator, and consumer), considering that assessment intervals are in 30-minute increments.

Section 2 Assessment criteria for turn-down DR

The amount of control must be assessed when consideration is paid to aggregators and consumers based on the amount of control (amount of electricity (kWh) contributed by control). The difference between the amount of electricity assumed in the absence of a control command (hereinafter referred to as the "Baseline") and the actual amount of electricity shall be assessed. The amount of control in the range of forward power flow is defined as the demand restraint amount. Figure 8 shows the concept of the amount of control in incentive-based DR (turn-down DR).



Figure 8. Concept of assessment of demand control amount in turn-down DR

1. Baseline setting methods

Basically, a Baseline is set on a per-consumer basis, but this does not preclude grouping multiple consumers into one unit. In particular, low-voltage consumers are expected to be set up as a group. However, for Category 1-(2), the grouping shall be made on the basis of a unit of consumers that have an electricity supply contract with the same electricity retailer.

In the process of calculating a Baseline, calculations shall be performed to a precision of decimal places, and finally rounded at the first decimal place to the nearest whole number in units of kilowatts (kW).

The Baseline setting methods for the respective categories are as follows.

(1) Category 1-(1)

When consideration is paid to aggregators and consumers based on the demand restraint amount, the Baseline shall be agreed by the aggregators and consumers with reference to the ERAB Guidelines.

(2) Category 1-(2)

There is requirement of a Baseline that can be agreed by the stakeholders (Supplier-Electricity Retailer, aggregator, and consumer), which should be essentially determined by mutual agreement, but from the viewpoint of reducing trading costs, the Standard Baseline shall be a High 4 of 5 Baseline (with a same-day adjustment). However, as a Standard Baseline may not always be appropriate depending on the demand pattern of consumers, a flexible response is not precluded, such as using the Alternative Baselines given in Reference 1, depending on the results of the Baseline tests shown in Reference 2. When a fixed amount contract (a contract for retail electricity supply according to the amount (fixed amount) determined in advance between an electricity retailer and a consumer) has been entered into between the Supplier-Electricity Retailer and the consumer who reduces demand, the fixed amount shall be adopted as the Baseline.

Section 3 Assessment criteria for turn-up DR

As a Baseline for turn-up DR, a High 4 of 5 Baseline (with a same-day adjustment), which is a Standard Baseline for turn-down DR, may be used, but it shall be determined by mutual agreement between the stakeholders, considering the conditions of implementation of turn-up DR.

Section 4 Assessment criteria for reverse power flow

The stakeholders shall consult to determine, as trading is conducted under the planned simultaneous equivalent amount system.

Section 5 Assessment time

1. Assessed time

Assessed time refers to the time subject to control amount assessment. The stakeholders need to consult to determine by mutual agreement whether or not the assessed time should include the startup time (from the time when the command is issued to the start of the duration time) and the recovery time (from the end of the duration time to the time of return to normal operation), as well as the duration time from the start to the end of the control (see Figure 9).



Figure 9. Definition of time categories of DR

2. Assessment intervals

Control amount assessment intervals shall be in 30-minute increments.

Chapter 3 Rewards and penalties

This chapter presents the basic guidelines for rewards and penalties between stakeholders (electricity retailers, aggregators, consumers, and Supplier-Electricity Retailers) required for the conduct of ERAB. The scope of coverage is as shown in Figure 10.



Figure 10. Scope of coverage of Chapter 3

There should be provisions for rewards to be paid as consideration for the amount of electricity contributed. Specifically, the value for capacity (basic reward) and the value for the amount of electricity (specific reward) should be established.

In order to ensure a stable supply, penalties may be imposed on consumers or aggregators to the extent of not imposing excessive burdens. Specifically, the stakeholders (electricity retailers, aggregators, and consumers) need to consult to determine by mutual agreement under what circumstances the contractual requirements are considered unmet and what penalties should be imposed.

Chapter 4 Matters for coordination with Supplier-Electricity Retailers in turndown DR

This chapter presents the basic guidelines for matters for coordination with aggregators and Supplier-Electricity Retailers for Category 1-(2) and Category 2-(2). The scope of coverage is as shown in Figure 11.



Figure 11. Scope of coverage of Chapter 4

It is essential for electricity retailers to grasp the demand amount in order to achieve the planned simultaneous equal amount. However, if an electricity retailer fails to obtain information on DR dispatch, it may misinterpret the demand reduction by DR as a normal demand reduction and decrease the amount of electricity procured. Accordingly, an imbalance may occur when the demand amount returns to normal after the implementation of DR and the electricity retailer may suffer unforeseen losses.

Therefore, when DR is dispatched by an aggregator, the electricity retailer that supplies electricity to the consumers concerned needs to obtain the dispatch information. When implementing DR, the stakeholders should determine the provisions on information sharing.

When a demand restraint is implemented in negawatt trading, the amount of electricity sold to consumers of the Supplier-Electricity Retailer will decrease; therefore, the Supplier-Electricity Retailer cannot recover the cost of procuring electricity equivalent to the reduced demand. On the other hand, the aggregator will conduct business by utilizing electricity equivalent to the relevant reduced demand. Accordingly, in order to adjust the cost-benefit gap between the Supplier-Electricity Retailer and the aggregator, the provisions on compensation (negawatt compensation) to be paid by the aggregator to the Supplier-Electricity Retailer should be set forth in an agreement between both parties.

For this purpose, approaches to information sharing with Supplier-Electricity Retailers and negawatt compensation are described below. With respect to an agreement on information sharing and negawatt compensation made between the businesses concerned, it is desirable to refer to the model contract described in Reference 4 for modification and use in accordance with the actual circumstances.

1. Information sharing

Information sharing is required only when procuring the demand restraint amount from consumers to whom other companies supply electricity. In the event of any inconvenience between the stakeholders, consultations shall be held as appropriate. Also, the ERAB Guidelines shall be revised as necessary.

(1) Category 1-(2) and Category 2-(2) (before GC)

Aggregators should, promptly after issuing DR command to consumers, provide Supplier-Electricity Retailers with information on the start and end time of DR dispatch and the demand restraint amount.

(2) Category 2-(2) (after GC)

It is necessary to share information required before providing the list of consumers, at the time of bidding, and at the time of provision of the reference values before GC.

(i) Before providing the list of consumers³

An agreement on negawatt compensation should have been made before aggregators provide the list of consumers to general electricity TSO/DSO businesses, and at the same time, the consumer information should be shared. Consumer information refers to information that can be used to identify consumers to whom Supplier-Electricity Retailers supply electricity, which is to be included in the list of consumers.

³ Information on the individual resources of contribution by aggregators. For more details, refer to the respective guidelines.

(ii) At the time of bidding

It is necessary to share information on controlled consumers and controlled hours (awarded hours), so that at the time of bidding, Supplier-Electricity Retailers can identify the consumers on the list of consumers, who are subject to control on the next day or in the next week.

(iii) At the time of provision of the reference values⁴ before GC

In the event of any change in the controlled consumers since the time of bidding, it is necessary to share information on the controlled consumers and reference values after the change with Supplier-Electricity Retailers. The reference values to be provided are reference values for groups of controlled consumers to whom the relevant retailer supplies and reference values for controlled hours (awarded hours). These should be shared without delay after the aggregators declare the reference values to general electricity TSO/DSO businesses.

2. Negawatt compensation

As for Category 1-(1) and Category 2-(1), there are no approaches to paying a negawatt compensation to electricity retailers, since a demand restraint is implemented according to the intention of electricity retailers.

In the case of Category 1-(2) and Category 2-(2), aggregators are required to pay Supplier-Electricity Retailers a negawatt compensation based on a demand restraint amount. Consultations shall be held when determining a negawatt compensation based on the actual trading situation and the viewpoint of diffusion of DR and VPP while paying attention to ensuring that the amount of negawatt compensation does not deviate from its purpose, for example, by making an excessive profit or loss only for certain businesses concerned. The businesses concerned shall cooperate in consultation to facilitate the negotiation of a negawatt compensation.

In the ERAB Guidelines, based on overseas cases, etc., examples of timing of when to make a negawatt compensation agreement and methods of calculating an amount of negawatt compensation are presented below. When a fixed amount contract has been entered into between a Supplier-Electricity Retailer and a consumer who reduces demand, payment of a negawatt compensation by an aggregator is not required, since the Supplier-Electricity Retailer can recover the cost of procuring electricity equivalent to the reduced demand.

2.1 Timing of when to make a negawatt compensation agreement

(1) Category 1-(2)

⁴ A demand amount assumed per electricity retailer and per 30 minutes without balancing by demand-side resources, which has been adjusted by a loss ratio set under the general provisions for wheeling service in the local area as planned (kilowatt-hour). Reference values are to be registered in the supply-demand balancing market system at least one hour before the start of the product block contracted. For more details, refer to the respective guidelines.

It shall be at least before DR dispatch.

(2) Category 2-(2) (before GC)

It shall be before the commencement of the term of contract with a general electricity TSO/DSO business.

(3) Category 2-(2) (after GC)

An agreement on negawatt compensation should have been made before aggregators provide the list of consumers to general electricity TSO/DSO businesses. When consumers are added to the list, a negawatt compensation agreement should have been made before the updated list of consumers is provided to general electricity TSO/DSO businesses. When entering into a negawatt compensation agreement, both aggregators and Supplier-Electricity Retailers shall willingly hold consultations in good faith based on a sufficient consideration of the consultation period required for both parties on a negawatt compensation agreement while considering the requirement that a negawatt compensation agreement should have been made before the list of consumers is provided.

2.2 Options for methods of calculating an amount of negawatt compensation

The following four patterns are presented as examples of options.

- a) Electricity rate unit price (actual value) consignment charge
 The actual retail price for consumers subject to DR minus the consignment charge
- b) Electricity rate unit price (reference value) consignment charge

The assumed retail price for consumers subject to DR minus the consignment charge Reference value example: Unit price published by a retail division of former general electricity utilities

c) Average price of Japan Electric Power Exchange (JEPX)

The calculation conditions are as follows:

- Adopted data (spot market) Either the system price or the area price⁵
- Calculation units (divisions) and calculation methods Calculations shall be made for each of the following divisions:
 - Peak hours: Weekdays (including Saturdays) from 10:00 to 17:00 in summer season (summer season = 7/1 to 9/30)
 - · Non-peak hours during daytime: Weekdays (including Saturdays) from 8:00 to 22:00,

⁵ Price for the area where consumers are located, to whom demand restraint is applied

except peak hours

• Nonpeak hours during nighttime: All hours, except peak hours and nonpeak hours during daytime

One of the following calculation methods shall be used for the above three divisions:

- Average of the past five days for the same division⁶
- Average in the last financial year for the same division

If there are no division settings, the average of the past five days or the average in the last financial year shall be used.

d) Spot market price of Japan Electric Power Exchange at the time of DR implementation

2.3 Basic methods of calculating an amount of negawatt compensation

Basically, "Item b) Electricity rate unit price (reference value) – consignment charge" shall be applied, based on the following viewpoints to be considered particularly, as well as the purpose of a negawatt compensation:

- Reduction of trading costs
 - It is desirable that specifying one basic calculation method leads to reduction of trading costs.
- Ensuring predictability

It is desirable that the level of negawatt compensation is predictable from the perspective of the aggregator business.

- Ensuring financial neutrality
- It is desirable to ensure financial neutrality, regardless of whether or not DR is dispatched and whatever the aggregator's business type is.

When creating a Baseline group for calculation, it is desirable to apply appropriate settings according to the actual conditions, such as the voltage classification of consumers.

In case that the application of the basic calculation method would result in making an excessive profit or loss for certain businesses concerned, the application of other calculation methods is not precluded, including addition and subtraction correction according to the business conditions, subject to mutual agreement of both parties with the rational reason shown.

⁶ The beginning of a season may date back to the previous fiscal year.

Reference 1. Types of Baselines

The types of Baselines and their setting methods are shown below.

1. Standard Baseline

1.1 High 4 of 5 Baseline (with a same-day adjustment)

Set the Baseline as described below, for the DR implementation date on weekdays and on Saturdays, Sundays, and holidays, respectively.

(1) DR implementation date on weekdays

(i) Calculate the average for each 30-minute unit of the demand data below.

Demand data for the four days of high average demand amount during the DR implementation hours out of the latest five days (exclusive of the day of the DR implementation date) from the DR implementation date (High 4 of 5). If there are multiple days with the lowest average demand amount during the DR implementation hours within the latest five days, exclude the furthest day from the DR implementation date and use the remaining four days. However, the following days shall be excluded from the latest five days, a parameter of the above data. In such a case, the value of the parameter is set to be five days by dating back further within the past thirty days (weekdays and Saturdays, Sundays, and holidays) from the DR implementation date⁷ (see Figure 12).

- Saturdays, Sundays, and holidays
- Past DR implementation dates
- Days with an average demand amount during the DR implementation hours, which is less than 25% of the total average demand amount during the DR implementation hours for the latest five days

⁷ If there are only four days of data on the demand amount, which is the parameter, the average for the four days of data shall be deemed to be the value as calculated under Item (i). If there are only less than four days, the past DR implementation date with the highest average demand amount during the DR implementation hours within the past thirty days from the relevant DR implementation date shall be added to the calculation target to obtain four days, for which the average shall be deemed to be the value as calculated under Item (i).



Figure 12. Concept of Exclusion dates for the weekday Baseline setting

- (ii) Calculate the average of the values: "Demand amount on the day of the DR implementation date Value calculated by the calculation method in Item (i) above," for 6 units in 30-minute increments
 5-2 hours prior to the DR implementation hours.
- (iii) The Standard Baseline is calculated by adding the value calculated under Item (ii) to the value calculated under Item (i) for each 30-minute unit during the DR implementation hours. However, if the calculated Baseline is negative, adjust the Baseline to zero during the hours of being negative.
- (2) DR implementation date on Saturdays, Sundays, and holidays
- (i) Calculate the average for each 30-minute unit of the demand data below.

Demand data for the two days of high average demand amount during the DR implementation hours out of the latest three days (exclusive of the day of the DR implementation date) from the DR implementation date (High 2 of 3)

If there are multiple days with the lowest average demand amount during the DR implementation hours within the latest three days, exclude the furthest day from the DR implementation date and use the remaining two days. However, the following days shall be excluded from the latest three days, a parameter of the above data. In such a case, the value of the parameter is set to be three days by dating back further within the past thirty days (weekdays and Saturdays, Sundays, and holidays) from the DR implementation date.⁸

⁸ If there are only two days of data on the demand amount, which is the parameter, the average for the

- Weekdays
- Past DR implementation dates
- Days with an average demand amount during the DR implementation hours, which is less than 25% of the total average demand amount during the DR implementation hours for the latest three days
- (ii) Calculate the average of the values: "Demand amount on the day of the DR implementation date Value calculated by the calculation method in Item (i) above," for 6 units in 30-minute increments
 5-2 hours prior to the DR implementation hours.
- (iii) The Standard Baseline is calculated by adding the value calculated under Item (ii) to the value calculated under Item (i) for each 30-minute unit during the DR implementation hours. However, if the calculated Baseline is negative, adjust the Baseline to zero during the hours of being negative.

2. Alternative Baseline

2.1 High 4 of 5 Baseline (without a same-day adjustment)

Use the values calculated in Item 1, (1), (i) above for the DR implementation date on weekdays or the values calculated in Item 1, (2), (i) above for the DR implementation date on Saturdays, Sundays, and holidays as the Baseline, respectively.

2.2 Equivalent day adoption method

- (i) Compared days shall be the days when DR was not implemented within the past 30 days (weekdays and Saturdays, Sundays, and holidays) from the DR implementation date.⁹
- (ii) Compared units shall be the units in 30-minute increments on a compared day excluding the DR implementation hours and 1 hour each immediately before and after such hours.
- (iii) For all compared days, calculate the squared error for each compared unit between the actual demand amount on the DR implementation date and the actual demand amount on a compared day, and then calculate the sum of squared errors (error sum of squares) for each compared day.
- (iv) Select the three days with the smallest error sum of squares calculated in Item (iii) above from among the compared days and calculate and use the average demand amount for each 30-minute unit for those three days as the Baseline.

Two days shall be deemed to be the value as calculated under Item (i). If there are only less than two days, the past DR implementation date with the highest average demand amount during the DR implementation hours within the past thirty days from the relevant DR implementation date shall be added to the calculation target to obtain two days for which the average shall be deemed to be the value as calculated under Item (i).

⁹ If there are only less than the three compared days, the data for the latest DR implementation date within the past thirty days shall be added to obtain the three compared days.

2.3 Pre-measurement

This Baseline is the average of the actual demand amount for a total of 6 units in 30-minute increments for 4-1 hours before the DR implementation hours on the day of the DR implementation date on a per-consumer basis. However, it is not recommended to use this Baseline for low-voltage consumers and consumers with large demand fluctuations.

2.4 Measurement of generators and other equipment

The applicability shall be determined based on the status of examination of various systems for flexible metrology, including individual measurements.¹⁰

¹⁰ The revised version on April 1, 2019 provided the following settings:

⁽i) This Baseline setting shall be approved on a per-generator or per-storage battery basis, only if it is not for daily use and an agreement between the buyer and the aggregator has been reached on negawatt trading which trades a demand restraint amount generated by reducing an amount of electricity purchased from the power grid by controlling the generator or storage battery capable of measuring the amount of electricity generated (discharged) as a single unit. Baseline testing is not required for this Baseline.

⁽ii) This Baseline shall be always set to zero, and a demand restraint amount traded in negawatt trading shall be the value measured by the dedicated meter installed on the generator or storage battery.

Reference 2 Baseline Test

A test of the Standard Baseline shall be conducted to confirm whether or not it is an appropriate estimation of the demand amount. Based on the result of the Baseline test, if the Standard Baseline is determined to be inappropriate, an Alternative Baseline shall be set from among the Baselines presented in Reference 1.

(1) Time to conduct

The test shall be conducted at the time of Baseline registration for new DR.

(2) Demand data used for Baseline test

Basically, a Baseline test uses the demand data in 30-minute increments from 8:00 a.m. to 8:00 p.m. for at least 60 days (hereinafter referred to as the "Calculated Dates") each in the latest summer season (from July to September) and winter season (from December to February of the following year), respectively, excluding DR implementation dates. For turn-down DR (Category 1), in the case of season-specific DR (e.g., negawatt trading conducted in either summer or winter only), the demand data in 30-minute increments from 8:00 a.m. to 8:00 p.m. for at least 60 days in the latest specific season (e.g., from July to September in summer or from December to February in winter) shall be used, excluding DR implementation dates.

(3) Handling in cases of lack of required demand data

If there is a lack of demand data required to conduct a Baseline test, Baseline tests can also be conducted using the demand data in 30-minute increments for over the last 60 days, excluding the DR implementation dates. When all the demand data needed for the Baseline test has been collected, conduct a Baseline test and set a new Baselines as necessary.

- (4) Conductor, verification, and approver
- (i) Conductor of a Baseline test

The aggregator shall conduct a Baseline test.

(ii) Verification and approver of test results

Test results for Category 1-(2) shall be approved by Supplier-Electricity Retailers. Test results for Category 2 shall meet the guidelines for procurement by general electricity TSO/DSO businesses. Results for Category 2 also need to be shared with Supplier-Electricity Retailers.

- (5) Conducting method
- (i) Calculate the relative root mean square error (RRMSE) for each of the time periods from 8:00 a.m. to 11:00 a.m., from 11:00 a.m. to 2:00 p.m., from 2:00 p.m. to 5:00 p.m., and from 5:00 p.m. to

8:00 p.m. (hereinafter referred to as the "Calculated Time Periods") as follows:

- a) Calculate a Baseline for the respective Calculated Time Periods on each of the calculated days, for which the Baseline test is conducted, and then calculate the error (= Baseline – Actual demand amount) for each 30-minute unit during the Calculated Time Periods.
- b) Calculate the root mean square error by dividing the sum of squares of error calculated in Itema) above for each unit for all the calculated days by the total number of units to be calculated.
- c) Calculate the average of the actual demand (hereinafter referred to as "Average Demand Amount") for each unit during the Calculated Time Periods for all the calculated days.
- d) Calculate the relative root mean square error by dividing the square root of the root mean square error calculated in Item b) above by the Average Demand Amount calculated in Item c) above.

The average of the relative root mean square error of the respective Calculated Time Periods as calculated in Item (i) above is used as the Baseline error.

(6) Baseline test method (example)

A specific example of Baseline test method is shown below. In this example, the Baseline test is conducted for a Standard Baseline using the demand data in 30-minute increments from 8:00 a.m. to 8:00 p.m. for 65 days each in the winter season (12/1-2/3) and summer season (7/1-9/3), respectively,

Procedure

1. Assume the implementation of DR for 8:00 to 11:00 and calculate the baseline for each day in the winter season (12/1-2/3) and summer season (7/1-9/3).

			Baseli	ine for 8 d	o'clock to	11 o'clocl	K (unit: kWh)
			8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00
	Г	Dec. 1 (Sun.)	99	110	117	125	114	121
		Dec. 2 (Mon.)	79	88	89	99	107	114
		Dec. 3 (Tue.)	89	85	92	1 05	89	94
		Dec. 4 (Wed.)	104	99	104	119	105	109
Winter season		Dec. 5 (Thu.)	85	94	95	104	109	122
		Dec. 6 (Fri.)	80	89	91	99	107	114
65 days		Dec. 7 (Sat.)	89	103	99	110	114	127
		Dec. 8 (Sun.)	80	92	90	99	107	114
		Feb. 1 (Sat.)	114	114	119	134	120	124
		Feb. 2 (Sun.)	110	104	110	124	1 0 9	117
	_		100	94	1.01	114	102	124
	_	Jul. 1 (Tue.)	99	113	1 09	120	124	132
		Jul. 2 (Wed.)	90	102	100	1 09	117	124
		Jul. 3 (Thu.)	104	115	122	130	119	126
		Jul. 4 (Fri.)	84	103	1 09	124	112	114
		Jul. 5 (Sat.)	94	105	107	115	119	129
		Jul. 6 (Sun.)	89	110	122	135	104	131
Summer season	1	Jul. 7 (Mon.)	1 0 9	108	114	129	117	119
65 days		Jul. 8 (Tue.)	99	103	104	120	104	112
00 44,0				·· ·	••		• • •	
		Sep. 1 (Wed.)	114	115	122	135	119	126
		Sep. 2 (Thu.)	109	103	1 09	124	112	114
	L	Sep. 3 (Fri.)	99	95	102	115	99	124

2. Calculate the error (= Baseline – Actual demand amount) for each 30-minute unit during 8:00 to 11:00 for each day in the winter season (12/1-2/3) and summer season (7/1-9/3).

		Error	for each	i unit		(un	it: kWh^2)
		8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00
Г	Dec. 1 (Sun.)	2	0	4	10	6	8
	Dec. 2 (Mon.)	-10	-11	-10	-9	-10	-10
	Dec. 3 (Tue.)	5	0	4	0	3	-2
	Dec. 4 (Wed.)	0	-10	6	-6	-10	-10
	Dec. 5 (Thu.)	9	4	20	-8	12	-10
Winter season	Dec. 6 (Fri.)	-2	0	4	4	-2	2
	Dec. 7 (Sat.)	-2	6	-2	7	3	4
65 days	Dec. 8 (Sun.)	-2	0	4	0	-2	-2
	Feb. 1 (Sat.)	-10	0	-8	12	-2	-2
	Feb. 2 (Sun.)	2	-8	-12	-18	-14	-10
L	Feb. 3 (Mon.)	0	4	4	-8	-10	0
	Jul 1 (Tue)	6	-2	0	-10	0	-8
ſ	Jul 2 (Wod)	0	7	0	0	4	4
	Jul 3 (Thu)	-2	0	-6	-10	6	-8
	1ul 4 (Fri)	-2	6	-8	3	-10	8
	Jul. 5 (Sat.)	2	0	4	4	-2	2
Summer season	Jul. 6 (Sun.)	6	6	-2	0	-7	4
	Jul. 7 (Mon.)	4	0	4	0	-2	-2
65 days	Jul. 8 (Tue.)	-2	6	-2	0	-3	4
	,						
	Sep. 1 (Wed.)	-10	8	-10	-4	-10	-10
	Sep. 2 (Thu.)	-2	6	-2	0	-2	4
L	Sep. 3 (Fri.)	-2	0	4	0	-2	-2

3. Calculate the root mean square error by dividing the sum of squares of error for each unit by the sum of the number of units for the Calculated Dates.

(A) Sum of squares of "error for each unit"	26,712	\leftarrow Sum of squares of error for each unit
(B) Number of units	780	\leftarrow 6 units/day × (Winter season: 65 days
		+ Summer season: 65 days)
(C) Root mean square error	34.25	\leftarrow (A)/(B)

4. Calculate the average of the demand amount (↔ "Average Demand Amount") during 8:00 to 11:00 for 12/1-2/3 and 7/1-9/3 (value for each unit (↔ average of the demand amount per 30 minutes)).
(D) Average of actual demand 108.54

5. Calculate RRMSE (8:00 to 11:00) by dividing the square root of the root mean square error by the Average Demand Amount.

(E) PRMSE (8 to 11 o'clock) 5.3	39%	$\leftarrow \sqrt{(C)/(D)}$
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6. Calculate RRMSE (11:00 to 14:00), RRMSE (14:00 to 17:00), and RRMSE (17:00 to 20:00) with

the same procedure as in Items 1 through 5 above.

(F) PRMSE (8 to 11 o'clock)	5.39%
(G) PRMSE (11 to 14 o'clock)	6.25%
(H) PRMSE (14 to 17 o'clock)	8.87%
(I) PRMSE (17 to 20 o'clock)	7.60%

Calculated using the same procedure as RRMSE (8 to 11 o'clock)

7. Calculate the average of RRMSE (8:00 to 11:00), RRMSE (11:00 to 14:00), RRMSE (14:00 to

17:00), and RRMSE (17:00 to 20:00) and use the average as the Baseline error for the test subject.

RRMSE	7.03%	\leftarrow ((E) + (F) + (G) + (H))/4

Assessment method

• If the above error is 20% or less \rightarrow In principle, apply the Standard Baseline setting.

• If the above error exceeds $20\% \rightarrow$ Conduct a Baseline test again for the desired Alternative Baseline setting.

Reference 3 Approaches to application of Alternative Baseline

- (1) Category 1-(2)
- (i) As a result of the Baseline test specified in Reference 2 conducted on the Standard Baseline, if the error exceeds 20% or the aggregator needs time to acquire and process the data for a same-day adjustment and is unable to submit the Standard Baseline at least one hour prior to the actual supply and demand, apply an Alternative Baseline setting as follows:
 - As a result of the Baseline test conducted on the desired Alternative Baseline setting, if the error is 20% or less, apply the Alternative Baseline setting.
 - As a result of the Baseline test conducted on the desired Alternative Baseline setting, if the error exceeds 20%, apply the Baseline setting agreed between the Supplier-Electricity Retailer and the aggregator.¹¹
 - If there is no desired Alternative Baseline setting, apply the Baseline setting agreed between the Supplier-Electricity Retailer and the aggregator.¹²
- (ii) As a result of the Baseline test conducted on the Standard Baseline, even if the error is 20% or less, but if the error for the Baseline test conducted on the desired Alternative Baseline is lower than that for the Standard Baseline, apply the desired Alternative Baseline setting. If the error for the desired Alternative Baseline is higher than that for the Standard Baseline, apply the Standard Baseline setting or the Baseline setting agreed between the Supplier-Electricity Retailer and the aggregator.
- (iii) When setting an Alternative Baseline, careful consideration shall be given to whether there are any concerns about activities aiming at increasing profits with the Baseline being set higher than it should be, by intentionally increasing the demand amount during the hours used to calculate the Baseline.
- (2) Category 2

It shall be in accordance with the relevant guidelines for procurement by general electricity TSO/DSO businesses.

¹¹ If no agreement can be reached on the Baseline, it is assumed that negawatt trading under the relevant category may not be conducted for the consumers concerned.

¹² If no agreement can be reached on the Baseline, it is assumed that negawatt trading under the relevant category may not be conducted for the consumers concerned.

• Baseline setting method (Category 1-(2))



* If no agreement can be reached on the Baseline, it is assumed that the negawatt trading cannot be implemented for the interested consumers.

Figure 13. Baseline setting method flowchart

Reference 4 Model Contract

Contract for Demand Restraint

This Contract (hereinafter referred to as the "Contract") is made and entered into by and between [company name of aggregator] (hereinafter referred to as the "Aggregator") and [company name of electricity retailer] (hereinafter referred to as the "Retailer") for supply (hereinafter referred to as the "Supply") by the Aggregator to [*******] of the amount of electricity generated by demand restraint of the Retailer's consumers (as defined below), on the following conditions:

Target consumers

- Name of target consumers: *********
- Supply point identification number: *********
- Demand restraint planned amount of electricity: ******** kW
- Demand restraint planned period: [month] 2020 [month] 2021
- Demand restraint planned hours: **:** **:**

Article 1 (Supply)

1.1 The Aggregator and the Retailer shall consult with each other in relation to the Supply under the provisions hereof for the purpose of ensuring that the Aggregator provides the Supply, and the Retailer secures the supply capacity therefor.

Article 2 (Term of Contract)

- 2.1 The term of this Contract shall be from [month] [day], 2020, to [month] [day], 2021.
- 2.2 If the supply period under the Contract between the Retailer and the target demand location is extended, the term of this Contract shall also be extended for the same period.

Article 3 (Calculation of Compensation)

- 3.1 The Aggregator shall pay to the Retailer as consideration for the Supply a compensation specified in the following paragraphs.
- 3.2 The compensation shall be the sum of the amounts obtained by multiplying the demand restraint amount per 30 minutes by the unit price of the compensation specified in the following paragraph.
- 3.3 The compensation unit price shall be determined per 30 minutes and shall be the amount calculated according to ******* (calculation method of compensation), corresponding to ******** (a, b, c, d) of the Guidelines for Energy Resource Aggregation Business, including the amount equivalent to consumption taxes.

Article 4 (Compensation Calculation Period)

4.1 The compensation calculation period shall be the period from the first day of each month until the last day of the month; provided, however, that at the time of starting the application of compensation or terminating the Contract, such compensation calculation period shall be the period from the start date until the last day of the month in which the start date occurs, or the period from the first day of the month in which the termination date of the Contract occurs until the day before the termination date (or the period from the first day of the month in which the termination date in the event of special circumstances).

Article 5 (Calculation of Demand Restraint Amount of Electricity)

- 5.1 The demand restraint amount per 30 minutes shall be calculated in accordance with the items below. The baseline (defined as a planned value of demand amount without demand restraint to be used as a standard when a demand restraint is implemented; the same shall apply hereinafter) shall be calculated in accordance with ********** (the Guidelines for Energy Resource Aggregation Business or the relevant guidelines for procurement by general electricity TSO/DSO businesses).
 - (1) When the demand amount exceeds the baseline,

The demand restraint amount shall be set to zero.

(2) When the demand amount is equal to or lower than the baseline,

The value shall be calculated by the following formula.

Demand restraint amount = Baseline - Demand amount

* However, the upper limit of the demand restraint amount shall be the planned value of demand restraint amount.

Article 6 (Data Collection and Payment Dates/Payment Method for Compensation)

6.1 The compensation shall be calculated on a monthly basis, the data of which shall be collected at the end of each month by the Aggregator, who shall submit to the Retailer a document provided by the general electricity TSO/DSO business that controls the area to which the target consumers belong; the baseline calculated by the Aggregator for each day per 48 units, the demand restraint balancing planned power receiving amount (planned restraint value), connected power supply amount (actual amount of electricity), and the amount of electricity connected (actual amount of electricity divided by loss ratio) by the deadline of ******* with the consent of the Retailer; the Retailer shall check the restraint amount and the amount of the compensation and issue an invoice to the Aggregator based thereon by the deadline of *******; provided, however, that if such general electricity TSO/DSO business delayed in notifying the Aggregator of the restraint amount, the Aggregator shall notify the Retailer to that effect and the expected date of notification of the restraint amount and the compensation. The Retailer shall, upon receipt of

the notification of the restraint amount and the compensation, check the amounts and issue an invoice to the Aggregator by the due date of *******. The Aggregator shall pay by bank transfer to the account of the financial institution designated by the Retailer by the deadline of *******. The above procedure may be omitted for months in which there was no dispatch.

Article 7 (Provision of information on demand Restraint)

7.1 The Aggregator shall provide the Retailer with information on the start and end time of the dispatch for demand restraint and the planned demand restraint amount, as soon as possible after the demand restraint command is issued.

Article 8 (Termination by Agreement)

8.1 If either the Aggregator or the Retailer, who wishes to terminate this Contract, in whole or in part for unavoidable reasons, notifies the other party to that effect in writing in advance and reaches an agreement through good-faith consultation with the other party, this Contract may be terminated in whole or in part.

Article 9 (Termination of Contract)

- 9.1 If either the Aggregator or the Retailer is in breach of any provisions of this Contract, the other party shall give a written demand for performance of this Contract. If the party who received the written demand fails to perform this Contract after a lapse of ******* days after the demand is given, the party who gave the demand may terminate this Contract for reasons attributable to the other party. If the Aggregator or the Retailer is in breach of any provisions of this Contract and its performance is ever objectively impossible into the future or is under any of the following circumstances, the other party may terminate this Contract without any notice to the party who is in breach or under such circumstances:
 - (1) Filing of a petition for commencement of bankruptcy proceedings, civil rehabilitation proceedings, corporate reorganization proceedings, or special liquidation
 - (2) Filing of a petition for compulsory execution, seizure, provisional seizure, or auction
 - (3) Subject to suspension of trading by a clearinghouse
 - (4) Subject to a disposition for delinquency of taxes and public dues
- 9.2 If the contract for balancing capacity entered into by the Aggregator is ended or terminated, this Contract shall also terminate automatically.

Article 10 (Succession to Contract) [This article may be deleted, if not needed.]

10.1 The Aggregator or the Retailer shall, when merging with a third party or transferring all of its business or any part of its business related to this Contract to a third party, notify the other party in writing to that effect in advance, and with the acknowledgment of the other party, the successor may succeed to this Contract.

Article 11 (Response to Antisocial Forces)

- 11.1 The Aggregator and the Retailer may terminate this Contract immediately without any notice or demand if the other party is under any of the following circumstances; in such a case, the party who caused the termination of this Contract shall not make a claim for damages or any other claim:
 - (1) The representative, responsible person, person who substantially controls the management rights, or officer or the representative of its branch office or the office with which this Contract is executed of the other party is recognized as an organized crime group, organized crime group member, organized crime group associate, organized crime group related person, corporate racketeer, or other similar person (hereafter collectively referred to as "Antisocial Forces")
 - (2) Antisocial Forces are deemed to be substantially involved in management
 - (3) Using Antisocial Forces is discovered
 - (4) Involvement in providing funds or other benefits to Antisocial Forces is discovered (except when the Retailer supplies electricity under an electricity supply and demand contract)
 - (5) Having a socially reprehensible relationship with Antisocial Forces is discovered
 - (6) Any of the following acts against the other party is committed by itself or by using a third party
 - a. Acts of violent demands
 - b. Acts of demands that exceed legal liability
 - c. Threatening behavior or violent acts regarding trading
 - d. Acts of spreading false rumors, damaging the other party's reputation, or obstructing the other party's business by using fraudulent means or power
- 11.2 The Aggregator and the Retailer shall pledge that they are not under the circumstances described in the preceding paragraph and pledge that they will not be under the circumstances described in the preceding paragraph in the future.

Article 12 (Damages)

12.1 If the Aggregator or the Retailer is in breach of this Contract and causes damage (not including consequential loss and special damage) to the other party or a third party for reasons attributable to itself, the party who caused such damage shall be liable for compensation therefor.

Article 13 (Amount Equivalent to Consumption Taxes)

13.1 As used in this Contract, the amount equivalent to consumption taxes shall means the amount equivalent to the consumption tax imposed under the provisions of the Consumption Tax Act and the local consumption tax imposed under the provisions of the Local Tax Act.

Article 14 (Units and Rounding Fractions) [This article may be deleted, if not needed.]

14.1 In this Contract, the unit for calculating rates and other amounts shall be one (1) yen, and the fractions shall be rounded down. If the amount equivalent to consumption taxes defined in the preceding article is added to the amount of payment, the unit for both the amount taxable under the consumption tax and the amount equivalent to consumption taxes shall be one (1) yen, and the fractions shall be rounded down.

Article 15 (Operation Details) [This article may be deleted, if not needed.]

15.1 Details necessary for the operation under this Contract shall be determined by separate agreement between the Aggregator and the Retailer.

Article 16 (Agreed Jurisdiction and Governing Law)

- 16.1 Any and all disputes relating to the interpretation or performance of this Contract shall be subject to the exclusive jurisdiction of the ******* court in the first instance.
- 16.2 This Contract shall be construed and take legal effect fully in accordance with the laws of Japan.

Article 17 (Duty of Confidentiality)

- 17.1 The Aggregator and the Retailer shall not disclose to any third party the fact of the execution of this Contract and any information related to this Contract and trading under this Contract (hereinafter referred to as "Confidential Information"); provided, however, that this shall not apply in the case of disclosure with the prior consent of the other party, disclosure to the general electricity TSO/DSO business that controls the area to which the target consumers belong for the purpose of fulfilling the contract for balancing supply capacity, or disclosure to a supervisory authority in response to a request by such supervisory authority under the Electricity Business Act and other laws and regulations.
- 17.2 The Aggregator and the Retailer shall not use Confidential Information for any purpose other than the performance of this Contract.
- 17.3 This article shall survive the termination of this Contract and remain in perpetuity and in full force and effect.

Article 18 (Modification of the Contract)

18.1 This Contract cannot be modified without the written consent of the Aggregator and the Retailer.

Article 19 (Matters for Consultation)

19.1 Matters not covered by this Contract shall be governed by the general provisions for wheeling services and grid operation rules of the general electricity TSO/DSO business that controls the area to which the target consumers belong and the general provisions for electricity purchase of

the Retailer (hereinafter referred to as "Contract Provisions").

- 19.2 In the event of any revision of the grid operation rules or Guidelines for Energy Resource Aggregation Business, and operations related to negawatt trading, this Contract shall be revised accordingly.
- 19.3 Any exceptional matters that are difficult to be governed by Contract Provisions shall be determined by consultation between the Aggregator and the Retailer in good faith on a case-by-case basis.

In witness whereof, the parties hereto have executed this instrument in duplicate to be signed and sealed by the Aggregator and the Retailer with each party holding one copy.

[month] [day], 2020

Aggregator:	Address
	Trade name
	[name], President and Representative Director
Retailer:	*****
